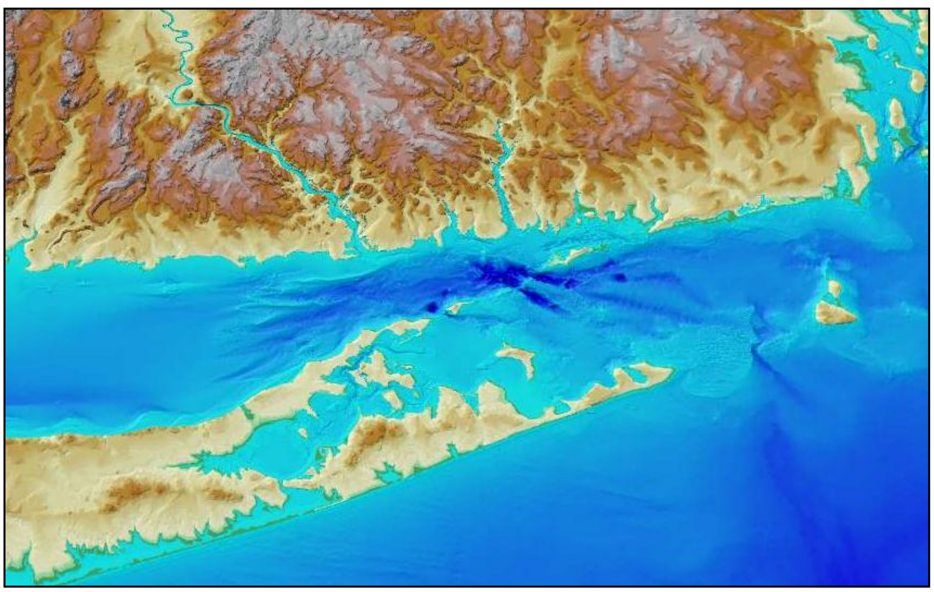
Supplemental Environmental Impact Statement for the Designation of Dredged Material Disposal Site(s) in Eastern Long Island Sound, Connecticut and New York

APPENDIX A

Public Involvement



Prepared for: **United States Environmental Protection Agency**

Sponsored by: **Connecticut Department of Transportation**

Prepared by: **Louis Berger**

with support from

University of Connecticut

November 2015

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APPENDIX A

PUBLIC INVOLVEMENT

Prepared for:
United States Environmental Protection Agency
5 Post Office Square, Suite 100
Boston, MA 02109

Sponsored by:
Connecticut Department of Transportation
Waterways Administration
2800 Berlin Turnpike
Newington, CT 06131-7546

Prepared by:
Louis Berger
117 Kendrick Street
Needham, MA 02494

with support from

University of Connecticut
Department of Marine Sciences
1080 Shennecossett Road
Groton, CT 06340

November 2015

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Appendix A-1

PUBLIC INVOLVEMENT SUMMARY

The Environmental Impact Statement (EIS) process ensures that the public is offered an opportunity for involvement in assessing projects that are subject to environmental review under the National Environmental Policy Act (NEPA) Section 102 and EPA's voluntary NEPA compliance policy. Federal regulations that guide compliance with NEPA for agencies such as USEPA (under 40 CFR Parts 6 and 25) and the U.S. Army Corps of Engineers (under 33 CFR Part 230) and regulations from the Council of Environmental Quality (40 CFR 1500 et seq.) require a public involvement program. An extensive public involvement program was conducted throughout the development of this SEIS to provide the public with information on the EIS process, the progress of studies for the Draft SEIS, and to create opportunities for the public to provide input and comment on the development of this SEIS. In addition, the Public was supplied with information needed to understand the issues surrounding disposal of dredged material in order to make informed comments, and to ask pertinent questions.

This appendix includes the documents that were produced during the public involvement process. Below is a list of documents included in this appendix.

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Appendix A-2

NOTICE OF INTENT

CFR 4.36. Comments, motions to intervene, notices of intent, and competing applications may be filed electronically via the Internet. See 18 CFR 385.2001(a)(1)(iii) and the instructions on the Commission's Web site *http://www.ferc.gov/docs-filing/efiling.asp*. Commenters can submit brief comments up to 6,000 characters, without prior registration, using the eComment system at *http://www.ferc.gov/docs-filing/ecomment.asp*. You must include your name and contact information at the end of your comments. For assistance, please contact FERC Online Support at *FERCOnlineSupport@ferc.gov* or toll free at 1–866–208–3676, or for TTY, (202) 502–8659. Although the Commission strongly encourages electronic filing, documents may also be paper-filed. To paper-file, mail an original and seven copies to: Kimberly D. Bose, Secretary, Federal Energy Regulatory Commission, 888 First Street NE., Washington, DC 20426.

More information about this project, including a copy of the application, can be viewed or printed on the ''eLibrary'' link of Commission's Web site at *http://www.ferc.gov/docs-filing/elibrary.asp*. Enter the docket number (P–13432) in the docket number field to access the document. For assistance, contact FERC Online Support.

Dated: October 10, 2012.

Kimberly D. Bose,

Secretary.

[FR Doc. 2012–25398 Filed 10–15–12; 8:45 am]

BILLING CODE 6717–01–P

ENVIRONMENTAL PROTECTION AGENCY

[FRL–9741–9]

Notice of Intent: Designation of an Ocean Dredged Material Disposal Site (ODMDS) in Eastern Long Island Sound; Connecticut, New York, and Rhode Island

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice of Intent to prepare a Supplemental Environmental Impact Statement (SEIS) to evaluate the potential designation of one or more Ocean Dredged Material Disposal Sites (ODMDS) to serve the eastern Long Island Sound region (Connecticut, New York, and Rhode Island).

SUMMARY: EPA is authorized to designate ODMDS under section 102(c) of the Marine Protection, Research and Sanctuaries Act (MPRSA). EPA is preparing the SEIS in accordance with the Agency's Statement of Policy for Voluntary Preparation of National Environmental Policy Act documents for all ocean disposal site designations. The SEIS will update and build on the analyses that were conducted for the 2005 Long Island Sound Environmental Impact Statement that supported the designation of the Central and Western Long Island Sound disposal sites. The following federal and state agencies have expressed interest in serving as cooperating agencies: U.S. Army Corps of Engineers (USACE), New England and New York Districts; National Oceanic and Atmospheric Administration, National Marine Fisheries Service; Connecticut Department of Energy and Environmental Protection; Connecticut Department of Transportation; New York Department of State; Rhode Island Department of Environmental Management; and Rhode Island Coastal Resources Management Council.

SUPPLEMENTARY INFORMATION: The primary statutes governing the open-water disposal of dredged material in the United States are the MPRSA and the Clean Water Act (CWA). The waters of Long Island Sound are *landward* of the baseline from which the territorial sea of the United States is measured. As with other waters lying landward of the baseline, all dredged material disposal activities in Long Island Sound, whether from federal or non-federal projects of any size, are subject to the requirements of section 404 of the CWA. The MPRSA generally only applies to dredged material disposal in waters *seaward* of the baseline and would not apply to Long Island Sound but for the 1980 amendment that added section 106(f) to the statute. This provision requires that the disposal of dredged material in Long Island Sound from federal projects (projects carried out under the USACE civil works program or by other federal agencies) and non-federal projects generating more than 25,000 cubic yards of material must comply with the requirements of both CWA section 404 and the MPRSA. This applies to both the designation of specific disposal sites and the assessment of the suitability of specific dredged material for disposal. Disposal from non-federal projects involving 25,000 cubic yards or less of dredged material, however, is subject only to CWA section 404.

Need for Action: Dredging is essential for maintaining safe navigation in ports and harbors in the eastern Long Island Sound region. Over the past approximately 30 years, dredged material from eastern Long Island Sound has been disposed of primarily at the New London and Cornfield Shoals disposal sites. These two sites, both of which were selected by the USACE for short-term use, expire on December 16, 2016.

Therefore, EPA has decided to prepare an SEIS to evaluate the two current sites used in eastern Long Island Sound as well as other sites for, and means of, disposal and management, including the no action alternative. The SEIS will support the EPA's final decision on whether one or more dredged material disposal sites will be designated under the MPRSA. The SEIS will include analysis applying the five general and eleven specific site selection criteria for designating ocean disposal sites presented in 40 CFR 228.5 and 228.6, respectively. Designation of a site does not by itself authorize or result in disposal of any particular material; it only serves to make the designated site a disposal option available for consideration in the alternatives analysis for each individual dredging project in the area.

Alternatives: In evaluating the alternatives, the SEIS will identify and evaluate locations within the eastern Long Island Sound study area using the aforementioned criteria to determine the sites that are best suited to receive dredged material for open-water disposal. At a minimum, the SEIS will consider alternatives including:

- No-action (i.e., no designation of any sites);
- Designation of one or both of the currently active USACE-selected sites;
- Designation of alternative open-water sites identified within the study area that may offer environmental advantages to the existing sites; and
- Identification of other disposal and/or management options, including beneficial uses.

Scoping: EPA is requesting written comments from federal, state, and local governments, industry, non-governmental organizations, and the general public on the need for action, the range of alternatives considered, and the potential impacts of the alternatives. Scoping comments will be accepted for 45 days from the date of this notice. Public scoping meetings are scheduled at two locations on the following dates: November 14, 2012, 4–7 p.m. at the University of Connecticut, Avery Point auditorium in Groton, CT (*http://www.averypoint.uconn.edu/about/directions.html*) and November 15, 2012, 3–6 p.m. at the Port Jefferson Village Center in Port Jefferson, NY (*http://www.portjeff.com/village-map/*). Registration for both meetings will begin a half-hour before the meeting (3:30

p.m. on November 14 and 2:30 p.m. on November 15).

FOR FURTHER INFORMATION CONTACT: For further information and to be placed on the project information distribution list, please contact: Ms. Jean Brochi, U.S. EPA, Region 1, 5 Post Office Square, Suite 100, OEP06–1, Boston, MA 02109–3912, (617) 918–1536, *ELIS@epa.gov*. Please contact Ms. Brochi should you have special needs (sign language interpreters, access needs) at the above address or our TDY#, (617) 918–1189.

Estimated Date of the Draft SEIS Release: September 30, 2014.

Dated: October 4, 2012.

H. Curtis Spalding,

Regional Administrator, EPA New England.

[FR Doc. 2012–25420 Filed 10–15–12; 8:45 am]

BILLING CODE 6560–50–P

ENVIRONMENTAL PROTECTION AGENCY

[FRL–9741–4]

Notice of Meeting of the EPA's Children's Health Protection Advisory Committee (CHPAC)

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice of meeting.

SUMMARY: Pursuant to the provisions of the Federal Advisory Committee Act, Public Law 92–463, notice is hereby given that the next meeting of the Children's Health Protection Advisory Committee (CHPAC) will be held November 7 and 8, 2012 at EPA's Potomac Yards Building (2777 South Crystal Drive, Arlington, VA 22202), Room 4120 North. The CHPAC was created to advise the Environmental Protection Agency on science, regulations, and other issues relating to children's environmental health.

DATES: The CHPAC will meet November 7 and 8, 2012.

ADDRESSES: 2777 South Crystal Drive, Arlington, VA 22202.

FOR FURTHER INFORMATION CONTACT: Martha Berger, Office of Children's Health Protection, USEPA, MC 1107A, 1200 Pennsylvania Avenue NW., Washington, DC 20460, (202) 564–2191 or *berger.martha@epa.gov*.

SUPPLEMENTARY INFORMATION: The meetings of the CHPAC are open to the public. The CHPAC will meet on Wednesday, November 7th from 9 a.m. to 5 p.m., and Thursday, November 8th from 9 a.m. to 12 p.m. Agenda items include discussions on lead and children, prenatal environmental exposures and health disparities.

Access and Accommodations: For information on access or services for individuals with disabilities, please contact Martha Berger at 202–564–2191 or *berger.martha@epa.gov.,* preferably at least 10 days prior to the meeting.

Dated: October 4, 2012.

Martha Berger,

Designated Federal Official.

[FR Doc. 2012–25424 Filed 10–15–12; 8:45 am]

BILLING CODE 6560–50–P

EQUAL EMPLOYMENT OPPORTUNITY COMMISSION

SES Performance Review Board; Appointment of Members

AGENCY: Equal Employment Opportunity Commission.

ACTION: Notice.

SUMMARY: Notice is hereby given of the appointment of members to the Performance Review Board of the Equal Employment Opportunity Commission.

FOR FURTHER INFORMATION CONTACT: Lisa M. Williams, Chief Human Capital Officer, U.S. Equal Employment Opportunity Commission, 131 M Street NE., Washington, DC 20507, (202) 663–4306.

SUPPLEMENTARY INFORMATION: Publication of the Performance Review Board (PRB) membership is required by 5 U.S.C. 4314(c)(4). The PRB reviews and evaluates the initial appraisal of a senior executive's performance by the supervisor, and makes recommendations to the Chair, EEOC, with respect to performance ratings, pay level adjustments and performance awards.

The following are the names and titles of executives appointed to serve as members of the SES PRB. Members will serve a 12-month term, which begins on October 22, 2012.

PRB Chair

Mr. Reuben Daniels, Director, Charlotte District Office, Equal Employment Opportunity Commission.

Members

Mr. Kevin J. Berry, Director, New York District Office, Equal Employment Opportunity Commission;

Ms. Katherine E. Bissell, Deputy Solicitor for Regional Enforcement, Department of Labor;

Ms. Kathryn A. Ellis, Assistant General Counsel, Division of Educational Equity and Research, and Agency Dispute Resolution Specialist, Department of Education;

Mr. James L. Lee, Deputy General Counsel, Equal Employment Opportunity Commission;

Mr. Webster N. Smith, Director, Indianapolis District Office, Equal Employment Opportunity Commission.

Alternate

Mr. Dexter R. Brooks, Director, Federal Sector Programs, Equal Employment Opportunity Commission.

Dated: October 11, 2012.

By the direction of the Commission.

Jacqueline A. Berrien,

Chair.

[FR Doc. 2012–25443 Filed 10–15–12; 8:45 am]

BILLING CODE 6570–01–P

FEDERAL COMMUNICATIONS COMMISSION

Information Collection(s) Being Submitted for Review and Approval to the Office of Management and Budget (OMB)

AGENCY: Federal Communications Commission.

ACTION: Notice; request for comments.

SUMMARY: As part of its continuing effort to reduce paperwork burden and as required by the Paperwork Reduction Act (PRA) of 1995 (44 U.S.C. 3502–3520), the Federal Communications Commission invites the general public and other Federal agencies to take this opportunity to comment on the following information collection(s). Comments are requested concerning: whether the proposed collection of information is necessary for the proper performance of the functions of the Commission, including whether the information shall have practical utility; the accuracy of the Commission's burden estimates; ways to enhance the quality, utility, and clarity of the information collected; ways to minimize the burden of the collection of information on the respondents, including the use of automated collection techniques or other forms of information technology; and ways to further reduce the information collection burden on small business concerns with fewer than 25 employees.

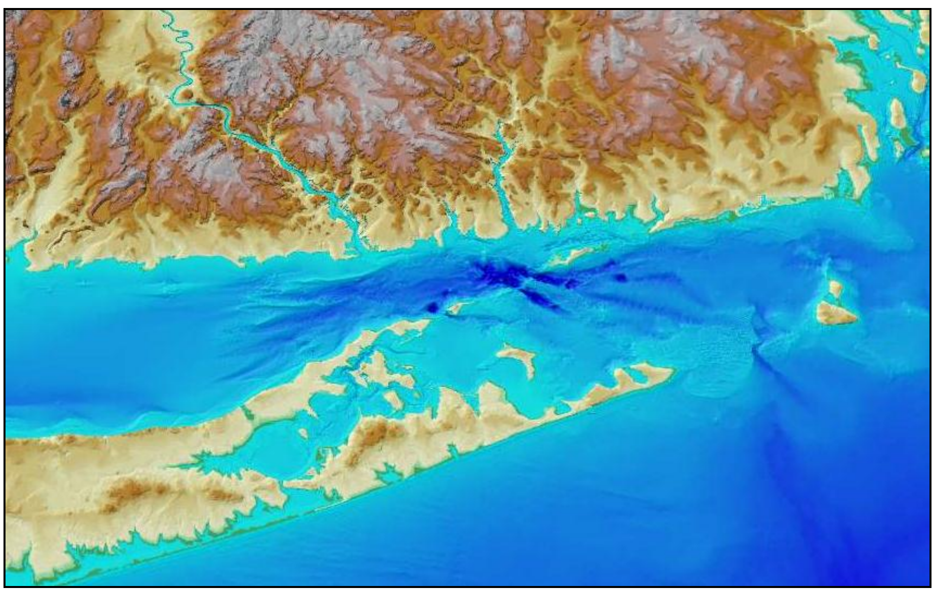
The FCC may not conduct or sponsor a collection of information unless it displays a currently valid OMB control number. No person shall be subject to any penalty for failing to comply with a collection of information subject to the Paperwork Reduction Act (PRA) that does not display a valid OMB control number.

Appendix A-3

REPORT OF PUBLIC SCOPING MEETINGS 1 AND 2

Supplemental Environmental Impact Statement for the Designation of Dredged Material Disposal Sites in Eastern Long Island Sound, Connecticut and New York

Report of Public Scoping Meetings 1 (Groton, CT) and 2 (Riverhead, NY) Regarding the Notice of Intent



Prepared for: **United States Environmental Protection Agency**

Sponsored by: **Connecticut Department of Transportation**

Prepared by: **The Louis Berger Group, Inc.**
(under contract to the University of Connecticut)

July 2013

Supplemental Environmental Impact Statement for the Designation of Dredged Material Disposal Sites in Eastern Long Island Sound, Connecticut and New York

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REPORT OF PUBLIC SCOPING MEETINGS 1 (GROTON, CT) AND 2 (RIVERHEAD, NY) REGARDING THE NOTICE OF INTENT

Held on November 14, 2012 (Groton), and January 9, 2013 (Riverhead)

Prepared for:

United States Environmental Protection Agency

5 Post Office Square, Suite 100
Boston, MA 02109

Sponsored by:

Connecticut Department of Transportation

Waterways Administration
2800 Berlin Turnpike
Newington, CT 06131-7546

Prepared by:

The Louis Berger Group, Inc.

117 Kendrick Street
Needham, MA 02494

Subcontractor to:

University of Connecticut

Department of Marine Sciences
1080 Shennecossett Road
Groton, CT 06340

July 8, 2013

Table of Content

page

EXECUTIVE SUMMARY

This report provides a summary of the first two scoping meetings as part of the Supplemental Environmental Impact Statement (SEIS) process for the designation of dredged material disposal sites in Eastern Long Island Sound. The SEIS will supplement the Environmental Impact Statement (EIS) for the designation of dredged material disposal sites in the Western and Central Long Island Sound, completed in 2004. The SEIS is prepared for the U.S. Environmental Protection Agency (USEPA), and supported by the Connecticut Department of Transportation (CTDOT). The study will be conducted in consultation with other federal and state agencies of New York State and Connecticut, as well as with consultation of the public.

The two scoping meetings were held in Groton (CT) on November 14, 2012, and in Riverhead (NY) on January 9, 2013. The primary purpose of these meetings was to solicit public input on the Notice of Intent to proceed with a potential designation of one or more dredged material disposal sites. The comment period was extended to January 31, 2013. Comments were received at the meeting (orally and in hardcopy format) as well as by electronic transmittal to *ELIS@epa.gov*.

1. Introduction

In 2005, the USEPA designated the Western and Central Long Island Sound dredged material disposal sites, following the preparation of an EIS. The two disposal sites in the Eastern Long Island Sound, Cornfield Shoals and New London, are scheduled to close in December 2016. The EPA plans to prepare a Supplemental EIS (SEIS) for the potential designation of one or more disposal sites needed to serve the Eastern Long Island Sound region (as stated in the Notice of Intent; Attachment 1). The SEIS will be prepared in accordance with Section 102(c) of the Marine Protection Research and Sanctuaries Act (MPRSA; also referred to as Ocean Dumping Act [ODA]) of 1972. The USEPA has the responsibility of designating sites under Section 102(c) of the Act and 40 CFR Part 228.4 of its regulations. The SEIS is supported by the State of Connecticut through the Connecticut Department of Transportation (CTDOT).

2. Scoping Meetings

In accordance with USEPA's voluntary NEPA policy, the USEPA conducts a public outreach process. The process continues a long and rich history of public involvement and participation in environmental decision-making. In keeping with this tradition, and to satisfy the numerous statutory and regulatory requirements to which this proposed action is subject, the USEPA is conducting an extensive public involvement program throughout the development of the SEIS. Scoping meetings 1 and 2 are the beginning of that process.

The first public involvement step is the publication of a Notice of Intent (NOI) in the Federal Register, which occurred on October 16, 2012 (Federal Register, 10/16/2012, v. 77, no. 200, p. 63312-13; Attachment 1). The Notice of Intent outlines the agencies involved, the proposed action, the purpose, a project summary, the need for the SEIS, the date, time and place of the public scoping meetings, and a website for additional information.

USEPA scheduled the public scoping meetings 1 and 2 in Connecticut and New York State to discuss the goals of the project. The public was invited to attend and identify issues that should be addressed in the SEIS. Comments were presented either as oral statements during the meetings and/or as written statements submitted during or up to three weeks after the second meeting (i.e., through January 31, 2013). Meetings were held on the following dates:

- November 14, 2012 University of Connecticut, Avery Point, Groton, Connecticut
- January 9, 2013 Suffolk County Community College, Riverhead, New York

The meeting on January 9 was originally scheduled to be held on November 15, 2012, but had to be postponed due to Hurricane Sandy. The postponement was announced in USEPA's press release (Attachment 2).

All public scoping activities up to February 1, 2013 are summarized below:

- July 2012: USEPA requested Cooperating Agency response
- Oct. 16, 2012: Notice of Intent (NOI) published in Federal Register (Attachment 1)

  USEPA Region 2 sent out an invitation letter to the public
- Nov. 8, 2012: Press Release was issued by EPA Region 1 (Attachment 2)

  Announcement on USEPA's website that public scoping meeting originally scheduled for November 15, 2012 in Riverhead, New York, was postponed due to Hurricane Sandy.
- Nov. 14, 2012: Public scoping meeting at UCONN, Groton, CT. USEPA announced at the meeting that the public comment period for NOI was extended to January 31, 2013.
- Dec. 17, 2012: USEPA Region 1 and Region 2 hosted meeting for Region 2 and Fishers Island Conservancy.
- Jan. 2, 2013: Announcement of new date for New York meeting was sent via EPA email server. Also, the notice of New York meeting and extension of public comment period was published in Federal Register.
- Jan. 4, 2013: Press Release issued by EPA Region 1 (Attachment 2)
- Jan. 8, 2013: Cooperating Agency meeting was held at CTDOT office in Newington, CT.
- Jan. 9, 2013: Public scoping meeting was held at Suffolk Community College, Riverhead, New York.
- Jan. 31, 2013: Additional written comments were submitted to USEPA.

3. Agendas of Scoping Meetings

The Groton (CT) meeting was held on November 14, 2012 between 3:30pm and 7:00pm. The Riverhead (NY) meeting was held on January 9, 2013 between 2:00pm and 5:30pm. The format and agenda of each meeting was identical, with the exception that the meeting in Riverhead started 1.5 hours earlier than the meeting in Groton:

CT time	NY time	Agenda Item
3:30 pm	2:00pm	*Registration*
4:00 pm	2:30pm	*Ground Rules/Logistics* Mr. Niek Veraart, The Louis Berger Group, Inc.
4:05 pm	2.35pm	*Welcome/EPA's Role in Disposal Site Designations* Mel Coté, Manager, Ocean and Coastal Protection Unit, EPA Region 1
4:10 pm	2:40pm	*Where We've Been: Designation of the Central and Western Long Island Sound Dredged Material Disposal Sites* Mel Coté, Manager, Ocean and Coastal Protection Unit, EPA Region 1
4:20pm	2:50pm	*Where We Are Now: Long Island Sound Dredged Material Management – the Need for Dredging and the Corps of Engineer's Role* Mark Habel, U.S. Army Corps of Engineers, New England District
4:30 pm	3:00pm	*Where We're Going: SEIS for the Eastern Long Island Sound Region* Jean Brochi, Project Manager, Ocean and Coastal Protection Unit, EPA Region 1
4: 40 pm	3:10pm	*State of Connecticut's Role* George Wisker, Connecticut Department of Energy and Environmental Protection
4:50 pm	3:20pm	*State of New York's Role* Jennifer Street, New York Department of State
5:00 pm	3:30pm	*Public Comments and Discussion* Mr. Niek Veraart, The Louis Berger Group, Inc.
7:00 pm	5:30pm	*Adjourn*

4. Meeting Summary

Scoping is part of the NEPA process through which federal agencies discuss the purpose of and need for the proposed action; the projected area extent and range of potential impacts resulting from the proposed action; and the studies necessary to determine the extent of potential impacts resulting from these actions. Public scoping meetings 1 and 2 explained the roles of agencies, explained the project, and requested public comment in the Notice of Intent.

The lists of Attendees as well as the lists of Commenters/Speakers from the Public are provided in Attachment 3. Presentations given by representatives from federal (USEPA, USACE) and state agencies (CTDEEP, NYDOS) are provided in Attachment 4. Transcripts, required for both meetings, were prepared by Ms. Sarah Miner from Brandon Smith Reporting & Video (Groton meeting) and by Ms. Charmaine DeRosa from Alliance Reporting Service, Inc. (Riverhead meeting); their transcripts are enclosed as Attachments 5 and 6, respectively.

Following is a summary of the two meetings:

- **Attendees:** A total of 44 attendees signed in at the Groton meeting; a total of 32 attendees signed in at the Riverhead meeting. Both numbers included two speakers from USEPA, and one speaker each from Connecticut Department of Energy and Environment, U.S. Army Corps of Engineers, and New York Department of State. Attendees at both meetings included members from the Public; non-profit organizations; private companies such as marinas owners, consultants, and ferry operators; state and federal agency representatives; and representatives of government officials.
- **Commenters:** At each meeting, seven individuals commented after the presentations were given by USEPA, USACE, CTDEEP, and NYDOS. Also at each meeting, two commenters provided written comments in addition to their oral comments.
- **Written Comments:** A total of 19 letters and emails were received by the USEPA between November 6, 2012 and February 11, 2013 (Table 1). Specifically, as stated above, four written comment letters were received at the two scoping meetings (included in Attachment 7). An additional 14 emails and letters were received within the comment period through January 31, 2013; seven of these emails/letters contained project-specific comments (also included in Attachment 7). Another letter was received after the comment period and is therefore not included in this report; USEPA will respond separately.

Table 1: Correspondence and comments received from the Public.

Commenter	Agency	Method	Date	Time Received	Comments Attached*	Reply Date	Reply Time
Brett Hillman	Fish & Wildlife Service	E-Mail	11/6/2012	9:57am	--	11/7/2012	9:05 am
Louis W. Burch	Citizens Campaign for the Environment	In-Hand	11/14/2012	at meeting	(1)		
Adam Wronowski	Cross Sound Ferry	In-Hand	11/14/2012		(2)		
Jeannine Dube	Fish & Wildlife Service	E-Mail	11/15/2012	7:24 am	(3)		
William Gash	CT Maritime	E-Mail	11/15/2012	10:27 am	--	11/29/2012	12:00 pm
John Gardiner	Spicer's Marina	E-Mail	11/28/2012	11:43 am	--	11/29/2012	12:01 pm
William Gash	CT Maritime	E-Mail	12/3/2012	9:30 am	--	12/3/2012	1:53 pm
Timothy C. Visel		E-Mail	12/12/2012	2:37 pm	(4)		
Adele King Malone	NV Division of Environmental Protection	E-Mail	1/7/2013	11:23 am	--	1/7/2013	5:01 pm
Maureen Dolan Murphy	Citizens Campaign for the Environment	In-Hand	1/9/2013	at meeting	(5)		
Robert Evans	Fishers Island Conservancy	In-Hand	1/9/2013		(6)		
Marguerite Purnell	Fishers Island Conservancy	E-Mail	1/22/2013	12:01 pm	--	1/22/2013	12:40 pm
Jennifer Hartnagel	Group for the East End	E-Mail	1/24/2013	2:40 pm	--	1/30/2013	4:09 pm
Leah Schmalz	Save the Sound/CT Fund for the Environment	E-Mail	1/24/2013	5:07 pm	(7)	1/29/2013	11:23 am
Timothy C. Visel		E-Mail	1/29/2013	2:30 pm	(8)		
Scott A. Russell / Mark Terry	Town of Southold	E-Mail	1/31/2013	3:34 pm	(9)	1/31/2013	4:09 pm
Fred Anders / Jennifer Street	NY DOS	E-Mail	1/31/2013	4:47 pm	(10)	1/31/2013	4:58 pm
Marguerite Purnell	Fishers Island Conservancy	E-Mail	1/31/13	11:59 pm	(11)	2/1/2013	10:15 am
Timothy H. Bishop	House of Represen-tatives, 1st District, NY	Mail	2/11/2013	**			

* The number in brackets refers to the comment number provided in Attachment 7. A dash means the email did not contain project-specific comments; the email was therefore not attached.

** Comment letter not attached as it was received after the end of the comment period; USEPA will respond separately.

Attachment 1

NOTICE OF INTENT

CFR 4.36. Comments, motions to intervene, notices of intent, and competing applications may be filed electronically via the Internet. See 18 CFR 385.2001(a)(1)(iii) and the instructions on the Commission's Web site *http://www.ferc.gov/docs-filing/efiling.asp*. Commenters can submit brief comments up to 6,000 characters, without prior registration, using the eComment system at *http://www.ferc.gov/docs-filing/ecomment.asp*. You must include your name and contact information at the end of your comments. For assistance, please contact FERC Online Support at *FERCOnlineSupport@ferc.gov* or toll free at 1–866–208–3676, or for TTY, (202) 502–8659. Although the Commission strongly encourages electronic filing, documents may also be paper-filed. To paper-file, mail an original and seven copies to: Kimberly D. Bose, Secretary, Federal Energy Regulatory Commission, 888 First Street NE., Washington, DC 20426.

More information about this project, including a copy of the application, can be viewed or printed on the ''eLibrary'' link of Commission's Web site at *http://www.ferc.gov/docs-filing/elibrary.asp*. Enter the docket number (P–13432) in the docket number field to access the document. For assistance, contact FERC Online Support.

Dated: October 10, 2012.

Kimberly D. Bose,

Secretary.

[FR Doc. 2012–25398 Filed 10–15–12; 8:45 am]

BILLING CODE 6717–01–P

ENVIRONMENTAL PROTECTION AGENCY

[FRL–9741–9]

Notice of Intent: Designation of an Ocean Dredged Material Disposal Site (ODMDS) in Eastern Long Island Sound; Connecticut, New York, and Rhode Island

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice of Intent to prepare a Supplemental Environmental Impact Statement (SEIS) to evaluate the potential designation of one or more Ocean Dredged Material Disposal Sites (ODMDS) to serve the eastern Long Island Sound region (Connecticut, New York, and Rhode Island).

SUMMARY: EPA is authorized to designate ODMDS under section 102(c) of the Marine Protection, Research and Sanctuaries Act (MPRSA). EPA is preparing the SEIS in accordance with the Agency's Statement of Policy for Voluntary Preparation of National Environmental Policy Act documents for all ocean disposal site designations. The SEIS will update and build on the analyses that were conducted for the 2005 Long Island Sound Environmental Impact Statement that supported the designation of the Central and Western Long Island Sound disposal sites. The following federal and state agencies have expressed interest in serving as cooperating agencies: U.S. Army Corps of Engineers (USACE), New England and New York Districts; National Oceanic and Atmospheric Administration, National Marine Fisheries Service; Connecticut Department of Energy and Environmental Protection; Connecticut Department of Transportation; New York Department of State; Rhode Island Department of Environmental Management; and Rhode Island Coastal Resources Management Council.

SUPPLEMENTARY INFORMATION: The primary statutes governing the open-water disposal of dredged material in the United States are the MPRSA and the Clean Water Act (CWA). The waters of Long Island Sound are *landward* of the baseline from which the territorial sea of the United States is measured. As with other waters lying landward of the baseline, all dredged material disposal activities in Long Island Sound, whether from federal or non-federal projects of any size, are subject to the requirements of section 404 of the CWA. The MPRSA generally only applies to dredged material disposal in waters *seaward* of the baseline and would not apply to Long Island Sound but for the 1980 amendment that added section 106(f) to the statute. This provision requires that the disposal of dredged material in Long Island Sound from federal projects (projects carried out under the USACE civil works program or by other federal agencies) and non-federal projects generating more than 25,000 cubic yards of material must comply with the requirements of both CWA section 404 and the MPRSA. This applies to both the designation of specific disposal sites and the assessment of the suitability of specific dredged material for disposal. Disposal from non-federal projects involving 25,000 cubic yards or less of dredged material, however, is subject only to CWA section 404.

Need for Action: Dredging is essential for maintaining safe navigation in ports and harbors in the eastern Long Island Sound region. Over the past approximately 30 years, dredged material from eastern Long Island Sound has been disposed of primarily at the New London and Cornfield Shoals disposal sites. These two sites, both of which were selected by the USACE for short-term use, expire on December 16, 2016.

Therefore, EPA has decided to prepare an SEIS to evaluate the two current sites used in eastern Long Island Sound as well as other sites for, and means of, disposal and management, including the no action alternative. The SEIS will support the EPA's final decision on whether one or more dredged material disposal sites will be designated under the MPRSA. The SEIS will include analysis applying the five general and eleven specific site selection criteria for designating ocean disposal sites presented in 40 CFR 228.5 and 228.6, respectively. Designation of a site does not by itself authorize or result in disposal of any particular material; it only serves to make the designated site a disposal option available for consideration in the alternatives analysis for each individual dredging project in the area.

Alternatives: In evaluating the alternatives, the SEIS will identify and evaluate locations within the eastern Long Island Sound study area using the aforementioned criteria to determine the sites that are best suited to receive dredged material for open-water disposal. At a minimum, the SEIS will consider alternatives including:

- No-action (i.e., no designation of any sites);
- Designation of one or both of the currently active USACE-selected sites;
- Designation of alternative open-water sites identified within the study area that may offer environmental advantages to the existing sites; and
- Identification of other disposal and/or management options, including beneficial uses.

Scoping: EPA is requesting written comments from federal, state, and local governments, industry, non-governmental organizations, and the general public on the need for action, the range of alternatives considered, and the potential impacts of the alternatives. Scoping comments will be accepted for 45 days from the date of this notice. Public scoping meetings are scheduled at two locations on the following dates: November 14, 2012, 4–7 p.m. at the University of Connecticut, Avery Point auditorium in Groton, CT (*http://www.averypoint.uconn.edu/about/directions.html*) and November 15, 2012, 3–6 p.m. at the Port Jefferson Village Center in Port Jefferson, NY (*http://www.portjeff.com/village-map/*). Registration for both meetings will begin a half-hour before the meeting (3:30

p.m. on November 14 and 2:30 p.m. on November 15).

FOR FURTHER INFORMATION CONTACT: For further information and to be placed on the project information distribution list, please contact: Ms. Jean Brochi, U.S. EPA, Region 1, 5 Post Office Square, Suite 100, OEP06–1, Boston, MA 02109–3912, (617) 918–1536, *ELIS@epa.gov*. Please contact Ms. Brochi should you have special needs (sign language interpreters, access needs) at the above address or our TDY#, (617) 918–1189.

Estimated Date of the Draft SEIS Release: September 30, 2014.

Dated: October 4, 2012.

H. Curtis Spalding,

Regional Administrator, EPA New England.

[FR Doc. 2012–25420 Filed 10–15–12; 8:45 am]

BILLING CODE 6560–50–P

ENVIRONMENTAL PROTECTION AGENCY

[FRL–9741–4]

Notice of Meeting of the EPA's Children's Health Protection Advisory Committee (CHPAC)

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice of meeting.

SUMMARY: Pursuant to the provisions of the Federal Advisory Committee Act, Public Law 92–463, notice is hereby given that the next meeting of the Children's Health Protection Advisory Committee (CHPAC) will be held November 7 and 8, 2012 at EPA's Potomac Yards Building (2777 South Crystal Drive, Arlington, VA 22202), Room 4120 North. The CHPAC was created to advise the Environmental Protection Agency on science, regulations, and other issues relating to children's environmental health.

DATES: The CHPAC will meet November 7 and 8, 2012.

ADDRESSES: 2777 South Crystal Drive, Arlington, VA 22202.

FOR FURTHER INFORMATION CONTACT: Martha Berger, Office of Children's Health Protection, USEPA, MC 1107A, 1200 Pennsylvania Avenue NW., Washington, DC 20460, (202) 564–2191 or *berger.martha@epa.gov*.

SUPPLEMENTARY INFORMATION: The meetings of the CHPAC are open to the public. The CHPAC will meet on Wednesday, November 7th from 9 a.m. to 5 p.m., and Thursday, November 8th from 9 a.m. to 12 p.m. Agenda items include discussions on lead and children, prenatal environmental exposures and health disparities.

Access and Accommodations: For information on access or services for individuals with disabilities, please contact Martha Berger at 202–564–2191 or *berger.martha@epa.gov.,* preferably at least 10 days prior to the meeting.

Dated: October 4, 2012.

Martha Berger,

Designated Federal Official.

[FR Doc. 2012–25424 Filed 10–15–12; 8:45 am]

BILLING CODE 6560–50–P

EQUAL EMPLOYMENT OPPORTUNITY COMMISSION

SES Performance Review Board; Appointment of Members

AGENCY: Equal Employment Opportunity Commission.

ACTION: Notice.

SUMMARY: Notice is hereby given of the appointment of members to the Performance Review Board of the Equal Employment Opportunity Commission.

FOR FURTHER INFORMATION CONTACT: Lisa M. Williams, Chief Human Capital Officer, U.S. Equal Employment Opportunity Commission, 131 M Street NE., Washington, DC 20507, (202) 663–4306.

SUPPLEMENTARY INFORMATION: Publication of the Performance Review Board (PRB) membership is required by 5 U.S.C. 4314(c)(4). The PRB reviews and evaluates the initial appraisal of a senior executive's performance by the supervisor, and makes recommendations to the Chair, EEOC, with respect to performance ratings, pay level adjustments and performance awards.

The following are the names and titles of executives appointed to serve as members of the SES PRB. Members will serve a 12-month term, which begins on October 22, 2012.

PRB Chair

Mr. Reuben Daniels, Director, Charlotte District Office, Equal Employment Opportunity Commission.

Members

Mr. Kevin J. Berry, Director, New York District Office, Equal Employment Opportunity Commission;

Ms. Katherine E. Bissell, Deputy Solicitor for Regional Enforcement, Department of Labor;

Ms. Kathryn A. Ellis, Assistant General Counsel, Division of Educational Equity and Research, and Agency Dispute Resolution Specialist, Department of Education;

Mr. James L. Lee, Deputy General Counsel, Equal Employment Opportunity Commission;

Mr. Webster N. Smith, Director, Indianapolis District Office, Equal Employment Opportunity Commission.

Alternate

Mr. Dexter R. Brooks, Director, Federal Sector Programs, Equal Employment Opportunity Commission.

Dated: October 11, 2012.

By the direction of the Commission.

Jacqueline A. Berrien,

Chair.

[FR Doc. 2012–25443 Filed 10–15–12; 8:45 am]

BILLING CODE 6570–01–P

FEDERAL COMMUNICATIONS COMMISSION

Information Collection(s) Being Submitted for Review and Approval to the Office of Management and Budget (OMB)

AGENCY: Federal Communications Commission.

ACTION: Notice; request for comments.

SUMMARY: As part of its continuing effort to reduce paperwork burden and as required by the Paperwork Reduction Act (PRA) of 1995 (44 U.S.C. 3502–3520), the Federal Communications Commission invites the general public and other Federal agencies to take this opportunity to comment on the following information collection(s). Comments are requested concerning: whether the proposed collection of information is necessary for the proper performance of the functions of the Commission, including whether the information shall have practical utility; the accuracy of the Commission's burden estimates; ways to enhance the quality, utility, and clarity of the information collected; ways to minimize the burden of the collection of information on the respondents, including the use of automated collection techniques or other forms of information technology; and ways to further reduce the information collection burden on small business concerns with fewer than 25 employees.

The FCC may not conduct or sponsor a collection of information unless it displays a currently valid OMB control number. No person shall be subject to any penalty for failing to comply with a collection of information subject to the Paperwork Reduction Act (PRA) that does not display a valid OMB control number.

Attachment 2

PRESS RELEASES

- CT Meeting Announcement on EPA's Website
- NY Meeting Announcement on EPA's Website

EPA United States Environmental Protection Agency

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Newsroom

You are here: EPA Home » Newsroom » News Releases By Date » Public Meeting on 2012 E. Long Island Sound Dredged ....

News Releases By Date

Public Meeting on 2012 E. Long Island Sound Dredged Material Supplemental EIS

Release Date: 11/08/2012
Contact Information: David Deegan, (617) 918-1017

(Boston, Mass. – Nov. 8, 2012) – EPA has released a Notice of Intent to prepare a Supplemental Environmental Impact Statement to evaluate the potential designation of one or more dredged material disposal sites in Eastern Long Island Sound, and will host a public meeting in Groton, Conn. on Wednesday, Nov. 14.

The Supplemental Environmental Impact Statement (SEIS) is being developed with the input of other federal and state "cooperating agencies" and a wide range of stakeholders from the states of New York, Connecticut, and Rhode Island. The SEIS will update and build on the analyses that were conducted for the 2005 Long Island Sound Environmental Impact Statement that supported the designation of the Central and Western Long Island Sound disposal sites. As EPA works on the SEIS there will be numerous opportunities for public review and input throughout the entire process.

Next week's public meeting will present EPA's plan to proceed with this work and will be an opportunity for members of the public to provide input. The meeting details are listed below:

Date: Wednesday, November 14, 2012
Time: 4:00pm – 7:00pm, registration will begin at 3:30 pm.
Location: University of Connecticut Avery Point
Academic Building 308
1084 Shennecossett Road, Groton CT 06340
Directions: Available at (http://www.averypoint.uconn.edu/about/directions.html)

A meeting previously scheduled in Port Jefferson, N.Y. for Nov. 15 has been postponed due to the Hurricane Sandy recovery efforts on Long Island. EPA intends to reschedule a meeting in Port Jefferson in early January 2013.

More information:

- EPA's Notice of Intent was published in the Federal Register on Oct. 16, 2012 (https://www.federalregister.gov/articles/2012/10/16/2012-25420/notice-of-intent-designation-of-an-ocean-dredged-material-disposal-site-odmds-in-eastern-long-island)

- EPA's Dredged Material Management in Long Island Sound (http://www.epa.gov/region1/eco/lisdreg/index.html)

Newsroom

You are here: EPA Home » Newsroom » News Releases By Date » Public Meeting on 2012 E. Long Island Sound Dredged ....

News Releases By Date

Public Meeting on 2012 E. Long Island Sound Dredged Material Supplemental EIS

Release Date: 01/04/2013
Contact Information: David Deegan, (617) 918-1017

(Boston, Mass. – Jan. 4, 2013) – EPA has released a Notice of Intent to prepare a Supplemental Environmental Impact Statement to evaluate the potential designation of one or more dredged material disposal sites in Eastern Long Island Sound, and will host a public meeting in Riverhead, N.Y. on Wednesday, Jan. 9.

The Supplemental Environmental Impact Statement (SEIS) is being developed with the input of other federal and state "cooperating agencies" and a wide range of stakeholders from the states of New York, Connecticut, and Rhode Island. The SEIS will update and build on the analyses that were conducted for the 2004 Long Island Sound Environmental Impact Statement that supported the designation of the Central and Western Long Island Sound disposal sites. EPA plans to complete the SEIS within three years and will provide numerous opportunities for public review and input throughout the entire process.

The Jan. 9 public meeting will present the plan for the SEIS outlined in the Notice of Intent and ask for public input. A meeting previously scheduled in Port Jefferson, N.Y. for Nov. 15 was postponed due to the Hurricane Sandy recovery efforts on Long Island. The meeting details are listed below:

Date: Wednesday, January 9, 2013

Time: 2:30 p.m. – 5:30 p.m., registration will begin at 2:00 p.m.

Location: Suffolk County Community College
Culinary Arts Center
Room 135
20 East Main Street, Riverhead, NY 11901

Directions: Available at (http://department.sunysuffolk.edu/CulinaryArts_E/3232.asp)

More information:
- EPA's Notice of Intent was published in the Federal Register on Oct. 16, 2012 (https://www.federalregister.gov/articles/2012/10/16/2012-25420/notice-of-intent-designation-of-an-ocean-dredged-material-disposal-site-odmds-in-eastern-long-island)

- EPA's Dredged Material Management in Long Island Sound (http://www.epa.gov/region1/eco/lisdreg/index.html)

Attachment 3

LISTS OF ATTENDEES AND LISTS OF COMMENTERS/SPEAKERS FROM THE PUBLIC

- Groton, CT November 14, 2012
- Riverhead, NY January 9, 2013

Environmental Protection Agency: Public Meetings Regarding the Supplemental Impact Statement for the Eastern Long Island Sound Dredged Material Disposal Site Designation

Groton, CT, November 14, 2012

ATTENDEE SIGN-IN

Note: Addresses and contact information was provided on the original Sign-in sheet but not listed here for privacy reasons. Spelling of names and organizations was verified, if needed, using the internet. Information not provided is marked with 'n/a'. Names are listed in the order shown on the Sign-in sheet.

NAME	ORGANIZATION
Ernest Libby	Brewer Yacht Yards
Kimberly Junia	Congresswoman DeLauro
Robert Michalik	Congressman Murphy
Abbie Coderre	Saybrook Point Marina
Ivar Babb	University of Connecticut
Bill Heiple	Triton Environmental
William Gash	Connecticut Maritime Coalition (CMC)
Alan Strunk	Ocean Interest, Inc.
Cathy Rogers	USACE–NAE (New England District)
Jim Latimer	EPA – ORD (Office of Research and Development)
Drew Carey	CoastalVision
William Hubbard	USACE – NAE (New England District)
Chuck Beck	CTDOT
Lynn McLeod	Battelle
Joseph Salvatore	CTDOT
Rudy Brown	USEPA
George Wisker	CT Department of Energy and Environmental Protection
Hope Fish	n/a
Carlton Hunt	Battelle
Lewis Burch	Citizens Campaign for the Environment
Dan Goulet	RI CRMC (Coastal Resources Management Council)
Tracey McKenzie	U.S. Navy
Erika Fuery	Cardno TEC, Inc.
James Leary	New York State Department of State
Kari Gathen	New York State Department of State
Jennifer Street	New York State Department of State
n/a	Fishers Island Conservancy
Andrew Ahrens	Fishers Island Conservancy
James O'Donnell	University of Connecticut
B. Kuryla	Port Milford
Bob Soder	Triton Environmental
Judy Benson	The Day
Mel Cote	USEPA
Gary Connoll	Shennecossett Yacht Club

NAME	ORGANIZATION
Kathy Hall	Cardno TEC, Inc.
Paul Barton	Harbor One Marina
Josh Strunk	Ocean Interests, Inc.
Chris Drake	n/a
Tim Visel	n/a
Riju Das	Senator Blumenthal's office
Christian McGugan	Gwenmor Contracting
Adam Wronowski	Long Island Ferry
Jeannie Brochi	USEPA
Alicia Grimaldi	USEPA

COMMENTER/SPEAKER SIGN-IN

Note: Affiliation, if not provided on the Speaker Sign-In sheet, were taken from the Attendee Sign-in sheet and listed in brackets below.

NAME	ORGANIZATION	SUMMARY OF COMMENTS
Louis W. Burch	Citizens Campaign for the Environment	-
Adam Wronowski	Cross Sound Ferry	Economic, solid, environmental impacts of no ELISA disposal site
Christian McGugan	Gwenmor Contracting	-
Tim Visel	n/a	-
William Gash	Connecticut Maritime Coalition (CMC)	Response to CCE (Citizens Campaign for the Environment)
Jeff Kately	Connecticut Dredge Corporation	-
Abbie Coderre	(Saybrook Point Marina)	-

Location: UCONN Avery Point Date: 11/14/13

COMMENTER/SPEAKER SIGN-UP

Environmental Protection Agency: Public Meetings Regarding the Supplemental Environmental Impact Statement for the Eastern Long Island Sound Dredged Material Disposal Site Designation

Name & Organization	Summary of Comments	Are you providing written comments?
Louis W. Burch Citizens Campaign for the Environment		☒ Yes ☐ No
ADAM WRONOWSKI CROSS Sound Ferry	Economic, Social, Environmental Impacts of NO ELIS Disposal site	☒ Yes ☐ No
Christian McGuyan Gurnmur Contracting		☐ Yes ☒ No
Tim Visel		☐ Yes ☒ No
		☐ Yes ☐ No
		☐ Yes ☐ No

Location: UCONN Avery Point Date: 11/14

COMMENTER/SPEAKER SIGN-UP

Environmental Protection Agency: Public Meetings Regarding the Supplemental Environmental Impact Statement for the Eastern Long Island Sound Dredged Material Disposal Site Designation

Name & Organization	Summary of Comments	Are you providing written comments?
Connecticut Maritime Coalition William Gash	response to CCE -	☐ Yes ☒ No
Jeff Ketcley CT Dredge @ comcast.net		☐ Yes ☒ No
Abbie Cadore		☐ Yes ☒ No
		☐ Yes ☐ No
		☐ Yes ☐ No
		☐ Yes ☐ No
		☐ Yes ☐ No
		☐ Yes ☐ No
		☐ Yes ☐ No

EPA United States Environmental Protection Agency New England

Environmental Protection Agency: Public Meetings Regarding the Supplemental Impact Statement for the Eastern Long Island Sound Dredged Material Disposal Site Designation

Riverhead, NY, January 9, 2013

ATTENDEE SIGN-IN

Note: Addresses and contact information was provided on the original Sign-in sheet but not listed here for privacy reasons. Spelling of names and organizations was verified, if needed, using the internet. Information not provided is marked with 'n/a'. Names are listed in the order shown on the Sign-in sheet.

NAME	ORGANIZATION
Alicia Grimaldi	USEPA, Region 1
Mel Coté	USEPA, Region 1
Maureen Dolan	Citizens Campaign of the Environment
Charles deQuillfeldt	New York Department of Conservation
John S. Johnson	Connecticut Maritime Commission
Grant Westerson	Connecticut Marine Trades Association
Jim Leary	New York Department of State
Pat Pechko	USEPA, Region 2
Al Krupski	Town of Southold, New York
Bernward Hay	The Louis Berger Group, Inc.
Joe Salvatore	Connecticut Department of Transportation
Lynn McLeod	Battelle
Carlton Hunt	Battelle
Douglas Pabst	USEPA, Region 2
Jim O'Donnell	University of Connecticut
George Wisker	Connecticut Department of Energy and Environment
Cathy Rogers	U.S. Army Corps of Engineers
Jeannie Brochi	USEPA, Region 1
Chuck Beck	Connecticut Department of Transportation
Dan Natchez	Daniel S. Natchez and Associates, Inc.
Mark Terry	Town of Southold, New York
Tim Gannon	Times Review
Kari Gathen	New York Department of State
Jennifer Street	New York Department of State
Sunny Suchdeve	Office of U.S. Senator Kirsten E. Gillibrand
Andrew Ahrens	n/a
Katharine Evans	n/a
Bill Spicer	Spicer's Marinas

NAME	ORGANIZATION
Bill Gash	Connecticut Maritime Coalition
Ralph Gogliettino	n/a
Den Duarte	Coast Guard
Nancy Brighton	U.S. Army Corps of Engineers

COMMENTER/SPEAKER SIGN-IN

Note: Affiliation, if not provided on the Speaker Sign-In sheet, were taken from the Attendee Sign-in sheet and listed in brackets below.

NAME	ORGANIZATION	SUMMARY OF COMMENTS
Maureen Dolan Murphy	Citizens Campaign for the Environment	-
John. S. Johnson	(Connecticut Maritime Commission)	Industry support for dredging
Dan Natchez	Daniel S. Natchez and Associates, Inc.	-
Robert Evans	Fishers Island Conservancy (FIC)	FIC's position
Al Krupski	Town of Southold	-
Bill Spicer	(Spicer's Marinas)	-
Tim Gannon	(Times Review)	-

Location: Riverhead Date: 1/9/13

COMMENTER/SPEAKER SIGN-UP

Environmental Protection Agency: Public Meetings Regarding the Supplemental Environmental Impact Statement for the Eastern Long Island Sound Dredged Material Disposal Site Designation

Name & Organization	Summary of Comments	Are you providing written comments?
Maureen Dolan Murphy Citizens Campaign for the Environment		☒ Yes ☐ No
John S. Johnson	Industry support for dredging	☐ Yes ☒ No
Don Nable	DSNGA	☐ Yes ☒ No
Robert Evans	Fishers Island Conservancy's position	☒ Yes ☐ No
Al Krupski Town of Southold		☐ Yes ☒ No
Bill Spicer		☐ Yes ☐ No
Tim Gannon		☐ Yes ☐ No
		☐ Yes ☐ No
		☐ Yes ☐ No

EPA United States Environmental Protection Agency New England

Attachment 4

PRESENTATIONS

Note: Presentations given by the Federal and State agency representatives were identical at each scoping meeting.

PRESENTATION: Mel Coté, Manager, Ocean and Coastal Protection Unit, EPA Region 1:

Where We've Been: Designation of the Central and Western Long Island Sound Dredged Material Disposal Sites

Eastern Long Island Sound Supplemental Environmental Impact Statement

U.S. EPA Region 1
Nov. 14, 2012
Jan. 9, 2013

EPA-USACE Share Responsibility

- Marine Protection, Research, and Sanctuaries Act (MPRSA, aka Ocean Dumping Act)
  - Section 102: EPA Designates Sites
  - Section 103: USACE Selects Sites subject to EPA concurrence
- Dredged material disposal at these sites must meet criteria in Ocean Dumping Regulations (40 CFR Parts 220-229)
- Clean Water Act (CWA)
  - Section 404: USACE issues permits subject to EPA concurrence
  - Section 404(c): EPA has veto authority

MPRSA or Ocean Dumping Act

- Dredged material should not be disposed unless it can be demonstrated that such disposal will not unreasonably degrade or endanger:
  - human health, welfare, or amenities, or
  - the marine environment, ecological systems, or economic potentialities
- EPA established criteria that consider the:
  - need for disposal;
  - effect of disposal on human and ecological health, and other uses of the ocean; and
  - alternatives to ocean disposal.

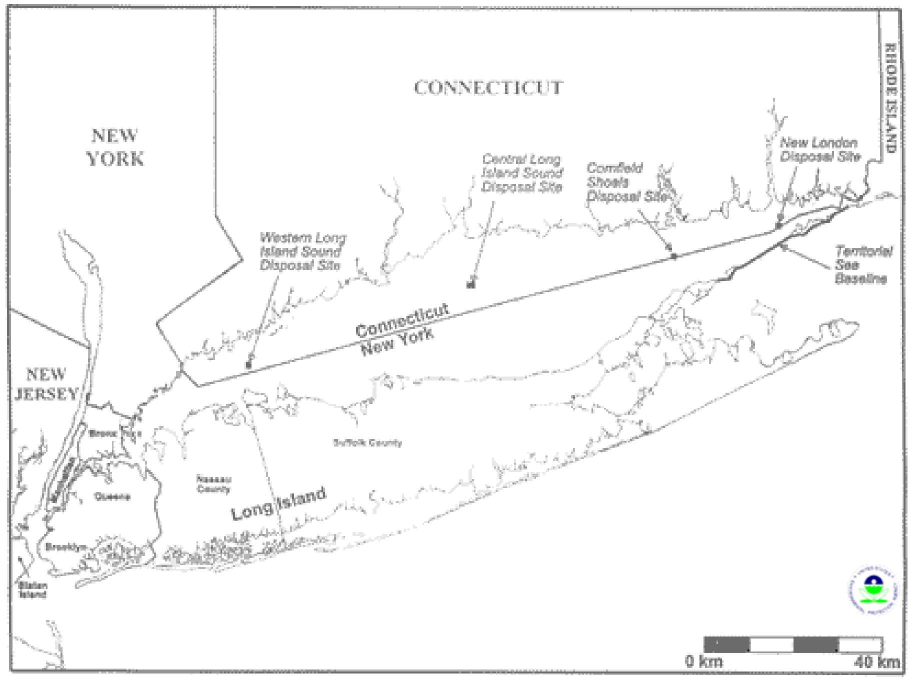
Long Island Sound Dredged Material Disposal Sites

Designated by EPA in July 2005:

- Western Long Island Sound
- Central Long Island Sound

Selected by Corps in 1990s, scheduled to close December 2016:

- Cornfield Shoals
- New London



CURRENTLY ACTIVE DREDGED MATERIAL DISPOSAL SITES IN LONG ISLAND SOUND

EPA's Role in Dredging

- Designate ocean dredged material disposal sites for long-term use (following EPA's voluntary NEPA policy to prepare an EIS)
- Promulgate regulations and criteria for disposal site selection and permitting discharges
- Review USACE dredging projects and permits
- Develop site monitoring/management plans (SMMP)
- Monitor disposal sites jointly with Corps

Long Island Sound Environmental Impact Statement

- 1998 – EPA and USACE agree to co-lead site designation process under MPRSA and NEPA
  - USACE provides funding
  - EPA provides technical assistance
- June 1999 – EPA and Corps initiate EIS to evaluate and potentially designate dredged material disposal sites for entire LIS region
- 1999-2001 Scoping and field work to collect data for entire LIS region

Long Island Sound Environmental Impact Statement

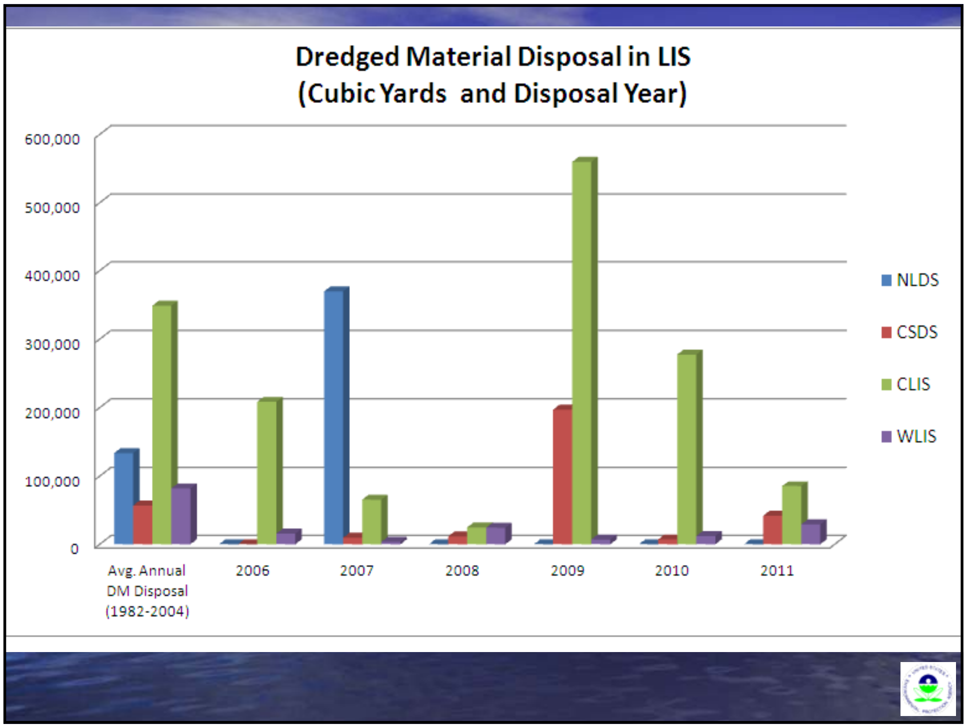
- March 2002 – EPA and Corps decide to focus EIS effort initially on Central and Western LIS regions, with plan to address eastern LIS upon completion of that effort
- September 2003 – EPA issues draft EIS for public comments and holds public hearings

Long Island Sound Environmental Impact Statement

- April 2004 – EPA and Corps complete EIS recommending designation of CLIS and WLIS disposal sites, initiates final rulemaking
- June 2004 – NYS DOS objects to proposed federal action as inconsistent with CZM Program
- September 2004-May 2005 – EPA, Corps, NOAA, NY and CT negotiate conditions to site designation rule so NY can withdraw its objection

Long Island Sound Environmental Impact Statement

- June 2005 – EPA publishes final rulemaking to designate CLIS and WLIS with conditions which, if not met, will result in sites closing, including:
  - Completion of a regional dredged material management plan (DMMP) for Long Island Sound by 2013 (or 2014)
  - Formation of a Long Island Sound Regional Dredging Team to review alternative analyses for federal and large private dredging projects
  - Production of an annual report by EPA on progress toward completion of the DMMP, and disposition of dredged material from all projects each year


Dredged Material Disposal in LIS
(Cubic Yards and Disposal Year)
600,000
500,000
400,000
300,000
200,000
100,000
0
Avg. Annual DM Disposal (1982-2004)
2006
2007
2008
2009
2010
2011
NLDS
CSDS
CLIS
WLIS

PRESENTATION: Mark Habel, Corps of Engineers, New England District:

Where We Are Now: Long Island Sound Dredged Material Management – the Need for Dredging and the Corps of Engineer's Role

Long Island Sound Dredged Material Management Plan

US Army Corps of Engineers

Long Island Sound Dredged Material Management Plan

- Requested by the Governors of Connecticut and New York after the Environmental Protection Agency (EPA) designated two open water dredged material disposal sites in LIS.
- The overall goal of the LIS DMMP is to develop a comprehensive dredged material management plan for the Corps of Engineers that recommends practicable, implementable solutions to manage dredged material in an economically sound and environmentally acceptable manner in LIS.
- A Corps-led comprehensive planning process and decision-making tool to address the management of dredged material for a specific harbor or navigation project, a group of related projects, or a specific geographic area.
- Involves a comprehensive review of dredging needs for both maintenance and planned improvement activities and material management options for a specific harbor or region over a minimum 20-Year planning horizon
- Investigates and evaluates various dredging and placement methods, sites and impacts
- Recommends practicable methods to meet Federal navigation needs and avoid or minimize impacts.

Long Island Sound Dredged Material Management Plan

- The LIS DMMP will include an in-depth analysis of all potential dredged material management alternatives including open-water placement, beneficial use, upland placement, and innovative treatment technologies, which can be used by dredging proponents in developing alternatives analyses for their dredging in the LIS vicinity. The process calls for Federal agencies to seek public input regarding development of the LIS DMMP.
- Identify baseline & recommended management options for all Corps of Engineers navigation projects in LIS
- Identify an array of suitable/feasible, environmentally acceptable, practicable management plans that will meet or exceed non-Corps dredging needs which can be utilized by various dredging proponents in their analysis of options to manage their dredging projects.

Long Island Sound Dredged Material Management Plan

DMMP Process

- Preliminary Assessment – Reviews Current Management Options and Determines Whether a More In-Depth DMMP is Warranted.
- LIS Regional DMMP PA Approved June 2006
- Conduct DMMP Study

  Phase I - Evaluate and Quantify Placement Needs and Existing Management Options

  Phase II - Identify Alternative Placement Options with Special Emphasis on Beneficial Uses;

  Phase III - Evaluate, Analyze, Compare, and Screen Alternatives;

  Phase IV - Recommend Management Plans;

  Phase V - When necessary periodically update the LIS DMMP

Long Island Sound Dredged Material Management Plan

Management Alternatives Considered

- Open and closed landfills
- Upland & aquatic dredged material placement sites.
- Current or proposed transportation improvement projects
- Dredged material transfer facility
- Asphalt, cement and other aggregate processors
- Large scale development sites
- Brownfield/other redevelopment sites
- Closed mines and quarries
- Beach and dune nourishment
- Agricultural and Aqua-cultural uses
- Habitat restoration, creation or enhancement
- Confined Disposal Facilities

Long Island Sound Dredged Material Management Plan Working Group

Dredging Needs

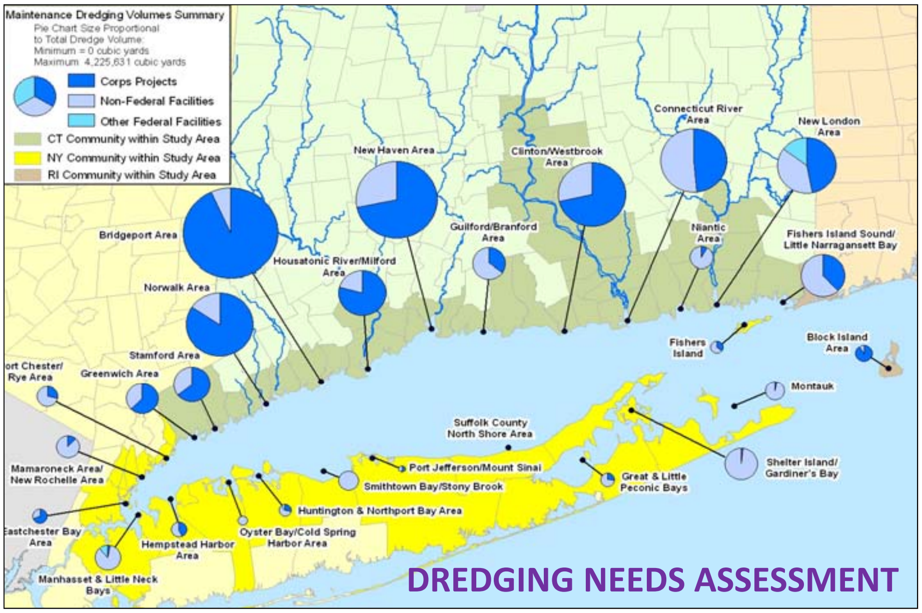
Navigation dependent facilities within the study area were identified, based on information from the 2001 ACOE LIS Dredged Material Disposal EIS Dredging Needs Database, internet directories, marine facility directories and guides, and communication with local associations.

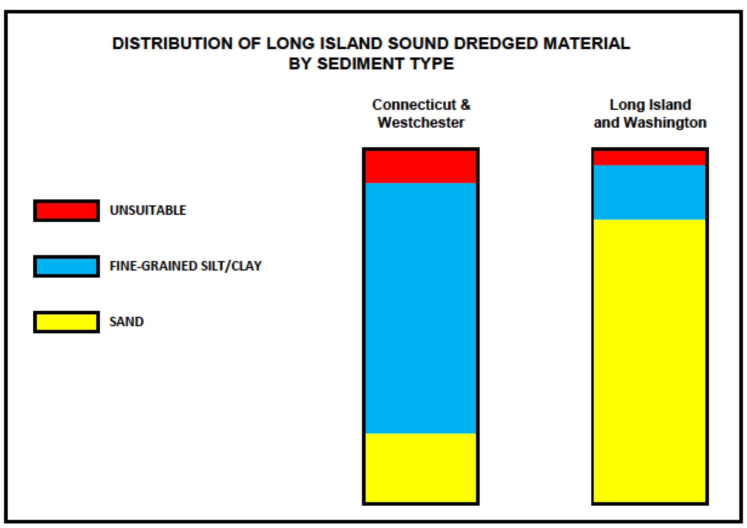
Dredging needs data was collected, using a questionnaire that was mailed to each facility. The initial mailing was followed-up with additional mailings and phone calls to increase responses.

731 contacted
451 responded
61.7% response

Navigation dependent facilities that responded to questionnaire

Long Island Sound Dredged Material Management Plan



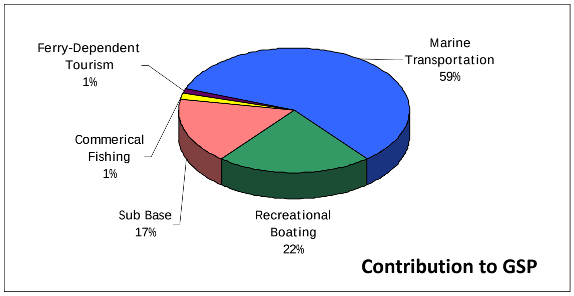


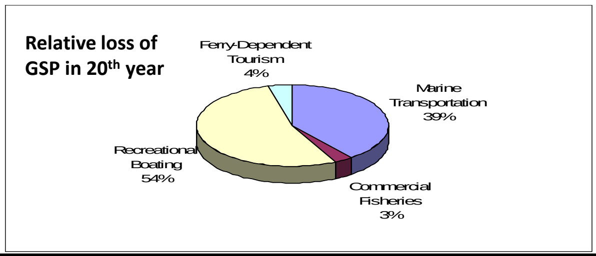
Long Island Sound Dredged Material Management Plan

Economic Impact of Navigation-Dependent Industries

Economic Output
- **$9.4 Billion per Year in**
- **Gross State Product**
- **$5.5 Billion per Year from**
- **55,720 jobs**
- **$1.6 billion in taxes**

Impact over 20 Years Without Dredging
- **Reduce GSP -$853 million**
- **Loss of -9,655 jobs**





Long Island Sound Dredged Material Management Plan

What the DMMP Does & Does Not Do

Does Do
- Identifies Baseline Dredged Material Placement Plan for Each Corps Project.
- Identifies Recommended Dredged Material Placement Plan for Each Corps Project.
- Identifies & Provides Information on Possible Placement Options that non-Corps Interests Can Pursue.
- Identifies Potential Opportunities for non-Fed Governments to Expand Corps Recommended Facilities for non-Fed use.
- Identifies other Studies or Actions Needed as Follow-up to DMMP.

Does Not Do
- Result in the Immediate Construction of Corps Placement Facilities.
- Develop Disposal Facilities for Non-Fed Use at Fed Costs.
- Provide Funding to Non-Federal Interests for Development of non-Federal Facilities.
- Designate New Ocean Placement Sites or Extend Any Existing Ocean Placement Sites.

Long Island Sound Dredged Material Management Plan

Federal

Screened to 90 Potential Sites

44 in CT

37 Beaches

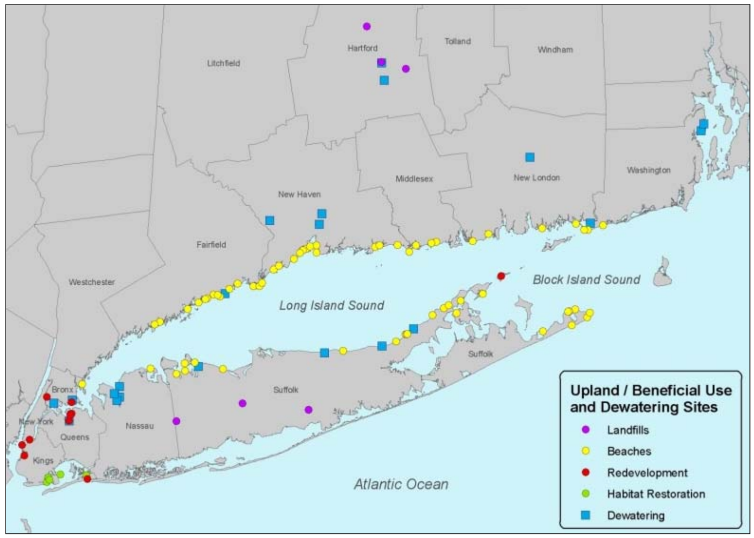
40 in NY

25 Beaches

5 in RI

3 Beaches

1 in PA



Long Island Sound Dredged Material Management Plan

Non-Federal

105 Upland and dewatering sites evaluated

45% contacted by phone

Upland, Beneficial Use, and Sediment De-Watering Site Inventory and Site Investigation

Long Island Sound Dredged Material Management Plan

Federal

Screened to 90 Potential Sites

44 in CT

37 Beaches

40 in NY

25 Beaches

5 in RI

3 Beaches

1 in PA

Example:
Site 323 Seaside Beach
Bridgeport, CT

Site Address	350 Waldemere Ave., Bridgeport, CT
General Description	Federal Shore Protection area and large Municipal Beach in Bridgeport; parcel lies between Bridgeport Harbor on east side and Burr Creek at west.
Ownership/POC	City of Bridgeport, CT Charles Carroll, Parks and Recreation (203) 576-7233
Zoning	RA Residential Single Family Home
Surrounding Land Use	Residential; light industrial to north; marina and canal to northwest.
Wetlands	Yes. Mapped wetlands are present at end of sand spit at west of beach.
State and Federally Listed Species Habitat	Yes. Mapped habitat covers majority of site.
Sediment Type	Well sorted medium-grained sand with shell hash
Nourishment Length	9,120 ft
Design Berm Width	100 ft
Capacity	130,900 cy
Site Access	Land – to (west end) or (east end). Approximately 1 mile to Rte. 95. Water – LIS
Staging Area	Potential staging areas in paved lots behind beach at east and west ends. Lots are relatively narrow but have room for staging.
Additional Considerations	Main section of beach has a rock revetment and seawall with walking path. At east end of parcel the beach has a small dune in back corner, and a sand tombolo just behind a stone breakwater. The point at the tombolo is rocky with little to no beach. A seawall with rip-rap continues around the point to the Bridgeport Harbor area. At the west end the beach terminates in a stone jetty with fringing marsh. Beach is bordered by a seawall that lies 2-3 ft above the berm. Burr Creek has a marina and boat basin. Sand spit at west end has wetland and endangered species habitat. No nourishment calculated for this area. Also, nourishment would not extend to rocky outcrop and tombolo at east side of beach, in order to avoid sediment transport to channel. Cultural resources present.

Category	CT	NY	RI	PA	Total
Beach – Municipal/County	17	10	2	0	29
Beach – State	2	8	0	0	10
Beach – Fed. Shore Protection	18	7	1	0	26
Mine	0	0	0	1	1
Landfill	2	2	0	0	4
Redevelopment/ Construction	0	2	0	0	2
Habitat Restoration	0	2	0	0	2
Dewatering					
Currently feasible	2	2	0	0	4
Potentially feasible in future	3	7	2	0	12
Total	44	40	5	1	90

Long Island Sound Dredged Material Management Plan

Next Steps

- Complete Sediment Characterization by Harbor
- Complete Transportation/Disposal Cost Matrix
- Final Screening of Disposal Alternatives
- Matching Disposal Alternatives with Harbors/Projects
- Recommending Disposal Plans for Federal Projects
- Listing Available Options for Non-Federal Projects

The Corps as a Cooperating Agency for the EPA ELIS Effort

**What the Corps Will Do - as Requested by US EPA
When Appropriate and Subject to Availability of Funds**

- Review Data, Documents, Interim Work Products and Reports Prepared by EPA
- Participate in Data Collection Activities when Available
- Provide Data, Analysis and Reports Prepared by the Corps under its Own Authorities (Navigation, DAMOS, DMMP) for Use or Reference by EPA in its SEIS
- Comment on the Draft and Final EPA SEIS

PRESENTATION: Jean Brochi, Project Manager, Ocean and Coastal Protection Unit, EPA Region 1:

Where We're Going: SEIS for the Eastern Long Island Sound Region

ELIS SEIS Recent Activity

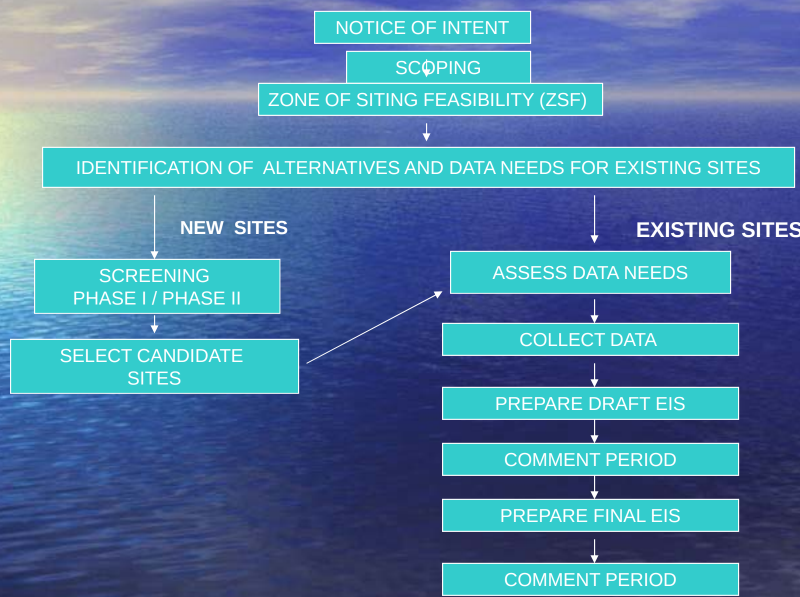
FY 2012 Corp's Appropriations Act:

- extends use of New London and Cornfield Shoals Disposal Sites to December 23, 2016.
- Site selection expiration dates originally October 5, 2011 and November 6, 2013, respectively,
- purpose:"to allow for completion of a SEIS to support final designation of an ODMDS in ELIS."

ELIS SEIS Recent Activity

FY 2012 EPA's Appropriations Act requires EPA to report to Congress "outlining its plan to carry out the Supplemental Environmental Impact Statement for the eastern Long Island Sound," *and to "work collaboratively* with…the *Corps and State partners to expeditiously determine a dredging solution for eastern Long Island Sound*."

ELIS SEIS Process



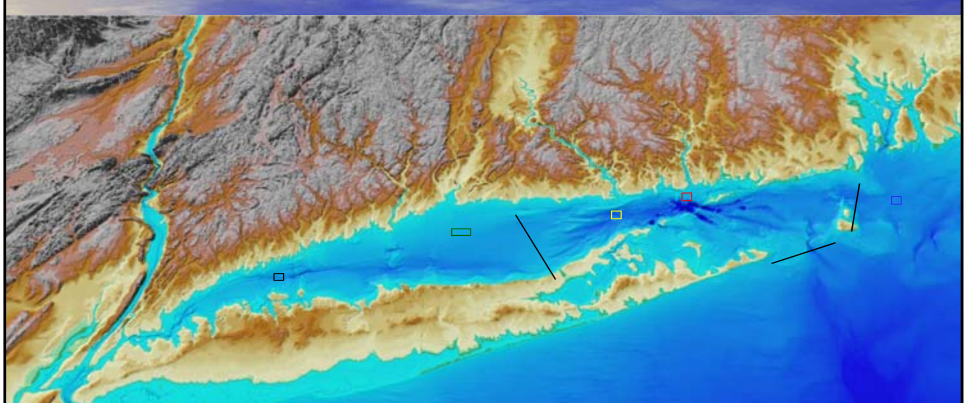
ELIS SEIS Process

- Cooperating Agencies – requested in July.
- Notice of Intent: published October 16, 2012.
- EPA website revised: http://www.epa.gov/region1/eco/lisdreg/elis.html
- Email notification system, contact: ELIS@epa.gov if you would like to be added to the email distribution list.

ELIS SEIS Process

- NOI Scoping meetings: November 14, 2012 in CT. NY meeting postponed until January 9, 2013 due to recovery efforts from storm. Comment period ends on January 31, 2013.
- Additional scoping meeting to be scheduled in the spring and in the fall to solicit public comments on data collection.

ELIS SEIS Process



ELIS SEIS Process

Existing Data:

- Data collection for original LIS EIS included eastern LIS from 1999-2002.
- EPA conducted site monitoring surveys on OSV Bold in 2007, and 2009 - 2012.
- USACE DAMOS Monitoring:

  NLDS – 10 surveys since 1990: bathy, physical oceanography, benthic biology, chemistry

  CSDS – 3 surveys since 1990: bathy, sediment transport

  RISDS – 4 surveys since 2000: bathy, benthic biology, lobster abundance, plume tracking

ELIS SEIS Process

Dredging Needs Report completed in October 2009:

- Determined that approximately 13.5 million cubic yards will be dredged from ELIS harbors and channels over the next 26 years (planning horizon to 2028)

Upland, Beneficial Use, and Sediment Dewatering Reports completed in 2009-2010:

- Determined that there are very few alternatives to open-water disposal sites in CT, and most of those are beach nourishment

ELIS SEIS Process

LIS DMMP: several studies will be used for this effort such as the literature search, dredging needs, economics, disposal alternatives.

The disposal alternatives study includes upland, nearshore, beneficial use and aquatic disposal.

Alternatives investigated include Landfills, Beaches, Redevelopment, Habitat Restoration, and Dewatering sites.

ELIS SEIS Process

LIS DMMP Alternatives Report:

Budget

- EPA estimates $3.3 million for the total cost
- Connecticut State Bond Commission approved $1.8 million in October 2011 to fund studies to support SEIS
- CT DOT will fund physical oceanographic and possibly other environmental studies, as well as public participation/scoping

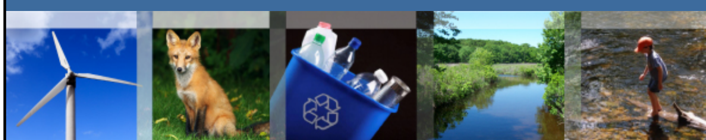
Next Steps

- Additional public meetings in 2013
- Draft SEIS by December 2014
- Final SEIS by December 2015
- If SEIS recommends designation of one or more sites, publish final rulemaking by December 2016

PRESENTATION: George Wisker, Connecticut Department of Energy and Environmental Protection:

State of Connecticut's Role

Connecticut Department of
Energy and Environmental Protection



Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION

Department of Energy and Environmental Protection, Office of Long Island Sound Programs Role in the SEIS Process

George Wisker
Public Meeting
November 14, 2012 Groton, CT
January 9, 2013, Riverhead, NY

DEEP Regulatory Role in Dredging

- Regulates dredging & management of dredged sediments pursuant to the CT Structures and Dredging statutes and in accordance with CT Water Quality Standards
- DEEP is the state agency implementing & enforcing CT's federally approved Coastal Zone Management Program through the Office of Long Island Sound Programs

Connecticut Department of Energy and Environmental Protection

DEEP Regulatory Role in Dredging

(continued)

- All federal & nonfederal dredging and disposal actions are reviewed for program consistency to ensure that coastal resources are adequately protected while preserving & encouraging water dependent uses.
- Section 401 of the federal Clean Water Act requires the state to certify that discharges of dredged material to the waters of the state will not result in permanent impairment to water quality

Connecticut Department of Energy and Environmental Protection

DEEP Role in SEIS

- DEEP will provide available information on resources and research to EPA and the SEIS contractors to assist with filling data needs.
- Finally, DEEP will provide coordinated comments on interim work products and will ultimately evaluate any federal action resulting from the SEIS process for consistency with the enforceable policies of Connecticut Coastal Zone Management Plan

Connecticut Department of Energy and Environmental Protection

Connecticut Department of
Energy and Environmental Protection

Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION

PRESENTATION: Jennifer Street, New York Department of State:

State of New York's Role

NEW YORK STATE
ANDREW M. CUOMO, GOVERNOR
DEPARTMENT OF STATE
CESAR A. PERALES, SECRETARY OF STATE

N.Y.S. Department of State Coastal Management Program

- Prepared for The USEPA Public Scoping Meeting for the Supplemental Environmental Impact Statement for the Potential Designation of One or More Open-water Disposal Sites in Eastern Long Island Sound, UCONN, Avery Point, Connecticut, 11/14/2012, and at SCCC, Culinary Arts Center Riverhead, New York, 01/09/2013

Overview: Primary Program Goals

- Balance protection of natural and cultural resources with economic development within the coastal zone.
- Coordinate decision-making at all levels of government.

New York Department of State

Overview: Our Role in Long Island Sound

- Long Island Sound (LIS), as a shared estuary, is subject to regulatory review by both New York and Connecticut
- The LIS Coastal Management Program (CMP) is the regional program containing the 13 enforceable policies of the NY Coastal Management Program for the LIS region.
- Implementing coastal policies through interstate consistency and consistency review

New York Department of State

Federal Consistency

- Federal regulations at 15 CFR 930 establish a framework for review of all proposed federal activities that are within or would effect a state's designated federally approved coastal area.
  - "Federal activity" refers to funding, permitting, rule making or direct actions undertaken by a federal agency
- Based upon an analysis of the effects of a proposed activity on the enforceable policies of the CMP, the Department either concurs with or objects to the proposed activity.

New York Department of State

NY DOS Involvement in the SEIS Process

- Participate as a cooperating agency as part of the NEPA process
  - Provide written scoping comments
  - Provide available data and information
  - Review work products and provide comments as needed
- Review any potential federal actions for consistency with the NY CMP

New York Department of State

Questions?

For **Consistency** related questions contact:

Jeffrey Zappieri – Consistency Unit Supervisor

Jeffrey.Zappieri@dos.ny.gov

For **LIS DMMP or ELIS SEIS** related questions contact:

Fred Anders – Natural Resources Bureau Chief

Fred.Anders@dos.ny.gov

NYS Department of State
One Commerce Plaza
99 Washington Avenue
Albany, NY 12231
Telephone: (518) 474-6000
For a copy of the NY CMP or for more information on our program,
please visit: http://www.dos.ny.gov/communitieswaterfronts/consistency/index.html

New York Department of State

Attachment 5

TRANSCRIPTS OF PUBLIC COMMENTS, GROTON, CONNECTICUT NOVEMBER 14, 2012

November 14, 2012 - Avery Point, UCONN, Groton, CT.

Public Meeting
Supplemental Environmental Impact Statement (SEIS) to
Evaluate the Potential of One or More Dredged Material
Disposal Site(s) in Eastern Long Island Sound

By: Sarah J. Miner, LSR #238
BRANDON SMITH REPORTING SERVICE
249 Pearl Street
Hartford, Connecticut 06103

Six Landmark Square, 4th Floor
Stamford, Connecticut 06901
(203) 316-8591 (800)852-4589

MR. VERAART: Welcome everybody to this public meeting. I just wanted to do a little bit of housekeeping up front. The rest rooms are outside this auditorium. The ladies room is out the door straight to the right. And the men's room is at the end of the hallway, also to the right. Also please turn your cell phones off or put them on vibrate. That would be most helpful.

My name is Niek Veraart. I am with The Louis Berger Group. We are on the contract to University of Connecticut, which is on the contract to the Connecticut Department of Transportation. And we have been retained to assist with this public meeting, and with preparation of the Supplemental Environmental Impact Statement.

This meeting is being held to solicit comments as part of the environmental review under the National Environmental Policy Act to prepare a Supplemental Environmental Impact Statement to evaluate the potential designation of one or more Ocean Dredged Material Disposal Sites to serve the Eastern Long Island Sound region in Connecticut, New York, and Rhode Island. The Notice of Intent to prepare the Supplemental Environmental Impact Statement was announced in the Federal Register on

October 16, 2012.

The federal lead agency is the U.S. Environmental Protection Agency, or EPA. EPA is requesting written comments from federal, state, and local governments, industry, nongovernmental organizations, and the general public on the need for action, the range alternative considered, and the potential impacts of the alternatives.

In addition to today's public scoping meeting, the second scoping meeting is scheduled for January 9th, 2012, from three to six p.m. at Suffolk County Community College in Riverhead, New York, in Long Island. That meeting was rescheduled in light of Hurricane Sandy. And the details of that meeting will be made available on EPA's web site. The period for accepting scoping comments was also extended to January 31, 2013.

The EPA and the other agencies today will present information about the project over the next hour until approximately 5 p.m. We have had a little bit of a later start so it may run beyond five.

After the presentations have been completed, the floor will be open for comments until about 7 p.m. If you wish to speak we ask that you sign up at the registration desk near the entrance.

When you are registering to speak, if you could please provide your contact information and any affiliation if you are representing an organization. A form is provided at the registration desk, and speakers will be heard in the order in which they are registered to speak, with elected officials and government representatives speaking first.

You may also submit your comments in writing at the registration desk, in which case we also ask that you indicate your contact information and your affiliation. All comments, written and verbal, will become part of the public record.

We are asking that you limit your comments to no more than five minutes, to provide everyone an opportunity to speak. If you have extended comments you may want to summarize them in your verbal statement and submit your comments in writing at the registration desk, which will then make them part of the public record. Please note that the focus of this meeting is to receive verbal comments on the Notice of Intent, the presentations this afternoon by the agencies, and their review process. This is not a technical discussion forum.

This public meeting is being recorded by a stenographer, and on audio recording devices. The transcript of the meeting will be entered into the public record of the environmental review process, and will be made available to the public.

Again, the period to submit written comments will end on January 31, 2013.

And we will now move to the presentation portion of the meeting. Please note also that the presentations will be made available on the EPA web site after the meeting.

The agency representatives that will be presenting and receiving comments this afternoon include the following in the order of the presentations:

Mr. Mel Cote, Manager, Ocean and Coastal Protection Unit, EPA Region 1. He will discuss EPA's role in Disposal Site Designations. And he will discuss the history of the process, the designation of the Central and Western Long Island Sound Dredged Material Disposal Sites.

His presentation will be followed by a presentation by Mr. Mark Habel of the Corps of Engineers, New England District, who will discuss the need for dredging and the role of the Corps.

Followed by Ms. Jean Brochi, Project Manager, Ocean and Coastal Protection Unit EPA Region

1, who will discuss the process going forward, Supplemental EIS for the Eastern Long Island Sound Region.

Mr. George Wisker, representing the Connecticut Department of Energy and Environmental Protection and the Connecticut Department of Transportation, will then discuss the role of the State of Connecticut.

Followed by Ms. Jennifer Street of the New York Department of State, who will discuss the role of the New York Department of State process.

Mr. Cote will officially open the meeting.

MR. COTE: Thanks very much. Good afternoon everyone. As Niek mentioned, my name is Mel Cote, and I am the Manager of the Ocean and Coastal Protection Unit in the U.S. Environmental Protection Agency's Region 1 office for the New England Regional Office. Prior to taking this position almost 11 years ago, I spent nine years as the Region 1 Program Manager for the Long Island Sound Study and Connecticut's nonpoint source program. My family is from Connecticut. I was born in Middletown, Connecticut, and I have spent a lot of time at the beach and on the Waters of Long Island Sound. So I

have both personal and professional knowledge, as well as a real affinity for the Sound and this region. Thank you for coming to this public meeting. We really appreciate you coming to provide input during the very early stages of our process to develop a Supplemental Environmental Impact Statement that will evaluate the potential designation of one or more dredged material disposal sites to serve the Eastern Long Island region.

What I am going to do now is describe what EPA's role is with respect to the designation of dredged material disposal sites. And then I am going to take a step back to provide some background of the designation of Central and Western Long Island Sound disposal sites, which was completed in July 2005. Then I am going to turn it over to Mark Habel of the U.S. Army Corps of Engineers to talk about the Corps' role in dredged material management, as well as their effort to develop a Dredged Material Management Plan for the Long Island Sound region.

EPA and the U.S. Army Corps of Engineers jointly regulate dredging and dredged material disposal under federal authorities provided by Section 404 of the Clean Water Act, and Sections 102 and 103 of the Marine Protection Research and Sanctuaries Act,

which is also known as the Ocean Dumping Act. In administering these programs, we work closely with other federal resource management agencies like the National Marine Fisheries Service and U.S. Fish and Wildlife Service, and state and environmental agencies to ensure proper coordination and consistency with statutory and regulatory requirements, and environmental standards.

Since 1980, EPA and the Corps have been applying the sediment testing criteria requirements of the Ocean Dumping Act for all federal dredging projects and to private projects generating 25,000 cubic yards or more of dredged material. Dredged material that meets these criteria and is determined to be suitable - meaning clean enough - for ocean disposal may be disposed of at one of the four sites at Long Island Sound, known as the Western Long Island Sound, Central Long Island Sound, Cornfield Shoals, and New London disposal sites.

The Western and Central Long Island Sound sites were designated by EPA, as I mentioned, in 2005, and the Cornfield Shoals and New London sites were evaluated and selected as disposal sites pursuant to programmatic and site specific environmental impact statements prepared by the Corps, most recently in

1991.

In 1992 Congress, and these show the sites here, in 1992 Congress added a new provision to the Ocean Dumping Act on the availability of Corps-selected sites for disposal activity. The provision allows the selected site to be used for a five-year period, beginning with the first disposal activity after the effective date of the provision, which was October 31, 1992. It also provides for an additional five-year period beginning with the first disposal activity commencing after completion of the first five-year period. We have a total of 10 years, it is not necessarily the second. Use of the site can be extended, however, if the site is designated by EPA for long-term use. Thus, the Corps can select disposal sites only for short-term, limited use, whereas Congress authorized the EPA to undertake long-term site designations, subject to ongoing monitoring requirements to ensure that the sites remain environmentally sound.

So to summarize, EPA's responsibilities related to the dredging and dredged material disposal include:

Designating disposal sites for long term use;

Promulgating regulations and criteria for disposal site selection and permitting discharges;

Reviewing Corps dredging projects and permits;

Developing site monitoring and management plans for designated sites;

Monitoring disposal sites jointly with the Corps.

Now, I am going to provide some background of the designation of the Central and Western Long Island Sound Disposal sites, which was completed in July 2005. This goes back 15 years.

In 1998 EPA and the Corps agreed to conduct a formal site designation process following the criteria established in the Ocean Dumping Act. We also agreed that, consistent with past practice in designating dredged material disposal sites, that we would follow EPA's "Statement of Policy for Voluntary Preparation of National Environmental Policy Act or NEPA Documents," and would prepare an environmental impact statement to evaluate different dredged material disposal options.

In June 1999 we published a "Notice of Intent" in the Federal Register announcing our plans to prepare, in cooperation with the Corps and other

federal and state agencies, an Environmental Impact Statement to evaluate and potentially designate dredged material disposal sites for the entire Long Island Sound region. We began the Sound-wide field data collection effort in 1999, but were slowed by both the technical complexities and financial constraints associated with a large-scale, multiple-site project.

In March 2002, with the Central Long Island Sound Disposal Site scheduled to close in 2004, when the second, I mentioned before, the second of two five-year periods of use of that Corps-selected site expired, EPA and the Corps announced their intent to develop the EIS in two states - Western and Central Long Island Sound first, followed by the Eastern Sound once a site or sites had been designated to serve the Western and Central region. This approach would yield a schedule to meet the important public need to consider disposal sites in this region more expeditiously without compromising the continued objectivity of the decision-making process for each region of the Sound. In September 2003, EPA issued the draft EIS recommending the designation of the Central and Western Long Island Sound Disposal Sites, and held public hearings in Connecticut and New York

during late September and, in response to public comments, held additional hearings in December.

EPA released the final EIS and response to comments on the draft in April 2004, with the recommended action, or preferred alternative, designation of the Central and Western sites. Because the EIS is not a decision document, EPA also began the rulemaking process to formally designate the two sites by regulation. At this point, the State of New York's Coastal Management Program - which we will hear a little bit more about later in the meeting - exercised its federal consistency authority under the Coastal Zone Management Act to object to the site designations on the basis that this federal action was not consistent with the enforceable policies of their program.

Now, in June 2005, EPA did publish the final rule designating the Central and Western disposal sites. To address concerns raised by the State of New York and some sectors of the general public about the potential impact of dredged material disposal on Long Island Sound water quality and fisheries habitat, these site designations are subject to restrictions on their use. These restrictions were intended to reduce or eliminate the disposal of dredged material in Long Island Sound, and include: (1) the Corps completing a Dredged Material Management Plan for the entire Long Island Sound region with the goal of reducing or eliminating open-water disposal of dredged material by identifying alternatives to open-water disposal. That effort was completed by July 2013, with additional time allowed if good faith efforts were being made to complete the process; (2) establishing an interagency Long Island Sound Regional Dredging Team to review alternative analyses for federal and large private dredging projects; (3) and a third restriction was that EPA would publish an annual report to the public on progress toward completion of the DMMP and disposition of dredged material from all projects each year, including open water disposal and beneficial use.

As an example of the kind of information that is contained in our annual reports, and the next report for the dredging season basically July 2010, 2011, 2012, would be out soon. As an example of the information contained in the annual reports, this is data on the amount of dredged material that was disposed of at each of the four Long Island Sound disposal sites for the period 2006 to 2011.

So at this time I am going to turn it

over to Mark Habel of the U.S. Army Corps of Engineers. Mark is going to talk about the Long Island Sound Dredged Material Management Plan and the Corps' role in dredged material management in general. Thank you.

MR. HABEL: Good evening, as Mel introduced me, I am Mark Habel from the New England District Corps of Engineers. I work in navigation. Mainly improving projects and studies for port development. Right now I am one of the people working for the district on the Dredged Material Management Plan on Long Island Sound. Mel talked a bit about what happened back in 2003, 2004, 2005, with the EIS for Western and Central Long Island Sound. And as part of the end of that process EPA published a rule, one of the conditions of which was that a Dredged Material Management Plan be prepared for the Sound in order for those sites to remain open. That was one of the recommendations.

What is a DMMP? Well, the Corps of Engineers is tasked by Congress with the development and maintenance of our Nation's navigation infrastructure, our ports and harbors, our channels, breakwaters, and everything else that is needed for shipping to occur. Dredged Material Management Plan

is a means by which we can look at all the projects over a long term and see what their needs for maintenance and planned improvements are. Around Long Island Sound I believe there is more than 50 federal harbors. Most of those are in Connecticut, but some of those are in New York. And they all need maintenance periodically, some frequently, some much less frequently. But the DMMP looks at all of those. What their needs are over time, and tries to develop a plan to both economically and environmentally maintain and improve those projects.

So a DMMP is supposed to look at the whole region's needs over a term of at least 20 years, determine where the shortfalls in maintenance capacity are, and try to address those shortfalls. The DMMP is looking at all potential disposal options for dredged material, whether those are in the water, or upland, or along the shore, or beneficial use of dredged material, whatever. At the end of that the DMMP will recommend the alternatives that federal projects should pursue. And it will also categorize the alternatives that may be available for nonfederal projects, and more on that as I go through this.

The goal of the DMMP is practical implemental solutions, economically sound, and

environmentally acceptable. The DMMP is being developed over the course of several years. We have established a technical working group. Members of the public through their NGO's were invited to participate. I see some of those people here. As well as the federal and state agencies from the three states, Connecticut, New York, and Rhode Island.

The DMMP addresses future dredging needs. Again, we are looking at both federal and nonfederal projects and needs. What disposal capabilities are there? The capacities of placement sites. Whether they are current sites, or sites that might be developed. The environmental compliance for using those methods and sites. Potential beneficial uses of dredged material. Most of you know that sand can be used to nourish beaches. Other materials can be used to build marshes, and help in highway projects, things of that nature.

As part of the DMMP we are also preparing a document, which is a Programmatic Supplemental Environmental Impact Statement. It is programmatic because it won't make specific recommendations for specific ports. It is supplemental because it is looking back to the prior EIS from '04, '05. Any specific development or new

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disposal alternatives are going to have to be handled harbor by harbor.

You know what our study area is, Connecticut, Southwestern Long Island, and the adjoining counties on the New York mainland.

The process of DMMP. The Corps prepared and approved a preliminary assessment in 2006, that is a means for us to seek the funding for doing the DMMP itself. Funds became available in 2007, and since then we have been working our way through the various phases. Identifying dredging needs, placement opportunities, and potential impacts of each of those areas.

Things we have looked at. In response to the comments we got in our scoping process for the DMMP several years ago from the agencies and the public, we put together a fairly comprehensive list of what we needed to look at, what people wanted us to look at, from landfills to aquatic sites, to other infrastructure projects, transfer facilities, on down the list, beaches, agriculture, and habitat creation. Now, we spent the last several years going through all of those categories, investigating in all three states, developing a list of alternatives under each of those categories and sites, trying to categorize

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them, look at ownership, size, impacts of use of each of those sites, and those reports have all been published over the last couple of years.

What the DMMP does and does not do. I talked about this a little earlier. We are going to identify and recommend alternatives to be looked at for each of the federal projects. We are also going to identify sites and alternatives that other parties can use for nonfederal projects. Any questions?

Following me will be Jean Brochi of EPA, Region 1, who works for Mel in the Ocean Program.

MS. BROCHI: Hi, I am Jean Brochi from EPA. I am the project manager for Connecticut Dredging and for the Long Island Sound Project. Can everybody hear me in the back?

I am going to discuss recent activity that led us to the SEIS process. I will go through what that process is, budget and next steps. So, as Mel had mentioned, the 2012 Corps Appropriation Act extended the use of the New London and Cornfield Shoals disposal sites. For New London the original closure date was October 5th, 2011. And for Cornfield Shoals it was November 6, 2013. Both of those have been extended to December 23rd, 2016.

In addition, the purpose of the

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Appropriation Act was to allow for completion of a supplemental EIS to support a final designation of disposal site in Eastern Long Island Sound. And a designation does not authorize dredged material disposal. It provides a location for dredged material. In addition, EPA's Appropriations Act of 2012 required EPA to report the plans to carry out the supplemental EIS for Eastern Long Island Sound, and to work collaboratively with the Corps and state partners to determine a dredging solution for Long Island Sound.

The process itself initiates with the Notice of Intent, which was published October 16th. Next we have scoping meeting and a comment period. For the Notice of Intent the comment period ends January 31st. In addition, the public is provided an opportunity to send comments to EPA, and I know you can't read it very well, but we have the web site address, which I will repeat, and a mailing address elis@epa.gov. At any time send us a message if you would like to be added to a mailing list. If you would like to receive announcements or if you would like to provide comments, please send us a message any time.

After the scoping meetings we initially

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select Zone of Siting Feasibility. That is the official name for the area to which we would like to study for this effort. After that we will do an identification of alternatives and data needs for both existing sites, new sites, and review, and what we have available for alternatives. After that there will be a screening phase where we will phase out sites and possible alternatives for areas, reasons some of them can include recreational impacts. Some of them could be debt, the inability to monitor. And some would be excluded because of the feasibility for transportation and management of dredged material.

Once we select the sites, we will assess data needs, collect data. We will prepare a draft EIS. After that point, we will hold another comment period and have additional public meetings. We will prepare a final supplemental EIS. And then we will have an additional comment period.

At the very end of the process we publish a final rulemaking and a record of decision and the sites are officially designated, site or sites. The initial part of this effort is to request cooperating agencies to join us, and be involved every step of the way. And that took place in July. That request went out to federal agencies, state agencies,

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tribal members. We then followed up with a notice of intent, as I stated, October 16th that was published. All of the information from these meetings, any data needs will be published on the EPA web site. Any announcements, such as the postponement of tomorrow's meeting until January, will also be updated on the EPA web site. That address is http://www.epa.gov/region1ecolongislandsounddergelis. And if you would like to be on the notification system we are going to do e-mail blasts throughout the process, please contact us at elis@epa.gov. You can also contact me directly at jeanbrochi@epa.gov.

This meeting was the first of two public scoping meetings. The New York meeting, as Niek postponed until January 9th. The comment period has been extended to January 31st. And you can provide comments in writing via e-mail, hard copy. In addition to these meetings, additional scoping meetings will be scheduled for the spring and the fall. And we would like to solicit comments on the field plan and data collection needs and various other points throughout the process.

So, as I mentioned, the first step is to identify zone of siting feasibility. And on this you can see that I included Western, these are all active

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sites, Western Long Island Sound site, Central Long Island site, Cornfield, and New London. Zoning feasibility right now, this effort will not investigate Western and Central Long Island Sound. We have already completed that in the first round of the EIS. We are only looking at the eastern region, and the zone of siting feasibility will be further refined and available for public comment.

Part of this process is including the DMMP efforts, as well as previous efforts in all of the data collection that we completed for the original EIS. The data collection for that effort was from 1999 until 2002. And originally when we started that effort we did investigate soundwide data collection efforts, and we have some of that available to us.

In addition, EPA on their own research vessel, conducted site monitoring in 2007 and 2009 through 2012. In addition, the Corps of Engineers has a disposal monitoring program where they are in the field every year monitoring and managing the disposal at the disposal sites. And that included 10 surveys from the New London site since 1990, which included bathy, physical oceanography, benthic biology, and chemistry, as well as the Cornfield Shoals Disposal Site. They conducted three surveys there since 1990,

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and that included bathy and sediment transport. The Rhode Island Disposal Site, which had completed four surveys, that was since 2000. And that included bathy, benthic biology, lobster abundance, and plume tracking.

All of the Corps' monitoring and data report are available on the Corps web site, as well.

As Mel had mentioned, as part of the EIS effort, and the DMMP effort, EPA will be using some of the reports and data that has been collected through the Corps' DMMP process. An example is the Dredging Needs Report, which was completed in October 2009, and that stated that 13.5 million cubic yards would need to be dredged from Eastern Long Island Sound channels and harbors over the next 26 years. The planning horizon goes to 2028. And that is a planning horizon that the Corps used to assess the passing.

In addition there is a report called the Upland Beneficial Use and Sediment Dewatering Reports. They were completed in 2009 and 2010. They determined that there were very few alternatives for open water disposal sites in Connecticut. And the majority of those are beach nourishment.

Several other studies will be used for this effort, such as the literature search, dredging

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needs, economics, and disposal alternatives. Some of the graphs and the chart over there, which is Long Island Sound dredging needs, are part of the DMMP effort, and will be produced as part of that effort.

The Disposal Alternatives Study includes upland, nearshore, beneficial use, and aquatic disposal.

Alternatives investigated include Landfills, Beaches, Redevelopment, Habitat Restoration, and dewatering sites. Here is a graph representing some of the locations in that report. And you can see the yellow identifies beaches. The purple identifies available landfills. The red identifies redevelopment locations. The green, which may not be obvious here, is habitat restoration, and then the blue is dewatering. The budget EPA estimates will be $3.3 million for a total cost for this effort. Again, this is a supplemental EIS. The Connecticut State Bond Commission through the efforts of Connecticut DOT, and with assistance from Connecticut DEEP, have approved $1.8 million for this effort, and that was approved in October 2011. That will fund efforts to support the SEIS. The initial project for that will be physical oceanography, looking at the Eastern Sound and sediment transport. There will be additional environmental studies, as well as documentation of public scoping meetings that those funds will be used for.

The next step for this effort is to hold additional meetings in 2013, additional public scoping meetings. We expect to have a draft supplemental EIS completed by 2014. A final completed by 2015. And if the supplemental does, in fact, recommend designations of one or more sites we will have a final rulemaking published in December of 2016.

With that I will call George Wisker from Connecticut DEEP. Thank you.

MR. WISKER: As Jean mentioned, my name is George Wisker. I am an Environmental Analyst with the Department of Energy and Environmental Protection. I can't get used to that extra "E" in there. I have been asked to just outline what the department's role in the SEIS will be.

Our current regulatory role is that we are the part of the department that actually regulates dredging and dredge management. We do that according to the Connecticut Structures and Dredging Act and in accordance with Connecticut's Water Quality Standards.

We are also the agency as close to states around us have separate coastal management

agencies that are separate coastal management reviewed. Connecticut DEEP actually incorporated the Coastal Management part of the review in with the permit. We also include a water quality certificate in there. Instead of getting three separate documents, there is one permit issued. That is for private projects. With regards to our other program with the federal government, the federal government really does not give permits, particularly for water quality. So we review these projects for disposal of program consistency so that we are ensuring that all our coastal resources are adequately addressed, protected, as well as dealing with promotion of water dependent uses.

The Clean Water Act is the other part that we regulate. What we are trying to do there is certify that discharges of dredged material or anything into the bodies of water will not impair uses and result in a permanent impairment. We realize sometimes with discharges you will get a temporary impairment. The key is not to have permanent impairment.

Now, the role of SEIS is really quite simple. We are going to try to provide whatever information we may have to EPA, the contractors, to

help them fill in some of the data gaps. There have been times where our agency goes out, and does fishing trolls, surveys, water quality monitoring. All that information will be available to the contractors. Finally, the department is going to coordinate, provide ongoing coordination with the agencies, the contractors, and evaluate a lot of the work products that are going to come out. We have already been involved heavily with the Dredged Material Management Plan. And we will be involved in providing comments on work products coming out of this.

And also, finally, when there is a final product that comes out of this record of decision, we will provide and evaluate Coastal Management Consistency with our program under the Coastal Zone Management Plan. That really is the nature of our role in this particular process.

Do you have a question?

A VOICE: I am interested exactly to know how the department defines and differentiates between temporary and permanent impairment of marine resources.

MR. WISKER: A good example of that would be --

A VOICE: Repeat the question.

MR. WISKER: The question was, how does the department differentiate between temporary impairment and permanent impairment of resources. A good example of that would be if you did a dredged material disposal at a site. What would happen is if there were critters buried on the bottom they would get buried under the material. What actually would happen is there is a recolonization that occurs. There is a temporary impairment to the critters at the site, but there is a recolonization that occurs. Overall it was a temporary hit not a permanent hit.

MS. STREET: My name is Jennifer Street. I am with the New York State Department of State with their Coastal Management Program. Similar to what George had mentioned earlier we, our state, not similar, different to what George had said before, the Department of State administers the Coastal Management Program. New York State DEC issues water quality certifications and permits for actual activities in the water. And then New York state Office of General Services is actually the agency that overseas the use of state lands. All three of our agencies have a role in dredging projects in New York State as it pertains to the dredging and disposal. Our primary program goals, we manage our program to balance the protection of natural and cultural resources with the economic development within the coastal zone. And we coordinate decision making at all levels of government. At least we try to.

Our role in Long Island Sound is in 1982 the New York State Coastal Management Program was finalized and approved by NOAH. In 1999 the Long Island Sound Coastal Management Program is the regional program, the regional refinement that New York State has had incorporated into the Coastal Management Program for all projects within the Long Island Sound region.

Then in 2006 our program also went through an additional change implementing interstate consistency, extending our coastal area boundary to the 20-foot by bathymetric contour closest to the Connecticut shoreline, and also some boundaries that we currently share, as well. I know Connecticut also had a program change similar during that time for interstate consistency with our side of Long Island Sound. This is just a basic explanation of the Coastal Zone Management Act establishing a framework of review for all proposed federal activities that were within or would affect a state's designated federally approved coastal area. Federal activities

refer to the funding, permitted rule making, or direct action undertaken by a federal agency. In which case we would evaluate a project or a proposed rule or a federal undertaking and review it against our program, and based upon the analysis of the effects of that activity on the enforceable polices of the CMP we would either concur with or object to a proposed activity.

Our involvement in the SEIS process, we have been requested to be a cooperating entity in the SEIS process. We will provide written scoping comments, available data information throughout the process. And we will review work projects and provide comments as needed. And eventually potentially review any potential federal actions for consistency with the New York CMP. Any questions?

MR. VERAART: We will have a five-minute break so people can register at the registration desk if they have any questions. Again, as I mentioned at the beginning of our public meeting, if you could also please identify your contact information and any affiliation that you have with an organization, and if you have any questions for any particular agency or a particular individual representing agencies, if you could also indicate that. It will just make it a

little easier to direct the questions to the appropriate person. There are basically two groups of questions, if you will, or subjects that are being discussed. One is the supplemental EIS by the EPA. And the other is Federal Management Program led by the Corps of Engineers. Keep that in mind as you are framing your questions. Any questions at this point about logistics? No. Thank you.

I was told I have to speak close to the microphone because of the acoustics and our court reporter. Before we proceed with the comments, Mr. Cote from EPA would like to say a few things.

MR. COTE: Thank you, Niek. And a major oversight on my part, I wanted to thank the University of Connecticut for hosting tonight's activity. I appreciate very much the facility, and everything that goes with it. Thank you very much. And secondly, and I don't think I can emphasize this enough, about the process, it tends to be a very open process and we have official comment periods with almost every notice that we do. But I do want to emphasize that in practice that we are taking comment from anyone at any time throughout the entire process. It is not a closed process. We do want your input. We need your information, data. That is all I wanted to add. And

then we will now go to public comment. Thank you.

MR. VERAART: Thank you. We have at this point, we have three commenters at this point, Louis W. Burch, Adam Wronowski, Christian McGuyun. So Mr. Burch, if you could please, you can stay seated. I will come over to you.

MR. BURCH: Thank you very much for the opportunity. My name is Louis Burch. I am the Connecticut Program Coordinator for Citizens Campaign for the Environment. We are a member supported environmental group with over 85,000 members in Connecticut and New York and growing. Citizens Campaign for the environment is an active member of the Long Island Sound Citizens Advisory Committee and we participated in the Long Island Sound Dredge workshop set by EPA and the Army Corps.

In 2004 CCE opposed the Environmental Protection Agency's plan to designate two 20-year dump sites in the Long Island Sound. CCE understands that while dredging is important for the safety of navigation and is a necessary activity, that open water disposal of those dredge materials is not. Long-term dump sites in the Long Island Sound, the EPA released a notice of intent to prepare a supplemental environmental impact statement for the designation of those two long-term dump sites. And EPA states that it is necessary because of the Cornfield Shoals and New London disposal sites were set to expire September 16th, 2016.

In 1992 an amendment to the Marine Protection Research and Sanctuaries Act established a time limit on disposal sites. When Congress passed this important Act the intent was to stop dumping and to phase it out over time, and not to go through a lengthy process to allow open water dumping to continue.

In 2003 the EPA released a Draft Environmental Impact Statement for the designation for two long-term disposal sites in the western area of Long Island Sound. And due to an overwhelming public outcry, EPA, the states of New York and Connecticut reached an agreement that sought to phase out open water dumping. As part of this agreement a Dredged Material Management Plan was supposed to be developed. And the EPA's final notice in that agreement was the DMMP for Long Island Sound Dredge Materials Management Plan would include the identification of alternatives to open water disposal and standards for the use of practical alternatives to open water disposal so as to reduce, wherever practicable, the open water disposal

of dredge materials. To date that DMMP has not been developed. And CCE believes that is a imprudent to proceed with the long-term designation of open water disposal sites before that development of a final DMMP. Particularly since the goal and intent of the plan was to reduce open water disposal, not to re-locate open water disposal. So a few specific comments, CCE offers the following items that should be addressed in the Supplemental Environmental Impact Statement.

First of all, consider that the Eastern Long Island Sound is the most biologically diverse portion of Long Island Sound. EPA needs to conduct a thorough analysis of all the species located in these waters and assess how long-term dumping will affect species diversity.

Also an assessment of the highly diverse and critical benthos and bottom topography need to be undertaken. As well as the fact that the Eastern Long Island Sound is also a very busy zone for navigation, national security, waterborne commerce, and recreational boating. The EPA needs to assess how these activities will be impacted or harmed or hindered because of a long-term dump site.

Eastern Long Island Sound is also an

important spot for commercial and recreational fishing. And the impacts to the fishing community also need to be accurately captured before moving forward.

EPA needs to fully document how long-term dumping will affect the water quality in the affected area of Long Island Sound.

The EPA needs to ensure that the guiding principles of the bi-state agreement between New York and Connecticut which seek to reduce and eliminate open water dumping be captured in the SEIS.

EPA also needs to identify disposal alternatives. The DEIS for the Western open water disposal sites was quick to rule our disposal alternatives as not being feasible. The DMMP, on the other hand, was supposed to focus on alternatives. Yet, in the many meetings that CCE attended there was very little discussion of alternatives.

Furthermore, the EPA needs to evaluate the potential release of pathogens and toxic contaminates.

And the EPA should ensure a transparent and open process in which public comments are welcomed and solicited.

In conclusion, CCE continues to be

concerned with the process of designating open water disposal sites in the Eastern Long Island Sound, particularly because of the agreements that we should be phasing out open water disposal and working to find good alternatives to dredged material. Open water disposal is a quick, seemingly cheap fix, which is negatively creating lasting and costly effects to our estuarine ecosystems. Thank you very much for the opportunity to be heard.

MR. VERAART: Thank you very much. Appreciate it. The next comment is from Adam Wronowski. If you have a letter you can also give it to the court reporter, if you wish, and she can enter it into the public record.

MR. WRONOWSKI: I have already submitted my written comments at the door.

My name is Adam Wronowski. And I represent Cross Sound Ferry, Block island Ferry Services, Thames Shipyard & Repair Company, Thames Dredge & Dock Company, and Thames Towboat Company, all of which are Connecticut Corporations. I am also the Director of the Connecticut Maritime Coalition. These five marine businesses I have just listed operate on Eastern Long Island Sound and its tributary waters, and they rely on dredging as a fundamental necessity

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for their existence. Together these five businesses employ over 500 persons. Cross Sound Ferry Services and Block Island Ferry Services provide essential transportation to the public and serve as a lifeline to Block Island and Long Island. Thames Towboat provides all of the ship docking services in New London Harbor and is responsible for the safe movement of every nuclear submarine and naval vessel that transits New London Harbor and the Thames River. Thames Shipyard provides critical maintenance services to dozens of large passenger and vehicle ferries in the Northeast. Thames Dredge and Dock provides a vital dredging and disposal services that are the subject of this meeting. These businesses operate in publicly and privately maintained coves, harbors, and channels in Eastern Long Island Sound that require dredging. If dredge spoil disposal is prohibited in Eastern Long Island Sound, these businesses will be severely negatively impacted.

As an alternative to an open sound or open water disposal site in Eastern Long Island Sound, I encourage the EPA to carefully consider the development of a CAD cell in the Thames River. The U.S. Navy just two years ago demonstrated the feasibility of this. There exists a CAD cell right

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now in the Thames River that the U.S. Navy has used to dispose of hundreds of thousands of yards of material. Rhode Island, through the Corps of Engineers, and EPA, also has displayed the feasibility of creating a CAD cell for disposal of all of their dredged spoils.

I would also like the EPA to consider the negative impacts of not creating an Eastern Long Island Sound disposal area. Economically, if dredging projects are to occur in Eastern Connecticut and there is not an Eastern Long Island Sound disposal area, those dredge spoils have to be towed to either the Central Long Island Sound disposal site or the Western Long Island Sound disposal site. The cost of that additional towing can more than double the cost of the dredging. That is the economic impact. The environmental impact of towing those dredge spoils across Long Island Sound can be measured in air quality impacts. To tow those dredge spoils a tug has to tow that scow. That tug burns diesel fuel. The amount of diesel fuel that it takes to tow a scow from Eastern Connecticut to these disposal sites, as compared to towing them right to an Eastern Long Island Sound disposal site, is significant. Thank you for the opportunity to comment.

MR. VERAART: Thank you, Mr. Wronowski.

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The next person is Christian McGuyun.

MR. MCGUYUN: Thanks for the opportunity to speak. I am the owner and operator of two businesses in Mystic, Connecticut. It is a family business. I am owner and operator of Gwenmor Marina and Gwenmor Marine Contracting. In fact, I tow these barges way up and down the Sound, and agree with almost everything that he said. So I am going to talk about things in a very basic way because that is the only way I understand this situation. I don't understand all the science of it. I do understand the economics of it.

So I came to this thing at the Groton Motor Inn in 2005 and heard a lot of talk about alternative disposal methods, and so the gentleman spoke personally about a topic that wasn't talked about very much. There is a reason that wasn't talked about very much. That is because it is economically unfeasible as a small operator, I guess I am speaking for all the small guys, collectively that is a lot of people, a lot of recreational boaters. That is who we dredge for, marinas, and all along the Connecticut shoreline all the way down to City Island. So to dredge in Mystic and to take the sediments to New Haven is an economically unfeasible situation for a

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marina. You can't sustain that as a marina operator to pay the cost of dredging and think you are going to get it back through slips or any other way. I hate to be totally crude, but it is the same story as if you are in your yard and you have a pile of dirt and you want to get rid of it. There is a hole and you throw it in the hole. If you have to go to the town dump you have to load it three times. It costs you more money, energy. It just doesn't happen.

We have tried it. And effectively for the last couple of years New London dump site has been closed. Until a few weeks ago there wasn't a drop of sand dropped at New London for two years. So effectively it was closed.

Permits are being issued to marinas, mine included, that they might as well not be permits at all. You pay seven to $9,000 to get your permit to dredge. It says, well, you can dredge, but go to New Haven. You need to cap it two to one. So your dredging is 17,000 yards. You need 35,000 yards of cap material. It is like winning the lottery. There are other marinas just like mine, Mystic River, and all of the Connecticut shoreline, that have these permits that are basically useless. They are fantasy.

So I guess my larger point is a long

time ago when boating exploded in the '50's, and 60's, and all these marinas started flourishing all over Connecticut, a lot of marinas in Connecticut have dredged material, including mine. And I know of many, many others who dredge and made a yard, it has never happened nowadays. That is an example of when you dredge the easiest and most convenient way is to put your material is right there. Now you have a marina. That is not going to happen anymore, but to take it to the town dump or to take it to New Haven, to close the dump sites that originally there were four dump sites, that seems to make sense. It almost makes too much sense. Along the Long Island Sound there are four dump sites. You take the stuff out and dump it. Somewhere along the line they had it right.

Now, as Adam said, you take away the ability to do that when you are saying it is a fundamental question whether you are going to allow dredging or not allow dredging. There are a couple of marinas in the Mystic River that have been choked off, they are out of business, no more docks there. They lost the ability to dredge. It is financially not feasible. There are more on the way.

So I would encourage, as Adam said, CAD cell, we dump into the CAD cell in Rhode Island.

There is a CAD cell in the Thames River. That is the only alternative disposal method that I have heard of that makes sense financially and in a common sense sort of way. I would invite anyone in this room after I speak to let me know how we are going to dredge and take it to New England Disposal Technologies up in Massachusetts. Which I did. It was $126 a yard. It is not feasible. So you need to allow dredging. The reason for the CAD cell in Rhode Island was, as you may recall, some of you, there was a barge, they had to use a lighter barge to get into Narragansett Bay. It had not been dredged in so long. Now one of these barges went aground in Misquamicut. Now there is oil all over the place. They said maybe we should have a CAD cell in Narragansett Bay? And they did. They allowed them to be dredged. It took something like that to happen. I hope we don't get that far along with this. I would encourage everyone involved to consider the financial feasibility for the recreational boaters. I am definitely in support of having four managed sites along the Sound, as we have in the past.

MR. VERAART: Thank you for your comments. I appreciate it.

Next commenter is the Connecticut

Maritime Coalition, Mr. William Gash.

Hi, good evening, I am William Gash. I am the Executive Director of the Connecticut Maritime Coalition. We are a trade organization in the state and we represent the maritime industry in the state, specifically the deep water ports of Bridgeport, New Haven, and New London. The only reason I am speaking now is I did not have my name on the list to speak, but I just wanted to comment that the first that I have ever heard that we were going to end open water disposal in Long Island Sound is tonight. And I certainly don't know of any agreement between the states to end open water disposal. And it would be interesting if such an agreement exists.

Also, I would like to use the word "disposal" and not "dump". There is a lot of time and money and science that is put into these disposal sites in the Long Island Sound. And it is a very controlled evolution. We are just not taking dredged materials from a harbor or channel and really literally dumping them somewhere out in Long Island Sound. We are actually disposing of them in a very controlled and scientific monitored fashion. Thank you for letting me comment.

MR. VERAART: Thank you for your

comment. Are there any other people who wish to comment? You can come forward and enter your name on the list.

A VOICE: Can somebody explain what a CAD cell is?

MR. VERAART: Mark? Thank you.

MR. HABEL: CAD cells are holes dug in the bottom of the harbor or some other water body into which we place material that is going to be confined. Now, it is very different from the material that would otherwise go out to open water disposal sites, capped or uncapped. What was done in Providence, in Boston Harbor, in Norwalk, and in Hyannis even, was that we had material that when it was chemically tested could not be placed in an open water disposal site. It was too contaminated. So we needed to either take that material upland at very high cost, treat it at even higher cost, or place it in a CAD cell.

The CAD cells of Providence have been mentioned tonight a couple of times. Those are pits that were dug in the bottom of the Navigation Basin in the Port of Providence. They went down 80, 90, maybe 100 feet, just like they did in Boston. The material that was dredged to create the CAD cells was tested and found suitable for ocean disposal, and went out to the offshore disposal site. It did that in all of those cases. After the holes were dug, the material that had been tested and found not suitable to go to the ocean was placed in a CAD cell, and then the CAD cells when they were full were capped with other clean material dredged from other parts of the harbor channels.

Now, at Providence and in Boston some of the cells weren't full when we were done. And the states paid to make those cells even bigger so that they could make the capacity available to nonpublic projects, marinas, and others, to use if their material tested as unsuitable to go to open water.

So that is what has happened with Providence. That is what happened in Boston. I believe the cells in Hyannis and Norwalk were just for the federal projects in those instances.

A VOICE: New Bedford?

MR. HABEL: New Bedford they have created cells. The Corps has not used them yet.

A VOICE: There is about to be another CAD cell constructed for the disposal of contaminated material in New Bedford.

MR. HABEL: New Bedford is a project for CAD cells that is being led by the State of

Massachusetts, and the City. The Corps hasn't had any development in that yet, other than permitting the creation of those cells. But, again, cells are not for material that would otherwise go to the ocean sites. It is for material that has been tested and found that it can't go to the ocean sites. Because you have to pay for the cell. In order for the cell to fit the dredged material it has to be at least one and a third or more times the size of the material that is going in. Because once you dredge material and dump it, it is going to be bulked up. It increases your dredging costs in general by about two and a half times the use of a CAD cell. And that is certainly cheaper than treatment technologies that exist today or taking the material elsewhere upland. CAD stands for confined aquatic disposal. Are there any other questions on CAD cells?

A VOICE: When the CAD cell is dug, wouldn't it be an idea to charge people to use that cell? It would still be cheaper for them to dredge and dump in closer proximity.

MR. HABEL: Yes, that is what has been done in Providence. The State of Rhode Island paid the Corps to make the cells bigger than what the Corps needed for the Port of Providence, and a couple of

other smaller federal projects. And the state then, in turn, charges marinas to use the CAD cells. So, yes, that can be done.

A VOICE: Has Connecticut shown any interest in doing this? Have you seen any proposals?

MR. HABEL: You would have to ask Connecticut. George?

MR. WISKER: The problem is the cost with the budgetary issue and things to get the money available to do that. Most CAD cells that are done, I know the Navy had done one in the Thames River, those projects are not sized to accommodate everyone. Generally if an individual, corporation, or agency is doing a CAD cell it is to accommodate their material. They are going to try to keep the thing minimally sized because they are the ones paying for it. I don't know particularly, maybe Danny from Rhode Island, how is that funded, Danny?

A VOICE: We talked about the oil spill. We had an oil spill response. Every barrel that comes across the dock in Providence there is a fee levied, and you took the money from that levy to pay our share of the CAD cell.

MR. WISKER: For those who couldn't hear Dan, what they do is for every barrel of oil that

comes into the port there is a fee attached to that. And then that goes to help fund costs for maintenance, and digging these things.

MR. VERAART: That was a discussion about CAD cells. We have another commenter. Jeff Kateley of the Connecticut Dredge Corporation. Good evening.

MR. KATELEY: Jeff Kateley of Connecticut Dredge Corporation. Just the general public I guess they think of this as dumping grounds. Most of the areas are disposal areas. All of the material that we take from Point A to Point B from a dredging site is put through, as Christian said, a lot of testing. They know exactly what is in every molecule that goes through. 30 years ago, 40 years ago, the instruments used to test couldn't, or maybe parts per hundred. Now there are parts per million. So they find every little tidbit of whatever is in the material before it even gets to the disposal area, before it is even permitted.

In the dredging process we go out. Lately our barges are monitored 24 hours a day, seven days a week, through the federal government. Years ago, back in the '60's and '70's, I believe there was almost a disposal ground off of almost every port that needed to be dredged. Instead of four there was probably six or eight up and down the Sound --

A VOICE: 19.

MR. KATELEY: 19. The big push of the '60's, '70's, or '80's, environmental push made the government consolidate to four. You would think the materials, say, off of Clinton Harbor, the material that we dig out of Clinton Harbor should be put right off of Clinton Harbor. It is the same stuff that comes out of the river, just like the material that comes out of the Connecticut River. Well, it makes sense put it off of Cornfield Shoals, that is where the material is coming from. It is not like -- it shouldn't be transported from, say, New London, to New Haven. You know, it is ridiculous to think that that material has to get moved that far. The diesel fuel, as Adam said, it is ridiculous, the cost probably tripled just to get it from New London out.

You guys, I guess the impact study we are spending another $10 million on an impact study that has already been hashed over years past. It is my tax dollars, your tax dollars, in a government that is bankrupt to begin with. Thanks for your time.

MR. VERAART: Thank you for your comment.

Do you wish to make a comment, sir?

MR. VISEL: I will probably hate myself in the morning.

MR. VERAART: Write down your name.

MR. VISEL: Tom Visel, Ivoryton, Connecticut. I started working in 1978. I did my first dewatering upland disposal in 1983 in Osterville on the Cape where I urged communities, I think they have it now, to have a regional cooperative dredge program on Cape Cod. The dredging projects that I worked with were usually rivers and creeks. They were mostly composting leaves. We need to know what type. We are in a period of high heat, low energy. We have our tree canopy back. We have a lot of leaves in our estuaries. When you dredge the lower river you are in the leaf business. Basically, when you look at the 1950's for these lower rivers and creeks that were dredged it was fish food. A lot of fishermen in the '50's and '60's would head to the disposal sites because they knew that is where the flounder were. We couldn't even find the dredge disposals back then. You know if it is clean sand. Something we could use. Even cobblestone, whether it is something that needs to be contained or capped or whether it is just leaves. We have a lot of leaves. Thank you.

MR. VERAART: Thank you for your comments, sir. Anybody else have any comments at this point?

MS. CODORE: Abbie Codore. I manage a marina at the mouth of the Connecticut River. We have to dredge every two years just to maintain, to bring in power boats not sailboats. Everything that is coming down is what is going right out the river. It is just stopping, some of it is stopping at my marina and has to be removed. The same thing is going out into Long Island Sound. It is nothing that isn't already there. I am also on the Long Island Sound Citizens Advisory Commission. We feel as marina owners and managers, a lot of others feel if we don't take good care of the environment people aren't going to want to be on Long Island Sound. To get the people on Long Island Sound we have to dredge so we can maintain public assess. My marina hires a lot of people and brings in a lot of tourist dollars. I think that is important to look at for the economy, as well as looking at the environmental impact of this, which isn't really much more than what comes down in the spring anyways. Thank you.

MR. VERAART: Thank you for your comment. Anybody else would like to make a comment?

We will leave the meeting open for another 10, 15 minutes or so in case anybody thinks of a comment. If you have a comment, please go to the registration desk, and put down your name, thank you.

(Recess taken.)

MR. COTE: This is the Mel Cote with the U.S. Environmental Protection Agency. It is now 7 p.m., November 14th, 2012. We are bringing this public scoping meeting to a close on the Eastern Long Island Sound Supplemental Environmental Impact Statement.

(Whereupon the Public Hearing adjourned at 7:00 p.m.)

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C E R T I F I C A T E

I hereby certify that I am a Notary Public, in and for the State of Connecticut, duly commissioned and qualified to administer oaths.

I further certify that the foregoing proceedings were taken by me stenographically and reduced to typewriting under my direction, and the foregoing is a true and accurate transcript of the proceedings.

Witness my hand and seal as Notary Public the 28th day of November, 2012.

____

Notary Public
My Commission Expires:
November 30, 2017

C E R T I F I C A T E

I hereby certify that I am a Notary Public, in and for the State of Connecticut, duly commissioned and qualified to administer oaths.

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Notary Public
My Commission Expires:
November 30, 2017

Attachment 6

TRANSCRIPTS OF PUBLIC COMMENTS, RIVERHEAD, NEW YORK JANUARY 9, 2013

SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT TO EVALUATE THE POTENTIAL DESIGNATION OF ONE OR MORE DREDGED MATERIAL DISPOSAL SITES IN EASTERN LONG ISLAND SOUND

January 9, 2013
2:30 p.m.
Culinary Center
Suffolk Community College
Main Street
Riverhead, New York

PRESENT:

THE LOUIS BERGER GROUP, INC.
BERNWARD J. HAY PH.D
PRINCIPAL ENVIRONMENTAL SCIENTIST

THE LOUIS BERGER GROUP, INC.
NIEK VERAART, AICP, ASLA
VICE PRESIDENT, FACILITATOR

SPEAKERS:
MEL COTE, EPA REGION 1
MARK HABEL, CORPS OF ENGINEERS, NEW ENGLAND
JEAN BROCHI, PROJECT MANAGER EPA REGION 1
GEORGE WISKER, CONNECTICUT DEPT. OF ENERGY, AND ENVIRONMENTAL PROTECTION
JENNIFER STREET, NEW YORK DEPARTMENT OF STATE

[TIME NOTED: 2:40 P.M.]

MR. VERAART: Thank you. Welcome to this public meeting. A couple of housekeeping items, the rest rooms are right outside to your right to the hall here. If you will please all turn off your cell phones, put them on vibrate. It would be much appreciated.

My name is Niek Veraart. I am with The Louis Berger Group, an environmental consulting firm under contract to the University of Connecticut, which is under contract to the Connecticut Department of Transportation. We've been retained to assist with this public meeting and the preparation of the Supplemental Environmental Impact Statement.

This meeting is held to solicit comments as part of the environmental review under the National Environmental Policy Act to prepare a Supplemental Environmental Impact Statement to evaluate the potential designation of one or more Ocean Dredged Material Disposal Sites, ODMDS, to serve the eastern Long Island Sound region in Connecticut, New York, and Rhode Island.

The Notice of Intent to prepare the Supplemental Environmental Impact Statement

was announced in the Federal Register on October 16, 2012.

The Federal lead agency is the US Environmental Protection Agency, or EPA. EPA is requesting written comments from federal, state and local governments, industry, non-governmental organizations, and the general public on the need for action, the range of alternatives considered, and the potential impacts of the alternatives.

The first public scoping meeting was held in New London, Connecticut on November 14. The second meeting was originally also scheduled for November 2012, but was rescheduled in light of Hurricane Sandy. The period for accepting scoping comments was also extended to January 31, 2013. EPA and other agencies will present information about the project for the next hour until approximately 3:30 p.m.

After the presentations are completed, the floor will be open for comments until 5:30 p.m. If you wish to speak, we ask that you sign up at the registration desk after the presentations have been completed. When you're registering to speak, if you could please provide your contact

information and any affiliation if you are representing an organization. A form is provided at the registration desk. Speakers will be heard in the order in which they are registered to speak, with elected officials and government representatives speaking first.

You may also submit your comments in writing at the registration desk, in which case we also ask that you provide your contact information and affiliation. All comments, written and verbal will become part of the public record. We ask that you limit your comments to no more than five minutes to provide everyone with an opportunity to speak. If you do have extended comments you may want to summarize them in your verbal statement, and submit your detailed comments in writing at the registration desk, which will make them part of the public record. Please note that the focus of this meeting is to receive verbal comments on the Notice of Intent, the presentations this afternoon by the agencies, and the review process. This is not a technical discussion forum.

The public meeting is being recorded by a stenographer and on audio recording devices. The transcript of the meeting will be entered into the public record of the environmental review process and will be made available to the public. Again, the period to submit written comments will end on January 31, 2013.

We will move on to the presentation portion of the meeting. Please note that the presentations will be made available on the EPA web site after the meeting. So, in case you're trying to take notes, they will be available on the web site.

The agency representatives that will be presenting and receiving comments this afternoon include the following: Mr. Mel Cote, Manager, Ocean and Coastal Protection Unit, of EPA Region 1. He will discuss the EPAs role in disposal site designations, and the history of the process including the designation of the central and western Long Island Sound Dredged Material Disposal Sites. Mr. Mark Habel, from the Army Corps of Engineers, New England District, who will discuss the need for dredging and the role of the Corps. Ms. Jean Brochi, Project Manager, Ocean and Coastal Protection Unit of EPA Region 1. She will discuss the process going forward, the

Supplemental EIS for the Eastern Long Island Sound Region. She will be followed by Mr. George Wisker, Connecticut Department of Energy and Environmental Protection, who will discuss the role of the State of Connecticut. Ms. Jennifer Street, New York Department of State, who will discuss the role of the State of New York.

Mr. Cote will now officially open the meeting.

MR. COTE: Thank you, Niek, and good afternoon everyone. As Niek mentioned, my name is Mel Cote and I'm the manager of the Ocean and Coastal Protection Unit in the US Environmental Protection Agency's Region 1, or New England Regional Office. The Ocean and Coastal Protection Unit administers the National Estuary Program for the six member estuaries in New England, the regional dredged material management and ocean disposal programs, and other assorted marine water quality programs.

We also participate on the Northeast Regional Ocean Council, the Gulf of Maine Council, and the Board of the Northeastern Regional Association of Coastal Ocean Observing Systems, as well as other assorted regional committees and work groups. Prior to taking this position almost eleven years

ago,

I spent nine years as the Region 1 Program Manager for the Long Island Sound Study and Connecticut's non-point source program.

So, I've spent a lot of time on and around Long Island Sound and its watershed, and have a real affinity for the region.

Thank you very much for coming to this public meeting. We really appreciate you coming to provide input during the very early stages of our process to develop a Supplemental Environmental Impact Statement that will evaluate the potential designation of one or more dredged material disposal sites for Long Island Sound.

As Niek said, the official public comment period on the Notice of Intent, which is the subject of today's meeting, ends on January 31st, there's going to be numerous opportunities throughout the process for public input, public comment, and in practice we'll be taking your public input throughout the process. I'm now going to describe what EPA's role is with respect to the designation of the dredged material disposal sites. I'll then take a step back and provide some background on the designation of the

Central and Western Long Island Sound sites, which was completed in July 2005.

Then I'll turn it over to Mark Habel, the US Army Corps of Engineers, New England District, to talk about the Corps' role in dredged material management as well as their effort to develop the dredged material management plan for the Long Island Sound Region.

EPA and the Army Corp of Engineers jointly regulate dredging and dredge material disposal under Federal authorities provided by Section 404 of the Clean Water Act and Sections 102 and 103 of the Marine Protection Research and Sanctuaries Act, which is also known as the Ocean Dumping Act or MPRSA, and herein are listed interchangeably.

In administering these programs we work closely with other Federal resource management agencies, the National Marine Fisheries Service, the US Fish and Wildlife Service, and State environmental agencies to ensure proper coordination and consistency with statutory and regulatory requirements and environmental standards.

Since 1980 the EPA and the Corps have been applying the sediment testing requirements of the

Ocean Dumping Act to all federal projects and private projects generating 25,000 cubic yards or more of dredged material. Dredged material that meets these criteria and is determined to be suitable, meaning clean enough for ocean disposal, may be disposed of at one of the four sites in Long Island Sound, known as the Western Long Island Sound, Central Long Island Sound, Cornfield Shoals, and New London disposal sites. The Central and Western sites, as I've mentioned earlier, were designated by EPA in 2005, that took effect in July 2005, and the Cornfield Shoals and New London sites were evaluated and selected, and that's an important term selected versus designated, as disposal sites pursuant to programmatic and site specific environmental impact statements that were prepared by the Army Corps most recently in 1991.

And you can, hopefully, you can see-this not such a great map across the Sound. Most of you are probably familiar with the location of those. So, I'll move right along.

In 1992 Congress added new provisions to the Ocean Dumping Act that, for the first time, established a time limit on the availability

of Corps selected sites for disposal activity. The provision allows the selected site to be used for a five year period beginning with the first disposal activity after the effective date of the provision, which was October 31, 1992. It also provides for an additional five year period beginning with the first disposal activity that commences after completion of the first five year period. Use of the site can be extended, however, if the site is designated by the EPA for long-term use.

Thus, the Corps can select disposal sites only for short term limited use, whereas Congress authorized EPA to undertake long term site designations, subject to ongoing monitoring requirements to ensure the sites remain environmentally sound. To summarize, EPA's responsibilities related to dredging and dredged material disposal include: Designating disposal sites for long term use. Promulgating regulations and criteria for disposal site selection and permitting discharges. Reviewing Corps dredging projects and permits. Developing site monitoring and management plans for designated sites. Monitoring disposal sites jointly, at least in

New England, with the Corps.

Now I'm going to provide some background on the designation of the Central and Western Long Island Sound disposal sites, which was completed, as I said earlier, in 2005. The process began in 1998, when EPA and the Corps agreed to conduct a formal site designation process following the criteria established in the Ocean Dumping Act. We also agreed that, consistent with past practice in designating dredged material disposal sites, we would follow EPA's Statement of Policy for Voluntary Preparation of National Environmental Policy Act (NEPA) documents, and would prepare an Environmental Impact Statement to evaluate different dredged material disposal options.

In June 1999, EPA published a Notice of Intent in the Federal Register announcing our plans to prepare, in cooperation with the Corps and other Federal and State agencies, an Environmental Impact Statement to evaluate and potentially designate dredged material disposal sites for the entire Long Island Sound region. So what we began back in 1999 was a Sound-wide effort.

We began the Sound-wide field data collection effort in 1999, but were slowed by both the

technical complexities and financial constraints associated with a large-scale, multiple site project.

In March 2002, with the Central Long Island Sound disposal site scheduled to close in February of 2004, when the second of two five year periods of use of that Corps selected site expired, EPA and the Corps announced their intent to develop the EIS in two stages, Western and Central Long Island Sound, followed by the Eastern Sound once a site or sites had been designated to serve the Western and Central regions. The idea is that this approach would yield a schedule to meet the important public need to consider disposal sites in this region more expeditiously without compromising the continued objectivity of the decision making process for each region of the Sound.

In September 2003, EPA issued the draft EIS recommending designation of the Central and Western Long Island Sound sites, and held public hearings in Connecticut and New York during late September, and in response to public comments, held additional hearings in December. I'm sure some of you participated in this. EPA released the final EIS and response to comments on the draft in April 2004, with the recommended action, or preferred alternative, designation of the Central and Western sites. Because the EIS is not a decision document, EPA also began the rulemaking process to formally designate the two sites by regulation.

At this point, the State of New York's Coastal Management Program, which you'll hear a little bit more about later in the meeting, from Jennifer, exercised its Federal consistency authority under the Coastal Zone Management Act to object to the site designations on the basis that this Federal action was not consistent with the enforceable policies of their program.

In June 2005 the EPA published the final rule designating the Central and Western disposal sites. to address concerns raised by the State of New York, and some sectors of the general public, about the potential impact of dredged material disposal on Long Island Sound water quality and fisheries habitat. These site designations are subject to restrictions on their use. These restrictions were intended to reduce or eliminate the disposal of dredged material in Long Island

Sound and include: 1) The Corps completing a Dredged Material Management Plan for the entire Long Island Sound region with a goal of reducing or eliminating open-water disposal of dredged material by identifying alternatives to open-water disposal.

The initial target for completion is July 2013, and an additional year is built into the rule by July 2014, if good faith efforts were being made to complete it. 2) Establishing an interagency Long Island Sound Regional Dredging Team to review alternatives analyses for Federal and large private dredging projects, subject to the amendment that I mentioned earlier; and 3) EPA publishing an annual report to the public on progress toward completion of the DMMP and disposition of dredged material from all projects each year, including open water disposal and beneficial use. We should have the report out soon for the year that ended last July.

Let's see. This is an example of the data that is generated on the annual reports that we've been doing since 2006 now. This is our seventh report I believe. This is an example of the kind of information contained in these reports. This

is the data on the amount of dredged material that was disposed of at each of the four LIS disposal sites over the past six years. You can see there's a lot of variability from year to year but also from site to site. The green is the Central Long Island Sound site, which is the most heavily used site. It's central and the larger ports and harbors are closest to it. So, that's why you see those kinds of numbers.

So, at this time I'm going to turn it over to Mark Habel of the US Army Corps of Engineers, New England District, to talk about the Long Island Sound Dredged Material Management Plan and the Corps' role in dredged material management in general.

MR. HABEL: Thank you, Mel, and thank you Jean. My name is Mark Habel and I'm with the New England District, with the Corps of Engineers in their Planning Branch and Navigation Section. The Long Island Sound Dredged Material Management Plan. This is the Corps' process for determining for any particular harbor or groups of harbors, if there is a shortfall in available disposal capacity and if so, what might be the best way of meeting that shortfall through alternative

disposal methods, treatment technologies or beneficial use of dredged material.

We began work on the DMMP in 2007. It took a couple of years after the 2005 rule making to actually get funds in place to begin work, and we've been working on that ever since. Mainly, up to this point identifying the range of available disposal options for the various classes of dredged material.

Again, we're looking at mainly the Federal Harbors in Long Island Sound. Congress, over the years has authorized the Corps of Engineers, the Federal Government, to construct and maintain a number of harbors, and I think about sixty-five, if you add up the ones in Connecticut and New York. Our first responsibility is to find ways to dispose of that material in an environmentally acceptable and cost-effective manner.

If other parties that dredge in the Sound can make use of those studies and those recommendations then certainly we try and accommodate that, but it's not our goal to be looking for solutions for all of the non-Federal work.

The process we go through, we did a

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preliminary assessment that mainly got us the go-ahead from Washington to get funds to do the full DMMP. We came up with our project management plan. We've established a technical working group, and we've gone through the steps for a dredged material management plan, searching for alternatives, screening for those alternatives, and that's where we are now.

We're beginning the process of going through screening that universe of alternatives. Here's a list of the things that we looked at. This was developed after looking over the experiences and other dredged material management plans around the country, and seeking input from the public and in particular from those parties that participate in the technical working group for the project. And this didn't come out very well, did it?

[INDICATING TO OVERHEAD PROJECTOR]

We looked at, back during the EIS, the dredging needs for the Sound as a whole. Where does the dredged material come from? You need to know where it comes from, on what time line and what volumes, and what types of material before you can start looking for places that it might be put.

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So, we canvassed not only the Corps projects but all the private permit applicants. We tried to contact as many marinas, power plants, and other parties that do dredging in the Sound to get an idea of what their projected volumes and types of dredged material over, I believe we looked at up to a twenty-eight year time line.

Here is where all of that data went into. We divided the coast up, when we got all that data, into what we call dredging centers to make it a little easier to match those up eventually with the alternative disposal options. The dark blue is Corps of Engineers Federal Dredging projects, and as you can see from this, historically, currently and probably long into the future, the Corps' construction and maintenance of Congressionally authorized projects will be the largest contributor of dredged material volume in the Sound.

What types of material are we dealing with? Right now we are going through all of the historic data for all of the Federal projects, and looking at where that material falls. It's generally in three classes; One, in the red is -- And these numbers are just guesses that we have at the

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moment, based on our experience. The red is unsuitable dredged material. This is material that does not pass EPA's and the Corps' testing regiment for open water disposal. So, this can never go into the Sound. The yellow bars are sandy material mainly in New York but in some of the entrance channels in Connecticut harbors as well, that is suitable for re-use for beach nourishment, either by direct placement on the beaches or by disposal in the nearshore bar systems that feed the beaches. Generally in the Sound, we're not concerned with the sand. It goes on the beaches wherever it can and wherever people are willing to help pay the cost of putting it there, if it's a longer hall. It's the stuff in the middle, the blue stuff, which is silty material, generally anything that's over fifteen or twenty percent fines, that's not suitable to go on the beaches. That has to go somewhere. Historically it's gone into the open water sites into the Sound, although it can be used for other purposes upland, if we can find users.

We also looked at the economics here. If people are asking us to dredge: Does it make sense to dredge? Is it needed? Certainly our

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look at the marine trades industry, recreational boating, and the other drivers of harbor development maintenance dredging. This adds billions of dollars a year into the economy of Connecticut and New York.

What the DMMP is not going to do, I mentioned we're primarily focused on needs of the Federal Harbors, we are going to recommend alternatives to be examined for the federal harbors when they come up for maintenance dredging, but we're not specifically looking at all of the non-Federal dredging. What they would do, and although certainly the investigations we're doing will help them with their alternatives analysis when they look to dredge and dispose.

Getting into what we've found, we've identified a great many of not-in-water alternatives for use for disposal. Most of those are beneficial use. Most of those are beaches. There are some upland sites. There are still a couple of landfills on Long Island that could receive material. We also looked at things like marsh creation. We also looked for de-watering sites that could be used to prepare material for use by other parties upland. We were also looking at the potential to build containment islands that would satisfy longer-term needs for disposal, and in the end, decades down the road, would become wildlife habitat, similar to, if any of you are familiar with the experience in Chesapeke Bay with Hart Miller Island, Poplar Island, and the new Mid-Bay Project, what they are doing to create habitat. We are going to begin screening those sites now.

For those, and I think most of the parties in here are involved in one way or another, with the Technical Working Group we began over a year ago, working with that group to identify methods and procedures for evaluating and weighing values of various habitats and various beneficial uses of material. I think next week that group is going to meet to go over the final report from that effort, after which, the Corps will begin to go through its own screening process under the DMMP to try to match harbors and materials with alternatives and sites. Just a little bit more detail and breakdown of what the DMMP has identified so far for types of sites. Those reports are all available on the Corps' Long Island Sound DMMP website for people to download.

The next step as I mentioned we're in the middle of the sediment characterization effort. We're also working on the cost side of this. What is the cost for all of these alternatives to get this material dredged, transported, placed or reused. We're also working with the working group to come up with our screening analysis tools to begin matching those and screening them down. In the end we will publish, probably in about eighteen months, our recommended plan for the Federal projects.

What is the Corps' role in the SEIS? We are a cooperating agency. We've agreed with EPA to cooperate in the SEIS. Within our available funds we are going to help them with their public outreach and letting people know what's up with the Corps' own process. We're going to review their data and reports when they need that done and provide comment and input. We're going to participate in data collection when we can. As most of you know we have our own disposal monitoring program, DAMOS, which every year surveys sites and collects data all around New England. That will continue to be made available to EPA for their consideration in

this EIS. In the end, of course, we will formally comment on the EIS.

Next up is Jean Brochi from Region 1, who will run through the process for this EIS.

MS. BROCHI: As Mark has said, Jean Brochi from Region 1. I'm going to take you through where we're headed with the SEIS. The most recent activity, the fiscal year 2012 Appropriations Act, extended the use of Cornfield Shoals and New London Disposal Sites. Originally they were selected by Corps authority and due to expire in October and November 2011. New London Cornfield Shoals site use has been extended through December 23, 2016.

The purpose of the Appropriations Act was to allow for completion of the SEIS to support final designation of potential disposal sites in Long Island Sound.

One of the additional requirements in this Appropriations Act was for EPA to report to Congress outlining a plan to carry out the Supplemental Environmental Impact Statement for Eastern Long Island Sound, and to work collaboratively with the Corps in the states to find a dredging solution for Long Island Sound.

This slide doesn't show very well, but it does outline the Eastern Long Island Sound SEIS process. As stated before, the very first step is to go to the public with a Notice of Intent. The Notice of Intent was published October 16th. We then have scoping meetings. The comment period for the Notice of Intent, again, has been extended to January 31st.

The next step is to identify sites, look at data gaps, develop sampling plans and field work, and then to hold additional public meetings as well as cooperating agency meetings. Initially, in July of 2012 the EPA submitted letters to the cooperating agencies requesting their assistance with this effort and we received responses.

We issued the Notice of Intent as I stated, and just to reiterate if anybody would like a copy of the presentations or any other information it's all posted on the EPA.gov web site. The address is listed in the presentation, and we also have an email notification at elis@epa.gov, which is directly dedicated to this effort.

If you'd like to be added to an email distribution list, and you have not had a chance to sign in outside, please contact us at that address or contact me. The original scoping meeting, as already stated was held in Connecticut November 14th, postponed the second meeting which would have been held in November, which we're holding now, and the comment period has been extended until January 31st. We will be having additional scoping meetings in the Spring and Fall.

I'm not sure if it's very clear, but this is a general picture of the existing active disposal sites, Cornfield and New London on the eastern side, and this is the boundary of the ZSF, which is Zone of Siting Feasibility for this effort. Part of the process is to collect, again, to review data gaps, and that includes using, collecting additional data, but using the data that exists.

Right now we have several different resources for the data. Data was collected as part of the original effort from 1999 to 2002. In addition the EPA had its own research vessel and collected some additional data as management of the disposal sites from 2007 and 2009 to 2012. In addition to that, through the Army Corps of Engineers' New England DAMOS monitoring effort, we have ten

surveys within the New London site since 1990 that include bathymetry, physical oceanography, benthic biology and chemistry. We also have three surveys from Cornfield Shoal sites since 1990, which include sediment transport and bathymetry and we also have four surveys that were conducted in 2000 for the Rhode Island disposal site. All of this data is available and we will use it as well as some of the reports from the DMMP.

One of the very first reports that we used from the Long Island Sound DMMP list was the dredging needs report, and that was completed in October of 2009, which stated that approximately 13.5 million cubic yards will be dredged from the Eastern Long Island Sound harbors and channels over the next twenty-six years. And when the Corps of Engineers calculates those dredging needs, they use a horizon, in this case it went out to 2028.

We also use the upland beneficial use and sediment transport de-watering report. We'll continue to use that. That was produced in 2009, and collected data from 2009 to 2010. That report, there were very few alternatives. Mark

had a slide that had the actual results. Open water, very few alternatives to open water disposal in Connecticut and most of those were beach nourishment.

There are several other studies that we're using for this effort, which include a literature search, and that was a report that was produced for the DMMP, looked at research since 2005 and collected some of the current proposals and projects that have been out there. Dredging needs, economic and disposal alternatives, will be some of the other reports as well as the transportation matrix, which should be out soon.

Alternatives investigated for one of the reports included landfills, beaches, redevelopment and habitat restoration and de-watering sites.

Mark had mentioned some of the dredging centers. We also have a poster-sized chart of the Long Island Sound, dredging center needs and dredging needs if you have a chance to get a closer look. One of the other things, the alternatives report, was just a look at upland and beach nourishment sites and this is just a figure of that from the DMMP.

For the Long Island Sound Eastern budget, we estimate a total cost of 3.3 million. The Connecticut State Bond Commission has already approved 1.8 million in October 2011 to fund some studies for the Eastern Long Island Sound effort, which include the physical oceanographic study, which is the very first study to be conducted under this effort.

Next steps. As I mentioned we'll have some additional public meetings. We'll have some cooperating agency meetings. We'll be using some additional reports produced from the DMMP. We expect to have a Draft Supplemental Environmental Impact Statement by December 2014, and a final by December 2015, and if the Supplemental Environmental Impact Statement recommends designation of one or more sites, the EPA will publish a final rule making by December 2016.

Throughout all of these milestones we will be requesting public comment, and holding additional meetings. I'm going to introduce George Wisker from Connecticut DEEP.

MR. WISKER: Thank you Jean. My name is George Wisker, I'm a Senior Environmental Analyst with the Connecticut Department of Energy and Environmental Protection, formally known as the DEP, but now it's known as the DEEP. I have been there for twenty-seven years, involved with dredge material management for twenty-five of those.

What I'm going to do is speak to -- It's too short. [INDICATING MICROPHONE ADJUSTMENT] Anyway, what I'm going to talk about is, first of all, what Connecticut's role in dredged management is within the state, our regulatory role, and then I'll go into a little bit of what our role will be in the process.

First of all, Connecticut, we regulate dredging and the management of dredged sediments pursuant to our Connecticut's Structures and Dredging Act. It's an Act that went into effect about 1939, and has been amended several times over the years, in accordance with the Connecticut water quality standards. These are standards that are required by EPA for the States to adopt, which deal with trying to preserve water quality, enhance water quality and maintain uses.

We're also, as is different from some of the other surrounding States that have the Coastal Management Programs separated into separate

Coastal Management Program Office as separated from their environmental agency. Both of those functions are combined in one office, and that's the Office of Long Island Sound Programs, which is part of the DEEP and I'm in the technical services section of that.

So, we have to deal not only with the permitting of dredging projects, but we deal with reviewing those projects through Connecticut's approved Coastal Management Act. So, what happens is all Federal and non-Federal projects are reviewed for the consistency with our program to ensure the coastal resources are adequately protected while preserving and encouraging water-dependant uses. So, it really is a balancing act. That's one of the key elements of the program. In addition, the Clean Water Act, Section 401 of the Clean Water Act, requires the State to certify that discharges or dredge material or any material that would happen to be placed in the water, will not result in permanent impairment of water quality. So, as part of the permit that's issued, not only do we do the Coastal Zone Management Consistency Determination, but we have to issue that Water Quality

Certificate. That's all rolled into the one document.

The Department's role in the SEIS, it's a fairly simple explanation but it involves a lot of work. So, what we will do is go through our files as we've already been doing since this began. We're also one of the cooperating agencies with EPA, so we're providing support to EPA and the contractors as requested. We're going through, finding the information we have. If they're looking for specific resource information, we try to bring that material up, gather as much as we can to help move the process along.

Then finally, the key issue that we really will be involved in significantly is we're reviewing every interim work product that's developed by the contractors, by EPA, and reviewing them for comments, for suggestions, for problems, and then ultimately any Federal action resulting from this, if after reviewing the drafts and the finals, they come out with a rule making, we then would have to do consistency on the designation process if a site is picked.

That, really in a nutshell is our role in that

process. Thank you. Who is next? Jennifer Street.

MS. STREET: My name is Jennifer Street. I am with the New York State Department of State, which is the administrator of the Coastal Management Program for the State of New York. Our program is basically to implement Coastal Zoning Management for New York State. Our primary program goals are to balance the protection and natural and cultural resources and economic development within the coastal zone, and to also coordinate decision-making at all levels of government throughout the State.

Our role in Long Island Sound activities. Long Island Sound, as a shared estuary is subject to regulatory review by both New York and Connecticut. The Long Island Sound Coastal Management Program is a regional program that was approved by NOAA in 2001 as a regional refinement of the New York State Coastal Management Program. That contains the thirteen enforceable policies of the New York State Coastal Management Program for all activities within the Long Island Sound Region. Then in 2006 through a routine program change, NOAA approved Interstate consistency for consistency review and Long Island Sound in which New York State is able to look at projects on the Connecticut side of the Sound for consistency with the New York State CMP, and its potential effects on the coastal area of New York State.

Similarly, Connecticut had a coastal interstate consistency change the same year, which allows them to do the same thing on our side. Federal consistency is a large part of what we do in my department. The CZMA and Federal regulations at 15 CFR930, they establish a framework for review of all proposed Federal activities and permitting activities that are within or would affect the State's designated Federally approved coastal area.

Based upon an analysis of the effects of the proposed activity, enforceable policies of the CMP, and in Long Island Sound it would have to be Long Island Sound's CMP, the department would either concur with or object to the proposed activity.

Our involvement in this SEIS process is, again, to participate as a cooperating agency, as part of the process, we will provide written scoping comments. We will provide any available

data and information that we may have access to. Whatever resources we have, we will share. We will review work products and provide comments as needed, and then as George just mentioned with their program, if there is any potential for a designation, we will review that Federal action for consistency with the CMP. That's just a little contact information if you want to get in touch with anybody in our office regarding this.

MR. VERAART: Thank you. Before we move on to the comment portion of the meeting, also on behalf of EPA, we'd like to thank you for coming here today and we also have here the representatives of EPA Region 2, Doug Pabst and Pat Pechko.

With regard to the comments, there is a sign-in sheet. I think it will be made available shortly but if you would like to sign in, into the sign-in sheet, then we know who is going to be making comments and we can do that in the order in which they have been received.

Right now we don't have anybody who signed in yet. So, would you kindly sign in.

RECEPTION: We do have people signed in.

MR. VERAART: Okay. I'm sorry. We'll

just start with the first people on the list. I'm sorry, sir?

AUDIENCE MEMBER: Quick question.

MR. VERAART Yes.

AUDIENCE MEMBER: You've mentioned a number of times in public, the written comments will be accepted until the end of the month. Do we address those to Jean in her office?

MR. VERAART: I think so, yes.

MR. COTE: That information is in the Notice of Intent.

AUDIENCE MEMBER: Her address is in there but it doesn't refer you to that specific address. Thank you, Mel.

MR. VERAART: I'm going to walk around with the sign-in sheet. The first person who signed in was Maureen Dolan Murphy with the Citizen's Campaign for the Environment and she also said that she will be providing written comments.

MS. DOLAN-MURPHY: Thanks. For the record, I'm with Citizens Campaign for the Environment. Citizens Campaign for the Environment is an 80,000 member, not for profit, non-partisan advocacy organization working for the

protection of public health and natural environment. We've been working to protect water quality across New York and Connecticut since our inception in 1985. We're an active member of the Long Island Sound Citizens Advisory Committee, and participated in the Long Island dredge work by the EPA and Army Corps. In 2004 we opposed EPA's plan to designate two sites in the western portion of the Sound as designated dump sites for twenty years.

We were joined by thousands of residents and elected officials through every local government in New York and Connecticut. It did not make logical sense that after millions of dollars spent on restoring the Sound it was designated as a long-term dumping ground. Now, in 2013, nine years later, the EPA began looking to designate two sites in the Sound as dumping grounds for dredged material. What has changed? The answer, nothing. It was unacceptable in 2004, and it is still unacceptable in 2013. CC agrees that the dredging for the safety of navigation is a necessary activity. However, open water disposal of dredged material is not.

In 2005, EPA along with the Army Corps of

New York, and Connecticut agreed to phase out open water dumping and move towards beneficial reuse of dredged material. As part of the landmark bi-state agreement, multi-agency agreement, a dredged material management plan was to be developed. EPA's final notice states that the DMMP for Long Island Sound go through the identification of alternatives to open water disposal and development of procedures and standards for the use of practical alternatives to open water disposal so as to reduce, whenever practical, the open water disposal of dredged material.

To date the DMMP has not been developed, as you heard in the presentation. CC believes it's risky and ill-advised to proceed with the long-term designation of open water disposal before the final development of the DMMP, particularly since the goal and intent of the DMMP was to reduce open water disposal, not to relocate open water disposal.

The final notice continues to state, the final rule contemplates that the US Army Corps will develop, through the DMMP process, procedures and standards to reduce or eliminate disposal of

dredged material in Long Island Sound to the greatest extent practicable. Reducing the disposal of open water dumping should eliminate the need for designating long-term dump sites.

The ruling goes on to state the disposal of dredged material can not occur in the western sites beginning eight years after the ruling date, unless a DMMP has been developed. Here we are, eight years later with no DMMP. Instead we have a plan to open two eastern sites for dredge dumping. This is not the intent of the agreement or the agreement of the settlement between New York and Connecticut. It was also not the intent of the EPA ruling. Open water dumping is not the solution for proper management of dredged materials. Eight years ago we called for and were promised a plan that evaluated beneficial re-use of dredged materials. This plan put forth a goal considering dredged materials to be a resource and not a waste product. Now, eight years later, the only plan is the EPA is putting forth is to dump more dredged material into Long Island Sound. New location, same story.

We're greatly concerned that the EPA is moving forward with this process before they have begun

their obligation to complete a DMMP for Long Island Sound. They encouraged the EPA to focus on the DMMP and to halt their efforts to designate a long-term dump site through Long Island Sound.

However, should they move forward in the process, we will be submitting items that should be addressed in the SEIS.

MR. VERAART: Thank you, Ms. Murphy. The next person is John Johnson.

MR. JOHNSON: I'm going to wait for a little bit until the end.

MR. VERAART: Okay. Sure. The next person is Mr. Natchez. Did I pronounce your name correctly? From DSNA? Is that you, sir? Okay. If you could, I think it says here that you have no written comments, but if you would like to add comments later, that's possible to be part of the record.

MR. NATCHEZ: For the record, my name is Dan Natchez. I am president to Dan Natchez and Associates. It's an environmental waterfront design consulting company, that has been dealing with this issue for longer than anybody could think. I want to thank all of the agencies for their Herculean efforts on this project. I'm sorry,

I don't know the name of the young lady who just spoke. I do agree with one major aspect of what she said that the DMMP map, the material has not been forthcoming. I think that is a disastrous mistake. It should have been done. There's absolutely no reason and seems to be a bureaucratic funding and governmental mish mosh.

It should have been done and needs to be done. I disagree vehemently with the premise that was stated by the previous speaker. The overall premise of the word 'dumping' is fundamentally flawed. Excuse me, I never have been accused of not being able to be heard. I know that the law uses the word dumping and but it's not dumping, it's relocation. If you don't dredge whatever the material is that anybody is concerned about sits there. You swim in it, do recreation in it. Everytime we have a storm it gets disturbed it goes all over the place. I would suggest that the Corps' determination of the dredging needs is flawed, significantly understated, particularly for the non-Federal needs. The questionnaire that was sent out, and I made written comments about this, has been glossed over. The way it was set up did not list what was needed but only what could be afforded at the then rates, which are roughly fifty percent of what they are today.

Unless you have economically feasible relocation, you will not have access to the water. Very simple. A good example is Sandy, which in the western end of the Sound created sandbars from two feet to eight feet and previously had a siltation rate of maybe six inches every ten years. You have to go down there and take a look. These are things that are going to really have a significant adverse effect to the quality of life. So, the real issue before all of the agencies is if you want access to the water, and want recreational and commercial activities or you don't. It's a very simple thing. If the answer is yes, then you do something about it. If the answer is no, then you ignore it. If the answer is yes, you need to do something about it, then you have to come up with a fundamental approach that is economically affordable.

At this same time that we have gone through these studies on what to do, the agencies at the same time being very concerned, and because science gets advanced, has raised the hurdle rates dramatically under the same regulations. So, the

cost of dredging over the last twenty years has gone up over 150% -- Excuse me, dredging relocation, not dumping. Because if you don't relocate it, it stays exactly where it is. That's the fundamental issue. For an average marina, and there is no such thing as an average marina, the cost to dredge today, to restore the depths to the depths that they were fifteen or twenty years ago, is almost, with today's rates on the western end of Long Island Sound, would cost, and cash on cash with no amortization, no borrowing rates, twenty years to pay back. It's not economically affordable in that regard.

So, you would have lost over 15% of the usable slips in the Long Island Sound, not just the western end of the sound. It's much deeper in the western end of the Sound over the same period of time, actually over a less a period of time, because we stopped doing this study five years ago.

This becomes a very significant aspect to where you wish to go for the future. When I hear the Corps say, even when I know the regulations suggest, that our primary concern for what we do with the Corps project and private entities, you

know, piggy back on the findings, but that's not our concern, is a bunch of hogwash. Excuse me, that's a very technical term. The Corps, EPA, all the states all have regulatory control over any application to do anything in the water, not just dredging, structures that are floating. We have regulations up the wazoo. So, to say this is not a primary concern, I find ludicrous, because most of the effort for regulatory reviews are non-governmental agencies. It's non-governmental activities because the number of governmental activities is much less. The number of non-governmental activities is much higher.

It's always the tail is getting wagged and the dog doesn't wag. So, the entire prospective is why the slide showed 22% of the dredging needs to be for -- This is for Mark's slide, 22% of the dredging needs to be for non-governmental activities, but what it didn't show was the number of projects. It didn't show the number of people affected. It doesn't show the economic returns or the economic influence.

These are all significantly understated. I'm tired of writing. I've been writing now for years and filing on behalf of numerous organizations.

The file for the record is a very nice answer. The bottom line is we put away the money to use for the Federal Government and don't know where the money is. That's where the regulations are except that it affects everybody. So, which brings me to why I actually came here. I understand. I'm following the rules as you published. I came here to support the proof of designation and continuation of relocation sites in the Long Island Sound, which would be the eastern end of the Sound. What's happening in the western end of the Sound is going to move very quickly and it has been moving to the eastern end of the Sound and the western end of the Sound is in major trouble. Access is being reduced. You're worth more dead than alive. Even with the both State's Coastal Management Programs that say you can't, excuse me, that you're not supposed to take marine water dependent users and turn them into non-water dependent, which is residential and other activities. The fact is that it's being done, and it's going to continue to be done because you can no longer afford to economically undertake these activities. One of the biggest reasons is the Long Island Sound region is relocation of dredge material and keeping navigation. So, thank you very much.

MR. VERAART: Mr. Natchez, thank you. Mr. Johnson, did you want to speak or did you want to wait?

MR. JOHNSON: No.

MR. VERAART: Okay. The next person on the list is Robert Evans. If you can please say who you are affiliated with and if you would keep it to about five minutes.

MR. EVANS: I'm Robert Evans. I'm with Fisher's Island Conservancy and I'm a year round resident there. I'm joined here by Andrew Arons, a fellow Board Member of the Conservancy who also has a residence at Fisher's Island. We're submitting these comments on behalf of the Conservancy. Fisher's Island Conservancy is a non-profit organization formed over twenty-five years ago. We work with island residents, businesses, non-profit organizations, and the government for the purpose of preserving, enriching and enhancing natural resources on Fisher's Island and surrounding waters.

Fisher's Island is the nearest populated area nearest the New London Disposal Site. The site is

in fact only hundreds of yards away from us. The Fisher's Island Conservancy strongly believes that use at the New London Disposal Site and also Cornfield Shoals should be closed as scheduled in December 2016. The Conservancy urges the EPA to review potential disposal site areas outside of Long Island Sound and Block Island Sound for future disposal.

We've been concerned for many years about the damaged caused by large scale disposal at the New London site. The Conservancy was party to the 1995 lawsuit that resulted in the 2002 settlement providing for the EPA's formal designation process for dredged material disposal sites. Tables showing annual average dumping at the New London dump site over the years, can be misleading and certainly do not indicate that there is no problem.

The fact is that except for the years 1995, 1996 and 2007 there has been very little dumping at that site in the last twenty years. The last large scale dumping was seven years ago, approximately 400,000 cubic yards, resulted in significant problems. The lobster population was greatly harmed at that time. Very few people

believe that the damage was coincidental. The Sound sitings developed in phase one at the Long Island Sound site designation proceeding demonstrated conclusively that the New London disposal site was inappropriate and unacceptable based on almost all relevant criteria, including the presence of strong currents, shallow depth, a location in the midst of the New London Port navigation channels with dredge spoils being stirred up by propellers and sensitive lobster, shellfish and other fishes. We are also concerned by other reports that submarines traveling to and from Groton, Connecticut on occasion have inadvertently hit the cap on the disposal site. We believe the danger of further problems of this sort would only intensify the substantial dumping allowed to take place there.

Our concern can be illustrated to a lay person simply. The New London dump site is extremely near the race, which anyone familiar with those waters knows is an area of extremely strong currents. Dumping spoil in those waters is akin to throwing dirt into the fan.

It also bears note that as the Conservancy advised the EPA and Army Corps of Engineers at

the end of our litigation, we do not believe that the New London Disposal Site has ever been properly designated or selected as a disposal site for Federal projects or private projects over 25,000 cubic yards, under the Ocean Dumping Act.

The New London Site can now legally be used only for private projects of 25,000 cubic yards or less, and thankfully has not been used to any significant degree since the problems in 2007. The Ocean Dumping Act mandates a preference for disposal sites off the Continental Shelf. We appreciate that there will be a need for disposal of large amounts of dredged material in the future, but we implore the EPA to investigate sites much further afield from this extremely populous area, and to allow the New London Cornfield Shoals sites to close as previously scheduled. Thank you.

MR. VERAART: Thank you, Mr. Evans. The next person on the list is Mr. Al Krupski. I'm sorry if I mispronounced your name. Can you indicate your affiliation?

MR. KRUPSKI: Thank you. It's Al Krupski, Deputy Supervisor of Southold Town. I'd like to thank the EPA and the Corps for coming out here today, and thank the DEEP from Connecticut, and certainly thank the New York State Department of State for sending people. We have faith in them. They've done a lot of good work and appreciate their work in Southold Town.

I just have a few comments. I'd like to say to the young lady who spoke first. I thought her comments were very well thought-out and had a lot of merit, especially the part in the presentation, that it's a Federally designated estuary and propose to use it as a dump site for toxic spoil. That just doesn't make any sense.

Also, a comment to Mark Habel from the Corps of Engineers. I think one of your slides, I think it showed a lot of different -- It showed the North Fork of Long Island with a lot of red dots. Is that one of your slides?

MR. HABEL: Yes.

MR. KRUPSKI: The designation was dredging sites for New York, the Long Island Sound. Those are actually in Peconic Bay, and all the dredged spoil for Peconic Bay is used for beach nourishment. It's clean sand. So, it probably even shouldn't be on there. What was conspicuously missing the residents of the East

End was Mattituck Inlet, which is a Federally designated anchorage, and yet we can't seem to get funding to do basic maintenance dredging on that. Talk about a hazardous navigation situation that exists there. That beach spoil, that dredge spoil is clean sand and could be used for beach nourishment. It wouldn't even need a designated open water dump site for that. I'd like to see that included on the map, with those corrections because we would like to bring attention to the Mattituck Inlet, and see the Federal Government maintain its responsibility to dredge that.

I'm here with Mark Terry, Southold Town Planning Department, and Mark, on behalf of the Town Board, will be submitting other comments. Thank you all for coming and listening to our comments and I take this will be an ongoing process.

MR. VERAART: Thank you. Are there any other people who have signed in? We have one other person who signed in. So, the next person will be Bill Spicer. You're Bill Spicer?

MR. SPICER: Does the mic still work?

MR. VERAART: Pardon me? The mic does still work but you only have five minutes. We

give everybody about five minutes. If you have written comment, you can certainly --

MR. SPICER: I have written ones but I'll do the best I can, especially when there are a few stretches of the truth.

MR. VERAART: Okay. You can also use this microphone sir.

MR. SPICER: I'd rather use that one if I can.

MR. VERAART: Sure.

MR. SPICER: This one work? I have a habit talking with my hands. It helps. It's long standing. William C. Spicer III, usually known as Bill Spicer, life long member of the Connecticut working waterfront. Owner of Spicer's Noank Marina in Noank, Connecticut. I have been at numerous of these get-togethers with the DMMP and I hope that I provide a little bit of levity in this but you've only given me five minutes so I'll dispense with that.

Sometimes a little fun makes things that are hard go easier. This is going to be from another prospective. My great grandmother on my father's side, was a Tutel from Suffolk County. So, if I say anything good those from Suffolk County like,

credit my great grandmother. If I say anything that you don't like, credit those terrible people in Connecticut that have somehow corrupted this boy. In any case, the basic problems between New York and Connecticut is that it is easily seen when you drive from Orient Point over the air, is sand and gravel here on Long Island. If you dredge something out, you can lay it down on the land, put a small bulldozer on it, you either have a lot or a load. In Connecticut we have rocks and mud. Nobody wants that put next to them. That's the basic problem.

In the Eastern Sound, which is what we're talking about, the Supplemental Environmental Impact Statement. In Noank, we have 2.3 feet of tidal range. In New London it's 2.5. That means that a dredge barge, and most of the small ones, of about four feet in depth, and you're looking at seven foot area. There's three feet under the barge, the tide goes up two more feet, you can only load the barge down a total of five feet, or 5.3 feet on average. That's not very much. It means, with a shallow tidal range, we have to use relatively light gear, yet when we have to use the light gear, and small gear to get around the docks of the smaller projects, you're asked to do it in the winter, you're asked to go heavily loaded, you're asked to avoid the race, and it just doesn't work easily. If Long Island wasn't sand and gravel, they wouldn't be so cavalier as to try to do what they've been doing.

Connecticut has billions of dollars at stake on the waterfront, billions of dollars, three major harbors. New England Groton is the best deep water harbor, natural, on the East Coast. You have New Haven, 80% of Connecticut's oil comes in through New Haven. You have some in Bridgeport and you have some smaller ports. Then you get down to the marinas and that, and the smaller yacht clubs and the rest of it, oil drums. The biggest one of importance is the United States Navel Submarine Base. If we still had difficulties with Russia, over here would be begging to see those atomic subs going up, and we want to continue to have them go up. It's a very important addition to the State of Connecticut. We need jobs. New York needs jobs, but I really don't think that you need to beat on Connecticut to take the jobs away. We don't need to kill our seamen in the winter running two small dredges

because we have to have a very light set of stuff. If you have heavy stuff being dredged in New Haven Harbor, New London Harbor, that can get there. It's probably Great Lakes, All American or one of those that are doing the job. They probably draw four to eight feet when they start and they're loaded down with 4,000 or 8,000 yards per barge.

Shifting a little bit. Where should you put dump sites? You don't want to mix the deep draft traffic, which runs along the edge of Long Island and mostly with tankers. You have some container ships, you have some lumber ships. You have a variety of this and that. Leave the dredge barge operators over on the Connecticut side.

Connecticut is going to use most of the capacity. We need to dredge more. We'll take care of our own sites. Give us two. If New York wants one and have it 100% in Connecticut. If New York wants any to do their smaller amount, God bless them. Give them one or two, 100% in New York and let them administer them, and tell Connecticut that they don't dump in New York site. We have no problem with that, at least I don't.

What is Long Island Sound? Long Island Sound, essentially starts at the Twin Canyons that were

up on something that was called a slide ELIS SEIS Process, where you showed two canyons joining together. They're coming in through the race on either side of Valiant Rock. They go into New York Bartlett Reef and curve west. Those are like the Grand Canyon or some other major river where there's a canyon. Long Island Sound comes up to the canyon, maybe to the east side of the canyon, I don't know. That's for somebody besides me to decide. I can offer opinion. But Fisher's Island Sound is all east of the canyon, and it's on a shallow plateau. It isn't part of Long Island Sound in my opinion. New London Harbor, not part of Long Island Sound. Block Island Sound, not part of Long Island Sound. Gardiner's Bay, not part of Long Island Sound. Fisher's Island Sound, as I've said before, is certainly not part of Long Island Sound.

So, what you have, you have the New London Dredge Disposal Site up on the plateau, in Fisher's Island Sound, and it is a Clean Water 404 Act approved dump site. I'll reserve the right at any time to reinstitute that plan.

There are two other items that I will deal with. One is the repeal Ambro effort that I have

had considerable to do with since 1999, and almost got it repealed in 1999. At the moment forty-nine of fifty-three municipalities, at least in Connecticut, are in print that they want Ambro repealed. In print. Not just claimed, in print. That has been submitted in times past. We kind of peddled it easy to see what we're going to do.

If you can come up with something good, utilizing the claimed area of Long Island Sound, I'm not going to throw the baby out in the bath water. Let's get whatever we need to do done. Let's stop the fooling around and do it right. But the Ambro is a gross distortion, because it made the MPRSA do something here in shallow water in Long Island Sound, let's say one hundred or one hundred and twenty feet. They were supposed to be in the abyss in the open ocean. One doesn't bear anything to the other.

The last item is the cadmium issue. An excellent report was submitted by Ted Sailor and Captain Westerson on behalf of the Connecticut Weighted Trades Association in 2007 to the Connecticut DEP. I believe it weighted about twenty-nine pounds. Mr. Sailor and Mr. Westerson should be called upon to show what it means because it means that the basic background of cadmium as shown by the present, either ACOE or EPA allowed amounts does not match what the background here in the Northeast US is. There was about 25,000 to 30,000 pages with major twenty-five year study of one gravel bank of virgin material, among other things.

I'll give you Mr. Sailor's card and would suggest. I would submit it as Mr. Ted Sailer out of Madison, Connecticut, and I think we need to address the cadmium issue because that has been a trouble in Eastern Long Island Sound because we're not being allowed to use our dredge disposal permits, some of the people, because New York is objecting, even though when they have a permit in Connecticut. Not too nice.

MR. VERAART: Thank you Mr. Spicer.

MR. SPICER: You're welcome.

MR. VERAART: At this time we have no further speakers so we can hold the meeting open I assume and if anybody had any questions, in the next minutes so to speak. We'll let you know if there are more speakers within the next fifteen minutes or so, and I guess we'll keep you updated, and we'll be here until we close the public

meeting, of course, if there are any questions.

It's not a problem to ask questions, but we do ask that you just put your name down, on the sign in sheet if you have questions. We have time so it's no problem. We have a question. What is your name?

MR. GANNON: Tim Gannon. It looks like on the presentation that one of the potential disposal sites was Plum Island, is that true?

MR. HABEL: It's a redevelopment site, potential redevelopment.

MR. PABST: They are closing the facility there so there is a potential for material to be needed if there is a redevelopment of the area. Doug Pabst, I'm sorry.

MR. COTE: It's 5:30 p.m. and we are officially adjourning today's public meeting on the Eastern Long Island Sound Supplemental Environmental Impact Statement. Thank you very much.

[TIME NOTED: 5:30 P.M.]

CERTIFICATION

COUNTY OF SUFFOLK)

SS:

STATE OF NEW YORK)

I, Charmaine DeRosa, Certified Court Reporter, in the State of New York, do hereby certify:

THAT, the foregoing is a true and accurate transcript of my stenographic notes taken in the matter of the PUBLIC MEETING, on this 9th day of January, 2013.

IN WITNESS WHEREOF, I have hereunto set my hand on this 9th day of January, 2013.

____

Charmaine DeRosa, CSR

CERTIFICATION

COUNTY OF SUFFOLK)
SS:
STATE OF NEW YORK)

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Charmaine DeRosa

Charmaine DeRosa, CSR

Attachment 7

WRITTEN STATEMENTS

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Written Comments 1

CITIZENS CAMPAIGN FOR THE ENVIRONMENT

Empowering Communities, Advocating Solutions.

❑ 225A Main Street • Farmingdale, New York 11735
(516) 390-7150
❑ 188 East Post Road, Suite #404 • White Plains, New York 10601
(914) 358-9840
❑ 744 Broadway • Albany, New York 12207
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❑ 733 Delaware Road, Box 140 • Buffalo, New York 14223
(716) 831-3206
❑ 466 Westcott Street, 2nd Floor • Syracuse, New York 13210
(315) 472-1339
❑ 2404 Whitney Avenue, 2nd Floor • Hamden, Connecticut 06518
(203) 821-7050

November 14th, 2012

Ms. Jean Brochi,
U.S. EPA, Region 1,
5 Post Office Square,
Suite 100, OEP06-1,
Boston, MA 02109-3912,

RE: Scoping Comments on the Designation of an Ocean Dredged Material Disposal Site (ODMDS) in Eastern Long Island Sound; Connecticut, New York, and Rhode Island

Dear Ms. Brochi,

Citizens Campaign for the Environment (CCE) is an 80,000 member, not-for-profit, non-partisan, advocacy organization working for the protection of public health and the natural environment. CCE has been working to protect water quality across NY & CT since its inception in 1985. We are an active member of the Long Island Sound Citizens Advisory Committee and participated in the Long Island Sound Dredge Workgroup, set up by EPA and the Army Corp.

In 2004 CCE opposed the Environmental Protection Agency's plan to designate two sites in the Long Island Sound as designated dump sites for 20 years. CCE understands that dredging for the safety of navigation is a necessary activity; however, open water disposal of the dredge materials is not.

The EPA has released a Notice of Intent to prepare a Supplemental Environmental Impact Statement for the designation of a long term dumpsite in eastern Long Island Sound. EPA states this is necessary because the Cornfield Shoals and New London disposal sites are set to expire December 16, 2016. The 1992 amendment to the Marine Protection Research & Sanctuaries Act established a time limit on disposal sites. **When Congress passed this important Act the intent was to STOP dumping, not to go through long processes to allow open-water dumping continue.**

In 2003 the EPA released a Draft Environmental Impact Statement for the designation of 2 long-term disposal sites in the Western area of the Sound. Due to an overwhelming public outcry, EPA, NY & CT reached an agreement that sought to phase-out open water dumping. As part of this agreement a Dredged Material Management Plan (DMMP) was supposed to be developed. The EPA's Final Notice states, "…DMMP for Long Island Sound will include identification of alternatives to open-water disposal and the development of procedures and standards for the use of practicable alternatives to open water disposal, so as to reduce wherever practicable, the open water disposal of dredge material." To date, the DMMP has not been developed. ***CCE believes it is unwise and foolish to proceed with a long-term designation of an open-water disposal site BEFORE the final development of a DMMP. Particularly since the goal and intent of the DMMP was to reduce open water disposal, not to re-locate open water disposal.***

The Final Notice goes on to state, "The final rule contemplates that the USACE will develop through the DMMP process procedure and standards to reduce or eliminate disposal of dredged material in LIS to the greatest extent practicable." Reducing the disposal of open-water dumping should eliminate the need for designating long-term dumpsites.

In particular, CCE offers the following items that should be addressed in the SEIS.

1. The Eastern Long Island Sound is the most biologically diverse portion of the Sound. EPA needs to conduct a thorough analysis of all the species located in these waters and assess how long-term dumping will affect species diversity. In the past years Dolphins have returned to Long Island Sound, a sign that the water quality is improving and there is an abundance of fish to feed on. The designation of long-term dump sites has the potential to reverse this positive trend.

2. An assessment of the highly diverse and critical benthos and bottom topography (rills, rises, outcrops, benthic habitats, diverse sediment types, unique benthic vegetation and animals) need to be undertaken.

3. The Eastern Long Island is also a busy zone for navigation, national security, waterborne commerce, and recreational boating. The EPA needs to assess how these activities will be impacted or be harmed or hindered because a long-term dumpsite.

4. The Eastern LIS is also an important spot for commercial and recreational fishing. Impacts to the fishing community need to be accurately captured.

5. EPA needs to fully document how long-term dumping will affect water quality in the LIS.

6. EPA needs to ensure that the guiding principles of the bi-state agreement between NY & CT-which seeks to reduce and eliminate open water dumping be captured in the SEIS.

7. EPA needs to identify disposal alternatives. The DEIS for the Western open water disposal sites was quick to rule our disposal alternatives as not being feasible. The DMMP was supposed to focus on alternatives. Yet, in the many meetings that CCE attended there was very little discussion on alternatives.

8. The EPA needs to evaluate the potential release of pathogens and toxic contaminates.

9. EPA should ensure public comments are welcomed.

In conclusion, CCE is concerned with the process of designating an open water disposal site in the Eastern Long Island Sound, particularly when in 2005 EPA, ACE, NY, and CT all agreed that we should be phasing out open water disposal and working to find alternatives for dredged material. The goal was to stop looking at dredged material as a waste product and instead look at as resource. Open water disposal is a quick, seemingly cheap fix, which is negatively creating lasting and costly effects to our estuarine ecosystems. Let's get real about alternatives and stop the archaic dumping.

Thank you for this opportunity to comment.

Sincerely,

Louis W. Burch
Program Coordinator

Written Comments 2

Cross Sound Ferry

Linking Long Island and New England
Celebrating Over 35 Years of Service

November 14, 2012

US Environmental Protection Agency
Region 1: EPA New England

RE: ELIS SEIS Public Meeting/Comment

Ladies and Gentlemen:

My name is Adam Wronowski and I represent Cross Sound Ferry Services, Block Island Ferry Services, Thames Shipyard & Repair Company, Thames Dredge and Dock Company, and Thames Towboat Company, all of which are Connecticut Corporations. I'm also a Director of the Connecticut Maritime Coalition. These five marine businesses operate on Eastern Long Island Sound and its tributary waters, and they rely on dredging as a fundamental necessity for their existence. Together, these five businesses employ over 500 persons. Cross Sound Ferry Services and Block Island Ferry Services provide essential transportation to the public and serve as a lifeline to Block Island and Long Island. Thames Towboat provides all of the ship docking services in New London Harbor and is responsible for the safe movement of every nuclear submarine and naval vessel that transits the Thames River. Thames Shipyard provides critical maintenance services to dozens of large passenger and vehicle ferries in the Northeast. Thames Dredge and Dock provides the vital dredging and disposal services that are the subject of this meeting. These businesses operate in publicly and privately maintained coves, harbors, and channels in Eastern Long Island Sound that require dredging. If dredge spoil disposal is prohibited in Eastern Long Island Sound, these businesses will be severely negatively impacted.

Repeatedly, over the past decades, we have analyzed the types of disposal alternatives identified in the LIS DMMP and SEIS, as part of the permitting process every time we have applied for a dredging permit. Each time, our analysis has clearly determined that all of these alternatives are unfeasible, and the only practical and feasible disposal method is disposal in Eastern Long Island Sound. Some of the primary factors that make upland disposal unfeasible are the handling and transport costs and physical land requirements.

2 Ferry Street, New London, CT 06320
Phone (860) 443-7394
Fax (860) 440-3492
www.longislandferry.com

There are only two practical, cost effective, and feasible alternatives to dredge spoil disposal in Eastern Long Island Sound: 1. Land reclamation (i.e. the filling of lands waterward of, and immediately adjacent to, the high tide line). And 2. Confined aquatic disposal (CAD) cells.

Land reclamation apparently is not being considered as an alternative in the ELIS SEIS. I strongly urge EPA to reconsider this because land reclamation is the standard in many countries throughout the world for dredge spoil disposal. I also strongly urge EPA to consider the creation of a CAD cell in Eastern Long Island Sound as an alternative to an open water disposal site. The fact that the US Navy created a CAD cell right in the Thames River in 2010 for dredging of the Groton/New London Submarine Base is proof that this alternative has merit.

I further request the EPA to consider the impacts of the alternative of *NO* ELIS disposal site or a local feasible alternative as listed above. The absence of an ELIS disposal site would have far reaching social, economic, and environmental impacts. I offer these examples: The absence of an ELIS disposal site would result in businesses in eastern Connecticut either having to utilize the central (CLIS) or western (WLIS) disposal sites, or simply not dredge at all. Not dredging could lead to the failure of a dredging dependent business, which has obvious economic and social impacts. Disposal of dredge spoils in CLIS or WLIS from projects in eastern Connecticut would cause significant economic and environmental impacts. Economically, the cost of transporting (i.e. towing a dump scow with a tug) dredged material to CLIS or WLIS can more than double the total cost of a dredging project in eastern Connecticut. Environmentally, the air emissions generated by transporting (i.e. towing a dump scow with a tug) dredged material to CLIS or WLIS could significantly impact air quality by increasing the carbon and NOx levels in the region.

In summary, if dredge spoil disposal is prohibited in Eastern Long Island Sound, many marine related businesses will be extremely negatively impacted throughout Eastern Connecticut. This would create significant negative social, economic, and environmental impacts for the region. If a practical economical alternative to this is to be found, then land reclamation (especially the filling of lands immediately adjacent to, and waterward of, the high tide line with dredge spoils) or the creation of a local CAD cell must be considered as an acceptable alternative in the SEIS.

Sincerely,

Adam Wronowski

Written Comments 3

NOI, SEIS, Designation of Ocean Dredged Material Dispoal Site in Eastern LIS, ER # 12/0759
Dube, Jeannine
to:
Stephanie Nash, ELIS
11/15/2012 07:24 AM
Cc:
Brett Hillman
Hide Details
From: "Dube, Jeannine" <jeannine_dube@fws.gov>

To: Stephanie Nash <stephanie_nash@fws.gov>, ELIS@EPA

Cc: Brett Hillman <brett_hillman@fws.gov>

The New England Field Office of the U.S. Fish and Wildlife Service has no comment on the subject NOI.

Jeannine Dube

--
Jeannine Dube
Secretary
New England Field Office
70 Commercial St., Suite 300
Concord, NH 03301
603-223-2541

Written Comments 4

United States Environmental Protection Agency Notice of Intent Public Meeting

Scoping Comments for Public Record Due January 30, 2013

Dredged Material Disposal Sites in Long Island Sound

November 14- University of Connecticut at Avery Point, Groton, CT

Timothy C. Visel
10 Blake Street
Ivoryton, CT 06442

EPA FRL-9741-9 Notice of Intent Designation of an Ocean Dredge Material Disposal Site

Good Evening,

We have heard much about dredge material disposal tonight but it is important that we know what it is. Not all dredged material is the same and it is important to classify it beyond just a term.

My first experience with dredged material offshore was with a DAMOS project in 1978 for New Haven harbor. Knowing what the material was, it made sense to cap it. In 1983 at Osterville, Cape Cod, an upland dewatered site with organic material also worked very well. It was mostly a sticky gelatin like material and clean, mostly leaf litter, a good option for this material. In Massachusetts, especially on the Cape, creeks and rivers filled each summer with organic matter mostly leaves and dead sea grasses. Dredging projects were removing accumulated composting leaves and were mostly small maintenance projects. It is my understanding that several Cape Cod towns today share a community dredge to keep small creeks, coves and rivers clear of organics. Such dredging can help restore tidal flows reduce oxygen debts and recycle banked natural nitrogen compounds from organic composts, which can also help shore fisheries as it is basically a fish food.

We also need to examine site conditions as well to current climate and energy patterns. In the 1950s and 1960s dredged leaf and organics were disposed offshore in high energy zones in relatively shallow water. Immediately after dumping (old term) reports from fishermen often included fish increases feeding upon shrimp species. In fact, conversations with fishers and marina owners told me that with colder temperatures combined with much more coastal energy after a few months it was difficult to find the disposed material at all; it was gone. This was also when winter flounder fishers would head to the “disposal” sites to catch fish that was because that was ‘where the flounder were”. A similar disposal site fishing association occurred in eastern CT over organic material disposed by Pfizer Corp in the 1980s. Eventually this material Mycelium was recycled for a local mushroom grower. Organic matter quickly becomes part of the marine food chain, such as the breakdown of acidic leaf compost is a natural process and attracts marine species that feed on it.

When creeks, coves and tidal rivers are dredged especially along the Connecticut shore they tend to collect leaves, which rot in high heat and low energy conditions. Several Connecticut coves have deep accumulations of leaves, such as Hamburg Cove in Lyme, Connecticut. In certain areas here over 10 feet of leaves have rotted producing an acidic sticky material rich in nitrogen, a marine compost that when disturbed has a sulfide odor. This compost once it is dredged and placed in oxygen containing waters it becomes fish food and is quickly consumed by plant grazers and shrimp.

In many cases navigational dredging has become a leaf removal activity, after the prohibition on the fall burning of leaves, leaf material substantially increased on Cape Cod and other watersheds. Today navigation interests are in the leaf removal business, no different than land. Because of the huge amounts of terrestrial organic debris dredged material is often just clean aquatic compost. Dredged channels have better tidal flows and can at times restore habitats buried by this acidic compost. Therefore it is critical to know what the material is, is it leaves and organic compost, clays silts or sand or cobblestones. Is the material clean or contaminated, can it be reused or recycled. Dredged material may soon become a key component of reducing flooding and shoreline protection. We can use it to create buffer islands and marshes, clean dredged material is therefore of value to use now with future shoreline protection programs to mitigate sea level rise.

Our forests have returned the mature tree canopy and is now dense with leaves, and spring leaf runoff fills our coves and bays with them each spring. In periods of high heat and low energy huge deposits accumulate and produce a black jelly like material, which is basically food for many species. Dredging is an expensive way to remove these leaves from bay bottoms and we now have a lot of them.

I hope that the issues surrounding habitat restoration, mitigation, creation and enhancement can be applied to the disposal of dredged material. In the future dredging may not be looked at as a problem but in fact an opportunity.

Please include these suggestions as the Supplemental Environmental Impact Statement for Dredged Material Disposal Sites in Eastern Long Island Sound is developed.

Thank you for the opportunity to comment this evening.

Tim Visel
10 Blake Street
Ivoryton, CT 06442

Written Comments 5

CITIZENS
CAMPAIGN
FOR THE ENVIRONMENT
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Empowering Communities, Advocating Solutions.

Scoping Comments on the Designation of an Ocean Dredged Material Disposal Site (ODMDS) in Eastern Long Island Sound; Connecticut, New York, and Rhode Island

Comments Submitted by:
Maureen Dolan Murphy, Executive Programs Manager
January 9, 2013

Citizens Campaign for the Environment (CCE) is an 80,000 member, not-for-profit, non-partisan, advocacy organization working for the protection of public health and the natural environment. CCE has been working to protect water quality across NY & CT since its inception in 1985. We are an active member of the Long Island Sound Citizens Advisory Committee and participated in the Long Island Sound Dredge Workgroup, set up by EPA and the Army Corp.

In 2004 CCE opposed the Environmental Protection Agency's plan to designate 2 sites in the western portion of Long Island Sound as designated dump sites for 20 years. We were joined with thousands of residents and elected officials from every level of government in both NY & CT. It did not make logical sense that after millions of dollars spent on restoring the Sound we would designate it as a long-term dumping ground. Now, in 2013-nine years later- the EPA is again looking to designate 2 areas in the Sound as a dumping ground for dredged material. What has changed? The answer--nothing. It was unacceptable in 2004 and it's still unacceptable in 2013.

CCE agrees that dredging for the safety of navigation is a necessary activity; however, open water disposal of the dredge materials is not. In 2005, EPA, along with the Army Corp, NY, and CT agreed to phase-out open water dumping and move towards beneficial re-use of dredged material.

As part of this landmark bi-state, multi-agency agreement, a Dredged Material Management Plan (DMMP) was to be developed. EPA's Final Notice states, "…(the) DMMP for Long Island Sound will include identification of alternatives to open-water disposal and the development of procedures and standards for the use of practicable alternatives to open water disposal, so as to reduce wherever practicable, the open water disposal of dredge material." To date, the DMMP has not been developed. ***CCE believes it is risky and ill-advised to proceed with a long-term designation of an open-water disposal site BEFORE the final development of a DMMP. Particularly since the goal and intent of the DMMP was to reduce open water disposal, not to re-locate open water disposal.***

The Final Notice continues to state, "The final rule contemplates that the USACE will develop through the DMMP process procedure and standards to reduce or eliminate disposal of dredged material in LIS to the greatest extent practicable." Reducing the disposal of open-water dumping should eliminate the need for designating long-term dumpsites.

The ruling goes on to state that disposal of dredged material cannot occur at the western sites beginning 8 years after the ruling date (2005) unless a DMMP has been developed. Here we are 8 years later, with no DMMP. Instead we have a plan to open 2 eastern sites for dredge dumping. This was not the intent or the agreement of the settlement between NY/CT. It was also not the intent of the EPA ruling. Open water dumping is not the solution for proper management of dredge materials. Eight years ago we called for and were promised a plan that evaluated beneficial reuse options for dredged materials. This plan put forth a goal of considering dredge materials to be a resource and not a waste product. Now, 8 years later, the only plan the EPA is putting forth is to dump more dredged materials into our Long Island Sound. **New location, same story.**

CCE is gravely concerned that the EPA is moving forward with this process before they have fulfilled their obligation to complete a DMMP for LIS. **We encourage the EPA to focus on the DMMP and to halt their efforts to designate a long-term dumpsite in the Sound.**

However, should EPA move forward in this process, CCE offers the following items that should be addressed in the SEIS.

1. The Eastern Long Island Sound is the most biologically diverse portion of the Sound. EPA needs to conduct a thorough analysis of all the species located in these waters and assess how long-term dumping will effect species diversity. In the past years Dolphins have returned to Long Island Sound, a sign that the water quality is improving and there is an abundance of fish to feed on. The designation of long-term dump sites has the potential to reverse this positive trend.

2. An assessment of the highly diverse and interesting benthos and bottom topography (rills, rises, outcrops, benthic habitats, diverse sediment types, unique benthic vegetation and animals) need to undertaken.

3. The Eastern Long Island is also a busy zone for navigation, national security, waterborne commerce, and recreational boating. The EPA needs to assess how these activities might be harmed or hindered because a long-term dumpsite.

4. The Eastern LIS is also an important spot for commercial and recreational fishing. Impacts to the fishing community need to be accurately captured.

5. EPA needs to fully document how long-term dumping will effect water quality in the LIS.

6. EPA needs to ensure that the guiding principles of the bi-state agreement between NY & CT-which seeks to reduce and eliminate open water dumping be captured in the SEIS.

7. EPA needs to identify disposal alternatives. The DEIS for the Western open water disposal sites was quick to rule our disposal alternatives as not being feasible. The DMMP was supposed to focus on alternatives. Yet, in the many meetings that CCE attended there was very little discussion on alternatives.

8. The EPA needs to evaluate the potential release of pathogens and toxic contaminates.

9. EPA should ensure public comments are welcomed.

In conclusion, CCE is concerned with the process of designating an open water disposal site in the Eastern Long Island Sound, particularly when in 2005 EPA, ACE, NY, and CT all agreed that we should be phasing out open water disposal and working to find alternatives for dredged material. The goal is to stop looking at dredged material as a waste product and instead look at as resource. Open water disposal is a quick, seemingly cheap fix, which is negatively creating lasting and costly effects to our estuarine ecosystems. Let's get real about alternatives and stop the archaic dumping.

Thank you for this opportunity to comment.

Written Comments 6

Statement of Fishers Island Conservancy Comments – Eastern Long Island Sound SEIS Public Scoping Meeting - January 9, 2013

- My name is Robert Evans. I am a member of the Board of the Fishers Island Conservancy and live year round on the Island. I am joined here by Andrew Ahrens, a fellow Board member of the Conservancy, who also has a residence on Fishers Island. We are submitting these comments on behalf of the Conservancy.

- The Fishers Island Conservancy is a nonprofit organization formed over 25 years ago to work with Island residents, businesses, non-profit organizations and the government for the purpose of preserving, enriching and enhancing the natural resources of Fishers Island and its surrounding waters.

- Fishers Island is the nearest populated area to the New London Disposal Site. The Site is in fact only hundreds of yards away from us. The Fishers Island Conservancy strongly believes that the New London Disposal Site and also Cornfield Shoals should be closed as scheduled, in December 2016. The Conservancy urges the EPA to review potential disposal sites areas outside of the Long Island Sound and Block Island Sound for future disposal.

- We have been concerned for many years about the damage caused by large scale disposal at the New London site. The Conservancy was a party to the 1995 lawsuit that resulted in the 2002 settlement providing for the EPA's formal designation process for dredged material disposal sites.

- Tables showing average annual dumping at the New London Dump Site over the years can be misleading, and certainly do not indicate that there is no problem. The fact is that except for the years 1995, 1996 and 2007, there has been very little dumping at that site in the last 20 years. The last large scale dumping seven years ago, of approximately 400,000 cubic yards, resulted in significant problems. The lobster population was greatly harmed at that time; very few people believe that the damage was coincidental.

- The science developed in Phase I of the Long Island Sound Site Designation proceeding demonstrated conclusively that the New London Disposal Site was inappropriate and unacceptable based on almost all relevant criteria – including the presence of strong currents, shallow depth, a location in the midst of the New London port navigation channels with dredge spoils being stirred up by propellers, and sensitive lobster, shellfish and other fisheries.

- We are also concerned by reports that submarines travelling to and from Groton, Connecticut on occasion have inadvertently hit the cap on the disposal site. We believe the danger of further problems of this sort would only intensify if substantial dumping were allowed to take place there.

- Our concern can be illustrated to laypersons simply. The New London Dump Site is extremely near the Race, which as anyone familiar with those waters knows, is an area of extremely strong currents. Dumping spoil in those waters is akin to throwing dirt onto a fan.

- It also bears note that, as the Conservancy advised the EPA and Army Corps at the end of our litigation, we do not believe that the New London Disposal Site has ever been properly designated or selected as a disposal site for federal projects or private projects over 25,000 cubic yards under the Ocean Dumping Act. The New London Site can now legally be used only for private projects of 25,000 cubic yards or less, and thankfully has not been used to any significant degree since the problems of 2007.

- The Ocean Dumping Act mandates a preference for disposal sites off the continental shelf. We appreciate that there will be a need for disposal of large amounts of dredged materials in the future, but we implore the EPA to investigate sites much farther afield from this extremely populous area and to allow the New London and Cornfield Shoals sites to close as previously scheduled.

Written Comments 7

Connecticut Fund for the Environment

Save the Sound®
A program of Connecticut Fund for the Environment

Ms. Jean Brochi
U.S. EPA, Region 1
5 Post Office Square, Suite 100, OEP06-1
Boston, MA 02109-3912

January 24, 2013

Re: Supplemental Environmental Impact Statement on the Disposal Site Designations in Eastern Long Island Sound, Connecticut

Dear Ms. Brochi:

Save the Sound is a non-profit organization dedicated to the protection, restoration and appreciation of Long Island Sound, and we have long served these interests through advocacy, education and research. Dredging and appropriate management of dredged material is often the best means of maintaining safe channels for navigation, marinas for recreation, ports for commerce, and many other important economic interests. It is for this reason that Save the Sound supported the designation of the Western and Central Long Island Sound Disposal Sites, that we participate in the development of the Dredge Material Management Plan (DMMP), and that we support the process for designating disposal sites in Eastern Long Island Sound. However events over the past year highlight the need to begin thinking of dredge materials as a local resource, and not as a by-product to be discarded.

The aftermath of Irene and Sandy—the two coastal storms that resulted in record or near-record storm surges within one year's time—indicates that we are living along a coast that is now more storm and flood prone. This unwelcome reality demonstrates the need for a paradigm shift in the way we manage dredge materials. If we are going to work with natural systems to make our coast more resilient, we need to harness the substantial volumes of dredge materials within our region to restore and enhance dune, beach and marsh systems. For proof, we need look no further than the American Littoral Society's recently completed rapid coastal assessment of Superstorm Sandy impacts along the Sound's coastline.[1] This quick evaluation, while admittedly incomplete, does an excellent job of providing summaries of impacts to and restoration needs for beach, marsh and coastal island systems along the Sound. Of those, at least twelve major

[1] American Littoral Society, for NFWF, *Assessing the Impacts of Hurricane Sandy on Coastal Habitats*, December 17, 2012.

restoration projects require substantial sediment inputs and nourishment.[2] With this new reality as our backdrop, we request that the U.S. Environmental Protection Agency (EPA) and U.S Army Corps of Engineers (Corps) outline and facilitate the use of the following alternatives to open water disposal, not only in the DMMP, but also as part of this site designation process:

Beach and Dune Restoration – using the dredged material that is sandy as a replacement or enhancement for existing beaches and dunes;

Marsh and Marsh System Restoration and Enhancement – using dredge materials as the basis for restoring and enhancing marsh systems;

Containment – disposing of dredged material in a confined disposal facility ("CDF") that is constructed in protected waters, harbors, or in the open ocean so that resultant shorelines or islands may be used as construction or recreation sites and/or a habitat for wildlife;

Containment Areas and Wetlands Stabilization – depositing the dredged material into diked areas attached to existing land in protected waters, preferably near existing wetlands;

Upland Disposal – disposing of dredged material in any inland area to enhance a site for construction, recreation, and/or wildlife;

Resource Reclamation – using the material as a soil enhancer for landscaping and agriculture purposes, or as a component in construction material;

Landfill Cover – using the material as sanitary landfill cover;

Subaqueous Borrow Pits – first placing the dredged material in underwater depressions that result from the mining of sand and gravel and then capping it with a layer of clean material; and

Incineration – using the resulting byproduct in cement applications.

Save the Sound understands that the regional dredging needs are significant and that the volume of material may outpace beneficial reuse options. To that end, we support the site

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[2] *See ALS Assessment* at Exhibit 1, pp. 17-22. Resources identified as requiring some form of sediment sources include various beachfront parks on Long Island, Great Gull Island, NY; Silver Sands State Park and Milford Point, Milford, CT; Falkner Island, Guilford, CT; Menunketesuck Island and Duck Island, Westbrook, CT; Seaview Beach, Madison, CT; Rocky Neck State Park, East Lyme, CT; Harkness Memorial State Park along with Waterford Town Beach and Pleasure Beach in Waterford, CT; Caumsett State Historic Park Preserve on Long Island; and Manursing Lake in Rye, NY. This is an initial summation; there are additional sediment-based restoration needs as well. For instance, a proposed tidal marsh restoration project in Holly's Pond at the mouth of the Noroton River in Connecticut will require significant sediment inputs. This does not begin to include potential beach and dune restoration options along privately owned and low-lying residential beach communities that suffered substantial wave and flooding damage scattered along the Connecticut, Westchester and Long Island coasts.

designation process currently underway. We have lingering environmental concerns regarding the need to maintain a clean cap at disposal sites, but it is our understanding that long-term assessments of LIS dredge disposal sites with clean caps suggest benthic communities have not been significantly impacted. Save the Sound would be interested in a scientific review contrasting benthic impacts at these sites against historic disposal sites that did not require clean capping, in order to better understand the comparative impacts and benefits from the clean cap mandate.

As a means of expediting and economizing non-Corps dredging projects while also taking environmental concerns into account, we suggest analyzing the benefit of creating a dredging liaison or ombudsman for the whole of Long Island Sound. Such an ombudsman could help coordinate and execute informed, best practices; specifically, the liaison could guide local yacht clubs and marinas in the preparation and coordination of projects, match dredge materials with potential beneficial reuse projects, as well as organize NY/CT collaborative efforts and shared Confined Aquatic Disposal (CAD) cells.

In summary, though our preference is for beneficial reuse of sediments when at all possible, Save the Sound expresses its support for moving forward with the process for designating the Eastern Long Island Sound Disposal sites, as long as alternatives to open water disposal are carefully evaluated, and as long as measures are taken to mitigate the environmental impact and comply with the Clean Water Act and the Marine Protection, Research, and Sanctuaries Act.

We thank you for the opportunity to comment and look forward to continued conversations as the designation process develops. Should you have any questions, please do not hesitate to contact me at lschmalz@savethesound.org or 203.787.0646 ext. 121.

Sincerely,

Leah Schmalz
Director of Legislative and Legal Affairs
Save the Sound, a program of Connecticut Fund for the Environment

Kathleen Coss, legal intern
Brian Gibbons, legal intern

Written Comments 8

Eastern Long Island Sound Supplemental Environment Impact Statement –

Dredged Material Disposal Site

Comments from Tim Visel
10 Blake Street
Ivoryton CT 06442

Submitted to Alicia Grimaldi

Ocean and Coastal Protection Office Environmental Protection Agency

Region 1, Boston, Mass 02109-3912

Comments refer to high organic mucks and marine composts – sand and cobblestones should be recycled as shoreline stabilization and beach nourishment projects.

The Role of Dredging, Flushing and Increased Tidal Exchange

Are "Dead Zones" of Poorly Flushed Coves and Bays Natural or Unnatural

A Habitat History for Nitrogen Containing Sapropel*

Is nitrogen subject to climate and energy impacts in Long Island Sound? And, is flushing related to the strength and severity of anoxic conditions in Western Long Island Sound? A quick review of the 1974 to 2004 period will show massive habitat shifts as reported by coastal fishers. In almost every New England shore fishery, especially those in coves and bays, user group (fishers) comment and ask about these habitat changes. Nearly all of them speak about the "bottom" previously firm or hard bottoms have now become softer, and often muck filled. As these changes occurred, the fishery associated with them also changed, they declined. Chief among them would be winter flounder, bay scallops and the hard clam. At the same time, the boating community also noticed changes often as lessening depths and the need to conduct navigational dredging projects to maintain channels. Navigation soon became difficult then impossible in many small tidal rivers.

These user group accounts are consistent from the baymen of eastern Long Island, Rhode Island's South Shore (salt ponds), Connecticut and Cape Cod, Massachusetts. Frequent observations in the late 1970s to 1980s mentions white films or fungus growths on bay bottoms that in years past, were firm and shelly, especially those on eastern Long Island, Peconic Bay New York. Here small boat fishermen who once hand hauled otter trawls for winter flounder and those who bay scalloped were among the first to notice these habitat

* Sapropel – Ancient Greek – Sapros and pelos as put refaction of mud. Sapropel is developed during periods of reduced oxygen in sediments that contain high levels of organic matter. It usually has a strong sulfur odor. It can be removed by dredging

shifts. In areas that were once clear and firm, now contained deepening organic deposits turned black and foul bottoms that often smelled especially during summers of rotten eggs. Over time, these vegetation deposits – sea grasses decayed leaves and seaweeds, were more than inches deep in the more sluggish coves – it soon would be measured in feet.

As depths decreased flushing capacity lessened and in time habitats would soon become buried in marine compost, sapropel.

Dredging coastal salt ponds, maintenance channel dredging and mooring basins is not that different than that of tidal inlet flushing. A natural energy process that "restores" previous depths, providing safer access for boating and navigation interests but it helps restore habitat conditions for fish and shellfish species. Dredging the build up of marine compost which is a often toxic sulfide rich gelatinous material, can improve habitat quality. We need to be able to move deposits organic rich matter in oxygen deficit areas into those that are oxygen sufficient. Dredging may be one of the few tools we have in the climate change tool box to increase tidal circulation and enhance dissolved oxygen water exchange. Dredging to restore tidal flushing/tidal exchange will also enhance shellfish and finfish habitats in two important ways enhance the capacity of higher pH ocean water to offset flow pH microbial deposition and reduction processes (The Sulfur Cycle).

Dredging can also eliminate nitrogen "banks" accumulating nitrogen compounds that bind to these organic low pH mucks. During hot periods and low energy nitrogen is naturally stored in these mucks which can take centuries to clear. Dredging may reduce the nitrogen residence time by decades even perhaps centuries. While nitrogen pollution has been at the forefront of environmental policy, it has not been correctly indexed to temperature and energy. Therefore dredging can mechanically remove nitrogen rich deposits, restore flushing and provide navigable waters. To do so, however, will require deposal sties for this sulfur rich material and in oxygen sufficient waters where oxygen reducing bacteria can reduce it and it can reenter the marine food chain (fish food). The key to reducing sulfur toxicity is to restore oxygen dependent reduction processes. Dredge material disposal sites will have a key role in this process.

Pollution studies that have previously examined the nitrogen issue few mentioned the time it takes for nitrogen to clear naturally; it may prove cheaper and certainly quicker to dredge the excess. To allow natural processes to clear excess nitrogen which naturally accumulates during periods of warmth (sulfur reduction) and is utilized during cold (oxygen reduction) may take decades or even centuries. Quick recoveries of living marine resources should not be equated to aqueous nitrogen abatement. In a 1971 book by H.B.N. Tynes Professor of Biology University of Waterloo Ontario, Canada, he warns researchers about promising quick recoveries following eutrophic conditions. In lake studies he describes this nitrogen banking processes and the time it takes to clear it. Most lakes and ponds are periodically dredged to quicken this habitat recovery process. In a recent NOAA study by Clyde Mackenzie who looked at regions for hard shell clam production (Mercenaria mercenaria) be found that production was less when ocean tidal exchange (smaller inlet width) was less but production (clam landings) soon increased (sometimes dramatically) when tidal exchange (flushing) was increased due to inlet widening (after storms) or by dredging (see appendix).

Dredging may directly remove low pH acidic deposits (especially from acidic oak and maple leaves) in areas where sulfur reduction (sulfate reducing bacteria – sulfur reducing bacteria) is building huge nitrogen reserves. In high heat these composts reduce producing ammonium, a plant nutrient that favors the growth of algae “blooms”. Some of them are harmful to shellfish species (HAB). In poorly flushed coves or bays that have restricted circulation low oxygen levels and a heat induced low pH combine to lock up nitrogen compounds in enriched organic matter preventing it from entering estuarine food webs.

The boating community were often reported such changes but as shallow water, depths had decreased and bottoms now deep in muck often smelled bad (hydrogen sulfide) similar to comments from fishers. A previously minor nitrogen input (leaves) during cold and energy periods can be devastating during heat and less energy. Hot oxygen reduced leaf “composts” in the marine environment is now a huge source of ammonium, and as damaging or more so than human nitrogen discharges. The building up of sulfide rich acidic organic deposits has resulted in wide scale habitat degradation and could take centuries to clear localized ecosystems. Dredging could help speed this process[1].

In times of high heat dissolved oxygen in sea water drops and areas that are poorly flushed may suffer seasonal hypoxia. For many shallow water bodies this appears to be a natural cyclic ecosystem event. Long Island Sound most likely experienced hypoxic episodes many times before leaving the cold and turbulent 1950s. Termed the North Atlantic Oscillation (1950 to 1965) this period is remembered by colder than average winters and at times unbelievable levels of storm activity. Colder waters allowed dissolved oxygen levels to increase – oxygen reduction quickly utilized organic debris as nitrogen compounds and quickly washed it from bay bottoms. With the cold and storms, nitrogen in Long Island Sound became limiting. In fact, research was underway at Yale University to determine the extent of the nitrogen shortfalls, it was suggested that for a time, nitrogen became limiting in Long Island Sound. The climate had much to do with this 1950s nitrogen “shortage” as organics such as today leaves woody debris and terrestrial nitrogen sources. In cold periods Nitrogen did not “bank” in partially reduced composting accumulations. Although many marine studies label them as sediments or even soils, that is a misnomer, as much as you would label leaf compost, a soil in terrestrial ecosystems.

[1] Dredging may also help lessen hypoxia events and help restore oxygen levels above lethal limits.

As such terrestrial accumulations are transitory and in time sufficient oxygen and bacterial processes will breakdown leafy material into soil components. However, three feet of leaves is not a soil or simular unreduced organic matter be termed sediments in marine ecosystems. Many dredging projects therefore are compost removal activities. It is safe to say that even without our nitrogen inputs – shallow warm poorly flushed bodies of water undergo periodic climate induced hypoxia, and fish kills and algae blooms from high heat and low energy conditions are as old as recorded time itself.

Physical and Chemical “Erosion”

During warm and low energy periods sand dunes tend to grow – plants soon “invade” and hold the sand in a banking process, the sand dune itself. Warm water is naturally less dense and has a different erosion capacity, in fact, periodic energy during warm periods tends to move sand bars ashore and seasonal winter – summer beach profiles often show this sand bar movement.

When a cold and energy filled period commences, tides, waves and strong storms tend to draw against this sand “bank”. We can see this withdrawal from this sand reserve as beach erosion.

Since our current sea level rise period is hundreds of years old, we can see from today’s nautical charts the shorelines of long ago when they ran out of banked sand. They are the near coastal depth contours. When the sand dune bank ran out, the sea claimed the property below them as it had since the last Ice Age, as a natural process. There is no short term dynamic equilibrium but a long term fluctuation since the last Ice Age dictated by temperature and energy cycles.

During warm and low energy periods, organics tend to bank in the shallow poorly flushed areas. These are the same areas that contain essential fish and shellfish habitats, the ones also user groups historically observe. This is the habitat transition (reversal) found so frequently in fisheries reports – the change for firm “hard” bottoms, often with estuarine shell, a natural pH buffering agent. This change from an alkaline to acidic marine soil has dramatic consequences for estuarine organisms, bivalve sets decrease, winter flounder habitat becomes too acidic and the red macroalgae plants give way to acid tolerant ones especially eelgrass, Zostera marina. The ability of eelgrass to trap organic matter many times as dense as bare sand has a huge role in the acidification of marine soils. Its ability to trap organic matter in high heat adds to the rapid rise of the bottom profile. Much of this influence is from terrestrial inputs as detritus dead organic matter, leaves, woody debris and dead grasses. Eelgrass blades trap this debris (called oatmeal by fishers) a brown loose easily disturbed “chaf” which fills shores between sandbars and forms in tidal eddies and in high heat stimulates the sulfur reduction cycle. High heat drives oxygen from these shallow waters (inverse solubility law) and different types of bacteria soon dominate; the sulfate and sulfur reducing bacteria (many strains and species). As the oxygen level drops oxygen dependent decomposers are soon overwhelmed and this organic matter is now “banked” as an accumulation of viscous jelly like material (again not a soil or sediment) but as partially reduced “marine compost” or sapropel.

Estuaries can hold this banked organic matter we can observe as decreasing depths. Decades ago people realized the impact of these accumulating leaves and would upon leaving channels drag iron rings or old metal frames to loosen and dislodge these rotting leaves on outgoing tides, removing them from oxygen depleted channels to the more oxygen sufficient open waters of Long Island Sound. Later this practice would also be termed prop washing, but it wasn’t really that different than oxygen injection into waste water treatment plants bio filters to reduce biological oxygen demand.

Oxygen depletion does influence the organic deposition accumulation rate, the lower the oxygen the faster this organic material (and nitrogen compounds) is banked. It is not unlike the process of land locked water bodies, lakes and ponds which accumulate over time this organic compost (colonial farmers would frequently harvest this compost for terrestrial soil nourishment) builds up and pond/lake depths decrease over time, removal accomplished by storms (floods) or our intervention – dredging.

With a renewed and vigorous forest canopy in Connecticut this process occurs in the coastal environment also especially in times of extended heat. It is this “marine compost” that fishers (shellfishers especially) noticed accumulate on previously hard or clear (and often deeper) bottoms. In times of heat this process starts slowly a few inches but as the material becomes acidic and sulfur rich this process quickens reaching several feet. It is then banked rich in plant nutrients (nitrogen) and phosphorus that could last hundreds of years. In fact, much of the nitrogen compound and phosphorus spring “flush” is the result of decayed leaf materials washed down brooks and streams into the estuaries. The restored forest canopy trees can alter the nitrogen retention process tilting it toward the sulfide reducing bacteria made infamous for the “stink” of salt marshes here in CT during an extremely warm periods and few storms, during the so called Great Heat 1880-1920. It is at this time that marsh stinks were linked briefly to “bad airs” and disease vectors, but what really were smelling was strong hydrogen sulfide gas emitted during the sulfur reduction process in high heat and low oxygen. Thus the rotten egg odor at the turn of the century usually occurred in late August during the height of the summer heat. At the turn of the century many coastal Connecticut towns reported strong rotten egg smells emanating from salt marshes during this period (1880-1920). Because it is difficult to see this process, these reports labeled the marshes as the culprit, but in actual fact it was the decomposition of organic material sealed from the atmosphere, those deposits under the water. It is also the time of the immense juvenile winter flounder fish kills of eastern New York in bays and coves high heat sulfur reducing bacteria can change the chemical and biological characteristics of this “banked” organic material, it now tends to become acidic by the release of hydrogen ions and soluble metals to be converted into insoluble metal sulfides. That is why metal levels appear to rise in these oxygen depleted areas.

In a 1980s mining case history and in experiments by EPA, scientists confirmed the metal recycling ability of sulfate-reducing bacteria that chemically convert dissolved metals into insoluble metal sulfides. Therefore, in high heat/low energy conditions, deep accumulations of organic matter become rich in metals over time. Thus, in these high heat/organic prevalent deposits, metal levels will naturally increase. The longer sulfate reducing bacteria affinity (potential) to reducing bacteria exits, it can complex them in this oxygen deficient organic matter. This appears to be part of the natural mineral salt accumulating process. This natural metal complexing process has confounded numerous dredging projects in low salinity areas found in nearly all Connecticut’s rivers. I have found a quick chart showing the potential of sulfate-reducing bacteria to complex heavy metals.

Percent Recovery of Metals from Mine Water (waste water) Using Sulfate-Reducing Bacteria

Metal	**Percent**	**Recovery**
Aluminum	99.8	Many organic deposits below salt marshes have high levels
Copper	99.8	
Zinc	100.0	Zinc taste often appears in oysters
Cadmium	99.7	
Cobalt	99.1	

Iron *	97.1	As such, many mine waste waters with reduced pH will appear red
Maganese	87.4	
Nickel	47.8	

*See associated oxidation of ferric hydroxide (ochre)

This chart is from an EPA study – Takak, Henry H., et all (2003) Bio-degradation 14:423-436 as found in a college textbook Environment: The Science Behind the Story (page 657).

One could expect that aside from tank studies conducted by Takak (2003), this process occurs in nature under high heat and low energy (mixing) of oxygen sufficient waters above. Field surveys of deep deposits of partially reduced organic matter often have strong hydrogen sulfide odors signifying a sulfur-reducing bacterial presence. This process also occurs under salt marshes and explains why sediments under them often contain high aluminum levels. A by-product of this process is the common sulfur smells. Since dissolved hydrogen sulfide gases from creeks and salt ponds are toxic to most fish species and most harmful in warm water which can hold less oxygen. This sulfur reducing process also explains why eelgrass meadows frequently show extremely high sulfide levels below them as its ability to slow surface water flows and trap organics, helping to separate these two nitrogen/respiration pathways. High sulfide levels are toxic to most marine organisms. In fact, in the aquarium and aquaculture industries, the cause of "black death" or "black water death" is from the sulfides found in them. Changing filter systems in the first commercial bio filters have been dangerous since the first closed system aquaculture operations were constructed. This gas releases when these sediments "boil" even at low temperatures can cause killer toxic gas events in the tropics near large lakes with high organic matter inputs.

Removing sulfide-rich deposits to oxygen sufficient areas as dredged material allows the oxygen-nitrogen pathway to continue producing nitrates, a plant nutrient that favors vascular plants (submerged aquatic vegetation). The nitrogen-sulfide pathway produces nutrients that favors plankton especially the browns that so devastated eastern Long Island's Peconic Bay scallop fisheries in the 1990s. High heat drives the nitrogen-reducing pathways from the oxygen sufficient towards the oxygen deficient sulfur reduction process. Brown plankton blooms often occur during periods of high heat and low energy because of the enormous supply of ammonium and reverse with blue green algae in cooler and energy prevalent periods. This happened during The Great Heat of 1880-1920 and from Connecticut's coastal core studies many times before.

Closed system aquaculturists have long realized how important oxygen sufficient, nitrogen-reducing bacteria are to the ammonium to nitrate cycle for fish culture. Home aquariums also are subject to the some habitat failure when filters are overwhelmed with organic matter and turn black. Submerged aquatic vegetation that traps organic matter in high heat can accelerate this habitat degradation process. Eelgrass meadows in high heat have been known to produce extremely high sulfide levels beneath them. Having oxygen-reducing bacteria shift to oxygen-deficient sulfur reduction kills bio filters and ammonium levels soar. In the marine environment, this occurs on a massive system-wide scale especially in shallow, warm, poorly flushed coves and bays. Sulfate-reducing bacteria combined with high heat shift the balance to plankton, not vascular plants providing the ready access “fuel” needed to sustain these intense algal blooms associated with high heat habitat reversals. These habitat reversals can be decades of more in duration as banked organic sulfur-rich deposits build-up and can be a nitrogen source for centuries. This situation is also described by Hynes (1971) in his lake studies.

> “In an oligotrophic lake there is little oxygen demand in the hypolimnion because of the general paucity of life and the absence of much organic matter sinking from above. The store of oxygen is therefore sufficient to last until the autumn, when complete mixing again occurs because of the cooling of the epilimnion. In a eutrophic lake on the other hand there is a large oxygen demand in the hypolimnion because of the constant rain of dead and dying plankton, and all the oxygen is used up during the summer at least near the bottom. This is of course has marked effects on the benthic fauna, which do not concern us here, but it also affects the release of nutrients from the dead organisms. Under aerobic conditions these salts tend to remain in the mud, and relatively small amount of them find their way back into the water; under anaerobic conditions, however, they are released very rapidly into solution and hence, ultimately, back into the biological cycle.
>
> Therefore, as a lake reaches that state of productivity which results in total de-oxygenation at the bottom of the hypolimnion it becomes considerably more productive, and may begin to produce plankton blooms quite suddenly. It is at this stage that the general public becomes aware that the lake has changed, and within a very few years there may be marked losses of amenity.”

Dredging, therefore, has the ability to remove this nitrogen bank that could take decades or longer to naturally decompose and restore previous tidal flows, and in times of high heat, mitigate high heat habitat failures. This improvement in water flows promotes oxygen reduction processes and not one that supports a sulfur-reducing pathway.

That is why fishers often report increases in fish abundance following dredging projects, especially those that expose glacial sands and cobbles to the tidal fluctuations. Such areas have been shown to carry a limited, cool ground water oxygen reserve for the smallest winter flounder. Dredging removes acidic compost and by doing so, reverses soil acidity. Post-dredging surveys of sands rinsed of organic acids often show increased sets of bivalves (temperature dependent Galtsoff 1964). Bays and coves with reduced flushing often show the build-up of sulfurous mucks and soils. We need to look at dredging in a new light, not always the negative but a process that could turn back the habitat “clock” for some fish and shellfish species., reduce the build-up of nitrogen, and shorten periods of anoxic conditions in coves, bays and sounds.

The 1870s and 1950s were two periods of cold winters and numerous storms (increased energy pathways). Reports from fishers frequently mentioned the presence of firm harbor bottoms and a firm sand/estuarine bivalve shell matrix which soon became a dominant habitat type. Organic matter banking and nitrogen enrichment of composting material did not occur. It simply was washed away by storms and the oxygen sufficient, bacterial reduction processes. This was not the case during The Great Heat, a cycle of increased heat and few storms that occurred from 1880 to 1920. That period resembles almost precisely the period from 1974 to 2004. Historical fish and shellfish records make mention of increased smells from marshes (rotten egg and methane smells) and changes in bay and cove bottom firmness (habitat types). Numerous accounts from Cape Cod to New York's Peconic Bay Long Island Sound, Rhode Island and Connecticut refer to deep accumulations of organic matter, a black, jelly-like material that seemed to increase in depth. This increase can be quite rapid and can take the public by surprise as mentioned by H.B.N. Hynes in his 1971 book The Biology of Polluted Waters from his studies of lakes.

> "It appears that about half the nitrogen is built up into organic matter in these lakes and that there is also adequate phosphate for this enormous amount of plant growth, the wet weight of which would be at least 100 times as much as the amount of nitrogen used. Even if nutrient salts are added while still bound up in organic matter they become rapidly available for algal growth (Flaigg and Reid, 1954; Ohle, 1955), so it makes little difference if they are added as purified or unpurified effluents, although of course ordinary biological treatment does remove some saline nitrogen and phosphate by sedimentation. Ohle (1955) states the raw sewage sometimes contains as much as 15 mg/1 of phosphate phosphorus, but treated effluents contain usually only 2-4mg/1. although as much as 6-8 mg./1. may remain.
>
> In a recent study of a large lake near Copenhagen (Berg et al., 1958) it has been calculated that, because of pollution, about 24 tons of saline nitrogen and 4 tons of saline phosphorus enter the water each year, and that this represents about 12 per cent of the total amount used by the plankton. Moreover very little of this nitrogen and phosphorus leaves the lake via the outflow, the calculated amount being about 3 1/2 tons of nitrogen and 200 lb of phosphorus. This emphasizes the fact that lakes are very efficient traps of fertility, and that even slight pollution is likely to cause a rapid increase in the rate of ageing.
>
> Unfortunately the change seems to be irreversible – once a lake has become eutrophic it remains so, at any rate for a very long time, even if the source of extra nutrients is cut off (Hasler, 1947). Another unfortunate feature is that the onset of extreme eutrophy appears to be a rather sudden feature in lake development, which takes only a few years to become manifest. Its appearance therefore tends to take the general public by surprise."

This change in habitat type, from hard to soft, was noted as declining or degraded habitat conditions for bay scallops, hard clams, oysters and winter flounder, while increasing habitat conditions for the blue crab, green crab and soft shell clams. However, in areas with slow tidal movement or poor "flushing," large fish and shellfish kills were reported, signallying extended periods of oxygen deficiency or anoxia. This cycle seems to reverse physical habitat characteristics but also chemical/bacterial ones as well. It is known that the movement by storms or dredging of deep organic accumulations into oxygen sufficient waters lowers the populations of sulfate-reducing bacteria and the oxygen-reducing bacteria soon increase.

In dredged material disposal sites that have good tidal exchanges, waves, currents and tides (energy pathways), organic matter quickly reenters the marine food web, it is fish food. However, such deposits in oxygen-poor waters contribute to the production of ammonium ions, making nitrogen subject to the same energy and temperature cycles creating a direct habitat quality link. This link introduces a weakness in the nitrogen abatement models in many estuaries today as its primary focus is upon human nitrogen inputs while minimizing the role of organic source nitrogen.

One of the largest problems with the use of nitrogen as a marine pollution indicator is that is also is subject in the marine realm to wide swings of temperature and energy, the key factor being oxygen. Nitrogen compounds entering Long Island Sounds as dissolved organics generally are not subject to the nitrogen-sulfur reduction process, a huge distinction in times of few storms and high heat.

Most of the nitrogen cycle information is based upon the terrestrial model. In this model, bacteria in the presence of oxygen (our atmosphere) converts ammonia NH_3) to an ammonium ion (NH_4) which then undergoes a further process converting nitrite (NO_2) to nitrate (NO_3), a plant nutrient.

In the presence of oxygen and adequate mixing (high energy), the bacterial, nitrogen-fixing process favors ammonium ion in water while supporting two types of bacteria, nitrifying and denitrifying bacteria which as end products release nitrogen gas into the atmosphere and available nitrate compounds.

However, in oxygen-limited waters, especially during periods of high heat and insufficient mixing (low energy), another nitrogen pathway exists, mostly in waters that are warm and receive large amounts of organic rain (sometimes referred to as marine snow). In this case, high amounts of crushed wood debris, leaves and stems found on street surfaces enter water bodies as an organic slurry during heavy rains. In some organic, high sulfur mucks, 50% of the material can consist of leaves and stems (personal observations). In commercial and recreational shellfishermen accounts, this material is called "oatmeal," and in some cove and bay bottoms, can be feet deep and brown in color. West of the Guilford, Connecticut region, this "oatmeal" at times can contain fragments of stem material from phragmites species. It is this "oatmeal" that during high heat stimulates the sulfur-reducing bacteria in the absence of oxygen. Its reappearance in coastal waters is attributed to these factors.

1) Organic inputs such as leaves, woody debris and dead grasses from poor watershed practices can overwhelm coastal reduction processes.
2) This detrital debris is not washed from poorly flushed areas due to reduced energy pathways tidal restrictions and actually accumulates in high heat periods.
3) High heat reduces the availability of oxygen to complete the nitrogen cycle, favoring a nitrogen-sulfur reduction process.

It is this organic material that "cooks" in the marine environment and is most damaging to coastal marine habitats. While dissolved nitrogen compounds can move with the tides be attenuated (often before reaching Long Island Sound) impacts should be seasonally adjusted for temperature. Cold winter temperatures drive the reduction processes back to oxygen bacterial from sulfur bacterial processes. Colder water contains more oxygen; that is why some fishers' accounts mention several feel of "oatmeal" in the fall only to return in the spring to see this material absent. (It was reduced and moved by winter storms.) These accounts also mention that when an area is dredged, the remaining sulfide rich organic matter seems to "melt away."

When examining the habitat quality factors, organic matter nitrogen is 50 to 100 times more damaging than dissolved nitrogen compounds or "people nitrogen." It is known that sulfur-reduction processes can lower ambient pH, produces sulfuric acids that can destroy concrete bridge abutments, can lower the pH in marine soils thus preventing bivalve (shellfish) sets, can drive oxygen levels lower, and can sustain longer periods of anoxic conditions. In the 1950s, during a period of colder temperatures and incredible energy (large number of storms), Long Island Sound was at times, found to have nitrogen limited and anoxic conditions were few and of short duration.

Finally, one of the largest habitat factors identified to date is that marine organic compost tends to produce ammonium, an ion that is needed by harmful algal blooms (HABs). That is why HABs are often occur late in the summer and are densest in poorly flushed bays and coves where ammonium ion concentrations can reach high levels. High ammonium levels are needed to quickly sustain such large and intense "blooms." HABs during the 1950s, were practically unknown to Long Island Sound waters and New York bays.

Hydrogen sulfide reduction is easily seen in the marine environment, the color of salt marsh banks, the infamous odors of black, partially reduced mucks, Even the reduction of sulfate ions (SO_4) can be seen by the casual beach walker; it is responsible for the blackening of the undersides of beach cobblestones sealed from the oxygen above and when turned over has a black stain.

The reduction of organic matter by sulfur-reducing bacteria is extremely slow, much slower than oxygen-reducing bacteria. That is why terrestrial composters will regularly "turn" compost piles to mix them with air/oxygen. In the marine environment, high sulfide levels contribute to low pH soils and can degrade habitat quality for both fish and shellfish. Nitrogen compounds are banked as mentioned previously into this black material rich in metal sulfides.

SO_4 plus sulfate-reducing bacteria plus organic matter yields H_2S gases (rotten egg smell)

The sulfate-reducing bacteria and sulfur-reducing groups only tells part of the story, anaerobic bacteria break down (reduce) some of the phosphorus and nitrogen compounds locked away in plant tissue, especially leaves (due to the increase in forest canopy). While nitrogen is "fluid," (aqueous) it can quickly travel taken by tides and currents to oxygen sufficient areas. Organic matter however, does not share this mobility; when it reaches estuaries, it tends to collect in bays and coves, poorly flushed areas. Fishermen in eastern Connecticut in the early 1980s complained bitterly to state officials claiming a "Tampa Bay effect" by the shore/coastal railway that bisected many eastern Connecticut coves. With tidal exchange reduced, residents, many of whom were shell and fin fishers, noticed a build-up of sulfurous muck in areas that once contained many shellfish and finfish species. In some cases, three feet or more covered oyster beds. (Visel, DeGoursey, Auster 1990) This material, organic matter or marine compost, "cooks" or reduces in high heat. Anaerobic bacteria with organic matter produces a nitrous oxide, a gas, and results in the brown coloration of material. However, in high heat, this material can turn black signifying high sulfate levels and decomposes into sapropel, a blue/black substance rich in hydrogen sulfide and methane. These are the gas bubbles that can be seen rising from these deposits, especially in Hamburg Cove, Lyme, and Middle and North Coves in Essex, Connecticut. On a spring day, when the water is very cool and clear, you can watch these gases venting from these soft sticky deposits. These areas are usually devoid of fish life with the little benthic relief. Look for this sapropel in Connecticut's poorly flushed coves or those with severe today restrictions which acts more like a dam and lake conditions described in the front of this report.

Thus, in terms of nitrogen residence time or bank, these reserves of nitrogen containing compounds can last for decades or centuries depending upon temperatures and energy levels. That is why linking the reduction of human nitrogen inputs to a return of fish and shellfish species is somewhat misleading, or false if not indexed for temperature or energy levels. When the two nitrogen reduced pathways are compared, the sulfur pathway is much more damaging to marine ecosystems and largely out of our control (temperature). However, we can alter the energy pathways; that is where dredging comes in It is just moved from oxygen in sufficient to oxygen sufficient areas such as dredge material disposal sites. While organic nitrogen enters water columns in two forms, ammonia oxygen-reduced suitable for broadleaf plants and ammonium from bacterial denitrification. It is the ammonium ion that is quickly utilized by the brown algal species. In high heat and low energy conditions, high concentrations of the ammonium ions can sustain damaging HABs, harmful algae blooms as the bay scallop fishermen in eastern Long Island will recall in the 1990s. Extreme heat and low oxygen altered the dynamics of the nitrogen cycle, blocked to some extent by the rates of nitrifying bacteria nitrosomonas and the opening the sulfur-reduction process to lower pH and facilitating anaerobic bacterial processes, thereby increasing the proportion of ammonium to ammonia levels. In other words, the "nitrogen problem" is not so much an input problem but one related to climate and temperature. Therefore, historically the brown algae species did so well in the 1880-1920 hot period and the 1990s and why blue-green algae predominated during the colder and more energy prevalent 1870s and 1950s.

During cold periods – human inorganic nitrogen inputs (ammonia) have more impacts than terrestrial sources. In times of great heat however the "banking" impacts of nitrogen phosphorous containing (leaves woody, debris, dead grass vegetation) make human aqueous nitrogen (easily moved by tides and currents) inputs appear minor in comparison. Thus dredging can reduce the amount of extent of low pH sulfide rich accumulations and increase ambient oxygen levels necessary for aerobic bacterial respiration of organics similar to the process in modern wastewater treatment plants.

Dredging marine areas can speed the recovery of nutrient enhanced environment (such as what currently happens with lakes and ponds) as many studies today link nutrient enhancement to diminished social and economic values. Maintaining suitable open water disposal areas is key to allowing this process to happen. Closing the dredge disposal sites is the equivalent of closing composting facilities. Only here the component is fish food.

Having one or more active dredged material disposal sites will not only continue the critical economic benefits from maritime commerce, the boating and navigation interests (marinas) including jobs and related dependent businesses but can help remove banked nitrogen.

Summary –

The principal harm to Long Island Sound's Fisheries – the ones that presently have value is a lack of energy and an increase in temperatures. The principal harm to Connecticut near coastal habitats has been the increase in paved surfaces and the tremendous increase in Connecticut's forest cover – leaves as organic matter inputs. In cycles of high heat and low energy tidal flushing in coves, bays and lower rivers depths are reduced. Organic matter collects lessens estuarine pH and becomes a composting high sulfur habitat. Acidic high sulfur environments are some of the most damaging to oxygen dependent species.

To maintain energy pathways and maintain navigation during this warm climate cycle it is essential that dredged material disposal sites remain open. In fact to handle organic debris (leaves, wood, rot, etc) other sites should be created. Increasing hydraulic capacity such as man made salt ponds deepening salt water access could in fact reduce hydraulic stress – flooding during severe storms. It could also add habitat refugia for the blue crab whose populations now cling to a predator free habitat zone in dredged marina basins and channels presently.

Dredging marine composts to enhance habitat quality may have a precedent, in New York late 1970s, conversations with Peconic Bay Fishers years ago told of dredging accumulated duck farm feces from coves. I plan to investigate this incident later this spring. It was the small boat commercial fishers (baymen) from Great South Bay and Peconic Bay, New York, The South County Rhode Island Salt Ponds, Pleasant Bay on Cape Cod and Niantic Bay in Connecticut were the first ones and report the build up of sapropel – the hydrogen sulfide mucks. This build up continues along Connecticut's coves and river systems. Some of the deepest deposits I have observed in recent years has been Hamburg Cove – Lyme and North, Middle and South Coves in Essex. Middle Cove Essex has most likely 8 to 10 feet, Hamburg 12 to 15 feet (mostly leaves) North Cove Old Saybrook has a dredged mooring basin which sapropel is removed and has become an important habitat refuge for the blue crab. The gas venting from sapropel in Middle Cove Essex in spring is the heaviest I have ever observed.

It is important to keep disposal sites open for the boating industry but also to investigate habitat mitigation and nitrogen reduction projects. Dredging can be a nitrogen reduction and habitat restoring activity.

I hope these comments will be a help to the EPA Scoping Document process as a supplemental impact statement.

Comments submitted to Alicia Morrison – Grimaldi
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This comments and views are my own reflection of four decades of working with the boating and fishing industries. They did not reflect the view or position of either the Citizen's Advisory Comment or Habitat Restoration Working Group of the EPA Long Island Sound Study of which I presently belong.

By Timothy Visel

Ivoryton, CT

For printed quotations

The biology of polluted waters by H.B.N. Hynes Professor of Biology – University of Waterloo, Ontario, Canada with introduction by F.T.K. Chief Inspector of Salmon and Freshwater Fisheries Ministry of Agriculture Fisheries and Food, London England - University of Toronto Press 1971.

Appendixes

Appendix (1)

The Impact of Energy – Tidal Exchange as Referenced by Inlet Width and Hard Shell Clam Production NOAA Publication (Marine Fisheries Review Vol 64, No. 2, Clyde L. MacKenzie, Jr., et al 2002.

Appendix (2)

Sapropel Buildup North of the Pattaquansett River Railroad Bridge East Lyme, CT USA Published Abstract April 5, 1990 – Visel – DeGoursey – Auster, University of Connecticut.

Appendix (3)

Sapropel Builtup Middle and North Basins Poquonnock River – above Railroad Crossing – Report to the Groton Shellfish Commission – Tim Visel, June 1985.

Appendix (4)
The Consequences Of Insufficient, Tidal Flushing – 1974
Tidal Wetlands of Connecticut, Niering/Warren, Steever

Marine Fisheries

Review Vol. 64, No. 2
2002

Excerpt by:
Clyde L. MacKenzie., Jr., Allan Morrison, David L. Taylor, Victor G. Burrell, Jr., William S. Arnold, and Armando T. Wakida-Kusunoki

Quahogs in Eastern North America; Part 1, Biology, Ecology, and Historical Uses

Page 8 Large Bay and Ocean Water Exchange Attributes

In the northeastern United States from Massachusetts through New Jerse, the bays that have a large exchange of their waters with ocean waters now have relatively large stocks of northern quahogs, while those with poor exchanges have small quahog stocks. The areas with large exchange are Buzzards Bay, mass.; Greenwich Bay and Point Judith Pond, R.I.; Long Island Sound, Conn.; and Raritan Bay, N.Y. and N.J.. The bays were the exchange is poor are Great South Bay, N.Y., and new Jersey's coastal bays (Barnegat bay, Little Egg Harbor, and Great Bay). The water in the zones of Great South Bay farthest from the bay inlets exchanges with ocean water only once every several weeks (Nuzzi).

Great South Bay once had large stocks of quahogs, McHugh (1991) reported the opening of an inlet between the Atlantic Ocean and Moriches Bay (which connects with Great South Bay) on Long Island, N.Y., made by a hurricane in 1931, led to a large increase in salinity in Great South Bay. The higher salinity allowed oyster drills to increase in abundance and activity, and they substantially reduced the numbers of remaining oyster (MSX might have also been responsible, (Usinger), but dense quahog sets occurred throughout the bay and a substantial quahog fishery developed. Moriches Inlet eventually closed, but a hurricane in 1953 reopened it. By 1957 it began to close again. In 1958 it was widened and deepened by dredging and subsequently protected by a seawall. Jeffrey Kassner believes this 1958 opening may have set the environmental state for the boom in quahog production in Great South Bay in the 1960's and 1970's.

Ingersoll (1877), who surveyed the mollusk fisheries in 1877-78, reported that Barnegat Bay was called "Clam Bay" and yielded 150,000 bushels of quahogs/year. The area now yields barely 1,000 bushels of quahogs/year. Charts from 1878 (Woolman and Rose, 1878) and 1997 (NOAA Nautical chart 12324) show the amount of housing on the shores, the bay itself, the location of Barnegat lighthouse (wide, open arrows on both charts), and widths of the inlets (Fig.12). Little housing is shown in the 1878 chart, but a considerable amount of housing is suggested by the canalization of the shorelines shown in the 1997 chart (houses crowd the shores of all canals). The buildup of housing took place in the 1960's and 1970's (Collins and Russell, 1988). The width of Barnegat Inlet in 1878 was 4 times its width in 1997. There likely was considerable exchange of bay and ocean waters and little eutrophication of bay waters in the 1870's. This contrasts with limited water exchange and considerable eutrophication of bay waters in the late 1990's.

Inlets that have been opened by hurricanes seem to have had beneficial effects on quahog populations in North Carolina. Chestnut (1951) stated an increased quahog abundance in northern Core Sound during the mid-1930's appeared to be associated with the opening of Drum Inlet by a 1933 hurricane. Godwin et al, (1971) reported a similar occurrence related to Hurricane Hazel in 1954. Hurricanes do not exert negative effects on quahogs in North Carolina, although the closing of an inlet by a storm has a negative effect. When any North Carolina inlets closed, nearby quahog stocks declined (Taylor, 1995).

Reduced Oyster Recruitment in a River With Restricted Tidal Flushing

Timothy C. Visel

Sea Grant Marine Advisory Program

The University of Connecticut at Avery Point, Groton, CT 06340

Robert E. DeGoursey, Marine Sciences Institute

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The Pataguanset River in East Lyme, Connecticut, historically supported a natural oyster bed that has recently declined in productivity. A series of surveys of the river (1985-1988) identified one natural bed comprised of large adult oysters (10 cm to 18.7 cm shell ht.) and few juveniles (<4.6 cm shell ht). The reintroduction of an oyster fishery would quickly deplete this resource without substantial recruitment of seed oysters. Three attempts to restore the oyster setting capacity of the bed by cultch planting and shell base cultivation were unsuccessful. No new seed oysters were observed. Direct underwater observations confirmed heavy silting of newly planted shell cultch, preventing the setting of oysters. Further examination of the lower Pataguanset River near a railroad causeway revealed a historic oyster bed buried under approximately 1 meter of organic sediment. The construction of the railroad causeway reduced the overall width of the river from over 1,000 meters to approximately 15 meters. Effects of the causeway including increased siltation and reduced salinities due to restricted tidal flushing, have negatively impacted the population dynamics of the natural beds. Ideally, tidal flow should be restored. However, management under the current hydrologic regime should include hydraulic cultivation and intensive shell base maintenance in order to enhance oyster productivity.

National Shellfisheries Association, Williamburg, Virginia Abstracts,1990 Annual Meeting, April 5, 1990 – pg 459.

The Day, New London, Conn., Wednesday, June 12, 1985

Specialist warns agency of ‘black mayonnaise’ threat

By William Hanrahan
Day Staff Writer

GROTON – they call it black mayonnaise – it’s the murk and muck, sometimes several feet deep, that collects on river bottoms. It’s also the stuff stifling the area’s oyster crops, according to an expert.

Addressing the town’s Shellfish Commission Tuesday night, Timothy c. Visel, a marine resource specialist for the University of Connecticut, said the build-up of debris in shellfish area’s can weaken or eliminate growth.
Working in waters off Old Saybrook, Clinton and Madison, Visel said production of oysters there has more than quadrupled thanks to clean-up efforts during the past three years.

“There seems to be a trend that our rivers are filling up with black mayonnaise,” he said. “We have seen a dramatic increase in river life as the dead stuff is removed.”

The accumulation of debris occurs in waters with poor circulation. “We get so many nutrients going into these sluggish coves without a lot of circulation,” Visel said. “This causes a build-up and no oxygen gets down in the water.”

Visel said removing debris not only enhances oyster growth, but has increased the presence of a number of other fish, including flounder.

Visel said Connecticut used to be a leader in oystering about 100 years ago, with local areas such as the Poquonnock River as prominent beds. More than 100 oyster companies on Cape Cod used to rely on seed oysters from Connecticut which were brought there to mature.

Production dwindled to almost nothing as waters became polluted, he said. A clean water act in the late 1960’s helped rekindle the industry during the 1970’s, but things are still not what they used to be.

Removing black mayonnaise helps oysters and other life forms grow and even cultivate in areas previously devoid of life.

“About 1500 bushels came out of Old Saybrook last year and no shells were put in the water,” he said. Visel said areas where mud is a problem often smell bad or show a white, milky substance floating on the water. Commission members said they had seen signs of this in town waters.

Debris can be removed from river and cove bottoms with oyster dredges, Visel said. By stirring up the mud at high tide, the debris is able to flow out of the area when the tide changes.

Debris can consist of decaying leaves, sticks, logs, garbage and nutrients which build up in the water. Visel said water jets also have been effective in removing mud

The commission plans to study the information presented by Visel before considering possible action.

TIDAL WETLANDS OF CONNECTICUT

By William A. Niering and R. Scott Warren

Forward by E. Zell Steever

January 1974

Environmental Impacts – Estuaries, Page 55—"Historically, causeways represent one of the first major impacts of man, realizing that mowing and firing of the marshes were probably practiced long before the construction of railroads and highways. Of the 127 systems studied, 119 (or 94 percent) had their drainage patterns interrupted by one or more causeways. A major rail line, Amtrak, crosses many of the marshes. However, town and state roads represent the major impacts. Although bridges or culverts are present, many are inadequate to accommodate natural tidal flushing. In fact, many of these causeways have either reduced the productivity of the marshes behind them (Milford Harbor) or have resulted in replacement of salt marsh species by Phragmites. In contrast, at Oyster River, Milford, a lobe of marsh cut off from the main system by a causeway except for a narrow bridge has been almost converted from patens high marsh to alterniflora. This change in species composition has been documented from cores of the underlying peat. It is of interest to note that the pile driven wooden bridge on Canfield Island Creek (Shorehaven Norwalk, west part) which permits full tidal exchange is reflected in a highly valuable marsh system."

Written Comments 9

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OFFICE OF THE SUPERVISOR
TOWN OF SOUTHOLD

January 30, 2013

Ms. Jean Brochi,
U.S. EPA, Region 1, 5 Post Office Square, Suite 100, OEP06-1,
Boston, MA 02109-3912

Re: Notice Of Intent To Prepare A Supplemental Environmental Impact Statement (Seis) To Evaluate The Potential Designation Of One Or More Ocean Dredged Material Disposal Sites (Odmds) To Serve The Eastern Long Island Sound Region (Connecticut, New York, And Rhode Island).

Dear Ms. Brochi,

The Town of Southold Town Board is submitting the following comments and questions in response to the "Notice of Intent: Designation of an Ocean Dredged Material Disposal Site (ODMDS) in Eastern Long Island Sound; Connecticut, New York, and Rhode Island".

It is the Town Boards understanding that a Supplemental Environmental Impact Statement (SEIS) is being prepared to evaluate the two current sites used in eastern Long Island Sound (known as Cornfield Shoals and New London) as well as other sites for, and means of, disposal and management, including the no action alternative. The SEIS supplements the FEIS prepared in 2004. The SEIS will support the EPA's final decision on whether one or more dredged material disposal sites will be designated under the Marine Protection, Research, and Sanctuaries Act (MPRSA). It is also our understanding that the disposal in Long Island Sound of dredged material from Federal projects or from non-Federal projects involving more than 25,000 cubic yards of material, must satisfy the requirements of both CWA § 404 and the MPRSA. Disposal from non-Federal projects involving less than 25,000 cubic yards of material, however, is subject only to CWA § 404.

Finally, the SEIS will include analysis applying the five general and eleven specific site selection criteria for designating ocean disposal sites presented in 40 CFR 228.5 and 228.6, respectively. The Southold Town Board comments and questions are underlined below. Each comment/question is stated under a recitation of the pertinent regulation. General comments follow.

Title 40 - Protection of Environment

§ 228.5 General criteria for the selection of sites.

(a) The dumping of materials into the ocean will be permitted only at sites or in areas selected to minimize the interference of disposal activities with other activities in the marine environment, particularly avoiding areas of existing fisheries or shellfisheries, and regions of heavy commercial or recreational navigation.

Comments:

In 1987, Congress designated Long Island Sound an *Estuary of National Significance.* Both the Cornfield Shoals and New London are located in the Long Island Sound.

Long Island Sound is one of the most significant coastal areas in the nation, with a 16,000 square mile watershed that traverses all of Connecticut and parts of New York, Massachusetts, New Hampshire, Rhode Island, and Vermont. More than 170 species of finfish can be found in the Sound, including at least 50 species that spawn in the Sound and 21 tropical species that stray into this region on a seasonal basis (LISS).

Post World War II the ecological health of the Sound began to decline. To address the decline, the Long Island Sound Study (LISS) was authorized by Congress in 1985, establishing a collaborative partnership federal, state, interstate, and local government agencies, industries, universities, and community groups to effort to restore and protect the Sound. LISS partners currently work together to implement a Comprehensive Conservation and Management Plan to maintain the health of the ecosystem, restore coastal habitats, and increase public awareness of the Sound. The partners coordinate actions and leverage scarce financial resources to protect an entire ecosystem through the Long Island Futures Fund.

The Long Island Sound Study initiated the Long Island Sound Futures Fund in 2005 through the EPA's Long Island Sound Office and National Fish and Wildlife Foundation (NFWF); to date, the program has invested $10.5 million in 261 projects in communities surrounding the Sound. With grantee match of $23 million, the Long Island Sound Futures Fund has generated a total of almost $33.5 million for projects in Connecticut and New York. (LISS). Note that grantee match usually involves commitments from local municipalities.

Correspondingly, the economy of the Town of Southold is dependent (in part) on fisheries, shellfisheries and recreation in Long Island Sound. The general criterion cited above states that actions will be permitted only in areas that shall "minimize the interference of disposal activities with other activities"

Questions:

Is the term "minimize" defined or quantified?
Is the term "interference" defined or quantified?

The consideration of disposing of dredge spoil (presumably resulting in adverse impacts to marine waters and species) in the Long Island Sound is counterproductive to the collaborative funding, efforts and progress being made in restoring water quality, fisheries and shellfisheries.

(b) *The locations and boundaries of disposal sites will be so chosen that temporary perturbations in water quality or other environmental conditions during initial mixing caused by disposal operations anywhere within the site can be expected to be reduced to normal ambient seawater levels or to undetectable contaminant concentrations or effects before reaching any beach, shoreline, marine sanctuary, or known geographically limited fishery or shellfishery.*

Questions:

Is the term "temporary" defined or quantified?
Is the term "undetectable contaminant" defined or quantified? Does the parameter assess pre-disposal conditions of dredge materials or only post disposal? Since the areas are located within a *Estuary of National Significance* are the contaminant concentrations standards more restrictive?

The 40 CFR § 228.6 Specific Criteria for Site Selection follows:

In the selection of disposal sites, the following factors are considered:

1. *Geographical position, depth of water, bottom topography and distance from coast*

   No comment

2. *Location in relation or breeding, spawning, nursery, feeding, or passage areas of living resources in adult or juvenile phases*

   Comments:

   Multi generation lobstermen have repeatedly expressed their concern for declining populations of Lobster around Fishers Island and mainland Southold. Has a study been conducted in New York State waters that analyzes the declining Lobster populations and dredge disposal events? Is there a correlation?

   The report titled Northeast National Estuary Program Coastal Condition published by the Environmental Protection Agency in 2007 found that the overall condition of the Long Island Sound is poor including sediment quality. The report states:

   "the sediment quality index for Long Island Sound was rated poor, with 32% of the estuarine area rated poor and 16% of the area rated fair for sediment quality condition. Ten percent (8 sites) of the Sound's estuarine area had sediments that were toxic to amphipods; however, there was little co-occurrence of toxicity and

sediment contamination at the impaired sites, which were grouped in the western and far eastern ends of the Sound. A similar distribution was noted for sites contaminated by moderate and high concentrations of metals and DDT. TOC conditions were not well characterized for Long Island Sound because data were unavailable for two-thirds of the LISS estuarine area."

The report concludes that: *"The overall condition of Long Island Sound is rated poor based on the four NCA indices of estuarine condition. Based on LISS findings, the most significant environmental priorities in Long Island Sound are low dissolved oxygen levels in bottom waters (hypoxia); pathogen contamination in swimming waters and shellfish- harvesting areas; declines in finfish and commercial shellfish populations; loss of coastal habitat; and increases in floatable debris. Since 1991, there has been a reduction in overall nitrogen loadings to the Sound, as well as in inputs from point sources. Upgrades to municipal STPs have had a major impact on reducing nitrogen discharges from coastal and tributary sources. Construction of pump-out stations has helped to reduce discharges of vessel sewage and the levels of pathogens in near-coastal areas of Long Island Sound. Protection of oyster beds and the lobster population is still an extremely critical priority for the economic viability of the fishing industry in Long Island Sound"*

Questions:

Is there an updated report?

Has a correlation been made between the disposal of dredge spoil and declining finfish and commercial shellfish populations?

The conclusion stated that protection of oyster beds and lobster population is an "extremely critical priority". The EIS was completed in 2004, since the completion, has a comprehensive long-term study been conducted around Fishers Island to determine what affects (if any) the disposal of dredge spoil had on lobster populations? How does the disposal of dredge spoil protect the lobster populations?

3. *Location in relation to beaches and other amenity areas;*

Questions:

What is the physical distance between the Cornfield Shoals and New London sites and the Town of Southold land mass, including outlying islands? What are the dispersal patterns of the sediment in the water column based upon, tides and currents and prevailing winds? Has this been modeled?

4. *Types and quantities of wastes proposed to be disposed of, and proposed methods of release, including methods of packing the waste, if any*

Comments:

The EIS indicates that a dredging needs assessment was completed in 2001, and projected future dredged material quantities from the western and central regions were estimated, based on contact with 555 navigation-dependent facilities (146 responded). This type of assessment seems very subjective and could have been influenced by perceived needs, not factual (Evidence of deposition, shoaling at inlets etc). Was a follow up study (including bathymetry) of areas identified conducted to verify the needs assessment?

Questions:

Has an updated dredge needs assessment been conducted?

Why is Mattituck Creek (which contains a federal anchorage) missing from the dredge needs assessment? If there was not a respondent to the assessment, was a water body excluded?

Is all dredge material tested for contaminants? If contaminants are found is there an alternative plan (upland) for disposal?

Why would the dredge needs assessment study include sourcing material from private (non-federal projects) e.g. marinas and propose disposal of the material in public waters?

5. *Feasibility of surveillance and monitoring*

Comments:

The 2004 DEIS states that " *For each designated disposal site, EPA and the Corps must develop a site management plan that includes a baseline assessment of conditions of the site, a program for monitoring the site, special management conditions or practices to be implemented at the site to protect the environment, consideration of the quantity of material to be disposed of at the site and the presence of contaminants in the material, consideration of the anticipated use of the site over the long term, and a schedule for review and revision of the plan (33 U.S.C. § 1412(c)(3)). A designated disposal site may not be used until a site management plan has been developed for the site (33 U.S.C. § 1412(c)(4)).* "

Question:

Has a site management plan been developed for Cornfield Shoals and the New London site? If not, has disposal of material commenced without such a plan?

6. *Dispersal, horizontal transport and vertical mixing characteristics of the area, including prevailing current direction and velocity, if any*

   See question above.

7. *Existence and effects of current and previous discharges and dumping in the area (including cumulative effects).*

   Questions:

   Is the term "area" defined or quantified?

   Will the assessment discuss positive and negative economic impacts? Cumulative effects should include multi-year studies on the impacts (if any) on marine species located with the Long Island Sound. A link to potential economic impacts to fisheries and shellfisheries should also be included.

8. *Interference with shipping, fishing, recreation, mineral extraction, desalination, fish and shellfish culture, areas of special scientific importance and other legitimate uses of the ocean,*

   Question:

   Is the term "interference" defined or quantified?

9. *The existing water quality and ecology of the site as determined by available data or by trend assessment or baseline surveys,*

   Questions:

   Is the term "site" defined or quantified? If the analysis is limited to a defined "site" that is in close proximity to the disposal "site" such an assessment would exclude impacts to surrounding ecology found in outlying areas.

   Have trend assessments been conducted for the Cornfield Shoals and/or New London sites?

   Comments:

   Note that the NYSDEC regulates storm water discharges in the Town of Southold under the New York State Pollutant Discharge Elimination System ("SPDES") Permit for Discharges from Municipal Separate Storm Sewer Systems ("MS4s") GP-0-010-002 ("MS4 Permit"). The MS4 General Permit regulations establish a number of required planning, legislative and implementation actions that the Town must complete by 2015. The program is designed to reduce overall pollutant loads to waterbodies. The MS4 Permit requires that the Town accomplish these efforts based on six Minimum Control Measures, which include: public education and outreach, public involvement, illicit discharge detection and elimination, construction site stormwater control, post construction stormwater management and pollution prevention for municipal operations.

It seems to be a conflict that the Federal agencies whom developed the MS4 Permit would consider allowing the discharge of dredge material into a *Estuary of National Significance* when Southold Town is expending significant resources to comply with the above mandated regulations to lessen impacts to water quality.

How does the MS4 Permit goals and objectives support the proposed action?

10. *Potentiality for the development or recruitment of nuisance species in the disposal site*

No Comment

11. *Existence at or in close proximity to the site of any significant natural or cultural features of historical importance.*

Comment:

As discussed below the Long Island Sound is a *Estuary of National Significance* and the plan to continue to dispose of dredge material in the water body conflicts with the designation, purpose and effort to restore the estuary.

Question:

Has or will the proposal be assessed to the Town of Southold Local Waterfront Revitalization Program? Specifically:

NATURAL COAST POLICIES

Policy 5 — Protect and improve water quality and supply in the Town of Southold.

Policy 6 — Protect and restore the quality and function of the Town of Southold's ecosystem.

Policy 8 — Minimize environmental degradation in the Town of Southold from solid waste and hazardous substances and wastes.

Policy 11 — Promote sustainable use of living marine resources in the Town of Southold.

General Comments

The Sixth Annual Report Regarding Progress in Developing a Dredged Material Management Plan for the Long Island Sound Region For the Period July 6, 2010 – July 5, 2011 indicates that from 2009 to 2011, 0 cy of dredged material was deposited on the New London Site and 245,495 cy at Cornfield Shoals (all from private projects in 2012).

If both sites are approved for disposal, what are the projected amounts to be disposed in the locations?

What is the process for notifying municipalities that disposal will occur?

The presentation shown on January 9, 2013 at the Suffolk Community College, Culinary Arts Center indicated that dredge spoil from the creeks along the southern shoreline of Southold in the Peconic Bay is included in the needs assessment. Note that 100% of the dredged material is used for beach re-nourishment.

Can you confirm that the dredging needs assessment source slide (sorry we could not locate the slide shown) included a need for disposal from Peconic Bay dredge sites? If so, what method was used to calculate the need?

What does "Redevelopment of Plum Island" mean as a potential disposal site alternative?

The Southold Town Board appreciates the opportunity to comment on the action and looks forward to receiving answers to the above questions.

Sincerely,

Scott A Russell

Scott A Russell
Supervisor

Cc: Martin Finnegan, Town Attorney
Jennifer Andaloro, Assistant Town Attorney

Written Comments 10

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ANDREW M. CUOMO
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CESAR A. PERALES
SECRETARY OF STATE

January 31, 2013

Ms. Jean Brochi
U.S. EPA, Region 1
5 Post Office Square, Suite 100
OEP06-1
Boston, MA 02109-3912

Re: O-2012-0010 – US EPA Notice of Intent: Designation of an Ocean Dredged Material Disposal Site (ODMDS) in Eastern Long Island Sound; Connecticut, New York, and Rhode Island. Notice of Intent to prepare a Supplemental Environmental Impact Statement (SEIS) for Eastern Long Island Sound (ELIS).
Scoping Comments

Dear Ms. Brochi:

In accordance with our responsibilities as a cooperating agency under the National Environmental Policy Act (NEPA), the New York State Department of State (NYS DOS) submits these comments in response to the request of Environmental Protection Agency (EPA) Region 1 for public comments on the scope of a draft Supplemental Environmental Impact Statement (SEIS) for possible designation of one or more dredged material disposal sites in eastern Long Island Sound (ELIS). As a cooperating agency, NYSDOS attended and participated in public scoping meetings held on November 14, 2012 at the University of Connecticut, in Groton, Connecticut and on January 9, 2013 at Suffolk Community College in Riverhead, New York. In submitting these comments, NYSDOS recommends that EPA prepare an SEIS that fully analyzes the need for the action, the wide reaching environmental impacts which could result from designating a site in ELIS to receive dredged sediments and the broad range of alternatives to avoid such a designation.

Title I of the Marine Protection, Research, and Sanctuaries Act (MPRSA) of 1972, referred to as the "Ocean Dumping Act" (33 USC § 1412), authorizes the EPA Administrator to designate sites where ocean disposal may be permitted. In 1980, Congress amended the ODA to subject the dumping of dredged material in Long Island Sound (LIS) by federal agencies, or by private parties dumping more than 25,000 cubic yards of dredged material, to the site selection, site designation and environmental testing criteria of the ODA (33 USC § 1416(f), known as the "Ambro Amendment"). The purpose of the Ambro Amendment was to prevent the further degradation of LIS caused by dredged material disposal in open water. Its runs contrary to the intent of the Ambro Amendment to permanently allow such practices to continue by designating and proliferating disposal sites in LIS. Since its enactment, two sites were provisionally designated in LIS in June 2005, Central Long Island Sound (CLIS) and Western Long Island Sound (WLIS), both of which are subject to the condition that a Dredged Material

Management Plan (DMMP) be completed by June 2013, subject to possible extensions, (40 C.F.R. § 228.15(b)(4)and (5)) or the sites will close.

Over the past three decades, major efforts have been undertaken by government and the general public to improve the environmental quality of LIS and limit the open-water disposal of dredged materials. The need to improve the quality of the LIS ecosystem is chronologically reflected in: the Long Island Sound Regional Study by the New England River Basins Commission in the 1970's; an Interim DMMP in the early 1980's that identified the need to limit dredged materials disposal and develop a comprehensive dredged materials management plan for LIS; Congressional amendments to the federal Ocean Dumping Act limiting the disposal of contaminated materials in the LIS; the LIS's designation as an Estuary of National Significance pursuant to the National Estuary Program and the subsequent undertaking of the Long Island Sound Study; the New York State Long Island Sound Coastal Management Program; development of a Comprehensive Conservation and Management Plan for the LIS; and the pending efforts to develop a DMMP for the Sound with a goal of reducing or eliminating open-water disposal. These reports should serve as a point of reference for the EPA as they reflect of the efforts of federal and state agencies over the years to address the controversial subject of open water disposal of sediments.

As outlined in the October 16, 2012 Federal Register notice, the EPA has decided to prepare an SEIS to evaluate two sites in eastern Long Island Sound – Cornfield Shoals Dispersal Site (CSDS) and the New London Disposal Site (NLDS) - as well as other sites for, and means of, disposal and management, including the no action alternative. The SEIS will provide information to enlighten the EPA's final decision on whether one or more dredged material disposal sites will be designated under the MPRSA. The SEIS will include analysis applying the five general and eleven specific site selection criteria for designating ocean disposal sites presented in 40 C.F.R. §§ 228.5 and 228.6, respectively.[1]

Recognizing that several planning efforts are currently underway, NYSDOS requests that in the event that the draft ELIS SEIS is being advanced before completion of the LIS DMMP, the SEIS process should incorporate the goal of "reducing or eliminating open-water disposal" (40 CFR § 228.15(b)(4) and (5)). This ELIS SEIS should incorporate furtherance of this goal as a necessary and distinct criterion when evaluating the suitability for designation of any potential open-water disposal site identified during this process.

Background:

Long Island Sound is a 110-mile-long, semi- enclosed, tidal estuary at the interstate boundaries of New York, Connecticut, and Rhode Island. It is hydrologically connected to the Atlantic Ocean at its eastern end through Block Island Sound, and to New York Harbor at its western end through the East River at Throgg's Neck and the New York City incorporated municipal boundary. As noted by the U.S. Geological Survey, the circulation in Long Island Sound, which is controlled by an east-to-west weakening of tidal-current speeds coupled with the westward-directed estuarine bottom drift, has produced a succession of sedimentary environments. The succession begins with erosion at the narrow eastern entrance to LIS, changes to an extensive area of coarse-grained bed load transport in the east-central Sound, passes into a contiguous band of sediment sorting (where the estuary noticeably widens), and ends with broad areas of fine-grained deposition on the flat basin floor in the central and western LIS.

The geographical region in ELIS that is the subject of this SEIS is referred to as the Zone of Site Feasibility (ZSF) and is included within the boundaries for the draft DMMP ((40 C.F.R. § 228.15 (b)(4)and (5)). The eastern basin of LIS includes the area between Six Mile Reef to the west and The

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[1] Federal Register Volume 77, Pages 63312-63313 (October 16, 2012).

Race to the east. Ocean waters flow into the Sound as bottom currents and water leaves the Sound as surface currents through the constricted eastern entrance. Incoming ocean waters upwell along the Connecticut shore and move oceanward via a counterclockwise gyre along the Long Island Shore. At the eastern edge of the Sound, extending approximately 5 to 8 km westward from The Race, there is a large area of erosion or nondeposition, likely caused by a combination of strong tidal currents and a net westward movement of sediments into the estuary.[2] Current speeds in the eastern basin are the strongest observed in LIS.[3] These current velocities have been measured at 62-82 cm/sec and are sufficient to erode silt and sand, and prevent deposition of silt and clay. There is a paucity of silt and clay sized particles in surface sediments (0-25%) in the eastern basin reflecting the high energy current resuspension of fine sediment.

The US Army Corps of Engineer's Disposal Area Monitoring Program (DAMOS) periodically monitors the New London Disposal Site (NLDS) using bathymetric surveys, sediment profile imaging and plan view imaging to verify the locations of disposal mounds, monitor any changes to the mounds, as well as to track the re-colonization of the mounds by benthic communities. A study of a NLDS disposal mound (DAMOS monitoring report #180) was conducted between 2000 and 2006 on mound NL-06 sediment from the time the sediments left the barge until the survey was taken 8 months later. The study revealed that between 35% and 50% of the disposed material was missing and unaccounted for. This absence of material verified that the sediments disposed of at NLDS are transported rapidly and disappear quickly, indicating that sites in eastern Long Island Sound are located in a very unstable, fast moving marine environment, unsuitable for open water disposal.

Hydrological and Sedimentary Characteristics of the ELIS and the Zone of Site Feasibility

1) Historical dumping has occurred at 19 open water disposal sites, several of which were located in ELIS. Enormous amounts of often contaminated sediments were disposed there.[4] Scarce data exists evaluating the environmental effects of past disposal activities. Baseline scientific studies must be conducted for the SEIS which detail ambient concentrations of chemical elements and compounds in LIS estuary sediments, particularly in the ZSF, in order to evaluate the impact of further open water disposal.
2) The SEIS should then consider evaluating the incremental cumulative effect of each successive dredge disposal event in terms of the increase in concentrations of chemical parameters at the disposal sites as a consequence of past and anticipated future disposal activity at these sites. Examples of incremental impacts that should be evaluated for cumulative effects include elevated tissue concentrations of organic and inorganic (metals) contaminants in lobster and clam and worm tissues and disturbance to benthic habitat and communities as a consequence of disposal activity and the interaction with hypoxia, dredging, weather related impacts, and other discharges into LIS.
3) An analysis of the cumulative effects of multiple simultaneous dredging events at all EPA designated sites is essential. Segmentation of the currently designated sites and any additional potential designation would improperly limit the range of review and the consideration of cumulative environmental impacts from past and future dredge material disposal in the Sound.

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[2] ENSR International 2001. Physical Oceanographic Evaluation of Long Island Sound and Block Island Sound. DEIS for the Designation of Dredged Material Disposal Sites in Central and Western Long Island Sound. September 2003. U.S. Environmental Protection Agency, New England Region, Boston, MA. U.S. Army Corps of Engineers, New England Division, Concord, MA. Appendix G1. Section 2.1.2

[3] Long E.E. 1978 Tide and Tidal Current Observations from 1965 through 1967 in Long Island Sound, Block Island Sound and Tributaries. NOS Oceanographic Circulatory Survey Report No. 1:91.

[4] During the years between 1960 and1980, over 32 million cubic yards of dredged sediment were disposed of in LIS. New England River Basins Commission, Interim Plan for the Disposal of Dredged Material from Long Island Sound p. 3 (1980).

4) An anticipated increase in high energy meteorological events, such as hurricanes and Nor'easters, will result in increased storm surge and the re-suspension of material in ELIS. Sea level rise is also expected to increase as a result of climate change impacts affecting the region. The SEIS must include a thorough analysis of the impact that the increased frequency and intensity of the storm surges will have on the deposition or displacement of dredged materials in open-water sites, along with the analysis of the effect of a change in sea level rise on potential changed hydraulics in LIS.
5) Any research should demonstrate that the determination of a potential site location will include scientific evidence that the temporary perturbations in water quality or other environmental conditions during initial mixing caused by disposal operations anywhere within the site can be expected to be reduced to normal ambient seawater levels or to undetectable contaminant concentrations or effects before reaching any beach, shoreline, marine sanctuary, or known geographically limited fishery or shellfishery. (40 C.F.R. § 228.5(b)). This analysis is to include the geographical location of the site in relation to prevailing current direction and velocity and tidal cycles, the horizontal transport and vertical mixing characteristics of the area, the depth of the water, bottom topography and distance from NewYork, Connecticut and Rhode Island coastlines.
6) There is a wide range of the volume of historical disposal in ELIS open-water sites. The sizes of any potential site will be limited in order to localize for identification and control any immediate adverse impacts and permit the implementation of effective monitoring and surveillance programs to prevent adverse long-range impacts. The size, configuration, and location of any disposal site will be determined as a part of the disposal site evaluation or designation study. (40 C.F.R. § 228.5(d)).
7) The efficacy of capping sediments needs to be further examined as a basis for justification of using open-water disposal in LIS as the peer-reviewed research on long term impacts and effectiveness of subaqueous caps under conditions similar to those found in Long Island Sound is limited or nonexistent,[5] and the primary federal guidelines for subaqueous capping techniques from 1994 and 1998 are aging. Long Island Sound is considered an "urban sea" because of its high volume of human activities and surrounding highly-urbanized coast. It is always the case that, since the contaminated sediment remains in the aquatic environment in perpetuity, contaminants could become exposed or be dispersed over time if the subaqueous cap has enough cumulative cap-disrupting human behavior, such as large boat anchoring, propeller wash, recreational diving, and some types of commercial and recreational fishing gear. Furthermore, currents within the water column can result in contaminant dispersion during cap placement, and bottom currents can generate shear stresses that may potentially erode the cap. The findings of research on long-term risks of subaqueous cap failure are simply inconclusive and inadequate. If the sediments need to be capped, it could be exceeding acceptable levels of contamination for Long Island Sound.
8) Another concern for cap failure is the possibility of collapse of cap edges (side slopes) due to earthquakes.[6] Since recent research shows that earthquake activity in the Long Island area is much more common and likely than previously presumed, based on the discovery of several previously unknown regional faults, it is increasingly likely that earthquake activity will contribute to subaqueous cap failure.[7] The frequency and impacts from seismic events occurring in or near LIS needs to be researched and analyzed for effects on the stability of historic and disposal mounds, including capping material, in ELIS.

[5] See Sharma, H., Reddy, K. 2004. *Geo-Environmental Engineering*, Site Remediation, Waste Containment, and Emerging Waste Management Technologies, p. 941.
[6] See Sharma and Reddy 2004, p. 949.
[7] See Sykes, L., Armbruster, J., Kim, W., and Seeber,L. 2008. Observations and tectonic setting of historic and instrumentally located earthquakes in the greater New York City-Philadelphia area. Bulletin of the Seismological Society of America. 98(4):1696-1719.

9) The dredged material from the SEAWOLF dredging in 1995 was supposedly disposed of at the New London Disposal Site but a portion of the material has never been fully located and accounted for. This SEIS needs to include the identification and location of the 1995 SEAWOLF sediments that were disposed of in the currently delineated ZSF to understand the cumulative impacts of historical disposals in the ELIS.
10) The success of the historical physical containment as sited in DAMOS reports needs to be analyzed and further verified for the entirety of LIS and in light of the inability to locate portions of the material from the 1995 SEAWOLF disposal and the anticipated increase in frequency and intensity of coastal storms in LIS. The ability to accurately and continuously monitor and conduct surveillance of the dispersal of sediment from any potential site is a requirement. (40 C.F.R. § 228.6(a)(5)).

<u>Biological and chemical concerns regarding both the contamination of dredged sediments and the cumulative impacts of contaminated materials in the LIS ecosystem</u>

In the past, dredged material disposal events at open water disposal sites within LIS have varied greatly in terms of toxicity and sediments; dredged sediment disposal activities cannot be considered routine or substantially similar in nature. Additional disposal events may well contribute to adverse individual and cumulative impacts in LIS. The following ecological concerns need to be thoroughly examined, addressed, researched and answered:

1) LIS has historically had a rich fishery, but in recent years the Sound is increasingly deficient of marine life. It is unclear why this is happening. Before EPA designates disposal sites in the LIS, the cause of the decline in fisheries should be examined and understood, including the location of a potential site in relation to breeding, spawning, nursery, feeding, or passage areas of all living resources in adult or juvenile phases.
2) The potential to move and introduce nuisance or invasive species within dredged material and supernatant.
3) All baseline surveys in ELIS are to document existing water quality and ecology of the area as determined by available data or by trend assessment or baseline surveys.
4) Adding one or more designated disposal sites within ELIS will increase the availability of disposal sites for all dredging projects around the LIS region. The proliferation of designated sites will likely decrease the costs of open-water disposal for dredging projects around LIS due to increased access, proximity and ease of open-water disposal. Decreased costs will likely accompanied by an increase in dredging activity, resulting greater frequency of disposal activities and potentially, greater volumes of dredged material. The SEIS should include an economic assessment of the impact of proliferation of disposal sites and the resulting increase in dredging activity. This should be considered in terms of anticipated adverse cumulative impacts throughout LIS, impacts on the individual use of a potential site, bioaccumulation of toxins, and in the projection of volumes of dredged material to be disposed.
5) In addition, the potential for future harbor deepening projects on the Connecticut coastline to accommodate larger vessels that will now be using the improved Panama Canal must be assessed and included in the potential volumes of material that are anticipated for disposal over the 26 year dredging period contemplated by the ELIS SEIS.
6) The ELIS SEIS should include a thorough assessment and evaluation of sediment toxicity in proposed dredging project locations and assess the direct and indirect past, current and future cumulative effects of concentrating these contaminated sediments at the proposed disposal areas. This research should include an analysis of the types and quantities of wastes proposed to be disposed of, and proposed methods of release, (including methods of packing the waste, if any or applicable here) as compared to the ambient sediments.

7) There is a need for enhanced testing and study to ensure that the disposal of dredged material pursuant to Ocean Dumping Act toxicity standards "Evaluation of Dredged Material Proposed for Ocean Disposal Testing Manual" (Greenbook) is safe for disposal within the estuary environment of LIS. Study of the biology, chemistry, and hydrology that reflects the unique LIS estuarine environment should be used to evaluate whether the current Greenbook standards are appropriate for LIS. Reference site locations for baseline evaluations and comparisons need to be located outside of an affected area to adequately reflect ambient levels to determine suitability for disposal. It is suggested that the ELIS SEIS should refer to such material as "legally permissible" under the applicable standards, rather than "clean" or "safe".
8) The effects of dredged material disposal at various current and historical locations throughout LIS should be studied using current technology. Items of study should include, but not necessarily be limited to:

    a. the effect on differing species of transient fish that may pass through, feed, or spawn within the potential sites;
    b. the effect on the benthic community of repeated disposal activity at the potential sites, considering the frequency and volumes of disposals anticipated;
    c. the long-term stability of the placement of material disposed at any potential site;
    d. the cumulative impact on the water quality and health of LIS over the projected 26 year period considering the total volume and chemical composition of the disposal material anticipated; and
    e. the consumptive and recreational exposure risks for the projected 26 year planning period; and
    f. potentially using the EPA Region 1 developed Biological Risk Assessment Modeling System, assessments may be made as to the risk of the factors listed above.

9) In late summer and fall of 1999, the States of Connecticut and New York began receiving reports from lobster fishers of dead, dying and excessively lethargic lobsters in their catches. By late fall 1999, lobster landings in western LIS are reported to have decreased by as much as 90% to 100% and by 30% in central and ELIS. Using a federal grant through the Long Island Sound Lobster Initiative of the New York and Connecticut Sea Grant, researchers at the University of Connecticut found four chemicals known as alkyl phenols in both lobsters and marine sediments. All four are known endocrine disruptors in vertebrates, which cause changes in hormones controlling basic physiological processes, such as reproduction. All four were found in lobsters from LIS and were shown to affect the endocrine systems of test organisms. Much higher levels of these four endocrine disrupting alkyl phenols were found in the sediments themselves, than in the sampled lobster tissue. The commercial lobster die-off has related socio-economic costs. During the recent die-off, up to 50% of commercial lobster fishers went out of business and many more simply gave up for the season after determining that the effort and operational expense were not justified by the scant harvest of marketable lobster. As recently as 2001, lobster trawls continued to reflect reduced numbers of lobster with the reported landings being the 4th lowest in 18 years of survey data (NY-Ct. Sea Grant, Long Island Sound Lobster Initiative, March 2002). New York landings of lobster from the Sound (86% of New York's total lobster catch) have decreased by eight million pounds in the six years from 1996 to 2002 (NOAA's National Marine Fisheries Service, Marine Fisheries Annual Landings Report). The die-off and shell disease occurred soon after 1.2 million cubic yards of sediment contaminated with dioxin and other carcinogens were dumped at the New London Disposal Site in 1996. This disturbing trend has continued, as Lobster Abundance has decreased from an already low 4.28 count per tow in 2001 to 0.38

count per tow in 2011.[8] None of the existing studies on this matter have looked at the possible correlation between contaminants introduced through dredged material disposal and lobster disease (See, for example, Lobster Health News, Spring 2004, Sea Grant, which does not provide reasons for the mortalities and disease). The possible reasons for the continued lobster die-off in LIS need to be exhaustively evaluated as components of the biological and chemical impacts of the cumulative impacts of introducing toxic sediments into LIS.

10) The ELIS SEIS should comprehensively analyze the range of parameters that would be affected by designation of disposal sites and dumping activity including, but not limited to:
    a. physical parameters such as living space (immediate burial of, and benthic changes to, living space), circulation (changed as a result of changes in bathymetry caused by dumped material), turbidity (from the discharge and resuspension of fine sediments during and after initial dumping), morphology, substrate type, and erosion and sedimentation rates as dumped material winnows and is impacted by storms;
    b. biological parameters such as community structure, food chain relationships, species diversity, predator/prey relationships, population size, mortality rates, reproductive rates, meristic features, behavioral patterns and migratory patterns;
    c. chemical parameters such as dissolved oxygen (which will be reduced in the water column during dumping activities), carbon dioxide, acidity, dissolved solids (which will increase during dumping activities), nutrients (which will increase during dumping activities), organics (which will be increased during and after dumping activities), and pollutants such as heavy metals, toxics, and hazardous materials (which will be released in the water column during dumping activities and will be present after dumping is completed);
    d. comparative parameters establishing a justification for the continuing practice of dumping dredged material in Long Island Sound when efforts have been made to discontinue or reduce such activity in the Atlantic Ocean in other EPA Regions;
    e. use of alternatives which minimize the need for dumping; and
    f. information that needs to be included in the ELIS SEIS is a full spectrum chemical evaluation and bioaccumulation rates of sediments in the rivers and harbors likely to utilize an eastern site.
11) The SEIS must address the source of watershed/upland sediment sources and analyze the infrastructure and programs that currently exist or need to be developed to reduce need for dredging by addressing and eliminating upland sediment sources. This is a regional issue and should involve the states of Massachusetts, New Hampshire and Vermont to address these issues.
12) The chemical containment and biological testing of the organisms re-colonizing new mounds of disposed dredged material, as well as those feeding on those communities, needs to be fully evaluated to also determine whether organisms are bringing those contaminants back to the surface or to other locations in LIS. Advancement in the methodology and technology are available to conduct marine field research on dispersion of sediment contaminants via subaquatic vegetation and benthic macroinvertebrates (especially polychaetes) and subsequent bioaccumulation in fish. This research should be done to determine environmental and human health impacts of contaminant dispersal from disposal.
13) New York State has numerous designated Significant Coastal Fish and Wildlife Habitats (SCFWH) in LIS as part of its federally-approved CMP. The SEIS needs to consider whether the location of open-water disposal sites and their use may effect a SCFWH (directly or indirectly) and if so, is consistent to the maximum extent practicable with the habitat narrative and habitat impact test for each SCFWH in LIS and the surrounding area.

[8] See http://longislandsoundstudy.net/2010/07/lobster-abundance; see also CTDEEP Long Island Sound Trawl Survey (fall sampling).

14) The location and identification of cold water coral habitats and the full range of diverse benthic habitats need to be included in the SEIS.
15) The ELIS SEIS process should also identify and consider all state, county, and local initiatives intended to enhance water quality and the environmental health of LIS (or geographical portions thereof) when identifying and vetting the location of potential disposal sites in the ZSF. Such consideration is important to ensure that all investments and interests in water quality, environmental and public health are sufficiently considered, and that any actions taken as a result of the SEIS process to do not negatively impact or otherwise negate the investment of taxpayer or privately funded initiatives intended to improve the LIS, locally, regionally, or as a whole.
16) The on-going Marine Spatial Planning efforts of each State needs to be thoroughly evaluated and disposal activities are to have minimal interference with other activities in the marine environment, particularly avoiding areas of existing fisheries or shellfisheries, and regions of heavy commercial or recreational navigation. (40 C.F.R. § 228.5(a)). Prior to any potential designation of any disposal site an analyses of conflicts for commercial uses and planning efforts in the ZSF needs to include:
    a. bottom trawling areas;
    b. pots traps locations;
    c. location of submarine cables;
    d. location of potential wind energy areas or hydrokinetic areas;
    e. existence at or in close proximity of any significant natural or cultural features of historical importance;
    f. recreational sites;
    g. mineral extraction;
    h. areas of identified scientific importance;
    i. commercial aquaculture leases;
    j. commercial shipping density and lanes; and
    k. submarine lanes.

<u>The SEIS is to consider the cumulative impacts of the historical use of other open water disposal sites in LIS</u>

1) The ELIS SEIS must contain an exhaustive accounting of all past, current, and future direct and indirect cumulative impacts on the health and ecology of LIS. Materials produced and discussions at public hearings held on the ELIS SEIS thus far have referenced and identified MPRSA §103 Corps interim sites located in ELIS, in particular, the two sites, New London Disposal Site (NLDS) and Cornfield Shoals (CSDS). Both sites are located partially in New York waters; neither site has ever had a proposed § 103 interim selection submitted to DOS for Federal Consistency review pursuant to CZMA requirements (15 C.F.R. part 930 subpart C); and no accounting for adverse environmental impacts or thorough alternatives analysis to open-water disposal appears to be included within the documentation relied upon in support of the claim that the interim sites were selected in accordance with the requirements of the MPRSA.[9] Further, the adverse environmental impacts, including cumulative impacts, continue to be unaccounted for.

[9] The U.S. Army Corps of Engineers New England District continues to maintain the position that the § 103 interim site selections for both CSDS and NLDS pre-date New York State's 2006 federally approved routine program change enacting interstate consistency. However, New York State's CMP has been in place since 1982, federal actions within Long Island Sound potentially affecting New York's coastal area have always been subject to Federal Consistency review by New York. The requirement for federal actions to submit a Federal Consistency determination to affected states for its actions has been acknowledged by the US EPA during the 2005 CLIS and WLIS designations. NDLS and CSDS are both partially located within New York's territorial waters thus subjecting them to Federal Consistency review by New York's DOS, water quality certification and other related permits from the New York Department of Environmental Conservation and a potential grant

2) The U.S. Army Corps of Engineers' least cost/environmentally acceptable standard is referred to as the 'federal standard", which is defined as "the dredged material disposal alternative or alternatives identified by the Corps which represent the least costly alternatives consistent with sound engineering practices and meeting the environmental standards established by the 404(b)(1) [Clean Water Act] evaluation process or ocean dumping criteria [which includes compliance with MPRSA sections 1412 and 1413, as well as meeting the Federal Consistency requirements in 15 C.F.R. part 930 subparts C and D]." (33 C.F.R. § 335.7). The "federal standard" should not be regarded as an inflexible requirement that disregards that impact of open-water disposal based on cost when the economic impact to the environment is not part of the calculation leading to such a conclusion. The reaching of conclusions to determine a "cost effective" evaluation of a proposed dredging project is a collaborative process between federal, state, and local governments and non-government groups. The use and application of the "federal standard" in LIS needs to be thoroughly evaluated as part of the SEIS to determine compliance with the 33 C.F.R. § 335.7 requirements.
3) The U.S. Corps' publication "The Role of the Federal Standard in the Beneficial Use of Dredged Material from U.S. Army Corps of Engineers New and Maintenance Navigation Projects: Beneficial Uses of Dredged Materials" (U.S. Army Corps and EPA, Washington, D.C., EPA publication # EPA842-B-07-002, [October 2007]), evaluates the role of cost-sharing with non-federal partners pursuant to the federal Water Resources Development Act of 1974, as amended (WRDA) for beneficial uses of dredged material in a project exceeding the cost of the "federal standard" option. Such costs may become either a shared federal and non-federal responsibility, or entirely a non-federal responsibility, depending on the type of beneficial use. The cost-sharing provisions of the WRDA for beneficial uses include those that protect, restore, or improve the environment, or contribute to storm damage reduction. A collaborative effort involving U.S. Army Corps, EPA, ports, federal/state/local agencies, environmental interest groups, and other interested stakeholders that thoroughly investigate and analyze all possible WRDS scenarios should be further developed in the SEIS process prior to forging ahead with the identification of yet more open water disposal sites in LIS in addition to the currently two EPA designated: CLIS and WLIS.

The alternatives analysis, including a no-action alternative, should include a thorough analysis of the biological, chemical, physical, and economical analysis of the following alternatives, which is not to be considered an exhaustive list:

Before it can designate open-water disposal sites, the EPA Administrator is required to consider: "[A]ppropriate locations and methods of disposal or recycling, including land-based alternatives and the probable impact of requiring use of such alternatives locations or methods upon consideration affecting the public interest." (33 U.S.C. §1412(a)(G); see also 33 U.S.C. §1412(c)(1)). Identifying, studying, and recommending practicable alternatives such as, but not limited to, beneficial reuses, treatment technologies, and available upland or contained alternative disposal sites which are ready to accept dredged material is essential for the development of procedures and standards for the use of such alternatives to function as primary options.

1) The EPA should provide a thorough analysis of re-use and upland placement alternatives, including a discussion of available alternatives and the possibility of advancing them, and

or lease of underwater lands from New York Office of General Services. (See the letter dated December 21, 2012 from Susan L. Watson, General Counsel, NYS Department of State to Jack Karalius, Program Manager, U.S. Army Corps of Engineers, in regards to New York's position on the New England District plan to proceed with a direct federal action for the disposal of 34,000 cubic yards of dredged material from the Patchogue River at CSDS).

should recognize and analyze the range of beneficial uses and current decontamination/remediation technologies.

2) Examples of alternatives to open-water disposal for both contaminated and uncontaminated dredged material are available and have been used in the LIS region including in New York Harbor, Eastchester Creek, and Hempstead Harbor and should thoroughly be evaluated in a region-wide assessment of potential dredged material management options. Consistent with national coastal zone management objectives, a comparative assessment of alternatives employed by all other EPA Regions may lead to dredged material management that minimizes, or avoids to the maximum extent practicable, adverse effects to coastal uses and resources.
3) EPA should provide further evaluation of reusing dredged material for beneficial purposes where such beneficial uses can be applied region-wide, and should not merely defer to the evaluation of alternatives to open-water dumping on a case-by-case, permit-application basis.
4) The performance of any cost analyses during the evaluation of alternatives must include a mechanism for incorporating the cost to ecosystem function and services in a manner ensuring that such environmental impacts are adequately considered within the calculation.
5) A cost/benefit analysis is required to examine how the LIS region costs for dredged material management compare to all other EPA regions to justify the designation of even more open water disposal sites in LIS. This analysis is to include volume, distance traveled from dredge site to an open-water disposal site, an economic impact analysis to natural resources and the long- and short-term savings associated with beneficial re-use options.
6) All applicable state and federal laws should be examined and suggestions for amendments to identified legal to provide for the following alternatives located either in or outside of the ZSF:
    a. the identification of upland placement of dredged material;
    b. the identification of nearshore placement sites (potential designation required);
    c. the identification and use of locations for Confined Aquatic Disposal (CAD) cells;
    d. the development and use of Confined Disposal Facilities (CDF);
    e. the location of feasible sites for island creation;
    f. the location of feasible sites for marsh restoration;
    g. the use and incorporation of the following treatment technologies (including but not limited to):
        - Crushed glass for structural manipulation/stabilization
        - Pozzolan/Calcination/Portland cement (dewater/structural/chemical amendment)
        - Steel slag structural amendment
        - Fly/coal ash amendment
        - Electro kinetic remediation
        - Phyto remediation
        - Segregation of hydraulically dredged sediment;
    h. thermal treatments such as thermal desorption – including current technology allowing the use of both stationary and portable treatment plants, which could also be used in other markets (trash, etc.) during periods of dredging inactivity;
    i. the use of the material to provide protection from storm surge and sea level rise; and
    j. the creation of a business model for this type of industry for the New England Region/CT. Examples may be available from the New York District Corps.

7) Rhode Island has recently passed legislation to allow for the utilization of dredged material for a variety of beneficial uses. The availability of this alternative of beneficial re-use of dredged material demonstrates an economic development opportunity and needs to be thoroughly analyzed as an alternative to open-water disposal for material in the LIS region.

<u>A continued role of the Regional Dredging Team in the collaborative decision-making process regarding the use of open water disposal sites needs to be a permanent component of any site designation.</u>

> To enhance oversight and to ensure an evolving mechanism for the articulation and evaluation of practicable alternatives to open-water disposal, any process considering designation of open-water disposal sites should provide a role for the interagency Long Island Sound Regional Dredging Team (LIS RDT). The LIS RDT, at present, is charged with reviewing dredging projects proposed for WLIS and CLIS to ensure a thorough effort has been conducted to identify practicable alternatives to open-water disposal and ensure the use of those alternatives to the maximum extent practicable (see 40 C.F.R. § 228.15(b)(4)(vi)(I)). The SEIS process should consider incorporating an advisory role for the LIS RDT for review and comment on this process and on any proposed disposals within the LIS regardless of size, and provide authorization for ongoing RDT consideration and a continuous role in the identification of practicable alternatives to open-water disposal throughout LIS.

These scoping comments are not intended to be exhaustive list and DOS will contribute time, data, and suggestions in the development of the comprehensive SEIS that exhaustively examines the purpose and need of identification of any additional potential LIS open-water disposal sites. Any questions on the material found in these comments can be addressed to Jennifer Street, Coastal Resource Specialist, at (518)474-6000.

Sincerely,

Fred J. Anders

Fred Anders
Bureau Chief

FA/KG/jls

c: David Kaiser, NOAA OCRM
Doug Pabst/Pat Pechko, US EPA Region 2
Nancy Brighton, CENAN
Mark Habel, CENAE

Written Comments 11

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January 31, 2013

RE: ELIS SEIS Scoping Comments

Dear Ms. Brochi,

I was unable to make the rescheduled Scoping Meeting in New York, and as such am submitting my scoping comments in written form. I have participated in the dredged material disposal issue in Long Island Sound (LIS) for the better part of the last two decades, in the past with the Fishers Island Conservancy and now as a Fishers Island property owner/community member. I should also mention that my full time residence is in Connecticut and that for ten years I served on my local Inland Wetlands Commission as it sought to protect the wetlands and watercourses of the town while balancing the need/desire for development activity in an upland community. As such, I have experience with most aspects of the dredging and disposal issue, from point of origin through the riparian continuum to final disposition (or deposition, as the case may be).

The original EIS for designation of Open Water Disposal Sites was initiated in 1999, and completed six years later in 2005, three years after the Zone of Siting Feasibility (ZSF) was redrawn to limit scrutiny to the central and western basins of Long Island Sound. Because of the 2002 ZSF reduction, many of the supporting studies and analyses were focused almost entirely on the western and central areas of LIS, thereby leaving a dearth of information pertaining to the eastern portion of the LIS. The timetable for completion of this ELIS SEIS is particularly aggressive, and I question whether the required studies and analyses can be completed (or are even advisable) in the year or so as is currently proposed. Year to year variation can be quite significant, and a single year (or season) of data is only able to provide a brief snapshot of existing conditions and cannot be considered a representative sample.

That said, I offer the following suggestions/comments regarding the development of the ELIS SEIS, a number of which will echo some of the suggestions that were made by Fishers Island Conservancy in their Scoping comments for the LIS Dredged Material Management Plan (DMMP) currently underway.

- Provide ongoing opportunities for public involvement and comment during the ELIS SEIS.
- Enhance the transparency of the SEIS process – many of the major decisions for the designation of WLIS and CLIS (i.e. ZSF narrowing, alternative site choice for comparison and criteria application) were made behind closed doors by the agencies; the Working Group

was left entirely out of those decisions and was provided with after-the-fact updates of decisions already made.

- Post supporting materials on the project website in a timely manner.
- Emphasize watershed scale efforts to limit source pollution, thus reducing contamination of sediment that might require dredging in the future – while not within the scope of the ELIS SEIS to mandate such efforts, it's a major policy with broad repercussions for dredging and disposal issues, it bears more than a casual mention.
- Emphasize watershed scale efforts to control excess sedimentation, thus reducing the quantity of sediment that might require dredging in the future – the same comment as contained in the bullet above applies.
- Incorporate into the SEIS a listing of all current innovative technologies that are either currently being utilized elsewhere in the US or show promise as a scalable and cost competitive option for dredged material handling/reuse, though perhaps this would be better as a component of the LIS DMMP, an inextricably linked document.
- Finalize the Zone of Siting Feasibility for the ELIS SEIS – at present the scoping materials show this area as corresponding to the area remaining after the 2002 change, but some maps and discussion allude to a wider area being under consideration… So, which is it?
- Perform a *comprehensive* analysis of the entire Zone of Siting Feasibility utilizing the general and specific criteria as detailed in the Marine Protection, Research and Sanctuaries Act – ideally this would be a multicriteria analysis similar to that performed by Dames & Moore in 1980 as part of the 1982 Programmatic EIS (PEIS).
- Do not arbitrarily choose other open water sites to compare to Cornfield Shoals Disposal Site (CSDS) and New London Disposal Site (NLDS) – in doing so for the WLIS and CLIS designation EIS, it was a foregone conclusion what the result was to be since the sites chosen for comparison were easily identified as inferior alternatives.
- Incorporate all pertinent information for Fishers Island, which lies only 11/2 miles from the NLDS boundary, the closest land mass to any of the four "active" open water disposal sites in LIS. I suspect that much of this information is contained only on paper copies and will need to be digitized into the appropriate GIS data layers. This information includes, but is not limited to the following:
    - Location of public and private beaches (South beach, Dock beach, Hay Harbor Club beach, FI Club beach, Isabella beach, Chocomount beach etc.)
    - Location of FI's commercial shellfishery (West Harbor, multiple locations)
    - Location of FI's former lobster fishery (now effectively defunct as a small sustainable fishery for island lobstermen due to increased fishing pressure from CT and Montauk)
    - Location of recreational fishing sites, in particular The Race
    - Location of multiple underwater cables serving Fishers Island
    - Location of all ferry routes (to Fishers Island, to Long Island, to Block Island)
    - Location of recreational sailing areas (Hay Harbor, West Harbor, Fishers Island Sound)
    - Location of eel grass beds, substantial enough in area to merit designation as one of the Inaugural Stewardship Sites by the Long Island Sound Stewardship Initiative
    - Location of areas of state importance and local importance
    - Location of nesting areas for various bird species (some endangered, threatened or special concern)
- Compile and present one "master" bathymetric map for each "active" disposal site (CSDS and NLDS) and their surrounding area that also incorporates <u>all</u> prior historic disposal sites

in the vicinity as well as all previously used reference sites (i.e. DAMOS reference sites, reference sites for the SEIS etc.). Currently this information is scattered about in different reports, when it should be placed on one map to enhance the decision making process.

Thank you for your consideration of these comments; I'm sure there will be more to come. I look forward to continued participation in the ELIS SEIS process.

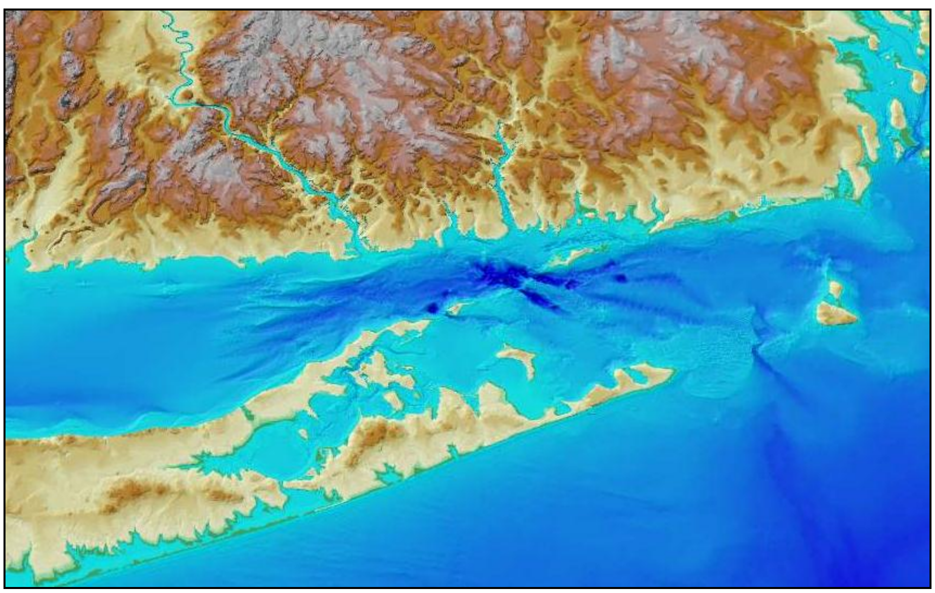
Sincerely,
Marguerite W. Purnell

Appendix A-4

REPORT OF PUBLIC SCOPING MEETINGS 3 AND 4

Supplemental Environmental Impact Statement for the Designation of Dredged Material Disposal Sites in Eastern Long Island Sound, Connecticut and New York

Report of Public Scoping Meetings 3 (Riverhead, NY) and 4 (Groton, CT)



Prepared for: **United States Environmental Protection Agency**

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December 2013

Supplemental Environmental Impact Statement for the Designation of Dredged Material Disposal Sites in Eastern Long Island Sound, Connecticut and New York

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REPORT OF PUBLIC SCOPING MEETINGS 3 (RIVERHEAD, NY) AND 4 (GROTON, CT)

Held on June 25 (Riverhead) and June 26 (Groton), 2013

Prepared for:

United States Environmental Protection Agency

5 Post Office Square, Suite 100
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Sponsored by:

Connecticut Department of Transportation

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Groton, CT 06340

December 18, 2013

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EXECUTIVE SUMMARY

This report provides a summary of the third and fourth public meetings as part of the Supplemental Environmental Impact Statement (SEIS) process for the designation of dredged material disposal sites in Eastern Long Island Sound. The SEIS will supplement the Environmental Impact Statement (EIS) for the designation of dredged material disposal sites in the Western and Central Long Island Sound, completed in 2004. The SEIS is prepared for the U.S. Environmental Protection Agency (USEPA), and supported by the Connecticut Department of Transportation (CTDOT). The study is being conducted in consultation with other federal and state agencies of New York State and Connecticut, as well as with consultation of the public.

The two public meetings were held in Riverhead (NY) and in Groton (CT) on June 25 and 26, 2013. The primary purpose of these meetings was to present the process and first results of the screening of the Eastern Long Island Sound project area.

1. Introduction

In 2005, the USEPA designated the Western and Central Long Island Sound dredged material disposal sites, following the preparation of an EIS. The two disposal sites in the Eastern Long Island Sound, Cornfield Shoals and New London, are scheduled to close in December 2016. The EPA is in the process of preparing a Supplemental EIS (SEIS) for the potential designation of one or more disposal sites needed to serve the Eastern Long Island Sound region. The SEIS is being prepared in accordance with Section 102(c) of the Marine Protection Research and Sanctuaries Act (MPRSA; also referred to as Ocean Dumping Act [ODA]) of 1972. The USEPA has the responsibility of designating sites under Section 102(c) of the Act and 40 CFR Part 228.4 of its regulations. The SEIS is supported by the State of Connecticut through the Connecticut Department of Transportation (CTDOT).

2. Public Scoping Meetings

In accordance with USEPA's voluntary NEPA policy, the USEPA is conducting an extensive public involvement program throughout the development of the SEIS. The first two public scoping meetings were held on November 14, 2012 (Groton, CT) and January 9 (Riverhead, NY).

USEPA scheduled public scoping meetings 3 and 4 to discuss the process and first results of the screening of the Eastern Long Island Sound project area (i.e., 'Zone of Siting Feasibility' or ZSF) for potential dredged material disposal sites. Aside from the Eastern Long Island Sound, the ZSF includes Block Island Sound (Figure 1). The public was invited to attend and comment on the presented information. There was no official comment period. Meetings were held on the following dates:

- June 25, 2013 Suffolk County Community College, Riverhead, New York
- June 26, 2013 University of Connecticut, Avery Point, Groton, Connecticut York

Both meetings were held between 2:30pm and 4:30pm. The format and agenda for each meeting were identical.

Time	Agenda Item	
2:00 pm	*Registration*	
2:30 pm	*Ground Rules/Logistics*	Facilitator, Bernward Hay, The Louis Berger Group, Inc.
2:35 pm	*Welcome/Project Update*	Jean Brochi, Project Manager, Ocean and Coastal Protection Unit, EPA Region 1
2:55 pm	*Site Screening/GIS*	Bernward Hay, The Louis Berger Group, Inc.
3:30 pm	*Discussion and Next Steps*	Bernward Hay, The Louis Berger Group, Inc.
4:30 pm	*Adjourn*	

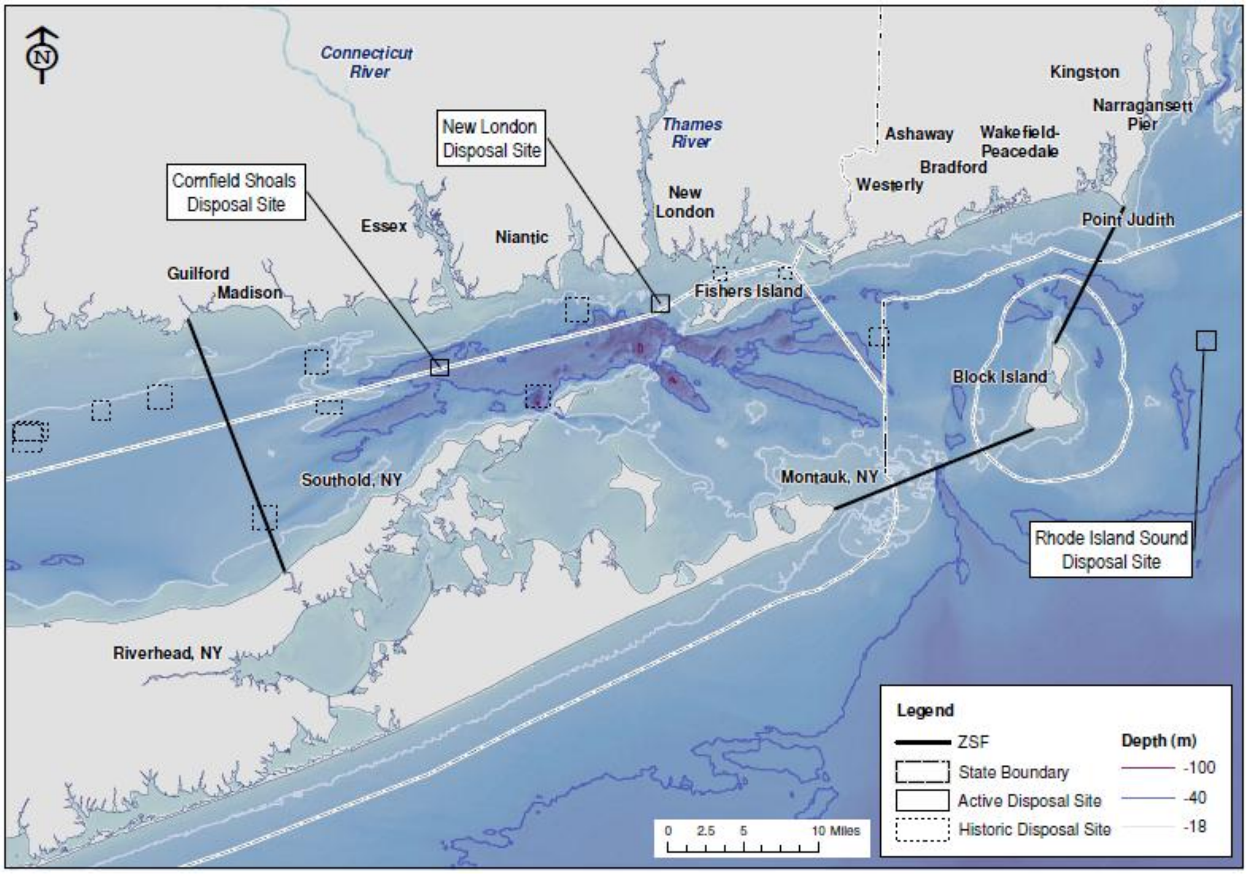


Figure 1: Zone of Siting Feasibility

3. Meeting Summary

Scoping is part of the NEPA process through which federal agencies discuss the purpose of and need for the proposed action; the projected area extent and range of potential impacts resulting from the proposed action; and the studies necessary to determine the extent of potential impacts resulting from these actions. Public scoping meetings 3 and 4 explained the site screening process and first screening results presented on GIS maps.

The lists of Attendees and Commenters/Speakers from the Public are provided in Attachment 2. Presentations given by Ms. Jean Brochi (USEPA) and Dr. Bernward Hay (The Louis Berger Group, Inc.) are provided in Attachment 3. Transcripts, required for both meetings, were prepared by Ms. Charmaine DeRosa from Alliance Reporting Service, Inc. (Riverhead meeting) and by Ms. Sarah Miner from Brandon Smith Reporting & Video (Groton meeting); their transcripts are enclosed as Attachments 4 and 5, respectively.

Following is a summary of the two meetings:

- **Attendees:** A total of 33 attendees signed in at the Riverhead meeting; a total of 42 attendees signed in at the Groton meeting. Attendees at both meetings included members from the Public, non-profit organizations, private companies, state and federal agency representatives, and representatives of government officials. Specifically, agency representatives included the USEPA, U.S. Army Corps of Engineers, Connecticut Department of Energy and Environmental Protection, New York State Department of State, and New York State Department of Environmental Conservation.

- **Commenters:** After the presentations, 11 individuals commented at the Riverhead meeting and 5 individuals commented at the Groton meeting.

Attachment 1

MEETING ANNOUNCEMENT

From: Grimaldi, Alicia
Sent: Tuesday, June 04, 2013 3:51 PM
To: Grimaldi, Alicia
Subject: Eastern LIS Supplemental EIS - PUBLIC MEETINGS June 25 (NY) & June 26 (CT)

The Environmental Protection Agency will be hosting another set of public meetings in Riverhead, NY and Groton, CT to discuss EPA's Supplemental Environmental Impact Statement (SEIS) to evaluate the potential designation of one or more dredged material disposal sites in eastern Long Island Sound. The purpose of this meeting is to present information on the range of alternative sites that will be evaluated in the SEIS. The information for these public meetings is below.

TUESDAY, JUNE 25, 2013
2:30 – 4:30 (registration begins at 2:00)
Suffolk County Community College, Culinary Arts & Hospitality Center
20 East Main Street
Riverhead, NY 11901
Directions: http://department.sunysuffolk.edu/CulinaryArts_E/3232.asp

WEDNESDAY, JUNE 26, 2013
2:30 – 4:30 (registration begins at 2:00)
University of Connecticut at Avery Point
Academic Building, Room 308
1084 Shennecossett Road, Groton, CT 06340
Directions: http://www.averypoint.uconn.edu/about/directions.html

For additional information, please visit
http://www.epa.gov/region1/eco/lisdreg/elis.html.

Please consider forwarding this message to any parties who may be interested in attending.

Thank you!

Alicia Grimaldi
Ocean & Coastal Protection
Environmental Protection Agency, Region 1
5 Post Office Square, Suite 100
Mail Code: OEP06-01
Boston, MA 02109
Tel: (617)918-1806
Fax: (617)918-0806

Attachment 2

LISTS OF ATTENDEES AND COMMENTERS FROM THE PUBLIC

- Riverhead, NY June 25, 2013
- Groton, CT June 26, 2013

Note: Addresses and contact information was provided on the original Sign-in sheets but not listed here for privacy reasons. Spelling of names and organizations was verified, if needed, using the internet. Names are listed in the order shown on the Sign-in sheets.

Riverhead, NY, June 25, 2013

ATTENDEE SIGN-IN

NAME	ORGANIZATION	COMMENTS?
Angela DeVito	Jamesport Civic Association	
Scott Russell	Southold Town	Yes
Charles de Quillfeldt	New York State Department of Environmental Conservation	
Jim King	Southold Town Trustee	Yes
Kari Gathen	New York State Department of State	
Jennifer Street	New York State Department of State	
William Gash	Connecticut Maritime Coalition (CMC)	
Steve Hynes		
Diane Hynes		
Dan Leonard		Yes
Joseph Salvatore	Connecticut Department of Transportation	
Jim O'Donnell	University of Connecticut	
George Wisker	Connecticut Department of Energy and Environmental Protection	
Amy Atamian	The Louis Berger Group, Inc.	
James Leary	New York State Department of State	
Ron McGreevy		Yes
Doris McGreevy		Yes
Meg McAuley Kaicher	Capital Consulting Group	Yes
Hannah Cope	Office of Senator Kirsten E. Gillibrand	
Cyndi Murray		
Maureen Dolan Murphy	Citizens Campaign for the Environment	Yes
Cathy Rogers	U.S. Army Corps of Engineers, New England District	
Al Krupski	Suffolk County	Yes
Anthony Graves	Town of Brookhaven	Yes
Marguerite Purnell		Yes
Nancy Brighton	U.S. Army Corps of Engineers, New York District	
Mark Terry	Southold Town	
Kim Tucker	Suffolk County	
Sarah Anker	Suffolk County	Yes
Annie McClelland	Citizens Campaign for the Environment	
Jean Brochi	U.S. Environmental Protection Agency, Region 1	
Bernward Hay	The Louis Berger Group, Inc.	

Groton, CT, June 26, 2013

ATTENDEE SIGN-IN

NAME	ORGANIZATION	COMMENTS?
Alan Stevens	Connecticut Department of Transportation	
Rob Michalik	Office of Senator Chris Murphy	
Syma Ebbin	University of Connecticut	
Kathy Hall	Cardno TEC, Inc.	
G. McCarcuell (sp?)		
Frank Bohlen	University of Connecticut	Yes
Alicia Grimaldi	U.S. Environmental Protection Agency, Region 1	
Jeff Herter	New York State Department of State	
Jean Brochi	U.S. Environmental Protection Agency, Region 1	
George Wisker	Connecticut Department of Energy and Environmental Protection	Yes
Abbie McAllister		
Kari Gathen	New York State Department of State	
Grant Westerson	Connecticut Marine Trades Association	
Tracy McKenzie	U.S. Navy	
Joseph Salvatore	Connecticut Department of Transportation	
Cathy Rogers	U.S. Army Corps of Engineers, New England District	
Mel Cote	U.S. Environmental Protection Agency, Region 1	
Matt LeBeau	Office of Senator Richard Blumenthal	
Rudy Brown	U.S. Environmental Protection Agency	
Amy Atamian	The Louis Berger Group, Inc.	
Bernward Hay	The Louis Berger Group, Inc.	
Jim O'Donnell	University of Connecticut	
Sherri Vogt		
James Leary	New York State Department of State	
Jennifer Street	New York State Department of State	
Lou Allyn		
Tom Carona		
Corrine Folsom-Okeefe	Audubon Society	Yes
Judy Benson		
Bill Spicer	Spicer's Marina	Yes
Kim Junior		
Brian Thompson	Connecticut Department of Energy and Environmental Protection	
Nathan Frohling	The Nature Conservancy	Yes
Jim Hunt	Cardno TEC, Inc.	
Bob Wardwell	Cardno TEC, Inc.	
Elissa Wright	State Representative 41^{st} Assembly District	
Lou Burch	Citizens Campaign for the Environment	
Diane Rusanowsky	National Oceanographic and Atmospheric Administration	
Nancy Brighton	U.S. Army Corps of Engineers, New York District	
Tim Visel		

Attachment 3

PRESENTATIONS

- **Jean Brochi, Project Manager, Ocean and Coastal Protection Unit, EPA Region 1:**
  Project Update (Slides 1 to 17, and Slide 36)

- **Bernward Hay, The Louis Berger Group, Inc.:**
  Site Screening/GIS (Slides 18 to 35)

Note: Presentation slides were identical at each meeting.

Eastern Long Island Sound Supplemental Environmental Impact Statement (ELIS SEIS) Public Meetings (NY & CT)

U.S. EPA Region 1 and 2
June 25-26, 2013

ELIS SEIS Agenda

2:00 pm **Registration**

2:30 pm **Ground Rules/Logistics**

Facilitator, Bernward Hay, the Louis Berger Group, Inc. (LBG)

2:35 pm **Welcome/Project Update**

Jean Brochi, Project Manager, Ocean and Coastal Protection Unit

EPA Region 1

2:55 pm **Site Screening/GIS**

Bernward Hay, LBG

3:30 pm **Discussion and Next Steps**

Bernward Hay, LBG

4:30 pm **Adjourn**

EPA-USACE Share Responsibility

- Marine Protection, Research, and Sanctuaries Act (MPRSA, aka Ocean Dumping Act)
  - Section 102: EPA Designates Sites
  - Section 103: USACE Selects Sites subject to EPA concurrence
- Dredged material disposal at these sites must meet criteria in Ocean Dumping Regulations (40 CFR Parts 220-229)
- Clean Water Act (CWA)
  - Section 404: USACE issues permits subject to EPA concurrence
  - Section 404(c): EPA has veto authority

EPA's Role in Dredging

- Designate ocean dredged material disposal sites for long-term use (following EPA's voluntary NEPA policy to prepare an EIS)
- Promulgate regulations and criteria for disposal site selection and permitting discharges
- Review USACE dredging projects and permits
- Develop site monitoring/management plans (SMMP)
- Monitor disposal sites jointly with USACE

Long Island Sound Dredged Material Disposal Sites

Designated by EPA in July 2005:

- Western Long Island Sound
- Central Long Island Sound

Selected by USACE in 1990s, scheduled to close December 2016:

- Cornfield Shoals
- New London

Long Island Sound Environmental Impact Statement

- April 2004 – EPA and Corps complete EIS recommending designation of CLIS and WLIS disposal sites, initiates final rulemaking
- June 2004 – NYS DOS objects to proposed federal action as inconsistent with CZM Program
- September 2004-May 2005 – EPA, Corps, NOAA, NY and CT negotiate conditions to site designation rule so NY can withdraw its objection

Long Island Sound Environmental Impact Statement

- June 2005 – EPA publishes final rulemaking to designate CLIS and WLIS with conditions which, if not met, will result in sites closing, including:
  - Completion of a regional dredged material management plan (DMMP) for Long Island Sound by 2013 (or 2014)
  - Formation of a Long Island Sound Regional Dredging Team to review alternative analyses for federal and large private dredging projects
  - Production of an annual report by EPA on progress toward completion of the DMMP, and disposition of dredged material from all projects each year

Eastern Long Island Sound Supplemental Environmental Impact Statement (ELIS SEIS)

- October 2012: Published a Notice of Intent
- November 14, 2012 and January 9, 2013 Public meetings
- January 8, 2013, May 20, 2013 and June 18, 2013 Cooperating Agency meetings
- Literature and Data gap analysis ongoing
- Physical Oceanographic Study (initiated March 2013) ongoing
- Screening using data available in Geographic Information Systems (GIS) ongoing

ELIS SEIS Partners

- COOPERATING AGENCIES:
  EPA R1 and R2, NYDOS, NYDEC, CTDEEP, CTDOT, RICRMC, USACE (New York and New England Districts), NOAA, and USCG.

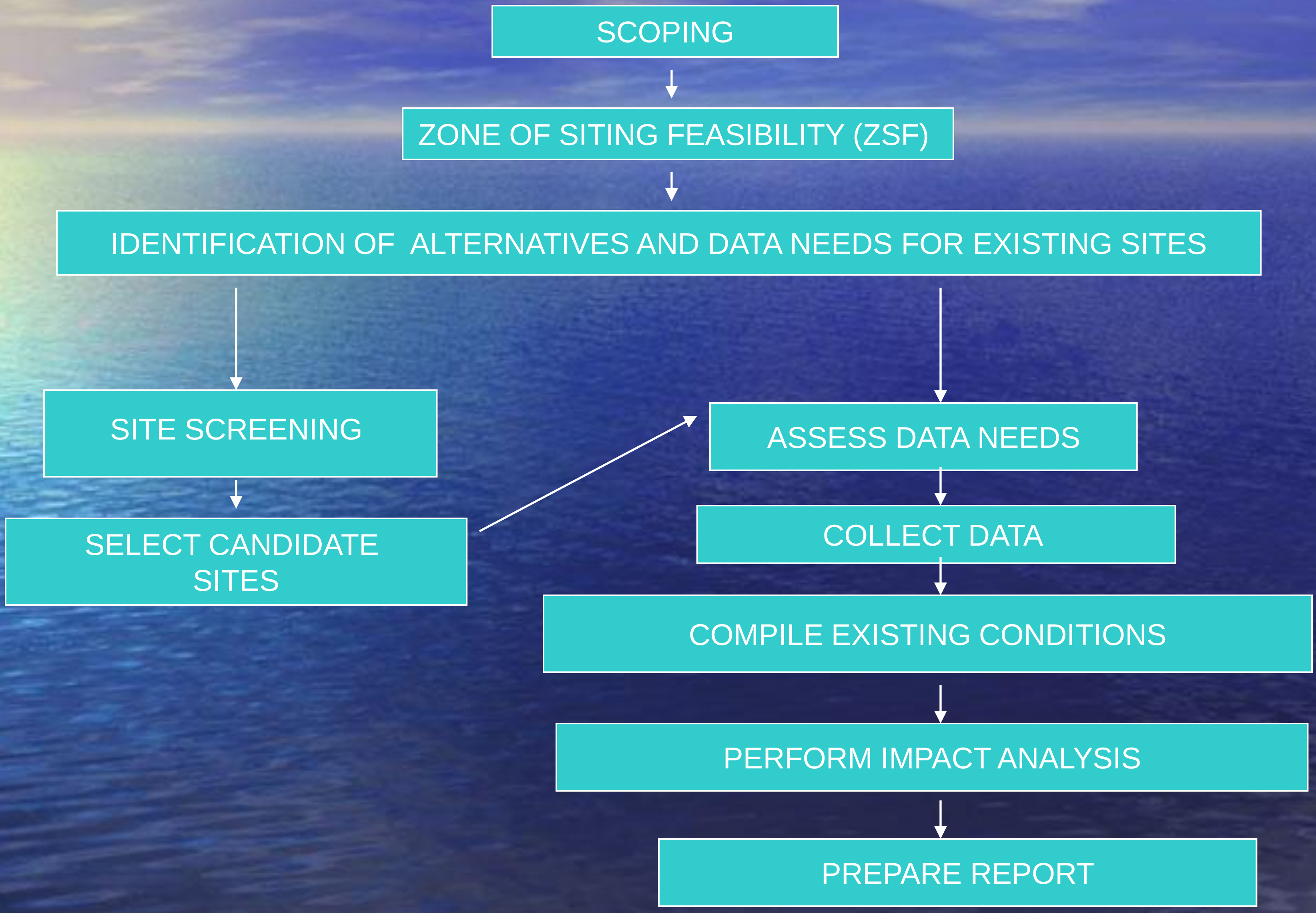
- COORDINATING AGENCIES:
  USFWS and the NAVY

- Additional Coordination: Tribes, SHPO's

ELIS SEIS Schedule

- Draft SEIS by December 2014
- Final SEIS by December 2015
- Assuming SEIS recommends designation of one or more sites, publish final rulemaking by December 2016

ELIS SEIS Process



LIS DMMP Studies

Dredging Needs Report completed in October 2009:

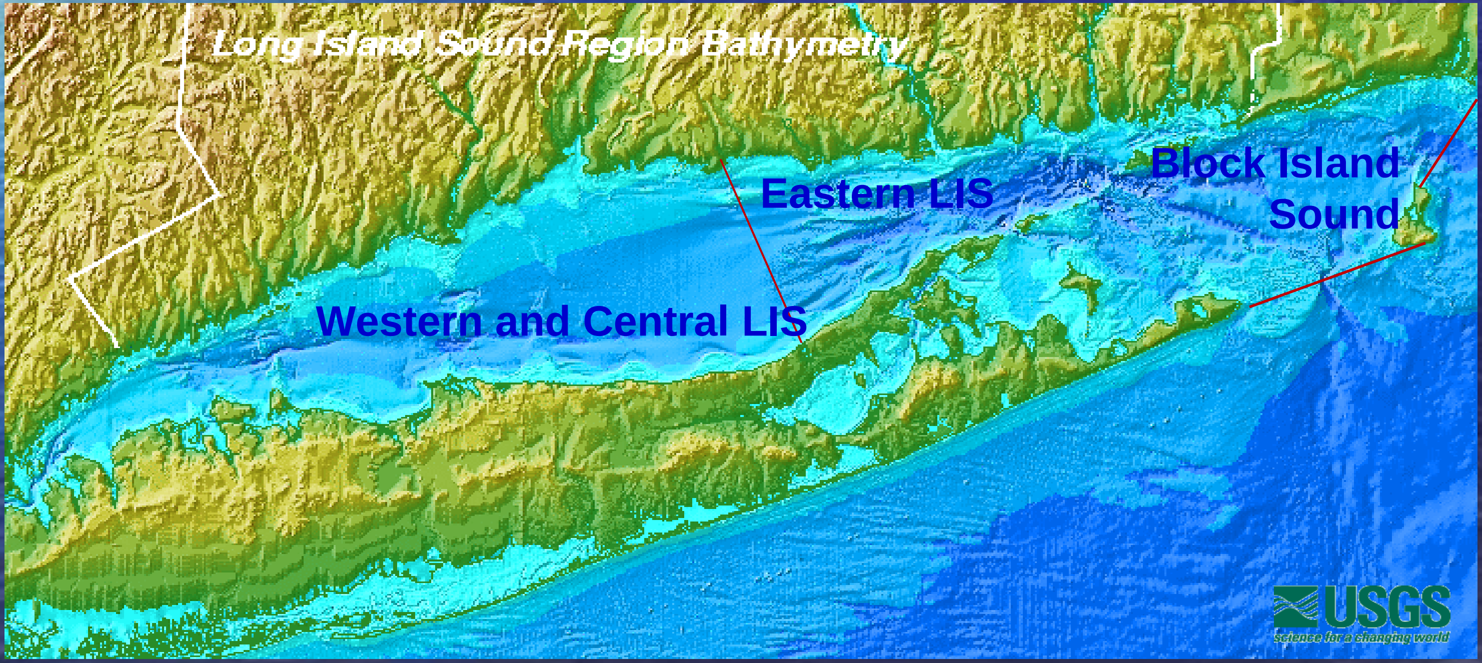
- Determined that approximately 13.5 million cubic yards will be dredged from ELIS harbors and channels over the next 26 years (planning horizon to 2028)

Upland, Beneficial Use, and Sediment Dewatering Reports completed in 2009-2010:

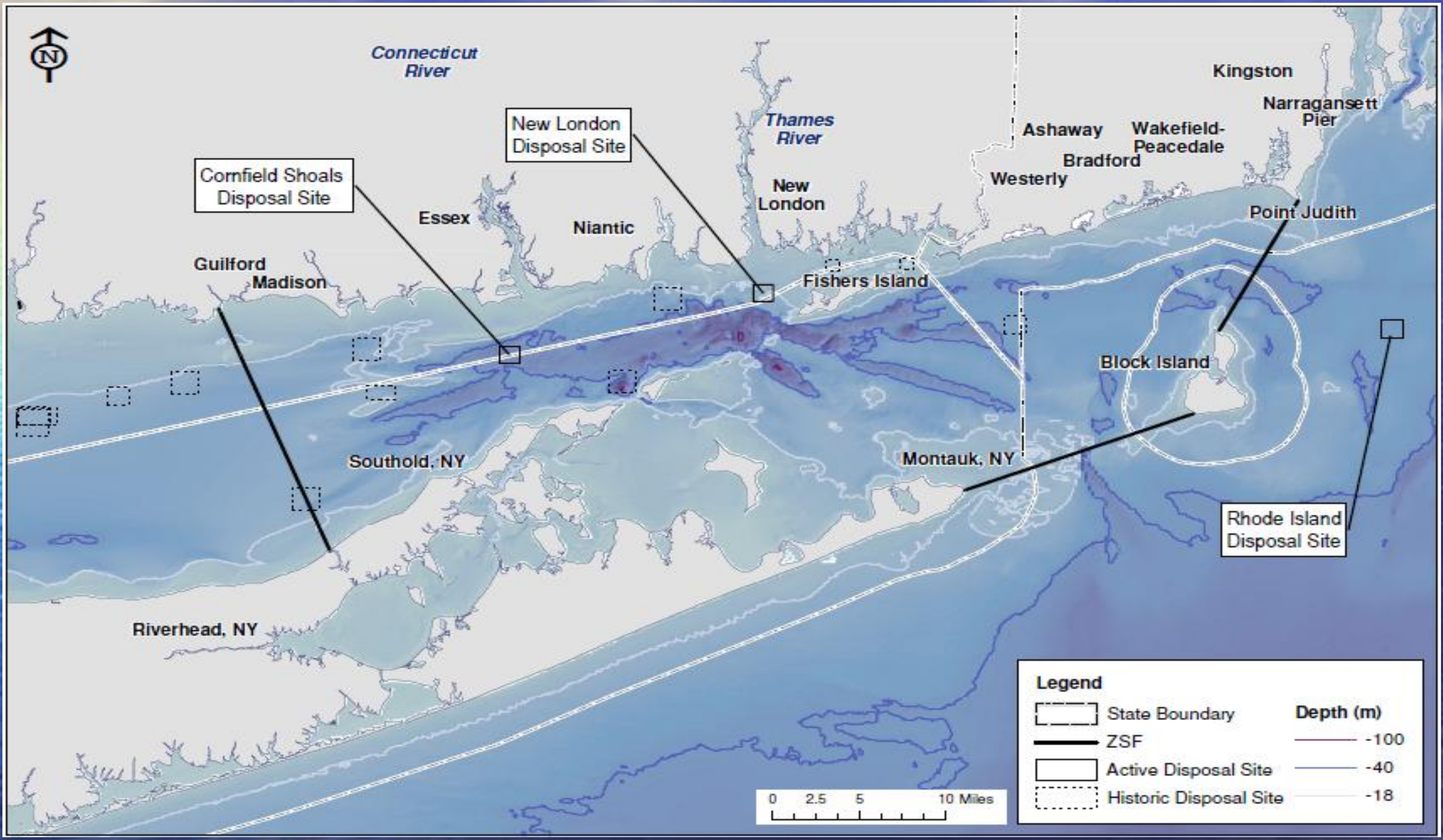
- Determined that there are very few alternatives to open-water disposal sites in CT, and most of those are beach nourishment

ELIS –SEIS
Zone of Siting Feasibility

- SEIS will address the eastern region of Long Island Sound, and Block Island Sound



ELIS SEIS – Active Dredged Material Disposal sites



Approach to Screening

- Marine Protection, Research, and Sanctuaries Act of 1972 (MPRSA): Criteria for ocean dredged material site designation:
  - 5 general criteria (40 CFR 228.5)
  - 11 specific criteria (40 CFR 228.6)

- Screening levels
  - Initial Screening of areas potentially acceptable as an open water disposal site
  - Further evaluate areas using additional data (this may include additional field work, research, etc.)

Approach to Screening MPRSA -11 specific criteria (40 CFR 228.6)

1. Geographical position, depth of water, bottom topography and distance from coast
2. Location in relation to: breeding, spawning, nursery, feeding, passage areas of living resources
3. Location in relation to beaches, public use areas
4. Types and quantities of disposal, etc.
5. Feasibility of surveillance and monitoring
6. Dispersal, horizontal transport and vertical mixing characteristics of the area, including prevailing current direction and velocity, if any
7. Existence and effects of current and previous discharges and disposal in the area (including cumulative effects)
8. Interference with shipping, fishing, recreation, fish and shellfish culture, areas of special scientific importance and other legitimate uses of the ocean
9. Existing water quality and ecology of the site
10. Potentiality for the development or recruitment of nuisance species in the disposal site
11. Existence at or in close proximity to the site of any significant natural or cultural features of historical importance.

Approach to Screening MPRSA - 5 general criteria (40 CFR 228.5)

1. Conflicting Uses - in areas selected to minimize the interference with areas of existing fisheries or shellfisheries and regions of heavy commercial or recreational navigation.

2. Conditions - will be so chosen so that temporary perturbations in environmental conditions caused by disposal operations will be reduced before reaching any beach, shoreline, marine sanctuary, or known geographically limited fishery or shellfishery.

3. Site Use - at any time if approved sites do not meet the criteria for site selection set forth in Sections 228.5 through 228.6, the use of such sites will be terminated as soon as suitable alternate disposal sites can be designated.

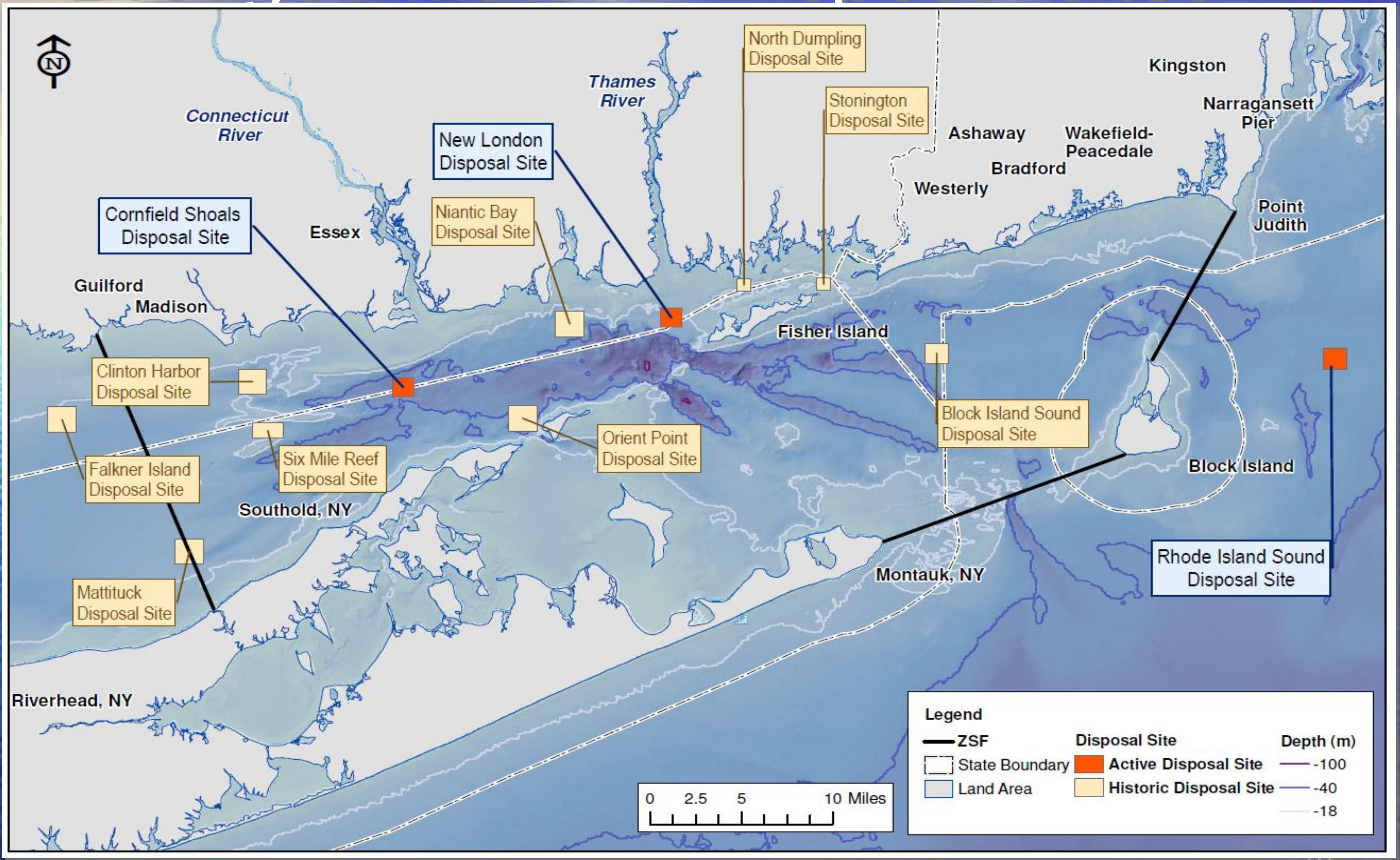
4. Site Size - the sizes of ocean disposal sites will be limited to implement effective monitoring and surveillance programs; the size, configuration, and location of any disposal site will be determined as a part of the disposal site designation study.

5. Historically Used - USEPA will, wherever feasible, designate disposal sites beyond the edge of the continental shelf and other such sites that have been historically used.

Site Screening - Examples

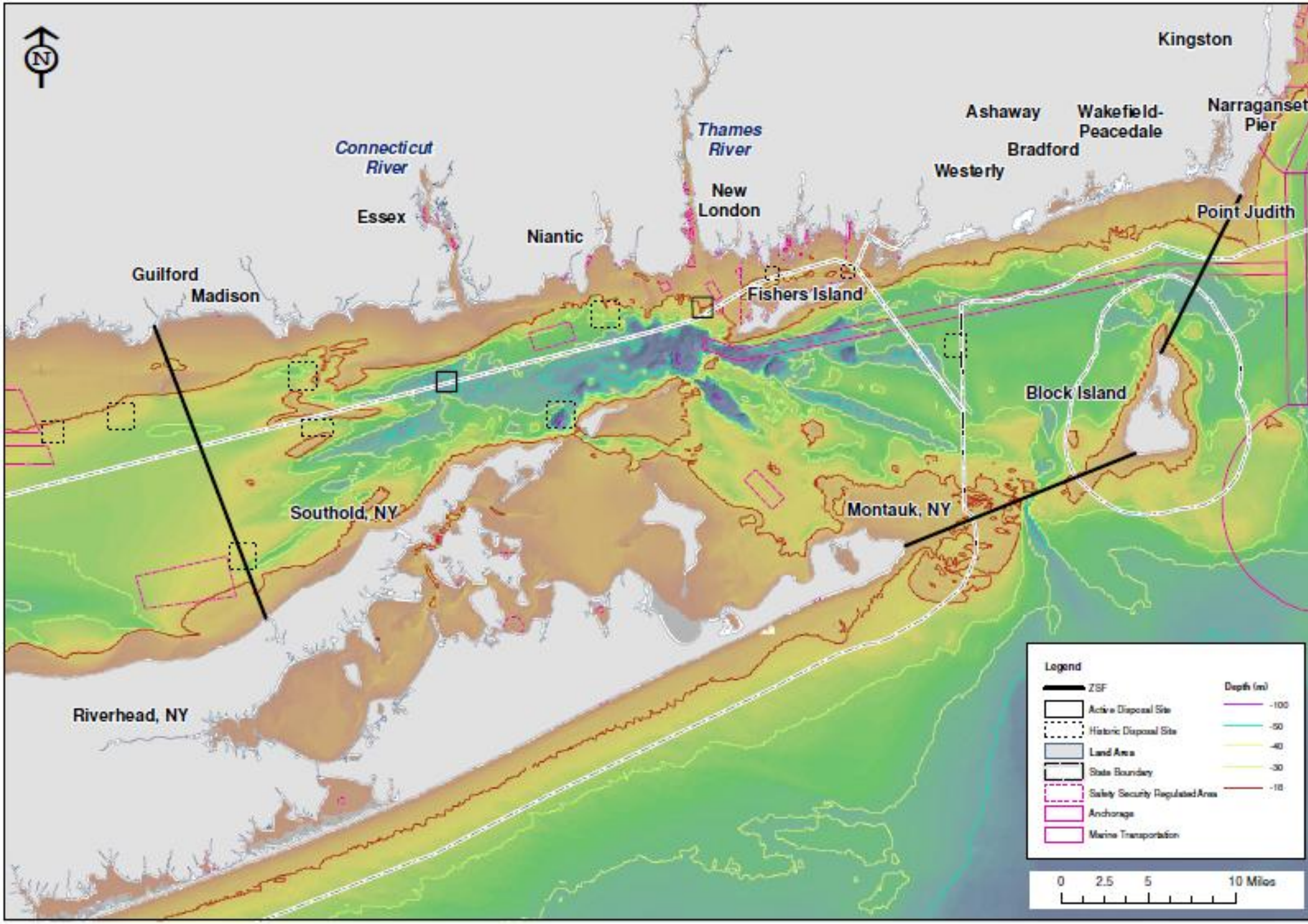
- Sedimentary Environment
  - Bathymetry
  - Currents and Waves; Bottom Stress
  - Sediment Texture (resuspension potential; habitat)
- Areas of Conflicting uses
  - Infrastructure (cables, pipelines)
  - Navigation (shipping lanes, anchoring areas)
  - Recreation (areas and navigation)
  - Conservation Areas (sanctuaries, wildlife refuges, National Seashores, parks, artificial reefs, etc.)
  - Cultural and Archaeological Resources
- Biological Resources
  - Shellfish Beds
  - Benthic Community
  - Fish Habitat, Fish Concentrations, and Fishing Areas
  - Breeding, Spawning, Nursery, Feeding, and Passage Areas

ELIS SEIS – Historic Dredged Material Disposal sites

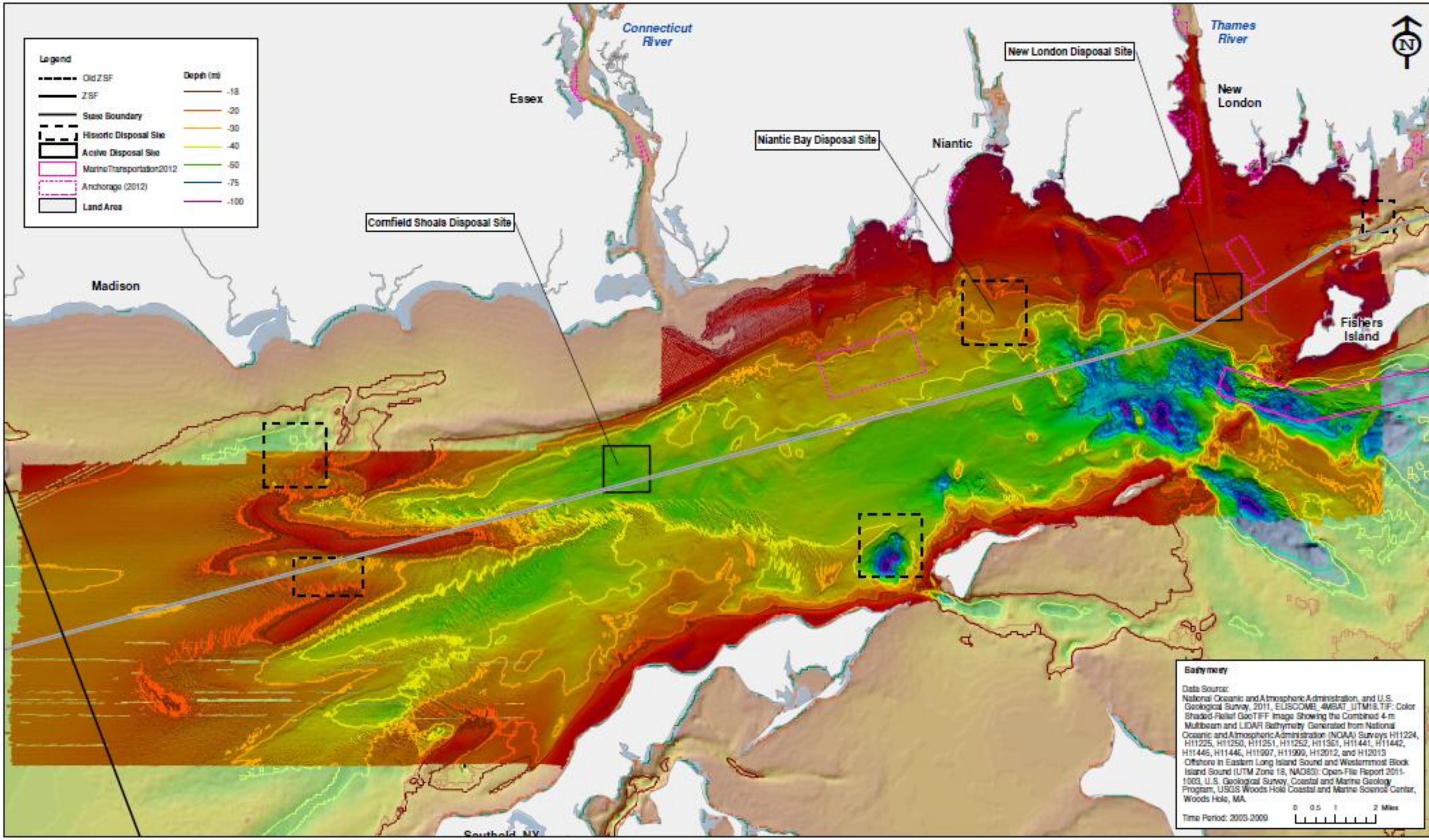


Sedimentary Environment

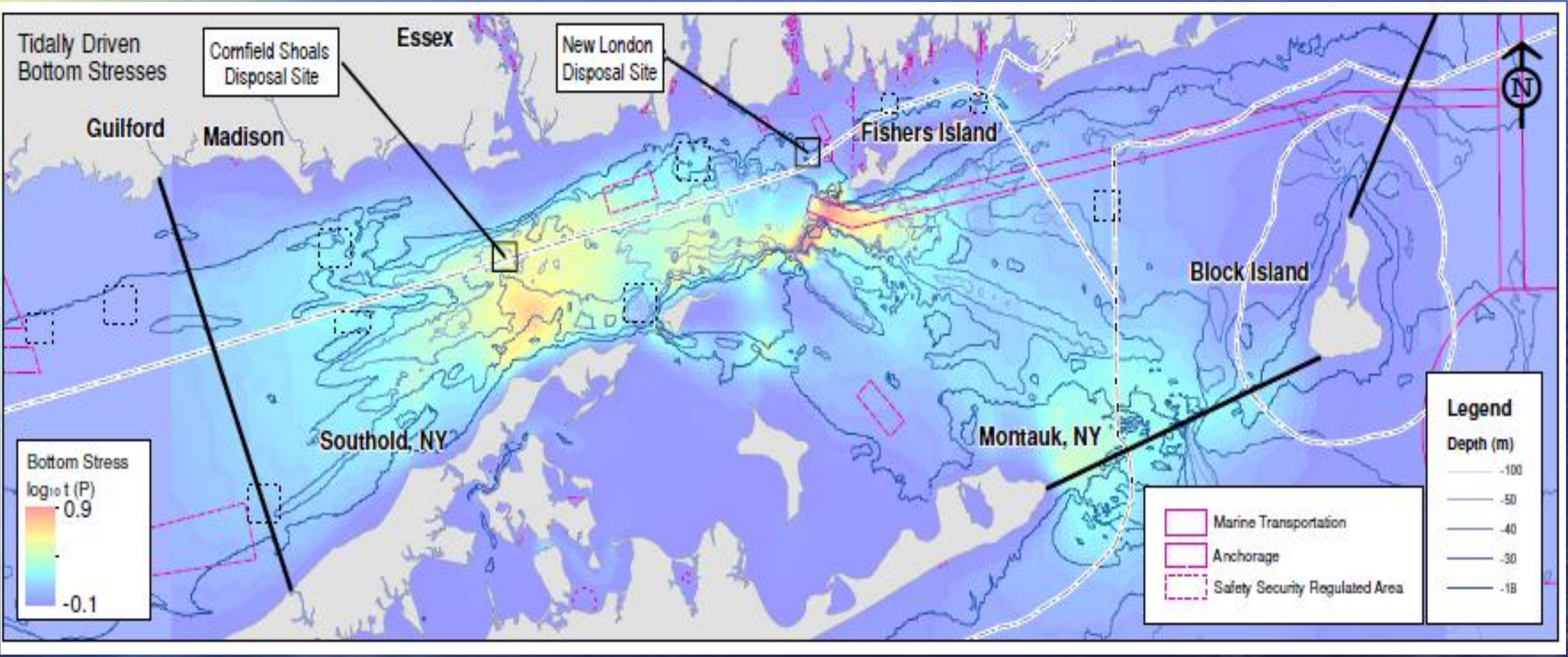
Bathymetry (ZSF)



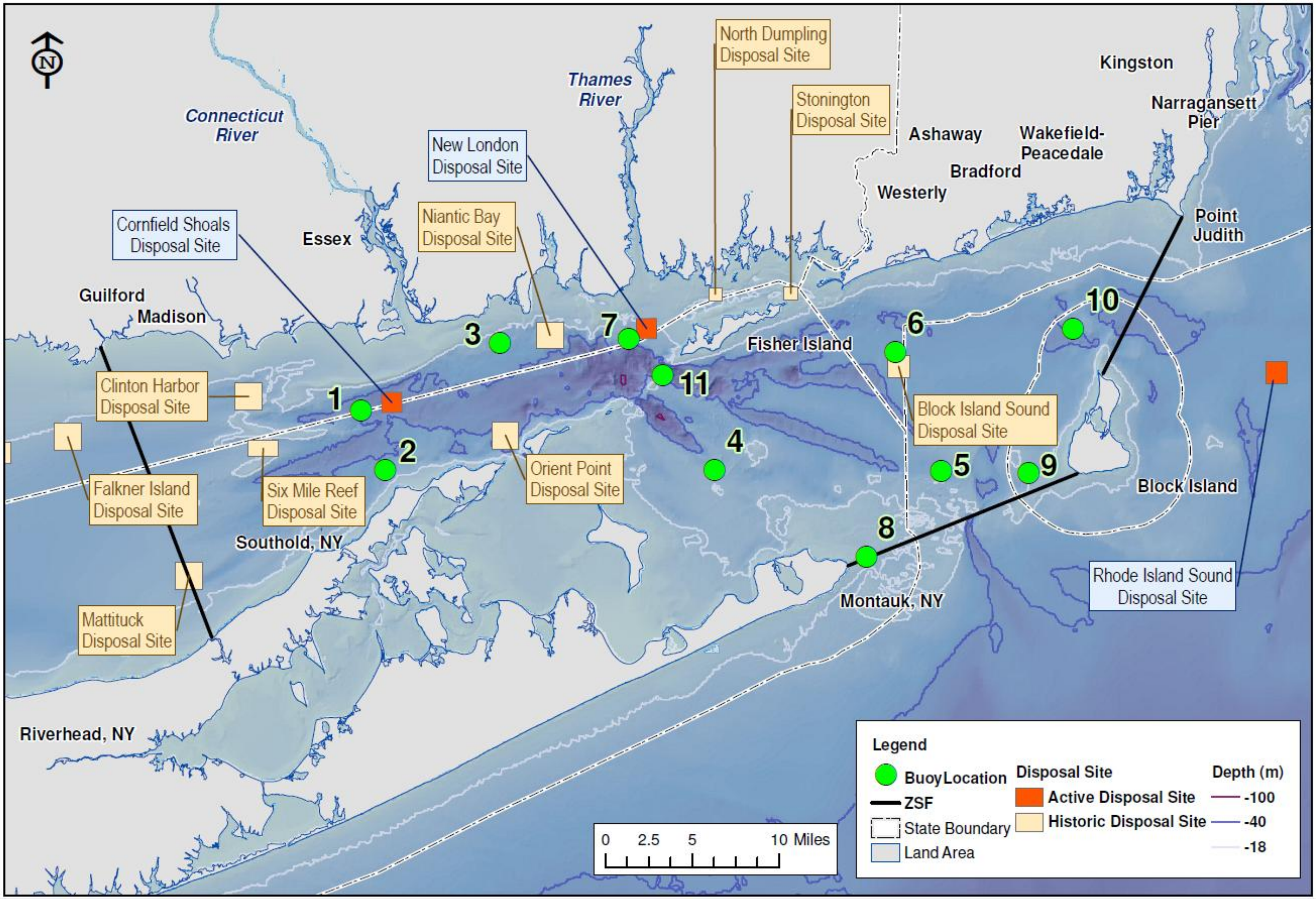
Bathymetry (Eastern LIS)



Tidally-Driven Bottom Stress

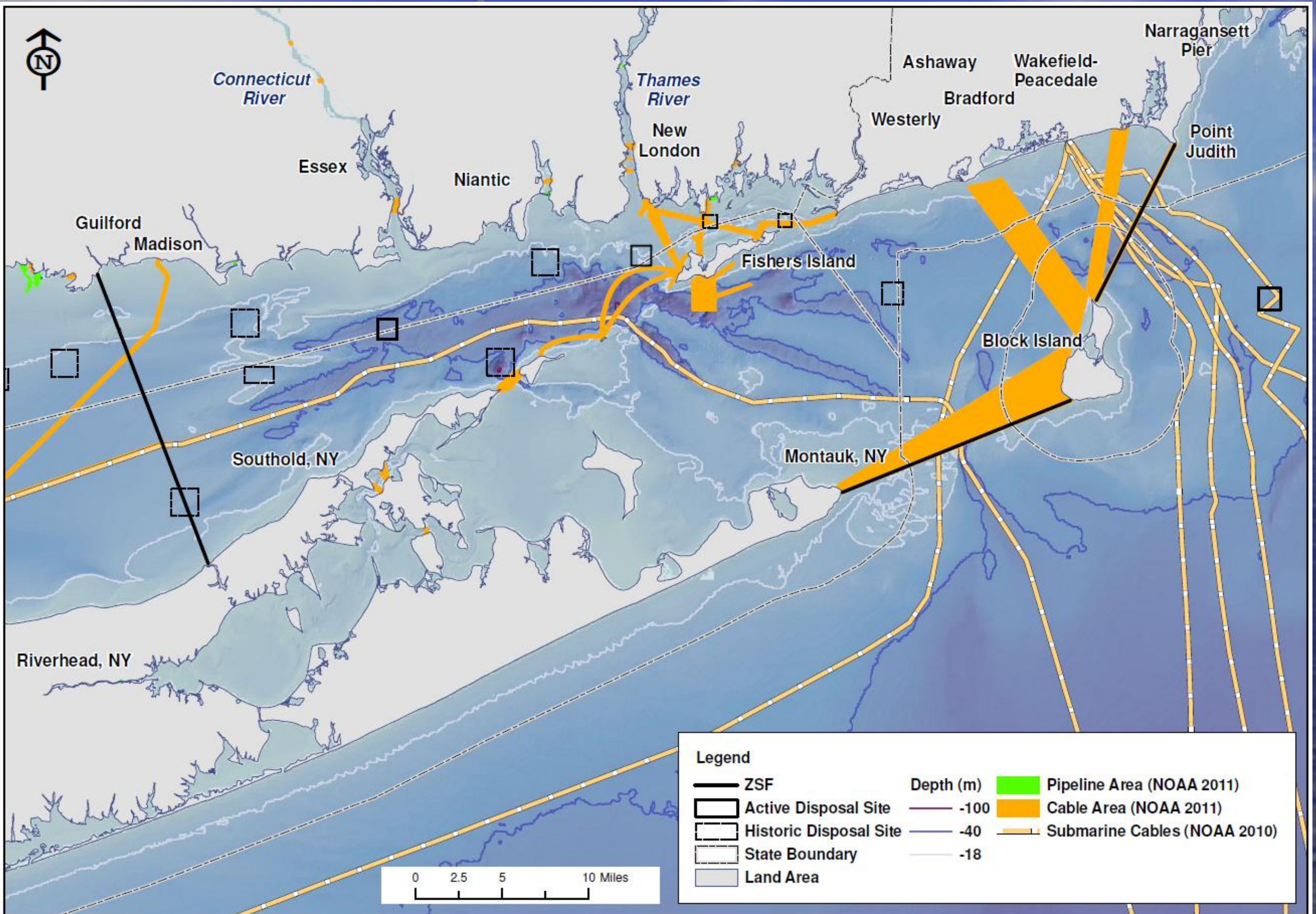


Physical Oceanography Study – Buoy Locations

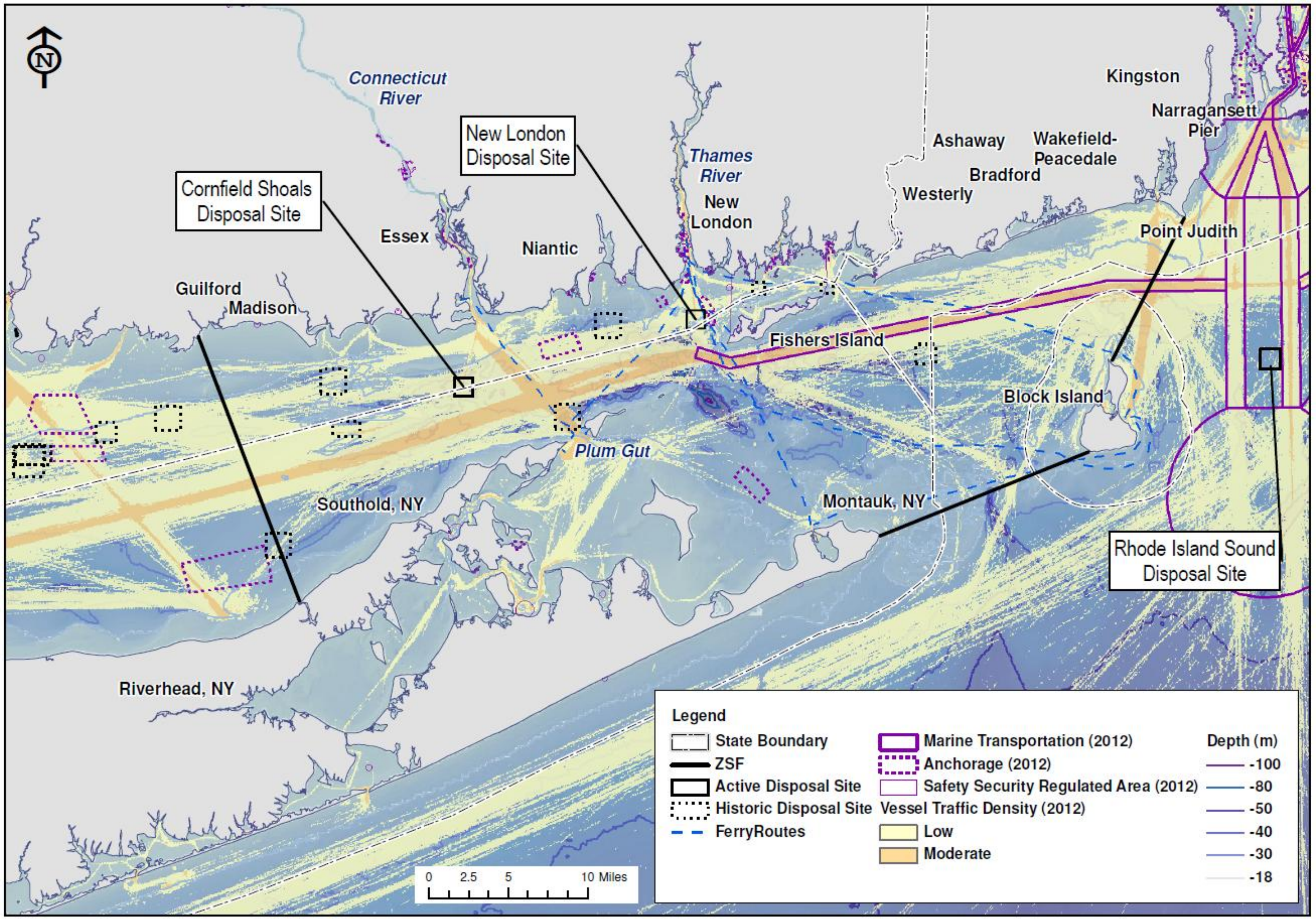


Areas of Conflicting Uses

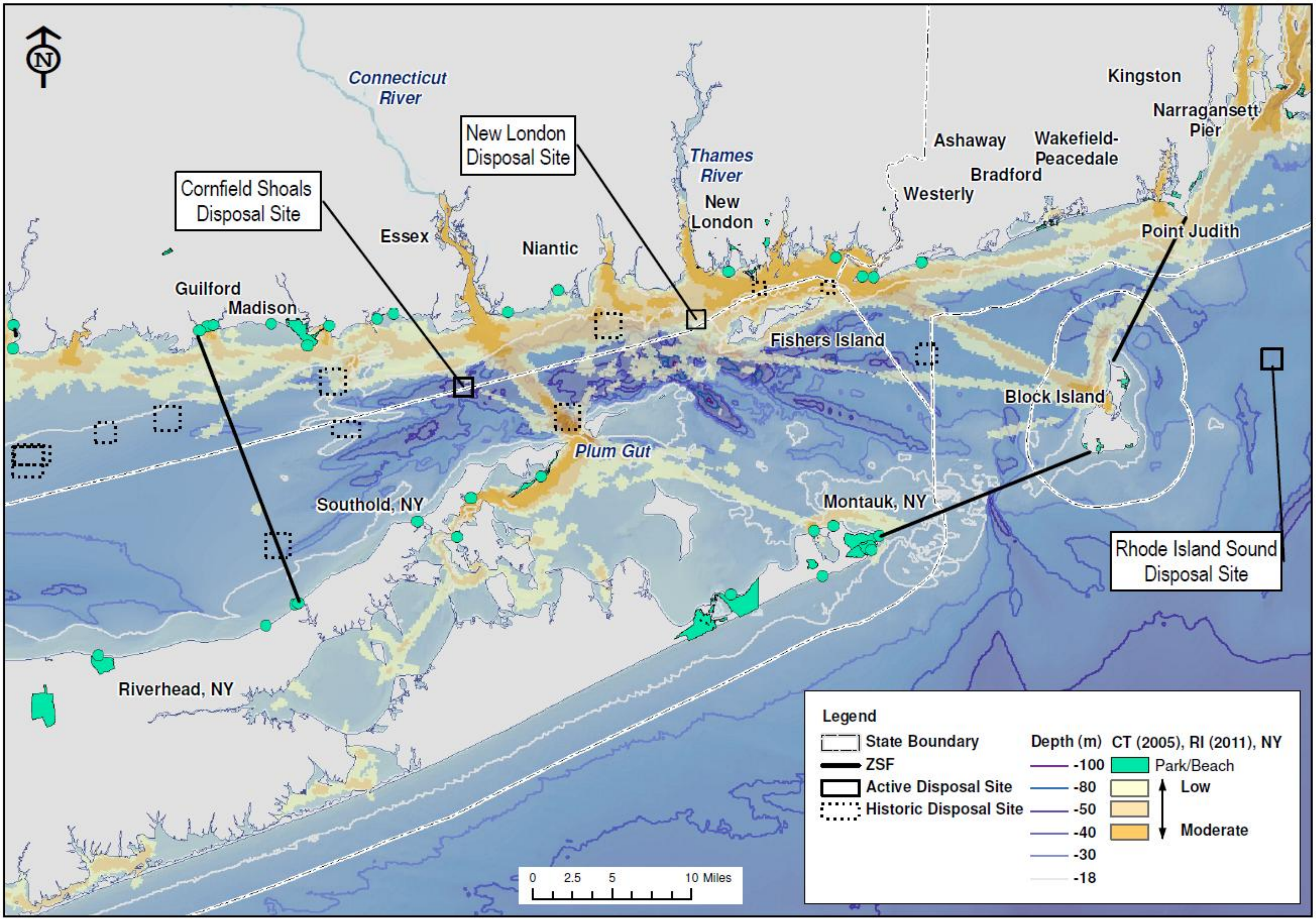
Cables and Pipelines



Vessel Traffic Density, Anchoring Areas

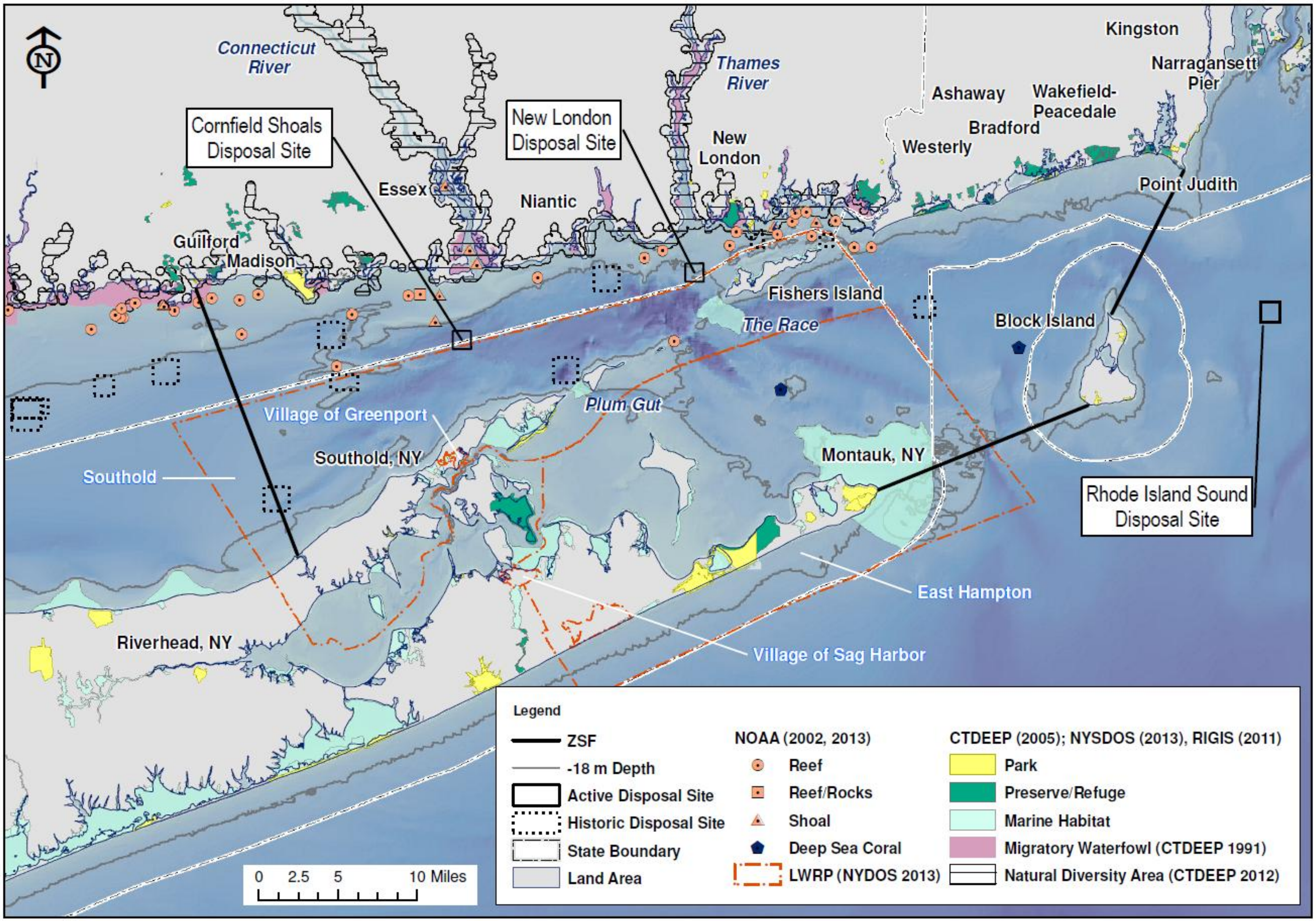


Recreation (Areas and Navigation)

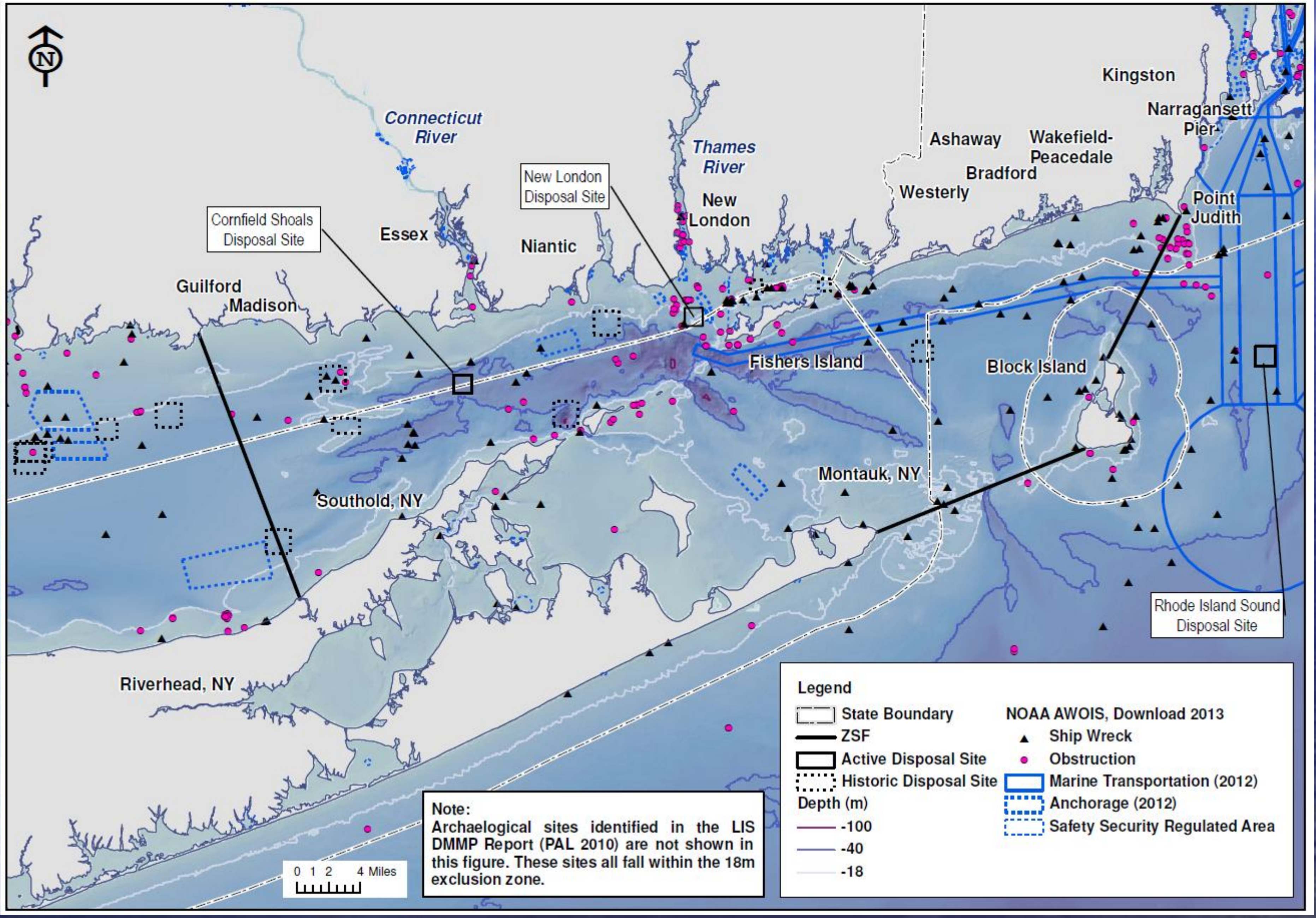


Conservation Areas

(sanctuaries, wildlife refuges, national seashores, parks, artificial reefs, etc.)

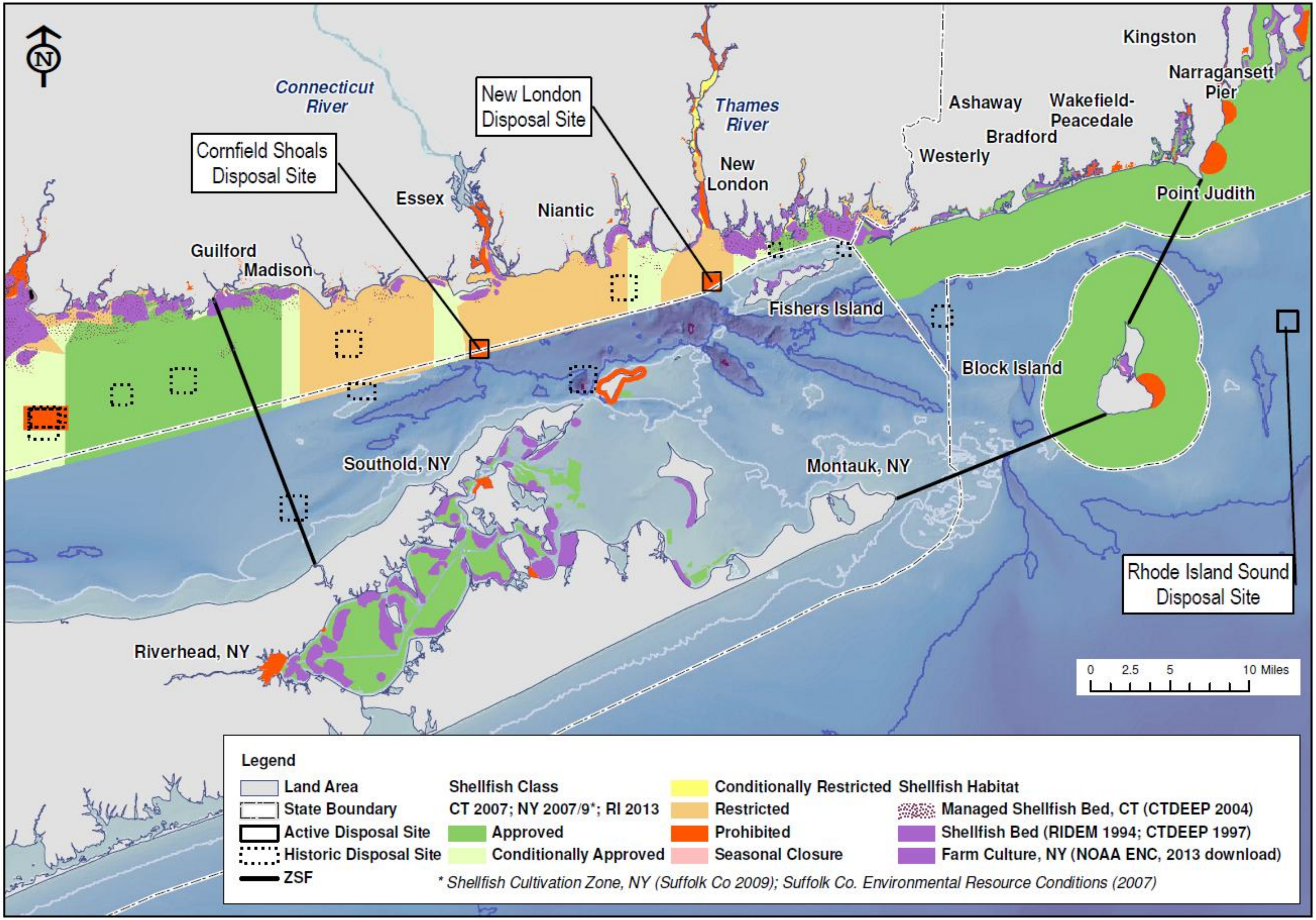


Archaeological and Cultural Resources

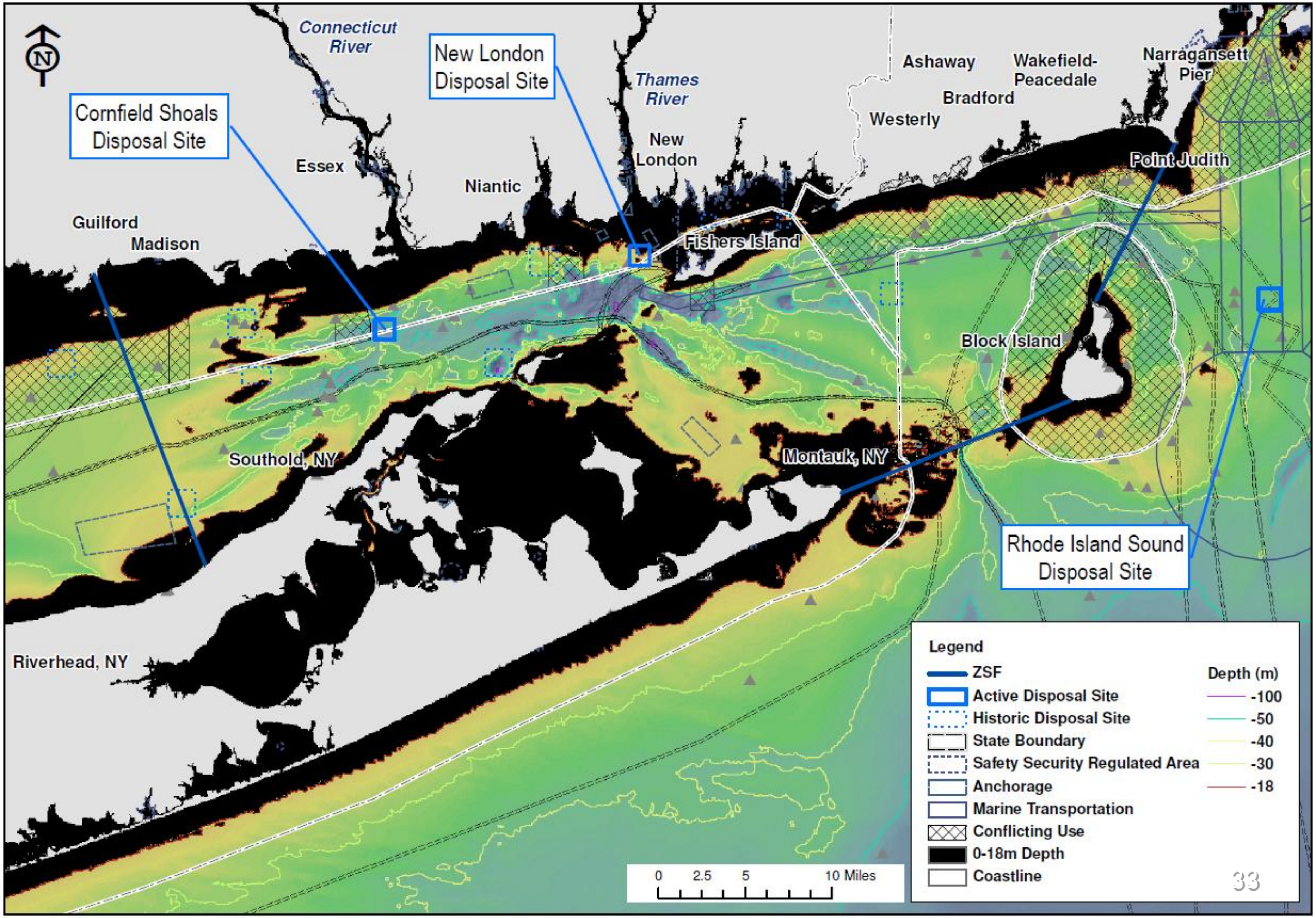


Biological Resources

Approved / Prohibited Shellfishing Areas

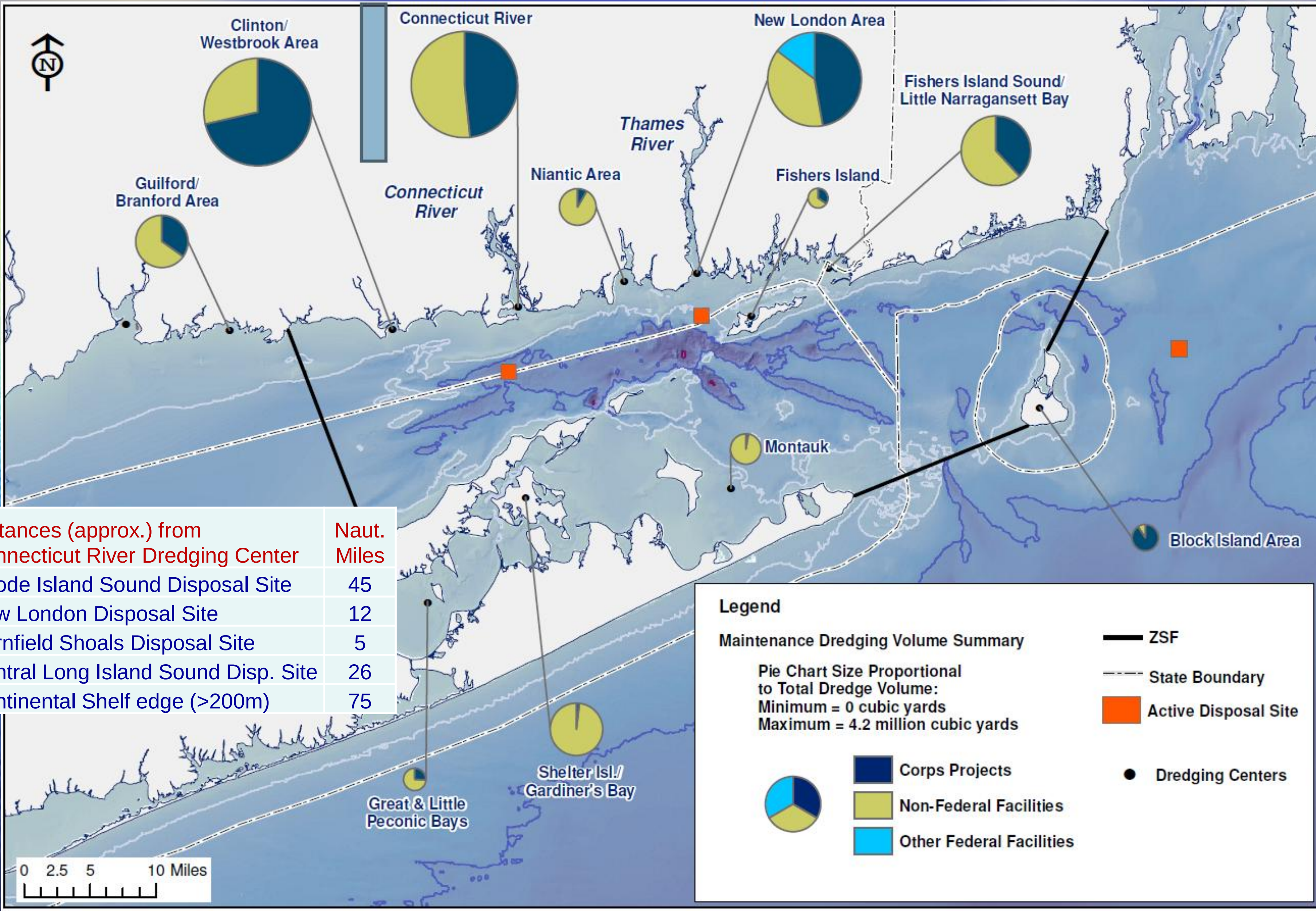


Overlay



Connecticut River
New London Disposal Site
Cornfield Shoals Disposal Site
Thames River
Ashaway
Wakefield-Peacedale
Narragansett Pier
Bradford
Westerly
New London
Essex
Niantic
Point Judith
Guilford
Madison
Fishers Island
Block Island
Southold, NY
Montauk, NY
Rhode Island Sound Disposal Site
Riverhead, NY
Legend
ZSF
Active Disposal Site
Historic Disposal Site
State Boundary
Safety Security Regulated Area
Anchorage
Marine Transportation
Conflicting Use
0-18m Depth
Coastline
Depth (m)
-100
-50
-40
-30
-18
0 2.5 5 10 Miles

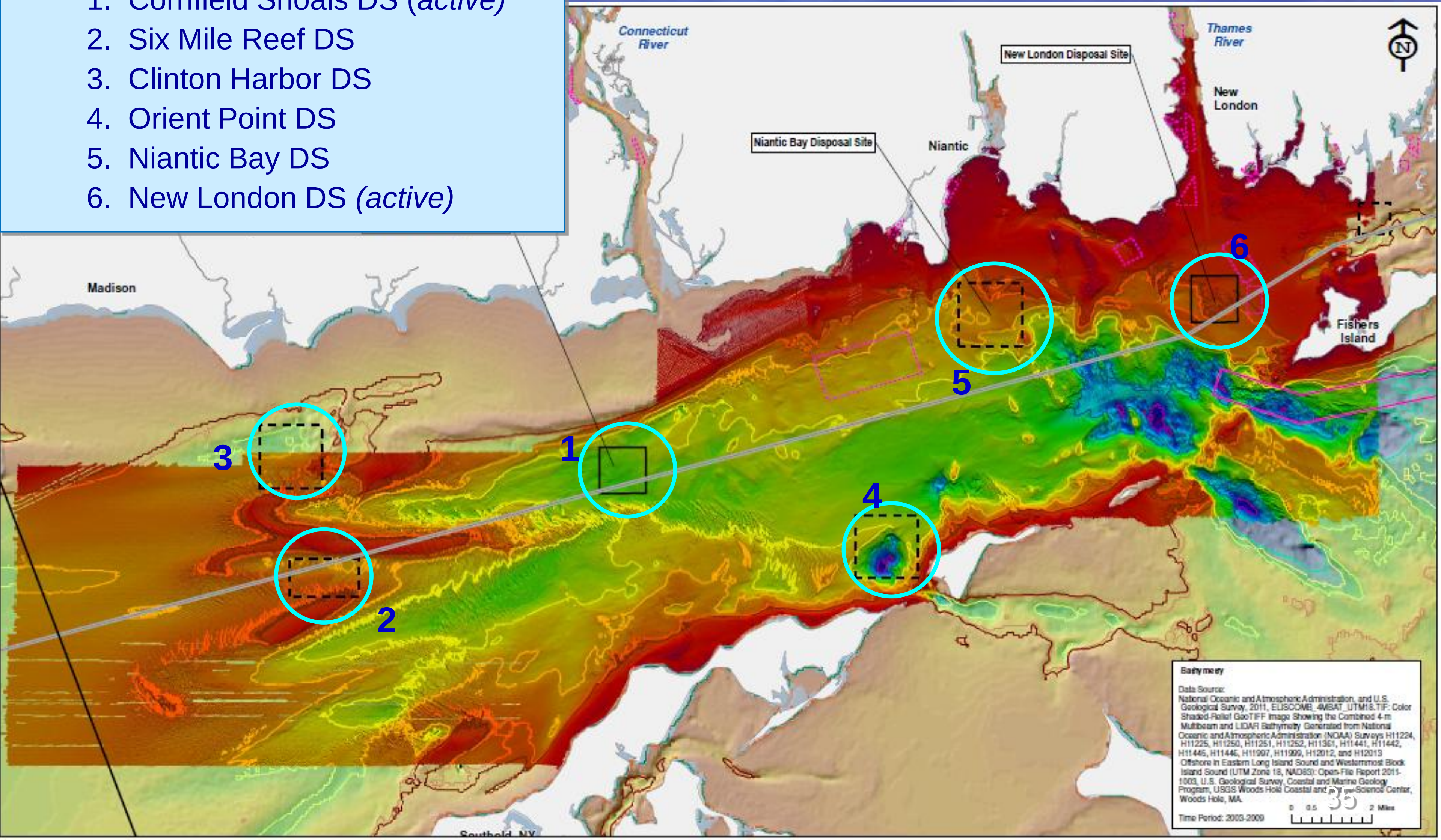
Dredging Centers and Disposal Distance



Distances (approx.) from Connecticut River Dredging Center	Naut. Miles
Rhode Island Sound Disposal Site	45
New London Disposal Site	12
Cornfield Shoals Disposal Site	5
Central Long Island Sound Disp. Site	26
Continental Shelf edge (>200m)	75

Areas identified in Eastern Long Island Sound

1. Cornfield Shoals DS (*active*)
2. Six Mile Reef DS
3. Clinton Harbor DS
4. Orient Point DS
5. Niantic Bay DS
6. New London DS (*active*)



Next Steps

- Assess sites in more detail
  - Integrate additional available information
  - Identify and fill remaining data gaps including safety, economics.
  - Review existing and newly collected data for priority sites
- Collect additional data on sediment and biological resources
- Review data from Physical Oceanography Study for Cooperating Agency Meeting in fall
- Public Meetings in winter

Attachment 4

TRANSCRIPTS OF PUBLIC COMMENTS, RIVERHEAD, NEW YORK JUNE 25, 2013

SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT TO EVALUATE THE POTENTIAL DESIGNATION OF ONE OR MORE DREDGED MATERIAL DISPOSAL SITES IN EASTERN LONG ISLAND SOUND

June 25, 2013
2:30 p.m.
Culinary Center
Suffolk Community College
Main Street
Riverhead, New York

SPEAKERS:
THE LOUIS BERGER GROUP, INC.
BERNWARD J. HAY PH.D
PRINCIPAL ENVIRONMENTAL SCIENTIST

JEAN BROCHI, PROJECT MANAGER EPA REGION 1

[TIME NOTED: 2:30 P.M.]

MR. HAY: Good afternoon. I think that we can start at this point. First of all, welcome to this public meeting. Thanks for sharing your time with us on this beautiful day. At least we have air conditioning here, so it will keep everybody cool. A couple of housekeeping items that I want to mention right up front. Everyone should be registered at this point. There's a registration form outside. If you haven't registered yet, please register at some point during this meeting outside. There are also some handouts outside, which include copies of the Power Point presentation that is going to be given later on. Please feel free to get yourself a copy as well.

Secondly, restrooms outside of the room are to the right about ten yards down the corridor on the right side. Third, please turn off your cell phones, if you could, or put them on vibrate. My name is Bernward Hay. I'm with the Louis Berger Group. I'm an Environmental Scientist, and we are under contract to the University of Connecticut, that is under contract to the Connecticut Department of Transportation. We

are assisting the Connecticut DOT and the US EPA with preparation of a Supplemental Environmental Impact Statement to evaluate the possible designation, potential designation, of one or more Ocean Dredged Material Disposal Sites, to serve the Eastern Long Island Sound region and Connecticut, New York and Rhode Island.

The EPA is the Federal lead agency for the project. The meetings that were held in November and in January were to solicit comments on the Notice of Intent, and the comment period for those meetings ended on January 31, 2013. At each meeting seven individuals commented. In addition eighteen written letters and emails were received within the comment period.

Today's meeting is an informational meeting and there is no specific comment period. Information presented today will be made available on the EPA website. Specifically, today's meeting is designed to provide you with an update of the project as a follow-up to the public meeting in November and January.

We will review initial screening, the initial screening process, that has been conducted so far and we'll briefly discuss upcoming data collection

efforts. Feedback regarding our efforts would be welcome.

In addition to this public meeting in New York here, a second meeting is scheduled for tomorrow at the University of Connecticut at Avery Point in Groton, Connecticut. Ms. Jean Brochi from EPA and I will present the updated information about the project for the next hour, after this introduction, until about 3:30 p.m. After the presentations have been completed the floor will be open for comments until about 4:30 p.m. If you wish to speak at that time, please provide your name and affiliation and we ask you to keep your comments brief to allow others to speak as well.

The public meeting is recorded by a stenographer and is also recorded by audio devices. The transcript of the meeting will be entered into the public record and will be made available to the public on the EPA website as well. We will now move to the presentations. Ms. Jean Brochi is a Project Manager for the Ocean and Coastal Protection Unit of the EPA Region 1 in Boston. She will provide the welcome and project update, and I will talk about site screening and GIS Data. With that, Jeannie, would you open the meeting.

MS. BROCHI: Thank you Bernward. Thank you all for coming. As Bernward said, this is an EPA project. It's for the potential designation of dredged material disposal sites. We ask that you wait until the end of both presentations to comment. You should have received an agenda out front. I'm going to do the project update which would include some background information from the previous public meetings. Bernward will go through the site screening, and then we'll have next steps and comments.

So, the Environmental Protection Agency and the Army Corps of Engineers have a shared responsibility in managing dredged material. The EPA is responsible for -- We're authorized to designate dredged material disposal sites. Under the Marine Protection Research and Sanctuaries Act, MPRSA, also known as the Ocean Dumping Act, under Section 102, the EPA has the authority to designate sites, and under section 103, the Army Corps of Engineers has the authority to select sites, which are subject to EPA concurrence.

Dredged material at these sites must meet

criteria, ocean dumping criteria, 40 CFR Parts 220 through 229, for which I have slides that will discuss what those criteria are. Also regulated under the Clean Water Act, Section 404, which gives the Army Corps of Engineers the authority to issue permits, and that's subject to EPA concurrence, as well as Section 404(c), where the EPA has the authority for vetoing permits.

Again, EPA's role is to designate ocean dredged material disposal sites for long-term use. In doing so, EPA follows a voluntary NEPA Policy, which is what this meeting falls under. So, we'll have a series of public meetings as well as cooperating agency meetings. EPA is responsible to promulgate the regulations and criteria for disposal site selection and review Army Corps of Engineer dredging permits and projects, as well as develop site monitoring and management plans. Those site monitoring and management plans are specific to designated sites. In addition, EPA monitors the disposal sites jointly with the Army Corps of Engineers.

A little background on the Long Island Sound Environmental Impact Statement. If you were at the November or January public meetings, that

presentation was specifically on the background of the EIS. This particular project now is a Supplemental EIS, focusing on the eastern part of the Sound. So, EPA designated the Western and Central Long Island Sound Disposal Sites in July 2005.

The Army Corps of Engineers has an authority to select sites for short-term use, which is a minimum of two five-year periods. The Army Corps of Engineers selected the Cornfield Shoals Disposal Site and the New London Disposal Site in the 1990's. Both of those sites are scheduled to close for use in 2016. In December, specifically, of 2016.

In April 2004 EPA and the Corps completed the EIS recommending the designation of CLIS and WLIS. We initiated rule making, and then in June New York State DOS objected to the proposed federal action as inconsistent with the proposed Coastal Zone Management Program, and then in September through May of 2005, the EPA, the Corps, NOAA, New York DOS, and Connecticut DEP negotiated conditions for a site designation rule. What that concluded was the completion of a regional Dredged Material Management Plan, which would be completed by the Army

Corps of Engineers. That's a region-wide Dredged Material Management Plan, which is different than a Site Monitoring and Management Plan. That is a Corps-lead project, and that was scheduled to be completed by 2013 or 2014.

We also formed a Long Island Sound Regional Dredging Team to look at alternatives, all under the DMMP umbrella and to review large private dredging projects.

Finally, the EPA reports annually on dredged material disposal from private and non-private projects in Long Island Sound for the dredging year. That period is July to July. Now, I'm going to talk about the Supplemental EIS which, again, is focusing on Eastern Long Island Sound. The presentation today and the previous public meetings specifically are only discussing open water options.

However, throughout this process and as part of our continued data collection effort, we will look at alternatives, and we will also consider a no-action alternative, which will combine the impact if no action was taken, which means no disposal site designation.

For the Supplemental EIS, we initially had a public meeting where we issued a Notice of Intent in October 2012. We had a public meeting on November 14th, and again on January 9th to solicit comments on that Notice of Intent. We also have Cooperating Agency members, several are in the room, and we held Cooperating Agency meetings on January 8th, May 20th and June 18th.

Part of our process is to continue to compile a literature and data gap analysis, and Bernward will present some of the data using the Geographic Information Systems. This is an on-going project. We will continue to update the data as it becomes available electronically.

In addition, there is a physical oceanographic study conducted by the University of Connecticut. That was initiated in March 2013, is on-going and will continue through December, at which point, part way through the process there will be some data available. And that project is putting buoys into Long Island Sound to collect more information on currents and velocities and a lot of, kind of, the physical oceanographic information that we need to have as part of this process, and Bernward will get into more detail with that when he presents a slide.

So, right now I'll introduce the cooperating agency partners. We have two types, they're cooperating agencies, and they've agreed to be a cooperating agency, and then we have coordinating agencies. It's EPA Regions 1 and 2, New York DOS, New York DEC, Connecticut DEEP, Connecticut DOT who is also funding the project, Rhode Island CRMC and the Army Corps of Engineers of the New York District and the New England District, as well as NOAA and the United States Coast Guard.

Coordinating agencies, which means that we send all of the information to them but we don't have to commit to come to the meetings but they are part of the process, which includes the Fish and Wildlife Service, and the Navy. Finally, additional coordination is going to continue throughout the process with Tribes and State Historic Preservation Officers. Right now, we solicited the Tribes and SHPOs to be part of our cooperating agency partnership, and they have not agreed to do that. So, we're going to continue to coordinate with them separately.

Next, and this was presented at the last public meeting, our schedule, our estimated schedule right now is to have a draft Supplemental

Environmental Impact Statement by December 2014, followed by a final SEIS by December 2015. That assumes that in the Environmental Impact Statement, we recommend that one or more sites be designated. If that is the case all final rule making and the final Environmental Impact Statement would be completed by December 2016.

The next slide lists the process. So, initially when we had our original Scoping Meetings we discussed what the process would cover, so that's the scoping. We've already determined what the Zone of Siting Feasibility was going to be. We determined to incorporate some of Block Island Sound so that we could use the studies and the reports and data collected as part of the DMMP for this effort.

The next step is to identify data needs for existing sites and identify potential other sites and alternatives. Then we get into the site screening, assess data needs, we collect additional data, we narrow down the sites and then we perform an environmental impact analysis. The final result will be a draft Environmental Impact Statement, which will have several

different reports as part of that package.

Right now we are in the screening and identifying data needs and data collection phase. Some of the Dredged Material Management Plan studies that the Army Corps of Engineers have completed, that we would use for this effort, was the Dredging Needs Report, which was completed in October 2009. That determined that 13.5 million cubic yards will be dredged or there is a need to dredge from Eastern Long Island Sound, harbors and channels, over the next twenty-six years, which will go out to 2028.

The other report that we've used to date is the Upland Beneficial Use and Sediment De-watering Reports, which were completed in 2010. There were two separate reports, the first one was in 2009, and this determined that there were very few alternatives to open water disposal in Connecticut and most of those were beaches and very few upland areas. So, we're going to evaluate that as well, using the information that they've provided. The DMMP studies and reports are available on the Army Corps of Engineer's New England District website.

Again, the Zone of Siting Feasibility was selected to incorporate the DMMP studies and it goes from Guilford to Mattituck Point, and on the east, it's Block Island to Point Judith, and this includes Block Island Sound. The next slide shows you the active sites. By active we mean are being used but the Cornfield Shoals and New London Disposal Sites are not designated by EPA. They have been selected by the Army Corps of Engineers. That is a distinction, when you look to the east and you see the Rhode Island Region Dredged Material Disposal Site, that has been designated by EPA. So, that has been designated. We went through a similar process as what we're doing here. An Environmental Impact Statement was completed for that.

So, one of the approaches that we use for screening is to consider specific criteria as they are listed in the Marine Protection Research and Sanctuaries Act, which we call MPRSA. There are five general criteria and eleven specific criteria, and the screening levels and how we would approach the screening is that we would do an initial screening of areas that are potentially acceptable to serve as a dredged material disposal site. Then we would further evaluate those areas using additional data which could include

additional field work or may include the GIS layers. It's a combination of as much data as we can get, and then that evaluation screens out different potential sites.

So, I'll quickly -- and this is a very busy slide, but these are the eleven specific criteria. EPA must designate a site so that it meets these criteria. The first is geographic position, depth of water, bathymetry, it must be geographically located with a certain distance from the coast. The second item is that it must be located in relation to habitat and fishery so that it does not interfere with habitat or fisheries. The third item is the same. It must not interfere with beaches, public use areas. So, the location is very important. The fourth item is types and quantities of disposal. We need to consider the feasibility of monitoring and surveillance of the disposal site. We have to consider mixing characteristics and dispersing dredged material including velocities and wind directions. We have to consider number seven, the cumulative effects of a disposal site as well as previous disposal sites and historic discharges. For number eight, we have to make sure it doesn't have any

conflicting uses, which could be interference with navigation and interference with recreation or fish and shellfish culture, or special purpose areas, or any other areas in the ocean designated to serve another purpose. We have to make sure that there are no conflicting uses. For number nine, we have to look at the ecology and the existing water quality, and then the potential for nuisance species to develop. So, this would be water quality and ecology, and to make sure that there's no interference from new species being brought into the disposal site. The last item, number eleven, is to look at the close proximity of the site to any natural and cultural or historic features. That's when we'll ask the Tribes to give us a consultation. Sometimes there are culturally significant areas that are not documented in the literature, so, we'll ask them for specific review of everything.

The next slide talks about the five general criteria. Again, conflicting uses is number one. We have to minimize interference with other uses. Number two is we need to look at the conditions so that the environmental conditions are not reduced before reaching any shorelines or shellfishery.

The third is the site use. We need to look at the sites, and if at any time during this process we determine that a site that we previously approved does not meet any of these conditions, that site can be terminated, when an alternate site is designated. Then historically used sites. The EPA, wherever feasible, will try to use a historic site, or historically used site, or if feasible go to the Continental Shelf.

So, part of the discussion today is going to focus on some historic sites, and you will notice in the slides that every site has exactly the same square box. That box does not reflect the dredged material or the use of that site. It was just a way to visually interpret it for you. Each historic site has a different type of disposal, has a different volume of disposal and the Army Corps of Engineers is going to continue to compile that data for us.

I'm going to hand it off to Bernward now, who is going to discuss some of the slides and some of the GIS data that we have collected. Thank you.

MR. HAY: Thanks Jean. So, as Jean mentioned, I'll be going over some of the data that we've been collecting over the last several months and since last year, actually.

Please note that this is work in progress. Again, the idea is to narrow down the areas that ultimately would have an area for potential designation of a site. So, on the next slide you see a number of examples of the types of data that we have been collecting. These data have been entered into the GIS if that's possible. There will also be data that can not be entered directly into the GIS. What we are going to show today are the data that have been entered into the GIS for screening purposes. There are three groups of data that I would like to present. The first cluster of data would be used for site screening. This is a Sedimentary Environment. The second cluster is Areas of Conflicting Uses, and the third is Biological Resources. In those individual clusters is bathymetry, for sedimentary environment, bathymetry, currents and waves which affect the bottom stress, and we'll get back to that term a little bit later. There is sediment texture, which is grain size, which affects the resuspension potential, as well as the habitat of the environment.

Can you all see the screen on the left, to the left of me? I have a one pointer that I'm going to use on that screen here. I hope you all can see that.

The second cluster is Areas of Conflicting Uses and we have infrastructure, such as cables and pipelines, navigation such as shipping lanes, and anchoring areas. Then there's recreation in the waters. We have recreation areas that have been identified. There's also recreational navigation. Then there are conservation areas and that's a broad term that covers a wide variety of features such as sanctuaries, refuges, National Seashores, parks, artificial reefs, etc. The last one here is cultural and archeological resources.

The third cluster is Biological Resources such as shellfish beds, benthic community, fish habitat, fish concentration, fishing areas and lastly, breeding and spawning, nursery, and feeding habitat in the project area.

This is a reminder for what Jean just mentioned. This slide shows the active disposal sites as well as the historic disposal sites in the Zone of Siting Feasibility outlined with a black line, going from about Guilford to about

Mattituck, Montauk, Block Island and up to Point Judith.

This entire area here is in our Zone of Siting Feasibility. Again, these locations show historic sites, which include the Clinton Harbor Disposal Site, Six Mile Reef Disposal Site, Orient Point Disposal Site. Then we have the Niantic Bay Disposal Site in this location. There are two disposal sites in Fishers Island Sound, and we have the Block Island Sound Disposal Site over here. The two red ones, again, are the two active sites, the New London Disposal Site, as well as the Cornfield Shoals Disposal Site in this location.

So, I'd like to show a few slides for each of those clusters that I've mentioned before. The first one is the sedimentary environment. Shown here is the bathymetry of the Zone of Siting Feasibility; again on all slides it is outlined by these black lines on the side. We also show on all of these slides the State boundaries, crossing the Long Island Sound here, and crossing Block Island Sound over here.

In addition all of these slides will have the historic and active disposal sites marked with either a solid box or a dashed box, like in

this case; here is the historic Clinton Harbor Disposal Site with a dashed box and there's the Cornfield Shoals Disposal Site.

So, basically what you see here is a brief definition of our project area. You see a fairly uniform water depth in Block Island Sound. You see a variety of water depths in Eastern Long Island Sound, marked by more purplish colors. This area here is the Race, where faster tidal currents result in some erosion in this area, resulting in deepening in essence, creating the bathymetry that you see in this location here.

The line here, this line here is an eighteen meter contour line, and everything between this line and land is shallower than eighteen meters. We'll come back to that water depth a little bit later.

This is a close-up of the Eastern Long Island Sound. The data that I showed you before are based on NOAA data that were collected and have been modified by a firm called DAMOSVision, who provided that image that you saw. Shown here are very high resolution data that NOAA and the US Geological Survey have been collecting. They are called multibeam data. These provide a tremendous wealth of information with regards to details on the morphology of the substrate, and the features that you can see in different locations. You can't quite see it here but if you go further into the details of this data, you see things like sand waves and things like shipwrecks in fine detail. This is going to be a useful tool for us in the site screening process.

At this point the data have been processed, as you can see here, for the Eastern Long Island Sound. Also data are available for the Block Island Sound; those data are still being processed by the USGS, and NOAA and those should be available at some point as well for us to use in the screening process.

This slide shows tidally-driven bottom stress. Basically, sediment responds to forces acting on the ocean floor. If you have high forces, logically you get resuspension of sediment that is being transported for a certain distance. So, a tidally-driven bottom stress is basically the force acting on the sediment, and it is a function of current speed as well as the roughness of the sediment on the ocean floor. What you see here is based on model results. There's not a lot of data available. There is some data available, but in essence additional data are needed.

What you can see in different colors here are areas, like the Race, with more yellowish colors, indicating greater bottom stress, and that's a function of the faster current that exists in this location here. You can also see some areas in the central part of the Eastern Long Island Sound that also have slightly elevated bottom stress values, relative to, let's say, Block Island Sound or this part of Eastern Long Island Sound.

So, in order to address the missing information that we need to have in order to conduct the site screening and then also the investigation for this project, we have initiated a physical oceanography study. You can see here super-imposed on the slide with the historic and active sites, you can see instrument buoy locations. Those have been deployed at this point by the University of Connecticut, and it's a study that will go on throughout the year. The instruments are in the water and there's going to be a second phase of this study later on in the fall to capture the meteorological conditions that exist in the winter time.

A total of eleven buoys, each of these instrument buoys have a variety of instruments

and each of those instruments provide a variety of parameters that would ultimately be used to conduct the modeling to give us bottom stress information that is based on actual data.

So, the next cluster of screening criteria I'd like to talk about is Areas of Conflicting Uses. I'll show you where we are up to this point. The first slide shows cables and pipelines that exist in the Zone of Siting Feasibility. Marked yellow are pipelines. I'm sorry. are cables like this cable here and these cables here, or cable corridors, within which there are cables located as well.

The broader areas like this one here and this one here, again, these are corridors that contain cables. There are only very few pipelines in the project area. In fact, you can see one in this little corner. If you can't see that there; same over here. So, in other words, there aren't really any pipelines that we need to be concerned about in this project, in the project area.

The next slide shows commercial vessel traffic. This is based on US Coast Guard data that has a Nationwide automated, Automatic Identification system database. In essence,

the features in orange, in darker orange, indicate areas of higher vessel traffic and again, the lighter it becomes, the less traffic there is. What you see here is a lot of traffic going east to west and some traffic going into the harbors, in mostly Connecticut but also in New York, at Orient Point mostly. Superimposed on that are also the ferry lines, like the Orient Point Ferry, as well as ferries that go over to Block Island and so on.

One more comment here, you can also see anchoring areas, like this anchoring area here, which is west of the Niantic Bay Disposal Site. There's an anchoring area down here in Block Island Sound, and finally there's a navigation corridor that this little sliver over here, that has been identified by NOAA and on their charts.

The next slide shows recreation and also shows recreational navigation. You can see that compared to the previous slide, most of the navigation or recreational navigation is close to the shore, and in the embayments, which makes sense -- people go out fishing and so on. The data are based on a 2012 Northeast Recreational Boater Survey, that was conducted by SeaPlan and the Northeast Regional Ocean Council in partnership with State coastal management programs and State marine trades associations in the Northeast.

Also, in this slide you can see public beaches with these red circles. Those were beaches that were identified in the Dredged Material Management Plan that was prepared a number of years ago. These are public beaches. Not all of them are private beaches.

This slide shows conservation areas. As I mentioned before, it captures a number of different areas. It includes sanctuaries, seashores, parks and artificial reefs, etc. This is where we are at this point. There's additional data that's available that we still are trying to obtain that will be added to this slide, but what we have here at this point is this, is we have NOAA data on reefs, shoals, as well as deep sea coral sites that have been identified by NOAA. Those are the ones in orange circles or squares, reefs or rocks. Then you can see these two sites here which have been identified by NOAA as deep sea coral sites.

We also have information from a database in New York for cultural and significant natural features. We have boundaries of the

Waterfront Revitalization Program in New York. It's a very busy slide, I apologize. You can see it, perhaps, on your handouts. Again, these outlines here represent the boundaries for the local Waterfront Revitalization Program.

We have information of migratory waterfowl data. We have natural diversity areas identified in Connecticut, as well as preserves and refuges. Just one quick note. Most of these conservation areas are really close to shore, so it would be less than eighteen meters which is a number I will get back to in a second.

The next slide shows what we have available so far for archaeological and cultural resources. Those are data based on NOAA's database. It includes in black triangles, it includes shipwrecks. It includes, as red circles, includes other obstructions most likely rocks or similar kind of features. So, for example, if you look at the Clinton Harbor Disposal Site here, a historic site, it has two shipwrecks in there, and there are two obstructions in red circles and those will be features if we were to go into this area, we would want to take a closer look at it.

The next cluster of criteria pertains to biological resources. The first slide here consists of a number of different biological resources. Shown in purple are shellfish beds. You can see the shellfish beds here along the coast of Connecticut. You can also see shellfish beds in Peconic Bay in New York.

Some information that we've been gathering for this part of the shoreline here, has not been added yet. This includes, by the way, not just shellfish beds that occur naturally but also includes aquaculture beds which exist. Quite a few exist, from what I can understand, in Peconic Bay.

In addition it includes zoning and regulations. Specifically for Connecticut you see a green zone here. That's a zone that's approved zone for shellfishing. You see a yellowish zone here. That's a conditionally approved shellfish -- restricted shellfishing zone and then you see this zone here that's a conditionally restricted shellfishing area. So, there are a number of different zones in the project area with regard to shellfishing. Again, we have some additional information here for the northern part of Connecticut that we are integrating into this database that's

not on that map yet. Shellfishing around Plum Island, for example, has not been approved. Shellfishing is also not approved in these two areas which are the active disposal sites.

Okay. With that, just to give you an idea of how we ultimately screen the project area for potential sites. We basically overlay that information and find out which areas remain that could be suitable sites. What you see here as black, these zones that are black basically have water depths that are shallower than eighteen meters. Eighteen meters has been used in Western Long Island Sound and Central Long Island Sound. EIS as a screening depth. It was basically chosen as -- there's a minimum navigation depth that needs to be kept in mind for vessels, commercial vessels mostly. In addition, shallow sites are more susceptible potentially than deeper sites, depending on the exposure to waves and wind, and more susceptible to resuspension of sediment.

So, for the EIS in the Central and Western Long Island Sound, a depth of eighteen meter was chosen as a zone to screen out. So, if you superimpose that zone onto the Zone of Siting

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Feasibility, again, the black area is what you end up with as the zone that is screened out.

Incidentally, and I mentioned that before many of the coastal resources, conservation areas and shellfish beds, for that matter, happen to be within that zone. What you also see on this particular example of an overlay, you see the shellfish zones, like this zone here, is the approved shellfishing area for Connecticut, so you would not want to consider that as a potential siting area. You see also cables overlaying here as well. Again, that's just one example of how we can later on synthesize the data.

An additional factor to keep in mind in the siting process are economic considerations. What you see here are the dredging centers in Connecticut and in New York, as well as Rhode Island. These data were obtained from the DMMP Report on Dredging Needs from 2009 and reflect the dredging needs for the next twenty years, starting in 2009. The largest circles reflect greater needs. So, this is a large circle. Smaller circles reflect smaller needs. In other words, the smaller circles are proportional to the needs by the individual dredging centers. So, we can

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take a closer look at what are Federal and Non-Federal projects by taking a look at the different colors. What is important for this purpose is, again, the size of the circles determines the amount of the material that would ultimately need to be dredged, or is anticipated to be dredged over the next twenty years.

So, again I mentioned that this matters as well. We have an example here of what kind of distances you have from the individual dredging centers. Specifically, in this case we used the Connecticut River dredging center, which is right about here, and measured the distances to existing disposal options. Those would be the Rhode Island Sound Disposal Site, located here. The distance would be forty-five miles. The second example would be -- Again, this would be this distance here. The second location is the New London Disposal Site, and the distance to the site would be twelve miles. Cornfield Shoals Site, that would be five miles. The Central Long Island Sound Disposal Site, which is not shown, it would be about here, is about twenty-six miles and if, as Jeannie mentioned, if you go out to beyond the edge of the Continental Shelf, beyond the two hundred meter contour line,

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basically going south, way down to the carpet here basically, the distance would be about seventy-five miles.

So, that's important. It also is important from an environmental point of view because the longer the travel distance is, the greater the chance that you have an accident and that you have what they call in the business short dumps, which means the barge can accidentally release material, get stuck in waves and storms, and so on. Again, that's a consideration to keep in mind as well in the screening process.

Based on the information that we have collected here so far, and also keeping in mind that there's a preference by EPA to use active and historic disposal sites as preferred sites, areas that are potential sites that have been shown here -- Actually areas that have been identified for further investigation have been shown here with those circles, and EPA will prioritize the data collection at those sites.

With that, I'd like to have Jean say a few more words about the next steps and where we go from here.

MS. BROCHI: I just make another note on

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historic sites. As the Army Corps of Engineers compiles more information, and we find out more about those historic events, some of those historic sites will fall off the list. Right now we're including anything that could potentially have been a historic site.

So, for the next steps EPA will continue to collect data. We're going to look at our information we have, fill in any remaining data gaps. We will start the assessment on safety and economic issues, continue habitat, which we need a lot of information on. We're going to continue to collect new data for the priority sites, which include sediment, biological resources, and in addition to that we're going to start looking at the preliminary data for the physical oceanographic study. We're going to continue to have meetings. We're going to have another cooperating agency meeting in the fall, and probably another public meeting, a set of public meetings, in the winter.

So, the objective today was to provide this information to you, especially the GIS data. We continue to have a need for New York data. It seems that it hasn't been electronically available so Jen Street and the folks at New York DOS have been very helpful providing us with information on that.

We wanted to get your feedback on the process and any comments that you have that you'd like to share, again. There isn't an official comment period but if you have any comments on what was presented so far or the process we'd appreciate it. I also encourage you, the cooperating agency members are in this room and you have State Representatives as well as Federal. So, if at any time during this process you have comments or questions, you can also go to your State and Federal Reps. Thank you.

MR. HAY: So, let's open the floor. Again, as I mentioned before, if you could identify yourself by name and any affiliation that you may have so that we can enter that in the record, that would be good. Any questions? Would you mind coming up?

MS. ANKER: Sarah Anker, Suffolk County Legislator, Sixth District. My question, I guess, to you is this, the spoils are coming from Connecticut and Long Island or just Connecticut?

MR. HAY: They are coming from

Connecticut and potentially from the area.

MS. ANKER: Okay. Are they toxic material? Have they been analyzed for both radioactive waste and, you know, toxic substance chemicals?

MR. HAY: Jeannie?

MR. BROCHI: So, as part of the regulatory process dredge permits and dredged material that's proposed to be dredged and disposed goes through testing criteria and a screening criteria as well as sampling plan, bioaccumulation, chemistry. So, all of it has to meet certain conditions before it can even be disposed in the ocean, which would not be toxic. It would not contain radioactive material. If we test it and it meets that criteria it belongs in another program and it becomes a different part of the review process.

MS. ANKER: So, if it doesn't meet the standard for non-toxic material, you said there was a different program. What's that program and is it the EPA that remediates it or is it the State DEC?

MS. BROCHI: It would be the EPA and the Corps of Engineers and if there's material found to

be hazardous material, hazardous waste, it would be one of the considerations. If it was radioactive material, it would go to a Superfund/CERCLA upland type of a review. It would not go into the ocean.

MS. ANKER: If anyone has questions while I'm up here. Could that dredged material be recycled if it's not toxic and since so much sand is being taken off Long Island, to make cement and to make other types of materials, can that sand or dredged material be recycled?

MS. BROCHI: I'm going to let Mark speak to that, but yes, what we consider recycling of sand is beneficial use. There are several different types of treatments that they use on the sand to make it readily available for commercial use. This is Mark Habel from the Army Corps of Engineers.

MR. HABEL: Mark Habel from the New England District Corps of Engineers. The New England District handles dredging in Rhode Island and Connecticut. The New York District handles dredging in New York and parts of New Jersey. When we look at dredging projects, we first have to look and see if there's a beneficial use for that dredged material. If it's sand,

certainly, and there are adjacent or nearby beaches that the owners or the Town or State that runs those beaches want that material on the beach, certainly we look to put it there first.

We don't always bear the full additional cost of placing that material on the beach. But usually, if there's a need, money from both the Federal, State and local governments make sure that that sand gets used on the beach. If it's not sand, and it's still not toxic, before we can place it in ocean we have to look at practicable alternatives. Can we build marshes with it? Are there other needs upland for landscaping material, we can process the material. We'll look to do those things. If none of those opportunities exist, then we look at putting it in the ocean.

MS. ANKER: How is this different than the dredge dumping issue that we had, probably, about seven years ago? Maureen, wasn't it about seven years ago when we did the dredge dumping?

MS. DOLAN-MURPHY: 2005 the agreement was signed between New York and Connecticut, and the intent of that agreement was to stop the dumping of dredged material in the Long Island Sound. This whole process is very frustrating.

MS. ANKER: So, how is this different than what was happening in 2005? Is the dredged material not toxic, because I thought it was pretty toxic in 2005.

MR. HABEL: No, it wasn't. Back in 2005 and even long before, the testing regimen that the EPA oversees and the Corps goes through was followed. It has been many decades since anything that failed chemical and biological testing was allowed to go in the water.

MS. BROCHI: I guess I'll add to that. The 2005 agreement that you're talking about is what I referred to earlier, where the EPA proposed to select a designation of a disposal site and the agreement was that we would reduce or eliminate disposal in Long Island Sound. That is part of the effort, which is the Dredged Material Management Plan that all of the agencies are involved in and continue to. That is on-going.

MS. ANKER: So, again, there will be no, if not very little environmental effect with this dredged material being dumped, being disposed of in the areas that you designated?

MS. BROCHI: That's a great point and I did not capture that earlier. So, this process

from an EPA standpoint is to designate a disposal-- or look at the potential to designate a site. It does not authorize dredged material disposal. That happens separately through permitting. So, the sites that are currently active that have not been designated would not receive dredged material, but the sites that continue to be used Cornfield and New London, will continue until they close in 2016.

MS. ANKER: Those waters, are they part of Long Island or are they Connecticut?

MS. BROCHI: They are in Connecticut waters of Long Island Sound. They are on the Connecticut side. There are on both -- corner.

MS. ANKER: Can you change that and just have it on the Connecticut side? Honestly, it will not make a difference because Long Island Sound is Long Island Sound. We share whatever goes in there. I have personal concern as well as some of the people here today that the dredged spoils may not be safe for the Long Island Sound and we have a, now bear with me, I believe it's a 4 billion dollar tourist, not tourist, but economic impact to Long Island. Excuse me?

MS. DOLAN-MURPHY: It's 8.5 billion.

MS. ANKER: I knew it was billions, but I was a little off. We have to protect that because it's a huge part of Long Island. I'm going to let you answer that but please I encourage more people to come talk.

MS. BROCHI: And so the question is, will this process affect that?

MS. ANKER: Yes.

MS. BROCHI: One of the things that we consider in the impact statement is the economics which in this case would include New York and Connecticut. It's the economics of marinas and folks that need to dredge, and the need for safety of navigation channels as well as economics of the towns and any effects of that. That's why it's an Environmental Impact Statement. We will consider the impact of all of these aspects. Any other questions?

MR. HAY: Yes, there's one question here. Could you identify yourself and maybe come to the front too so everybody can hear.

MS. BROCHI: If you don't mind.

MR. HAY: If you don't mind.

MS. DOLAN-MURPHY: Maureen Dolan-Murphy

at Citizens Campaign for the Environment. I do find this process frustrating because in 2005 that agreement was signed, and the intent of that agreement was to stop open water disposal, yet here we are again today looking at open disposal as our answer. The Army Corps of Engineers was supposed to come up with a Dredged Materials Management Plan. That plan still has not been released.

So, we're supposed to be looking at beneficial re-use of dredged material, yet we're moving forward with this process before the Army Corps is finished with their process. So, where is the Army Corps process? When is that document coming out and how is that going to be incorporated in the EIS? When are we going to start getting real about beneficial reuse and stop looking at dumping as the answer?

MR. BROCHI: I'll take the first part of that and then I'll pass it on to Mark. So, thank you. One of the aspects of the Environmental Impact Statement is to look at cumulative effects, and so part of this effort is going to be to investigate the active sites. In addition to what's normally monitored by the

Corps of Engineers through the DAMOS Program, we're going to look at the cumulative effects, if there are any, at the sites.

In addition to that, because of this agreement and the goal to reduce or eliminate open water disposal, the agencies have come together and made a lot of progress looking at alternatives and looking at upland disposal and we're going to figure out a way for the States to come together and find alternatives to open water disposal and that's an on-going process. We are a lot further ahead then we were in 2005 looking at that as part of this agreement.

I'll let Mark talk about the DMMP specifically but these studies being conducted for the DMMP, are going to be used in the SEIS and help inform that process.

MR. HABEL: Thank you, Jean. The Dredged Material Management Plan is on-going. We have completed all of our alternative site identification. We have completed all of our dredging needs analysis. In other words, where's the dredged material coming from? What it's likely quality is, over what time line? Does it need to be dredged and is something found to do

with it?

We are in the process of developing the screening process that will match that stream of dredged material with the available disposal alternatives, whether they are in water or not in water. We are doing that through the Long Island Sound DMMP Working Group, of which Citizens Campaign is a participant. We've been through the first phases of what the various groups involved in the working group think of, the different resources that might be impacted. The next step as I said is to take all of that information, including cost information, and put it against trying to match harbor sources to disposal opportunities. The bias will be towards beneficial use. However, beneficial use is not free. People have to be willing to pay for it. So, cost will be a practicality issue as well as things that go into costs, like haul distances, types of equipment that are available, whether or not different treatment technologies have advanced at this point to be practicable from a cost standpoint. There's a lot of work on-going in New York and New Jersey Harbor, looking at those and we'll draw on those

experiences as well.

We expect that a draft of the DMMP will be available sometime the first quarter of calendar year 2015, or perhaps as early as late in the last quarter of calendar year 2014. That's our time line and Citizens Campaign is a participant in the working group. You'll see it go through each step of the process.

MS. BROCHI: I have two more things, quickly, just to add to that. So, again, I want to reiterate that the Environmental Impact Statement is a study. This is going to be a study for a few years. We're looking at the impact of designated disposal sites. So, yes, everything that is mentioned here, we're going to investigate.

So, it does not authorize disposal. It does not mean that disposal will occur. It means that we're going to investigate everything including alternatives. Another point is any material that is going out to disposal sites right now, is non-toxic. It's considered -- it's scrutinized under our criteria, under our testing, and it has to meet both the Corps of Engineers, and the EPA and the State approval process.

One benefit of this effort, that I want to just point out to everybody is that the data that we're collecting, whether it's GIS data or whether it's fisheries data, is going to be available to all of the States to use, and it's information that we don't have. This physical oceanographic study is going to provide us with so much information for the Sound overall, which means that the Estuary Program, Long Island Sound Estuary Program could use that information. This information will be available for programs and other states to use.

MR. HAY: Question from the back?

MR. KRUPSKI: Al Krupski, Suffolk County Legislator. The question is, we talked about all the data and everything and you're going to have more meetings in the fall, but how do you get the data out to people? First of all, how do you collect it because if you're collecting it for a very narrow range, that's what you're going to analyze. That's what you're going to put in the report. That's all you're going to distribute and people are going to believe that's all there is. So, how do you -- you know, specifically one thing, Suffolk County has a leasing program for aquaculture, and that's not mentioned in there. If you can contact Suffolk County Planning I think they'd be happy to give you more information about that.

How do you get the information out so that when we have a meeting in the fall people can review it beforehand? It's good to get this out at the meeting, but it's hard for people to actually review it and then comment on it.

MS. BROCHI: Thank you. So, part of the process is to solicit information and any data that anybody has or if you know that there's information that we haven't addressed, this is one way to do it, in a public venue. Once we have the data, and right now we're still working through the GIS layers because if the data exists but it's not compiled into a web-based format, or into a GIS format, we wouldn't have access to it. So, we're conducting multiple types of data retrieval right now, literature search, GIS information search, any field work that's out there that hasn't been processed, but is data that the agencies know exists, and something like the Connecticut DEEP fisheries information. They're in the field right now collecting data.

That data is not available but we know they're in the field so as soon as they provide that information we'll include it.

As far as providing this information we're going to go through the cooperating agencies, hoping to have a late mid-summer, I would say end of July, several cooperating agency meetings and they can help us get the word out. We also have a really big email distribution list. So, if you're not on it, please let me know and we'll add you to it. We will be sending information on that. Any of the presentations that we make will be published on the EPA website as well.

So, we will give you notice before the next public meeting and ask for input before the fall. So, if the meeting is going to be in November, we'll start asking people for comments, probably, in the beginning of October, I would say. Those dates are subject to change, but we will definitely do that. Thank you very much. Did we address everybody's comments before we take anymore.

MR. GRAVES: Anthony Graves from the Town of Brookhaven. A couple of comments. We are into biological resources, I didn't see Colonial

Waterbirds listed. So, there's a very important Colonial Waterbird colony on Little Gull Island. You probably have it in your database but they are a Federally listed endangered species breeding there.

Then I would request a review of the watersheds that are contributing to the areas to be dredged to see how sediment influx into the watershed can be minimized over a larger program so that dredging in future years, the need for dredging is minimized.

Then I wondered if in the beneficial use studies you would look at coastal resiliency, increased sea level rise and resiliency to storms, so that might affect your cost calculations in terms of beneficial reuse, if it is looked at for those kinds of projects.

The last thing I have was the request to make the 2004 communications where the New York State Department of State objected, and there were negotiations and an agreement for the past dredging to be incorporated into the EIS so that people reading the EIS can be familiar with those negotiations that occurred previously.

MR. HAY: Thank you for your comments.

The first comment that you made about the Colonial Waterbirds, we'll take a look at that as well, and incorporate that as well.

MR. GRAVES: I'm sorry, I meant to say also, marine mammal concentrations. There are increasing seal concentrations on Plum Island in particular, but also around Great Gull and Little Gull.

MR. HAY: We'll take a note of that as well. We will definitely look into marine mammals as well in the EIS process. I'll leave it to Jean for the other comments.

MS. BROCHI: As far as the threatened and endangered species, that's another aspect of this effort that we'll go into greater detail. So, there will be a lot more slides provided on threatened, endangered species. We go through the process called a biological opinion. So, these are really preliminary slides right now, the best available data so it does not include birds or mammals, but we will consider that.

As far as climate change and sea rise, we will be looking at some of that through the aspects of the physical oceanography study. When we model, we'll take that data and we'll be modeling some scenarios.

We'll include that information. We certainly could respond to the objection, or to have some of that agreement information available through this process. Thank you.

MR. HAY: Yes, sir?

MR. McGREEVY: I'm John McGreevy, Mattituck. Although you describe that, we went through all of this in 2005, a public meeting in 2005. I sent documentation in 2005 and now we're reviewing it again. I've been on the beach in Mattituck for sixty plus years. Empirically speaking, anything that goes in the water in Connecticut winds up on Long Island beaches. It looks like you have very little data from the New York area. There are no weather buoys on the Long Island Sound on the eastern side. They're all over in Connecticut.

When they did the Section 111 study for Mattituck Inlet, they had to use buoys off New Haven. So, the other side of the Sound, and everything is changed. So, I think they have to collect more data from the Long Island side of the Sound. It's an estuary. It's not the ocean. The best place to dump this is off the Continental Shelf, if at all. Thank you.

MR. HAY: Thank you. We have the physical oceanographic study that's going on basically provide the data that goes into a model, and the model will cover the entire project area including the Long Island Sound coastal areas. So, the station locations, again, are designed to provide input to that model for the whole area. We're going to make a note of that and make sure you also get all the information for the Long Island side of the Sound incorporated into this process as well.

MS. McGREEVY: I wanted to ask one question.

MR. HAY: Would you mind stating your name, please?

MS. McGREEVY: Doris McGreevy, Mattituck.

MR. HAY: Thank you.

MS. McGREEVY: Long Island Sound, if you're talking Long Island Sound, do we have a guarantee that the materials, even though you say are non-toxic, if they were non-toxic, do we have a guarantee that they are non-carcinogenic? Because Long Islanders have higher than normal amounts of cancers in the population in that area. I am most concerned with the words, non-toxic. Is it non-toxic to fish? What about

food? What about human population that bathes in it and enjoys the waterways and things like that? As was noted, it is a tourist destination. There are a lot of people there. Can you explain a little more about the carcinogenic effects, if at all, when you say non-toxic?

MR. HAY: There's a pretty rigorous testing program that that material has to undergo and I'd like to have Jean or Doug Pabst from EPA Region 2 talk about that. Doug?

MR. PABST: Right now we're focused on the site designation or the environmental review process of the site receiving the material. Actually maybe this is something that we'll do during the next series of meetings is incorporate more of the testing process. We do a human risk, non-cancer and cancer risk assessment on the material based on consumption, based on ecology and organisms that may be eating material from the dredged material, worms, things like that, and as it goes up the food chain. That's all documented in each particular decision that's made by the Corps of Engineers to let that material go out to the site.

It's a two-step process. This is the first step of the process as we look at the site to see whether it meets the various criteria and guidelines to receive the material. Then there's a whole other public review process everytime somebody wants to use that site. Those kinds of questions are asked as part of that process. A public notice is issued, and our record and our decision on that material is available for each particular project we've done.

We can send you a copy of our risk assessment that we do as an example, if you're interested you can give your name and address and we can send that. It walks through all of the assumptions that are made to come up with that answer that you're asking for as to how did we make that decision.

If you want to look at that you can read through and kind of see how we come to the conclusion it will not cause any of the things that you're concerned about. That might be the best way to handle that. It's very rigorous. I think that was a word that was used. There are a lot of assumptions that are in there in order to make sure that we're keeping ourselves on the right side of it, where we don't have certainty in some of the decision process. It's probably something that we maybe need to do a little bit more of as we get closer into this process so people understand what kinds of decisions are being made when we make the decisions. Thank you for your comments.

MR. HAY: Any additional questions? Yes?

MS. McAULEY-KAICHER: Meg McAuley-Kaicher, Greenwich, Connecticut. Just a comment. Just to say that I hope that we will have less need for moving the dredged material offsite and dumping it and that I appreciate the fact that the Army Corps of Engineers has been very comprehensive in its process and is really is looking at different ways to remediate the silt material and hopefully we will continue to figure out better ways, with the new technologies, to use that material to replenish our coastal assets rather than dumping it offshore.

MR. HAY: Thank you for your comment.

MR. LEONARD: My name is Dan Leonard, and I'm just a citizen. I have a couple of questions. One, these dump sites would be used by the Corps of

Engineers or by the dredgers also? Number two, who does the testing of this material? Does the EPA do the testing or private lab? Because I remember back on 9/11, sitting in front of a television and people saying, our US Government saying, that when those buildings came down, that air was fine. It was okay to breathe. We found out later it wasn't.

Is there going to be rigorous testing of that material that is coming out of the water so that twenty years from now we find out that it really is toxic?

MR. HAY: I'm going to have Jeanie answer the first question. The testing, as I mentioned, again, is rigorous. There are regulations that specify on how it needs to be tested. Labs that do perform the testing have to be certified by State and Federal agencies. Jean, do you want to comment?

MS. BROCHI: Sure. As far as who disposes at disposal sites, it would be Federal, Non-Federal, and as far as who does the testing it's private labs. As part of the process an applicant will propose dredged material disposal through the Army Corps of Engineers' Dredge and

Fill Permit and EPA would review that, and the Army Corps of Engineers would review that in addition to the States, wherever the disposal and the dredging would occur.

As far as the 9/11. I can't speak to that but it's a strict screening process that we go through and material has to be deemed suitable before it can be disposed at a disposal site. One other thing, and I mentioned it earlier, when EPA designates a Dredged Material Disposal Site, we also create what's called a Site Monitoring and Management Plan that's in effect for ten years. That adds another layer of protection and scrutiny to the disposal activity that occurs at that site. Does anyone want to add anything to that?

MR. HABEL: No.

MS. BROCHI: I hope that answered your question.

MR. HAY: Thank you. Yes?

MS. PURNELL: I'm not so good on the public speaking, folks. My name is Marguerite Purnell. Let's see, for twenty years I was with the Fisher's Island Conservancy. I worked on the dredged material and disposal issue as a fifty

plus year seasonal resident of Fishers Island and I have seen what has transpired over the years. We have tried to cooperate. I'd like to echo Maureen's comment earlier. There is a certain degree of frustration involved in this entire process because for me -- I'm even more frustrated than Maureen because this goes back to 1977 for us, when there was litigation NRDC v. Callaway, a case that was initiated in part by Fishers Island entities, because of the proximity to the New London Dump Site, and the proximity also of the Race and the material that is spread throughout the area, because there is some additional transport out of the site. Even the Army Corps testing, which is done through their DAMOS Program, has indeed indicated that that material does spread outside the site, or they have found it outside the site. Sometimes they can't explain how it got there but it is there.

So, for me, in 1977, the Army Corps was directed to find another site and to stop using the New London Disposal Site. We are almost thirty-five years later we are still in this process and it is still actively used. It was supposed to have closed in 2011. There was an Act of Congress -- was necessitated to have it be open for another five years while we undergo this process which should have been completed years ago. So, I echo the frustration. I understand that the agencies are trying to do their job. I would also counter, though, the assertion that contaminated material does not actually end up in the Long Island Sound. Toxicity is something that I think the agencies are probably talking about. Acute toxicity, the materials are looked at in two different ways. Beach flees, amphipods, you know the stuff when you turn over the seaweed and those little things that jump around, those are the critters that are usually used for the toxicity testing, for the acute testing. I believe it's a ninety-six hour test and then there's a ten day bioaccumulation test, which is also done, again, on clams and worms and variants that are low on the food chain. There is indeed bioaccumulation, which does occur through other fish species. It's harder to get a handle on some of the impacts on mammal and bird species because they're usually transiting through the area.

Also, there are some issues with the DAMOS Study and I understand they're trying to do their monitoring but, you know, they take core samples that they then composite and they blend all of the material together and any kind of hot spots are sort of averaged out and there are some inconsistencies.

So, whether or not contaminated material has made it into Long Island Sound, from my prospective, absolutely. Even the Corps will actually agree to that as there have been cases where they've actually gone in to deposit additional Cap material, which they consider to be clean material to cover areas of what they refer to now as UDM, Unsuitable Dredged Material. Thank you George.

So, I welcome the process. I hope to be able to participate in the future in a meaningful manner, and I'm glad that you will be receiving comments, even though this isn't a formal comment period. I do thank you for presenting information in the interim, and I do echo another gentleman's statement it would be helpful to have this information before we actually have the meeting. You would get a better bang for the

buck in terms of the comments that we can provide to you. I encourage you to keep the public dialog on-going. I also encourage the 2005 agreement which was looking to reduce or eliminate the open-water disposal in the Sound, because I think that's all of us, we all share that goal. Dredged material could be used as a resource in other ways and I'm keeping my fingers crossed. I've been working at this for an awful long time, since 1977 folks, you know, that's really shameful. Thank you.

MR. HAY: Thank you for your comment.

MS. BROCHI: I was just going to say, for the folks that received a presentation today and if you want to provide comments, it's not just at this meeting, and when you can provide comments. If you have input or you see something on the slide that's missing, feel free to contact anyone of the representatives, specifically me. Doug Pabst in Region 2 would be happy to hear your comments especially now that you have the presentation in front of you. As I stated earlier, we'll send the information out ahead of time so that you can come to the meeting, having already had an opportunity to look at

this.

MR. HAY: Any additional comments? Yes, sir?

MR. KING: My name is Jim King, Commercial Lobster Fisherman from Mattituck, New York, and also a Southold Town Trustee. It's pretty well documented, there is a high incidence of shell disease in crabs and lobsters around all these dump sites. It's been going on for years.

I think the bottom line here is open water disposal is the cheapest and easiest way to get rid of dredge spoils. That's really running the program. I know core samples can be combined. You can take a hot sample and combine it in another section so it gets the numbers down and doesn't seem as toxic. I think some of these projects could be segmented so the the amount of yardage, so it doesn't trigger a more serious study. There's a lot of game playing and people are very creative when it comes to saving money. That's all I've got to say. Thank you.

MR. HAY: Thank you. As a scientist, I understand what you're saying. I'm a Marine

Geologist and one of the important elements in an assessment like that is to make sure that what you analyze is indeed representative of what the site is all about.

So, we'll make sure that we look at the information in a manner that actually reflects the conditions on the site.

MR. PABST: I want to follow up on that. Again, I think a lot of the questions that come up in the process on the testing, how we make our decisions, and how we come up with a number of samples, we'll try to work that in to future presentations so people can really understand. I think there's a lot of myth about how it's done and it's important that we really try to make that point to make sure that people understand how the government looks at these, both the State and Federal Government, before decisions are made.

This particular process is more about the conditions around the site and if such would be able to receive dredged material. Like I said, there are two complete processes. I don't want to let that the other process get lost because we don't get a chance to engage the public in these

kind of venues and probably should do a better job with that.

As far as the shell disease comment, we've been dealing with shell disease since the 70's trying to figure it out. We can also probably incorporate a little about shell disease into this study, what we learned to date about shell disease and some of the things are going on, not just in Long Island Sound, but there's also a prevalence in the Bight and in some other areas where seeing it as well. I appreciate your comments.

MR. HAY: Thank you. Any additional comments? Yes?

MS. ANKER: I think you're absolutely right. We need more information regarding the effects of the dredged material. I think what would be really good, and again, I know some people in the EPA, we need to know that we're doing the right thing, especially beneficial for Long Island. You know, we need to dredge our harbors, and that's what we need to do. I think there needs to be information about why we are doing this, and what's the benefit for Long Island. Also, what is involved in this and especially dealing with toxic dredge. We were up

to our ears hearing about the toxic issues with our Long Island Sound in, you know, 2005 and it's disturbing, you know, but we need to get more information, personally, that I feel will give us comfort that what you're doing is the right thing to do. That's what I would like to know. Again, more information, more educational information. How do you clean up toxic dredge? You're saying you do that. What standards does it meet? I know years ago the standard was a full adult. It wasn't a child. So, where is your standard as far as toxic material? We've dealt with a lot of issues here on Long Island pertaining to cancer and disease and we need to feel more comfortable with what you're doing considering we went through it once, and going through it again.

The study here says Environmental Impact Statement to evaluate the sites and select a designation. How can we give the input about how we feel about the designation when we don't really understand what are you going to put in those spots? So, you know, what are you going to place in there. So, as far as -- you know, I think for me I need to make sure of what you're doing, or

you're placing it in the ocean or in the Sound will not have a negative impact for us, especially on our health.

MR. HAY: I appreciate that. It makes sense. Jean do you want to comment?

MS. BROCHI: It sounds like we need a series of public meetings focusing on one aspect. Or webinars. Folks, if you're interested and you're not on the email list, again, sign up for it, but maybe focusing on a different aspect each time whether it's -- what is the permit process for dredged material, what is the testing review process for dredged material and what is the EIS process in a little more detail. We would welcome your input on what topics you'd like to know more about.

MR. PABST: Would people be open to Webinars? Is that something that would be helpful to people, to have some Webinars in advance? I mean, I find them to be pretty useful. You can log on from a home computer and so you can just hear our presentation and at least it will be a good intro into a public dialog on the testing and evaluation, questions you're asking about what kind of weights you're

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looking at, age groups, what kind of fish consumption you are looking at, things like that. It's a lot of information. I just want to make sure we get it out in the best way possible.

MS. ANKER: I know that Alan Alda is over at Stony Brook University. He teaches a course on how to communicate scientific information to the public. Keep that in mind when you're communicating with the public. We need to understand what the impact would be on us in our area, and in our environment.

This is great information that you have here today but I think for me, I just want to make sure that my district is safe and Long Island Sound is safe. Like I said, I know, you know, we like that you guys are doing your thing at EPA and I don't know what we'd do without an EPA, but we need to make sure that what you're doing has a positive impact on Long Island and not a negative impact.

MR. HAY: Thank you.

MR. RUSSELL: My name is Scott Russell, and I'm the Supervisor for Southold Town. One of the things, if you talk about going to get the public involved in this process you need

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to invite the public to the process. Our first formal notification that this meeting was even taking place was from the New York Department of State yesterday, via email. As a Supervisor for Southold Town, which is certainly an involved agent in this process and who has participated in past hearings, has submitted written comment for your consideration, questions that have yet to be answered, then you need to make sure that we're at the table for this discussion. In the future I would ask that you reach out to all of our agencies, including all elected officials and all representatives from these municipalities be invited to these meetings with far more advance notice than the day before. We actually found out third hand unfortunately from Legislator Krupski but our first formal notification was, like I said, yesterday afternoon from the New York Department of State.

MS. ANKER: We didn't get notified either.

We got notified from a constituent, actually in Legislator Krupski's area.

MS. BROCHI: We have a Congressional Liaison in our office who was coordinating with

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folks a week ago.

MR. PABST: We'll take a look at that. That's not acceptable. We definitely need to make sure of that. I'm not quite sure what happened.

MS. BROCHI: Thank you.

MS. ANKER: We have a very active environmental advocacy network, that's how I found out about it. But I knew about it two weeks ago. Again, there is very inconsistent communication. Connecticut has done a really great job in trying to keep us notified but we need to coordinate particularly with this kind of project with New York a lot better.

MR. PABST: Honestly, these venues are great to have a dialog but I think there would be struggle to get to the most people possible and again, looking at webinars and other types of things might be an easier way to reach out to people, and that's something left to take back as a group and talk about these kinds of things. We appreciate that so we can figure out a way.

MS. BROCHI: What we may do is just send out a list, you know, and have you provide

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input to that list and if someone we are missing, that would be helpful to us. I would appreciate that.

MR. HAY: Any additional comments? Hearing none. We'll be here until 4:30. If you want to stay longer, feel free. Otherwise we're all set for the moment.

MS. BROCHI: Thank you, again, for taking the time out of your day.

MR. HAY: Thank you for coming and we greatly appreciate the input.

[PUBLIC MEETING WAS CONCLUDED]

[TIME NOTED: 4:30 P.M.]

CERTIFICATION

COUNTY OF SUFFOLK)
SS:
STATE OF NEW YORK)

I, CHARMAINE DeROSA, Certified Court Reporter, in the State of New York, do hereby certify:

THAT, the foregoing is a true and accurate transcript of my stenographic notes taken in the matter of the PUBLIC MEETING, on this 25TH day of June, 2013.

IN WITNESS WHEREOF, I have hereunto set my hand on this 25th day of June, 2013.

CHARMAINE DeROSA, CSR

CERTIFICATION

COUNTY OF SUFFOLK)
SS:
STATE OF NEW YORK)

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IN WITNESS WHEREOF, I have hereunto set my hand on this 25th day of June, 2013.

Charmaine DeRosa

CHARMAINE DeROSA, CSR

Attachment 5

TRANSCRIPTS OF PUBLIC COMMENTS, GROTON, CONNECTICUT JUNE 26, 2013

June 26, 2012 - Avery Point, UCONN, GROTON, CT

Eastern Long Island Sound

Supplemental Environmental

Impact Statement (SEIS SEIS)

Public Meeting

June 26, 2013

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MR. HAY: Good afternoon. I think we are ready to start. So welcome to this public meeting. This is the second meeting. We had one yesterday also in Riverhead, New York. Before we start a couple of housekeeping items. The restroom is outside of this room. The men's room is on the left side. And the ladies room I think one floor below.

MS. BROCHI: Straight across from registration.

MR. HAY: Straight across from registration. I hope everybody had a chance to sign in. If you didn't do so, please do so before you leave this afternoon. Also there are handouts that are available of the presentation that is being given today. Please pick up a copy, as well. And finally, please turn off your cell phones or put them on vibrate. My name is Bernward Hay. I am an environmental scientist with the Louis Berger Group. We are under contract with the University of Connecticut, which is under contract with the Connecticut Department of Transportation. We have been assisting Connecticut DEEP and EPA with the preparation of a supplemental Environmental Impact Statement, also abbreviated as SEIS, to evaluate the potential designation of one or more disposal sites for the Eastern Long Island region of Connecticut, New York, and

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Rhode Island. The EPA is the federal lead agency for this project. The previous meetings, public meetings in November and January, were held to solicit comments on the Notice of Intent. And the comment period ended January 31st, 2013. At each of those meetings we had several individuals comment, and we also received 18 written letters and e-mails with comments.

This meeting here today is an informational meeting, and there is no specific comment period. The information presented today will be made available on the EPA web site. Specifically today's meeting is designed to provide you with an update of the project as a follow-up to the public meetings that we had earlier this year and the end of last year.

We will review the initial screening process that has been conducted. And we will briefly discuss upcoming data collection efforts. If you have any feedback it would be welcome at this point. Ms. Jean Brochi and I will present the updated information about this project for about the next hour until about 3:30. Then after the presentations are completed the floor will be open for comments until 4:30 p.m.

If you wish to speak, please provide your name and your affiliation, and also we ask you to keep

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your comments brief to allow for others to speak, as well. This meeting is recorded by the stenographer, and also will be recorded on an audio device. The transcript of the meeting will be entered into the public record and will be made available to the public on the EPA web site at a later point.

So with this we now move to the presentation. Ms. Jean Brochi is a project manager with the Ocean and Coastal Protection Unit of EPA Region 1, and will now officially open the meeting and will provide a project update.

MS. BROCHI: Thank you, Bernward. Thank you all for coming. As Bernward had mentioned, my presentation is going to be a project update on the Eastern Long Island Sound Supplemental EIS. Bernward will show you slides and discuss some of the data that we collected through GIS, Geographic Information Systems. And then we will show you some slides and then we will talk about the next steps, and take any comments anyone might have.

So EPA and the Army Corps of Engineers have a shared responsibility under the Marine Protection, Research and Sanctuaries Act, also known as the Ocean Dumping Act. Under Section 102, EPA has the authority to designate dredged material disposal sites. And

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under Section 103 the Army Corps of Engineers has the authority to select sites, subject to EPA concurrence. When the Corps selects a site it is more of a temporary selection and it is for two, five-year periods not to exceed a maximum time frame of 10 years. In addition, dredged material disposal at the sites must meet criteria as outlined in the Ocean Dumping Regulations, Parts 220 and 229.

Under the Clean Water Act both EPA and the Army Corps of Engineers has the authority to review permits and approve dredged material disposal permits.

The Army Corps of Engineers under Section 404 actually issues the permit for dredged material and is subject to EPA concurrence. Under section 404(c) of the Clean Water Act, EPA has a veto authority for those dredged material permits.

EPA, as I had mentioned, has the authority to designate ocean dredging material disposal sites for long term use. And we do so using a voluntary NEPA Act. And the NEPA Act allows us to go out to the public and inform the public several times throughout the process as we prepare an EIS, which is an environmental impact statement.

EPA also has the authority to promulgate regulations and criteria from disposal site selection

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and permitting discharges, as well as review the Army Corps of Engineer dredging projects and permits. And for each site that is designated, EPA will create a site management and monitoring plan. And we will monitor those dredged material disposal sites jointly with the Army Corps of Engineers.

So this is a Supplemental Environmental Impact Statement focusing only on the eastern side of the Long Island Sound. But back in 2005 EPA started the effort for Long Island Sound dredged material sites and designated the Western Long Island Sound site and the Central Long Island Sound site.

The two sites that are currently being used in Eastern Long Island Sound have been selected by the Army Corps of Engineers in the 1990s. And those sites are the Cornfield Shoals site and New London disposal site. And those sites are scheduled to close in December 2016.

A little background on the original EIS that was completed in 2005. In April 2004 EPA and the Army Corps of Engineers recommended designation of the central and west disposal sites and we initiated final rule making. In June 2004 New York DOS objected to that decision, stating it was inconsistent with the Coastal Zone Management Program. And then from September

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2004 through May 2005 all the agencies, EPA, Army Corps of Engineers, NOAA, New York, and Connecticut negotiating the rule making and came up with conditions to the rule making, which included the completion of a regional Dredged Material Management Plan to be completed in 2014. The lead agency for that is the Army Corps of Engineers. In addition, we formed a regional dredging team group to review alternatives for projects, alternatives to open water disposal from federal and private projects. And, in addition, EPA now reports annually on dredged material going to the disposal sites in Long Island Sound.

Now, back to the Eastern SEIS or Supplemental Environmental Impact Statement. So originally in October, 2012, EPA issued a Notice of Intent that we would pursue the potential for a designation of an open water dredged material disposal site.

And on November 14th we held our first public meeting. And January 9th was our second public meeting. And those public meetings were officially to solicit comments and input on the Notice of Intent. On January 8th, May 20th, and June 18th, we had cooperating agency meetings. And I will discuss who the cooperating agencies are in a minute.

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We are currently and will continue to collect literature and data on Long Island Sound specifically disposal sites.

We initiated in March of 2013 a Physical Oceanographic Study headed by UConn. We continue to screen sites using, as I said before, Geographic Information Systems. And Bernward is going to discuss that, and show you some of those slides. And that is going to continue throughout the process.

Some of our partners include Connecticut DOT, who is a funding organization. As well as EPA's Region 1 and 2; New York DOS; New York DEC; Connecticut DEEP; Rhode Island CRMC; Army Corps of Engineers New York District and New England District; NOAA; and the United States Coast Guard.

Coordinating agencies include U.S. Fish and Wildlife Service and the Navy. And then additional coordination will continue with historic preservation officers from all towns and tribes. The distinction between cooperating and coordinating is that the EPA officially requested agencies to join and commit and come to the table for discussions as a cooperating agency. And the two agencies that are coordinating are still going to be at the table, but they are not going to be at the meetings. They are going to be

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informed and contribute that way.

So the EIS schedule right now -- as it stands we expect to have a Draft Supplemental EIS by December 2014. A final by December 2015. And assuming the Environmental Impact Statement recommends the designation of one or more disposal sites we will publish a rule making by December 2016.

This slide may not be as easy to see but this is the EIS process. We initially start with scoping. We create a Zone of Siting Feasibility. We identify alternatives and data needs. We screen sites. We select sites. Assess the data needs. Collect more data. Perform an impact analysis. And produce a report which becomes the Environmental Impact Statement.

Right now we are still in the identifying and screening and assessing data needs and collecting data needs part of this process.

In addition to the environmental, the SEIS process, there is the Dredged Material Management Plan, which I had mentioned earlier. The Army Corps of Engineers is the lead agency for that. As a result of that effort several studies have been conducted and the reports are being used for this effort. Two of those reports that EPA will be using, includes the

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dredging needs report which was completed in October of 2009. That report stated that 13.5 million cubic yards would need to be dredged from the Eastern Long Island Sound harbors and channels over the next 26 years. And that 26-year time frame is a planning horizon that the Army Corps of Engineers uses in their calculations. And that planning horizon ends in 2028.

The second report the EPA will be using is the Upland, Beneficial Use, and Sediment Dewatering Report. And that was completed in 2009. And the second version of that report was completed in 2010. That determined that there were few alternatives to open water disposal in Connecticut. And most of those were beach nourishment types of projects.

So here, as I mentioned, is the Zone of Siting Feasibility for this effort. It includes Long Island Sound and Block Island Sound. And you can see the line is from Guilford to Montauk. And then Block Island to Point Judith.

This slide shows the active sites. As I said the Cornfield Shoals and the New London Disposal Sites are currently active. They are not designated. That is what this effort is looking at the impacts of doing.

So the active sites, Cornfield and New

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London you can see. Then on this slide we also included the Rhode Island Sound Disposal Site. That site is a designated site. The EPA designated that in 2005.

So on the next few slides I am going to discuss the approach to screening. This is the approach to screening for disposal sites. And, again, we do so under the Marine Protection, Research and Sanctuaries Act, which is called MPRSA. We use five general criteria, and 11 specific criteria. We initially screen areas that have potential acceptability to be selected as a disposal site. And then we further refine those areas and evaluate them using additional information.

Now, these next two slides are going to be busy. So I am going to go through them and just highlight some of the 11 specific criteria. So the first criterion is really the position of the site to include bathymetric information, geographical, depth of water, location from the coast.

The second item or the second criterion is to look at habitat and the location of the site in relation to breeding or spawning or living resources.

The third criterion is the location of a disposal site in relation to public beaches or areas of public use.

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The fourth is the type of methods of disposal and quantities of disposal.

The fifth is the feasibility of surveillance and monitoring. So as I had said, if we designate a disposal site we will create a site monitoring and management plan and we have to consider the feasibility of being able to manage and monitor that disposal site.

The sixth criterion relates to currents and velocity and dispersion and current direction and the effects of those items on the sediment. And, as I mentioned, Jim O'Donnell is conducting a physical oceanographic study, and we should have some data later this summer. And Bernward will show you some slides related to that.

The seventh criterion is cumulative effects. So we look at long term cumulative effects of disposal discharges.

Number eight is conflicting uses. Is there any interference with navigation or other uses in the ocean?

The ninth criterion is water quality and ecological health.

The tenth criterion is potential for nuisance species to come in.

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And then the eleventh is the proximity of the site to historic or cultural resources.

The five general criteria include conflicting uses. We want to minimize interference with other uses.

Conditions at the site. So we want to survey and make sure environmental conditions are reduced, especially in proximity to beaches, shorelines.

The third is the site use. If at any time during this process an already approved site does not meet any of the criteria, we can terminate that site as long as a suitable option can be designated.

The site size includes us limiting the size of the disposal site so that we can effectively monitor and surveillance of the site.

And then the final criteria is historically used sites. So wherever feasible EPA will try to designate a disposal site either beyond the continental shelf or at areas where sites have been previously used.

And with that Bernward is going to show you some of the GIS information and take you through some of the stats. Thank you.

MR. HAY: Thanks Jeannie.

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So as Jeannie mentioned, this is a work in progress. We are in the middle of screening. There is still a lot more work that needs to be done. We are still actively collecting data. And we are open to receiving any information you have available that is relevant to this process and have already received quite a bit of information from New York and Connecticut and Rhode Island. Thank you for that.

So with that said, I would like to give you a sense of the types of data that we are collecting and also the process that we are undergoing in order to put the data together to ultimately narrow down the field within which potential sites would be designated.

Shown on this slide here is a cluster of different types of screened material, three groups. One is sedimentary environment. Second, areas of conflicting uses. And the third is biological resources. I will have slides that pertain to several of those items underneath those groupings.

Specifically under sedimentary environment we have bathymetry as a criterion. We have currents and waves and bottom stress. And also sediment texture, which is an important criterion which informs sediment resuspension as well as potential habitat issues.

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Under areas of conflicting uses we have infrastructure, such as cables and pipelines, that could interfere.

Navigational issues for commercial shipping such as shipping areas, anchoring areas.

Recreation, there are recreational areas such as beaches, parks, et cetera, as well as recreational navigation.

Then conservation areas, sanctuaries, wildlife refuges, national seashores, parks, artificial reefs, et cetera.

Then the culture and archaeological resources, shipwrecks, et cetera.

The third group is biological resources such as shellfish beds, benthic communities, fish habitats, fish concentrations, and fishing areas. And also a group called breeding, spawning, nursery, feeding, and passage areas.

So, again, a few maps will follow that show some information. First, as Jeannie mentioned, preference is given to active and historic disposal sites. And shown on this figure are the active sites in red. The Cornfield Shoals disposal site. The New London disposal site over here. And historic disposal sites, which include the Clinton Harbor Disposal Site, Six Mile Reef

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Orient Point Disposal Site, two disposal sites in Fisher Island Sound over here. We also have the Niantic Bay Disposal Site. And finally the Block Island Sound Disposal Site. Just a quick note. The boxes around the historic disposal sites generally mean that within those areas that have been identified on the map as disposal sites, it is not necessarily the entire boundary of a disposal site.

A VOICE: Can you repeat what you just said?

MR. HAY: Yes, the boxes around the historic disposal sites, for example, this box here basically means that within that area there has been disposal.

MS. BROCHI: So in terms of representing historic sites on a GIS slide we have identified each historic site in a square box. The reality is the box is not a boundary of a disposal site. In fact, we are still compiling the information. The Army Corps of Engineers is helping us. What we might find is that some of these historic sites will fall off because they don't represent historic disposal. And some of them we might find had one event. So it may be a certain amount of cubic yards that was disposed in 1930 or 1940, but it doesn't represent an entire disposal site or disposal site boundaries. For the purposes of representing it graphically we included all of the

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historic sites to be a square and the exact same square was used.

MR. HAY: So the next graphics show maps that pertain to sedimentary environment. This graphic shows the bathymetry of the area. The data source is NOAA. The NOAA data had been modified by DAMOSVision, which is a consulting firm that modified the NOAA data.

Shown here is the Zone of Siting Feasibility. Outlined by this black boundary here on this side and this side. We have the Block Island Sound area included in that Zone of Siting Feasibility, as well as the Eastern Long Island Sound. In terms of morphological features, there are fairly uniform water depths in Block Island Sound relative to Eastern Long Island Sound where you have more variability, such as the Race, which is deepter here due to currents entering Long Island Sound. And then you have another morphological feature which is Six Mile Reef where you have shallow water depths on the western side of the Eastern Long Island Sound. We have more information available through a survey that was done by NOAA in conjunction with the U.S. Geological Survey. These are called multibeam bathymetry surveys. They are, in essence, very high resolution data that will be available for this investigation. They allow for detailed analysis of sedimentary features that you might find on the sea floor such as sand waves and scour features. You

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may also be able to see shipwrecks, and those kinds of features as well.

The differences in color in essence mean water depths. Again, this is a bathymetry map. So red means shallow waters. Blue means deep waters. And then the greens and the oranges are water depths in between. Again, this is shallow water. This is the deepest part of the area. Then this is even deeper. This is the Race over here going into Block Island Sound. There is another deep spot over here, which is between Plum Island and Orient Point, another tidal scour feature. As I mentioned on that previous slide, this area over here is Six Mile Reef which is again shallower. Shown on here also are the disposal sites. You can see the active disposal site: New London over here, Cornfield Shoals over here, as well as historic disposal sites outlined by a dashed line.

This image shows tidally-driven bottom stress. Bottom stress is important as it affects resuspension of sediment from a particular site. Bottom stress is, in essence, a function of current velocity, as well as the roughness of the sediment surface. What you can see on this slide are different colors. The lighter blue means lower bottom stress. The yellow and orange means increased bottom stress. As you might expect, the highest

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and those are highest in the Race over here where tidal currents enter Long Island Sound. There is also an area of elevated current speeds and bottom stress northeast of Montauk. This image is based on preliminary model results. There is some data that enter these model results, but again these are preliminary. So given the importance of sedimentary resuspension potential and bottom stress for this investigation, a study has been initiated.

The study is being performed by the University of Connecticut, and instruments are in the water as we speak collecting valuable information. Specifically they are instrument moorings located at sites that are shown here. There is a total of 11 stations shown here with these green spots, covering the entire Zone of Siting Feasibility, both Eastern Long Island Sound, as well as in Block Island Sound. These 11 stations consist of seven instrument mooring stations where instruments are permanently moored for a period of time collecting continuous data, as well as four additional stations where ship surveys will be performed. And instruments will be lowered in the water to collect additional data. These data will be entered into a model, and the bottom stress will be modeled to provide resuspension of sediment in the area.

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The next group of maps pertain to areas of conflicting uses. This map shows the location of cables and pipelines in the Zone of Siting Feasibility. What you see in yellow are existing cables, such as this one here, a whole cluster of cables over here, as well as cable corridors like this cable area here. This is actually not a very wide cable; it is a corridor within which a cable or cables are located. There are additional corridors up there. Some corridors over here. And additional corridors here.

Pipelines are marked in green. As you can see, there are not a lot of pipelines. There is one small pipeline which is outside of the Zone of Siting Feasibility. In other words, there is no pipeline of concern in the Zone of Siting Feasibility for this project.

This image shows the vessel traffic density as well as anchoring areas. This pertains to commercial vessels. The data were collected from the U.S. Coast Guard; they are based on the Nationwide Automatic Identification System Database, also abbreviated as AIS. What you see in the darker orange or darker brown or beige are areas of higher vessel densities, such as this line over here continuing in this area here, and then as it becomes lighter, there is lower vessel density. Mostly the traffic goes

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more or less. There is also some traffic going in and out of ports, as you would expect. Marked here also is what is shown on the north shore is a navigation corridor. Then anchoring areas are shown by this line here in purple. This purple dashed line is an anchoring area. There is an anchoring area west of Niantic Bay, anchoring area north of Montauk, and anchoring areas near Fishers Island.

A VOICE: Is that one year of vessel traffic data or multiple years, which years was it done?

MS. ATAMIAN: It is one year of data. The data was published in 2012, but was a 2009 data set.

MR. HAY: That was Amy Atamian who has had been working with us on the GIS.

The next image shows recreation areas, as well as navigation. Again, in the darker brown you see areas of coastal navigation, smaller boats that, as you might expect, would be close to the shore, for fishing and other recreational purposes. And what you see in green are beaches. Public beaches that is. And these data come from the Dredged Material Management Plan report. Again, showing these beaches are public beaches.

The next slide shows conservation areas and, as I mentioned before, this is a catch-all term for a number of different data sources. It includes NOAA data on reefs, shoals, as well as deep coral reef areas. And those features are identified with orange symbols, such as these ones over here. Coral reefs identified with these darker blue symbols. There are only two coral sites currently in the NOAA database. It doesn't mean there aren't additional sites.

In addition, this slide shows culturally significant natural features from the New York database. It also shows boundaries of the Local Waterfront Revitalization Program for New York. These are boundaries here. This is one example. It shows the migration water fowl data from the Connecticut DEEP, national diversity areas, preserves and refuges.

Again, as I mentioned before, this is work in progress. There is additional data available that we will incorporate here. For example, there is data available for the northern shore of Long Island, which we will incorporate as well. One thing to notice here is that many of those conservation areas are close to shore. So basically within this zone here, and I will come back to that point in a minute, very close to the shoreline.

The next image shows the archaeological and cultural resources. What you can see as black triangles are shipwrecks. For example, this one here, what you see

as red circles, are other obstructions: rocks or other types of obstructions. So one example here is the Clinton Harbor Disposal Site. Within that historic disposal site you see two shipwrecks and two obstructions. Two black triangles and two red circles. The database for this data set is also NOAA.

The next slide will summarize biological resources that we have so far in GIS format. Specifically shown on this image are shellfish beds. These are the shellfish beds along the Connecticut shoreline. Shellfish beds along the Rhode Island shoreline. Also shellfish beds in Peconic Bay and other parts of Long Island. Some additional information that we are still collecting on the northern shore of Long Island that will also be incorporated. In addition, we show on this image shellfish zoning. So for Connecticut the areas where shellfishing is approved is shown in green. There are also areas where shellfishing is traditionally approved shown in beige colors here. Those are these areas here. And some are traditionally restricted. And others are restricted. There are different kinds of zones that apply to the shoreline of Connecticut. The approved shellfishing areas for Rhode Island are shown in green over here. And this is the Peconic Bay shellfish zoning area. And we are collecting additional

information for the northern shore of New York, as well, that will be incorporated here. Notice also that the shellfish beds that we have on this map include areas of aquaculture as well. There are two areas, several areas actually where shellfishing has been prohibited. Those are identified in orange over here. And there is also prohibited shellfishing around Plum Island, aside from other areas in Rhode Island and New York.

So just to give you a sense of how the data is ultimately going to be screened, this map shows an overlay of different resources. What you can see in black is what we have been using as a screening layer using a water depth of 18 meters. This Water depth is a function of --
This water depth had been used in the Central and Western Long Island Sound as a screening depth. Specifically it is designed to screen out areas where it might -- where there may be conflicts with navigation because vessels require a certain water depth. There may also may be issues with resuspension of sediment, depending on the size of waves and storm conditions.

So using that same water depth that was used for the Central and Western Long Island Sound EIS gives you this dark layer over here. Everything

that is in color here shows water depth greater than 18 meters. So superimposed here is also the zone of approved shellfishing over here. Superimposed further are anchorage areas and navigation channels, as well as cable alignments and cable corridors.

This is just an example of how we screen or narrow down the areas that are potentially available for siting of facilities.

So one additional aspect to keep in mind is the economics of dredging. Shown on this graphic here are the dredging needs for the Long Island Sound area based on the dredging needs reports. This projects over a period of several decades. And you can see affected by the size of the circle the volume of sediment that is anticipated to be dredged for the individual dredging centers.

So, for example, the Connecticut River dredging center is located over here, This over here is a much smaller volume that is anticipated, for example, for Montauk. So you can see most of the sediment would be, is anticipated to be dredged from Connecticut. Lower volumes of sediment are anticipated from New York. What we also show on this slide are the distances. This is one example of the distance of two potential disposal sites. We use as an example the dredging center of

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the Connecticut River located over here. So the distance from the Connecticut River dredging center to the Rhode Island Sound disposal site, which is located over here, will be 45 nautical miles. The distance to the New London disposal site located over here from the Connecticut River dredging center is 12 miles. The distance to the Cornfield Shoals site is five miles. The distance to the Central Long Island Sound disposal site located approximately here is 26 nautical miles. And if you go to beyond the edge of the Continental Shelf, in other words, beyond the water depth of about 200 meters, you would be looking at 75 nautical miles.

So, again, this distance has economic implications, but also safety and environmental risks. You have larger waves that you have to travel through with your barges. It increases the risk of an accident and losing your loads because of those kinds of concerns.

So based on the screening so far several areas have been identified in the Eastern Long Island Sound. And the EPA will prioritize data collection at active and historic disposal sites. Those have been identified here with a circle. This again is the slide showing the bathymetry of the area that we looked at before.

With this I would like to pass it back to Jeannie who will talk about the next steps. Thank

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you.

MS. BROCHI: Thank you. So a few points. Again, this is an environmental impact statement and what we have shown you today is the open water assessment. But as part of this effort EPA will also look at alternatives to open water, which even includes no alternatives. So the impacts associated with no disposal site being designated.

So in summary we will continue to assess the sites in more detail. We will continue to review the data that exists online. We will collect additional data. And we will fill in the remaining data gaps as necessary. And, as Bernward mentioned, two areas that we really haven't looked at yet includes the economics and the safety. The slide that Bernward just showed you with the dredging centers, is actually from the DMMP that the Army Corps of Engineers had completed in one of their reports. And they also completed a really great study on economics. So we are going to use some of that information and build on that.

We will collect additional data on sediment, biological resources, and habitat. We are going to start compiling some information on the physical oceanographic study that Jim is in charge of.

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We should be getting some data on that this summer. We will continue to have meetings. We will have some cooperating agency meetings throughout the summer and into the fall. Then we will have another set of public meetings in the winter. We will try to send out the information ahead of time so you have an opportunity to review it before you come to an informational meeting. And one of the main objectives today is to just present the information to you and give you an update of where we are in the process since January, but also to solicit your feedback. And if you have any comments we would be happy to hear them today and consider them. And if you are not -- if you haven't registered and you are not on our e-mail list, please sign up so we can contact you and inform you about future meetings.

And, finally, our cooperating agency representatives are in the room. Feel free to contact EPA directly or if you have any questions or comments or need clarification they are available to assist you, as well. So with that I will open up the floor for comments or questions.

MR. HAY: So, again, if you have a comment please identify yourself by name and affiliation so we can record that as well. So any questions, comments,

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feedback?

MS. FOLSOM-O'KEEFE: My name is Corrine Folsom-O'Keefe. I am program coordinator for Audubon Connecticut. One thing that has been done with dredged spoils in other states is pile it up in one area so it creates an islands. And those islands are actually used by bird species that are declining such as Piping Plover, Least Tern, American Oystercatcher, and other tern species. That might be a poential thing that could be done with uncontaminated dredged spoils. It is something I would like to see considered as the EPA and other organizations continue to go forward in deciding what would be the best solution to dredging these materials and figuring out what to do with them. Also one suggestion that could be done with them, Faulkner Island, the north spit, lost two-thirds of its area. The north spit is this sandy area above sea level most of the time. It lost two-thirds of its area during Hurricane Sandy. That area is one of the largest areas on the island for Roseate Terns nesting. And so there has been a dramatic reduction in habitat size for the Roseate Terns, which are a state listed species. That would be a suggestion for a place if you had uncontaminated, dredged materials; those materials could be put in that area increasing the habitat for that bird species.

The last thing I would like to see considered is just if dredged materials that are not

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contaminated are put in certain areas -- they might need to be beach accretion, either public beaches or beaches used by wildlife. Those are things I would like to see taken into account.

MR. HAY: Thank you for your comment.

MS. BROCHI: Thank you. One thing that we didn't mention is state threatened, federally endangered species, mammals, birds, is part of this environmental impact statement effort. And that will be something we investigate further on. And we will look at all of those species.

And Mark Habel from the Corps of Engineers is going to respond to the dredging.

MR. HABEL: Thank you Jeannie. I am not on the program but it might be a good time to give an update where we are with the Dredged Material Management Plan. It is an effort we were first funded to begin undertaking in 2008. We are substantially moving along with it in cooperation with the three states that border Long Island Sound, Block Island Sound. We also have a technical working group of federal and state agencies, and representatives from various nongovernmental organizations who volunteered to sit on that and help provide input to the Dredged Material Management Plan as it went forward. We are

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looking at a lot of things. Certainly it is always the Corps of Engineers' preference, as well as many of our sponsors and the other agencies, that dredged material be looked at as a resource first and something to be disposed of second. Our regs even require us to first investigate beneficial uses. With things like sand it is pretty easy. As sea level rises, erosion continues. It is rare today that we have a sand generating project that does not have takers for the dredged material, even when that sand, or hauling that sand to that site requires a cost share.

We have built projects recently in Massachusetts, and we are proposing another one in New Hampshire that Mass, New Hampshire and Maine are going to all get in on to get pieces of the sand. They are going to have to pay $2, $4 a yard to get it.

With the Newburyport project that we constructed in 2010 Massachusetts paid $20 a yard to have sand that would have been placed offshore be pumped onto the beaches. They were losing houses and at least in the zone we put the sand on they haven't loss any since. So certainly we like to use sand for shore protection purposes. Non-contaminated, non-sand: there are many applications for, as well. We can build marshes. This is primarily something that we

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look to the states to identify areas where they want to see that done. We work out how we can do it.

The commenter mentioned island creation. The Corps on the West Coast has done large amount of fills using dredged material, primarily for port development in Los Angeles, Long Beach, Oakland, and elsewhere.

We have also used dredged material to shore up levies in the Sacramento River Basin. They have for a long time used dredged material to build and raise levies in Louisiana and elsewhere on the Gulf Coast.

We have done large scale islands in the Chesapeake Bay area, Norfolk, Newport News, Hampton Roads. There is a large one under construction in mid Chesapeake Bay, Poplar Island, which is a joint project between the Corps and the Maryland Department of Environment and the Baltimore Port Authority. That is maybe within 10 years of its useful life. It will be filled. It is being developed as wildlife habitat.

And we recently have another one going through Congressional authorization, that is called the Mid-Bay Island Restoration, Chesapeake Bay.

The DMMP is looking at all of this. We are mapping where the beaches are in relation to the

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harbors that generate beach-compatible sand. And we are looking at a number of sites that have over the years have been raised as potential candidates for island development, primarily for creation of wildlife habitat. The New Haven Breakwaters is the largest of those. And, as you mentioned, Faulkner Island is another one of those areas where we are looking at potentially creating an island. Those projects carry substantial cost. They require great involvement in making them happen by the state that they are in. Maryland took the lead on Poplar Island. They are taking the lead on Mid-Bay. That cost is not going to be totally a federal cost. I think Poplar Island was a 65/35 cost share on a facility that is probably in the end cost more than $100 million. So certainly the Corps is going to look at those and the DMMP, and lay out what the cost might be. But ultimately we would need a sponsor, the State of Connecticut, or some other nonfederal public entity to step forward and say, yes, Corps, we want to do this and we are willing to pay our share.

So those will be in the DMMP but whether or not they actually go into feasibility design and construction is going to depend on sponsorship. I hope that answers your question.

MS. FOLSOM-O'KEEFE: It does. Thank you.

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MR. BURCH: My name is Lou Burch. I am here for the Citizens Campaign for the Environment. One of the slides you showed a while ago pertained to shellfishing areas and there were some graphics demonstrating where some of the shellfishing activities will be restricted. I noticed some of those correlated with previous dump sites. Are those areas restricted due to contamination concerns? Why are some restricted and others are not, et cetera?

MR. HAY: I will pass this question on to George Wisker, with the Connecticut Department of Energy and Environmental Protection.

MR. WISKER: I am not a biologist but having dealt with this issue in the past, I think those areas that are restricted are due to some runoff issues, the bacterial issues. Where a certain degree of runoff can actually cause a closure for a while. They are not open all the time. Some of the other beds are open offshore. The only ones that are actually prohibited now are the actual disposal sites themselves. The area surrounding them, it is not a function of the disposal but more or less due to runoff, industrial, legacy types of issues in that area.

MR. BURCH: Specifically those disposal sites that are prohibited, I assume that is a long

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term restriction. I am just trying to get a better sense, again, whether that is due to contamination concerns associated with those disposal sites and why certain disposal sites are completely restricted and others are not.

MR. WISKER: The active disposal sites are the ones that are restricted or prohibited now. The past sites were tested by the Department of Agriculture. Whether or not they put conditions on is related to what the tests would show.

MR. BOHLEN: It seems to me on the active sites there is an issue with public health and contaminants. There is also the operational issue. They have a cap out there. They don't want you going out there and messing around with their cap. There are operational issues.

MR. HAY: For the record, this was Frank Bohlen with the University of Connecticut.

MR. WISKER: The other issue, I know when they did the Seawolf Project one of the things that the Navy actually had to do was there were so many lobster pots and other fishing gear out there they had to notify the permit holders. We had to give them the licensees so they could notify them to get the equipment out of there or it was going to be pulled up

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or buried. They were actually doing other types of fishing out in those areas as opposed to specifically shellfish.

MR. HAY: Comments, questions, feedback?

MR. FROHLING: Nathan Frohling, the Nature Conservancy. Technical question, you talked about the USGS and NOAA data and Eastern Sound. I am wondering is that the recent survey done in the last year or two, what is the date?

MR. HAY: This data is a combination of surveys that have been done over approximately the last decade. They have been compiled, I think the date of this compilation is 2012. The data were collected over a number of years. Incidentally, there is also data available for Block Island Sound, which will be incorporated into this process. And those data have not been completely processed by the U.S. Geological Survey. Again, we will extend that area to the east as well.

Did that answer your question?

MR. FROHLING: Yes.

MR. SPICER: Bill Spicer, Stakeholders Committee from the Eastern Long Island Sound, State of Connecticut, Regional Council. Also Spicers Marinas. I think I participated in about every one of these meetings.

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I noticed your good diagram as to how many miles it was from the Connecticut River. And two thoughts came to mind as feedback. If we are working in Fisher's Island Sound for dredging we use shallow draft equipment. So that passing through either the Race or Wicopesset at the Watch Hill passage is really not feasible in winter for shallow draft, small equipment. We also have several sites at the moment. We need at least that many sites. So less sites is not an option. And counting sites that are in Block Island Sound, which is not part of the MPRSA Ambro Legislation, and are not in Long Island Sound, they are not really accessible, especially from Fishers Island Sound. So we need some in-shore sites. We have two at the moment. We need at least two. If New York needs one in Block Island Sound to serve Montauk or Peconic Bay, they need to ask. Thank you.

MR. HAY: Thank you for your comment. You want to respond, Jeannie?

MS. BROCHI: I want to make a point. I am not sure if I made this point earlier, but the Zone of Siting Feasibility extended to Block Island because that is the area that the Army Corps of Engineers is including in their Dredged Material Management Plan. So we wanted to overlap that area to be able to use the studies that the Army Corps of Engineers is currently undergoing and use that data.

Now, as far as the sites in Block Island Sound, like the Block Island Sound site, those are historically used sites. Some of those sites, as I mentioned before, received dredged material in the '30s or '40s before the regulatory agencies, the EPA existed. So we want to find out as much as we can about those areas.

MR. SPICER: Simply said, Jean is right. And your material going forward appears to be well presented, but those that are in Long Island Sound, which I am not, I am in Fishers Island Sound, which also is not in Long Island Sound, we need to be thought of so we don't get lost. And we do need to very carefully remember that Ambro only applies to Long Island Sound. If it helps planning going forward for other areas, God bless you. We need to plan. We don't need any more 2005 surprises. So we need to be planned for. And we have been more than patient.

MR. HAY: Thank you, Bill. Any additional comments?

Well, we will be here until 4:30. If you have any additional comments please let us know, any additional feedback, or if you know of any additional

data that would be helpful in this process we will be more than happy to consider those, as well.

Thank you very much for coming.

(Whereupon the Public Hearing adjourned at 4:30 p.m.)

C E R T I F I C A T E

I hereby certify that I am a Notary Public, in and for the State of Connecticut, duly commissioned and qualified to administer oaths.

I further certify that the foregoing proceedings were taken by me stenographically and reduced to typewriting under my direction, and the foregoing is a true and accurate transcript of the proceedings.

Witness my hand and seal as Notary Public the 22nd day of July, 2013.

____

Notary Public
My Commission Expires:
November 30, 2017

C E R T I F I C A T E

I hereby certify that I am a Notary Public, in and for the State of Connecticut, duly commissioned and qualified to administer oaths.

I further certify that the foregoing proceedings were taken by me stenographically and reduced to typewriting under my direction, and the foregoing is a true and accurate transcript of the proceedings.

Witness my hand and seal as Notary Public the 22nd day of July, 2013.

NDTCA Signed Electronic Transcript

Sarah J Mines

____

Notary Public
My Commission Expires:
November 30, 2017

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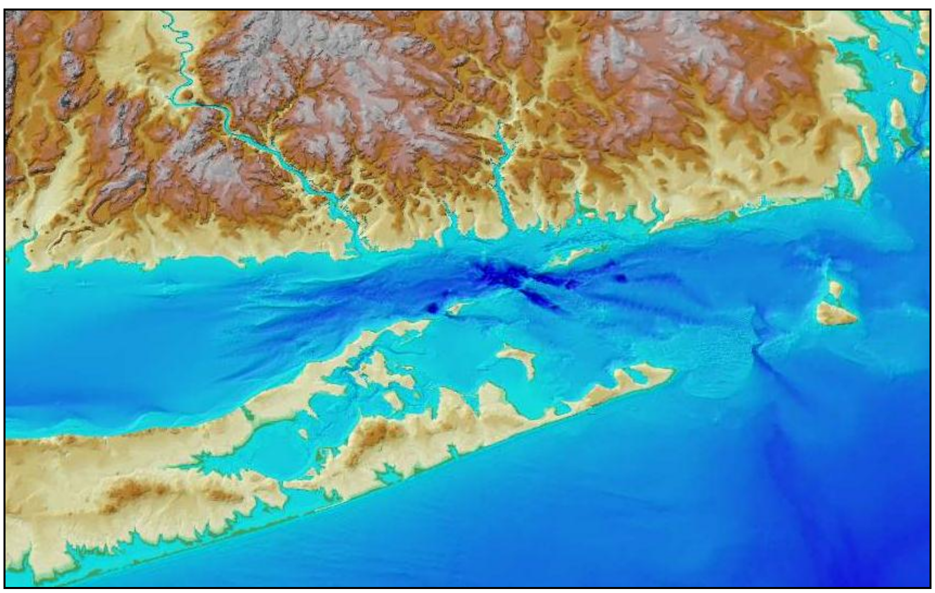
Appendix A-5

REPORT OF PUBLIC MEETINGS 5 AND 6

Supplemental Environmental Impact Statement for the Designation of Dredged Material Disposal Sites in Eastern Long Island Sound, Connecticut and New York

Report of Public Meetings 5 (Riverhead, NY) and 6 (New London, CT)



Prepared for: **United States Environmental Protection Agency**

Sponsored by: **Connecticut Department of Transportation**

Prepared by: **Louis Berger**
(under contract to the University of Connecticut)

March 2015

REPORT OF PUBLIC MEETINGS 5 (RIVERHEAD, NY) AND 6 (NEW LONDON, CT)

Held on December 8 (Riverhead) and December 9 (New London), 2014

Prepared for:
United States Environmental Protection Agency
5 Post Office Square, Suite 100
Boston, MA 02109

Sponsored by:
Connecticut Department of Transportation
Waterways Administration
2800 Berlin Turnpike
Newington, CT 06131-7546

Prepared by:
Louis Berger
117 Kendrick Street
Needham, MA 02494

Subcontractor to:
University of Connecticut
Department of Marine Sciences
1080 Shennecossett Road
Groton, CT 06340

March 9, 2015

Table of Content

EXECUTIVE SUMMARY

This report provides a summary of the fifth and sixth public meetings as part of the Supplemental Environmental Impact Statement (SEIS) process for the designation of dredged material disposal sites in the Eastern Long Island Sound region. The SEIS will supplement the Environmental Impact Statement (EIS) for the designation of dredged material disposal sites in the Western and Central Long Island Sound, completed in 2004. The SEIS is prepared for the U.S. Environmental Protection Agency (USEPA), and supported by the Connecticut Department of Transportation (CTDOT). The study is being conducted in consultation with other federal and state agencies of New York State and Connecticut, as well as with consultation of the public.

The two public meetings were held in Riverhead (NY) and in New London (CT) on December 8 and 9, 2014, respectively. The primary purpose of these meetings was to present an overview of the approach and findings of the physical oceanography study conducted in the Eastern Long Island Sound region in support of the SEIS.

1. Introduction

In 2005, the USEPA designated the Western and Central Long Island Sound dredged material disposal sites, following the preparation of an EIS. The two disposal sites in the Eastern Long Island Sound, Cornfield Shoals and New London, are scheduled to close in December 2016. The EPA is in the process of preparing a Supplemental EIS (SEIS) for the potential designation of one or more disposal sites needed to serve the Eastern Long Island Sound region. The SEIS is being prepared in accordance with Section 102(c) of the Marine Protection Research and Sanctuaries Act (MPRSA; also referred to as Ocean Dumping Act [ODA]) of 1972. The USEPA has the responsibility of designating sites under Section 102(c) of the Act and 40 CFR Part 228.4 of its regulations. The SEIS is supported by the State of Connecticut through the Connecticut Department of Transportation (CTDOT).

2. Public Meetings

In accordance with USEPA's voluntary NEPA policy, the USEPA is conducting an extensive public involvement program throughout the development of the SEIS. Public scoping meetings were held on November 14, 2012 (Groton, CT) and January 9 (Riverhead, NY). Public meetings were also held on June 25 (Riverhead, NY) and June 26 (New London, CT), 2014; these meetings discussed the process and first results of the screening of the Eastern Long Island Sound project area (referred to as the 'Zone of Siting Feasibility' or ZSF) for potential dredged material disposal sites.

The objective of Public Meetings 5 and 6 was to present the approach and findings of the Physical Oceanography (PO) study, conducted by the University of Connecticut (UCONN) in the ZSF in support of the SEIS (Figure 1). The meeting was informational. Comments and questions were invited during the meeting. There was no official comment period following the meetings. Meetings were held on the following dates and locations:

- December 8, 2014 Suffolk County Community College, Riverhead, New York
- December 9, 2014 Fort Trumbull, New London, Connecticut

Both meetings were held between 3pm and 5pm. The format and agenda for each meeting were identical.

Time	Agenda Item	
2:00 pm	*Registration*	
3:00 pm	*Ground Rules/Logistics*	Facilitator, Bernward Hay, Louis Berger
3:05 pm	*Welcome/Project Update*	Jean Brochi, Project Manager, Ocean and Coastal Protection Unit, EPA Region 1
3:15 pm	*Physical Oceanography Study*	Frank Bohlen and Grant McCardell, UCONN
4:05 pm	*Discussion*	Bernward Hay, Louis Berger
5:00 pm	*Adjourn*	

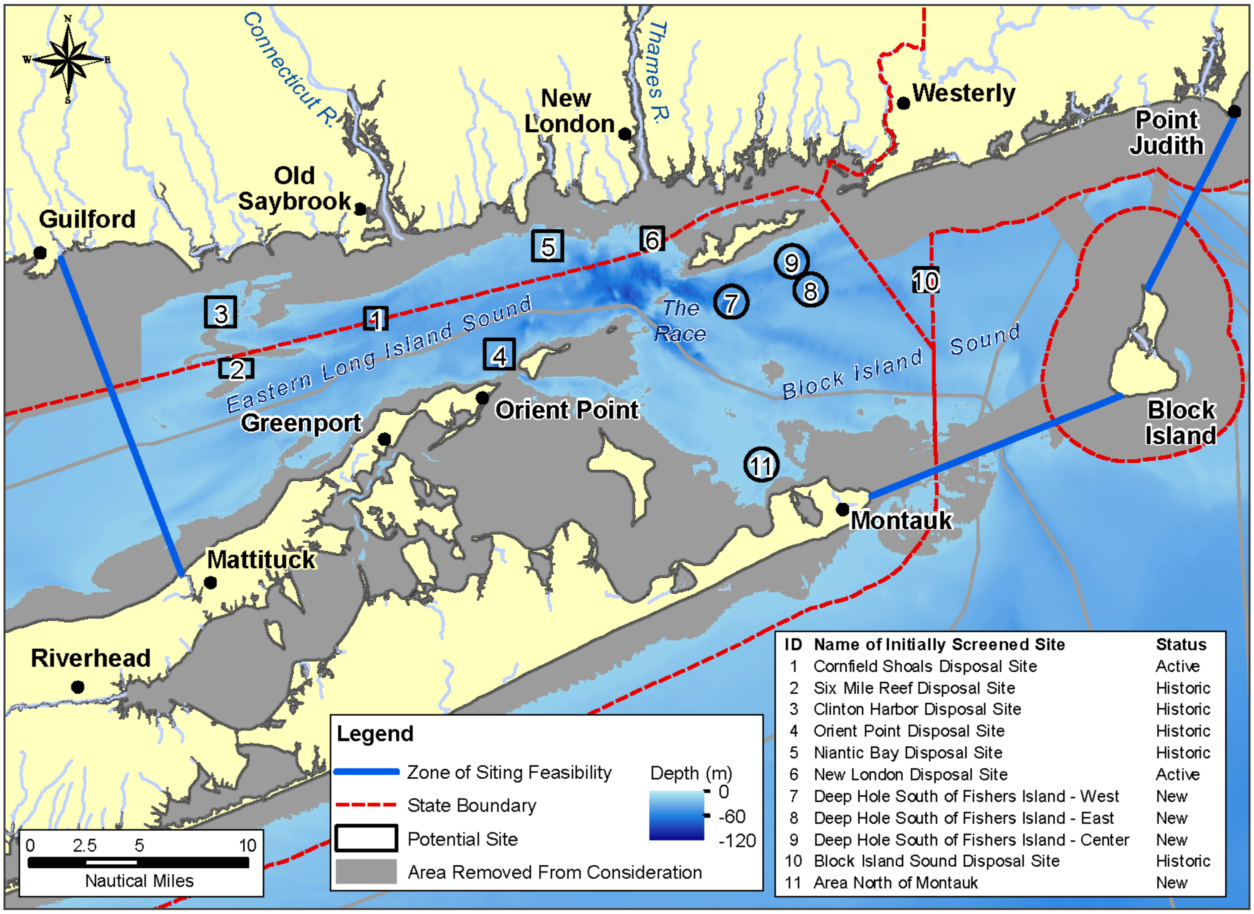


Figure 1: Zone of Siting Feasibility, which was the project area for the Physical Oceanography study. Also listed are eleven initially screened potential alternative disposal sites.

3. Meeting Summary

Scoping is part of the NEPA process through which federal agencies discuss the purpose of and need for the proposed action; the projected area extent and range of potential impacts resulting from the proposed action; and the studies necessary to determine the extent of potential impacts resulting from these actions. Public Meetings 5 and 6 presented the findings of the physical oceanography study.

The lists of Attendees and Commenters/Speakers from the Public are provided in Attachment 2. Presentations given by Ms. Jean Brochi (USEPA) and Drs. Frank Bohlen and Grant McCardell (UCONN, Department of Marine Sciences) are provided in Attachment 3. Transcripts, required for both meetings, were prepared by Mr. Robert Pollack from Alliance Reporting Service, Inc. (Riverhead meeting) and by Ms. Jackie McCauley from Brandon Huseby Reporting & Video (New London meeting); their transcripts are enclosed as Attachments 4 and 5, respectively.

Following is a summary of the two meetings:

- **Attendees:** A total of 27 attendees signed in at the Riverhead meeting; a total of 34 attendees signed in at the New London meeting. Attendees at both meetings included members from the Public, non-profit organizations, private companies, state and federal agency representatives, and representatives of government officials. Specifically, agency representatives included the USEPA, U.S. Army Corps of Engineers, U.S. Navy, CTDOT, Connecticut Department of Energy and Environmental Protection, New York State Department of State, and New York State Department of Environmental Conservation.
- **Commenters:** After the presentations, four individuals commented or asked questions at the Riverhead meeting; eight individuals commented or asked questions at the New London meeting.

Attachment 1

MEETING ANNOUNCEMENT

From: Grimaldi, Alicia [mailto:Grimaldi.Alicia@epa.gov]
Sent: Tuesday, November 18, 2014 4:18 PM
To: ELIS
Cc: Brochi, Jean; Grimaldi, Alicia
Subject: NOTICE OF PUBLIC MEETINGS re: Eastern Long Island Sound Supplemental Environmental Impact Statement

The Environmental Protection Agency will be hosting another set of public meetings in Riverhead, NY and New London, CT to discuss the Supplemental Environmental Impact Statement (SEIS) to evaluate the potential designation of one or more dredged material disposal sites in eastern Long Island Sound. The purpose of this meeting is to present the status of the site screening process, the results of the physical oceanography study, and the next steps for releasing the draft SEIS and proposed rulemaking. The information for these public meetings is below.

MONDAY, DECEMBER 8, 2014
3:00 – 5:00 p.m. (registration begins at 2:30)
Suffolk County Community College, Culinary Arts & Hospitality Center
20 East Main Street
Riverhead, NY 11901
Directions: http://department.sunysuffolk.edu/CulinaryArts_E/3232.asp

TUESDAY, DECEMBER 9, 2014
3:00 – 5:00 p.m. (registration begins at 2:30)
Fort Trumbull
90 Walbach Street
New London, CT 06320
Directions: http://www.fortfriends.org/info.htm

For additional information, please visit:
http://www.epa.gov/region1/eco/lisdreg/elis.html.

Please consider forwarding this message to any parties who may be interested in attending. If you wish to be removed from this e-mail list or if you have any questions, please e-mail ELIS@epa.gov. Thank you!

Alicia Grimaldi
Ocean & Coastal Protection
Environmental Protection Agency, Region 1
5 Post Office Square, Suite 100
Mail Code: OEP06-01
Boston, MA 02109
Tel: (617)918-1806
Fax: (617)918-0806

Attachment 2

LISTS OF ATTENDEES AND COMMENTERS FROM THE PUBLIC

- Riverhead, NY December 8, 2014
- New London, CT December 9, 2014

Note: Addresses and contact information was provided on the original Sign-in sheets but not listed here for privacy reasons. Spelling of names and organizations was verified, if needed, using the internet. Names are listed in the order shown on the Sign-in sheets.

Riverhead, NY, December 8, 2014

ATTENDEE SIGN-IN

Name	Organization	Questions / Comments?
Doug Pabst	U.S. Environmental Protection Agency, Region 2	
Mel Coté	U.S. Environmental Protection Agency, Region 1	
Patricia Pechko	U.S. Environmental Protection Agency, Region 2	
Mark Haubner	North Fork Audubon Society	
Nancy Brighton	U.S. Army Corps of Engineers, New York District	
Mark Habel	U.S. Army Corps of Engineers, New England District	
David Bergen	Southold Town Trustee	
Mike Zimmerman	New York State Department of State	
Dan Gulizio	Peconic Baykeeper	
Kari Gathen	New York State Department of State	
Kevin McAllister	Defend H_2O	Yes
Jennifer Street	New York State Department of State	
William Gash	Connecticut Maritime Coalition	Yes
Charles de Quillfeldt	New York State Department of Environmental Conservation	
Gwynn Schroeder	Office of Legislator Al Krupski	
Maureen Murphy	Citizens Campaign for the Environment	
Adrienne Esposito	Citizens Campaign for the Environment	Yes
Frank Bohlen	University of Connecticut	
Alicia Grimaldi	U.S. Environmental Protection Agency, Region 1	
Marie Domeneci	Suffolk County	
Bernward Hay	The Louis Berger Group, Inc.	
Jean Brochi	U.S. Environmental Protection Agency, Region 1	
Mark Woolley		
Joe Salvatore	Connecticut Department of Transportation	
George Wisker	Connecticut Department of Energy and Environmental Protection	
Marguerite Purnell	Fishers Island Conservancy	Yes
Grant McCardell	University of Connecticut	

New London, CT, December 9, 2014

ATTENDEE SIGN-IN

NAME	ORGANIZATION	QUESTIONS / COMMENTS?
Joseph Salvatore	Connecticut Department of Transportation	
Mark Habel	U.S. Army Corps of Engineers, New England District	
Bernward Hay	Louis Berger	
Lisa Lefkovitz	Battelle	
Stacy Pala	Battelle	
Alan Stevens	Connecticut Department of Transportation	
Todd Randall	U.S. Army Corps of Engineers, New England District	
Frank Bohlen	University of Connecticut	
Bill Spicer	Spicer's Marinas	Yes
Lou Allyn	Mystic Harbor Management	
Andrew Ahrens	Fishers Island Conservancy	
Bob Evans	Fishers Island Conservancy	
John Johnson	Connecticut Marine Trades Association	Yes
Ron Helbig	Noank Village Boatyard	Yes
Shauna Lake	Americas Styrenics	
David Boomer	The Kowalski Group	
Brian Thompson	Connecticut Department of Energy and Environmental Protection	
Christian McGugan	Gwenmor Marina and Gwenmor Marine Contracting	Yes
Kris Shapiro	Cedar Island Marina	
Jeff Shapiro	Cedar Island Marina	Yes
Tracey McKenzie	U.S. Navy	Yes
Mike Zimmerman	New York State Department of State	
Judy Benson	The Day	
Jean Brochi	U.S. Environmental Protection Agency, Region 1	
Bill Gardiner	Spicer's Marina	
John Gardiner	Spicer's Marina	
Kathleen Burns	Connecticut Marine Trades Association	
Abbie McAllister	Saybrook Point Marina	Yes
Ayanti Grant	Congressman Joe Courtney	
Grant McCardell	University of Connecticut	
Matt LeBeau	Office of Senator Blumenthal	
George Wisker	Connecticut Department of Energy and Environmental Protection	
Peter Francis	Connecticut Department of Energy and Environmental Protection	
Drew Carey	CoastalVision	Yes

Attachment 3

PRESENTATIONS

- **Jean Brochi, Project Manager, Ocean and Coastal Protection Unit, EPA Region 1:** ***Project Update*** (Slides 1 to 13)

- **Frank Bohlen and Grant McCardell, University of Connecticut:** ***Physical Oceanography Study*** (Slides 14 to 60)

Note: Presentation slides were identical at each meeting.

Eastern Long Island Sound Supplemental Environmental Impact Statement

Public meetings in Riverhead, NY and New London, CT

U.S. EPA Region 1
December 8 & 9, 2014

<u>Agenda</u>

2:30 pm	*Registration*
3:00 pm	*Ground Rules/Logistics* Mr. Bernward Hay, Louis Berger
3:05 pm	*Welcome/ELIS SEIS update* Jean Brochi, Ocean and Coastal Protection Unit, EPA Region 1
3:15 pm	Physical Oceanography Study Frank Bohlen and Grant McCardell, UCONN
4:05 pm	Discussion Mr. Bernward Hay, Louis Berger
5:00	Adjourn

EPA-USACE Share Responsibility

- Marine Protection, Research, and Sanctuaries Act (MPRSA, aka Ocean Dumping Act)
  - Section 102: EPA Designates Sites
  - Section 103: USACE Selects Sites subject to EPA concurrence
- Dredged material disposal at these sites must meet criteria in Ocean Dumping Regulations (40 CFR Parts 220-229)
- Clean Water Act (CWA)
  - Section 404: USACE issues permits subject to EPA concurrence
  - Section 404(c): EPA has veto authority

Long Island Sound
Dredged Material Disposal Sites

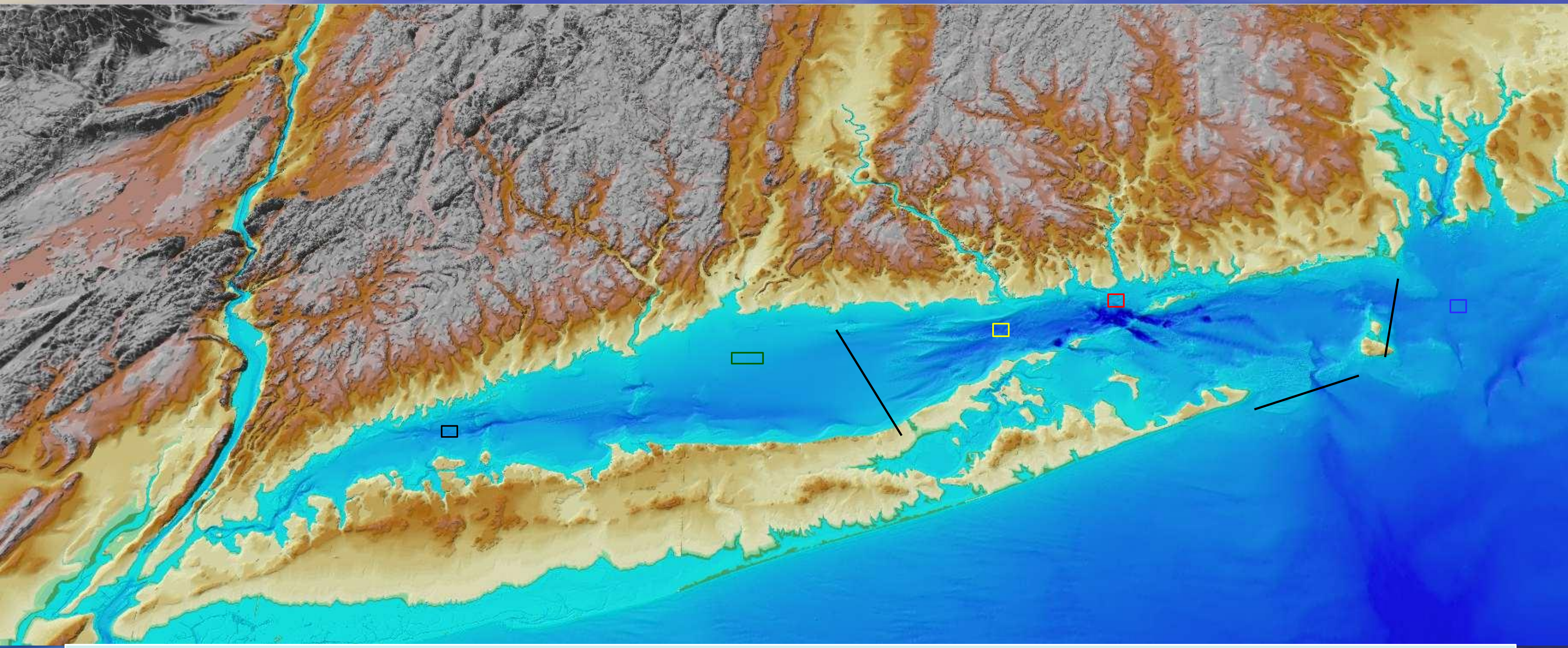
Designated by EPA in July 2005:

- Western Long Island Sound
- Central Long Island Sound

Selected by Corps in 1990s, scheduled to close December 2016:

- Cornfield Shoals
- New London

ELIS SEIS Process



Western Long Island Sound Disposal Site
Central Long Island Sound Disposal Site
Cornfield Shoals Disposal Site
New London Disposal Site
Rhode Island Sound Disposal Site

Zone of Siting Feasibility

EPA’s Role in Dredging

- Designate ocean dredged material disposal sites for long-term use (following EPA’s voluntary NEPA policy to prepare an EIS)
- Promulgate regulations and criteria for disposal site selection and permitting discharges
- Review USACE dredging projects and permits
- Develop site monitoring/management plans (SMMP)
- Monitor disposal sites jointly with Corps

Approach to Screening

- Screening Criteria for ocean dredged material site designation -

  Marine Protection, Research, and Sanctuaries Act of 1972 (MPRSA):

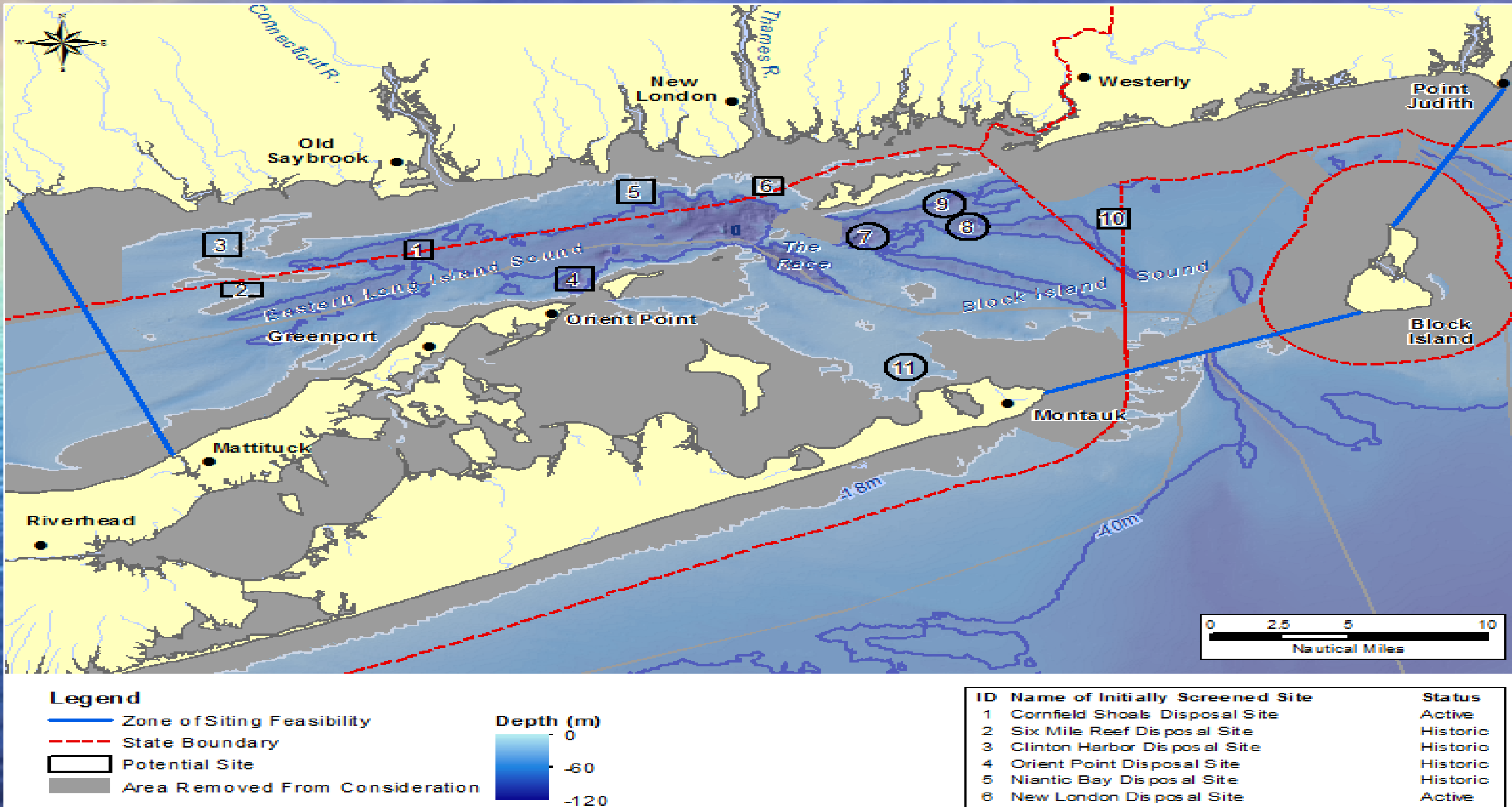
    5 general criteria (40 CFR 228.5)

  11 specific criteria (40 CFR 228.6)

Site Screening - Examples

- Sedimentary Environment
  - Bathymetry
  - Currents and Waves; Bottom Stress
  - Sediment Texture (resuspension potential; habitat)
- Areas of Conflicting uses
  - Infrastructure (cables, pipelines)
  - Navigation (shipping lanes, anchoring areas)
  - Recreation (areas and navigation)
  - Conservation Areas (sanctuaries, wildlife refuges, National Seashores, parks, artificial reefs, etc.)
  - Cultural and Archaeological Resources
- Biological Resources
  - Shellfish Beds
  - Benthic Community
  - Fish Habitat, Fish Concentrations, and Fishing Areas
  - Breeding, Spawning, Nursery, Feeding, and Passage Areas

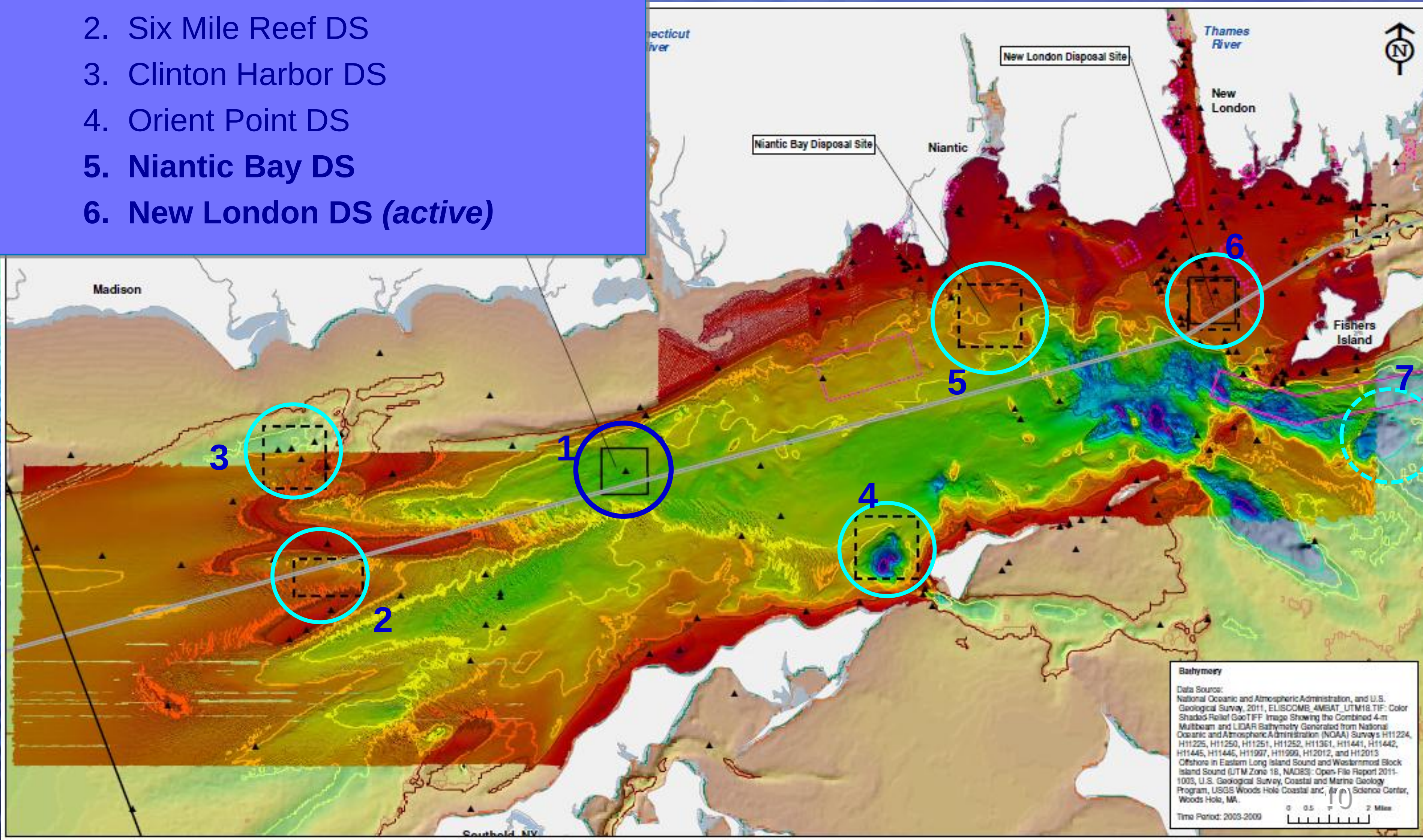
ELIS SEIS – 11 sites for screening process



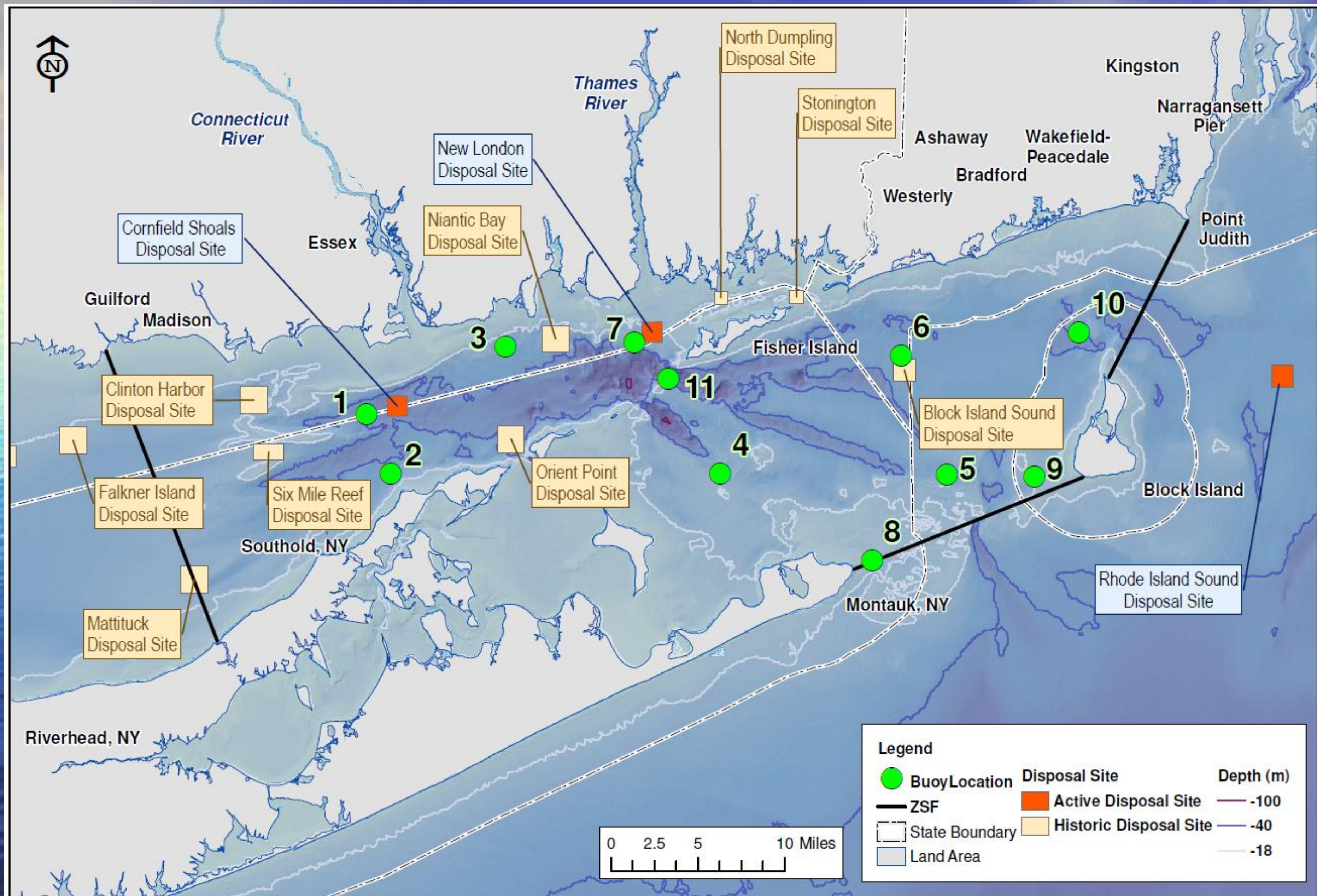
ID	Name of Initially Screened Site	Status
1	Cornfield Shoals Disposal Site	Active
2	Six Mile Reef Disposal Site	Historic
3	Clinton Harbor Disposal Site	Historic
4	Orient Point Disposal Site	Historic
5	Niantic Bay Disposal Site	Historic
6	New London Disposal Site	Active
7	Deep Hole South of Fishers Island - West	New
8	Deep Hole South of Fishers Island - East	New
9	Deep Hole South of Fishers Island - Center	New
10	Block Island Sound Disposal Site	Historic
11	Area North of Montauk	New

ELIS SEIS Process

1. **Cornfield Shoals DS (*active*)**
2. Six Mile Reef DS
3. Clinton Harbor DS
4. Orient Point DS
5. **Niantic Bay DS**
6. **New London DS *(active)***



Physical Oceanography Study – Buoy Locations



ELIS SEIS Process

- Notice of Intent: published October 16, 2012.
- Cooperating agency and Public meetings in 2012 and 2013.
- EPA website revised: http://www.epa.gov/region1/eco/lisdreg/elis.html
- Email notification system, contact:

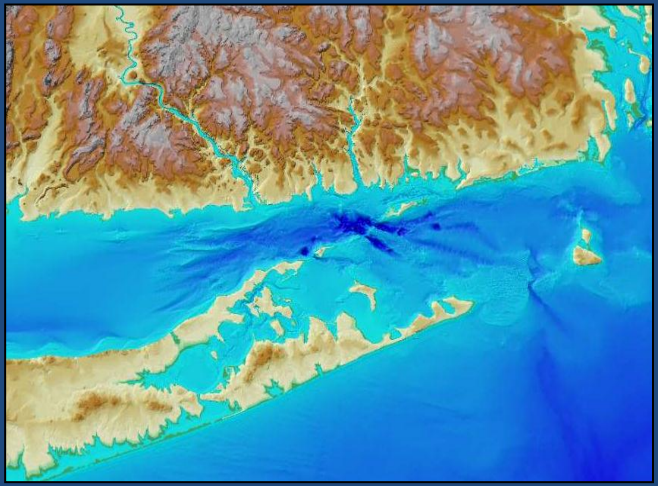
  ELIS@epa.gov if you would like to be added to the email distribution list.

Next Steps

- Draft ELIS SEIS/rulemaking - Spring 2015
- Public meetings – Spring 2015
- If SEIS recommends designation of one or more sites, publish final SEIS and rulemaking by December 2016.

Supplemental Environmental Impact Statement for the Designation of Dredged Material Disposal Site(s) in Eastern Long Island Sound, Connecticut and New York

Physical Oceanography of Eastern Long Island Sound Region



Prepared for: **U.S. Environmental Protection Agency**

Sponsored by: **Connecticut Department of Transportation**

Prepared by: **University of Connecticut**

with support from: **Louis Berger**

Public Meetings 5+6 (December 8+9, 2014)

Outline

1. Physical Oceanography in the ZSF – Purpose
2. Model: *Configure and test*
3. Evaluation of Simulations
   - Field Program: *Collect data (currents and stress etc.) at a set of stations that are expected to exhibit a wide range of conditions*
   - Model Performance: *Evaluate predictions of model with new data*
4. Analysis
5. Summary

Physical Oceanography

- Physical oceanography is the science that explains the patterns of ocean circulation and the distribution of properties such as temperature and salinity. Elements of physical oceanography include tides, currents, waves, and sediment transport.

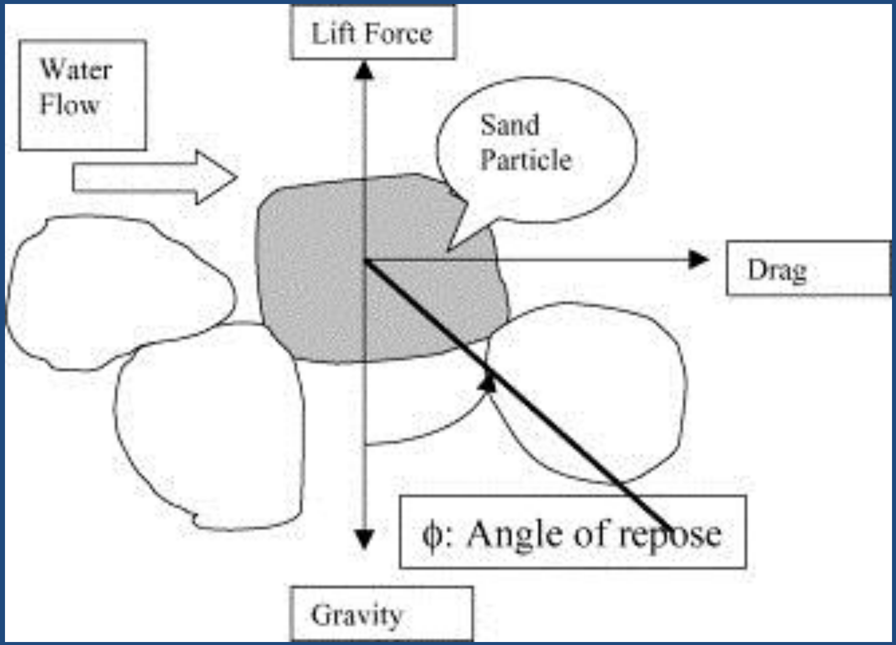
Of particular importance within this study are the factors governing boundary shear stress

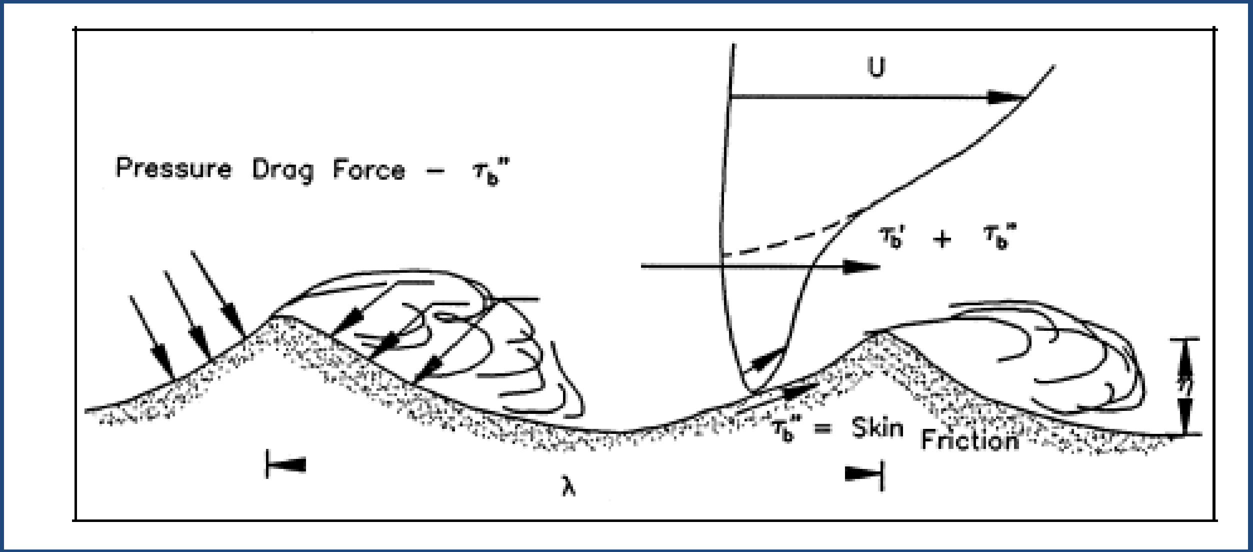
Sediment Transport

For sediment resuspension the lift force due to the flow around it must exceed the gravity force.

The lift and drag forces slow the water and this effective force per unit area is called the **shear stress**.

Bedforms have a similar effect on the flow… they slow it down.





Critical Erosion Stress

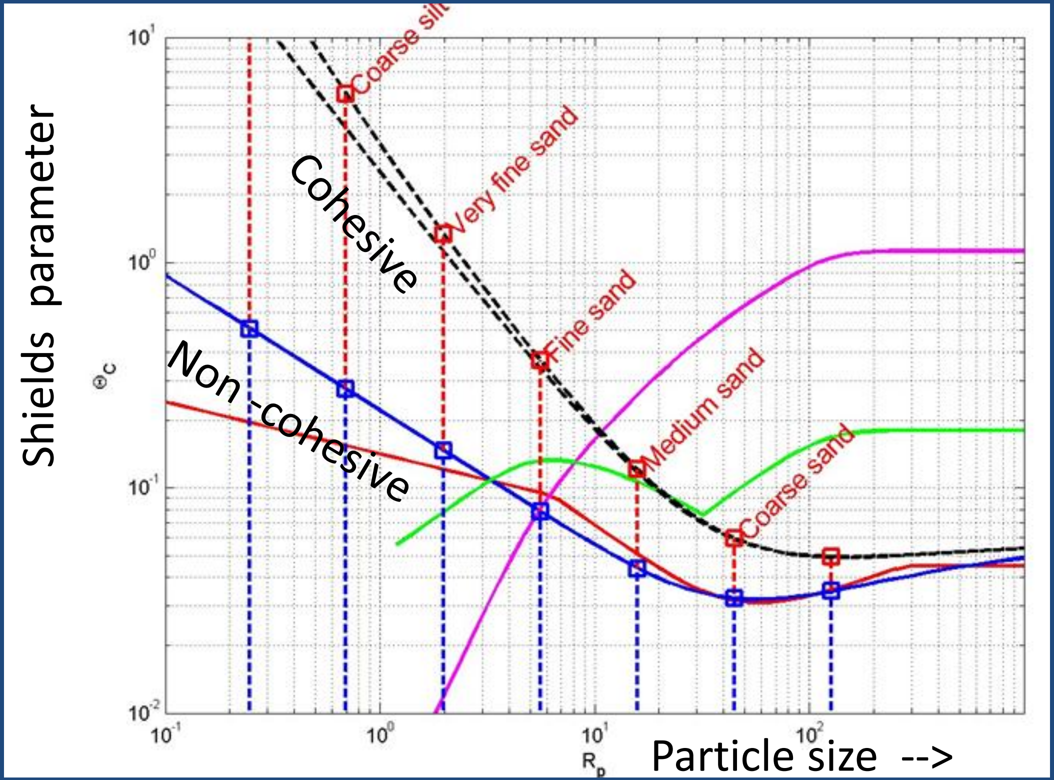


Figure 34. A graphical representation of the relationship between sediment particle size for cohesive and non-cohesive particles.

The red and blue solid lines are analytical representations of the critical Shields parameter, $\Theta_{c0} = \tau_{c0}/\rho_w sgd$, for non-cohesive sediments as a function of the particle Reynolds number. The black dashed lines show the influence of cohesion and adhesion on the critical value for the onset of particle motion.

The green and magenta lines show the critical values for the onset of sediment suspension as predicted by Bagnold (1966) and van Rijn (1984), respectively. The lower boundaries of the particle Reynolds numbers for traditional sediment classes (see Table 7) are shown by the blue dashed lines.

Particle Size and Critical Stress for Cohesive and Non-cohesive Sediments

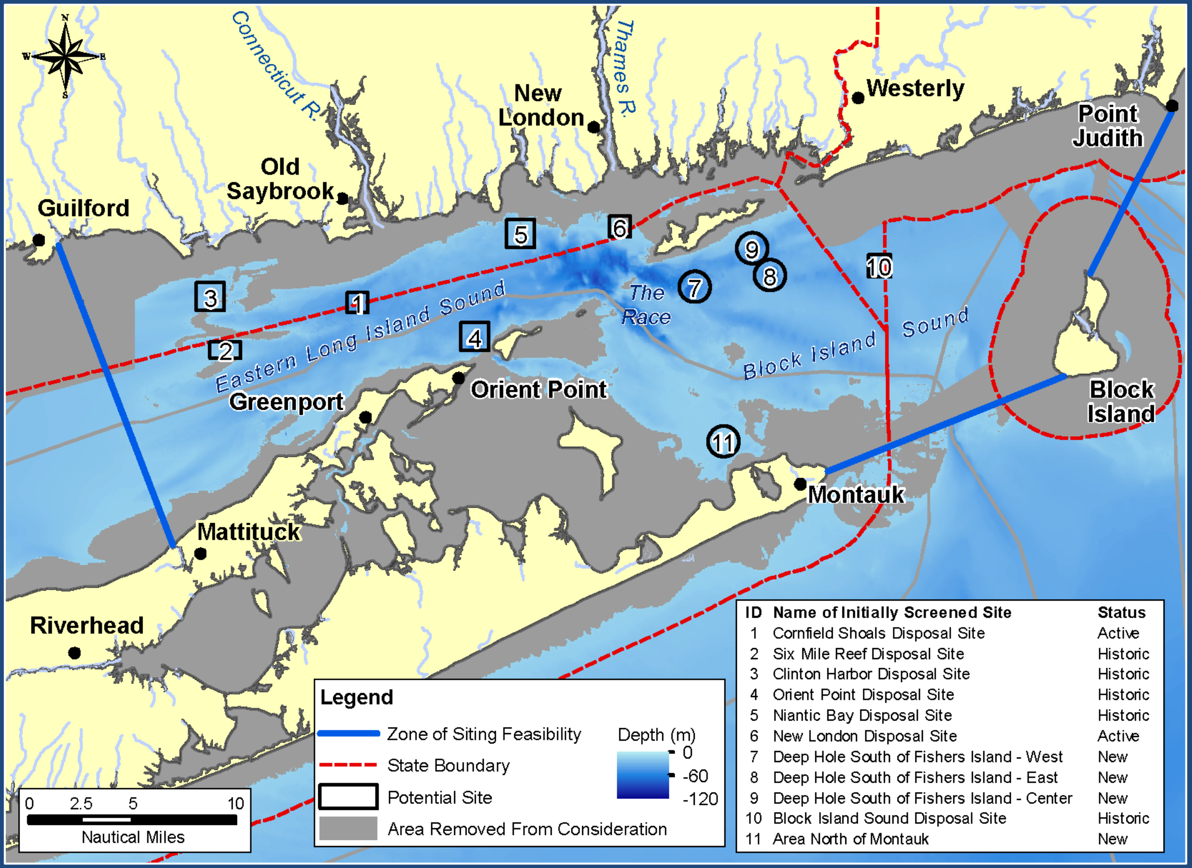
Size				Non-Cohesive Sediments			Cohesive Sediments		
	Particle Size		Reynolds Number	Critical Shields Parameter	Critical Stress	Critical Velocity	Critical Shields Parameter	Stress at the Initiation of Motion	Critical Velocity
Classification	Phi	d (mm)	R_p	Θ_{c0}	τ_{c0} (Pa)	$u_{1,0}$ (m/s)	Θ_c	τ_c (Pa)	u_1 (m/s)
Column No.	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Coarse sand	1-0	0.50	44.96	0.03	0.26	0.32	0.06	0.48	0.44
Medium sand	2-1	0.25	15.90	0.04	0.18	0.27	0.12	0.49	0.44
Fine sand	3-2	0.13	5.62	0.08	0.16	0.25	0.37	0.74	0.54
Very fine sand	4-3	0.06	1.99	0.15	0.15	0.24	1.33	1.35	0.73
Coarse silt	5-4	0.03	0.69	0.27	0.14	0.23	5.62	2.81	1.06
Medium silt	6-5	0.02	0.25	0.51	0.13	0.23	26.33	6.64	1.63
Fine silt	7-6	0.01	0.09	0.95	0.12	0.22	143.41	18.09	2.69

Notes: Columns 5 to 7 provide example magnitudes of the critical shields parameter, Θ_{c0}, for non-cohesive sediments and the stress τ_{c0} at the initiation of motion for the lower bounds for specific particle size classes listed on the left. An estimate of the magnitude of the required current at 1m above the sea floor required to create the critical stress for non-cohesive sediments is provided as $u_{1,0} = \sqrt{\tau_{c0}/\rho C_d}$ where $C_d = 2.5 \times 10^{-3}$ is assumed. Analogous estimates for cohesive sediments are provided Columns 8 to 10 based on the theory presented by Righetti and Lucarelli (2007). Values shaded in blue are extrapolations beyond the range of particle sizes used in parameterization.

Objective of PO Study

Support evaluation and selection of potential dredged material disposal sites within the Zone of Siting Feasibility (ZSF)

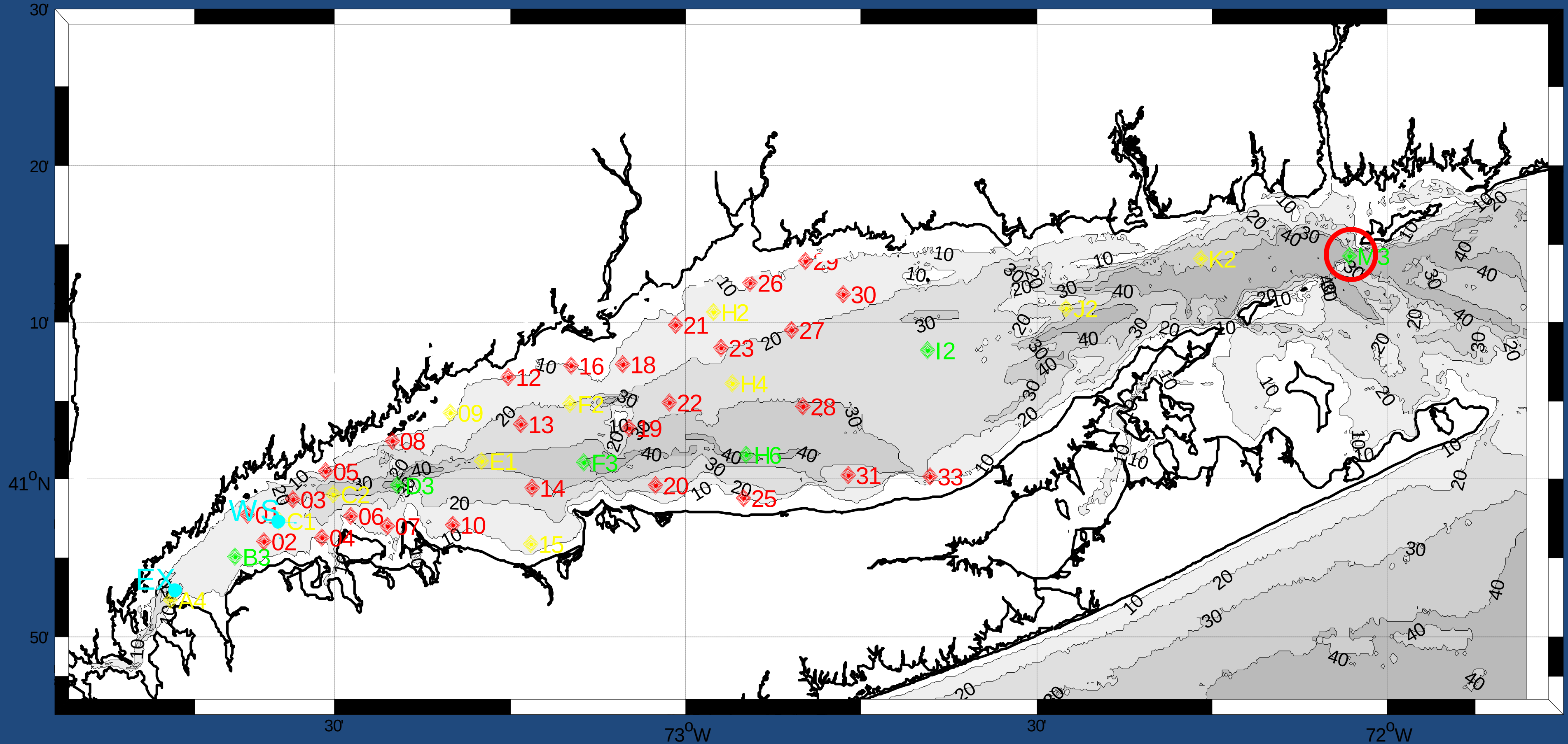
- Describe distribution of maximum bottom stress magnitudes expected in the ZSF including 'Superstorm Sandy' conditions (100-year storm)
- Characterize circulation in the ZSF to support assessment of potential off-site effects
- Acquire physical oceanography data to support future modeling of sediment transport at potential dredged material disposal sites



Zone of Siting Feasibility (ZSF). Initial screening identified (1) areas not suitable for locating dredged material disposal sites due to various constraints (gray zone), and (2) 11 sites for further investigation as potential disposal sites; these sites include two active and five historic disposal sites, and six 'new' sites not previously used for dredged material disposal. The background represents water depth.

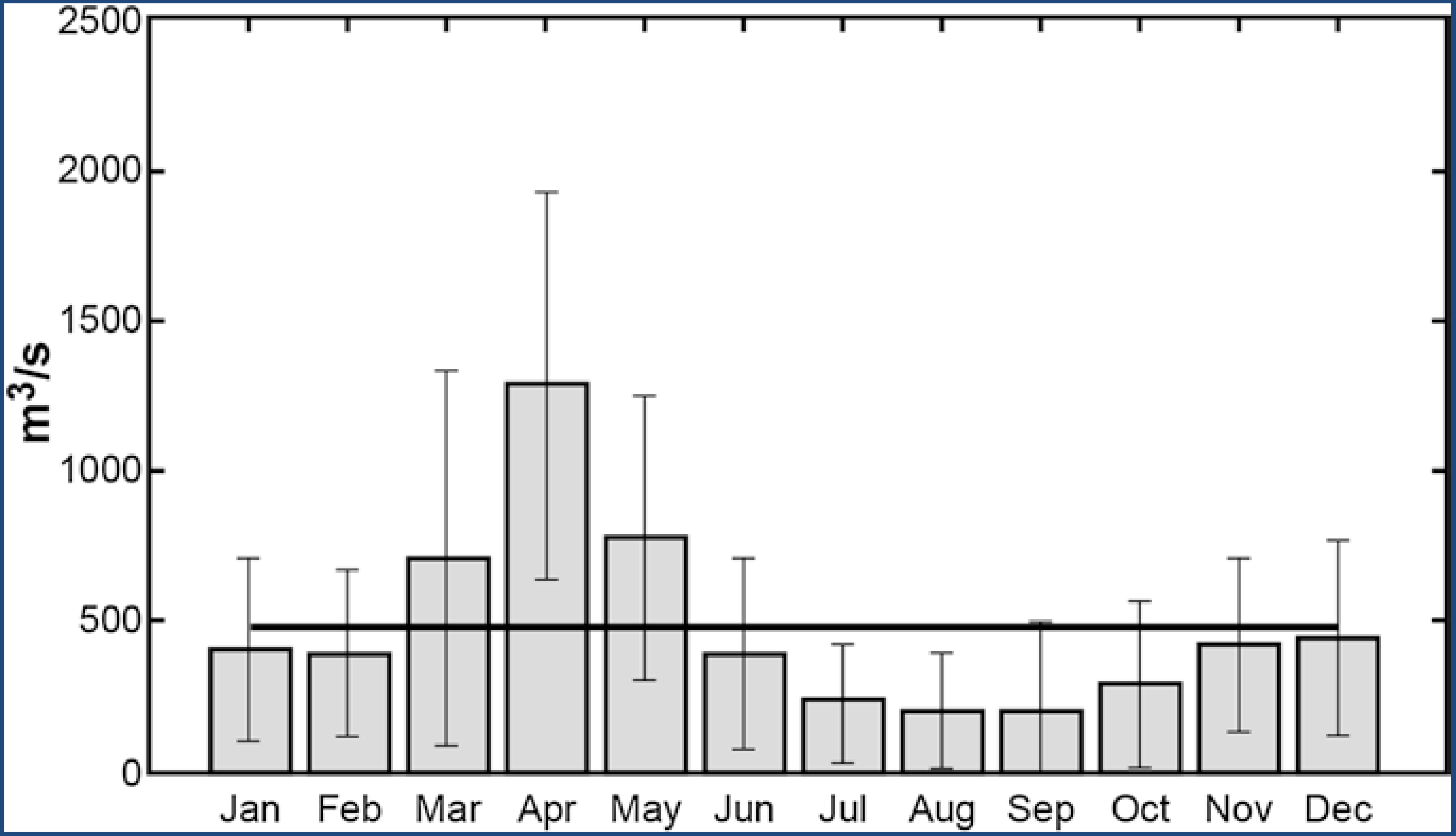
Regional Temperature and Salinity

CTDEEP – EPA Long Island Sound Study Ship Survey Stations

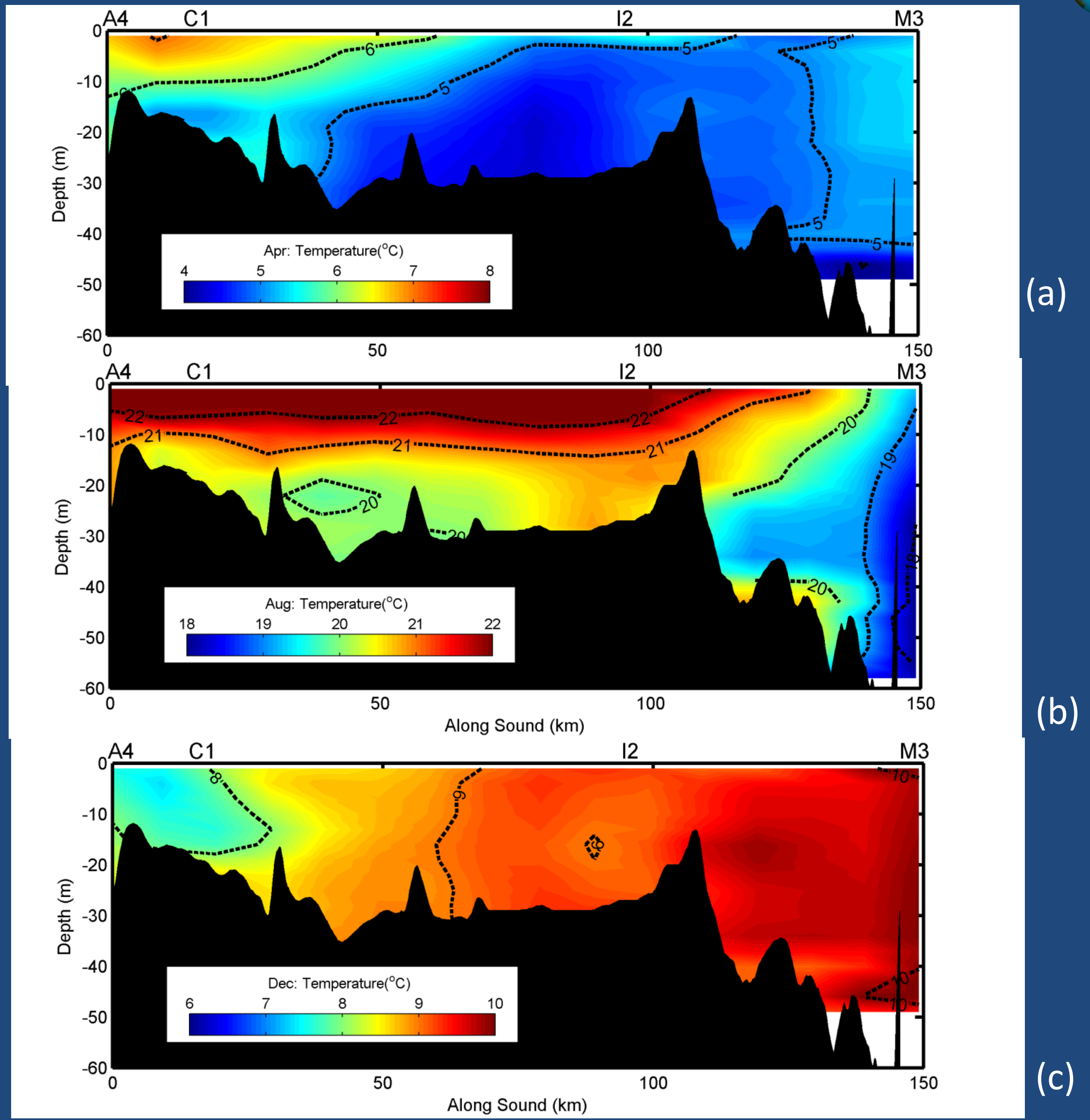


River Inflow

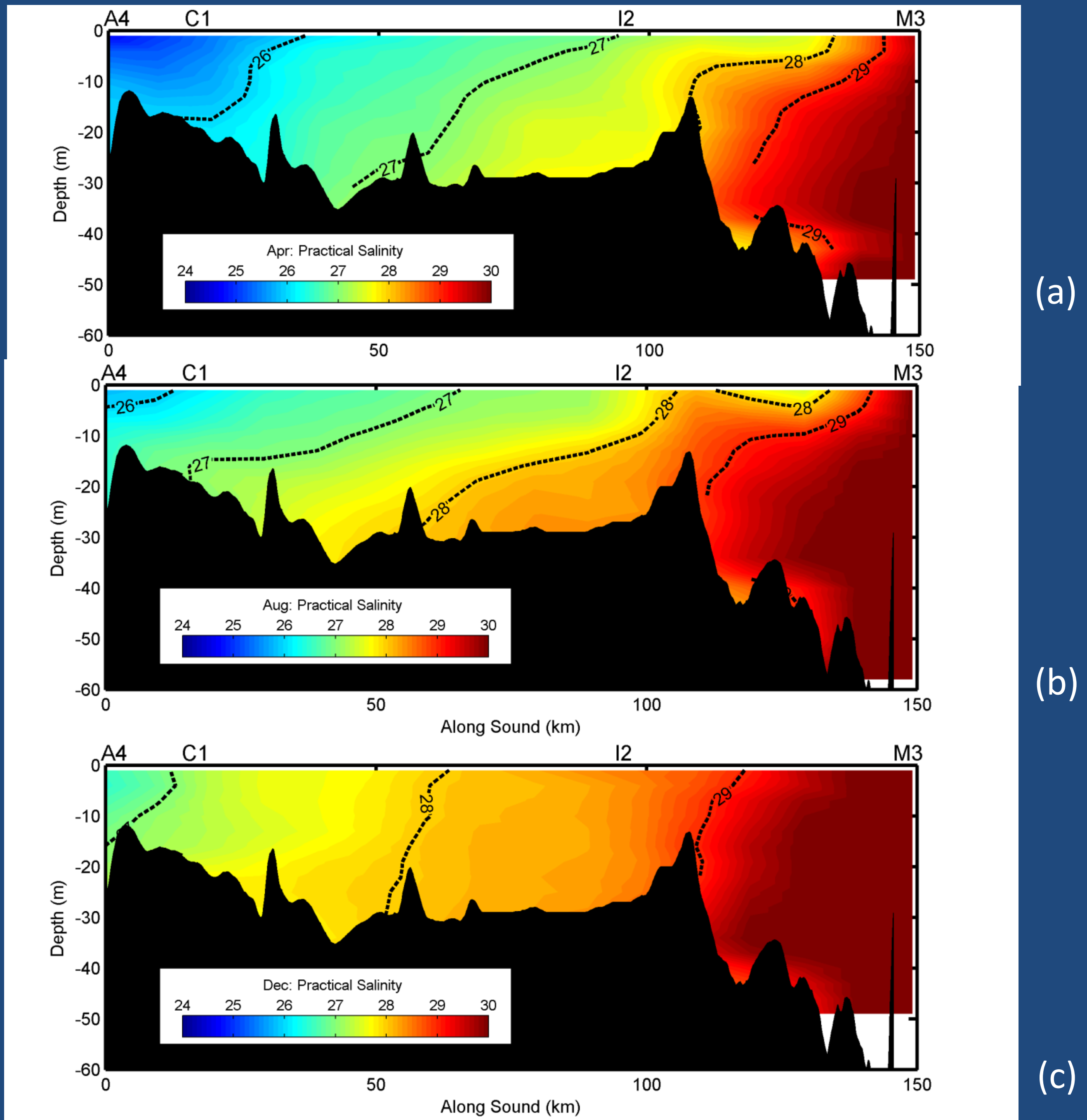
Monthly Discharge of Connecticut Rivers (~80% of total inflow to Long Island Sound)



Water Tempe-rature



Salinity



A4
C1
I2
M3
Depth (m)
Apr: Practical Salinity
Aug: Practical Salinity
Dec: Practical Salinity
24 25 26 27 28 29 30
Along Sound (km)
(a)
(b)
(c)

Tidal Current Oscillations

- 00:00 AM

Tidal Current Oscillations

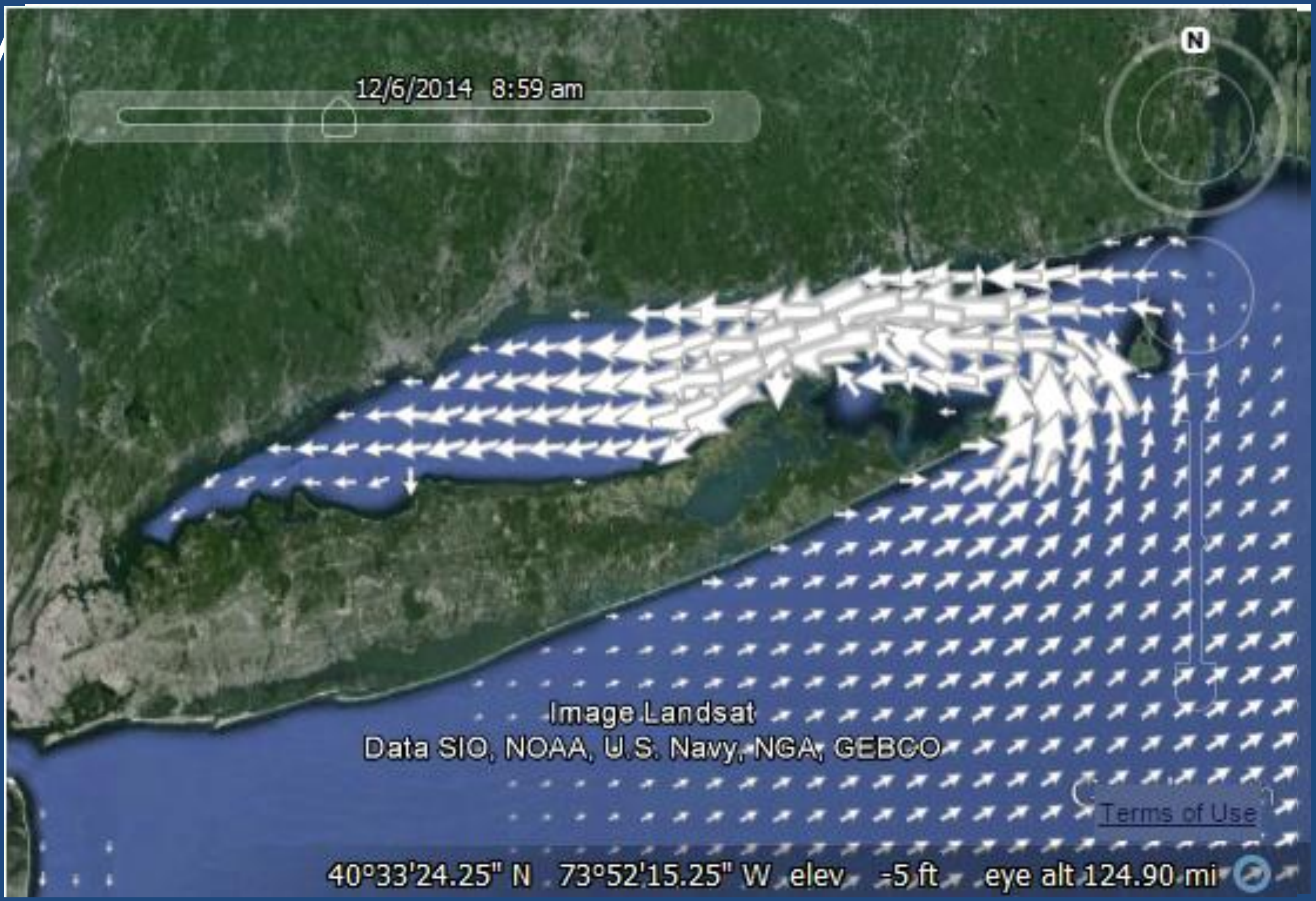
- 03:00 AM

Tidal Current Oscillations

- 06:00 AM

Tidal Current Oscillations

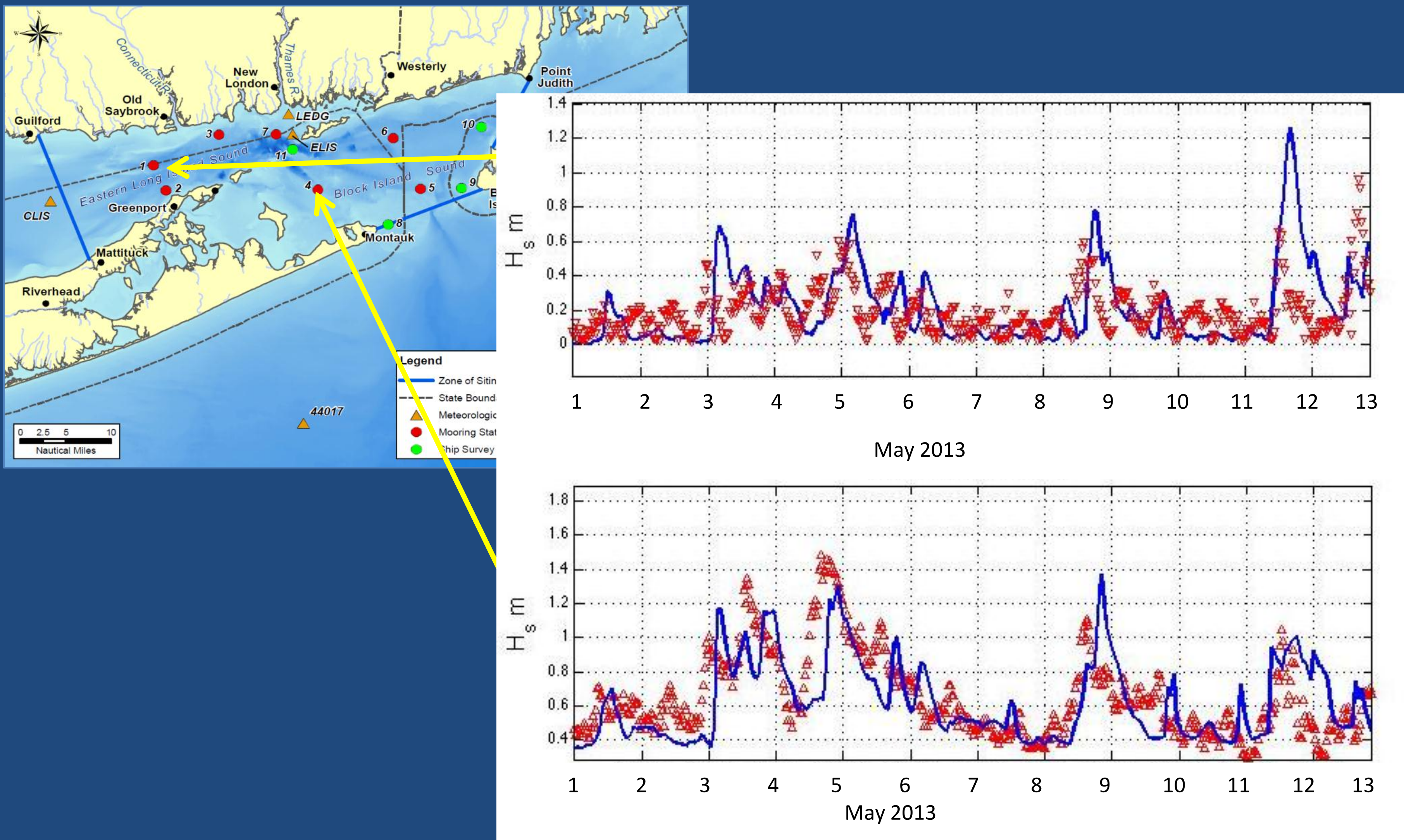
- 09:00 AM



Tidal Current Oscillations

- 12:00 AM

Significant Wave Height Observations *(red)*



Comparison of model and observed significant wave height at Stations DOT1 (upper panel) and DOT4 (lower panel) during May 2013.

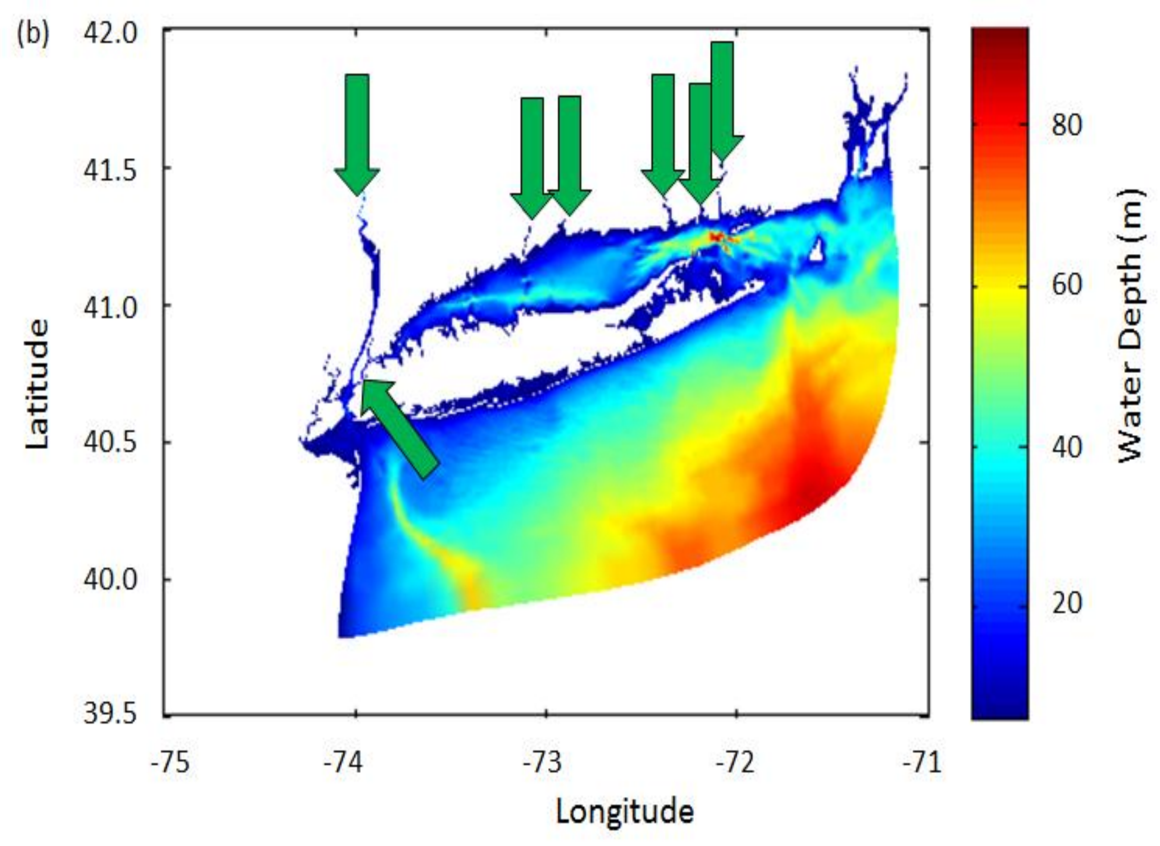
2. Model – Questions for Study

- What is the distribution and spatial variation in the bottom stress?
- Where are the regions in which the maximum stresses are smallest?
- Where does material in the water at potential sites go?

2. Model

FVCOM - Finite Volume Community Ocean Model

- Developed by Prof. Chen, Univ. of Massachusetts, adapted for Long Island Sound
- Nested within NECOFS (Northeast Coastal Ocean Forecast System)
- Forced by:
  - Tides
  - Observed River flow and wind
  - Climatology for surface heat exchange
  - Climatology for initial conditions



Bathymetry of the LIS model subdomain with the locations of freshwater sources (green arrows; from left to right: Hudson River, New York City wastewater treatment plants , Housatonic River, Quinnipiac River, Connecticut River, Niantic River, and Thames River).

2. Model *(cont.)*

An Unstructured Grid, Finite-Volume, Three-Dimensional, Primitive Equations Ocean Model: Application to Coastal Ocean and Estuaries

CHANGSHENG CHEN AND HEDONG LIU

School for Marine Science and Technology, University of Massachusetts–Dartmouth, New Bedford, Massachusetts

ROBERT C. BEARDSLEY

Department of Physical Oceanography, Woods Hole Oceanographic Institution, Woods Hole, Massachusetts

The “Model” is based on Newton’s laws.

It predicts the water velocity, level, temperature and salinity.

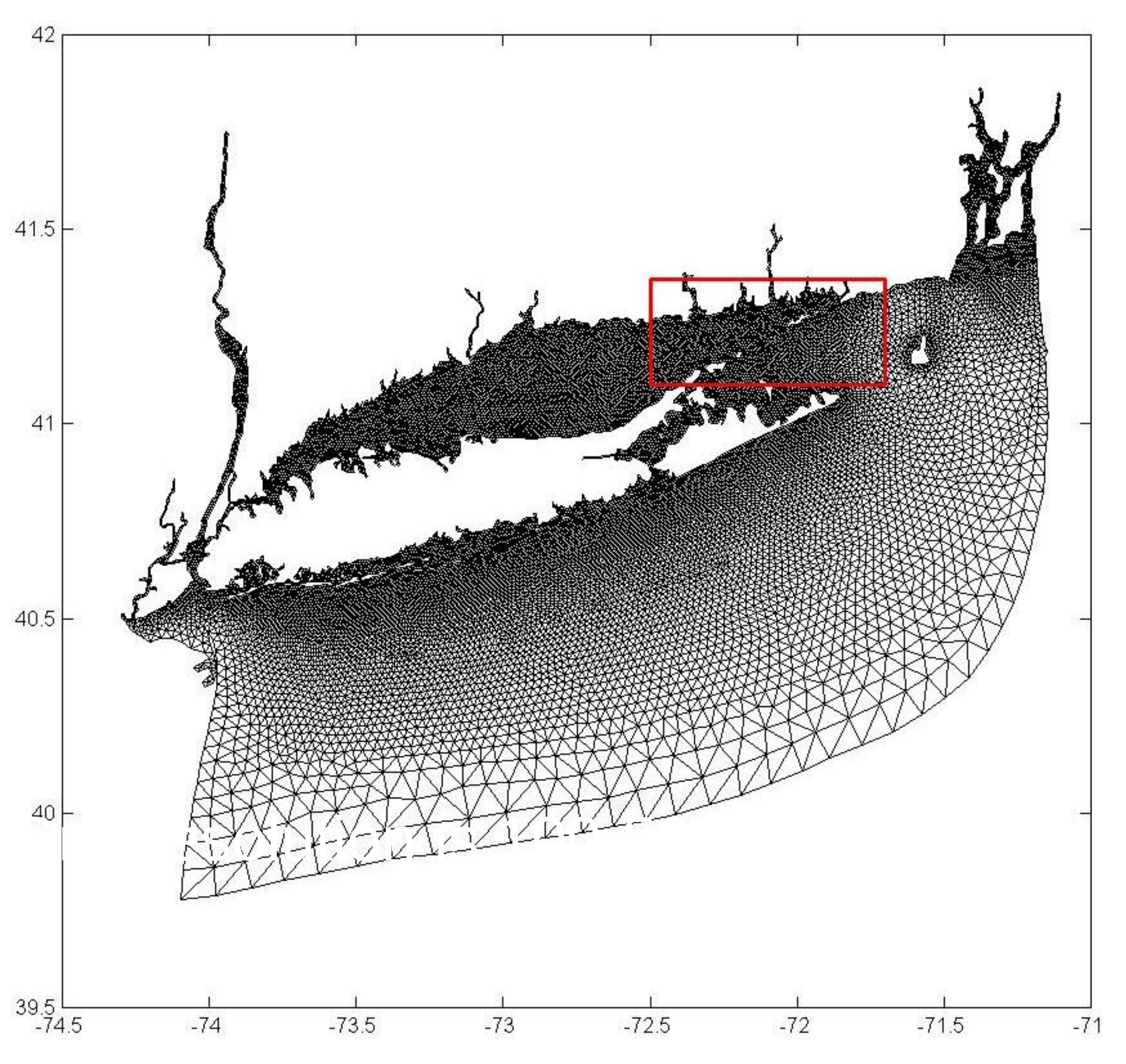
The bottom stress magnitude is computed from the formula

$$\tau = \rho C_D (u^2 + v^2)$$

Where the coefficient $C_{D,}$ is called the DRAG COEFFICIENT.

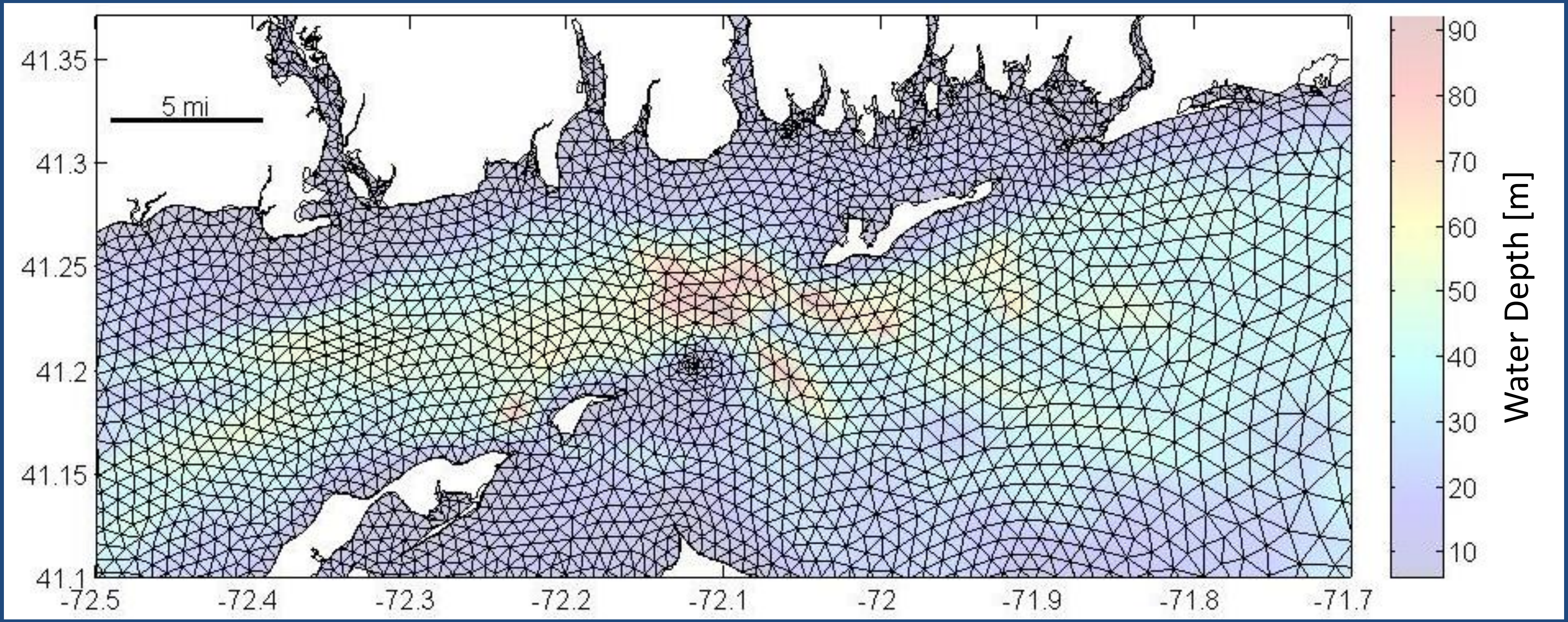
2. Model *(cont.)*

FVCOM runs on an unstructured triangular grid (mesh)



2. Model *(cont.)*

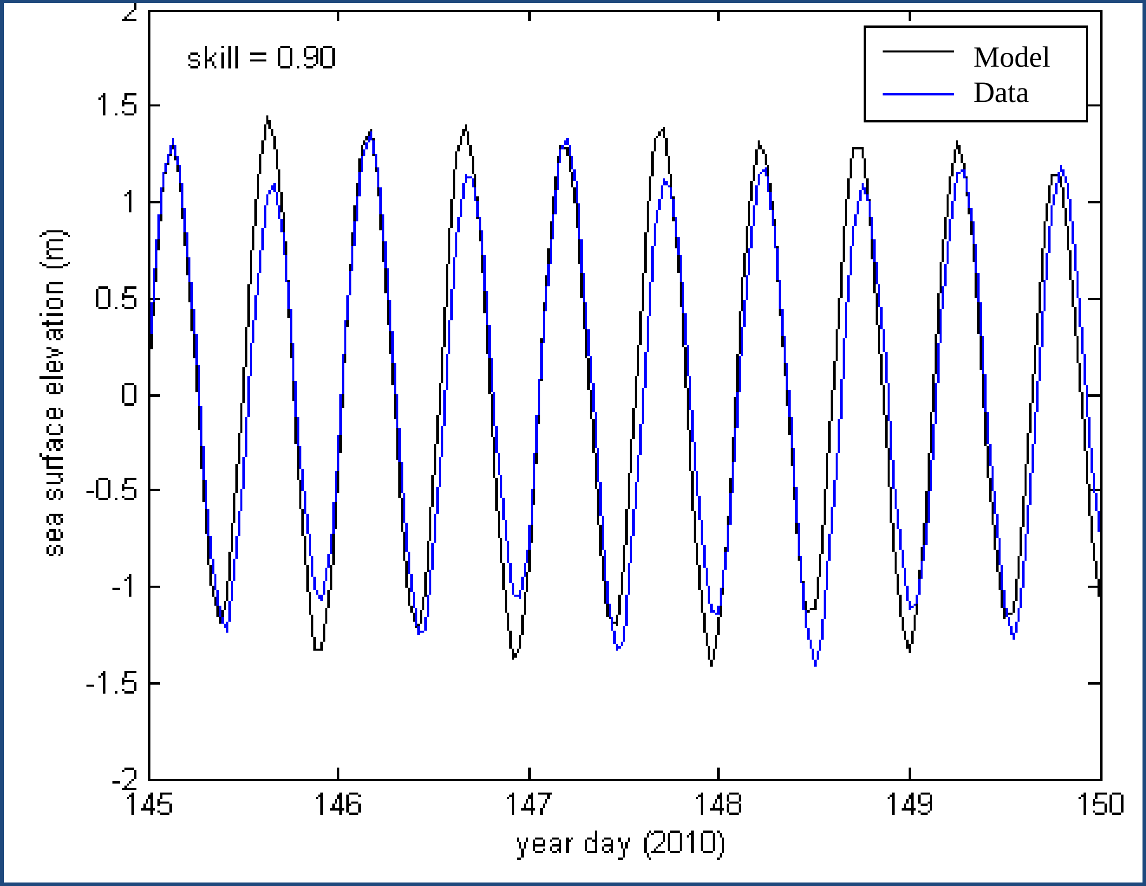
FVCOM runs on an unstructured triangular grid (mesh)



Grid resolution is 100-500 m (~ ¼ mile)

2. Model Calibration

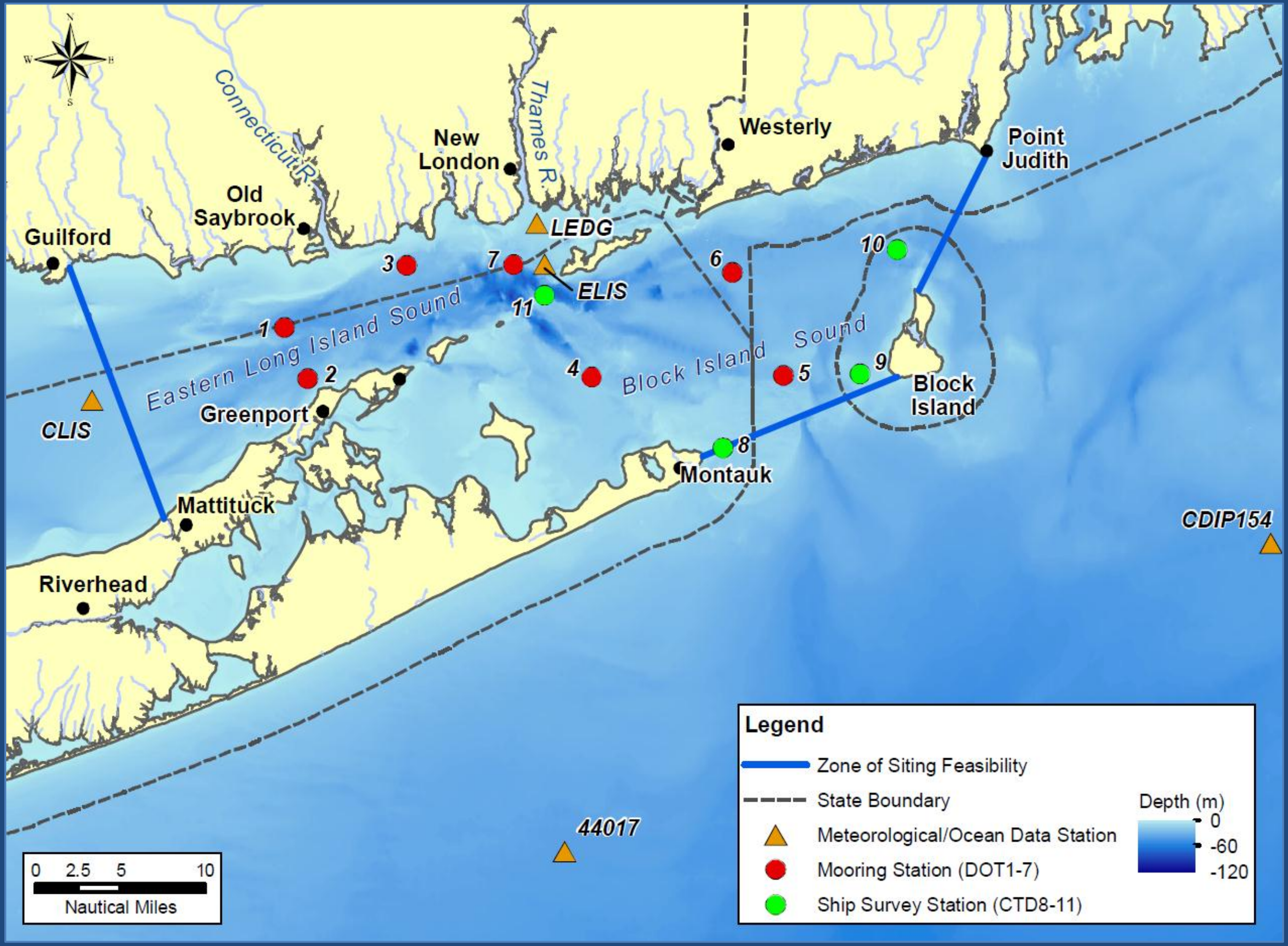
- Optimize the simulation of sea level, temperature, and salinity compared to observations
- Determine the Skill (variance in data explained/variance in data) to be 90%



Comparison of tidal heights at the NOAA Bridgeport tidal height gauge (BDR, blue) compared to those predicted by the FVCOM model (black) after iteratively calibrating the model using the 2010 NOAA data . Note that year day 1 is January 1, 2010.

3. Evaluation – Field Program

- Deploy instruments on 7 bottom tripods for 3 two-month observation campaigns to observe spring, fall winter conditions at locations having differing stresses etc
- Conduct 6 cruises with water column measurements at the 7 tripod stations and 4 additional stations



Survey stations in the ZSF, as well as meteorological/ocean stations. The background represents water depth.

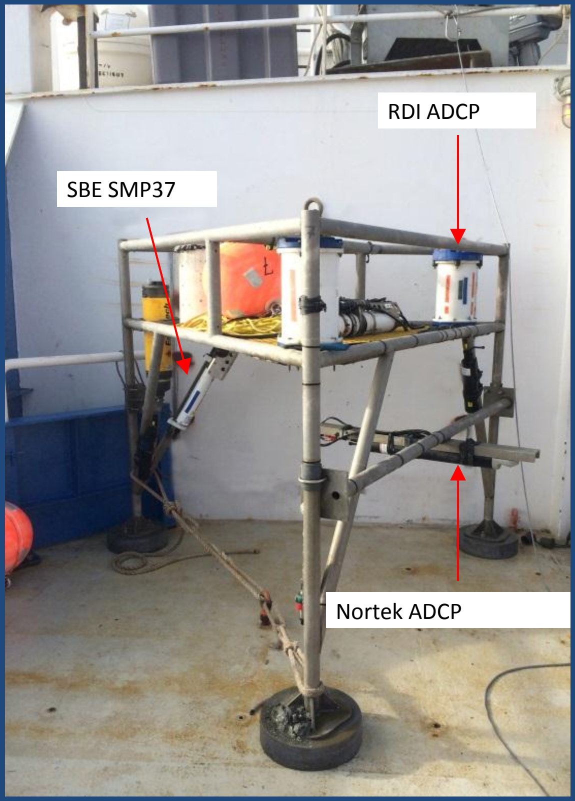
Survey periods

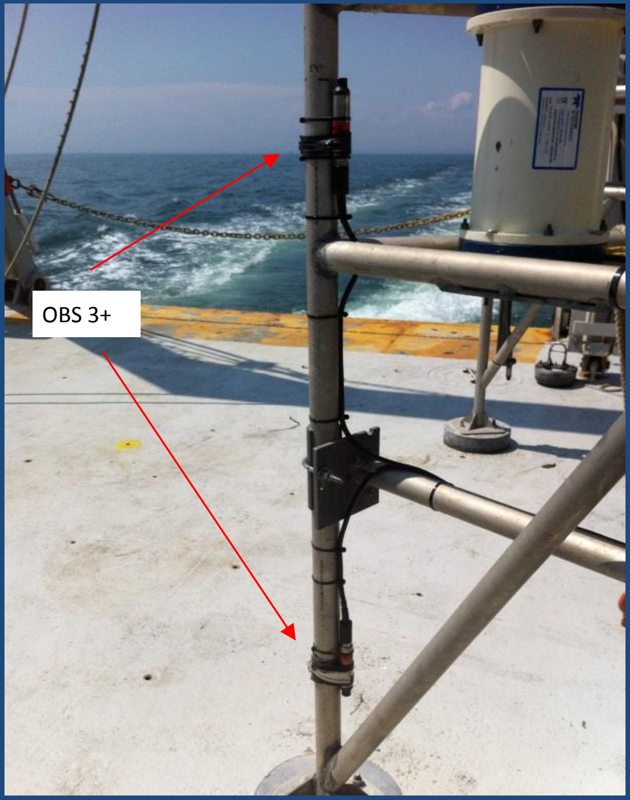
Campaign	Period	Interval	Conditions
1	Spring	March 12 - May 17, 2013 *(66 days)*	High river flow High wind
2	Summer	June 11 – Aug. 8, 2013 *(58 days)*	Low river flow, Low wind
3	Winter	Nov. 20, 2013 – Jan. 16, 2014 *(57 days)*	Low river flow, High wind

Moored Instruments

Sensors:

- Water column currents and waves
  (upward looking RDI ADCP)
- Currents near Seafloor - Stress
  (downward looking Nortek ADCP)
- Suspended sediment concentration
  (2 optical backscatter OBS3+)
- Salinity and temperature
  (CTD SBE SMP37)

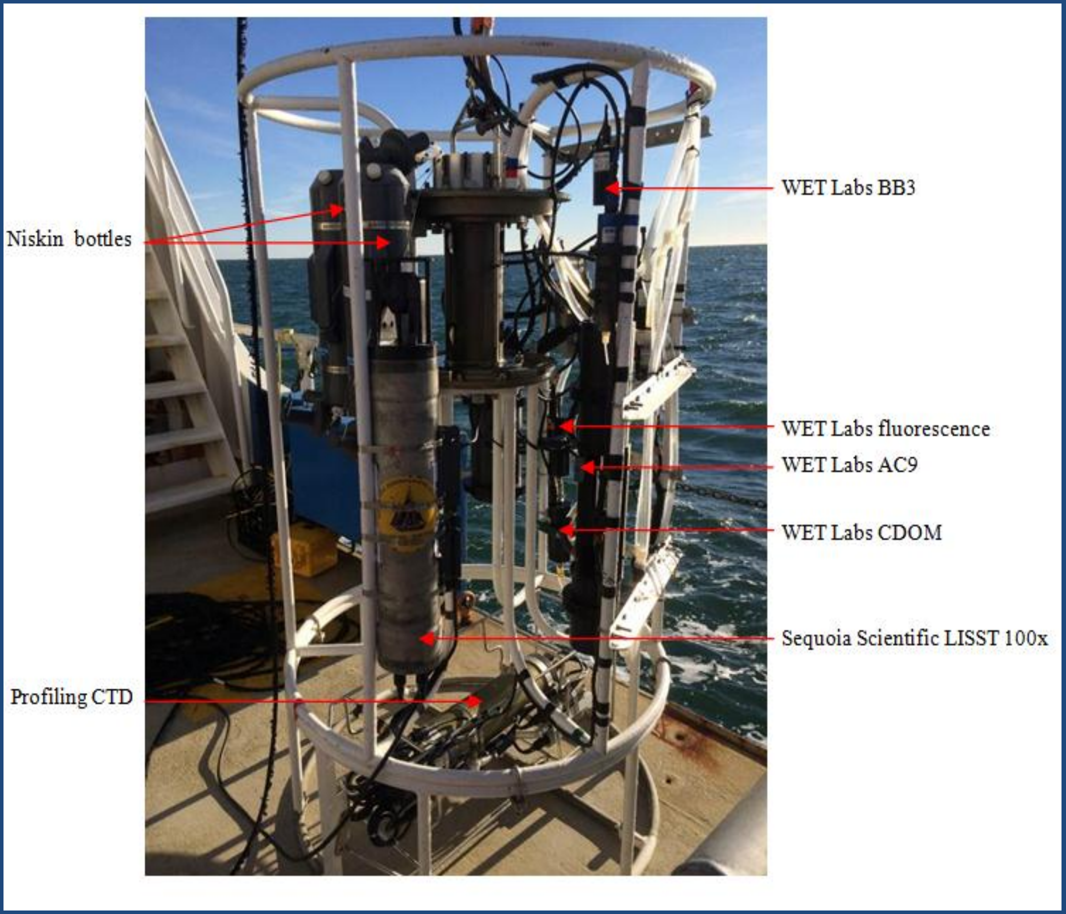




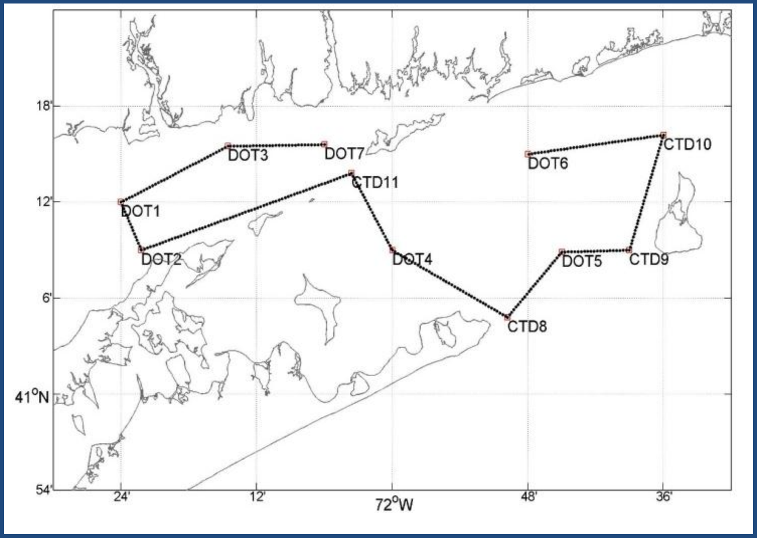
Left: Location of instruments in moored tripod frame
Right: Close-up of the OBS3+ mounts

Ship Surveys

- Temperature and salinity
  (Profiling CTD)
- Suspended sediment
  (WET Labs sensors)
- Water sampling
- Sediment Sampling

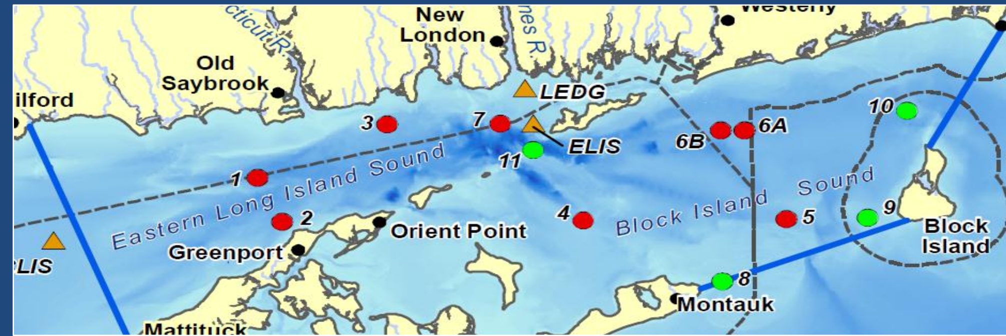


Rosette sampler, equipped with a profiling CTD, Water samplers, and various optical sensors and particle analyzers.



Example of a cruise track for ship surveys. The track varied for each cruise due to weather conditions and sea state.

Data Recovery



For Moored Stations

Parameters	Temperature and Salinity near the Seafloor				Currents and Suspended Sediment near the Seafloor				Waves and Currents in the Water Column			
Sensor	*CTD (SBE SMP37)*				*Nortek ADCP & OBS3+ sensor*				*RDI ADCP*			
Mooring Stn	Campaign			Total	Campaign			Total	Campaign			Total
	1	2	3		1	2	3		1	2	3	
	days				days				days			
DOT1	66	58	57	181	25	29	54	108	66	58	57	181
DOT2	66	58	57	181	25	27	54	106	66	58	57	181
DOT3	66	58	57	181	24	32	53	110	0	58	57	115
DOT4	66	58	57	181	27	34	56	117	66	58	57	181
DOT5	66	58	57	181	27	30	57	114	66	58	57	181
DOT6 A/B	66	58	43	167	25	16	44	86	28	16	43	87
DOT7	49	58	57	164	28	34	27	89	0	58	57	115
Max Days	*66*	*58*	*57*	*181*	*66*	*58*	*57*	*181*	*66*	*58*	*57*	*181*

Full or near-full data (>90%)

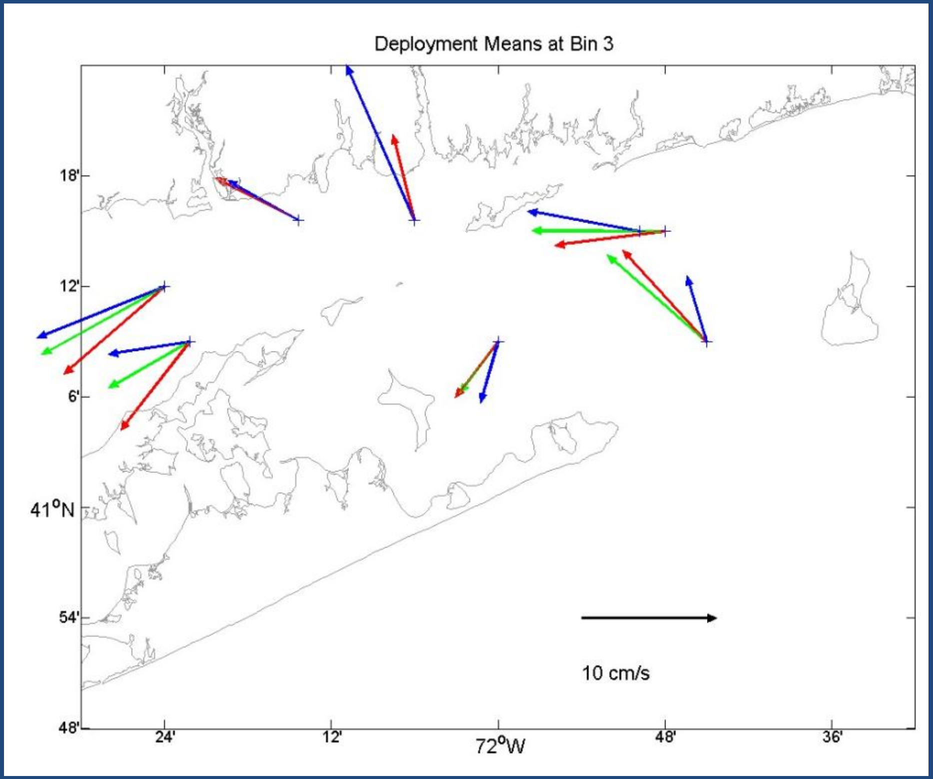
About half or more data (45 - 90%)

About one quarter or more data (22.5 - 45%)

No data

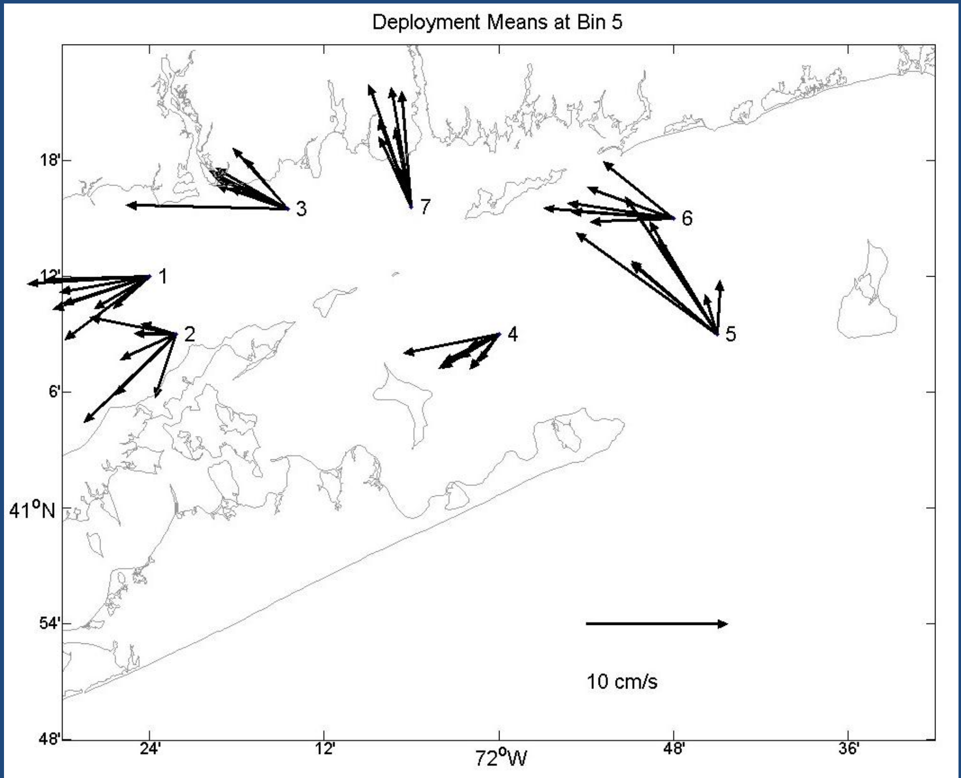
Example of Observations – mean flow near the bottom

RDI ADCP means at ~3m from seafloor



Mean currents at Bin 3 of the RDI ADCP measurements during Campaigns 1 (green), 2 (red), and 3 (blue).

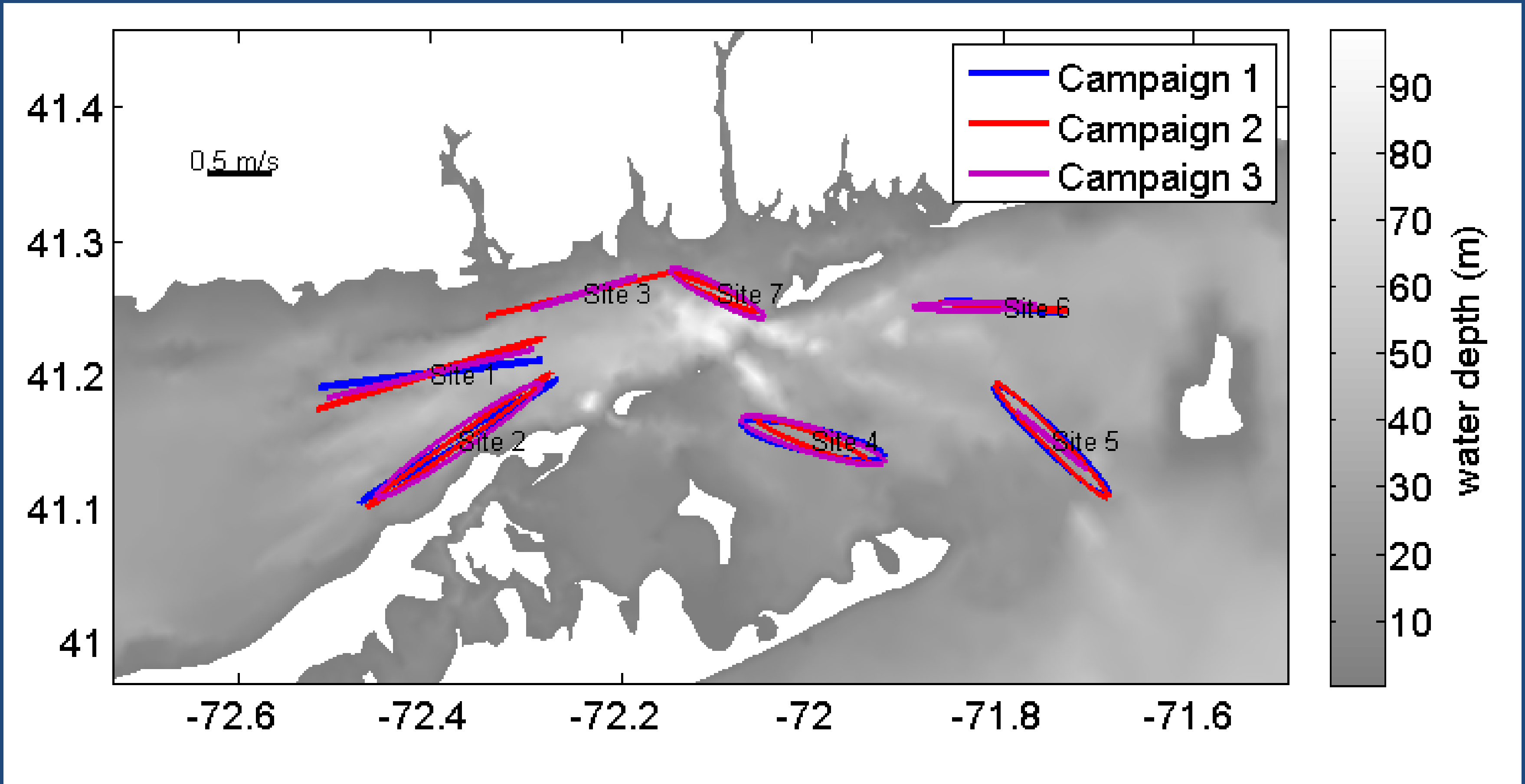
Nortek ADCP means at ~0.6m from seafloor



Mean velocity vectors at each moored station from the Nortek ADCP near the seafloor. The velocity scale is shown on graphic.

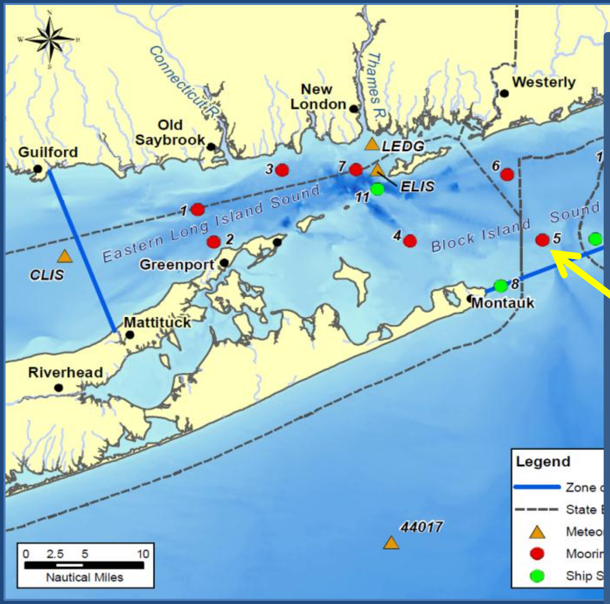
Tidal Current (M2) Amplitudes

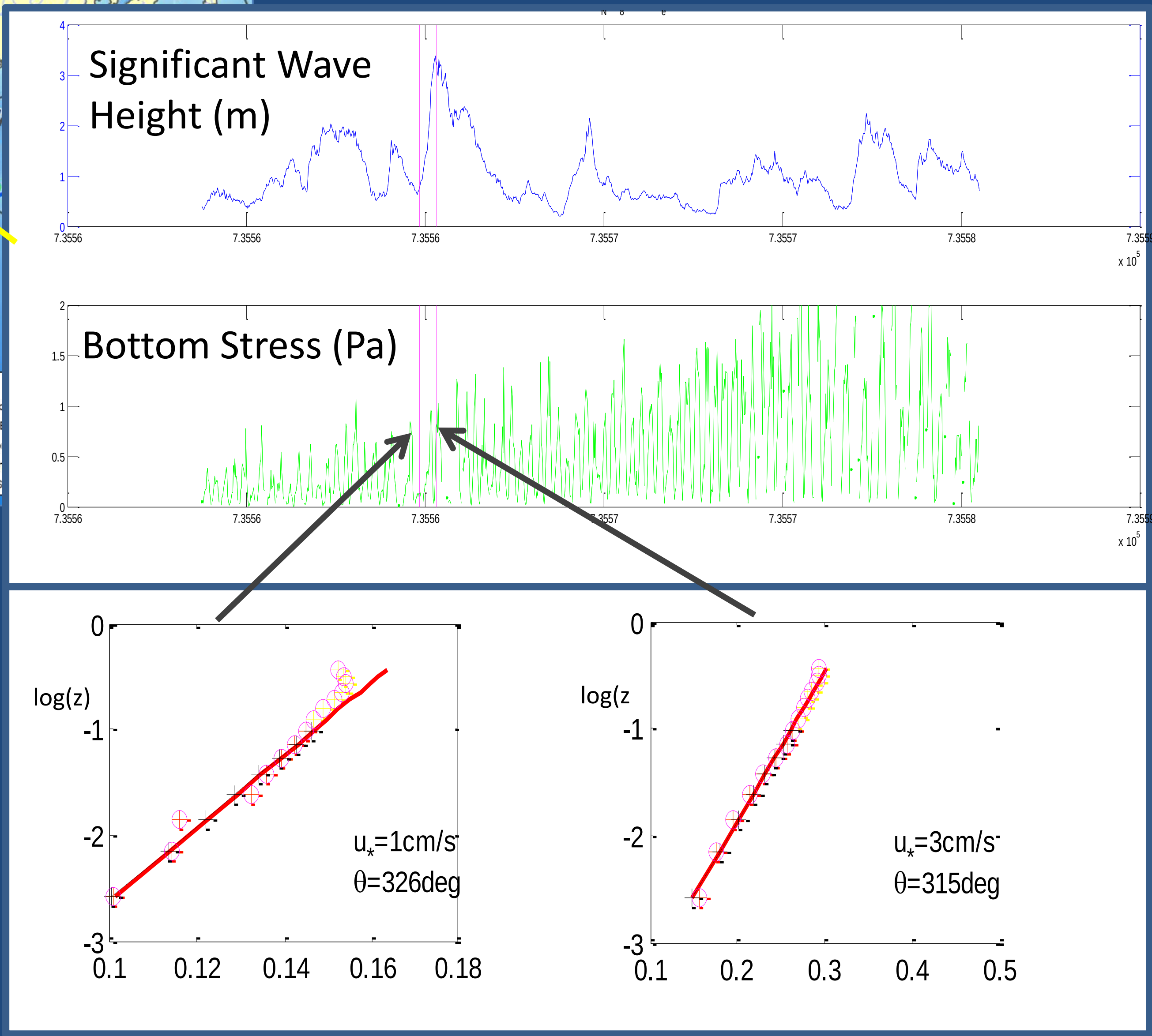
M2 Tidal Constituents



M2 ellipses for depth-average velocities from RDI ADCP measurements from the three campaigns (colors) and for FVCOM model (black) at all seven DOT stations. The grey shading represents mean water depth.

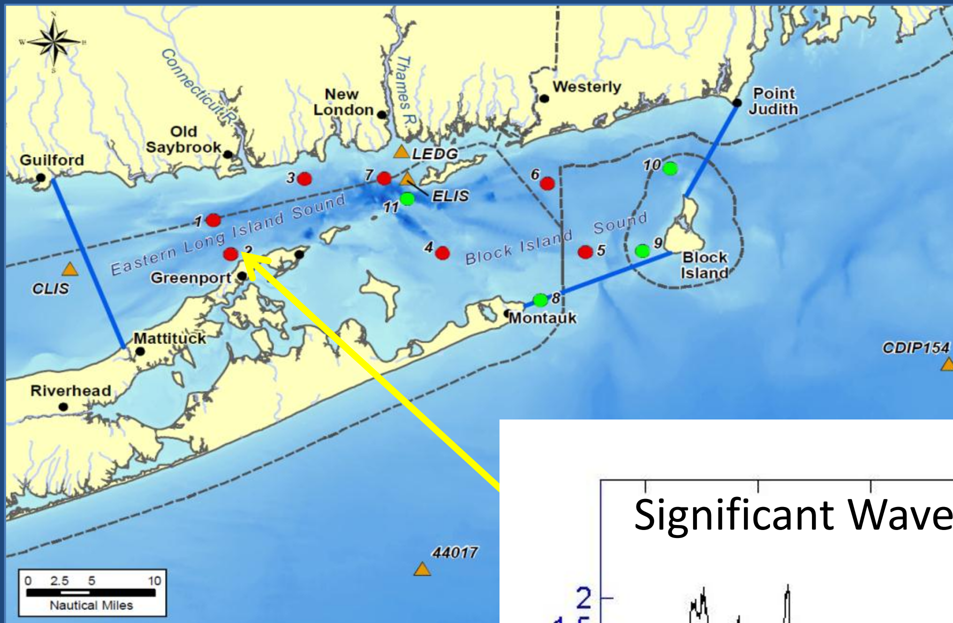
Wave and Stress Measurements

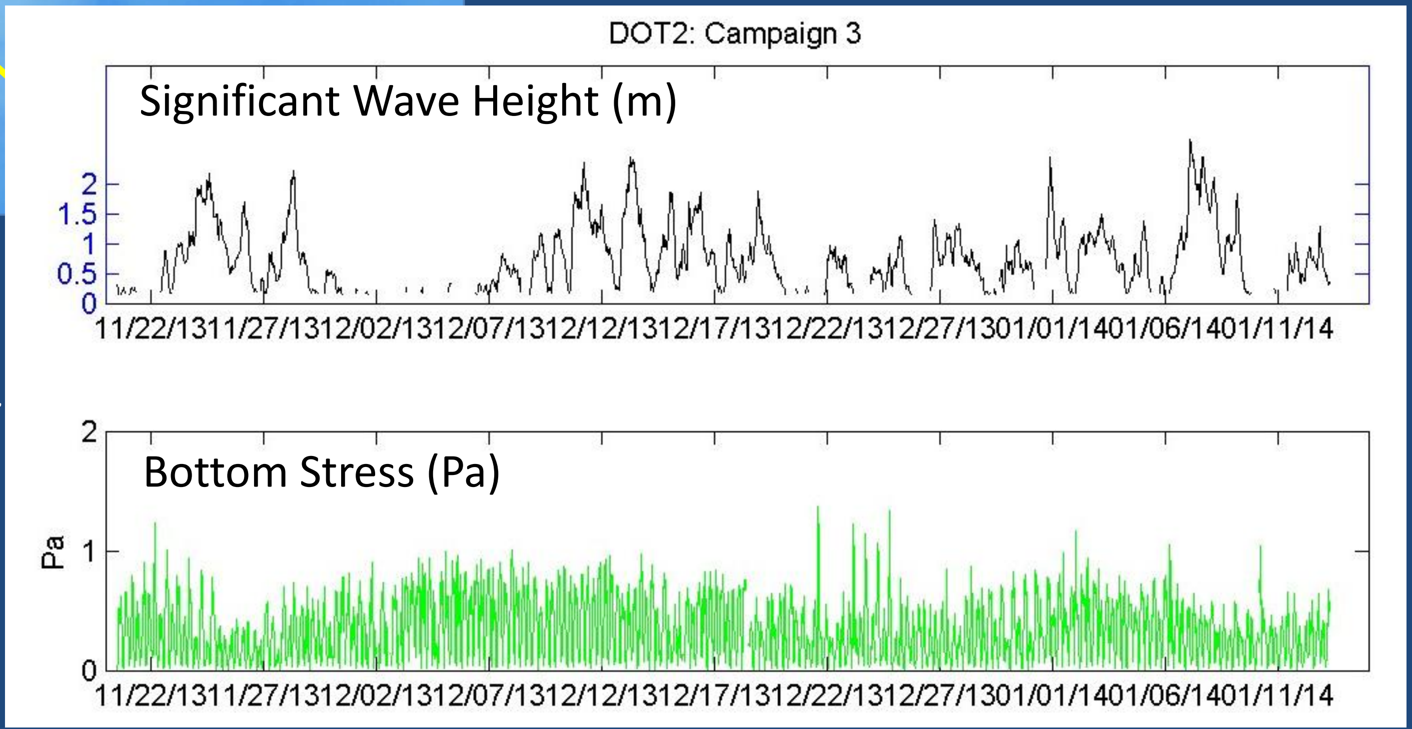




The variation of u(z) with log(z) for ensembles 297 and 317

Wave and Stress Measurements

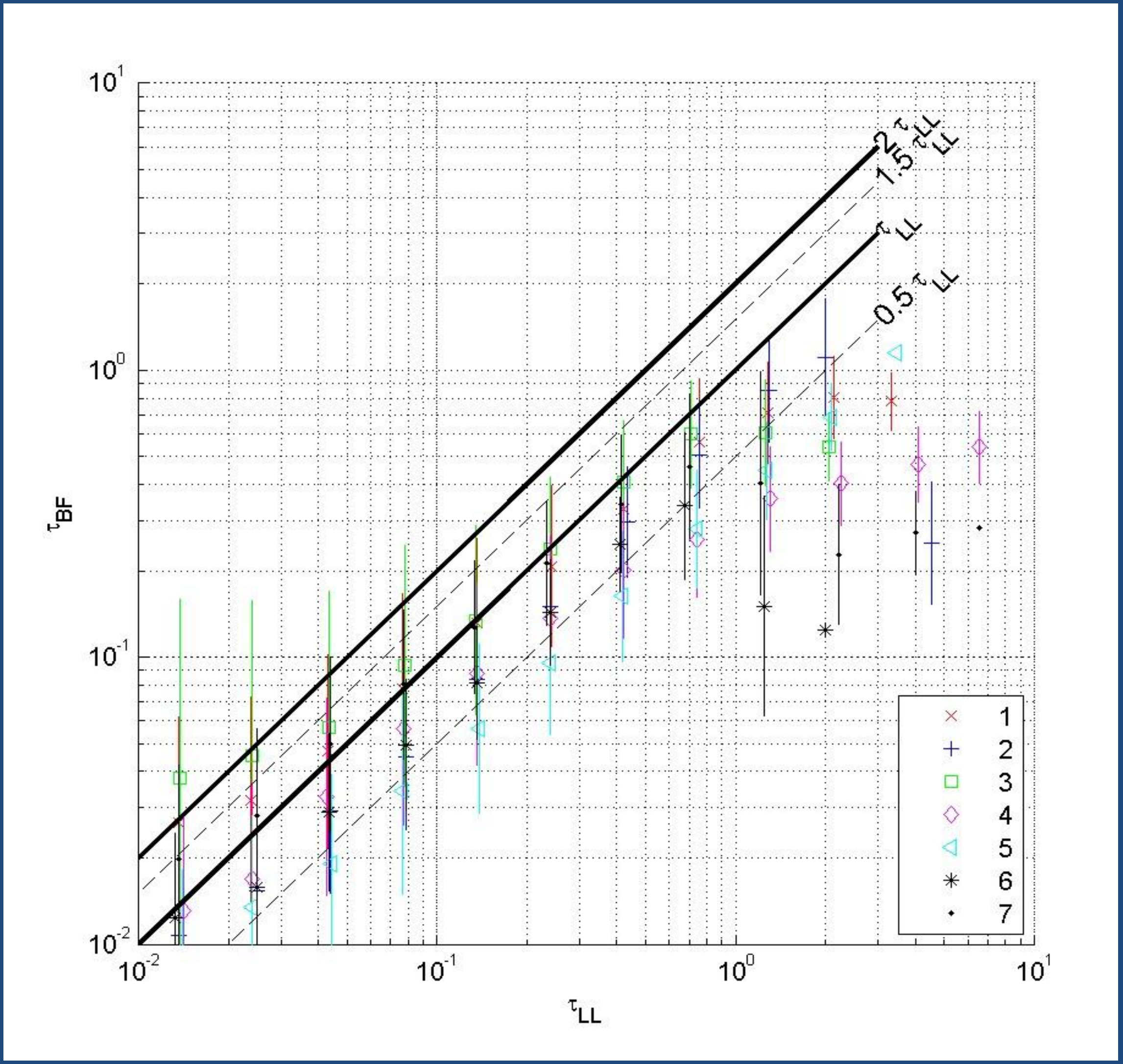




Characteristics at Station DOT2 during Campaign 3:
Top: Significant wave height (in m).
Bottom Stress.

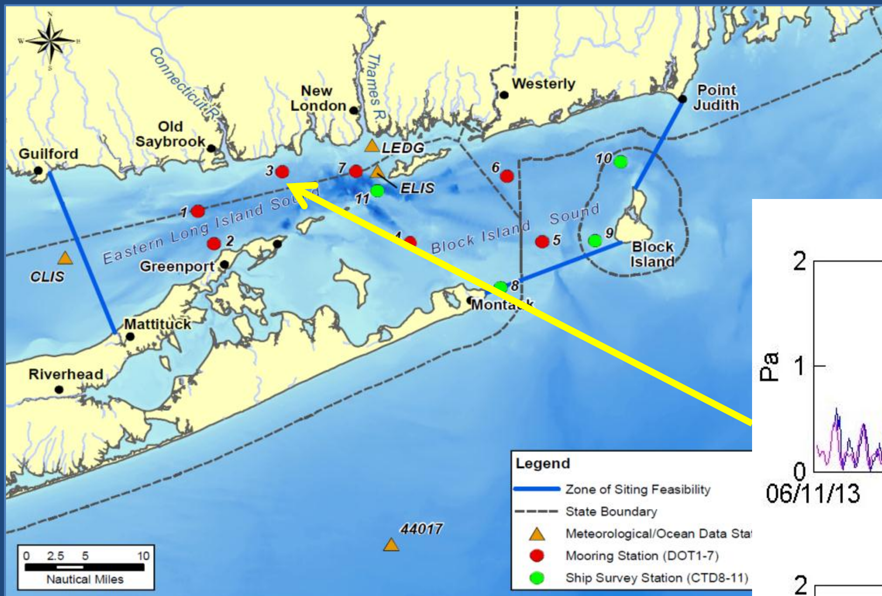
Bottom Stress Drag Coefficient Evaluation

Measurements using the Log Law method (LL) support the use of Bulk Formula (BF) with C_d =0.0025.

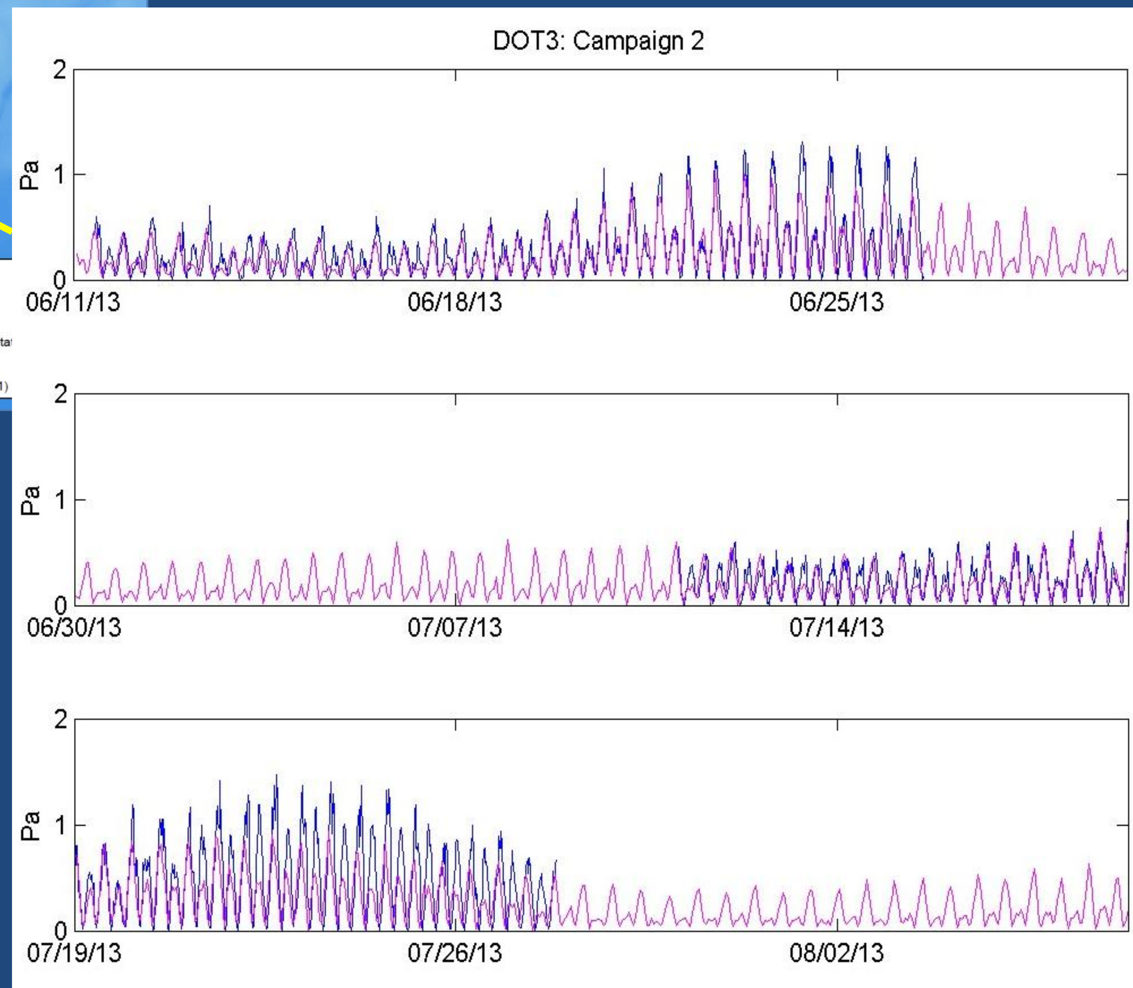


Summary of stress magnitude measurements using the log law and the bulk formula with C_d=0.0025. To suppress the noise inherent in turbulent quantities, measurements were bin-averaged. The key shows the stations numbers.

3. Evaluation of Bottom Stress in Model



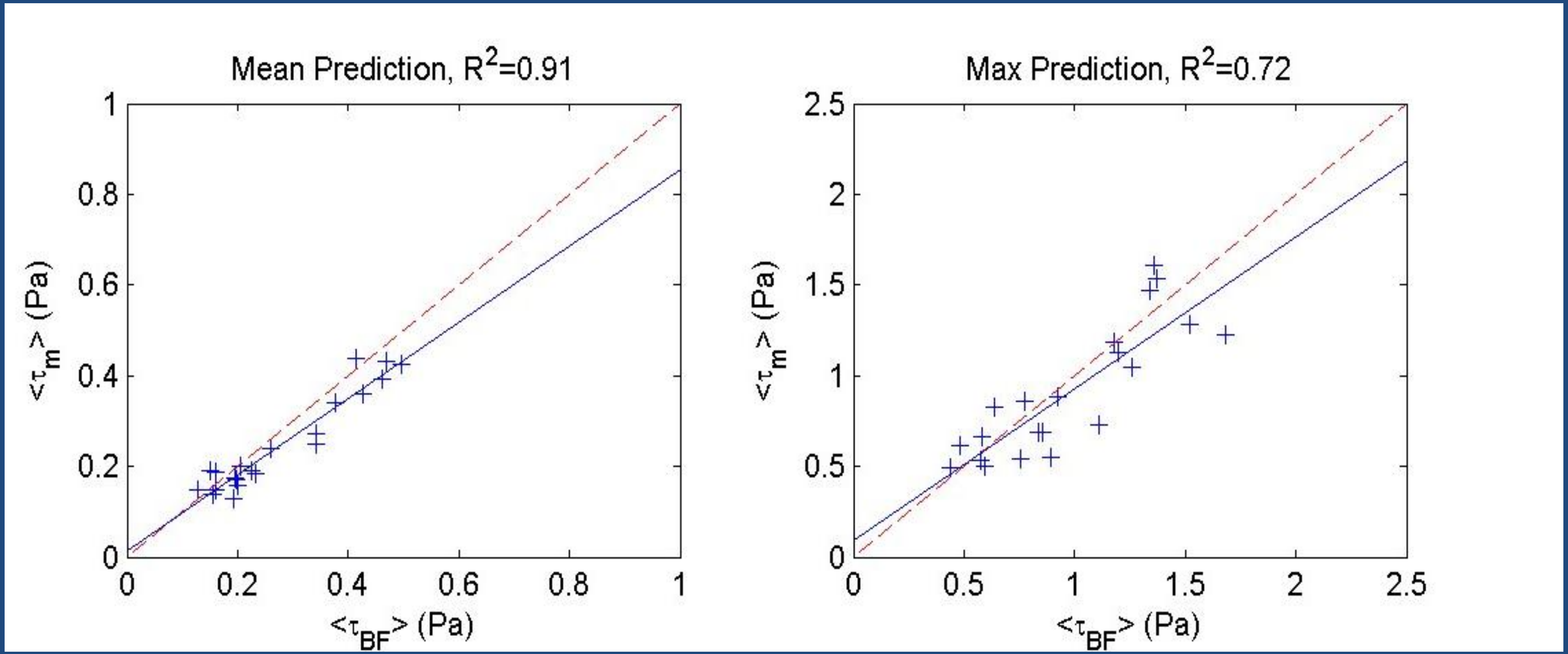
Model simulations reproduce tidal and the spring-neap variations on observed stress



Model-predicted bottom stress at Station DOT3 during Campaign 2 in the summer of 2013 (magenta line). The blue line shows the measured stress using the bulk formula.

3. Evaluation

- Model and observations agree on the campaign mean and maximum stress magnitudes.
- Model can effectively discriminate between places where the maximum measured stresses are large (>1 Pa) and those where they are smaller (<1Pa).



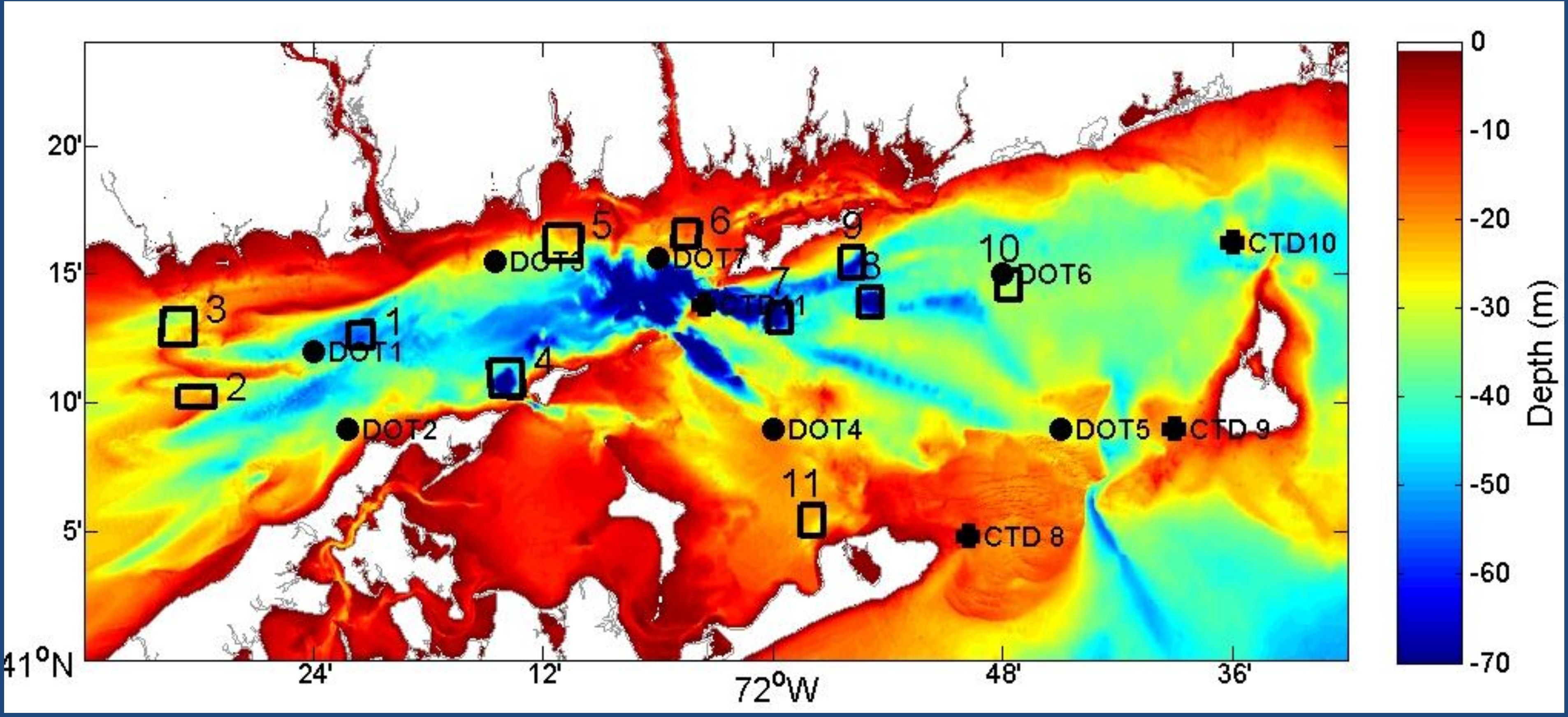
Left: Comparison of model predicted bottom stress magnitudes and mean bottom stress observed during the three campaigns. Points would all lie on the red dashed line if the model and data were in perfect agreement. The blue solid line shows the ordinary least-squares regression line which has a correlation coefficient of 0.91.
Right: Comparison of the predicted and observed maximum stress magnitudes. The correlation coefficient was 0.72.

4. Analysis

- Find maximum bottom stress magnitude at each point in the ZSF in the three Campaigns
- Compare values at sites identified in the screening process
- Simulate period of a severe storm (Superstorm Sandy) and compare maximum stress magnitudes

4. Analysis *(cont.)*

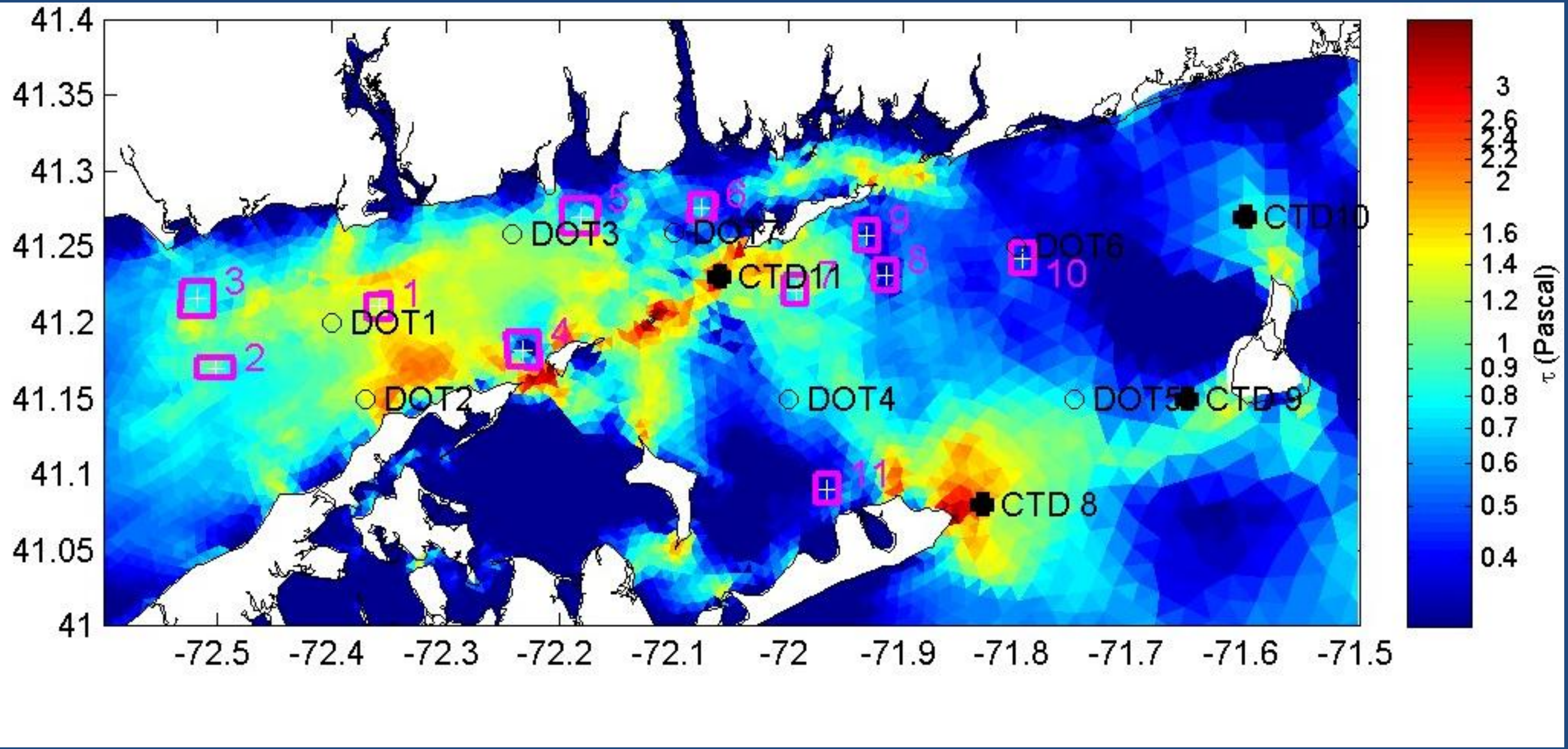
Bathymetry and locations of potential sites



Water depth and 11 potential dredged material disposal sites (open boxes) as identified during the initial screening process. Sites 1 and 6 are the active disposal sites (CSDS and NLDS, respectively). The seven mooring stations ('DOT') are identified by full circles; the four additional ship survey stations ('CTD') are identified by crosses.

4. Analysis *(cont.)*

- Spatial differences are much larger than seasonal variations
- Stress is high in much of ZSF



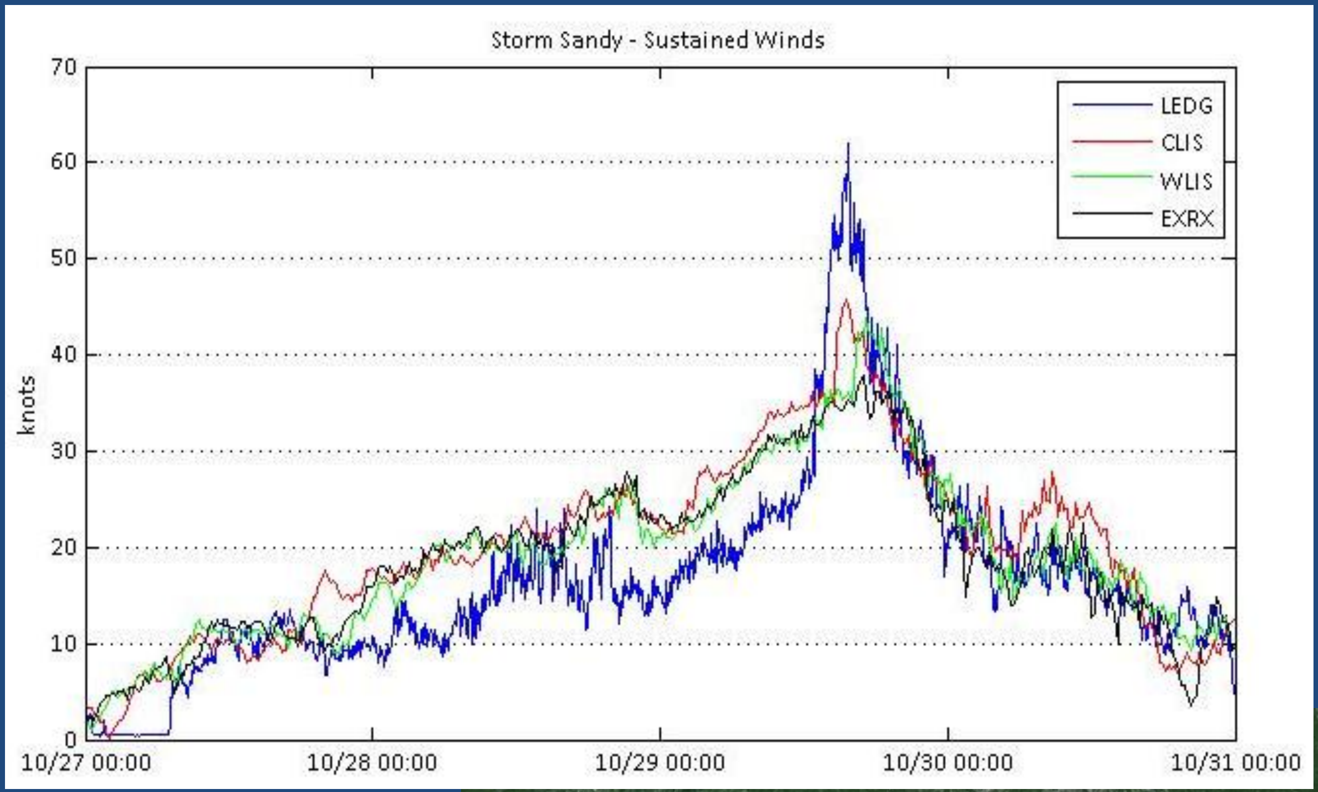
Maximum bottom stress during Campaign 3 (November 20, 2013, to January 16, 2014) for storm conditions (i.e., due to the principal tidal current constituents and the seasonal mean flow, as well as wind).

4. Analysis *(cont.)*

Maximum Bottom Stress (Pa) during Storm Conditions at Potential Dredged Material Disposal Sites

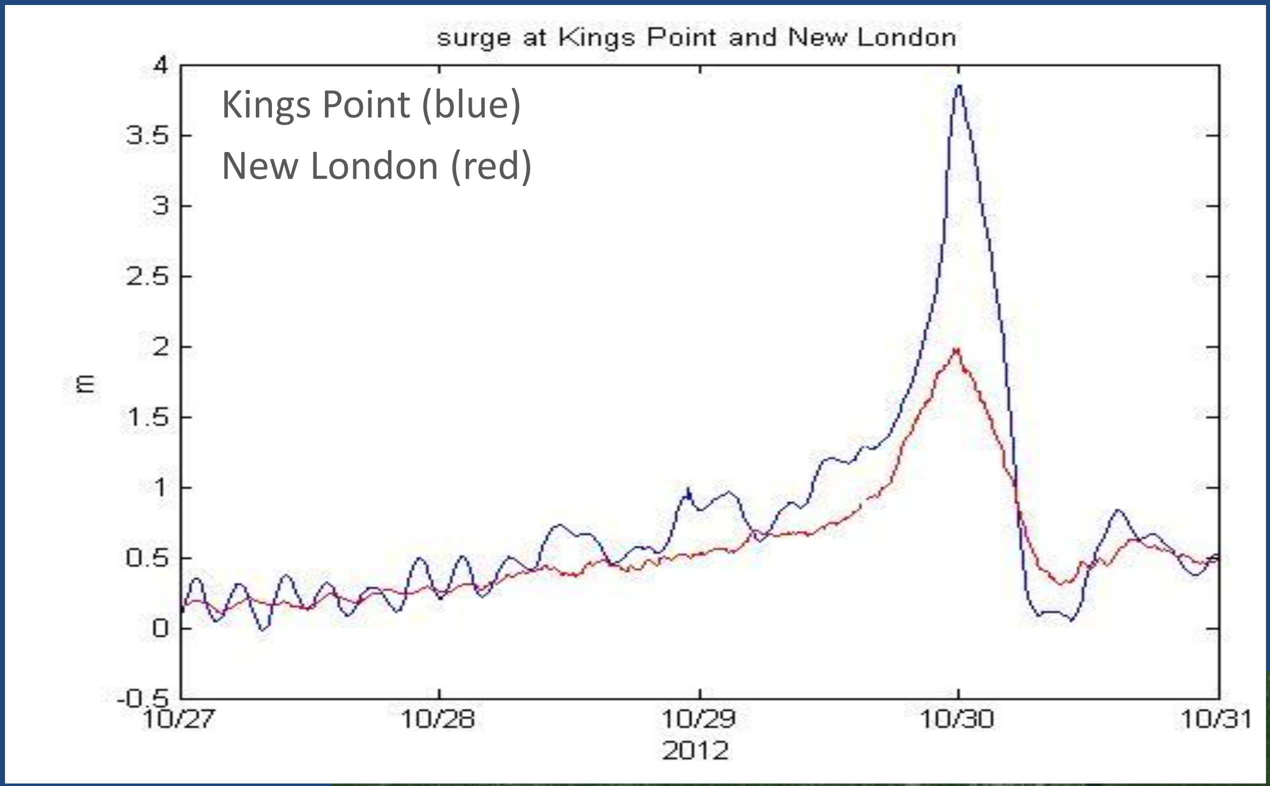
Potential Disposal Site			**Maximum Bottom Stress** (Pa)		
			1. (spring)	**2. (summer)**	**3. (winter)**
ELIS	1	Cornfield Shoals Disposal Site	1.17	1.31	1.24
	2	Six Mile Reef Disposal Site	0.92	1.09	1.00
	3	Clinton Harbor Disposal Site	0.72	0.71	0.81
	4	Orient Point Disposal Site	0.52	0.61	0.48
	5	Niantic Bay Disposal Site	0.73	0.97	0.84
	6	New London Disposal Site	0.60	0.70	0.69
BIS	7	Fishers Island-west	0.79	0.91	0.86
	8	Fishers Island-east	0.49	0.51	0.39
	9	Fishers Island-center	0.39	0.50	0.38
	10	Block Island Sound Disposal Site	0.49	0.63	0.44
	11	North of Montauk	0.31	0.31	0.34

4. Analysis *(cont.)*

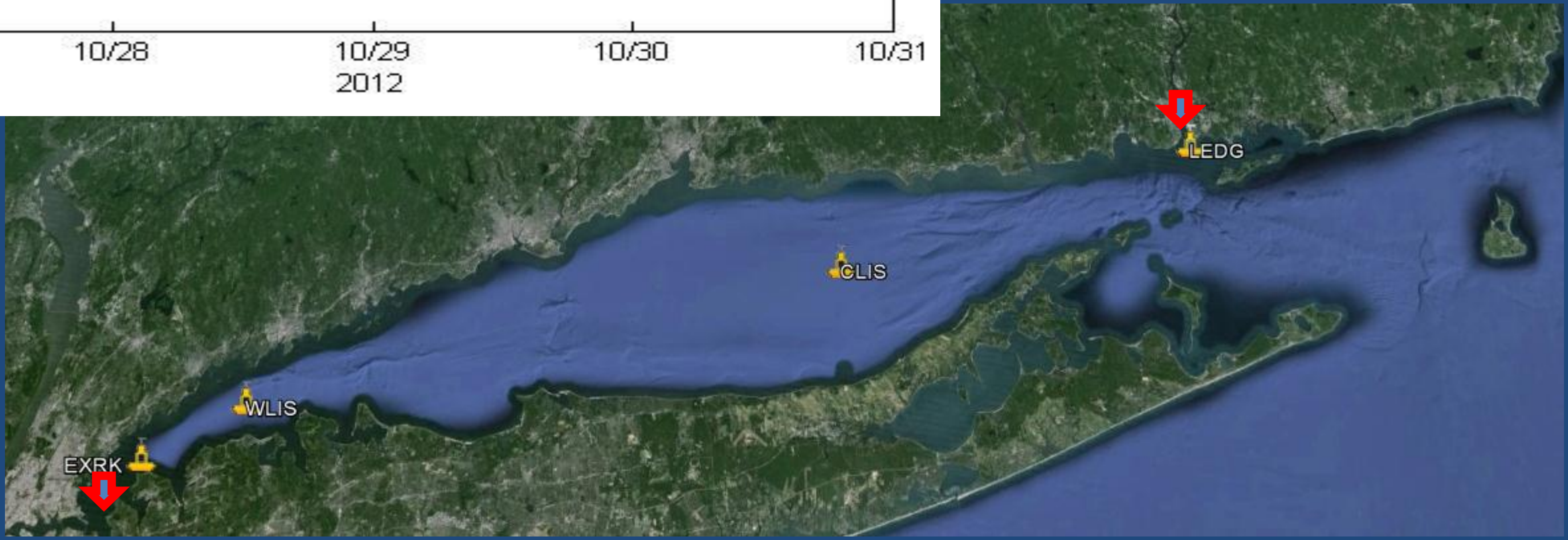


Superstorm Sandy: Sustained Winds

4. Analysis *(cont.)*

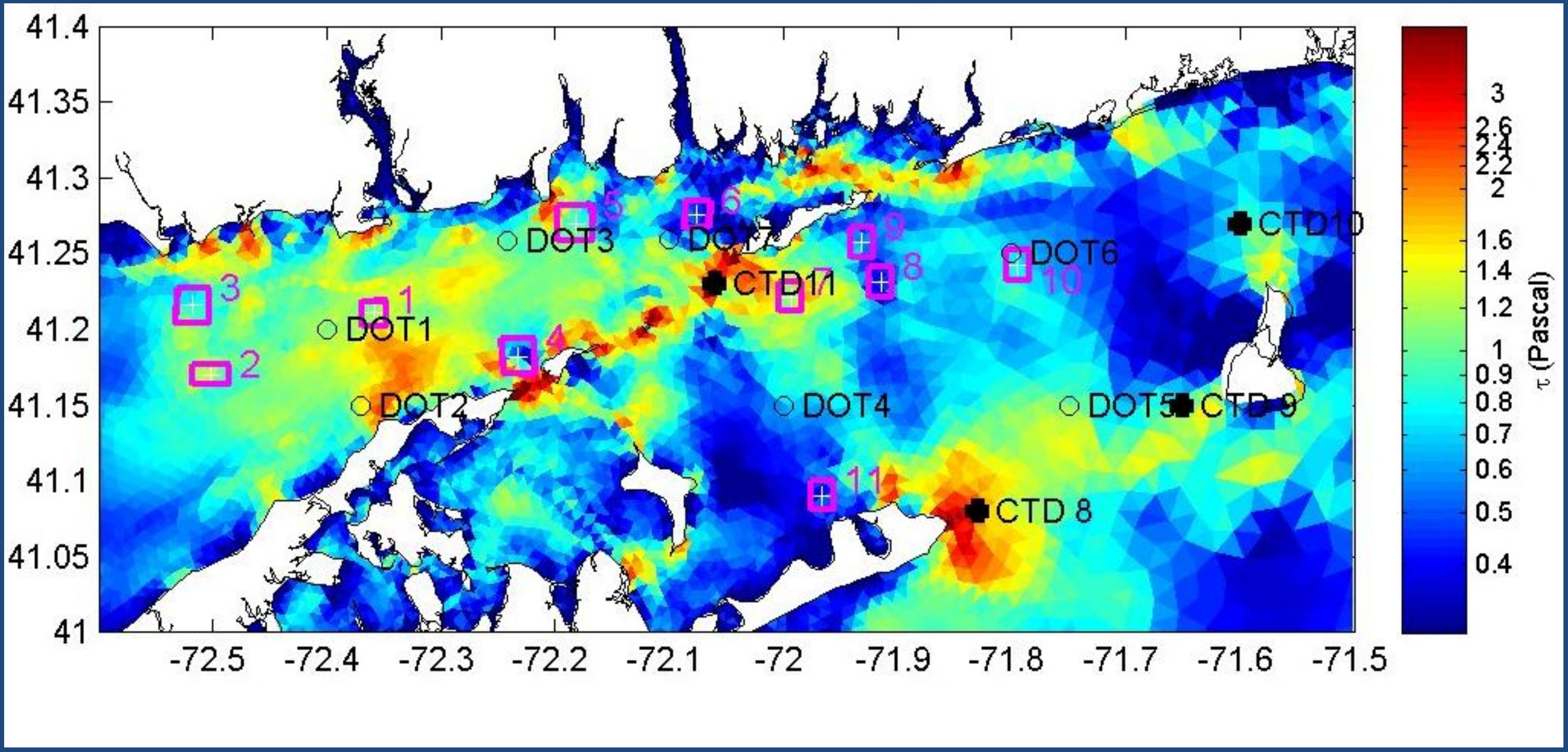


Superstorm Sandy: Storm Surge



4. Analysis *(cont.)*

Superstorm Sandy created higher maximum bottom stresses in some areas



Maximum bottom stress simulated for the period October 28 to 31, 2012 when Superstorm Sandy passed over New England.

4. Analysis *(cont.)*

Potential Disposal Site			Superstorm Sandy Conditions Bottom Stress (Pa)
ELIS	1	Cornfield Shoals Disposal Site	1.16
	2	Six Mile Reef Disposal Site	1.26
	3	Clinton Harbor Disposal Site	0.87
	4	Orient Point Disposal Site	0.53
	5	Niantic Bay Disposal Site	0.99
	6	New London Disposal Site	0.48
BIS	7	Fishers Island-west	1.17
	8	Fishers Island-east	0.46
	9	Fishers Island-center	0.55
	10	Block Island Sound Disposal Site	0.73
	11	North of Montauk	0.39

4. Analysis *(cont.)*

Stress Threshold for Erosion on Seafloor:

- Defined as the level of stress at which dredged material in a disposal area will be mobilized
- Depends upon sediment grain size, fraction of clay, volume fraction, level cohesiveness
- Based on a review of the literature, we choose 0.75 Pa as the design threshold

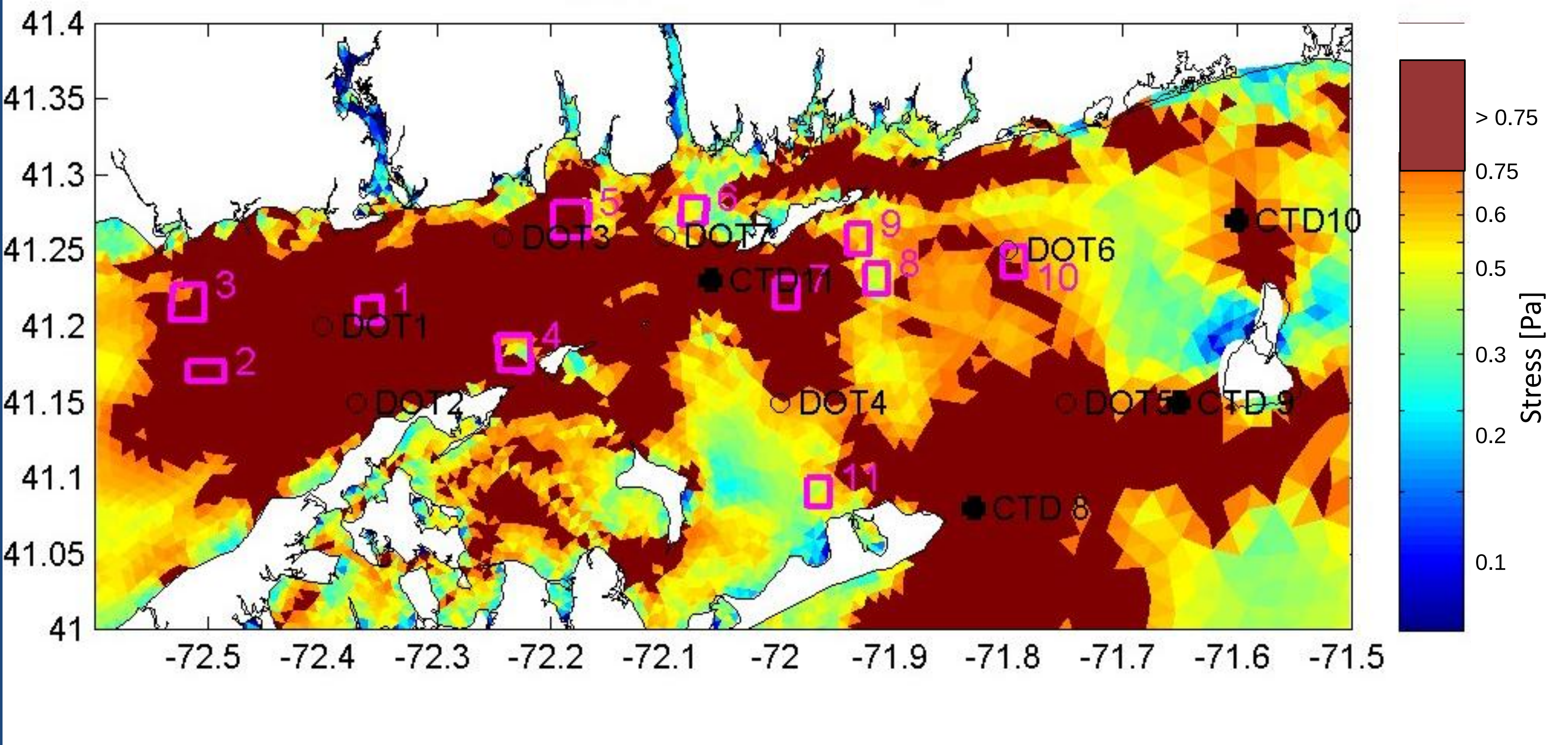
4. Analysis *(cont.)*

Comparison of Maximum Bottom Stress (Pa) for Potential Dredged Material Disposal Sites in the simulations of the three Observation Campaigns and Superstorm Sandy.

Potential Disposal Site				Maximum Stress in Simulations (Pa)	
ELIS	BIS	No.	Site Name	Group	Highest Value
●		1	Cornfield Shoals Disposal Site	>1	1.31
●		2	Six Mile Reef Disposal Site		1.26
	●	7	Fishers Island-west Disposal Site		1.17
●		5	Niantic Bay Disposal Site	0.75-1.0	0.99
●		3	Clinton Harbor Disposal Site		0.87
	●	10	Block Island Sound Disposal Site	<0.75	0.73
●		6	New London Disposal Site		0.69
	●	9	Fishers Island-center		0.55
●		4	Orient Point Disposal Site		0.53
	●	8	Fishers Island-east		0.46
	●	11	North of Montauk		0.39

5. Summary

Areas with maximum bottom stress exceeding the 0.75 Pa threshold during the simulation of Superstorm Sandy (screened as a uniform brown layer). Areas with bottom stress below 0.75 Pa are scaled (see color key on the right).



5. Summary (cont)

Sites 1, 2, and 7
(Cornfield Shoals, Six Mile Reef, and Fishers Island - west) have high maximum stresses.

Sites 4 and 10
(Orient Point DS and Block Island Sound DS) show maximum stress below the 0.75 Pa threshold at the center of the site, but have values in excess of 0.75 Pa within the boundary.

Sites 5 and 3
(Niantic Bay and Clinton Harbor) show maximum stresses exceeding 0.75 Pa but less than 1 Pa.

Site 6
(New London DS) is the only site in Eastern Long Island Sound with maximum bottom stress below the 0.75 Pa threshold.

Attachment 4

TRANSCRIPTS OF PUBLIC MEETINGS, RIVERHEAD, NEW YORK DECEMBER 8, 2014

SUPPLEMENTAL ENVIRONMENTAL
IMPACT STATEMENT

Suffolk Community College
20 East Main Street
Riverhead, New York
3:00 p.m.
December 8, 2014

S P E A K E R S:

BERNWARD J. HAY, PH.D, LOUIS BERGER
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DR. HAY: I think we are ready to start. Welcome to this public meeting. Good afternoon. Before we start, a couple of housekeeping items. The sign-up sheet is outside. I hope everyone has had a chance to sign in at this point. The public rest rooms are on the right side down the corridor, both ladies' room and men's room. Also, please turn off your cell phones or put them on vibrate.

My name is Bernward Hay. I am with the Louis Berger Group. We are under contract with the University of Connecticut, which is under contract to the Connecticut Department of Transportation. We have been assisting the Connecticut Department of Transportation and the EPA to prepare a Supplemental Environmental Impact Statement for the potential designation of one or more dredged material disposal sites in open waters. The EPA is the federal lead agency for this project. In addition to this public meeting, there will be another one tomorrow, which will be held in New London, Connecticut.

Today's meeting is designed to present findings of the physical oceanography

study that was conducted as part of the Environmental Impact Statement. This meeting will be informational, and there will be a presentation. Therefore, there is no comment period, but we do have time for questions and comments at the end of the presentation as well.

Ms. Jean Brochi is the project manager of the Ocean and Coastal Protection Unit of the EPA. She will open the meeting, and will give you a project update. Then this will be followed by the physical oceanography presentation by Frank Bohlen and Grant McCardell from the University of Connecticut Marine Science Department. Again, then we will have some time for questions and for comments.

The meeting is recorded by a stenographer, and also on audio devices, and the transcript will be available, after the meeting at some point, it will be made available to the public on their web site, at the EPA's web site. With this, Ms. Brochi will open the meeting.

MS. BROCHI: The other speakers probably won't need a microphone, but I do. Even with the microphone, if you can't hear me, please

just raise your hand or ask me to repeat something.

Anyway, thank you all for coming out this afternoon on this wonderful winter day. If you haven't been to a meeting before, this is an EPA meeting, and it is a combined EPA Region 1 and Region 2. We have several EPA representatives here. I am Jeanie Brochi, as Bernward said. Mel Cote, my manager is here. Doug Pabst and Pat Pechko from Region 2, and Alicia Grimaldi, who you met when you first signed in, is also from our office in Region 1.

This is for a Supplemental Environmental Impact Statement for Eastern Long Island Sound. The last set of public meetings that we had in this facility, actually, was in June, June 25th and 26th. Again, the primary focus of this meeting is for the physical oceanographic study, and Frank Bohlen will start that off.

Again, under the Marine Protection and Research Sanctuaries Act and the Clean Water Act, EPA and the Corps of Engineers share responsibility for dredged material management.

Several Corps of Engineers personnel are here today. Under Section 102 of the Marine Protection and Sanctuaries Act, EPA has the authority to designate disposal sites for dredged material.

The Long Island Sound Dredge Materials Disposal Site designation was officially, the final designation was in July of 2005, and that was for the western and central disposal sites. The Corp has the authority to select sites on a temporary basis. So Cornfield Shoals and New London disposal sites, which are in the eastern part of the Sound, were selected by the Corps of Engineers, and expire in 2016.

Here are the disposal sites. You can see the Western, Central and this meeting is focusing on the Eastern sites. Again, our role is to designate disposal sites. In doing so, we develop a site management and monitoring plan. EPA also has a shared role in reviewing dredging permits, but an applicant would apply to the Corp of Engineers for a federal permit.

We initially write the Environmental Impact Statement looking at site

screening, and there were site screening criteria both general and specific in the Marine Protection and Sanctuaries Act, which we follow. I didn't go into detail here, but I do have the presentation that went into detail from June.

Initially, we had the 11 sites in Eastern Long Island Sound. Now we are focusing on six sites, which include Cornfield, New London, Niantic, Orient Point, Clinton and Six Mile Reef. The physical oceanography study that you are going to listen to the result of and the analyses today initiated, the study initiated with some additional buoy locations, and the green shows the buoy locations, the labels show the historic sites, and the labels that are not in yellow show the dredged material disposal sites.

This process kicked off with a Notice of Intent in October of 2012. We have had several cooperating agency and public meetings, as I mentioned. One of the last public meetings, Sarah Anker's office recommended that EPA and the Corp start educational webinars to talk about

dredging, the process of dredging and some dredge material equipment. We held one webinar so far, and it was on April 3rd, and it was well attended. So we want to thank any representatives, if you are here. Thank you. Thank her for us, because that was very well attended.

If you didn't sign in, please do so. But if you did, and you want to comment after this meeting, or you have questions, feel free to send it to the ELIS at EPA.gov E-mail system. If you are not on our notification system about upcoming meetings, please feel free to sign up for that. We also have the minutes from the meetings, and we will have all the documents posted on our EPA Region 1 web site. The address is listed up there.

The next step in this process is to further evaluate the sites, draft rule making, and a draft supplemental Environmental Impact Statement by spring 2015. We will hold additional public meetings at that time, and those will be official comment periods on the draft, and the draft rule making.

Assuming that the SEIS recommends designation on one or more sites, then we will move forward with the final SEIS and rule making. That would be no later than December 2016.

With that, I am going to introduce Frank for the physo discussion.

DR. BOHLEN: Good afternoon. Can you hear me? If you can't, speak up. I am Frank Bohlen. I am a physical oceanographer at the University of Connecticut Department of Marine Sciences. I have been working on sediment and sediment transport for 45 years. A fair amount of that work has been done around dredged material disposal sites, dredging and dredged material disposal sites.

We have seen the evolution of information over the past 45 years, and there has been, believe it or not, a substantial evolution. I want to emphasize that we are going to be talking about the physical oceanography, physical oceanography of Long Island Sound, as in physics. Not the biological, not the chemical, geochemical nor the political. Physical oceanography.

We are going to be talking about

the physical oceanography in the Zone of Siting Feasibility. We will try to define that. By the way, if at any time you don't understand the language, don't be afraid to speak up, because we often tend to speak our own language. It is taken for granted that everybody knows where Staten Island is, sort of thing. Then you come out after the talk, and you find out that nobody knows where Staten Island is. Holy Christmas. So that doesn't work. Don't be afraid to ask the question if you don't understand the language.

Physical oceanography in the Zone of Siting Feasibility. Why? Because one of the first questions that is often asked is, is the stuff going to stay put, and under what circumstances might it not stay put, and if it doesn't stay put, where is it going to go. So it makes sense to begin with the physics. Besides the fact that it is the queen of the sciences, so the remaining sciences are only the handmaidens of the queen.

We are going to speak about the model that is being developed and being used. Why four? We can't measure all we need to know

at every point through the Zone of Siting Feasibility. We can measure characteristics at a number of discreet points, carefully selected discrete points, and then use that to build a model that will allow us to really assess on a much finer spatial scale than we could ever hope to do by measuring.

A model is important today in practically everything we do. We wake up in the morning and we look at the weather forecast, it's a model. We are going to be using a model, a numerical model. Then we are going to evaluate the model. How good are the simulations presented by the model. It will give you some indication of what the results indicate, and provide you with a summary.

The science that explains the patterns of ocean circulation and the distribution of properties such as temperature and salinity. That is where we all started. Nansen, Fridtjof Nansen back in 1900 when physical oceanography really started, the Norwegian school. Somebody tried to figure out what it means in terms of circulation, and what

all that means in terms of herring. But we go beyond that right now, and we look at currents, circulation of the water, waves, and the effects of those flows on the movement of sediments.

Of particular importance within this study, because you are asking me where the stuff is going to go, is why this stuff going to go. It is going to go because you are exerting a certain force on it. We measure that force in terms of force per unit area, which we call stress. We are all stressed at some point. This is stress. Again, capisce? Go back to our friend Sister Sarsaparilla in the fifth grade or so, and she was telling you about forces, or flow going over a surface. A change in velocity occurs as you approach the surface because you are beginning to exert force on the boundary, and as you do, you might drag it along, and you may disaggregate it, and you may break it down. So you are going to hear a lot about boundary shear stress, because the boundary is where we are working, and the shear stress is the force that may affect the form and shape of the boundary.

This is a little primer I studied

in the past that really doesn't work, but it is one you will see in all the texts. So it is up there for you to take a look at. It really was designed for the next set of terms you are going to hear a lot, namely noncohesive sediments. The general class of noncohesive sediment which I believe we are all familiar with is beach sand, discrete, granular material, with very little binding beyond gravity. I will take questions on it later.

The materials that we deal with are for the most part cohesive. They may be fairly coarse grained, and you can get sand, but they are stuck together by other stuff than simply gravity. It may be the technical term snot, at the interface, a mucilaginous matrix associated with biological activities along the boundary. You can actually stick sand together and cause it to be cohesive. But more typically what we are looking at is finer grain materials than sand. We get down well below the millimeters. We get down to the microns. 63 micron, the breakover between silt and sand. Then you get down to about 4 microns or so and you get into the clays.

When you get down to the really fine grains, you not only have the possibility of having a mucilaginous matrix, but you also have electrochemical binding, differences in charge of the particles. Those little magnets, they stick together.

When you get down to that scale, and an awful lot of the material we are dredging tends to be fine grained silts and clays that are very cohesive, what you are looking at, in distinction from this picture that you have up here, where it is showing off an individual grain sitting up on top here, as you would with sand, really what you have is a matrix. It is all sort of glued together, and the stress tends to break down the bulk. It doesn't go off grain by grain. It tends to sit there until it was breaks down in bulk failure.

Another thing to consider when you are taking a look at the boundary is the effect of the boundary on the velocity field above the boundary, (language). The boundary affects the velocity field, the flow right over that boundary. You can believe there is something up

here. As we get closer down to the boundary, we get closer to more and more friction, the flow is going to slow down. That gradient in velocity as we get down closer to the boundary is the stress we are talking about. There are a variety of factors that are affecting it. That is all they are trying to show you here, and you have got a rather complex velocity field. That is the vertical. Here is the velocity coming down to the boundary. You see it over here, (there were two screens along the front of the room), the velocity coming down to the boundary is rather complex because of some effects of the boundary on the flow. Another whole class to deal with that.

We sometimes have panels, and this is the famous Shields diagram showing something about particle characteristics against critical erosion velocity. The only thing you can take from this is there is a significant difference between the gluey, sticky cohesive stuff and the more granular noncohesive stuff. That is really all you need to get off this. We will see more of it as we go along.

A table summarizing some results, laboratory and field, shows you that as you go from course sands up through progressively finer materials, getting more and more cohesive, you have got a significant change in critical shear stress values. We are looking out here at the stress, at the initiation, it is called the initiation of motion, first motion. We are getting into this in terms of Pascals. You are familiar with pounds per square inch, probably. You may have heard of millibars. That is pressure. We usually hear pounds per square inch in terms of atmospheric pressure. That tends to be a vertical pressure.

This is the same sort of thing, except it is horizontal. Pounds per square inch, force per unit area. We can put it out in a variety of units, but one of the most common units is Pascals. You can Google it up and see what it means. If you care for Dynes per square centimeter, you will find it at the back, and you can convert that to pounds per square inch.

But the game today, we are going to be playing mainly with Pascal, and the thing I

want to call your attention to for part of the discussion at least later, is an interesting variation in this critical shear stress, Tau sub C, from point 48 up to a very high value, 18. This guy is circled out at about three quarters of a Pascal for something like fine sand. As you get finer and finer material, more and more cohesive, the critical stress goes up.

That is sort of counterintuitive. You believe in a kitchen if I have a pile of sand sitting on a counter and I blew on it, not much might move. But if I had a pile of flour sitting on the counter and I blew on it, a fair amount might move.

So she says why is it that the coarse grained stuff actually takes less force than the fine grained stuff. The answer is cohesion, it is stuck together. If you wet up that flour, and if you have played with flour, you know you have got to sometimes scrub your hands pretty good to get rid of it, you will find that it is more difficult to move. So that is a bit counterintuitive, but it is also one of the reasons why you see so much dredged material sticking around.

MR. GASH: Are you taking questions now, or do you want us to wait?

DR. BOHLEN: Questions later. If there is something not clear up here, please. We have a selected critical value here, something like three quarters of a Pascal and it goes up. So there are some interesting responses that you can play with.

The objective of the physical oceanography study. The first thing is the Zone of Siting Feasibility, understand, is this blue guy right here.

It sort of goes from Guilford over to Mattituck, right out here. You have got Long Sand Shoal and a fair piece of the Eastern Sound in here. Montauk to Block, Block to Port Judith is the Zone of Siting Feasibility, ZSF, for this study. The Environmental Impact Statement is built around that.

This slide is hard to read on either side. It shows you a number of the potential dredged material disposal areas. A couple of the active ones, the Cornfield and New

London. You have got here a number of the historic ones. There are about six historic ones sitting in there, and there are about four new ones in there. You can see that down in the panel on the side here.

The purpose, stress. Describe the distribution of maximum bottom stress magnitude expected in the zone. Characterize the circulation. Mind you, boundary shear stress is what gets this stuff moving. Then the circulation over the vertical is what transports it away from the initial point of introduction. Also recognizing that some amount of material is going to be entrained in the water column when you dispose of the material. There will be a bit of a cloud. You care about the vertical circulation as well as the boundary shear stress. Acquire physical oceanography data sufficient to calibrate, verify the model. Clear, more or less?

Everybody knows where you are, right? Staten Island. You probably have some sense of the circulation in Long Island Sound, right? If I tell you that it is tidally

dominated, that is probably not too much of a surprise, I would hope. This is a set of stations that were occupied over the course of the Long Island Sound study. It started about 1988 and ran intensively in the early 1990s, and it has been going on. A fair number of stations are still monitored by DEEP, and to some extent, DEC. The only one I want to call your attention to is this guy up here, which you can't read, and in fact, I couldn't read. I put a magnifying glass on it to determine that is M3 at the Race, East River to the Race.

You recognize that one of the factors affecting circulation in the Sound is fresh water inflows, that there is a regular seasonality to your fresh water inflows. This, (pointing to next slide), comes from the Connecticut River, which represents something in excess of 70 to 80 percent of the fresh water inflow to the Sound. So you get a feeling for the seasonality, peak in April/May, typically, due to snow melt up north. That is the assumption that there is a snow melt, but that is fairly typical, and a lull in the mid summer.

You see that I have got a tidal influence, and I can believe that we can make this may display a monthly variation, and I have got a river influence, and it may display some seasonal variations. We have got some temporal variations in the circulation of the Sound. They show up in water temperature. This is a set of slides that shows you the April, August and December temperature profiles. At the end, here is the East River, more or less, Throgs Neck over here. You get an idea that there is a deep seasonality in the temperature profile.

Again, it is all pretty much common sense. You have got to believe there may be a little bit of a time lag, but this afternoon, we are cooling down the water in the Sound. If you wait a while, it is going to get pretty cool out there. Then you are going to warm up Riverhead pretty quick. Coming through Long Island summers, you are going to warm quite fast. You are going to have a big reservoir of heat sitting out there, or cold, or absence of that.

Temperature, Salinity, that change of fresh water inflow is going to show up in the salinity structures. Temperature-salinity characteristics affect the density of the water column. Just like the density of the air affects atmospheric circulation, the wind, the density of the water column will affect the circulation of the water column. Now we have tides and we have got this density field operating. This is just a picture of the tidal circulation from a model on the web. If you want to Google it up, you can take a look at this guy. A little hard to see, but what is important here is the spatial variations. Much lower velocities in the western sound versus the eastern sound. We have got a lot of velocity flow through The Race. That is what you are seeing right up to here, and you can see fairly low velocities down here.

If I run through a tidal cycle, you can get an idea that it is coming and going. Move it back one, that is coming in. Still pretty strong flows in the eastern Sound in the flood, and here is another flood, and here we go turning into the ebb. A little stronger on the ebb. Fair amount of spatial variation, fair amount of temporal, time, relatively short time

scale, six to twelve hours, and then we drag that out to the monthly cycle.

Let's take a look at a little film. We will stop here for a second. This is not to impress you with the graphics, but here is the study area, right. If you look up on top, you will see a date. This is surface salinity that you are looking at.

MS. ESPOSITO: Is that this year, October 22nd this year? I can't read it.

DR. BOHLEN: This is October 22, 2012, for a period, but the detail is not as important as the nature of the enemy. You are dealing with a system. That is what is going on.

MS. ESPOSITO: Frank, is that just the surface?

DR. BOHLEN: That is the surface, that is surface salinity. Of course you can see the Connecticut River coming out here, and the ebb and the flood sweeping it around. You can see the variation from higher salinities off shore to progressively lower salinities as we come in. The typical salinity variation east and west in the Long Island Sound is about four parts

per thousand. These guys are in units of tens of percent, tens. We call it 35 parts per thousand. You might call that 3 and a half percent. Salinities are normally marked out in parts per thousand. On this guy here, you will see it goes 32, 31, 30, that is 3 percent salt. Oceanographers always deal with 4 decimal points within a 31.4450.

That is the system we are dealing with, sort of on average. If we keep running it long enough, actually, and it would take half an hour to tell you about how the system responded to Sandy, because October 29th was Sandy. We just walked by Sandy. Go back to the slide.

This just gives you an idea that not only are we worrying about spatial variations in temperature salinity, and some of the temporal variations that go along with them, but we also have to care about the waves. Surface waves have a velocity associated with them that interacts with the tidal and the density driven velocity field. So we have to worry about that, and this is just showing you two areas, one a little north of Montauk here, and the other sitting over here

by Orient Point, and some of the wave characteristics as we wander down here. That is all you are looking at here. The significance of the blue and the red in this, we are not talking about that right now. That is actually a model run to compare, observed to a model. But what you are getting out of this is that there is some significant spatial variability in wave heights, as you start marching into the Sound. Again, not terribly surprising because of the sheltering and because of the shallows.

What is the distribution and spatial variations in the bottom stress, where are the regions in which the maximum stress are the smallest, and where, if the stuff does get stirred up, does it go. Sort of pretty fundamental questions. The model, Grant McCardell.

DR. MCCARDELL: Hello, everybody. I am Grant McCardell, also from the University of Connecticut. I am going to be talking some about the model we have developed to look at distribution of the stresses.

You saw an example of the model

output just a few moments ago with that movie of the surface salinity. The reason we run models, as Dr. Bohlen stated, is because we are unable to go out there and make measurements over every single space at every single time. So we make some measurements at certain times, at certain locations, and we use those to be able to what we call tune a model. We then have to hope that the model is replicating reality, at least to a certain extent, in order to use the model to make predictions about what might or might not be the current during more extreme events, and in other locations. That is where we have areas.

The model that we are using is nested within a bigger model. It is nested within a model of the northeast coast and the northwest Atlantic. It is forced by tides, it is forced by observed flows, so we go and we get historic data, or get the model run from USGS stations.

It is forced by climatology, and by "climatology" here, what I am referring to is "what are the average conditions at a given space and date?" So the climatology for Riverhead, New

York for today's date might be that the average temperature is 35 degrees, and that is what we were using. So that is what we mean by climatology terms.

We also use climatology for the initial conditions. When you run a model, you have got to start somewhere, when we run this model long enough before the study period that is we are using the conditions for that actual period.

What is a model? The model that we use is called a primitive equation model. By primitive equation, we mean that it is based on first principles, it is based on Newton's laws that were developed in the 17th Century by Sir Isaac Newton. Those laws were further expanded to fluid dynamics in the 19th Century. It is a set of equations called the Navier-Stokes equations. Those are very well thought to represent fluid flow. They even model turbulence and all sorts of things. They are very rich sets of equations.

They are a rich set of equations that lend themselves to computer models. They

did not lend themselves very well to analytic solutions in the 19th Century, but they have lent themselves very well to be able to use high speed numerical computers to represent these equations, and then simulate the motion of fluids. The same sets of equations are used in ocean models. They are also used in atmospheric models. So when you looked at the weather forecast this morning, it is because someone had run a primitive equation model on the current conditions from yesterday, and extended that to be able to tell you what tomorrow is likely to be like.

In the model, the bottom stress magnitude -- which is what we are interested in here for the purposes of this study -- is computed according to the formula that you see down here. It is Tau equals Rho -- Rho is the water density -- times Cd. Cd is just a constant. We normally take it to be point zero zero two five. It varies somewhat, but spatially, different studies vary. Then that is times the square of the water velocity. So in other words, if I double the water velocity, I increase the stress four fold. This also makes

bottom friction non linear, which means that these models behave in a non linear fashion, which means that the models really are a pretty complex source of behavior.

Here is what our grid looks like to the bottom of your right. Again, this is nested within a bigger model that covers the rest of the shelf out here and then up to the northwest Atlantic, and this is our model. It contains about 30,000 triangular elements, each one of which contains 15 depth elements. So we have got a total of about 500,000 volume elements running this model.

In red right there, what I am showing is the area of our study. So red is the area of the study, and here it is to that red area. You can see that this model is made of discrete triangular mesh. It is important to realize that the resolution of this mesh is also the resolution of the output of this model. It is certainly much better than any survey we could ever do. We could not take a ship and survey every single one of those little triangles, nor could we go put buoys in every single one of those little triangles. But it is nevertheless of limited resolution. If we want even higher resolution than that because you want to know what is happening at Point Judith right at the pier, we can nest even finer triangles within this mesh. But it is impractical to use finer scale triangles over this domain, and we need to get the flow right over this domain to able to get the flows right at a finer scale.

So the current resolution is about one to five hundred meters, which is about a quarter of a mile, which is a fine enough resolution to distinguish between potential dredge sites, but it is not a fine enough scale to talk about moving the boundary 100 feet east or west.

We wonder how well does the model work. We have calibrated it. We have calibrated it using sea level heights, and we use sea level heights throughout Long Island Sound and New York Harbor. We also calibrated it using records of temperatures that we have, records of salinity that we have. As far as how well the model does, it really does quite well. I would call it

state of the art in terms of oceanography readings. We have got skills of 90 percent or better for sea level height, water currents, temperature and salinity.

With that, we are going to talk more now about evaluating our model compared to stress. Dr. Bohlen is going to talk more about that.

DR. BOHLEN: So you are a skeptic about this model stuff. We all are. We live with skepticism. A little bit of cynicism but a lot of skepticism. So we are going to go back out and we are going to measure at a discrete number of points. Deploy instruments, and the instruments are mounted on bottom frames. You will see them in a minute. We did talk about buoys, the buoy floats. There may be a little lobster pot to help us sort of find it, but the measurements that we are taking are using bottom mounted arrays.

Here they are. Seven bottom mounted tripods, three two-month observation Campaigns to try to get a feeling for some of this time variation that we were seeing earlier.

We know that we are never quite where we want to be. It used to get to be a curse if they see us walking down the dock and know there is a storm coming.

You would like to have it out there for a fair range of conditions, and you can believe that the conditions in the summer are somewhat different than the conditions in the winter, or the conditions during the seasonal transition, spring and fall seasonal transition are going to be different than the winter.

So we tried to pick three periods where a variety of conditions are going to be seen time wise. Then we are going to try site these seven stations that you see here in red at a number of locations where we might expect to see spatial differences in bottom shear stress. So we get a range of conditions, gather up that data and come back and use them to verify, evaluate the accuracy of the model. Clear?

Here are the periods. Our spring period is March through May. About each one of these is on the order of 60 days, you see everything. The spring period you saw on that

river discharge chart is a time when you expect to see elevated river discharge, and it might be windy as well. For those of us that live on the water, the spring can be pretty windy around here. Then the summer, lower river flow, and again for those guys that are sailors, you know when it gets nice and warm, the wind dies. Generally lower energy. Come winter, lower river flow, but with high wind. So three Campaigns. You will see this Campaign number one, two and three.

Here are the frames. Pretty standard stuff today, with the exception of this little guy that sits down here that says Nortek, which is the manufacturer of acoustic Doppler current profiler, ADCP. That is what you are going to hear a lot about in this study, but more and more, you are going to hear about it when people talk about measuring currents. We don't put a single current meter out any more. We actually have a single current meter at the bottom that allows us to take measurements of the whole of the vertical, or at the surface and take measurements over the whole of the vertical.

Very, very useful tool.

This Nortek I said was a little bit revolutionary in the game. It is what they call a pulse coherent acoustic Doppler current profiler, meaning that you can make very small measurements. The RDI that sits up on top of the ADCP, that is the upper looking guy, that is measuring about once every meter over the vertical. The Nortek measures centimeters over the bottom three quarters of a meter. So really fine slicing down to the boundary, which is what we care about. Remember? We really want to get those measurements down to the bottom. Grant showed you the equation, the square of the velocities, the east west velocity and the north south velocity. We are really able to measure those accurately right down to the bone, and we can with the Nortek. This thing, (the frame), also has a temperature salinity sensor sitting over here, and a couple of probes along here, and another one here that says OBS, Optical Back Scatter, so we can measure the concentration of stuff in the water column.

This will sample, burst sample

maybe four times an hour a whole array for a couple of thousand samples. So you can get a lot of data on the structure of the flow both over the vertical, we are looking for far field effects over the vertical, and in terms of resuspension, the boundary shear stress at these points. They are discrete points, and that is what you are measuring; water column currents and waves, currents near the sea floor, stress, suspended sediment concentration and temperature and salinity. That frame stands about 6 feet high or so, and about 8, 10 feet triangular.

When we were out there working on the frames, changing batteries and so forth, we had to get out there, so you run a ship out from Avery Point to the stations. Along the way, you take temperature and salinity measurements at a number of points. This is a conductivity temperature depth profiler, profiling conductivity temperature depth, CTD, along with a series of bottles in here. So as you are lowering it down, you can take discrete water samples over the vertical, and bring those samples back. That allows you to calibrate your

instruments. The OBS is an optical sensor looking at what is in suspension. How do you know that it really is telling you the truth? You draw some water samples, filter them down, compare them with the OBS. That is what the water samples allow you to do. You get your temperature and salinity from that as well .

Sediment samples. For each station that we are doing the CTD Cast, we will also get a sediment grab. We will get an idea of the distribution of the sediment in the study area as well.

This is just showing you some of the ship's track. It doesn't really mean very much because yesterday, the track didn't look like that, and tomorrow, it probably won't look like that again. You get from station to station, depending on how the weather goes.

The data recovery. This is an interesting slide. The data recovery is pretty good. You have three Campaigns, one, two, three in each of these boxes. The first guy shows you temperature salinity, and it shows you pretty much blue, which says full or near full data

recovery, greater than 50 percent. You have got a lot of temperature salinity there. You go out here and you say currents and suspended sediments near the sea floor. That is that Nortek ADCP. The pulse coherent guy that is looking at the bottom 75 centimeters or so. You see the blues are in the middle guy, lighter blue here and yellow.

The first time we put this guy out, the manufacturer had claimed a certain life of the batteries. So we figured we would go out once at the beginning and once at the end of the deployment period, change up the batteries. We went out there after about a week or two to check things out, and the batteries were bad. So that is why the Campaign One data recovery rate is somewhat lower than it was in the other Campaigns.

Same thing goes for the two zeroes down here for ADCP's. This is now just telling you some of the problems of doing this kind of measurement. These two instruments were sent back to the manufacturer for refurbishment, and sent back all refurbished, ready to go with the wrong firmware. You put it in the field, and you get no data, that sort of thing. But overall when you are taking a look through this, you say the data recovery rates are well in excess of 50 percent, and probably bordering on 80 percent for a lot of the sensors.

DR. MCCARDELL: We did not expect to have that percent. 50 percent was what was anticipated.

DR. BOHLEN: A few years ago, if you got 10 or 20 percent, you would really be feeling good. Just some examples of the observations. This is mean flow, an average, near the bottom. This is the RDI, the ADCP that is looking up. You are 3 meters off the sea floor here, and this is the long term net drift. This is not an instantaneous measurement, it is an average over many tidal cycles.

You can see it here, if you look carefully at these, you will see they are three different colors in every one of these. You can see in general, the near bottom flow will generally drift into the Sound. It is a characteristic estuarine flow.

You have the higher density, saltier water at the bottom, and it tends to migrate into the estuary, as opposed to the characteristic fresher, lighter surface waters that tend to migrate out. The waters of Long Island Sound are not getting fresher and fresher as the Connecticut River water comes in, so where is it going? Out. You have got a characteristic in at the bottom under the surface, and that is what you are looking at here.

This is now at a particular level, and we are going to come all the way up for you. It is just that they picked 3 meters here. This is the Nortek now, about a half a meter from the sea floor. It is the same sort of thing. You get an idea of the magnitude. The magnitude is shown in here on the order of 10 centimeters a second once again. Capisce? 10 centimeters a second? Are you comfortable with 10 centimeters a second? You don't have to lie to me.

A nautical mile per hour, one knot, nautical mile per hour, 50 centimeters a second. Does that give you a feeling for what 10 cm/sec is? Better? That is a mile per hour, sort of

like in a car, a little bit more, 6,080 feet, instead of 5,000 and some. So just to give you an idea, 10 centimeters a second as the average drift, pretty slow. 30 centimeters a second is a foot per second. So that is the drift, that is the average drift. You stir this stuff up and it is going to go back and forth, back and forth, back and forth, and it is going to keep marching out at the surface. At the bottom, back and forth, back and forth, back and forth, marching in. On average, about 10 centimeters a second, the average flow rate. Clear?

This is just showing a little bit about the tidal amplitudes in that these are tidal ellipses for each of the Campaigns. Again, what you are seeing roughly, this is now over the vertical. The M2 is the principal lunar component of the tide. You will see that generally things are acting along the axis of the system, which is about what you would expect. You can get some idea of the magnitude on this whole thing. This is a graphic. That is about a half a meter per second over here. So you get an idea that you have on the order of a knot or so

max flows down in here. As you get down further out in here, the velocities go down, which is what you are seeing ad nauseam. You saw it in the first model, you saw it in the project model.

With the wave statistics, one of the things we are looking at here is the extent to which the waves are influencing bottom shear stress. One of the questions is always sensitive to areas that are going to be influenced by the waves. To make a long story short here, what these data are showing, there is a difference. In our bottom stress profiles in here, we are looking at time against the magnitude of the bottom stress. You will see this is the spring/neap monthly cycle, the stress as you are looking at moving up here. Up here is time, and this is wave amplitude varying over the period. What you would like to see, if there was a neat correlation between the two, is the influence of the wave on the bottom stress.

To make a long story short here, probably not surprisingly, there isn't much of a correlation, because the stations are, for the most part, outside of "the wave base," the area that you expect to be influenced by waves. Which makes sense because you want to set a site for disposal of materials that tends to have as few influences to move this stuff around as possible.

The guy on the bottom is showing you a relationship between velocity and the distance over the vertical, and it is just showing you there is a difference at the two sites as we are coming in here, at the two times as you are coming in here. This is another site looking at the same thing, and probably the same answer.

One of the things I didn't point out, and you may have missed on the very first slide that had the Zone of Siting Feasibility, is around the margin of it was a gray border. That has been defined by the Army Corp and EPA as the area where you are too close to shore, and you may be more likely subject to wave influence. So that is looking pretty good so far from these data.

DR. MCCARDELL: Because it is shallower.

DR. BOHLEN: Because it is

shallower. I thought that went without saying, right. Closer to shore is shallower.

MS. PURNELL: Is that set at 14 feet? Is the boundary set at 14 feet?

DR. BOHLEN: I don't know.

DR. HAY: 18 meters.

DR. BOHLEN: 17, 18 meters.

MS. PURNELL: Thank you.

DR. BOHLEN: We can argue about the 17 or 18, but it is not going to affect it. This gets a little esoteric for you. This is the plot that Grant, when he was talking about the model formulation, he said he was going to be using a formula that had a drag coefficient in it, and he mentioned just sort of off hand, our drag coefficient, C sub d, is generally on the order of . 0025. This was a plot to check out whether that made any sense or not. What we are taking a look at here is a log plot sitting along here. There is a log law down in here, and there is a bulk formula on here. If everything on the vertical bulk formula, on the horizontal log law, if everything was fine, it would be laying along a single line, a log law.

It looks pretty good on this, laying along a single line until you get up in the vicinity of about a Pascal. When you get up to a Pascal or so, that begins to break down a little bit. This is where the complications come in. Why for? Because all sorts of things at this point start influencing the characteristic of the near bottom velocity field, the velocity over the vertical, the boundary layer when you get down to there. When you begin to stir up sediment into the water column, you begin to change the relationships that govern the distribution of the velocity over the vertical, the friction characteristics of the flow change. You can also change the pressure distributions at the bottom as they affect the flow field.

That is being verified here really as you see, you get up here pretty well, and you begin to break off somewhere around, if you can see it, right around here. Then you get off and say how many things are going on. But the long and short of this one is that the measurements using the log law support the use of the bulk formula with a drag coefficient of about .0025,

up to at least one Pascal.

I thought this was hard to see, and it may be that I am getting color blind as my age passes, but one of the things this is showing you is that model simulations reproduce tidal and the spring neap variations on the observed stress very well. You have got a neap, spring neap variation. Do you understand spring neap? Is that all right?

The monthly variations, twice monthly variations. We are near full moon tide right now. You drive down Route 25 this morning, this afternoon, and high water is pretty near the road. That is not counting what is going to happen when it is going to blow for the next day and a half. We get off the full moon, and the tidal excursion (range) is somewhat reduced. We get back on the new moon, and it is increased. That is the spring/neap cycle. That spring has got nothing to do with May June either.

What you are seeing here is a variation over the course of about 14 days or so of a spring neap cycle. You can see, if you can see it, if the blues and the purples weren't so close together, that the model is doing an excellent job of reproducing the stress that is measured from the array.

DR. MCCARDELL: The model is in red, and the data are in blue.

DR. BOHLEN: You can see it down at the end in the blue. That is why they dove off the end down in here. There is no data out there. So we got a pretty good feeling for that.

Here, we are looking at a comparison between the measured and observed again. This is now the model, modeled and observed or modeled and measured. This is the model and this is the observed, and you can see if there was a perfect fit, a one to one fit, everything would be laying on this line right here. So it is just a slight variation for the means, these are the mean velocities now. Then for the max in here, it is a little coarser. The R squared is about point 7 in here (the maximum value). It is something over point 9 in the case of the means. But in the world of modeling versus measuring, those correlations are excellent. That is a high correlation. You are

very happy with how well your model can do for you when you are talking about those kinds of values.

MS. PURNELL: Again, that data and the prior slide's data, that averages over all seven of those arrays? Is that how you came to that?

DR. BOHLEN: I had forgotten what I had on this one. Yes, it is.

DR. MCCARDELL: Yes, it covers the stress during the entire Campaign.

DR. BOHLEN: For all seven arrays.

DR. MCCARDELL: The maximum amount of stress during the entire Campaign.

DR. BOHLEN: Right. One of them, I had just one Campaign. Here is the analysis. Find the maximum bottom stress magnitude at each point in the Zone of Siting Feasibility in the three Campaigns, compare the values at sites identified in the screening process. That is the sites considered potential disposal areas. To simulate the period and the characteristics that you might expect during a storm, Sandy came to mind.

Here is the Bathymetry, water depths through the study area, and these are the stations, DOTs, groups, and the sites. You get an idea of what the water depths look like through the system. Are you comfortable with that? Pretty deep in the vicinity of the arrays. Montauk, - shallow is here. Is that okay?

Stress values. Here are your stresses in Pascals. Reds are three, and that number that we were playing with in that panel before, point 75 or so, is somewhere down in the blues, down in here. So if we say that a fair amount of the area in the Zone of Siting Feasibility has got fairly high stress, that is what that guy is saying.

The one thing that is interesting is that the spatial differences, if we run this now for each of the Campaigns, and we can go beyond the Campaigns now that we have a model, we can run it every month if we care to, you are going to find that the spatial differences are much larger than the seasonal variations.

Which sort of makes sense because you figure that wind and wind waves are probably

the primary factor affecting the turbulence over the vertical. We were seeing before that wind and wind waves have relatively little effect on bottom shear stress in the area that we are picking. You have got to get much closer to the beach to find that.

So to give you a sense of what the stresses look like, you are within a one and a half Pascals sort of range up in there. You get up into Fishers Island Sound or close to Fishers Island Sound, you are getting down to your point 7 or so. You get out into here, you get down around Montauk, you are up around 2 and behind Montauk.

Maximum bottom stress during storm conditions we observed through each of the Campaigns; one two and three. You can see this, we are allowed to go through this now and pick out different seasons, different locations. Cornfield is fairly high. That starts dropping down. This is Eastern Long Island Sound, Six Mile Reef, Clinton, Orient Point, New London.

Then we go Block Long Island Sound, outside of Eastern Long Island Sound, however you want to divide it. Fishers, this is the south side of Fishers near the deep hole for Fishers. Values similar to Clinton. You can sit and play with this. This is the kind of information that you will have to play with as you go through. That just summarizes some of the sites against that plot you had before.

Sandy. This should come as no surprise, the results from the Sandy analysis if you lived here during Sandy. You had some winds. This is now Ledge Light, tip of Long Island Sound, west of Long Island Sound and the Bronx. You have got some winds at Ledge Light that might get up to 60 miles an hour. Is that a lot of wind? It is not an afternoon sailing breeze, not around here, but it is a fair amount of wind. But this is not the 100 year storm event, wind wise. It is just sort of a husky afternoon sailing breeze. You can get a 50 knot blow nearly every year, every other year.

MS. ESPOSITO: We are supposed to get 50 mile per hour winds tomorrow.

DR. BOHLEN: We might get 50 mile per hour winds tomorrow, so there you are, call

me a liar. Again, any time you look at these things, you sort of scale them out, what do they look like, what do they feel like. Again, the impressive thing about Sandy that made it memorable was the surge, and the impressive thing about Sandy that made it memorable was the surge down towards New York. In this case, this is Kings Point, this is in Long Island Sound. In Kings Point, there is a surge up here on the order of 4 meters. We get down to the eastern end of things, on the order of one and a half to 2 meters.

So we have a pretty good surge down at our end. It has got a recurrence on the order of 30 to 40 years sort of a thing. When you get down to the western end of Long Island Sound and New York Harbor, you have got a recurrence interval of once every 1,000 to hundreds of years or so. That is what got the attention, besides 8 million people, to Sandy.

Superstorm Sandy, our analysis of that, running it in, created higher maximum amount of stresses in some areas, and most of those areas were closer to shore, sitting in

here. If you ran this guy against the slide I showed you earlier, which was the results of the model that is running through every year, and no Sandy in that, you won't see an awful lot of difference. You will some spatial variability in areas where you would expect to see more reds up along the shallows. It makes sense.

Sandy was, for the most part, a southeasterly storm here. It went northeasterly as it got close. Southeast, this way, east this way. That's when you have got your good winds and you have got some good waves and you have got some good stresses acting against, you all know what, residual flows. You stuff a lot of water down at the western end of the Sound, and it has got to go somewhere. It comes back out. It is the interaction of the tidal wave with the outflow of water that produces some interesting turbulence, and increases the chance of change in boundary shear stress. So the picture here is fairly complicated, but it didn't turn everything red at all, is the moral of this story. But I suppose you could find me a higher energy storm. Start looking around for it.

This is now the Superstorm Sandy conditions, and again, you are running these up against what we had before, and you see New London along on the eastern Sound and Cornfield, Six Mile. Six Mile is out in the water a little bit more, a little bit higher. These numbers aren't terribly much different than what we saw before. In fact, in some areas, you might see the stresses a little bit lower because of the complexity of the interaction of the flow.

We define a stress level based on historical data and literature. Based on a review, we chose point 75 Pascal as something of a design threshold. You can make it higher, you can make it a little bit lower, you can sit and argue about it but this is a work in progress. But you have the data to progress, to do that sort of testing. The model is looking pretty good. The results of the model are impressive.

Critical shear stress, if you listened to what I told you before, the manner of setting up a critical shear stress for cohesive materials is complicated. It depends on grain size fraction at play, volume fraction, how many burrowing organisms you have working that are at the sediment mound, how long the sediment has been down for consolidation. All of that affects bulk density, affects erodibility, and bulk density is very important in here.

The comparison of the maximum amount of stress for potential dredged material disposal site simulation in the three observing Campaigns and Sandy, throwing in Sandy, came out with this set of numbers. Cornfield one. Six Mile was next. Fishers Island west, this is south of Fishers Island near the deep hole, was next. Then Niantic Bay and Clinton Harbor. You run down this guy, the New London disposal site is point 69. All of these guys here; Block Island, New London, Fishers Island Center, Orient, Fishers Island East and North of Montauk are less than the defined critical threshold, point 75.

What this guy is, is just a graph of areas where the maximum amount of stress exceeds point 75. To give you an idea that it covers a fair number of the sites in the Eastern

Sound, it covers a fair number of sites in the Eastern Sound, with the exception of the Fishers Island site down here. This is the kind of information that is coming in, that we can bring into the site selection designation.

So, sites one, two and seven, Cornfield Shoals, Six Mile and Fishers Island. Everybody knows where they are, and Fishers Island west, have high maximum stress. Four and ten, this is Orient Point and Block Island, the Block Island Sound site. Maximum stress is below at the center of the site, but have values in excess of point 75 Pascals at the boundary. So there is a spatial variation on the scale of a mile or so. Grant already told you that the resolution of the model might be on the order of a quarter of a mile or so.

Sites three and five, Niantic Bay and Clinton Harbor, maximum stresses, but less than one. The stresses are above point 75, but less than one. If you want to really hold me to point 75, you can make your one, you can argue about a quarter of a Dyne or so, a quarter of a Pascal or so, the issue gets interesting. The

New London disposal is the only site in the Eastern Sound with a maximum stress level below point 75. We saw that. Thank you. Questions?

DR. HAY: Before you have any questions, state your name, please, for the record, and also your affiliation.

MR. GASH: I am Bill Gash, Connecticut Maritime Coalition. Referencing back to one of your earlier slides when you were talking about shear out there, I have a letter from the State of New York objecting to consistency certification for dredge projects taking place in Mystic.

I just want to be clear on something. They state in their letter that sediments associated with that project were comprised almost entirely of fine grained, very small silty particles. I would imagine those are the same fines that you are talking about.

DR. BOHLEN: What fines?

MR. GASH: That all stick together, they are all glued together.

DR. BOHLEN: Yes, yes.

MR. GASH: They said given the high

current velocities and unstable nature of sediments at and in the vicinity of NLDS, and the placement of the material from this proposal that contains large volumes of that very fine silt, adverse effects are anticipated at the site, adjacent areas as a result of the dredge material disposal activities. Can you comment on that at all? From what I am seeing from your presentation with the Pascals and the disposals, once the material has fallen, there is going to be some dispersion as they are falling. But as they get near bottom, everything pretty much settles down to less than point 75 shear in Pascals.

DR. BOHLEN: I really can't comment on it because I don't have the sediment data to look at. But seemingly the statement, at least the first part of the statement that you read, flies in the face of what I said about the erodibility of the materials that are progressively more cohesive. As you get down into the silt range of sediments, below 63 microns, the sediment, a sediment mass is very, very cohesive, and tends to get probably more cohesive, will get more cohesive as you add more clay particles.

The problem with any one of these about diagrams is they show you a single grain size. If I picked up that stuff out of my bucket and I said we did sediment grabs, full-on grabs at each of the stations that we were doing CTD casts at, it would be shmuck on the deck. It would be quite cohesive and clay like. When you get an analysis, you find there is a range of particle sizes. So you might say the mean grain size is 50 microns. But you have got a lot of stuff that is down to two, and you may have a little bit of stuff, because we do the grain size, distribution by mass, so a few big particles can skew the mean a lot.

Most of the sediments that we are familiar with in Mystic River are exceedingly cohesive. This is all I can tell you. As far as the barge goes, that is another whole story. 45 years ago had us diving on the New London disposal site. The sea story in that is that this was material that was being dredged from the Thames River for the channel up to the submarine

base, the channel from the mouth of the river up to the submarine base. If you look, it is being put into dredge by clamshell dredge and put into 2,000 cubic yard hopper barges. The barge would go out and they would open the bottom door and down goes the stuff.

We would go down after a while, I am not going into going down, but we would go down after a while for a swim. Any number of pieces of that stuff on the bottom retained the teeth marks from the clamshell bucket. When you drop that stuff in the water, there is a gravity flow. It goes down like a brick, vertically, and it retains its cohesive character until lobsters drill holes in it. That is another story.

DR. HAY: Any other comments, any questions?

MS. PURNELL: Marguerite Purnell.

DR. HAY: Do you want to state your affiliation.

MS. PURNELL: Fishers Island. The information that is presented today, is it on the web site yet?

DR. BOHLEN: No.

MS. PURNELL: Will it be posted on the web site as one of our presentations?

MS. BROCHI: It will, and when we post information, we are going to send an E-mail notification so everybody knows that it will be available.

MS. PURNELL: Because there is just a lot of material. I could ask you 40,000 questions and it is not really productive for the other people who are here.

DR. BOHLEN: You could try one.

MS. BROCHI: She already asked one.

DR. BOHLEN: That is okay. She can ask one other question.

MS. PURNELL: I appreciate the physical oceanography component to it, and there is a lot of meat in there to really think about. Have you made any effort to correlate that with the prior physical oceanography that was done in the prior designation for Western Long Island Sound and Central Long Island Sound since there were data points in the Eastern Long Island Sound for the siting feasibility as well. I was just

wondering whether or not you have looked at the consistency of the data and the findings as of yet.

DR. BOHLEN: I am not exactly sure what you are asking. Because as I showed you, I think, you are going to expect a fair amount of difference in the transporter regime in the central and western Sound, where we have worked before, but not on the siting study. Me, not on the siting study.

I have worked on other parts of the Sound, so there is a significant difference in the transport system in the Central Sound, Western Sound versus the Eastern Sound.

MS. PURNELL: I concur.

DR. BOHLEN: You can believe it just from an energetic standpoint, you saw all of those arrows, the blue arrows, the white arrows we showed you on the model. Then of course there is the matter of it being open to the world ocean out there from the southeast. It is a much more energetic system. The comparison between the two I am not so sure is germane to this question.

MS. PURNELL: The comparison is

germane in the sense that there was a large chunk of data in the physical oceanography report that dealt with the Eastern Long Island Sound. I apologize if that did not come across in my question.

DR. BOHLEN: Anything that dealt with the Eastern Long Island Sound we have seen. Of course, the other thing is we did the report that is in the Long Island Sound volume on the physical oceanography of Long Island Sound. We saw some of the slides from that report up here. So we are looking at all of that, and that will all be brought together. I think the thing that is impressive on this from the standpoint, again, from the history of disposal in the Sound is you have got more site specific measurements in this study than you had in any other study area.

There were seven frames out there, and the effort to tie all that together, and verify, calibrate and redesign the model has been substantial, leaving you with a very powerful tool to be used for any use out there, really. It is a substantial foundation to resolve the issue.

MS. PURNELL: The data point that was closest to the New London dump site, you based some of your findings on that. Where is that related to the position of the current outline of the dump site? Is it in it or is it to the northwest or is it to the southwest? Given the resolution of the slide, it is hard to figure.

DR. BOHLEN: Why don't we look on here as to exactly where it is. I will put the slide up and show you.

DR. MCCARDELL: I should add that the seven sites that we used for the surveys were chosen to represent the maximum variability that we would see within this entire domain as an attempt to get the model as good as we could. They were not chosen to represent any specific site, because we are legislated to be able to consider all possible sites. If we give undue credence to one site, we would have measurements at one site and not others.

MS. PURNELL: Thank you.

DR. MCCARDELL: I hope that explains a little bit.

MS. PURNELL: Thank you.

DR. HAY: Thank you. Other questions?

MR. MCALLISTER: Kevin McAllister, Defend H2O. That was very thorough. Thank you, Doctor. Forgive me if I am missing something, but this component with the physical oceanography, we are really focusing on dispersal, the biological implications as defined, I guess, at least in part with the environmental consequences. Was that another part? Am I missing something?

DR. BOHLEN: No biology.

MR. MCALLISTER: No biology. Of course, certainly I understand that part, but where is the biology?

MS. BROCHI: This is one part of the site screening. This is the physo component. There is a biological component as well. Biological characterization will be done combined with this physo model to model sediment transport as well.

MR. MCALLISTER: Will you be back in town to share this information with us?

MS. BROCHI: We will share the information, but we don't know the dates. Again, whenever anything is posted on the web site, we will notify you ahead of time. While this physo presentation is fresh in your mind, we will have it available probably next week. We will send out notification and have the presentation up, so yes. It is a multi faceted process, so it has many components going on, and we have contractors putting it together as we speak.

MR. MCALLISTER: As I understand, if I am not mistaken, was it the environmental consequences document that seems to be the bulk of the biology? That is at least what I saw so far as being represented. Is that correct?

MS. BROCHI: I am not sure what you mean by "environmental consequences."

DR. HAY: Do you mean the SEIS, the Supplemental Environmental Impact Study?

MR. MCALLISTER: No, there was another document that I had viewed, environmental consequences document.

MS. BROCHI: I am not familiar with the environmental consequences document, but if you remember it or you can reference it, send an E-mail to any of us, actually, or ELIS@EPA.gov e-mail, and we can get back to you.

DR. HAY: The environmental consequences document will be part of the SEIS.

MR. MCALLISTER: Chapter five, environmental consequences.

MS. BROCHI: All right. I thought you were looking at something.

MR. MCALLISTER: Thank you.

MS. BROCHI: There is also a no action alternative as part of this effort. So it is looking at sites, but is also looking at what happens if there is no site.

DR. HAY: Okay then. Other questions, comments?

DR. BOHLEN: We are pretty easy to find. BOHLEN@UCONN.EDU, or you can just take a look at the University of Connecticut and see the faces in here. If there are questions, we are happy to answer them.

MR. MCALLISTER: May I make a request with respect to our sign in? Would it be possible to provide some contact information to

the attendees here via E-mail?

MS. BROCHI: Sure.

MR. MCALLISTER: Because a couple of those slides that were identified went by very quickly.

DR. BOHLEN: I'm sorry, a couple of the slides --

MR. MCALLISTER: A couple of the slides that identified the presenters and who was being represented today, that went very quickly. I didn't get names and contact information.

MS. BROCHI: Sure, we will get that out. We will do that in the notification when we post the information on the web site.

MR. MCALLISTER: Thank you.

DR. HAY: The names of the presenters is also on the agenda.

A SPEAKER: Just an anonymous question. Who is responding to the ELIS@EPA.gov address?

MS. BROCHI: Several of us at the Region 1 office.

DR. HAY: Thank you. Other questions?

MS. ESPOSITO: Adrienne Esposito, Citizens Campaign for the Environment. Just for clarity, the University of Connecticut is contracted out by the EPA to do this work?

DR. BOHLEN: No.

MS. BROCHI: They are contracted for the project, and the contract is through Connecticut DOT, not directly to the EPA.

MS. ESPOSITO: Okay, but contracted for this effort.

MS. BROCHI: Yes.

MS. ESPOSITO: I understand.

DR. BOHLEN: You heard about a whole bunch of other things, and we may or may not involved in those.

DR. HAY: Other questions? Going once, twice? Last chance? I will adjourn the meeting now.

(TIME NOTED: 4:25 P.M.)

CERTIFICATION

I, Robert J. Pollack, a Notary Public in and for the State of New York, do hereby certify:

THAT the foregoing is a true and accurate transcript of my stenographic notes.

IN WITNESS WHEREOF, I have hereunto set my hand this 13th day of December 2014.

____

ROBERT J. POLLACK

SEIS MEETING 12-8-2014

CERTIFICATION

I, Robert J. Pollack, a Notary Public in and for the State of New York, do hereby certify:

THAT the foregoing is a true and accurate transcript of my stenographic notes.

IN WITNESS WHEREOF, I have hereunto set my hand this 8th day of January 2014.

Robert J Pollack

ROBERT J. POLLACK

Attachment 5

TRANSCRIPTS OF PUBLIC MEETINGS, NEW LONDON, CONNECTICUT DECEMBER 9, 2014

SUPPLEMENTAL ENVIRONMENTAL IMPACT
STATEMENT(SEIS) TO EVALUATE THE POTENTIAL
DESIGNATION OF ONE OR MORE DREDGED
MATERIAL DISPOSAL SITE(S) IN EASTERN
LONG ISLAND SOUND

DECEMBER 9, 2014
3:08 P.M.

FORT TRUMBULL
90 WALBACH STREET
NEW LONDON, CONNECTICUT

BRANDON HUSEBY REPORTING & VIDEO
Reporter: JACQUELINE V. McCauley, RPR, CSR
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(The hearing commenced at 3:08 p.m.)

DR. HAY: Welcome to this public meeting. Thanks for coming out on this lovely balmy afternoon here. So before we start, a couple of housekeeping measures. We don't have a microphone so if you have difficulty hearing, please move to the front. There are lots of seats up in the front.

Secondly, the bathrooms are outside just outside the hallway. Not outside the building. The sign-in sheet, I hope everybody had a chance to sign in. Also, if you want to make a comment at the end of this presentation, please also sign in. There is a sign-in sheet there, although there will be an opportunity to ask questions that you may not anticipate at this point.

Finally, please turn off your cellphones or any other kind of audio devices so that we don't get interrupted or put them on vibrate. My name is Bernward Hay. I'm with The Louis Berger Group. We're under contract to the University of Connecticut, which is under contract with the Connecticut Department of Transportation, and we're working together for the DOT and the EPA for the evaluation of potential dredged material disposal sites in open waters in the Eastern Long Island Sound

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region. So the EPA is the lead agency from the Federal side for this project.

Parallel to this meeting there was another meeting yesterday in Riverhead in New York, and today's meeting will focus on the findings of a physical oceanography study that was conducted for this Environmental Impact Statement. This will be presented by the University of Connecticut, Frank Bohlen and Grant McCardell, and it will be an informational meeting. So as a result, there won't be any specific comments or any specific comment period.

The meeting will be introduced by Ms. Jean Brochi. She's the project manager with EPA for the Ocean and Coastal Protection Unit, and she will provide a project status to see where we are in this process, and we have a 50-minute presentation by Frank and Grant, and after this the floor will be open for questions and comments.

The meeting will be recorded by a stenographer and also an audio recording device, and the transcript of the meeting will be made available to the public later on EPA's Web site. So with that, Jean?

MS. BROCHI: Thanks, Bernward. I probably need a mic. So of all of the speakers you

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will hear today I am probably the one that needs a mic. So if I talk too fast or you can't hear me, just raise your hand. I will repeat or I will stop.

Again, I'm Jean Brochi from EPA Region One, and I just wanted to introduce a few folks that are in the room as well with me. They're members of our cooperative agency group, and it includes Brian Thompson, George Wisker from DEEP. Joe Salvatore from Connecticut DOT in the back. We've got Todd Randall from the Corps of Engineers, Mark Habel from the Corps of Engineers New England. We have New York DEC and DOS representatives as well as EPA Region Two folks that came to last night's meeting in Riverhead, New York.

So you're here, because you are interested in the Eastern Long Island Sound Supplemental Environmental Impact Statement, and, again, I'm representing EPA Region One. So Bernward already went through the agenda. We will have Frank Bohlen and Grant McCardell show results of a physical oceanographic study.

So if you haven't been to previous meetings, we had a few introductory meetings on this process, and this has been going on since 2012. This meeting is going to be a summary of some of our

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responsibility and really just an update on the process, and then I'm going to give it to the University of Connecticut folks.

So EPA and the Corps of Engineers share responsibility for dredged material. EPA through the Marine Protection Sanctuary, Research and Sanctuaries Act, Section 102, has the authority to designate dredged material disposal sites. The Corps has, under the Ocean Dumping Act, Section 404 has the authority to select disposal sites.

There's a difference. The designation that EPA would use for dredged material sites is long term. We both manage and monitor sites. EPA, when we designate a site, we issue a site management monitoring plan, and that's also a shared responsibility that we partner with the Corps on.

Now, for permits, as you know, that's directly to the Corps of Engineers, and EPA has authority for the testing, to review the testing and make determinations on suitability. So the history -- a little history of the disposal sites.

You know that in 2005 EPA entered into an Environmental Impact Statement and designated Western and Central Long Island Sound. This is a supplemental for the eastern part of The Sound only,

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and the sites that are part of this effort include the Cornfield Shoals site and New London site, and both of those sites were selected by the Corps of Engineers. And the two sites, Cornfield and New London, expire December 2016, and here are the sites.

So you have Central and Western and then the focus here is for Eastern, New London and Cornfield. So, again, EPA's role in dredging is to review the permits, designate disposal sites. We promulgate the regulations. We develop site management monitoring plans, and then we manage the sites with the Corps of Engineers. So the initial approach to this effort was to look at site screening, and we looked at five general criteria and 11 specific, and all will lead to what we had done in the first EIS.

These are site selection criteria that are in the Marine Protection, Research and Sanctuaries Act, and so what we cover for some of this information is biological resources. We will be looking at conflicting use. We will be looking at sediment environment as well as physical conditions, and one of the aspects that was so most interesting to EPA and what you will hear more about later on is the physical conditions and the sediment transport at

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sites such as New London and Cornfield where they are so different in characteristics.

So the initial screening process started with 11 sites, and of those sites they included some historic disposal sites and the active disposal sites. For the historic sites those were sites that we knew had some dredged material disposal at some point in time. Most of them were in the 40s, and that was what the Corps of Engineers gave us for their official record.

So the 11 sites we initially screened, and they're listed on the bottom here. Active sites are included in that, and then from that group we narrowed it down to Cornfield Shoals disposal site, Six Mile Reef, Clinton Harbor, Orient Point, Niantic and New London, and those sites are still being evaluated.

So for the physical oceanography study you can see -- in the yellow block you will see the names of some of the historic sites and then -- it would be great if this worked, but -- there we go.

DR. BOHLEN: No, here.

MS. BROCHI: Thank you.

DR. BOHLEN: That's me.(referring to a laser pointer)

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MS. BROCHI: Listen. Don't take my steam. You are coming up next. There we go. So the yellow is historic, and the bluish white are the active sites, and what you are looking at is the disposal sites in red, and then for the green are the buoys that were placed for this physical oceanographic study that was conducted by UConn, and these black lines right here, I think Frank will go into more detail, is the zone of siting feasibility, which was established for the Environmental Impact Statement.

It's a busy slide so I will keep it up for a minute. So the process again, we started out the process October 16, 2012 with the Notice of Intent. Several folks had come to that meeting. We had an official comment period for that Notice of Intent, and since then we have had several public meetings as well as cooperating agency meetings.

At one of the June meetings, it was June 25 and 26, a representative from Sarah Anker's office requested that we try to reach out and do some more education. So EPA Region One and Region Two hosted a webinar on dredging, dredged material, dredged material equipment, and that was April 3, and that was well attended. I'm not sure if some of you folks were in there. I haven't looked at the sign-in

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sheet.

So if you are new to the process or you are interested and you haven't received notifications, please, again, you can e-mail me directly, I'm Jean Brochi, or you can e-mail the elis@epa.gov e-mail address, and we will add you to the distribution list, and we will also send out notifications whenever we're going to have a meeting, whenever we're going to post something on the EPA Web site.

The EPA Web site address is right here, and the minutes from the meetings, the documents, the studies will all be uploaded onto that Web site. There are people writing. I'll just leave this on for a few minutes.

Okay. So the next step draft, environmental, Supplemental Impact Statement, and rulemaking in the spring of 2015. We will at that point have additional public meetings for an official comment period on that document. And then if the SEIS recommends a designation of one more or sites, we will issue a final SEIS and rulemaking by December 2016. That's all I have. Thank you for coming and Frank is up next. I will give you back your laser.

DR. BOHLEN: Good afternoon. I'm

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Frank Bohlen. I'm a physical oceanographer on the staff at the University of Connecticut Department of Marine Sciences. Physical oceanographer. I ain't no biologist. That's what that means. The physics of the ocean. And I'm here to talk about the study of the physical oceanography of the zone of siting feasibility.

It's important to realize what the talk is not. We're talking about the physical oceanography, circulation, currents, waves, and the factors that affect the movement of materials. You are going to hear a lot about boundary shear stress. We hear a lot about stress these days. This is boundary shear stress, the force that's going to be exerted on the bottom. And if the material fails, the material, because of that force loading, may be transported. So that's the physics of the process that we're going to be looking at.

Physical oceanography of the zone of siting feasibility I just told you the why of it. The how of it. We just can't go out and measure everything we want to know about every point in the field. That's a fair amount of area. You saw it on the earlier slide. So the best way to do that is to build a numerical model of the system. And we're all

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very familiar with models. We wake up to the results of models on your weather forecasts. We live with models, and they're modeling everything from your voting preferences to what you eat and what you don't eat sort of a thing.

So you understand models at least in concept. The model is just that, one man's view of what the system is, how it functions, and that can be less than perfect. So what we try to do is, to the extent possible, to verify the results of the model, and to do that we take a series of measurements. Not as many as we might like to get, not as long as we like to get them. You talk to scientists. You guys are always cursing the scientists. They're saying, damn it, we always want more data.

But we get a fairly representative set of data and use it to calibrate a model. That will give us information on a much smaller, spatial scale, time temporal scale, than we could ever hope to do by taking direct measurements. That's the model.

We will talk to you a little bit about how we go about evaluating, the instruments that we're going to be using, and then what the results look like, what the model tells us about the currents that may affect the dispersion of materials that are

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in the water column either resuspended from the bottom or entrained when you dispose of a couple of cubic yards of material in a dump, okay?

And then the boundary shear stress. If the stuff gets to the bottom and sits there under normal circumstances, under what condition might that stuff start to move around, okay? And then we will summarize the results.

Let's start out with a little bit of the physical oceanography. I told the gang yesterday that it's only right that we start with the physics of the system, because physics is, after all, the queen of the sciences, and everything else is simply handmaiden to the queen, okay? So physical oceanography, the science that explains the paths of ocean circulation, distribution of a property, blah, blah, blah. You can read it.

But of particular importance within this study are the factors governing boundary shear stress. Boundary shear stress. If we had a better rug, we could get the rug moving, okay? The force that's exerted, a horizontal force that's exerted on the bottom because of a gradient in the velocity as we approach the bottom. We have some wind movement over this floor here. If you can believe it's moving here

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pretty uninterrupted, and as it gets closer down to the floor, the flow is more and more influenced by the floor.

So there is some frictional drag on the velocity as it gets down to the bottom. That gradient and velocity from the free stream value to the boundary value produces a force on the bottom, horizontal force, a force per unit area, and the units we're going to be talking about are Pascals. You can go out and look it up, Pascals. You are familiar with pounds per square inch. You may have heard of Dynes in your physics class way back when. This is just another version of that force. And then we have a force per unit area, a shear, a horizontal force.

You hear of pounds per square inch, and as a vertical force through the atmospheric pressure. This is just a horizontal version of that same sort of thing. By the way, we speak our own language. We tend to speak our own language, and sometimes we take for granted that everybody knows what that word means.

But on occasion we find -- on more than one occasion we find that's not so. Don't be afraid to say wait a minute. There are no silly questions. So don't be afraid to say wait, wait,

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wait, wait, wait a minute on that for clarification. For substantive response we have to wait till the end of it.

So of particular importance within this study are the factors governing boundary shear stress, because it might affect the movement of sediment. This is a very simple picture (slide) that's not entirely appropriate, but it's one you often see in the textbooks when they talk about the forces acting on a sediment particle.

Now, why isn't it entirely appropriate? Because they're showing you discrete particles sitting here. Here is a sand particle sitting in the presence of a number of other sand particles. A bunch of billiard balls laying on each other, marbles, right? Got Bee-Bees? Pick a size. Got it? Not entirely appropriate, because the sediments that we deal with tend to be in structure quite a bit more complicated.

They're not simply one particle or another particle held together by gravity. They tend to be one particle, another particle quite small held together by lots of different gluing factors, gluing factors such as electrochemical binding. The magnetic attraction between the particles, or a biological

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film, mucilaginous matrix that's on the bottom. Kind of gooey-looking stuff. You can see it. On shellfish it's not uncommon at all, okay?

So what we tend to deal with is an assemblage of particles that we class as being cohesive. This sort of picture, simple picture you have back here really applies to the class of sediments that you are all familiar with in terms of beach sand. That's a good example of sediment. But it's okay when you start talking about drag on the bottom, and drag, of course, retards the flow, builds up that force that we were just talking about, the shear stress that particles can be moved.

The bottom also influences the near bottom velocity in a variety of different ways. In this case they're showing you how a sand wave field, nice, rhythmic sand waves, you have seen them off the beach maybe when you're laying-floating, you're facing down in the water and you are sort of hanging there, you can see the waves coming and building little sand waves, ripples in the bottom.

The velocity gets quite complicated over a structure like this, and you will see a number of instances in the study of the velocity field that we're looking at. We're interested in that, because

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that's what's going to affect the boundary shear stress displays quite complex characteristics.

The famous diagram, the Shields diagram, the only reason I put this up here is to show you that there is a class of sediments that is cohesive, a class of sediments that is noncohesive, and they're going to display different response characteristics to a given velocity field, and it's going to vary as a function of particle size. The velocity of the shear stress is buried in this parameter, okay?

So you can see there's a difference between cohesive, and maybe it's clearer when you look at something like this in tabular form where I'm only going to emphasize this -- what does that say? I can't quite see it. Stress at the initiation of motion. Stress at the initiation of motion. The stress that it's going to take just to get that particle to start rolling along.

And you can see here this is in Pascals, as I said. That if you are dealing with course sand, you may have a value of 0.48, and it's interesting. It's counterintuitive that as the grain size goes down so medium, fine, very fine, course silt, medium silt, fine silt, and beyond that would be

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clay, and you can see here in terms of grain size, the diameter in millimeters, you are starting about a half millimeter.

You ever calibrate the sand? You sit on a beach, you know, what you feel good about. There are people that do that. If you sit on a beach in England -- of course, if you are a Brit, you can sit on golf balls, and they figure that's a very nice afternoon on the beach, okay, the cobble, the typical British cobble beaches. But around over here if it gets too fine, you stand up and you sort of have all the sand stuck to your back. You don't like that either.

So it's about quarter of a millimeter or a half millimeter sand. It's what you see on a lot of beaches, and there are a variety of sands when you go along Fisher Island Sound's coast beaches. You will see a variety of sand sizes. That's just to give you -- you've got to develop a feel for this stuff, okay? You got to -- it's cohesive like bring it in here and slop it on the table.

Counterintuitive, he says. What's that mean? Most folks tend to think of transport in terms of grain sizes simply. So they have this idea

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that since it's more difficult for me to blow sand off the table than it is to blow flour off the table, right? Can't you see it? Flour, okay? Makes a hell of a mess. That if we have fine grained sediment, that stuff must move more easily than if we have coarse grain sediment, not true, and it's not true for a variety of reasons.

But to begin with, and the simplest one for you to understand is, wet that flour. On your countertop make a mess for mom. Wet the flour. You got a nice gooey mass of stuff. You got to wash it off your hands, okay? When that stuff gets wet, it's cohesive, extremely cohesive. And when I go (blow sounds), I get it on the floor before I get that stuff to move, okay.

So that's what they're trying to get through to you is that the simple relationships between grain size and transportability you got to revise -- a lot of people have to revise their thinking, okay?

Now, out of this the only reason we put a red box around this we sort of picked a range in the three quarters of a Pascal, you will see more of this later, as the level that we're looking at is sort of the critical level. The material we're playing

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with, there's some field data to back that up. But I want to show you this again to reinforce this cohesive component when you begin to think about how these mounds of sediments are affected by a flow.

Okay. Here we are. The objective of the physical oceanography study is to take a look at the distribution of maximum bottom shear stress through the zone of siting feasibility. It runs from Guilford, western boundary, Montauk to Block, Block to Point Judith, pretty good patch of water, and, you know it to be, I know most of you that are out there, a moderately dynamic patch of water.

I'll show you some depths in a couple minutes. These are the stations that are being looked at, okay? You just heard about them, and there is a variety of them sitting up here. There are only two active, the Cornfield and the Fishers Island, the Eastern Long Island Sound, sorry, New London site and Cornfield.

There are a number of historic sites, and there are 3 or 4 -- I think there are the 1, 2, 3, 4 new sites that are on there I picked out, okay? To characterize the circulation, that's the water column characteristics, we're looking at how the water column moves, and acquire enough physical

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oceanography data to support the verification of this numerical model that we're going to be using really to look at transport characteristics in detail, the study will.

That's a mess (referring to a slide). The only reason I show you, Long Island Sound, these are the old DEP stations over the years since the early '90s, and I wanted to point out M3. It's important down here. You can't read M3, but it's in The Race just off Fishers Island, because -- in a minute it will show up.

You recognize that there are a number of factors that govern circulation in Long Island Sound. Most of us think of the tides. Comes to no surprise there, right? Take a look out the window, and you got a fair idea of tides going. You go for a sail, and you are influenced by the tides. Your front yard is influenced by the tide today if you took a look there, okay?

But there is also the matter of fresh water inflows. Fresh water inflow show this regular seasonal variability with a peak discharge value typically in April/May. So we can expect to see some amount of seasonality in fresh water inflow. The fresh water inflow in combination with the temperature

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can affect water column densities, and the water column density, just like the atmospheric the air density that influence high and low pressures and influence winds, will influence circulation in the waters.

So now you have tides coming and going, yin and yang, and you have possibly some density-driven components as well associated with temperature and salinity. It shows the seasonality. The seasonality result looks something like this. These are three profiles along the axis of The Sound. Here is M3 sitting down in here, okay? You start down at the end at Throgs Neck, more or less, and you can see, if we look at April, August and December, that there is, in terms of water temperature, some evident differences in the vertical structure.

You see much more stratification in the summer. Surface waters are warmer. Bottom waters are significantly cooler. That makes for some differences in terms of vertical exchange, and you have heard about it in terms of hypoxia and the like, but you can also believe that the seasonality that you are looking at here from April, August and December, the differences in temperature -- go out there right now, the water temperatures are less than they were in

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the summer. Go out there yesterday, they were less than they were last weekend sort of thing. It's cooling down. It might influence the density.

We go along and take a look at salinity, it's a little more subtle. But, again, you are going to see this is higher salinity waters, okay, the shelf waters, and you are going to see some differences in the extent of intrusion when it starts coming in.

This guy is April. We got a lot of fresh water coming out so The Sound, greater body of The Sound is somewhat fresher. You come into the summertime, and this guy in here, this will vary not only seasonally but year to year depending on what the wind condition looks like.

Just real quick. You know this. This is on our Web site (referring to a series of slides). You can take a look at this. If you want to play with it, you can just run the cursor. But I only show you this to impress you with the fact that there is a significant spatial variability in the velocity field in Long Island Sound, and, again, most of you know it.

You don't see much in the way of currents in the western Sound. You see a fair amount

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of currents in the eastern Sound. The Race area is moderately energetic, okay? That guy's on the ebb. It's decided not to like us (slide show malfunction). I don't know. Well, if it was working, we turn it around and show it going the other way, okay, and you are going to see a significant amount of spatial variation in it, and it will -- if it doesn't -- there you go, okay? You can plug that in and play with it, get an idea that there is a significant spatial component to the tide. There is a significant time component to the tide, okay?

Now, just to impress you with all of that, can we impress you with the technology that's possible today or not. Can we shut it down? (set to run a video showing surface salinity distributions from a computer model)

(Whereupon, there was a discussion off the record.)

DR. BOHLEN: It's nothing you don't know. That's the other thing that's sort of frightening about school and education, right? If you just stop for a minute and think about it, you heard it in kindergarten or somewhere. You just sort of brighten this up.

So what I'm telling you about

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circulation in Long Island Sound in general characteristics you probably know pretty well. Speak.

MR. ALLYN: You don't have --

COURT REPORTER: Sir, what's your name?

MR. ALLYN: Lou Allyn. Do you have a slide that in the future maybe you can talk about how many people you have working on this project with you, what the organization of the staff is?

DR. BOHLEN: Yeah. Jim O'Donnell is the principal investigator, he's not here today, myself, Grant, we have another post-Doctoral investigator, and we have two technicians who are on the project.

Video beings to run

This is a model run if you look up in the top, it says 10/21, and it's just real quick running through a tidal cycle and higher salinity water out here, okay? Lower salinity water back in here. Outflow of the Connecticut River, okay.

And if you keep running this, and we could run this, but we don't have enough time to run it -- I saw they gave us a deadline of time -- you could run this right on through Sandy, which was 10/29. This is 2012, okay, and beyond, because the

Sandy effects in the system, you pulse it, and then the system responds over the course of four or five days.

So the storm occurred on the 29th, and you might look to see what was going on on the 31st or so. But just to give you an idea -- and, again, some of you have seen this, the plume coming out on the ebb, casting waters that come down. Sometimes when there is a larger discharge, you will see the discharge right into the, down into The Race and into Plum Gut.

But you will generally always see a nice frontal zone in the vicinity of the Connecticut River. You may not see as much as in the case of the Thames. But if we ran this a little bit longer, we get a good rainfall after Sandy. You will see this guy coming out and getting very close over to Fishers.

So we're dealing with a spatially and temporally variant system, and the problem -- the question, the project goal is to assess what that means in terms of circulation and boundary shear stress, okay? Let's go back to the slide.

Well, you saw it. Again, this is just sort of a summary slide. We're really ahead of ourselves here. We are showing you some model results

in the blue, but the red or green observations are a couple places in the study area, and you have to look at this carefully to realize there's a difference in scale here, but you are seeing waves down in this area that might have a significant wave height of about one and a half meters, 1.4 meters.

We get further in, Six Mile Reef down in here, you will see waves that very seldom get over about one meter or so. This down in here is just about a meter. So there is some spatial variation as you would suspect, okay? An area a little more sheltered, an area a little more prone to the wind effect, because the water depth and the like there and some other spatial variations. We will see more of this when we get into the results of the model, okay?

So just the background of the physical oceanography of Eastern Long Island Sound, which I hope just reinforces what you already know. Next one (slide). So Grant will tell us a little bit about the model.

DR. MCCARDELL: So what we want to use the model for, as Frank was just telling us, is to be able to sort of fill in all the gaps for what we cannot measure both in space and in time. We can go out there. We can put something on the bottom. We

can deploy it till the batteries run out. We can get a month or even 60 days worth of data, and we can do that at one location with a broad-reaching study like this. We can even do it at seven locations, but we can't do it everywhere, and we can't do it through all time.

So what we want to do is we want to answer the question of what's the spatial distribution of stress throughout this entire study area. So how do we do that? We are going to run this model, and we're going to be able to then answer the questions about where the regions are where the stresses are the largest and the stresses are the smallest, and then the other question that we will be able to answer at some point is where does the material in the water go. If it does get eroded, where will it go?

And to do this we're using a model called FV-COM, which is the Finite Volume Community Ocean Model. It's been developed by UMass up in New Bedford and we're nesting it -- this is our model domain here extending out onto the shelf. At the shelf boundary here we are driving it using this larger model, which covers the entire northwest Atlantic.

Our model is forced by tides along

this outer boundary. The water goes up and down, which forces the water in and out in an appropriate manner. We're forcing it with observed river flow, these green arrows, and we're getting that from USGS gauge data. So for any given day we're replicating what was the actual river flow in the Connecticut River at that day.

In terms of the warming and the cooling for the heat, we're using climatology, and by the word "climatology" here what I'm talking about is "what are typical conditions at a given date and location." In other words, the climatology for Fort Trumbull here for today is probably that it's 35 degrees and overcast, and temperature, yeah, we're pretty close to climatology today. In terms of precipitation we're probably not very close to climatology.

Think of climatology as sort of like the Farmer's Almanac of what are the typical conditions for a typical location for a particular week or month, and so that's what we use for the surface heat exchange. So we're not modeling individual years for the surface heat exchange, and we're also not modeling individual years for how we start this up, but we do run it for long enough that we then are able to model individual years. Next slide.

So how does this whole thing work? Well, this works on an unstructured grid. It's finite volume. I'll show you what that means in a minute. It's a primitive equations model. What that means is it works according to first principles. It works according to Newton's laws by F equals MA. So it starts from the very, very basics, and it solves the equations that were derived from Newton's laws by Navier and Stokes in the early Nineteenth Century, and they derived these equations, but they were unable to solve them.

But fortunately we can approximate numerical solutions to these equations with computers. And so what we get from the model is we get the water velocity; get the sea surface height; get temperature and salinity, and then the model iterates itself. It says "okay, here I am. What's going to happen next?" and the model runs on a time step of 6 seconds.

So every 6 seconds of real world time we do this calculation, and then what we're interested in getting out of the model for this study is the stress. That's tau, the Greek letter tau we use to represent the stress, and that's the product of

the water density times rho. (That's the thing that looks like a P) there times this C sub D, which is the drag coefficient -- Frank will talk to you a little bit about that afterwards -- times the square of the water velocity. U is the east-west velocity. V is the north-south velocity.

You can think of it (pointing to u-squared plus v-squared) as just the square of the magnitude of the velocity, and it's important to realize that it's the square of the velocity. What that means is that a small change in the water velocity will equal a bigger change in stress. If I double the water velocity, I will quadruple the stress, and this is the way the model calculates stress, and this is also the way, as you will see, that we have determined to be one of the more robust methods to calculate stress out in the field as well. Next slide.

So here is our entire model domain again, and like I say it runs on these little triangles. So for every single one of these little triangles we're solving the full equations of motion, and our model domain right now has about 30,000 triangles, and it does this at 15 different depths. So we're modeling about a half a million discrete

finite volume fluid elements, and we're solving these equations at a real world time of every 6 seconds across this domain.

So needless to say 10 or 20 years ago we couldn't do this. You need state-of-the-art computing equipment to be able to run this sort of model. Now our study area here is this red box. Next slide.

And you can see the little triangles here, and so here is The Race. There is the Connecticut River, Niantic, I'm sorry, Niantic Bay, the Thames, Connecticut River over here, and these little triangles are what the model is running on. So the resolution of our model is those little triangles.

And it's important to note that this is the resolution of our grid; it's about 100 to 500 meters, which is about a quarter of a mile so we're resolving down to a quarter mile. So we're resolving the individual dump sites, but we're not resolving whether or not we cut off a little corner of one of the dump sites or whether we move the border of one of the dump sites by 100 feet. Next slide.

So how well does this model do this? Well, this is sea level that's coming from the model (being forced at the boundary like I said) compared to

data at the Bridgeport gauge, and it's doing pretty well. The model is in blue. The data is in black, and it also does very well for temperature and salinity as well, and this is throughout the entire domain.

And we determine something called a Skill is, and what the Skill is, is what's the error in the model from 100 percent. So if the model was perfect, it would have a Skill of 100 percent. A Skill of 90 percent means that the model is staying within about 90 percent of the data. In other words, there is about a 10 percent error in the model. That's about a 10 percent error in velocity as well.

So if I square that 90 percent Skill, because the velocity is square, I come up with a Skill for the stress of about 80 percent. So, in other words, these stress values you probably can take as being plus or minus 20 percent, and spatially it's probably even better than that.

So our model is working very well in the world of physical oceanography and ocean models -- and atmospheric models, for that matter. I should add that atmospheric models work on this exact same set of equations. They model fluid flow whether it be air or water. And in terms of model skills our model is

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doing very, very well. These are very, very good numbers. Next. And how good is the stress and what's the stress? Well, that's why we had the field program.

DR. BOHLEN: So we're going to go out and gather up some data to verify all of that and, again, within the zone of site feasibility, and we selected seven sites, and it says deployed instruments on 7 bottom tripods on two, sorry, three two-month observation campaigns, you will see the three campaigns, to observe spring, fall and winter conditions at locations having different stresses.

How did you pick out these seven sites? They're not coincident with any of those boxes you saw before. They're close on some cases, but that wasn't the issue. We have run stress models before in this area, and we were looking to get data at a variety of locations that would give us a variety of conditions.

So don't put all your instruments within a quarter mile of each other. Pick out a number of locations that are going to give you a range of answers. So what you have the seven sites here going from roughly Six Mile or so down in here out close to Block.

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We conducted three campaigns -- you will see it in a minute -- three campaigns, and during each of those campaigns there was also a survey, shipboard surveys. We went out to service the array so we did measurements along the transects. So there is a variety of data gathered up during these campaigns, six cruises with water column measurements at the seven tripod locations plus four additional stations in between, okay? Next.

Here are the campaign periods we had, spring, summer and winter. Conditions you are familiar with, the seasonality. You saw at least in stream flow, that there was a clear seasonality. You saw, I hope, in the temperature and salinity that there was something of seasonality, and you can probably believe that if we looked at the wind field, there is something of seasonality in the wind field.

We generally believe that the highest winds are during the transition periods in the spring and in the winter, sorry, spring and in the fall, okay? And so we have a spring campaign that's March to May, 66-day -- all around 60-day campaigns. When we had high river flow, you saw that April typically, generally high winds. Summer, low everything. Sailors know that all too well, right?

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And then winter was November through January where we had low river flow and a fairly energetic wind field, okay?

So we put out these arrays. This is a triangular array (referring to slide). We can get an idea of what it looks like here, stands about 6 feet or so tall, okay, and it has a variety of instruments, and I can spend all afternoon talking about the instruments to you. So if there are questions, we can do this later.

But to begin with you had an acoustic Doppler current profiler. You are going to hear a lot about ADCPs if you start playing with oceanography these days. That's how we measure currents these days. In the old days you put out a current meter at a discrete point, maybe a number of them over the vertical. So you had this array of instruments sitting over the vertical.

Now we have a single instrument at the bottom that can project an acoustic beam through the water column. And if we segment up the reflection, if you will, of that acoustic beam back to the sensor package, I can tell you what the currents look like at layers through the water column. In this case this is an RDI acoustic Doppler current profiler,

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and it's looking up, and it's giving us one meter slices through the water column to the surface through the bottom, okay?

We have another instrument sitting on here. This is a Nortek acoustic Doppler current profiler, same ADCP but very different instrument. This is what they call a pulse coherent instrument, which allows you to make very fine measurements. This thing is mounted about three-quarters of a meter above the bed, and it's measuring currents every centimeter down to the bed. So we're really slicing up that portion of the boundary layer that's coming down right onto the bed that I told you was important in terms of boundary shear stress.

Now, that current is very, very -- as it gets down at the bottom is very important. We're measuring it. We can measure it. We can take a look at it. We can also see that Grant, in his model, the values for the velocity in that profile.

There is also a temperature salinity sensor over here, that's what the SBE is, and then there are two optical sensors here looking at suspended material concentrations. These are optical back scattering probes, OBS, that measure the concentration of suspended materials at a couple of points over the vertical. The rest of it has to do with the recovery.

So we get water column currents and waves from the ADCP, RDI. We get currents and stress at the bottom. That's the Nortek. We get suspended material concentrations. We get temperature and salinity. We put this thing out for 66 days. It samples once every 15 minutes and it bursts samples. That means that it runs for a period of time every 15 minutes. Sample rates are typically on the order of one sample a second, maybe two to four samples a second, depending on the instrument, for minutes, every 15 minutes. You can imagine you are bringing back a fair block of data.

The shipboard surveys made use of this guy. This is a profiling conductivity temperature depth sensor right here, CTD. It also has a series of bottles on it. So as I send this down to measure temperature salinity over the vertical, I can draw water samples. You can bring the water samples back and use them to calibrate the other instruments.

I actually have a sample of water now with some amount of suspended material in it. I can filter it down, and I can see what the OBS is telling me and where it's right or wrong. The optical

back scattering probes, okay?

At each of the stations where we stop to use the CTD we got water samples, but we also got sediment samples, grabs, bring them back and take a look at what the sediments are at those stations. There are much, much more extensive sediment maps out there. These are supplementary measurements to the sediment maps.

The U.S. Geological Survey has done an extensive high-resolution survey of sediments in this area. We know the sediments in Eastern Long Island Sound very well, okay? (next slide) This is the data recovery for temperature and salinity. That was that CTD probe that was on the frame, currents and suspended sediments, that's Nortek and the OBS, and this is waves. That's the RDI. And we start off with different campaigns. These are coming down running through this.

To make a long story short the data recovery was something in excess of 50 percent depending on what you happen to look at, and in some areas, sometimes it was 100 percent. But in some times this guy gave us 66 days, and we were out there for 66 days so it worked all the time, but this guy gave us nothing. That was courtesy of the

manufacturer.

This was an instrument that was sent back to the manufacturer for refurbishment before being put out, and they put the wrong firmware in it. It came back brand new, well paid for, no work, okay? You will also notice this 6A/B here. That we get out here campaign one, the Nortek, 25 of the 66 days, here 28 of the 66 days.

There were two things going on here, the main one being that the frame got tipped over. It got tipped over one and a half times, and then we were smart enough to move it after that. We generally try to pass the word out among the fishermen so that they know where the gear is, and it's been a very successful approach over the years, but somehow this guy managed to get bumped.

The other thing it was that in the first campaign you see this all 25 of 66. This was a learning curve on the batteries and what the batteries could do, and we expected them to last for the 60 days. They didn't last for the 30 days. That's why you got 25 days of recovery.

But overall if you look through this, the data return is very, very good and certainly provides us with more than enough data remembering how

we're bursting and frequency that we're sampling during the burst to calibrate the model. Let's take a look at some of the results. This is the RDI ADCP mean velocity. You are going back, You are going forth, you are going back, You are going forth, you are going back, You are going forth, and every little bit you get a little bit further along.

There is a mean in the velocity field. It ain't just sloshing back and forth. Some of that temperature salinity effects, some of the wind effects give us a net, and that shows up in the means, okay? So the stuff will go up as you saw in the movie the way the plume was moving back and forth.

If you take a look at it, in my case when I'm not tied to the river, I might be moving one way or the other. In this case what the data are showing you is that if you set it at this point, the net transport would be to the northwest. Here it is slightly more west of north, and here it is more like southwest, southwest, southwest, well, west, call it northwest, got it, with the three different colors being the three different campaigns.

The net drift near bottom, what this is saying the net drift near bottom water column, we are 3 meters off the sea floor, is into The Sound. A typical estuarine pattern you expect bottom waters in the estuary to be moving in. Fresh water on top is a little bit lighter, a little bit less dense. Sitting on top, it runs out. So if it's running out, it's got to be running back in to keep the water in The Sound. Typical transport.

If you get down closer to the bed, this is a Nortek matter, (pointing to another slide) looking at that three-quarters of a meter to the bed, same sort of thing roughly. You know, if you take a look in a little more detail, there are now going to be six arrows, because we went out and recovered data twice during each campaign -- these on the bottom, okay? Basically the same sort of a pattern.

The main thing, the message to take home here it is a typical estuarine flow coming in at the bottom, and a magnitude, how about that one? These little arrows are worth 10 centimeters a second if they're about that long. Capish? 10 centimeters a second? Nah. Come on. You don't have to lie to me. 10 centimeters a second, fast or slow?

MR. JOHNSON: Fast.

DR. BOHLEN: I got a fast. One knot, one nautical mile per hour 6,080 feet per hour, okay? 50 centimeters a second, 5-0, one knot. You

can call me a liar if you want to (inaudible). One knot, 50 centimeters a second, so 10 centimeters a second is not all that fast, but it's persistent. It's persistent, okay?

Again, back to that, we get a feel for this thing, you know, what's sticking, what's not sticking, what's fast, what's slow. It's important. Okay. So you are looking at net drifts that run on the order of 10 centimeters a second, 5 to 10 centimeters a second, and you can figure out what that means in terms of net transport over the course of a day.

This is probably not entirely necessary, (next slide) but this is the tidal ellipse over the vertical. This is the average over the whole of the vertical, and it just shows you that if we were tracking the tide the way this thing goes and it's on the flood, it would be going that way, and then we wait six hours or so, and little by little the tide starts to drop off in speed, but it changes direction. With me?

Little by little over the course of a half an hour or so it's dropping in speed and changing in direction before it goes back onto flood. That's what you are looking at here, the so called

tidal ellipse. The major axis of the tidal ellipse going off here to the southwest, more to the west of southwest, okay? Here a little bit more northwest, northwest, and the magnitudes running in here on the order of half a meter per -- 50 centimeters a second, a knot.

So you got that guy there, I don't know, call it from here out, maybe a knot and a half in that neck of the woods as the major axis, okay? So, again, you pretty well have that in mind, and you saw it pretty well in the movie going back and forth, this magnitude, and this shows you there really wasn't much difference for all of the seasonality that we were looking for in terms of the behavior of the system from campaign 1, 2 and 3, not all that much difference in terms of the tidal ellipse. Okay.

Real quick what this is showing we were looking here at the wave conditions, significant wave height at the station off Montauk, okay? Block Island, Montauk sitting here, this guy in here, and we're looking to see what the effect of the waves are on the bottom shear stress, and to make a long story short what these data are showing, despite the fact there is a significant difference here in wave characteristics, there isn't that much difference in

bottom stress, okay, as you come along in this.

It's an interesting curve in the tracking. We can get into this later whether its tracking logarithmically over the vertical or not. Next slide. Now that makes sense. One thing I didn't tell you, when I showed you that slide of the zone of siting feasibility, there was around the perimeter a gray area. That's an exclusion area. That's thought to be more or less coincident with the areas that are going to be influenced by waves. So its variously estimated at being something like 17 meters.

DR. HAY: 18 meters.

DR. BOHLEN: How many.

DR. HAY: 18 meters.

A. 18 meters, he says. We were arguing yesterday about 17 or 18, 18 meters. So it ends up around 60 feet or so, alright? So it's not terribly surprising when all of our instruments are outside of that that the response to the system, to the waves, is not all that great, okay?

This just shows another area -- to show you that we've got a real spring neap cycle in the boundary shear out here, okay, that we don't see a lot of kick up in the shear as we change the waves, and we're getting up to 2 meter waves here, significant wave height. That's a significant wave height. The average of the one-third highest waves, that's not the maximum wave, so you can get almost twice as much. The maximum heights are almost twice as much as that.

So, again, you pick up the spring neap cycle pretty well in this, but it doesn't show up very much in terms of wave response, okay? (next slide) This is a comparison between two methods to calculate the boundary shear stress, and the one you saw was the so called bulk formulation. That we take the drag coefficient times the square of the velocities. That's the bulk formulation.

There is another way to do it, and you argue whether it's better or not so good, and that's the log in here. And if there was a perfect fit between the two, it would be on this one-to-one line down here. Well, you see that we're coming along calculating the stress levels using the two techniques, and they're pretty close, you might slide that over a little bit, until we get up to a stress level of about one Pascal, and at one Pascal it starts to dive off.

We could sit here and argue with you about why it's diving off. It would take another half

an hour to explain the differences in the change of the flow field, what happens when you get up here, why the velocity profile may not be logarithmic at that level. But suffice it to say what we're using this little calculation for is to demonstrate at least to us the adequacy of the drag coefficient of 0.0025, which was the selected drag coefficient that was used in the formulation you saw earlier.

So the data do a pretty good job of verifying that selection until you get up to a point where nobody is surprised that it doesn't work, to put it in plain language, okay? So this is a very valuable set of data. If you take a look at this, you don't often get a chance to really get down into the nuts and bolts of the flow field.

MR. ALLYN: So the coefficient gives the best fit between the two models. Is that how you have the coefficient?

DR. BOHLEN: The coefficient was a selected value. Well, there is a lot of data to say it ought to be that value, and then the question is does it make any sense.

MR. ALLYN: Yeah.

DR. BOHLEN: And now you are comparing the results of a bulk formulation that uses

that coefficient against a different way of calculating the stress, okay? Alright. So here we go. The rubber hitting the road. The model simulation says here we reproduce tidal and spring neap variations on the observed stress. Now, you saw some of the spring neap variation -- spring neap, do you understand that? Twice monthly variation in the tide, right?

We're just off the full moon. We're in the spring portion of the monthly tide. It has nothing to do with April, May, March, whatever it is, okay? This is twice a month. You got a new moon, and you got a full moon, and you have maximum tide during the new moon, maximum tidal range during the full moon, and in between smaller range -- neap, okay?

So you are looking at the spring neap cycles here coming along this guy, and then you are looking at a comparison, and I realize it's a little difficult to see here between the field observations the calculated values and the model values. And to make a long story short on this one we argue, using these sorts of data, that the model is doing a pretty good job of reproducing the measured results, which is what, of course, we were trying to verify. And next time we will have a different color

for you. The blues and reds and pinks and purples are hard to see. Okay, next.

This is very good here. This is another comparison between the two. This is your bulk formulation again, that equation, okay, and these are the field observations.

DR. MCCARDELL: No.

DR. BOHLEN: I'm sorry. The other way around. These are the field observations and that's the model. We have it upsidedown and that's the model, and this is the mean of the boundary shears, okay? And then if they were identical, they would lay on the one-to-one lineup here, and what you are looking at this is now mean values over the period.

Correlation coefficient of about 0.91, which is very high. When you start looking at the maximum predictions, this gets a little more scattered in there, but it's still pretty close to the one-to-one. In this case it gets down to a 0.7 -- 70 percent. So you put that together with Grant was saying about the accuracy of the model, the accuracy of the comparison of the two, and it's looking like we've got a pretty good handle on the boundary shear stress in the model, okay?

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What's it all mean? So we want to find the maximum bottom -- so we're now using the model, because the model gives us information on all those little triangles, every quarter mile a little square, okay, over the whole of the field. Compare the value of the sites identified in the screening process and simulate a period of a severe storm. We picked Sandy. Go ahead.

The bathymetry. You know it, right? Fairly deep in The Race, not so deep near shore. You got the net depth coming back up. Six Mile on the end (west). I don't think you need to see anymore. These guys know this by heart, okay? So here you are in terms of stress distribution. This is Pascals. Red is high, on the order of 3 or maybe down in here, okay? Montauk not terribly surprising. Some places in the vicinity of The Race, some reds, fair amount of yellow, and some amount of blue, low.

As far as the zone of siting feasibility goes, remember where that is going, come back over to see Block Island, okay? You got your Point Judith sitting over in here. It says that there is a fairly high stress level particularly in the Eastern Sound through much of the zone of siting feasibility, okay? You are up in here.

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Remember we were cutting things off looking at values something like 0.75 as being something of a critical value for some of the sediments we might be playing with in terms of dredged material. The -- one of the things that's interesting here is that as we run this through the different campaigns, that the spatial differences we see between -- here's an area, you know, Long Sand Shoal at the mouth of the Connecticut River and Block Island Sound, you look at the spread, it's quite a spread in stress values. That spread is much larger than you will see seasonally, much larger than you will see seasonally.

So that says that, to me that the tidal field is important, and that the differences we're seeing are down in the subtle -- you will see some of the subtle things in a minute -- but subtle as in changing mean flow characteristics. That little 10 centimeters a second interacting with the mean flow of a knot or knot and a half, may be substantial -- may have a substantial effect.

So snapshot picture of the whole thing. This is maximum bottom stresses during campaign 3. We picked campaign 3, because that's the supposed to be the highest energy winds in winter, and

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then we picked our storm conditions, okay? Next.

Here are some of the numbers. We broke it down by Eastern Long Island Sound and Block Island Sound, and you see the Cornfield Shoals site generally has the highest stress. Probably not terribly surprising. For those of you who have played down there you know it's mostly sands, and that from a management standpoint over the years we counted it as a dispersal site, and there is good reason for it when you take a look at the stress values.

Look at the range as you go through Six Mile, Clinton, Orient Point, back to Orient Point, Niantic Bay, and here is New London, okay? All values below 0.75. Get out, Fishers Island, east-west and center. This is south of Fishers Island around what I call the deep hole, okay? So there are values in there. Fishers Island center it looks pretty low, okay? Might even get east looking low relative to what we see in The Sound. Block Island yet lower. North of Montauk, low. North of Montauk is really Montauk Harbor, really in there. It's in the shelter. Okay, next.

So we took a look at Sandy, see what we could do with it. Sandy was a fairly interesting event, right? Blew a little bit. These are our

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MYSOUND buoys out there, Ledge, Central Long Island Sound, Western Long Island Sound, Execution Rocks, and not surprising the Ledge shows the highest, about 60 knots or so, okay? Very short period.

So it was a wind event, short lived. We know that. What you don't know, what this thing doesn't show you one of the unique things about Sandy of course is that it may not have blown all that much max, but it blew a lot for a long time, and that is significant duration, unusually long duration, and a lot of that was from the southeast, which made for interesting conditions through a number of our areas, right?

And if you take a look at the fetch, the over-water distance in which the wind can act, for Eastern Long Island Sound southeast is favorite. East nearly, northeast not so much; but certainly southeast has the potential for influencing what's going on down here.

So it was good from that standpoint, fairly reasonable winds and significant duration, and a storm surge which increased water depths through the whole system, right? This guy is Kings Point (pointing to a slide). This guy is New London. So there is New London. You had a surge of something

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under 2 meters, about 1.5 meters - 5 to 6 feet, a surge down here, which has a recurrence interval of every 10 to 30 years. You know, we will see it again, that kind of a thing.

You get down the western Sound, oh my goodness, look at the western Sound. Four meters down at Kings Point, and, you know, in New York Harbor it was even more. Occurrence intervals down there are hundreds of years. We won't get into an argument about how many hundreds of years. In fact, we discussed that, but it's very, very low probability.

What should you care? Because you stuffed a lot of water down my Sound, okay? You piled up a lot of water down the western end of The Sound and that water's got to get out. That water coming back then has the potential to influence the velocity field in the eastern Sound, and from that standpoint that much water heading back out this way makes Sandy an unusual event, and we're very fortunate to be able to take a look at some of the numbers on it, okay?

It may be that there is a lot of subtle influences. It may be that it was the wind field does more to that data. We will see. We will take a look at it. But people talk about the frequency of occurrence of Sandy down here just in

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terms of wind and maybe storm surge. That's one way to think about it. But we're out in The Sound now, and what we care about is the amount of water that was produced in this and where it went and what it is going to do to us if it starts going back out. Okay.

So to make a long story short, if I showed you that earlier slide with the yellows and blues on stress, and I showed you this guy here now, this is Sandy's effect. About the only difference you are going to see it says created higher maximum bottom stresses in some areas. Well, now it turns out if you looked at the absolute numbers on the table -- I'll show it to you in a minute. I don't expect you to memorize the last table.

I'm telling you what we're looking at is, for the most part, each one changed a little bit. Some fair number of them went up a little bit. But in terms of the deeper water effects they weren't as great as you might expect. Most of the effects we're looking at higher stress in the shallow areas near shore, which given the wind field, you know, you don't need a model to tell you that probably. Okay, next.

So here we are. About the same distribution of stress. And if you went down and

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compared this set of numbers with the earlier set of numbers, you'd see just what I told you. You still got Cornfield Shoals as the winner, New London as the lowest end on the Eastern Long Island Sound sites. And if you run down this guy here, about the same. Now you are getting down Fishers Island center, Fishers Island east, it's still below your 0.75. This guy went up quite a bit, the west, as you might expect. The same thing for the Block Island Sound site. It went up. Next?

So it's defined as a level of stress that's got to be mobilized, and I figured that we were using a cutoff for the sake of screening of about 0.75 Pascals. That's going to vary depending on the stuff you are playing with. The more cohesive it's going to take more stress. The sandier, if you bring me out a beach sand, it's going to take less, okay, and a variety of other factors, too.

If you just get me in talking about the biological effects. Okay. Those damn bios messed up the texture of my sediment. They burrowed into the sediment, and so the physical oceanographer has to be sensitive to the biology, but that's affecting the uppermost layer of the sediment column, and it has been shown over the years to be a relatively minor

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effect. They build themselves little cocoons to stay put, okay? Next.

If you do that -- why don't we -- This is the comparison. Basically what you are looking at here we just split up what you just saw into areas that were greater than one Pascal, 0.75 to 1 Pascal and less than 1 Pascal, and you got Block Island Sound, New London, Fishers, Orient Point, Fishers Island east and north of Montauk as the sites that are below 0.75. The remainder were above 0.75. Okay.

MR. JOHNSON: Are you going to talk about capacity in any of these sites?

DR. BOHLEN: No capacity. Just -- with the exception of depth that is included in the model, what's out there is what's out there.

COURT REPORTER: Sir, can I have your name, please?

MR. JOHNSON: John Johnson.

COURT REPORTER: Thank you.

DR. BOHLEN: So before I gave you different shadings from the reds to the blues, right, browns to the blues. Here we just -- everything that's above 0.75 is in brown, and you can see this is maximum bottom stress exceeding during the simulation

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of Storm Sandy, okay? What are you looking at is Sandy. And as I said, if we did this for the non-Sandy, you're not going to see all that much of a change. You are going see some change but not all that much of a change.

What impresses you here is that there is a lot of brown. That's fine. What does it all mean to us? This guy. It says sites 1, 2 and 7, Cornfield Shoals, Six Mile and Fishers Island. Fishers Island - West, that's south of the island, have high maximum stresses. You saw that. Orient Point, that's Orient Point, Block Island Sound show maximum stress levels below at the center of the site but have values in excess of 0.75 within the boundary.

So there is some variation maybe the way the triangles were placed. We can argue about it. Niantic Bay and Clinton Harbor show maximum stresses exceeding 0.75 but less than one. We can sit and tune this later, but that's what the model is showing you right now the way it's laid out. New London disposal site is the only site in the Eastern Sound with a maximum bottom stress below 0.75. That's what we did, that's how we did it, and that's what we found. Questions?

DR. HAY: So we have 35 minutes or

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so for questions and comments. Please speak up, and also please mention your name and any affiliation up front.

MR. CAREY: Drew Carey. Frank, the sediments on the bottom are obviously going to integrate the shear stress over time, and you didn't see a lot of effect from the wave climate in general because of the water depth.

DR. BOHLEN: Yeah.

MR. CAREY: So really the tidal prism and the bathymetry is what's driving a lot of the distribution of this shear stress, I would guess. Do you expect to see pretty reasonable correlation between those model shear stresses and the kinds of sediments that will be seen on the sea floor in different locations?

DR. BOHLEN: In a general sense, yes. That is to say if I was to draw you that stress diagram from Central Long Island Sound to Montauk, you would see that in general the stresses are lower in the western part of that down toward Central Long Island Sound than in the east.

And if you look at the sediments in general, once you get across Mattituck Sill, you tend to find softer sediments that have accumulated. Out

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in the Eastern Sound, it may be somewhat coarser on the bottom on average. So a simple correlation might be there except for the fact that I can also bring you to a number of locations in the Eastern Sound right in The Race where you have very fine grained deposits that are quite stable. And when you go down and you put your flippers into it, you are amazed that because you are dragging along trying to stay there that this stuff stays put.

The sediments there are classes of fine grained sediments, and the majority shows this behavior when stress can really build up resistance to movement. So the simple correlation is very often hard to realize. You will find high energy flows and fine grained deposits out there. Is that what you are looking for?

MR. CAREY: Yeah, and so a little follow-up is that presumably based on characterization of dredged material you chose fine sand as kind of the driver that gave us this 0.75 Pascal.

DR. BOHLEN: Right.

MR. CAREY: If you shift down to say very fine sand or a slightly more complicated mix of grain sizes, you could get those materials to the bottom, get them to stay in place in slightly higher

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shear than necessarily this.

DR. BOHLEN: Absolutely. What we're looking at here, this is the conservative.

MR. CAREY: Right.

DR. BOHLEN: I don't know how you class the conservative anymore, but --

MR. CAREY: Go ahead. Call me a conservative.

DR. BOHLEN: Now, what we have up here, 0.75, you can probably find that same material staying put in stresses in excess of one. I would say we really want to have that stuff -- we would be sure that that stuff is going to stay. That's use 0.75. I don't know whether that's liberal or conservative.

DR. HAY: Any questions? Comments?

MR. ALLYN: Compliments to you and your staff. That was amazing.

DR. HAY: Thank you.

DR. BOHLEN: I want to emphasize two things. This continues to be a work in progress, because the next step on this whole thing is to quantify the sediment transport. So we got a pretty good understanding of the velocity field and the shear that's associated with it.

Now we want to try for the sediment

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transport model so we give you some ideas of the probability of movement, and then again what he said, Grant said about where the stuff is going to go so we're not finished yet. And then for those who haven't asked the question, I asked the question about when I heard about it.

The next step in this whole business is so you have established some background for exposure. The swimmer is down there, and there is some mud that's looking at going by. What about the effects, the biologicals, where the movement of the mud and the movement of the mud where the constituents may be impacting the benthic community or the water column. So the biological study has also yet to be done so it's very much a work in progress.

MS. MCKENZIE: Tracey McKenzie. I'm curious as to what your schedule is for your next sediment transport modeling.

DR. BOHLEN: You want to answer that.

DR. HAY: Well, the sediment transport modeling is -- there are two elements that are still being worked on. One is an LTFATE, long-term sediment transport model and a short-term sediment transport model. Maybe Grant, you want to

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elaborate on that quickly.

DR. MCCARDELL: I have to refer you to Professor O'Donnell who is out of town as far as that's concerned. We're working on both of those projects.

DR. BOHLEN: The reason that I laugh is soon is all we ever hear. So I can't tell you that it's December 16 or whatever, but all of this I think as you saw in the schedule is going to have to be quickly addressed to get things finished off by next spring.

DR. HAY: In other words, there is still modeling that is taking place at this time.

DR. BOHLEN: Right.

MR. JOHNSON: John Johnson. Is this --

DR. HAY: Do you have an affiliation.

MR. JOHNSON: Yeah, I'm sorry, CMTA. Is this the only input that's going to determine the relocation sites and sediment dump sites? We take offense in the Marine industry to calling them dump sites. I think they should be called property relocation sites.

That all being said the question is

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does -- what other additional information is going to be inputted to those people who are going to, you know, designate some other sites?

DR. BOHLEN: Jean.

MS. BROCHI: Again, I can take that and I can answer the capacity question as well. So the capacity of the potential disposal sites, the dredged material disposal sites, potential sites, not dumping sites, the capacity and dredging needs is part of the Environmental Impact Statement as well as biological characterization, the physo (physical oceanography), sediment, economics.

And all of that will be pulled together in an environmental consequences. It will be evaluated along with no alternative, which means what happens if we don't -- there are no sites that are available.

MR. JOHNSON: How far along are you in the studies of those other factors?

MS. BROCHI: This is one of the major studies that we just completed. That's why we're having this public meeting. Biological resources we have some information. We have a literature search on, the dredging needs capacity. We have the Corps of Engineering finalizing that report

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right now, and it all will be compiled into the document, which will be the draft.

MR. JOHNSON: And your deadline is December of next year.

MS. BROCHI: 2016 for the final.

MR. JOHNSON: January 1, 2016?

MS. BROCHI: December 2016 is the final, rulemaking and --

MR. JOHNSON: That's two years.

MS. BROCHI: Yes. We're coming out in the spring with the draft so that's probably the date that you will hear from us, and we will have a public meeting.

DR. HAY: Next up is -- next up is Bill, actually, sorry.

MR. SPICER: Bill Spicer, Spicer's Marinas. Also a member of the Connecticut Marine Trades and a member of the Stakeholders Commission who is supposed to comment on the DMMP. I noticed a couple, three things. All of us have been looking at the NY DOS failure of consistency for some of our dredging permits. Mine has been out for eight years, since 2006, and continuously renewed very faithfully and is in force.

But it recently was declared, after

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208 days, to be nonvalid. That it was not consistent with what New York had. It's very interesting the site 6 tests out very, very nicely when you're putting real scientific data out with real oceanographic studies and real oceanography running, and it shows that the NLDS is doing very well.

Now, I know we're in here, because we're supposed to be designating one or more sites in Long Island Sound, which is kind of interesting, because in some of the NY DOS claims where they are claiming inconsistency, they have located NLDS as northeast of the basin of Long Island Sound.

Now, what that would mean The Race runs out in two deep valleys that kind of make a V. The eastern one runs in through past Race Rock and between there and Fadden and comes out to about where Bartlett's Reef is and swings west. The other one is further west over by Little Gull Island, between there and Fadden.

Now, I contended in a bound paper that I submitted to Mike Keegan very early in this that the NLDS was in Fishers Island Sound. It's not down in the valleys and canyons. It's up on the top of the plateau, and it's not subject to Ambro. It's subject to 404 waters and regular Army Corps of

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Engineers analyses the same way as is occurring in every other estuary in the country.

But we got singled out in 1980 by an amendment slipped through Congress by Representative Ambro of New York aided by -- out of the guy's own mouth, because he was bragging at a Holiday Inn in New London in 2006 that he aided Ambro in doing it, and his name was all over the coastal zone management sheet, and he happens to be employed by NY DOS, and both of these were sneak attacks without any particular notice to Connecticut's waterfront stakeholders.

And I also have a document from NOAA that says that they were very surprised that Connecticut didn't object to New York's -- or it seemed that way to me -- coastal zone management. But you know what? There weren't any comments against that being extended. You know why? We didn't know about it, because I believe that rumor has it, and the best information I can get was they're supposed to notify the Army Corps of Engineers.

What Army Corps of Engineers did they notify? New England? No. It's believed they sent it to New York. I can't prove that, but I sure know that there wasn't anything that I can find that's

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here in New England except that when I -- I found out about it in the afternoon, and I went to DEP the next morning to challenge it, because I was furious.

We have been opposing Ambro for 32 of 36 municipalities to have water go up and down in Connecticut, tidal water, 32 of 36 opposed Ambro in print and wanted it repealed.

MS. BROCHI: Okay. So I am going to -- you bring up two good points I did want to mention, actually. So Mike Keegan -- you sent something to Mike Keegan. He's working for the Corps of Engineers on -- he's joining us on this effort, but that's the Dredge Material Management Plan, which is a separate effort, which I didn't mention tonight, and I think most of you are familiar with that.

They will also be having public meetings coming out with the programmatic EIS and documentation for that.

MR. SPICER: For the record I submitted that timely with a request for that. I think it was in December of '06. It was undated on the actual document. It was about that thick with white covers and spiral bound.

MS. BROCHI: Okay.

MR. SPICER: I can provide more

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copies.

MS. BROCHI: I mean, we can talk --

MR. SPICER: That's okay, continue, continue. You're doing fine.

DR. BOHLEN: As far as our designation of the site, I mean what we classed as Eastern Long Island Sound versus outside of Eastern Long Island Sound had nothing to do with political jurisdictions and boundaries.

MR. SPICER: The Corps put $7 million of signs in by 2005 and then got a political decision where something was rammed down our throat here in Connecticut, and people weren't happy, and during the midst of this NOAA was kind of surprised. It seemed to me that nobody objected.

But when I got to DEP, I found that Gina McCarthy knew all about it, and she did find a way on one of the other things to shut me up. There was a letter from her deputy, Amy Marella, that told me to -- you know, I kind of got stabbed in the back about Ambro, and she had a way of shutting me up that was interesting. She looked me in the eye --

MS. BROCHI: I apologize on behalf of the agency --

MR. SPICER: Wait a minute. She

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looked me in the eye and she said I wrote it. That's I, Gina McCarthy, wrote it. So I shut up. If it was a man, I'd address her in spades. A woman, I shut it up and turned around and decided that I had been really stabbed in the back --

MS. BROCHI: So --

MR. SPICER: -- and I haven't shut up since.

MS. BROCHI: So one other point that you made was about the DOS coastal zone consistency, and so they do have that authority. If anything is abutting, they can make comments on projects. Project specific review happens within the regulatory agencies and the Corps and EPA will handle that separately. This meeting is about the SEIS, do you have any questions specifically about this effort?

MR. SPICER: Yep, I do have it --

MS. BROCHI: -- process --

MR. SPICER: -- specific with NY DOS.

MS. BROCHI: Okay.

MR. SPICER: They're inconsistent. Did they say where in New London NLDS is? NLDS is in Fishers Island Sound.

MS. BROCHI: We --

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MR. SPICER: Some others have made some errors, but that one may be crucial.

MS. BROCHI: Okay. So we do have a representative as part of our cooperating agency group here today. Mike Zimmerman is here. Can you speak to any of this or should they -- is there somebody else you can refer them to?

MR. ZIMMERMAN: Well, is there a specific question, I guess?

MR. SPICER: There is a statement that they have made contentions that are incorrect.

MS. BROCHI: So that --

MR. SPICER: They have had plenty of practice at making incorrect ones, and I have corrected them on numerous occasions, and I think we need to put it on record here that NLDS is in Fishers Island Sound and is 404 waters, and they have admitted it, and I call it if it was legal, it's an admission against interest. Where they have admitted, it's northeast of the eastern basin of Long Island Sound.

MS. BROCHI: Okay. So, Mike, would it be appropriate for Jennifer to receive something then?

MR. ZIMMERMAN: I'm sure she would be happy to.

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MS. BROCHI: So if you want to submit official comments to DOS, Jennifer Street would be the contact.

MR. SPICER: At the moment I have cooperated, because I am being threatened standing on my air hose and I'm a diver. That I would go to Central this time, but that doesn't mean that they don't come in here and be honest with the folks.

MS. BROCHI: Right.

MR. SPICER: You got to tell them. In short, we have been jocked a couple times.

MS. BROCHI: Thank you.

DR. BOHLEN: Susan.

DR. HAY: I want to get some more comments, though.

MS. BURNS: Kathleen Burns, CMTA. I just wanted to follow-up on JJ's point when you were discussing impacts that would be weighted, the impacts that you are or not impacts, I apologize, but the different, the various studies that will be entered into this impact study. Are those weighted?

MS. BROCHI: Sorry, could you just say your affiliation?

MS. BURNS: Oh, I'm sorry, Connecticut Marine Trades Association. So there is

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the physical. There is the biological. You had mentioned economic. What else is weighed in there?

DR. HAY: Archaeological.

MS. BROCHI: Archeological, cultural, economic. Then --

MR. JOHNSON: Capacities.

MS. BROCHI: Capacities is part of the development. It's not really weighted.

MS. BURNS: Are these weighted in any sort of fashion?

MS. BROCHI: No. The data is all collected. The site screening process is what we go through, evaluating where the sites are. So that's -- it's not weighted. It's more of a screening tool that we use. The final document will evaluate all of those equally.

DR. BOHLEN: But -- I don't know anything about evaluating documents. I'm saying if you came in here and you said a site that you are going to use is already full, that makes that classification pretty way up.

DR. HAY: Similarly if you had a site that's on a shellfish bed, that would be --

MS. BROCHI: Right. That's part of the screening, too.

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MR. HELBIG: Jean, Frank, Ron Helbig.

COURT REPORTER: I'm sorry, sir, your name again?

MR. HELBIG: Ron Helbig, Connecticut Marine Trade Association, and the whole discussion has been about physics and about the stress on the bottom and site 6. Can either one of you talk to the effect that why is site 6 not considered a very good site based on all the data that you have here and the lack of stress that's on that site and speak to the fact that why that shouldn't continue to be a designated site?

MS. BROCHI: So I will take that, if you don't mind.

DR. BOHLEN: Yeah.

MS. BROCHI: So, again, so the part of the effort is to look at all of the sites, and what I had presented originally is we had started, you know, just eastern, open wide. We decided to go to historic sites, because we really weren't familiar with what had gone on there, and the Corps of Engineers had helped us.

So we included historic sites. We included active sites, which includes the currently,

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currently used sites. And so part of the investigation is to look at all of the data. This is the first big chunk of data, and so we narrowed it down to the six sites, and so all of those six are going to be evaluated. So we're in the process of collecting data on all of those.

MR. HELBIG: My only question to you is just here tonight can you say from an educated opinion that the site 6 is something that we should be strongly fighting for because of the temperament of the currents on the bottom and the ability for the material to stay in that location?

MS. BROCHI: So what I can -- I don't -- I can't prejudge, and we have to evaluate all of the data as it comes in so -- but what I can say is based on the physical stress and what we set out in the Notice of Intent to look at is a containment site for the type of sediment that's in Long Island Sound and based on the dredging needs report that the Corps of Engineers produced in 2009.

Based on that report we determined, when we came out with the Notice of Intent, that we would look for a containment site. Cornfield Shoals is clearly -- and this proves it -- a dispersive site. So we're -- we need a containment site, and we're

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looking at all of them, and we won't make a decision until we evaluate all of --

MR. HELBIG: But you don't want to share an opinion at least or --

MS. BROCHI: I do not want to share an opinion.

MR. HELBIG: Okay. I get that.

MS. BROCHI: Sorry.

DR. HAY: Sir, go ahead.

MR. SHAPIRO: My name is Jeffrey Shapiro. I'm from Cedar Island Marina. My concern is with the grade size used for your modeling, as the gentleman back here spoke about, was a sandy material, and in my experience almost all of the material that I see that goes out of waterfront facilities in Connecticut is a lot siltier material. Siltier material is going to be much more stable then the way you were talking, much more stable on the bottom than a sandier material.

So my only concern is with some of the evaluations you have done that you might tend to come to a conclusion that the material is going to move when in fact if you had used siltier material for your examples, you might come to a different conclusion, the conclusion that the material is not

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going to move.

DR. BOHLEN: Okay.

MR. SHAPIRO: Like I said in Connecticut most of the material I see going out is a lot siltier, because if somebody has a waterfront facility and they have sand that needs to be removed, they're probably not going to be putting it in the barge and dumping it out to sea. They're going to be selling it to somebody. So that's my comment is that maybe --

DR. BOHLEN: I guess my response to that is don't get ahead of yourself.

MR. SHAPIRO: Okay.

DR. BOHLEN: And hear what was said. This is the study of the physics of the field and the development of a model that allows us to evaluate transport. You did a straw man evaluation. You went and picked a number. It ain't 10 and it ain't 0. How about 0.75? Where did 0.75 come from?

Joe Germano did some work down in a site down in Long Island Sound, and his numbers come up looking like 0.75. There is a study in the North Sea that -- the numbers come up looking like 0.75. It's not 1 and it's not 0.25. Okay. So we used it for screening. If it was this absolutely, what would we be seeing? It's the beginning of the process.

The next step in this whole thing is to refine it, and that's where the model starts coming in where you really do take a look at how the sediment is responding. You give me a much more complete set of data than grain size. I want both density, bulk density, I want sediment characteristics that go beyond simple grain size, and I can then talk to you about not this particle-by-particle movement that you were looking at in this first slide, which is unrealistic given all of the sediments I have seen in Long Island Sound but on the beach. If I'm off the beach, I got gooey stuff even if it's sandy, okay?

We build that into the model, and we come up with a much more accurate and quantitative evaluation of the transport potential. What you are looking at right now is just the beginning, screening. It's the beginning.

MS. BROCHI: And I'm going to add to that a little bit. So this effort is to designate one or more or none disposal sites, right, dredged material disposal sites. It doesn't mean automatically that dredging will happen, that projects will go out there. That happens from the regulatory agencies on a project-by-project basis all the time so

we're very familiar. The Corps of Engineers are back there, the EPA. I review the projects. We're very familiar with the type of sediment in Long Island Sound and the dredging needs.

Now, one thing I had mentioned earlier is the DMMP effort, which is separate from this. Well, as part of that effort they collected information on dredging needs. They looked at upland disposal and other beneficial uses and alternatives. Those documents are also going to be used in this evaluation. And so whenever they're, you know -- the object is to try to use sandy materials beneficially wherever, whenever possible.

DR. HAY: Okay.

MR. SHAPIRO: Not too often.

MS. MCALLISTER: Abbie McAllister, Saybrook Point Marina. We're basing -- the people who are going to be basing their decisions on things like Cornfield Shoals based on your model that you completed when it seems with all the data you have we have specific data on what type of sediment has been disposed at Cornfield Shoals for the last, I don't know, 20 years --

DR. BOHLEN: Sure.

MS. MCALLISTER: -- because we have

all had to have that tested specifically. Couldn't you plug those exact numbers into your model so that we would get a more realistic idea of what's being put into Cornfield Shoals rather than judging it as sand? I know I'm not putting sand in Cornfield Shoal. It's a fine sediment, and that's on record with the DEP.

DR. BOHLEN: I'm sorry, you're not putting sand in Cornfield Shoal.

MS. MCALLISTER: It's a fine sediment, because we have to have it tested every time we dump there.

DR. BOHLEN: Well, you can get --

MS. MCALLISTER: Every two years we dredge.

DR. BOHLEN: What's the use of the Cornfield Shoals area? George?

MR. WISKER: Cornfield is a dispersive site.

DR. BOHLEN: And what's the major source of the material that goes into Cornfield Shoals historically?

MR. WISKER: Connecticut River.

DR. BOHLEN: Connecticut River sediment.

MS. MCALLISTER: We're not putting

sand --

DR. BOHLEN: I know you are not putting sand, George.

MR. WISKER: It's not always sand.

MS. MCALLISTER: We know exactly what has been put there. Couldn't we use those (inaudible)? Wouldn't that give us a better idea of just --

DR. BOHLEN: And we can also look at the mounds at New London the same way and the mounds at central Long Island Sound the same.

MS. MCALLISTER: We have done so much research it would seem that it would be easy to pull that into this whole thing.

DR. BOHLEN: I forgot to tell you 45 years. Did I tell you that?

MS. MCALLISTER: I believe it. I'm just saying it seems like you have taken such detail with everything else that it would be not that much more difficult to use what's been approved for that in the past.

DR. BOHLEN: And we are and we are.

DR. HAY: Yes?

MR. MCGUGAN: Hi, Christian McGugan, Gwenmor Marina and Gwenmor Marine Contracting. One

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thing I was wondering -- I think this kind of speaks to what Bill Spicer was talking about -- are any of these proposed sites outside, because I don't even know what the delineation is between a coastal zone management area and a non-coastal zone management area?

And the reason I ask are any of these sites outside of the coastal zone management, because I think the fear is that the recent trend of DOS objecting to all the projects in southeastern Connecticut, because Bill's was the first, and we have heard the storms coming, and it seemed like it's coming. They used to just sit on their comment for 180 days and then Army Corps would assume consistency issue of the permit.

Well, things they seem to have changed starting with Bill, and like I said we have heard the rumblings that this is coming. So effectively what they have done for private projects is shut down the New London dump site, okay? Now, I'm a dredge contractor. I have projects on the Connecticut River including Abbie's.

I was telling her today next time she dredges, Saybrook Point Inn dredges, you probably are going to have to go to Central, because New York

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is going to object. So I guess the fear is that you guys do all this hard work and come up with this new site or these new sites, and we say hooray. We have a place to go.

We apply for our permits to dredge, and New York can still just object, and that sets off an appeal process and a legal process that no small marina operator can bear, and no small marina operator can bear to go to central Long Island with their spoils, and I have been to some of those dredge management meetings, but I can barely stomach it as a dredge contractor, which I'm sure Jeff knows as well.

When they talk about alternative disposal methods, I mean, there is electric cars invented in the '50s, but we're still filling up with gasoline. That's the best analogy I can make. So as far as the affordability of getting rid of dredge spoils in these other crazy ways that I have heard, it's just not reality.

So anyway, I think that's the fear. So are any of the proposed sites -- is there anyone in this room from Army Corps? Are they all going to be within the coastal zone management, and this could all just be --

MS. BROCHI: So the zone site of

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feasibility includes those sites. The 11 sites are all within the coastal zone management consistency and that's Connecticut and New York. So either Mike or George, if you have any specific information? To my knowledge there is no -- you know, there is no yardage or mileage that, you know, gives you preference to being able to object or not. It's whether it's abutting and whether it's in danger.

MR. WISKER: I think what we're getting is within Long Island Sound it's either, you know, they're all territorial waters of one or the other state. Boundary lines match. An example of where you might be outside of the coastal zone is say Rhode Island where you got far enough off into the territorial seas beyond the state territorial limits. Then -- and that may be where it would apply. You would have to go quite a ways off shore, open water.

MR. CAREY: You have to get away from Rhode Island's territory.

MR. WISKER: That's what I'm saying. You have to go out and hang a right. So that would be the one way you would avoid, because under the Federal consistency laws the two states within Long Island Sound if there is a reasonable, foreseeable effect of a project in one state on another, that other state

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has the right to remove that for consistency with that program.

MS. BROCHI: Thank you.

MS. MCKENZIE: Tracey McKenzie again. Just to follow up the question with you, George, because the New London disposal site now, a corner of it, the boundary of New York and Connecticut goes right through, I think, like the lower third corner of --

MR. WISKER: Southeastern.

MS. MCKENZIE: Southeastern corner of it. If the site was shifted so it's not on the boundary line, New York would still be able to comment on the coastal action that Connecticut DEEP takes.

MR. WISKER: Right.

MS. MCKENZIE: I just want -- that's all.

DR. HAY: Tracey, what is your affiliation.

MS. MCKENZIE: U.S. Navy Subbase, New London.

MS. BROCHI: Does that answer your question?

MR. MCGUGAN: Just for the record,

to go to New London for Bill Spicer, the cost for him to try to go to Central with the same material, because I was his dredge contractor, and I'm not here because I'm sore about not dredging this job. It's a much bigger issue to me. The difference between going to New London or going to Central with this stuff is more than double the cost for a marina operator.

So it's going to be a huge burden on the marinas in southeastern Connecticut, and the Connecticut River is like coming. So I guess somehow --

DR. BOHLEN: When you say cost, you are including all factors in the cost. It isn't just dollars.

MR. MCGUGAN: Right. Well, I have actually done --

DR. BOHLEN: Is that right --

MR. MCGUGAN: We have done trips. Ron, he couldn't because (inaudible) is too shallow. So we did a couple loads and tried to be as nice as I could, but, man, it's a long trip. It's 24, 26-hour cycle to get out to New Haven and back. So it's just -- that's the economics of it. It's just like, you know, you are digging with a wheelbarrow in your yard. You are going right there, and you are going to your

neighbor's house. It's just --

MS. BROCHI: All of the regulatory agencies and cooperative agencies understand the economic impact, but the State doesn't.

MR. MCGUGAN: Well, I think New York and Connecticut needs to get along or -- maybe Connecticut needs to understand what is acceptable.

DR. HAY: So it's 5 o'clock. We started five minutes late so let's allow for five more minutes, so maybe two more comments that are burning. Sir?

MR. SHAPIRO: My name is Chris Shapiro from Cedar Island Marina. Is just hasn't -- maybe there is an answer to this, but it hasn't been entirely clear to me. You say, you know, in the calculations, you know, there is going to be a lot of variables, you know, such as economic, you know, commercial, that type of thing. Who on your team is going to be considering those variables?

MS. BROCHI: Well, there is individual people at EPA as well as the Corps of Engineers and all --

MR. SHAPIRO: Well, you guys are scientists. Who from the business side is going to be considering this? I mean, surely, you know, I'm not

going to get up here, you know, and talk about, you know, the displacement or anything like that. So how can you guys talk about business?

MS. BROCHI: You will have an opportunity to comment about --

MR. SHAPIRO: No, no. Who on your who is actually putting together the actual recommendations?

MS. BROCHI: Yeah, well, so the recommendations come from the agency and the cooperative agencies, but the working group that was set up for the DMMP has nonregulatory and nonagency specific focus on it that we're going to tap into as well.

MR. SHAPIRO: So there are people from the business side, too.

MS. BROCHI: Yeah.

MR. SHAPIRO: Obviously this is very important, you know, but there obviously needs to be some professionals, you know, that understand, you know, the economic, you know, impacts. I know that you guys are probably very smart, but there needs to be professionals, you know.

DR. HAY: We have an economist on board as well.

MR. SHAPIRO: Can you give me their names?

COURT REPORTER: I'm sorry?

DR. HAY: Ben Lieberman.

MR. SHAPIRO: Ben Lieberman?

MS. BROCHI: So on the working group, Mark, do you know when the next working group of the DMMP would be established or --

MR. HABEL: Probably about the time we publish the draft of the DMMP.

MS. BROCHI: So Mike Keegan would be the contact.

MR. SHAPIRO: Okay. I'd just like to ask --

DR. BOHLEN: Did I hear -- Jean, you said after the DMMP or after --

MS. BROCHI: No, the Dredge Material Management Plan.

DR. BOHLEN: What's the date for the release of the Dredge Material Management Plan?

MR. HABEL: It will be sometime in the spring.

MR. JOHNSON: Of 2015?

MR. HABEL: Yes.

DR. BOHLEN: I know there was some

questions on that that had been circulating.

DR. HAY: One final question? Comments? Okay. Thank you all for coming. Have a great afternoon.

(Whereupon, this hearing was concluded at 5:10 p.m.)

CERTIFICATE OF REPORTER

I, Jacqueline V. McCauley, a Notary Public duly commissioned and qualified in and for the State of Connecticut, do hereby certify that the Supplemental Environmental Impact Statement(SEIS) to Evaluate the Potential Designation of One or More Dredged Material Disposal Site(s) in Eastern Long Island Sound hearing was taken on December 9, 2014 at 3:08 p.m., and reduced to writing under my supervision; that this hearing is a true record of the testimony given during the hearing.

I further certify that I am neither attorney nor counsel for, nor related to, nor employed by any of the parties to the action in which this hearing is taken, and further, that I am not a relative or employee of any attorney or counsel employed by the parties hereto, or financially interested in the action.

IN WITNESS HEREOF, I have hereunto set my hand and affixed my seal this 18th day of December, 2014.

Jacqueline McCauley

Jacqueline V. McCauley
Notary Public

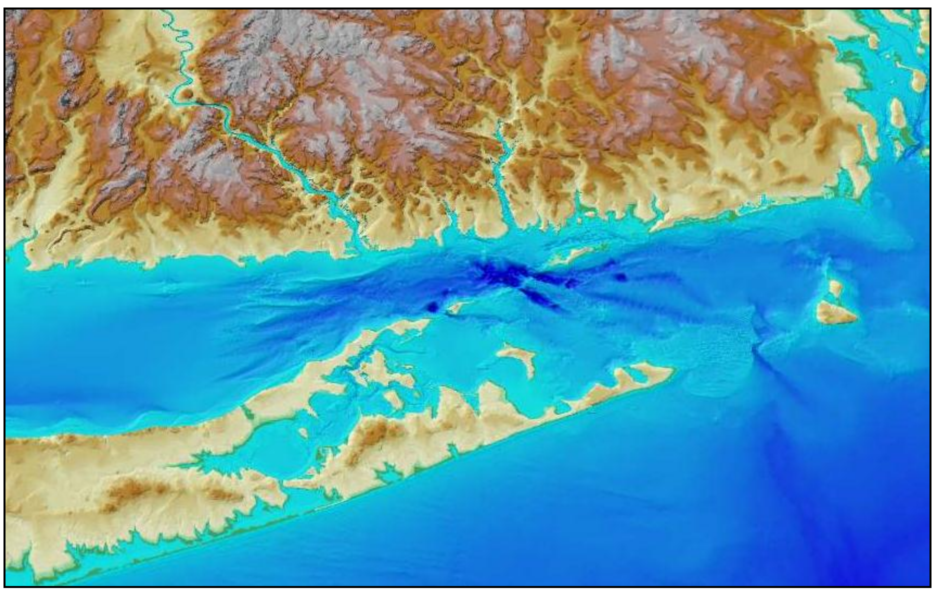
My Commission expires: 12/31/2017

Appendix A-6

MINUTES OF COOPERATING AGENCY GROUP MEETING 1

Supplemental Environmental Impact Statement for the Designation of Dredged Material Disposal Sites in Eastern Long Island Sound, Connecticut and New York

Minutes of Cooperating Agency Meeting 1



Prepared for: **United States Environmental Protection Agency**

Sponsored by: **Connecticut Department of Transportation**

Prepared by: **Louis Berger**

with support from

University of Connecticut

January 2013

Eastern Long Island Sound – Supplemental EIS

Cooperating Meeting 01 – Minutes

TOPIC: **Preliminary Site Screening and Physical Oceanography Study Plan**

DATE OF MTG: January 8, 2013

LOCATION: CTDOT, 2800 Berlin Turnpike, Newington, CT

TIME: 10:00am to 2:27pm

PARTICIPANTS: **Cooperating Agencies**

- Joe Salvatore — Connecticut Department of Transportation
- Jeannie Brochi — US Environmental Protection Agency, Region 1
- Alicia Grimaldi — US Environmental Protection Agency, Region 1
- George Wisker — Conn. Dept. of Energy and Environmental Protection
- Cathy Rogers — US Army Corps of Engineers, New England District
- Mark Habel — US Army Corps of Engineers, New England District
- Nancy Brighton — US Army Corps of Engineers, New York District
- Diane Rusanowsky — NOAA/National Marine Fisheries Service
- Patricia Pechko — US Environmental Protection Agency, Region 2
- Jim Leary — New York State Department of State
- Kari Gathen — New York State Department of State
- Jennifer Street — New York State Department of State
- Jeff Willis — Rhode Island Coastal Resources Management Council

UConn Project Team (under contract to CTDOT)

- James O'Donnell — University of Connecticut
- Carlton Hunt — Battelle
- Lynn McLeod — Battelle
- Lisa Lefkovitz — Battelle
- Bernward Hay — The Louis Berger Group, Inc. *(Prepared minutes)*

SUBMITTED ON: January 15, 2013

The primary goal of the meeting was to review (1) the Zone of Siting Feasibility (ZSF), (2) preliminary site screening, and (3) the plan for the physical oceanographic study, in preparation for the Eastern Long Island Sound (ELIS) Supplemental Environmental Impact Statement (SEIS).

Presentations are provided as separate pdf files; individual *Slides* of these presentations are referenced below.

Introduction (Jeannie Brochi, USEPA)

Jeannie Brochi stated that this was the Cooperating Agency kickoff meeting (her presentation is attached as Appendix A):

- Ms. Brochi asked if other agency member representatives should be asked to be involved. As required under NEPA, letters were sent out in July asking agencies to participate as either a Cooperating Agency or Coordinating Agency. There are some agencies (Navy, Coast Guard) and five tribes that have not yet confirmed participation. Confirmed are the States of Connecticut (CT), New York (NY), and Rhode Island (RI); both divisions of the USACE; and NOAA NMFS.

- Being a Cooperating Agency allows for involvement in all major milestones, document reviews, and helps USEPA conduct the effort. Jeannie Brochi reviewed the EIS process *(Slide 5)*, and introduced the USEPA website available for public communications *(Slide 6).*

- Participants were asked to identify data gaps in the preliminary information presented at today's meeting. Feedback was requested by January 18, 2012, on the ZSF, the screening, and the planned physical oceanography study (sampling locations, data collected, etc.). Also, any relevant available information and data on resources in the ELIS were requested. The ZSF *(Slide 9)* for the SEIS has been expanded to encompass the eastern area of the Dredged Material Management Plan (DMMP), to be able to use its information and reports (the DMMP study area is specified in *Slide 8*).

- Aside from the DMMP, the SEIS will include information from the EIS for Central and Western LIS, the USACE DAMOS monitoring program, and USEPA data generated between 2007 and 2012 *(OSV Bold* cruises). The Dredging Needs report (2009) estimated that approximately 13.5 million cubic yards will need to be dredged by 2028 in LIS's harbors and channels; the report is one of the starting points for the SEIS.

- Projected completion dates are December 2014 for the Draft SEIS, December 2015 for the Final SEIS, and December 2016 for rule-making (if the SEIS recommends designation of one or more sites). December 2016 is also the date when the Cornfield Shoals and New London Disposal Sites will close.

Zone of Siting Feasibility and Preliminary Site Screening (Presentation by Lynn McLeod, Battelle)

Lynn McLeod explained the ZSF for the ELIS and the process used in Central and Western LIS site screening for candidate alternative dredged material disposal sites, adapted for Eastern LIS (her presentation is attached as Appendix B):

- Information from the original ZSF developed years ago for the entire LIS and the revised boundary used in the Western and Central EIS was used as a starting point for the ELIS *(Slide 2* shows its boundaries). The eastern boundary was expanded slightly to the east to include the DMMP boundary *(Slide 3)*.

- The objective of the screening *(Slide 4)* is as follows:
  - Identify areas within the revised ZSF acceptable for locating an open water disposal site designated under the Ocean Dumping Regulations, and
  - Identify specific alternative disposal site(s) within the acceptable area(s) for further evaluation in the SEIS.

- In general, the screening approach followed the Marine Protection, Research, and Sanctuaries Act (MPRSA) disposal site designation criteria, as outlined in *Slide 5* and in a handout on *Considerations in the Evaluation and Designation of Ocean Dredged Material Disposal Sites,* and on *Ocean Dumping References* used for the Central and Western LIS site screening (Tables 1 and 2, provided below).

- Screening criteria were prioritized into Tier 1 and Tier 2. Tier 1 criteria rule out areas that are unacceptable for open water disposal. Tier 2 criteria identify specific locations for alternative sites.

- *Tier 1 criterion – Sediment stability/instability (Slide 6):* Includes information such as bathymetry *(Slides 7;* depth contours are in meters). *Slide 8* shows ELIS bathymetry with depths of 18 meters and shallower 'blacked-out'; such depths were considered not suitable for potential disposal sites during the Central and Western LIS screening. Preliminary model estimates of the maximum bottom stresses due to tidal currents are shown in *Slide 9*; higher stresses (red) reflect higher sediment erosion potential. Data from the physical oceanography surveys will assist with this criterion.

- *Tier 1 criterion – Disposal feasibility (Slide 10):* Includes water quality perturbations and near-term fate; this issue will be worked on over the next six months.

- *Tier 1 criterion – Areas of conflicting uses (Slides 11 and 12):* Includes beaches and amenities, utilities, etc. The data layer presented requires updating. Any information from the Cooperating Agencies would be welcomed.

- *Tier 1 criterion – Shellfish and fishing (Slide 13 to 15):* Shellfish bed information was available for the CT coastline; the same type of information is requested for NY and RI. Fishing layers were obtained from the RI SAMP program.

- *Tier 1 criterion – Navigation (Slides 16 to 18):* The report entitled *U.S. Coast Guard Captain of the Port Long Island Sound Waterways Suitability Report for the Proposed Broadwater Liquefied Natural Gas Facility* provided data on ship traffic density and commercial vessel navigation (e.g., ferries).

- *Tier 1 criterion – Marine habitats and high dispersion potential (Slide 19):* Questions to consider include the following: Are gravel and hardbottom habitat (considered important marine habitat for the Central and Western LIS) also important for the ELIS? What type of site shall be considered for ELIS (containment and/or dispersive)? The sediment characteristics *(Slide 20)* provide an indication of the type of habitat that may exist. Sediment texture appears to correspond to shear stress *(Slide 21);* high shear stress results in coarser texture.

- *Tier 1 - Compilation of all Tier 1 screening criteria (Slide 22)* - The compiled map shows areas ruled out within the ELIS (preliminary).

- Tier 2 criteria *(Slides 23 to 25)* are designed to focus on specific alternative sites where impacts to key resources are minimized (such as archaeological resources, fish habitat, benthic community, shellfishing, eelgrass beds, etc.)

- *Tier 2 criterion – Historic disposal sites and Continental shelf (Slides 26 to 28):* During Central and Western LIS screening it was determined that 25 nautical miles (nm) (i.e., about a 10-12 hour round trip) was the maximum distance that dredgers could transport dredged material economically from dredging locations. The 200-m depth contour of the edge of the continental shelf is located outside of the 25 nm zone.

- *Tier 2 criterion – Prevailing currents (Slide 29):* Not considered for this screening yet.

- *Tiers 1 and 2 – Compilation of all screening information (Slide 30):* Ultimately, alternative areas require specific site boundaries based on depth, capacity for dredged material volumes, water quality criteria, buffer zones, etc. *(Slide 31).*

- Factors to be discussed in SEIS are shown in *Slide 32.*

- Next Steps *(Slide 33):*
  - Finalizing criteria for screening (minimum depth, bottom types to avoid; type of site [containment and/or dispersive]; site protection requirements).
  - Identifying and acquiring more recent or available data to use in the screening. Any data from Cooperating Agencies would be greatly appreciated.
  - Identifying data gaps and conducting studies to fill them.

Discussion of Preliminary Site Screening (facilitated by Carlton Hunt)

Discussion topics were as follows:

- **Process**: Carlton Hunt asked if everyone agreed with the process that is being followed, and explained that process meant the sequencing of the analysis. Kari Gathen stated that it was too early and more information and research was needed before agreeing to this process. Carlton Hunt and Jeannie Brochi agreed, and said that, for example, information is needed from NY and RI. Jeff Willis asked if the process has been used elsewhere. Carlton Hunt and Lynn McLeod explained that the process has been used in other locations such as the Central and Western LIS and RI.

- **Eastern boundary of ZSF:** Carlton Hunt asked if participants were in agreement with the location of the eastern ZSF boundary. Jeff Willis asked why the ZSF was expanded to the east. Jeannie Brochi stated that the boundary was expanded to be able to use DMMP data from dredging centers along the coast of western RI. Mark Habel added that the second factor was distance. Specifically, using a radius of 25 nm as the limiting distance for economically viable disposal from New London (one of the largest dredging centers in CT) implies that Block Island Sound needs to be included in the analysis. For that reason, the area is also part of the DMMP.

- **DMMP informing SEIS:** Jim Leary asked how the findings of the DMMP (required to be prepared as a condition for the Central and Western LIS site designation) will inform the SEIS. Kari Gathen added that the rules state to eliminate or reduce open-water dredged material disposal. She asked how the SEIS process equates with this rule, and if the DMMP has exhausted the search for all possible out-of-water alternatives. Jeannie Brochi responded that the USEPA is fully on board with 'reduce or eliminate' and DMMP findings will be incorporated into the SEIS process. Mark Habel stated that the DMMP, after several years of input from all the agencies, has looked at all the available not-in-water alternatives. A public draft of the DMMP probably requires another 18 months. However, after looking at the various reports and studies it is clear that, over the long term, dredged material disposal needs in the ELIS cannot be met by the combined capacity of all available not-in-water disposal alternatives. There are plenty of beaches in the ELIS that need sand, but the sediment predominantly being produced in the ELIS is silty. Joe Salvatore added that, for that reason, and given dredging needs and the strategic importance of Connecticut's facilities, the Governor of CT considered it very important to start and expedite the oceanographic study phases of the project.

  Jim Leary asked if the assessment of out-of-water alternatives investigated impediments such as local laws or other regulations; he raised the question to understand what laws could be changed to increase out-of-water disposal alternatives over the next 26 years. Mark Habel stated the DMMP work so far has looked at the total available capacity and has not yet screened out such impediments; this screening is likely going to reduce the out-of-water capacity so far considered. Jim Leary suggested that changes in policies may create new out-of-water opportunities and different paths, such as new remediation and treatment technologies, etc.

  Patricia Pechko reminded participants that the SEIS process is designed to determine the feasibility of designating a site, not to necessarily designate a site, and secondly, that if a site is designated it will not necessarily be used. The goal for the process discussed in this meeting was to determine if there *is* a suitable area for a site. Kari Gathen stated that she would like to see a companion effort; the State of CT should consider dredged material as an economic development opportunity to create new industries, reuse the material, and jobs and opportunities for people. Such an effort has been successful in NY Harbor. George Wisker stated that the CTDEEP embraces the LEAN concept; ongoing efforts include increasing the beneficial use of soil and sediment. This includes reviewing standards and other steps to make it easier for people to utilize dredged material. Jeannie Brochi asked if any of the cooperating State agencies would be interested in facilitating a review of impediments or opportunities (federal, state, local) in their States. Jeff Willis said that impediments were not an issue in RI, but rather education; RI had not dredged in over 30 years, so it took a long time to educate people about beneficial use alternatives, costs, and time to use such alternative vs. ocean disposal. Jeannie Brochi and Carlton Hunt suggested a parallel process to the site screening that could be added to the next Cooperating Agency meeting as an agenda item.

Patricia Pechko mentioned that the NY Harbor DMMP is a living document that is being reexamined every two years to look for opportunities and remove impediments. Nevertheless, there remains an open water disposal site.

- **Appropriate minimum water depth and other available exclusionary information:** Carlton Hunt asked if there were any State requirements that rule out certain areas for disposal. Jennifer Street said there are some requirements, such as significant coastal fish and wildlife habitats which are federal designated areas; NYSDOS will provide the information in electronic format to USEPA (Jeannie Brochi and Patricia Pechko). Also, NYSDOS will provide updated navigation information including metadata. Jeff Willis stated that the most recent RI data are already available to USEPA through the recent SAMP study. Jennifer Street mentioned that SeaGrant is moving forward with marine spatial planning, and data may be available; George Wisker will obtain the data once it becomes available. Mark Habel suggested reaching out to the Navy for additional navigation corridors out of Groton.

- **Haul distance (25 nm):** Carlton Hunt stated that 25 nm was used for the Central and Western site designation screening, and asked if there were any objections to use this distance. None were voiced.

- **Dispersive site:** Carlton Hunt asked if a dispersive site(s) should be considered for ELIS; dispersive sites are allowed under the regulations and the active Cornfield Shoals Disposal Site is considered a dispersive site. Jeannie Brochi added that dispersive sites have also been designated elsewhere in the country. Mark Habel added that there are dispersive sites along the south coast of Long Island. He also stated a threshold of 15% for fines in sediment for direct placement on beaches and nearshore bars has been used for a long time. A higher threshold for nearshore bar placement would open new opportunities for beneficial use; this will be considered for the DMMP.

- **Data gaps:** Carlton Hunt discussed the filling of some of the data gaps:
  - Sediment transport/erosion to determine the shear stress levels; this will be addressed by the physical oceanography study.
  - Living resources (shellfishing, fisheries, benthic organisms): Jennifer Street stated many data are available, including data in the New York State Atlas which is a mix of data from different agencies. Carlton Hunt offered to provide NYSDOS with a list of data needed for the screening. Diane Rusanowsky suggested including the Essential Fish Habitat layers; Julie Crocker or Daniel Palmer (NOAA in Gloucester) may have the data (including coordinates). Also, NOAA has listed federally Atlantic sturgeon in recent years which will need to be included in the analysis. Lynn McLeod agreed to send a list of potential screening layer types to NYDOS.

- **Alternative uses** (wind, coastal planning due to sea level rise, etc.): In response to comments on cumulative impacts, Diane Rusanowsky suggested considering hydrokinetic energy generators as a potential alternative use in the ELIS.

  Potential areas for disposal sites (very preliminary): Carlton Hunt suggested considering four areas as a starting point for the discussion on specific areas for further study. One area is located to the north of Montauk Point (>20 m depth; sheltered; muddy bottom sediment). There are deeper holes south of Fishers Island (>50 m depth; within haul distances). The apparent high bottom shear stress areas within ELIS (assuming the site can be dispersive). The fourth area is closer to the Cornfields Shoals site at or near the former Niantic Disposal Site. This kind of discussion is designed to focus on where additional studies may be needed. Nancy Brighton asked if there are sites that may be too deep. Mark Habel responded that the most extensively used disposal site in Massachusetts is 330 feet deep, and placement within it has been very accurate. Only a few sites in ELIS come close to this depth.

  The participants did not reach conclusions with respect to potential areas for further study pending presentation of the additional data layers to be provided by NYDOS and others. These updates and discussion will form the basis for the next Cooperating Agency meeting.

Physical Oceanography Study (Presentation by James O'Donnell, UConn)

James O'Donnell presented existing physical oceanographic data and the proposed study for the ELIS (see Appendix C):

- **Overview:** Bottom shear stress and water circulation which determine the erosion potential and fate of the sediment are key parameters for site designation. To consider all possible sites, reliable data are needed to force and test a model that can interpolate between the limited locations and times for which data are available *(Slide 2).*

- **Scientific background:** James O'Donnell explained the underlying science for sediment transport, stating in essence that resuspension of sediment particles from the sea floor is a function of sediment grain size and bottom force acting on the particles *(Slides 3 to 5).* The larger a particle, the larger the force needed to resuspend it. Or, stated differently, with increasing bottom stress, increasingly larger sediment particles are resuspended. Forces (and thus bottom stress) are strongest during storms when wind driven circulation and surface gravity waves can augment the effects of tidal and density driven flow *(Slide 6)*.

- **Data needs:** The data needed to assess bottom stress are summarized in *Slide 7*. The goal is to assess the stability of sediment at the sea floor for normal and extreme (storm) conditions. The plan is to use field observations to assess the validity of theoretical predictions at selected sites at a range of conditions, and then use the results of the model to compare all possible sites.

- **Available data:** There are three major recent studies with data for the ZSF *(Slide 8)*; James O'Donnell presented some of the data from these and a variety of other sources *(Slides 11 to 27).* Needed data include sea level, wind speed and direction, solar radiation, river discharge based on the extensive USGS network, water column temperature and salinity, currents, and waves. About 90% of the freshwater enters the LIS through the Connecticut River, Housatonic River, Thames River, and Quinnipiac River. About half of the freshwater enters the LIS in the spring (March to May; *Slide 16).*

  In summary *(Slide 29)*, seasonal variations in wind and wave patterns and river discharge are substantial. Missing data include the following:
  - No direct measurements of bottom stress data are available.
  - Wave data are only available at the Central LIS buoy.
  - No density variation data north-south in LIS.
  - No hydrography or current profile measurement in Block Island Sound or Rhode Island Sound.
  - Available information identified a windy period from January to March with big waves, and high discharge period from February to May, low wind and low river discharge period in the summer.

  Therefore, to evaluate the performance of a model, it should be tested over a period that encompasses the range of characteristic conditions that might be experienced.

  Kari Gathen asked about the bottom shear stress in the ELIS. James O'Donnell explained that there is evidence of high bottom stress in ELIS in the form of existing sand waves and the absence of lake sediments, but no direct measurements. Stress levels in the ELIS modeled so far are based on data for sea level and currents and have not been directly compared to measurements.

  Carlton Hunt stated that he is aware of another solar radiation data set from the Massachusetts Water Resources Authority; he will connect Jim O'Donnell with the data managers.

- **Proposal for observations** *(Slide 30):* The period October to March include frequent events of high winds from the Northeast (typically about 10 storms per winter). Winds are lighter from May to September. River flow is high from March to May. Considering also variations in currents and waves, three periods are targeted for monitoring (over a total period of six months):

- Windy, low flow (February to March)
- Windy, high flow (April to May)
- Calm, below average flow (June-July)

James O'Donnell plans to measure salinity and temperature variations (with CTDs, *Slide 34*), currents (with current meters), suspended sediment concentrations (with optical backscatter sensors), and bottom stress (with Acoustic Doppler Current Profilers). Measurements will be made at moored stations *(Slide 33)* and along cruise tracks (four times during the survey period) *(Slide 31)*.

The distribution of the maximum bottom stress magnitude *(Slide 32)* has been numerically modeled (using FVCOM, *Slide 35*) based on tides and sea level, as stated above. Planned mooring stations are superimposed on *Slide 32*. Preliminary tidally induced bottom shear stress distributions suggest that the New London Disposal Site is stable because of low stress and infrequent large amplitude waves, and the sediment is coarse enough to not be resuspended by higher stress events. Uncertainties (due to parameter choices) and the effects of infrequent events (hurricanes) can be estimated using the model and available measurements.

Steps to integrate the planned field measurements into the model consist of the following:

1. Use observed winds and river flow to drive the model and predict the salinity, temperature, current and waves, and bottom stress.
2. Compare to the new and archived observations and evaluate FVCOM performance in the ZSF.
3. Describe the uncertainties.
4. Simulate the behavior during extreme events. The output is maps of the evolution of bottom stress and circulation along with uncertainties in the estimates.

To predict the effect on natural and deposited sediment, stress and current distribution predictions will be used to drive the models STFATE and LTFATE. STFATE models sediment transport during disposal. LTFATE models long-term transport of resuspended sediment from disposal mounds.

Discussion of Physical Oceanography Presentation (facilitated by Carlton Hunt)

- **Summary:** George Wisker summarized Jim O'Donnell's physical oceanographic study as follows: The purpose of the study is to obtain data that are limited in the scope and time. Data are entered into models that are based on mathematical equations and models are run. These models are then tweaked to reflect the existing observation**s** to calibrate the model. The calibrated model can then be used to assess stress at potential alternative sites including conditions such as the recent Hurricane 'Sandy'.

- **Sediment characteristics and bottom stress:** Cathy Rogers asked to what extent sediment characteristics is an indication of bottom shear stress. James O'Donnell and Carlton Hunt responded that they are a good first indication of stress.

- **Model predictions:** Jim Leary asked if October to March is the period with frequent high winds, why the period between August and January is not studied. James O'Donnell responded that funding limits the study period; however, the period February to July is the period during which the highest variability in bottom stress occurs. Jim Leary asked further how the modeling will account for other types of conditions such as climate change effects (sea level rise, increase in frequency of storms, etc.). Carlton Hunt answered that once the model has been calibrated it can be used to determine bottom stress and depth of erosion for a variety of other conditions, such as these types of extreme events. Field station locations have been chosen in a manner to provide data for a range of stress conditions (higher stress as well as lower stress). James O'Donnell added that UConn's implementation of the physical oceanography model (FVCOM) is a state-of-the-art horizontal circulation model; however, this model does not resolve the details of the circulation around the disposal site. It is the role of STFATE and LTFATE to make refined predictions on the scale of the disposal sites.

- **Other uses of model predictions:** James O'Donnell stated that model allows for high-resolution wave forecasts, which also helps to develop strategies for storm conditions at beaches or exposed shoal areas, or for marsh replenishment projects.

- **Multiple storm events:** Kari Gathen asked if the models consider different periods of 'recovery' between storms; for example, what happens if several storms occur over a short period of time? James O'Donnell responded that the models are designed to cover a wide variety of conditions. Carlton Hunt added that this kind of issue was addressed in the Central and Western LIS EIS. As described therein, the benthic community typically recovers within a season or two after a storm or a sequence of storms.

- **Disposal site management:** Kari Gathen stated that there is a practice of capping in LIS and asked about the recovery period if capping material was removed during storms. Carlton Hunt stated that all material that is disposed in LIS is acceptable for ocean disposal; capping is a dredged material management activity. If sediment to be dredged does not pass the dredged material testing requirements, it cannot be disposed in the LIS. Joe Salvatore confirmed that the State of Connecticut is choosing to cap many federal as well as private projects even though *all* disposed sediment meets the open ocean water disposal. George Wisker mentioned that the water quality standards of the State of Connecticut specify to use Best Management Practices (BMPs), and capping is a BMP.

  Carlton Hunt added that the approach for dredged material management at a site will be included in the SEIS in the form of a SMMP (Site Management and Monitoring Plan). Kari Gathen asked if the model assesses conditions if the cap is washed away. Jeannie Brochi responded that when a site is designated, a SMMP is created and USACE is monitoring these sites through their DAMOS program. Thus, the agencies could determine to place material in certain areas subsequent to a storm to cover up areas that are to be capped. Carlton Hunt added that this type of discussion is important for site screening to determine how a site will be used, what type of material is to be placed, how stable the material shall be, under what conditions it will not be stable, etc. James O'Donnell added that the model can determine if design criteria for specific sites have been exceeded for specific storms, to guide subsequent actions.

- **Testing criteria:** Kari Gathen asked if there will be further study to determine if the open ocean disposal criteria are truly acceptable for a semi-enclosed waterbody such as LIS. Joe Salvatore replied that DAMOS has many years of data (including data collected after storms) and has not identified any concerns. Mark Habel stated that the model allows for the determination of erosion of a layer of sediment (measured in cm and mm) if exposed to a certain level of stress over a certain period of time. There are historic mounds capped decades ago; these mounds have consolidated and have been winnowed somewhat. The model will be able to determine what it would take to erode sediment from these mounds, for example. Carlton Hunt stated that reevaluating the testing criteria challenges the "Green Book" as well as the Ambro Amendment. Mark Habel stated that under the Ambro Amendment, the federal government will use the open ocean disposal requirements (technical and procedural). Jim Leary asked if there should not be some consideration about differences between placing material in an open ocean vs. more enclosed environment[1]. Mark Habel stated that one way to examine this issue would be to review CTDEEP's BMP approach to see if additional management steps might be considered, even though USEPA and USACE would not require them. Joe Salvatore added that every year, the USACE considers the list of dredging projects from CT and NY projects to

[1] For the record, Jim Leary stated at the end of the meeting that NYSDOS does not mean to imply they are backing away from the Ambro Amendment, or not applying open ocean criteria for the testing of sediment, but merely asked to consider potential impacts due to the specific physiographic setting of the LIS, outside of what is allowed under the law. Lisa Lefkovitz stated that these types of issues would be addressed in the SEIS.

determine the most suitable disposal sequence.

- **Design of study:** Carlton Hunt and Jeannie Brochi asked if there are weaknesses in the study setup (timing, frequency, location, measurement type), and if additional information was available for the selection of station locations. Jennifer Street asked if there would be monitoring in Peconic Bay. Jeannie Brochi added that the area was included in the ZSF because it is included in the DMMP study area. Mark Habel recommended not considering Peconic Bay [as a potential disposal site]. Regarding timing of the study, Mark Habel stated that dredging in LIS is restricted between October and April, thus the study should address potential STFATE conditions during the open disposal window (May to September). James O'Donnell stated that conditions for this window should be covered including stratification of the water column in LIS. Mark Habel asked if there should be corrections for mound elevations. James O'Donnell stated that this issue will be addressed by STFATE and LTFATE. Mark Habel stated that field stations were located mostly within high energy areas and asked if stations should be adjusted to get a greater range of energy conditions. James O'Donnell responded he will adjust the stations slightly to include some lower energy areas since containment sites would be located in low energy areas. Diane Rusanowsky suggested not placing stations in areas precluded for potential disposal due to resource concerns. James O'Donnell stated he will consider this, as long as it does not affect the confidence of the predictions of the model, since its goal for the model is to be equally reliable for measurement stations and locations in-between. Cathy Rogers asked if consideration of more lower-end energy conditions would be useful. James O'Donnell responded that if energy is too low it affects the resolution of the model; the approach has been to get a range of conditions biased toward worst-case scenario conditions.

Summary of Key Action Items

- Get State agencies together to identify impediments (e.g., policy) and opportunities for beneficial use. This includes finding out what each State is actively doing to encourage beneficial use.
- States might want to consider increases in thresholds for fines for beneficial use placement.
- Jennifer Street will provide additional GIS data layer on wildlife habitat as well as an ocean map, and the NYS Atlas.
- Jeff Willis will provide information on the Rhode Island process.
- Any other data that might be available: Lynn McLeod/Carlton Hunt stated a list with suggested input data will be prepared and circulated.
- Jeannie Brochi may reach out to agencies directly for some agenda items for future meetings.

Upcoming Schedule

Jeannie Brochi added that there will be additional public meetings as well as one or two more Cooperating Agency meetings in the spring. Data will be collected in the summer. Another public meeting as well as cooperating meetings will occur in this fall. Public outreach will probably occur in the fall using some of the available data.

The meeting was adjourned at 2:27pm.

Table 1. Required considerations in the evaluation and designation of ocean dredged material disposal sites (MPRSA 228.5 and 228.6).

MPRSA Section	MPRSA Regulation
228.5(a)	The dumping of dredged material into the ocean will be permitted only at sites or in areas selected to minimize the interference of disposal activities with other activities in the marine environment, particularly avoiding areas of existing fisheries or shellfisheries, and regions of heavy commercial or recreational navigation.
228.5(b)	Locations and boundaries of disposal sites will be so chosen that temporary perturbations in water quality or other environmental conditions during initial mixing caused by disposal operations anywhere within the site can be expected to be reduced to normal ambient seawater levels or to undetectable contaminant concentrations of effects before reaching any beach, shoreline, marine sanctuary, or known geographically limited fishery or shellfishery.
228.5(c)	If at any time during or after disposal site evaluation studies, it is determined that existing disposal sites presently approved on an interim basis for ocean dumping do not meet the criteria or site selection set forth in Section 228.5 through 228.6, the use of such sites will be terminated as soon as suitable alternate disposal sites can be designated.
228.5(d)	The sizes of ocean disposal sites will be limited in order to localize for identification and control any immediate adverse impacts and permit the implementation of effective monitoring and surveillance programs to prevent adverse long-range impacts. The size, configuration, and location of any disposal site will be determined as a part of the disposal site evaluation or designation, site study.
228.5(e)	USEPA will, wherever feasible, designate ocean dumping sites beyond the edge of the Continental shelf and other such sites that have been historically used.
228.6(a)(1)	Geographical position, depth of water, bottom topography and distance from coast;
228.6(a)(2)	Location in relation to breeding, spawning, nursery, feeding or passage areas of living resources in adult or juvenile phases;
228.6(a)(3)	Location in relation to beaches and other amenity areas;
228.6(a)(4)	Types and quantities of wastes (dredged material) proposed to be disposed of, and proposed methods of release, including methods of packaging the waste (dredged material), if any;
228.6(a)(5)	Feasibility of surveillance and monitoring;
228.6(a)(6)	Dispersal, horizontal transport and vertical mixing characteristics of the area, including prevailing current direction and velocity, if any;
228.6(a)(7)	Existence and effects of current and previous discharges and dumping in the area (including cumulative effects);
228.6(a)(8)	Interference with shipping, fishing, recreation, mineral extraction, desalination, fish and shellfish culture, areas of special scientific importance and other legitimate uses of the ocean;
228.6(a)(9)	The existing water quality and ecology of the site as determined by available data or by trend assessment or baseline surveys;
228.6(a)(10)	Potentiality for development or recruitment of nuisance species in the disposal site;
228.6(a)(11)	Existence at or in close proximity to the site of any significant natural or cultural features of historical importance.

Table 2. Ocean dumping reference table for the Western and Central LIS Disposal Site Designation EIS.

Ocean Dumping Regulation	Key Words and Phrases from 40 CFR 228	LIS Evaluation Factors (USEPA and USACE 1999)	Screening Tier
40 CFR 228.5(a-e): General Considerations for the Selection of Sites			
228.5(b)	Perturbations to the environment during initial mixing	Disposal Site Feasibility and Stability	1
228.5(e)	Designating historically used sites	Disposal Sites	1
228.5(a)	Interference with other activities: avoiding areas of existing fisheries or shellfisheries, and regions of heavy commercial or recreational navigation	Navigation considerations Existing Marine Habitats Commercial and Recreation Fisheries	1 1 1
228.5(d)	Limiting site size for monitoring and surveillance	Accessibility	2
228.5(c)	closure of interim ODMDSs	N/A	N/A
40 CFR 228.6(a)(1-11): Specific Considerations for Site Selection			
228.6(a)(3)	Location relative to beaches and amenities	N/A	1
228.6(a)(6)	Site dispersion, transport, and mixing characteristics	Disposal Mound Height Limit Disposal Site Feasibility and Stability Duration of Potential Adverse Impacts Site Characteristics	1 1 2 2
228.6(a)(8)	Interference with other uses	Site Use Conflicts Conservation Areas Economic Impacts	1 1 2
228.6(a)(1)	Geography, depth, topography, distance from coast	State Waters/Basins Site Characteristics	1 2
228.6(a)(2)	Location relative to living resources: breeding, spawning, nursery, feeding, or passage areas of living resources in adult or juvenile phases	Endangered Species	2
228.6(a)(9)	Existing water quality and ecology of site	Existing Habitat(s) at Site Recreational Uses Essential Fish Habitats	2 2 2
228.6(a)(4)	Types and quantities of wastes and disposal methods	Capacity and Area of Impact	2
228.6(a)(11)	Proximity to historical features	Cultural/Archaeological Resource Sites or Historic Districts Economic Impacts	2 2
		Site Protection Requirements	2

Appendix A: Presentation - Introduction

(Jeannie Brochi, USEPA)

Agenda

10:00 pm	Welcome/L*ogistics*/Objectives Jean Brochi, EPA Region 1
10:15 pm	ELIS ZSF/Site Screening Lynne McLeod/Carlton Hunt, Battelle
11:15 pm	Discussion
12:00 pm	Lunch Break
12:30 pm	Physical Oceanography Jim O’Donnell, UCONN
2:30 pm	Discussion
3:00 pm	Wrap Up/Next Steps, Adjourn

Cooperating Agency Meeting (#1)

Eastern Long Island Sound Supplemental Environmental Impact Statement (ELIS SEIS)

U.S. EPA Region 1
January 8, 2013

ELIS SEIS Process

- July 2012 – EPA requested agencies and tribes to participate as cooperating agencies.

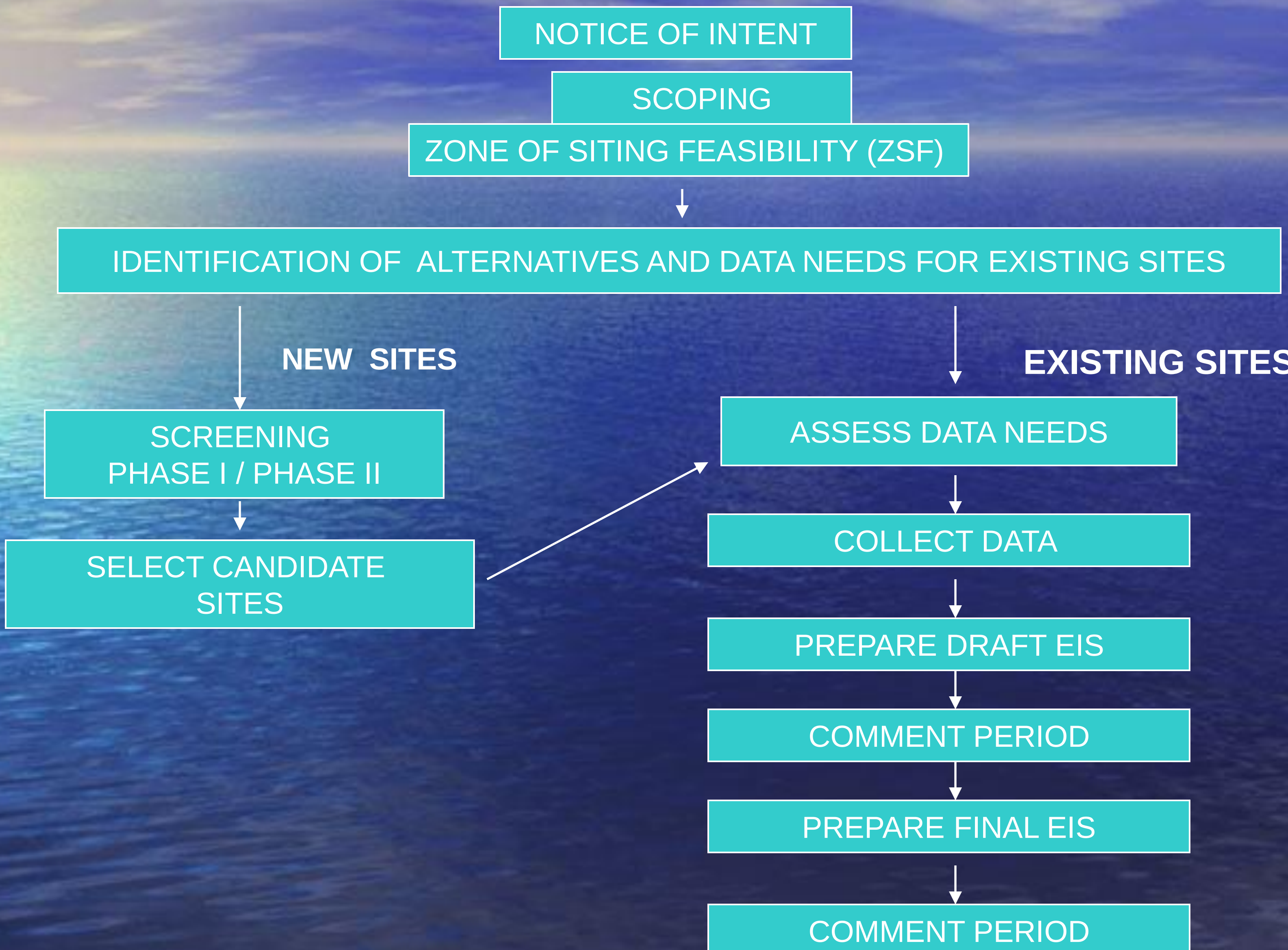
- Cooperating Agency Status:

  - to ensure that all Federal agencies are actively considering designation of Federal and non-federal cooperating agencies in the preparation of analyses and documentation required by the National Environmental Policy Act (NEPA) participation.

ELIS SEIS PROCESS

- Agency representatives have responded from the following State agencies (CT, NY, and RI); Federal agencies (Corps NYD, Corps NED, USFWS, NMFS, Navy).
- EPA will continue to work with Tribes and other agencies.
- This is the first of several Cooperating Agency Meetings throughout this process.
- Cooperating Agency status does not interfere with agency representatives regulatory responsibilities.

ELIS SEIS Process



ELIS SEIS Process

- EPA website revised: http://www.epa.gov/region1/eco/lisdreg/elis.html

- Email notification system, contact: ELIS@epa.gov if you would like to be added to the email distribution list.

ELIS SEIS Process

Objectives:

- Cooperating Agencies have until January 18, 2013 to comment on ZSF and site screening.
- EPA would like Cooperating Agencies input on the following:
- ZSF, areas to focus field work, Phys O. sample design, data gaps.
- Do agencies have additional data?

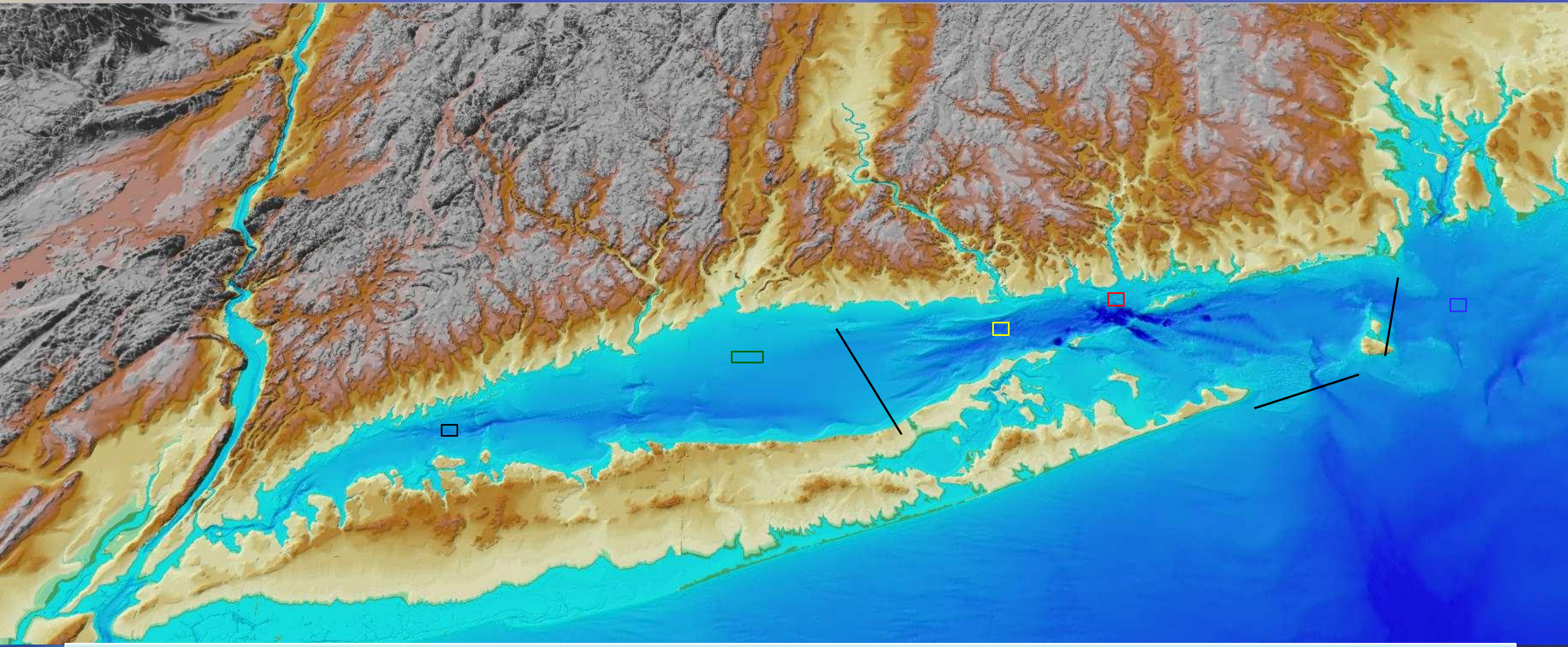
ELIS SEIS Process

LIS DMMP ZSF:

Western boundary at the Throgs Neck Bridge.

Eastern boundary is a line from Point Judith to Block Island to Montauk Point and then following the spine of the south fork moraine west to include all the waters of Gardner's Bay, Peconic Bay.

ELIS SEIS Process



Western Long Island Sound Disposal Site
Central Long Island Sound Disposal Site
Cornfield Shoals Disposal Site
New London Disposal Site
Rhode Island Sound Disposal Site

Zone of Siting Feasibility

ELIS SEIS Process

- July 2012 – EPA requested agencies and tribes to participate as cooperating agencies.

- Cooperating Agency Status:

  - to ensure that all Federal agencies are actively considering designation of Federal and non-federal cooperating agencies in the preparation of analyses and documentation required by the National Environmental Policy Act (NEPA) participation.

ELIS SEIS Process

Existing Data:

- Data collection for original LIS EIS included eastern LIS from 1999-2002.
- EPA conducted site monitoring surveys on OSV Bold in 2007, and 2009 - 2012.
- USACE DAMOS Monitoring:

NLDS – 10 surveys since 1990: bathy, physical oceanography, benthic biology, chemistry

CSDS – 3 surveys since 1990: bathy, sediment transport

RISDS – 4 surveys since 2000: bathy, benthic biology, lobster abundance, plume tracking

ELIS SEIS Process

Dredging Needs Report completed in October 2009:

- Determined that approximately 13.5 million cubic yards will be dredged from ELIS harbors and channels over the next 26 years (planning horizon to 2028)

Upland, Beneficial Use, and Sediment Dewatering Reports completed in 2009-2010:

- Determined that there are very few alternatives to open-water disposal sites in CT, and most of those are beach nourishment

Next Steps

- Additional public meetings in 2013
- Draft SEIS by December 2014
- Final SEIS by December 2015
- If SEIS recommends designation of one or more sites, publish final rulemaking by December 2016

Questions?

Appendix B: Presentation - Zone of Siting Feasibility and Preliminary Site Screening

(Lynn McLeod, Battelle)

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Eastern Long Island Sound Supplemental EIS (SEIS) Preliminary Zone of Siting Feasibility and GIS Screening for Candidate Alternative Dredged Material Disposal Sites

Interagency Meeting at CTDOT

January 8, 2013

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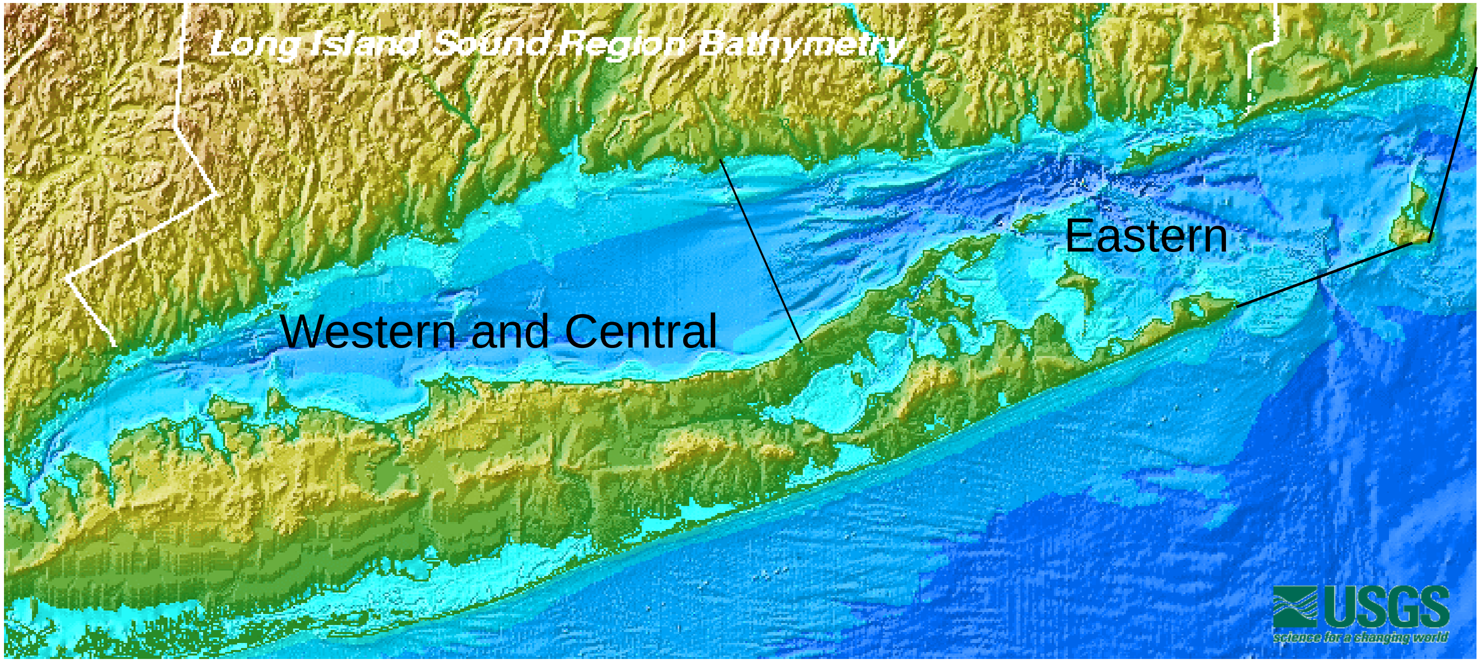
Zone of Siting Feasibility

- The SEIS will address the eastern region of LIS which was deferred during the earlier review of the western and central regions.
- It focuses on the remaining portion of the original ZSF that was not reviewed.



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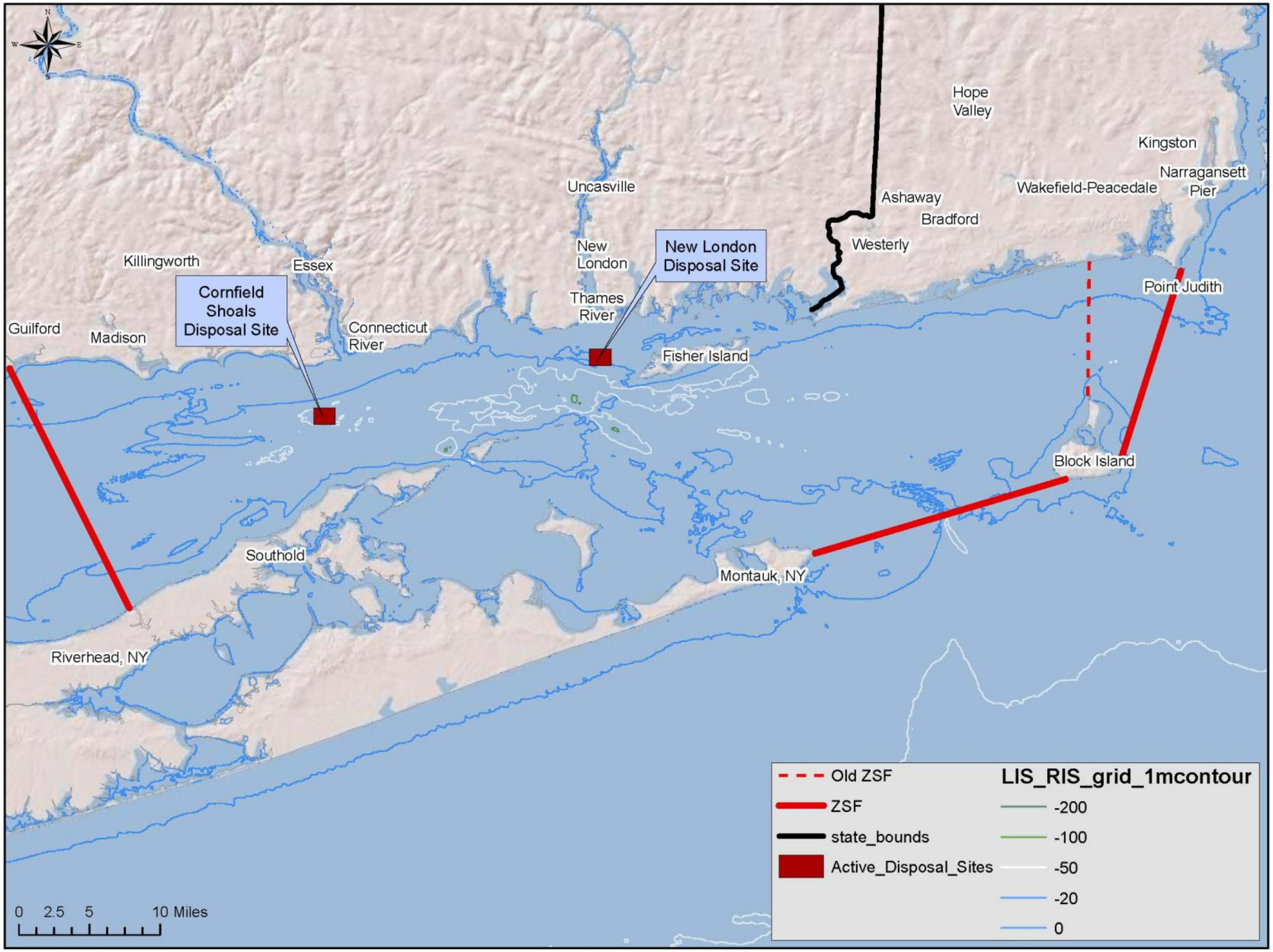
ZSF for Eastern LIS SEIS



Objectives of the Screening

- To identify areas within the revised ZSF acceptable for locating an open water disposal site designated under the Ocean Dumping Regulations
- To identify specific alternative disposal site(s) within the acceptable area(s) for further evaluation in the SEIS

Approach to Screening

- General Approach
  - Review Marine Protection, Research, and Sanctuaries Act of 1972 Criteria
    - 5 general (40 CFR 228.5) and 11 specific regulatory criteria (40 CFR 228.6) for ocean dredged material site designation.
  - Map previously defined LIS alternative dredged material site evaluation factors onto the ocean dumping regulation criteria
  - Prioritize the LIS factors into Tier 1 and Tier 2 screening levels
    - Tier 1 – rule out areas not acceptable for an open water disposal site
    - Tier 2 – identify specific locations for alternative site(s)

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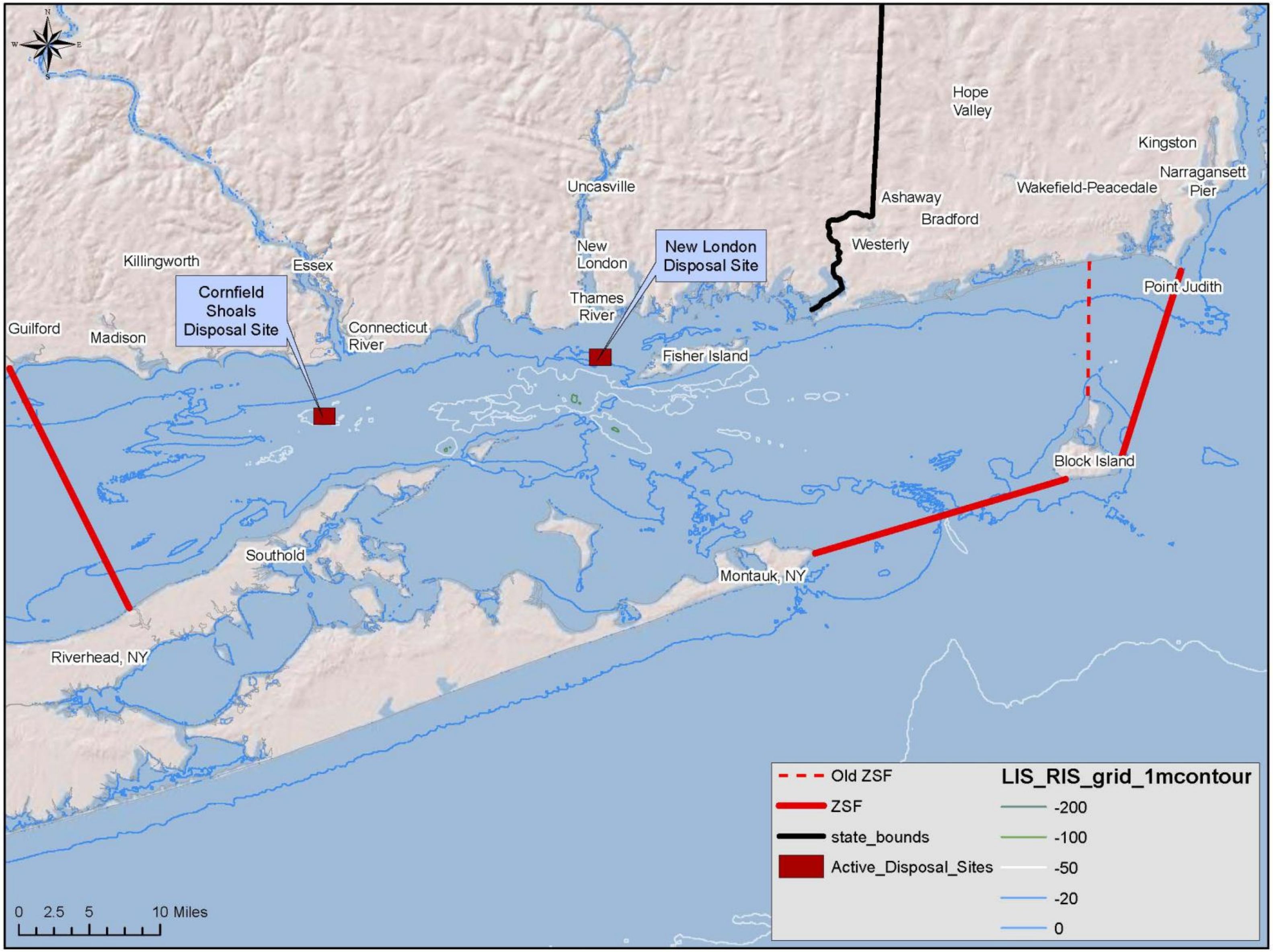
Approach to Screening

- Tier 1: Rule out areas based on the following
  - Sediment Stability/Instability – 228.5(b)
    - Bathymetry/Currents and Waves
    - Sediment Stability (e.g., Sheer Stress, Sediment Texture)
    - Data for this screening will be investigated as part of the physical oceanography work conducted by UCONN as part of this project
  - Disposal Feasibility - 228.5(b)
    - Water Quality Perturbations and Near Term Fate (i.e., STFATE)
    - Data for this screening will be investigated as part of the physical oceanography work conducted by UCONN as part of this project

Sediment Stability/Instability - Bathymetry



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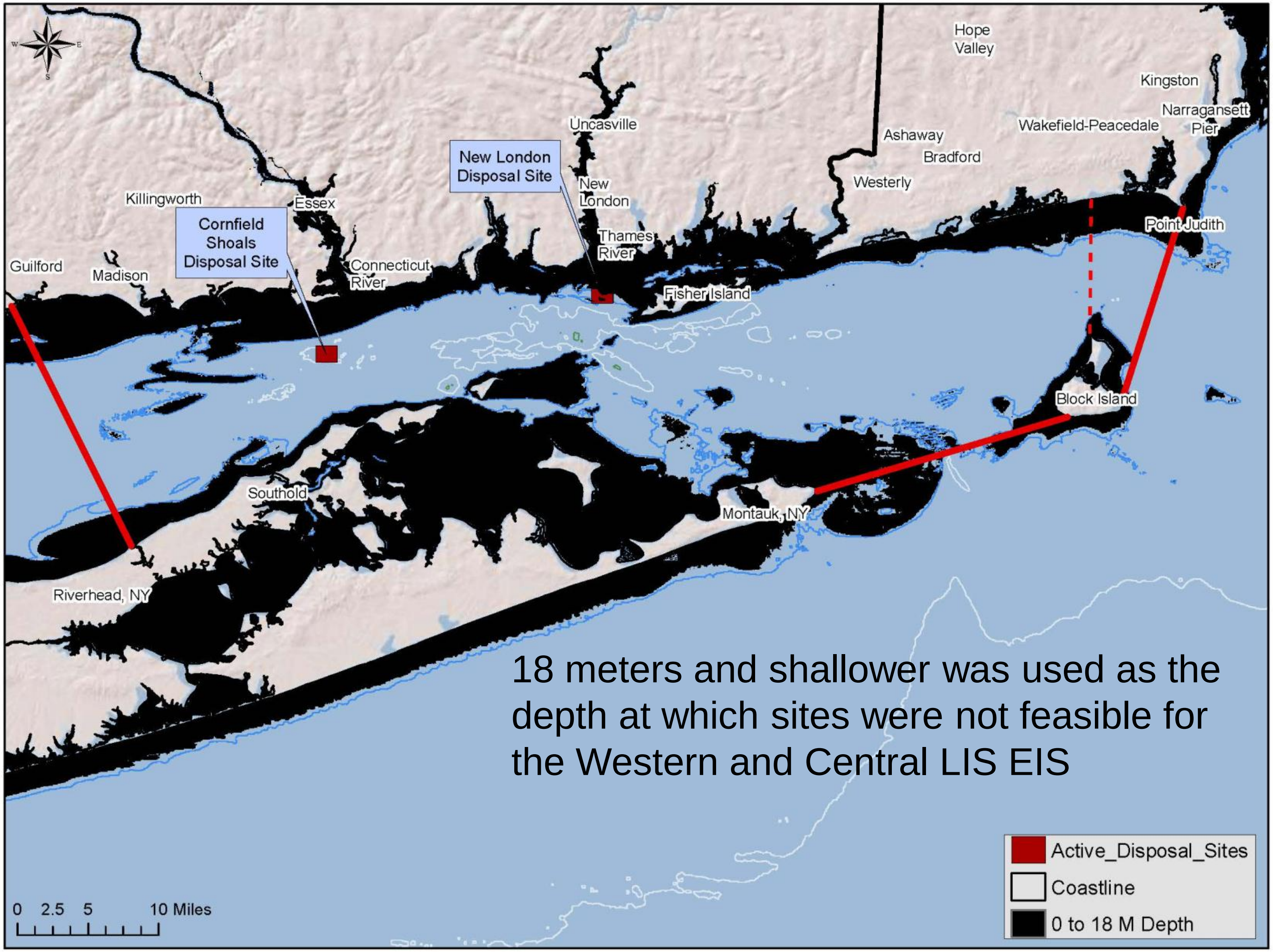
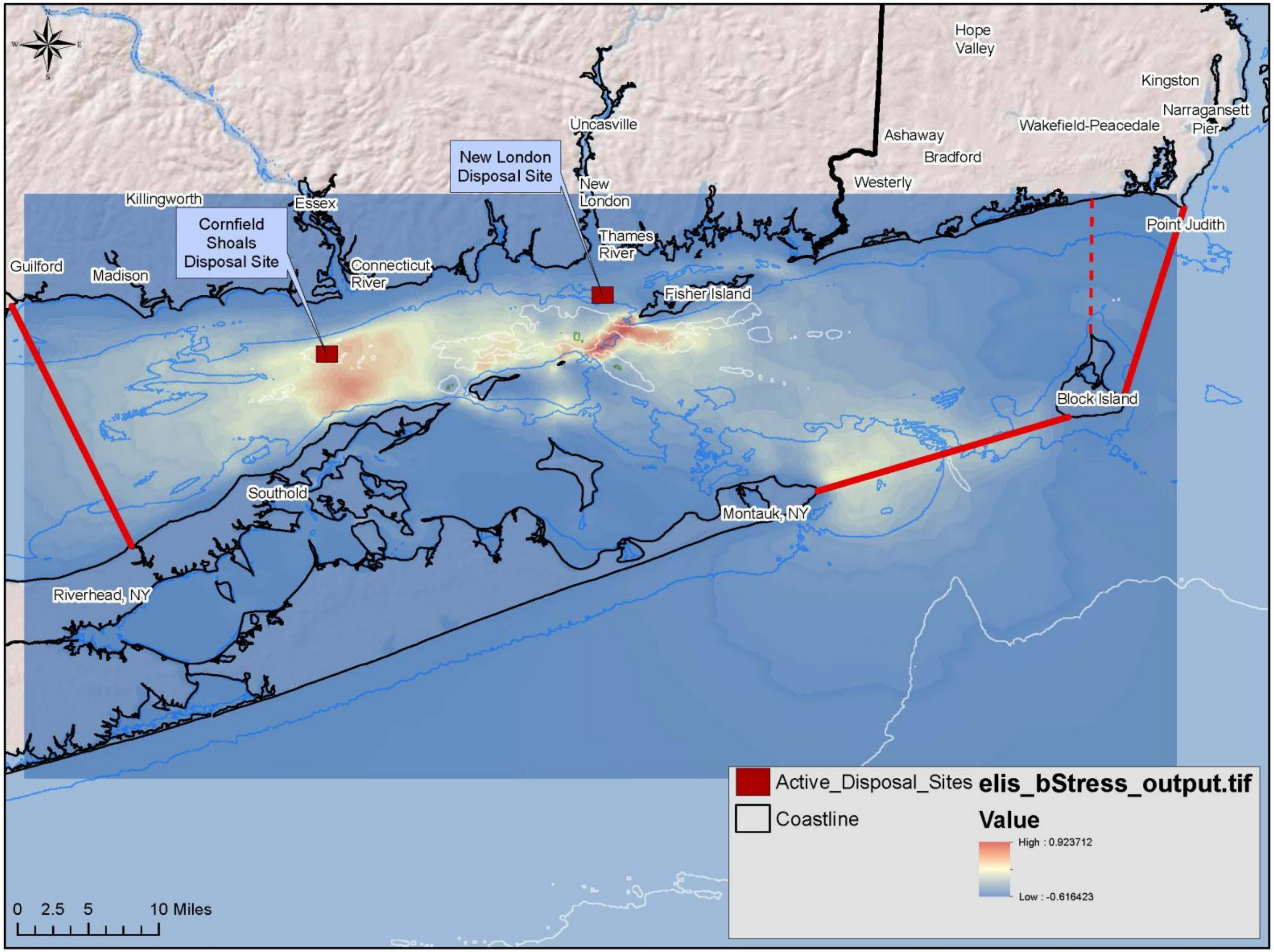
Sediment Stability/Instability - Bathymetry



18 meters and shallower was used as the depth at which sites were not feasible for the Western and Central LIS EIS

Sediment Stability/Instability– Tidal Driven Bottom Stresses

Preliminary Data; Considered minimal stress levels



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Approach to Screening

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Approach to Screening

- Tier 1: Rule out areas based on the following
  - Areas with conflicting uses – 228.6(a)(8)
    - Beaches and amenities – 228.6(a)(3)
    - Utilities (pipelines, cable areas, etc)
    - Conservation areas (sanctuaries, wildlife refuges, national seashores, parks, fish havens, artificial reefs)
  - Shellfish and Fishing areas – 228.5(a)
  - Interference with Navigation – 228.5(a); 228.6(a)(8)
    - Submarines, Coast Guard vessels, large tankers, fishermen, etc.

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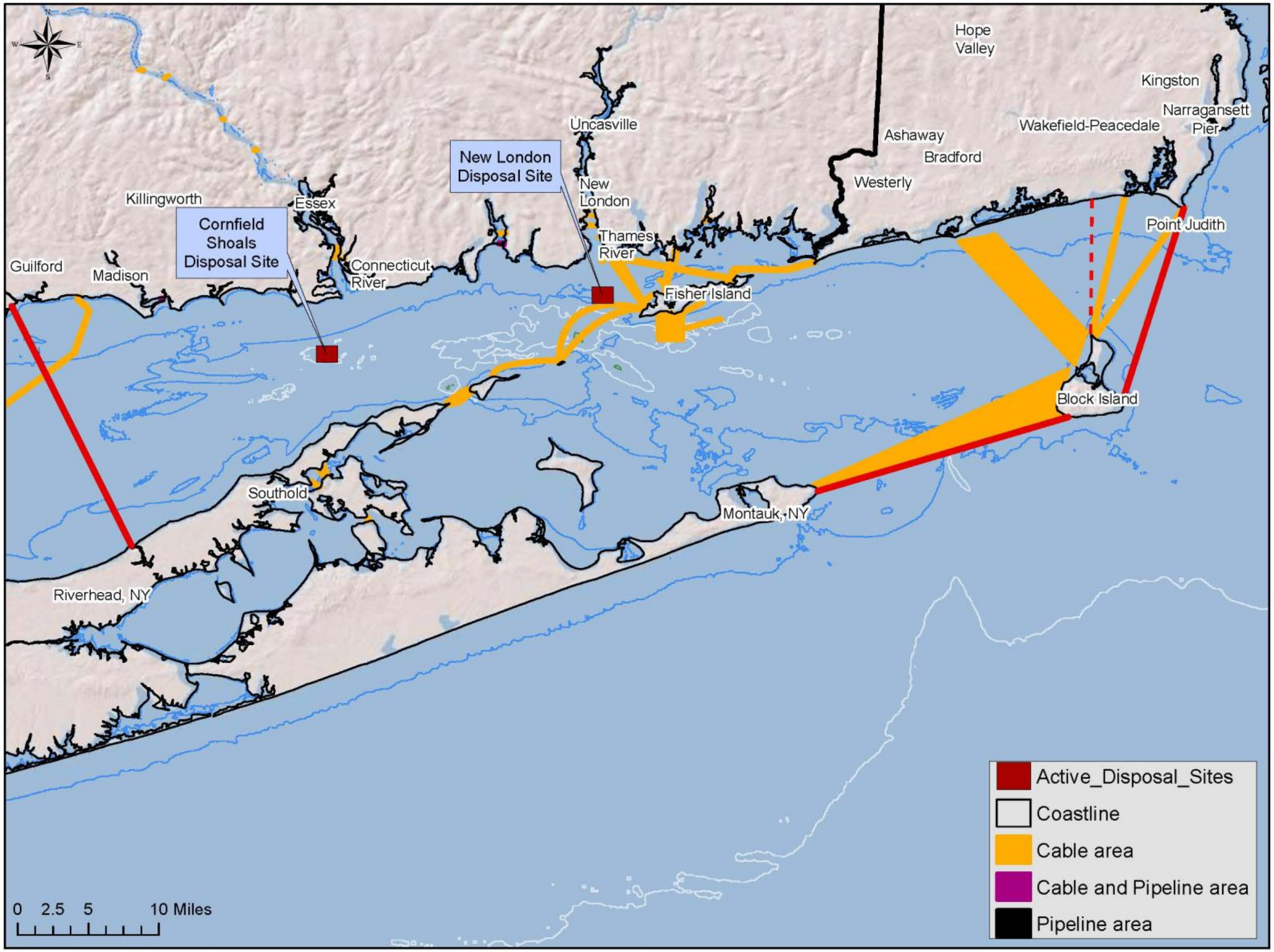
Areas with Conflicting Uses – Cables and Pipelines
(Needs to be Updated)



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Approach to Screening

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  - Interference with Navigation – 228.5(a); 228.6(a)(8)
    - Submarines, Coast Guard vessels, large tankers, fishermen, etc.

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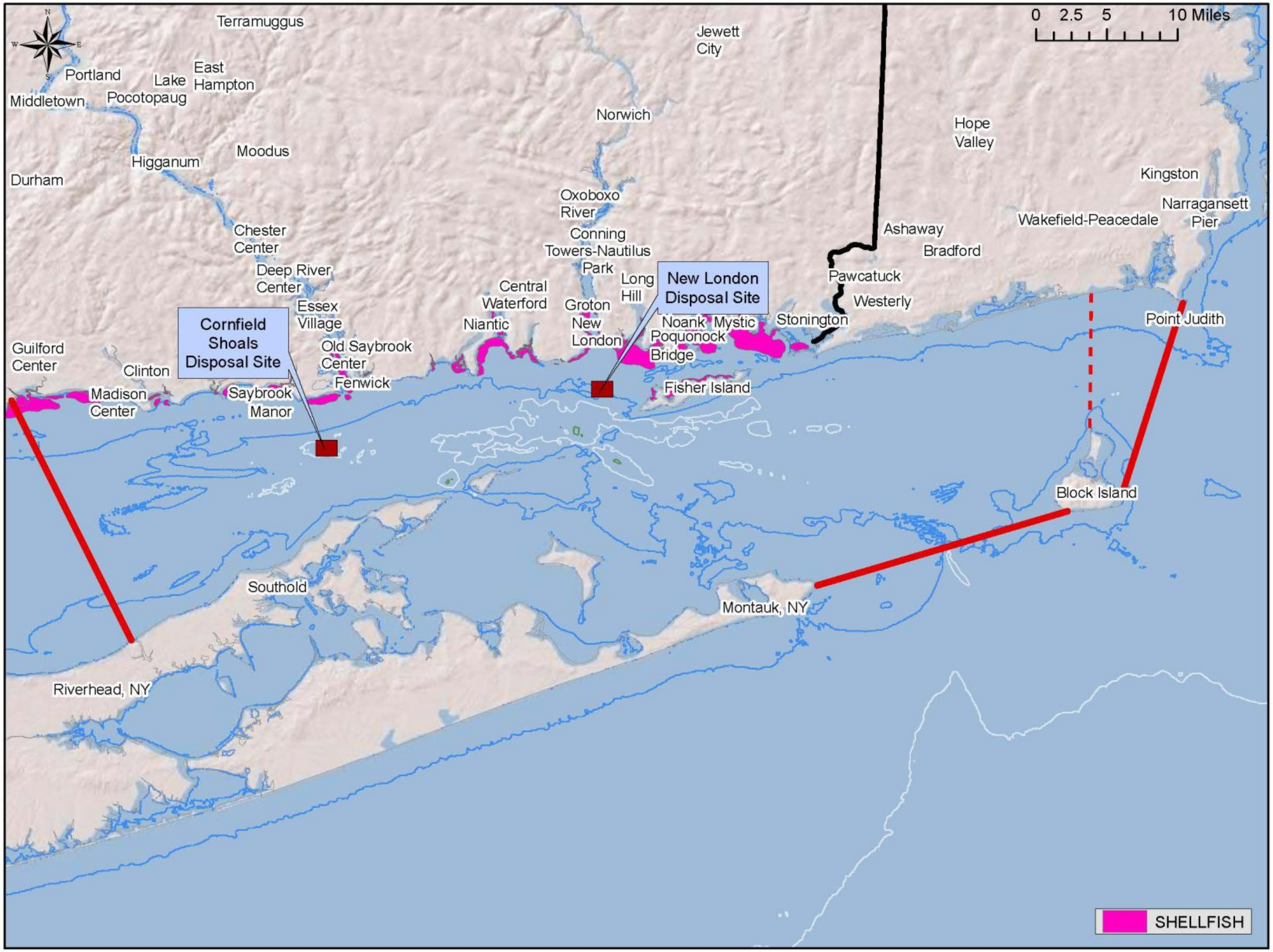
Shellfish Bed Locations - (CT updated from CTDEEP, NY Data needed)



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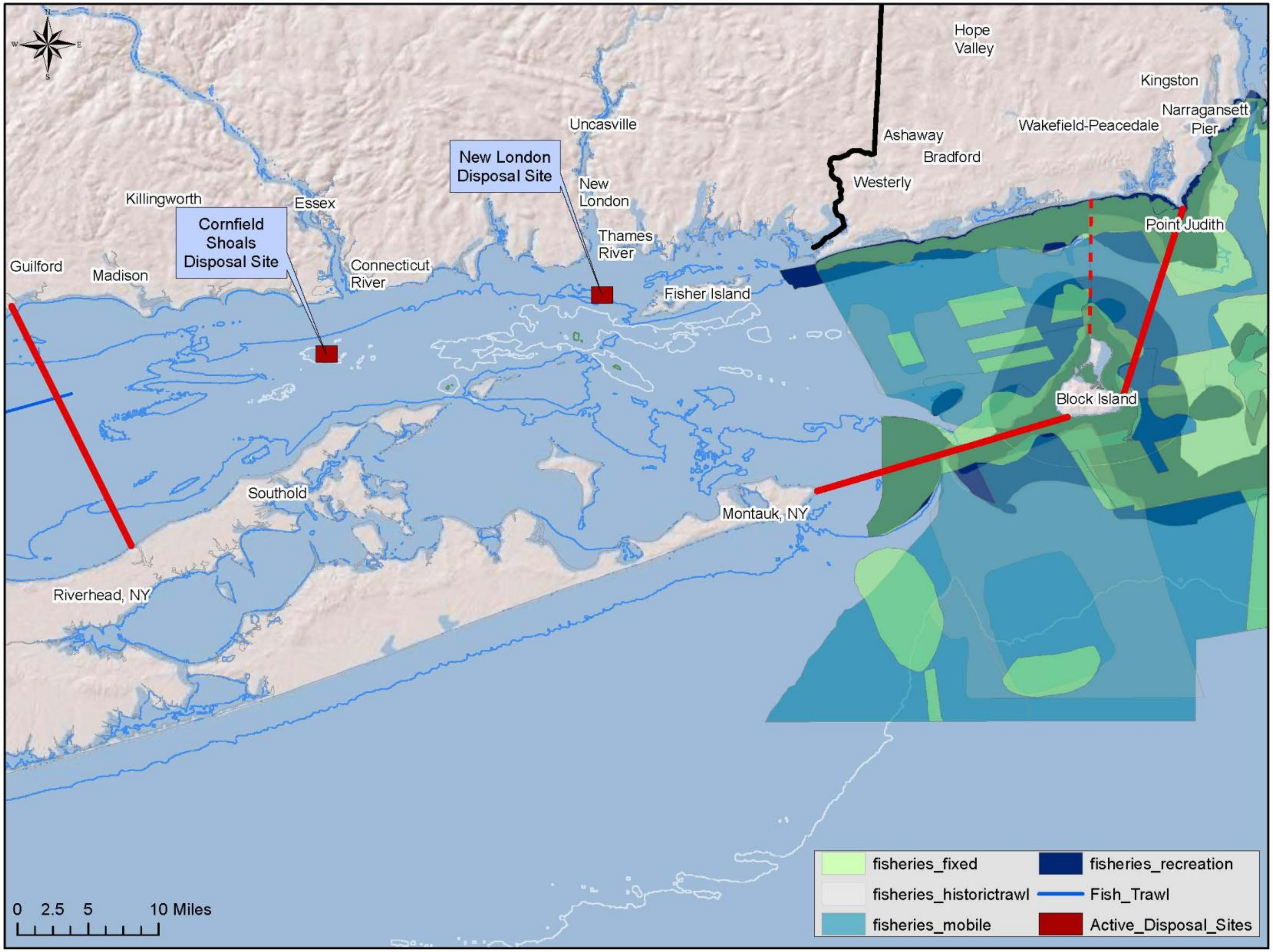
Fishing Areas
(RI updated ; CT & NY Data needed)



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Approach to Screening

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    - Conservation areas (sanctuaries, wildlife refuges, national seashores, parks, fish havens, artificial reefs)
  - Shellfish and Fishing areas – 228.5(a)
  - Interference with Navigation – 228.5(a); 228.6(a)(8)
    - Submarines, Coast Guard vessels, large tankers, fishermen, etc.

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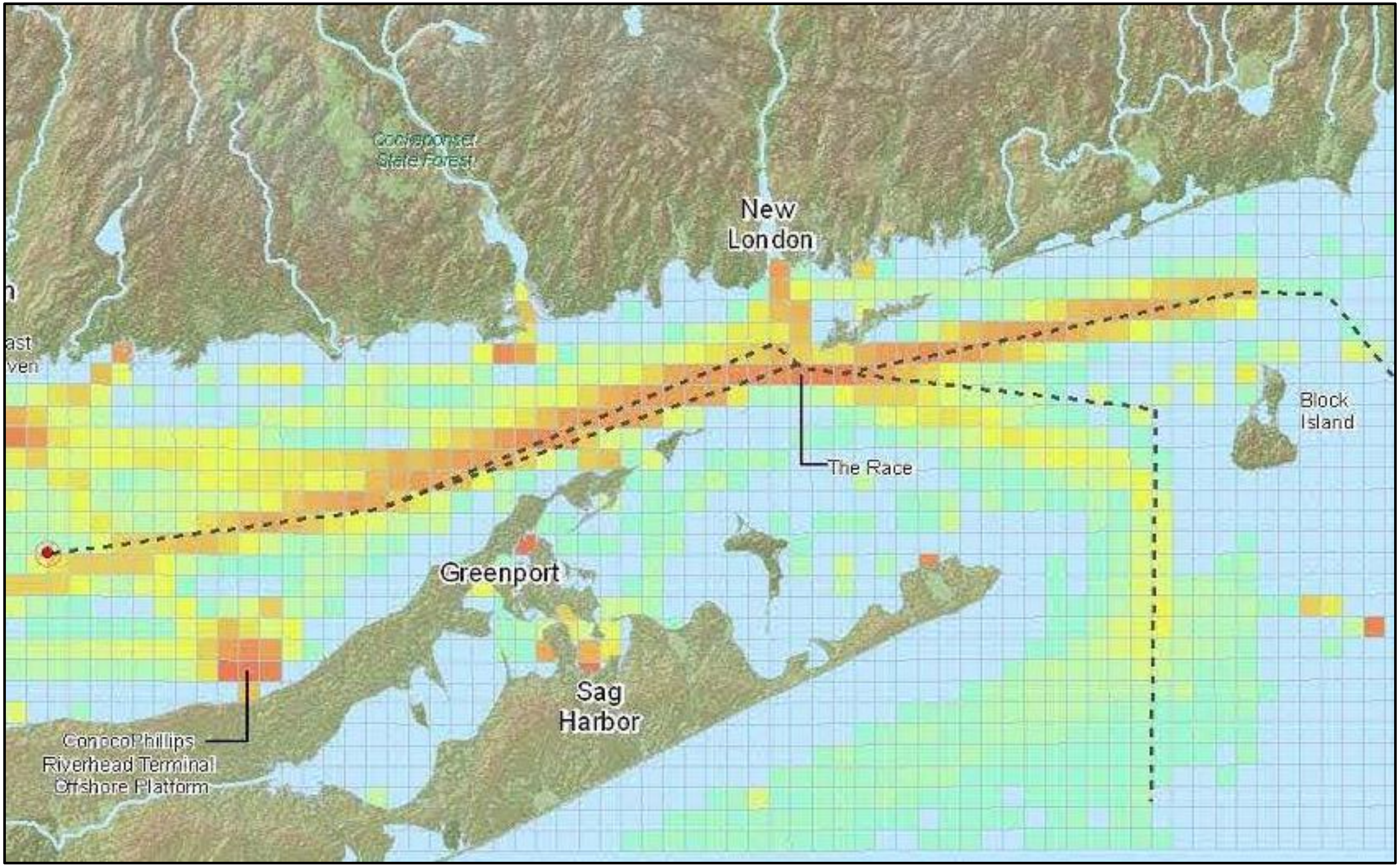
Ship Traffic Density (USCG Figure)



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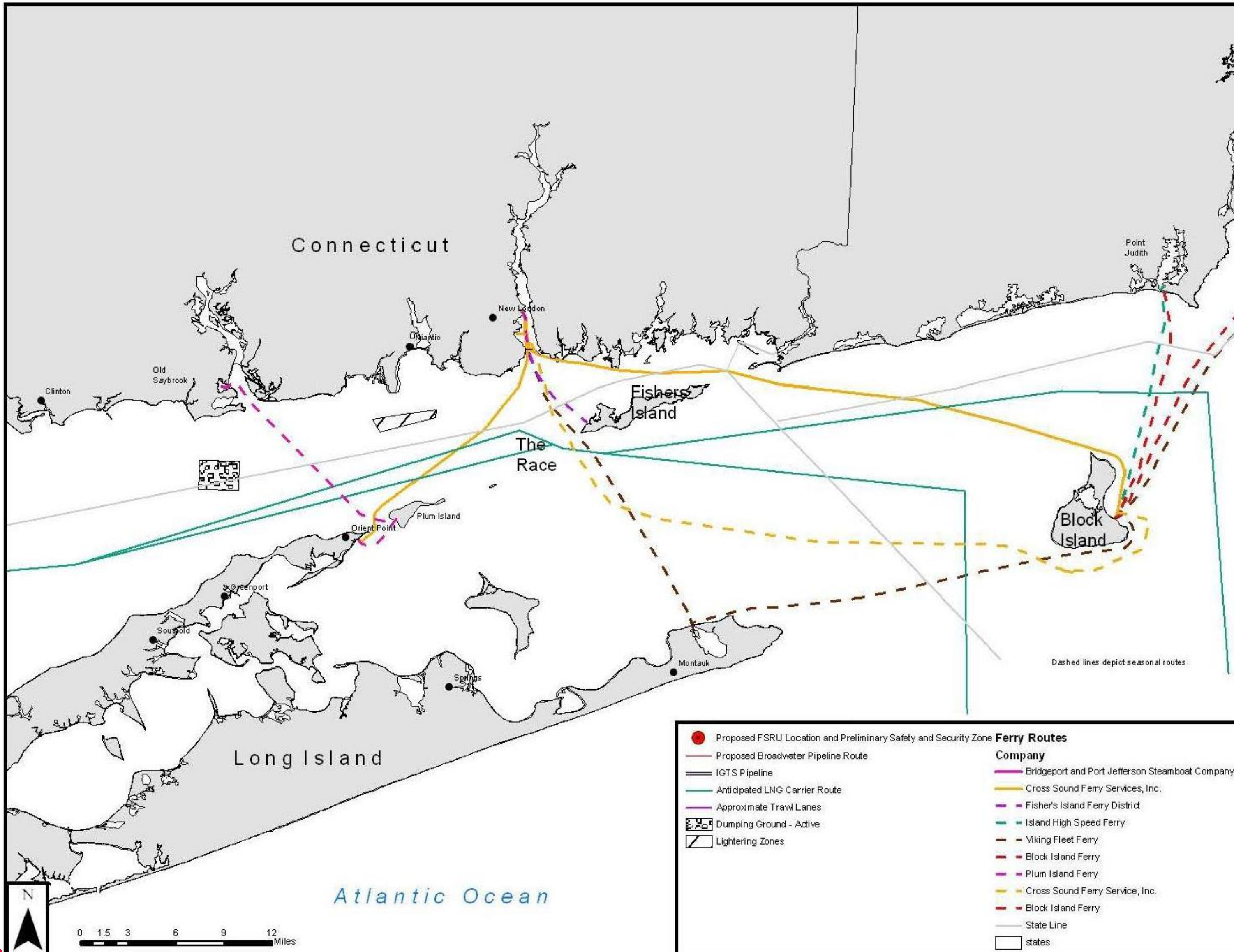
Commercial Vessel Navigation (USCG Figure)



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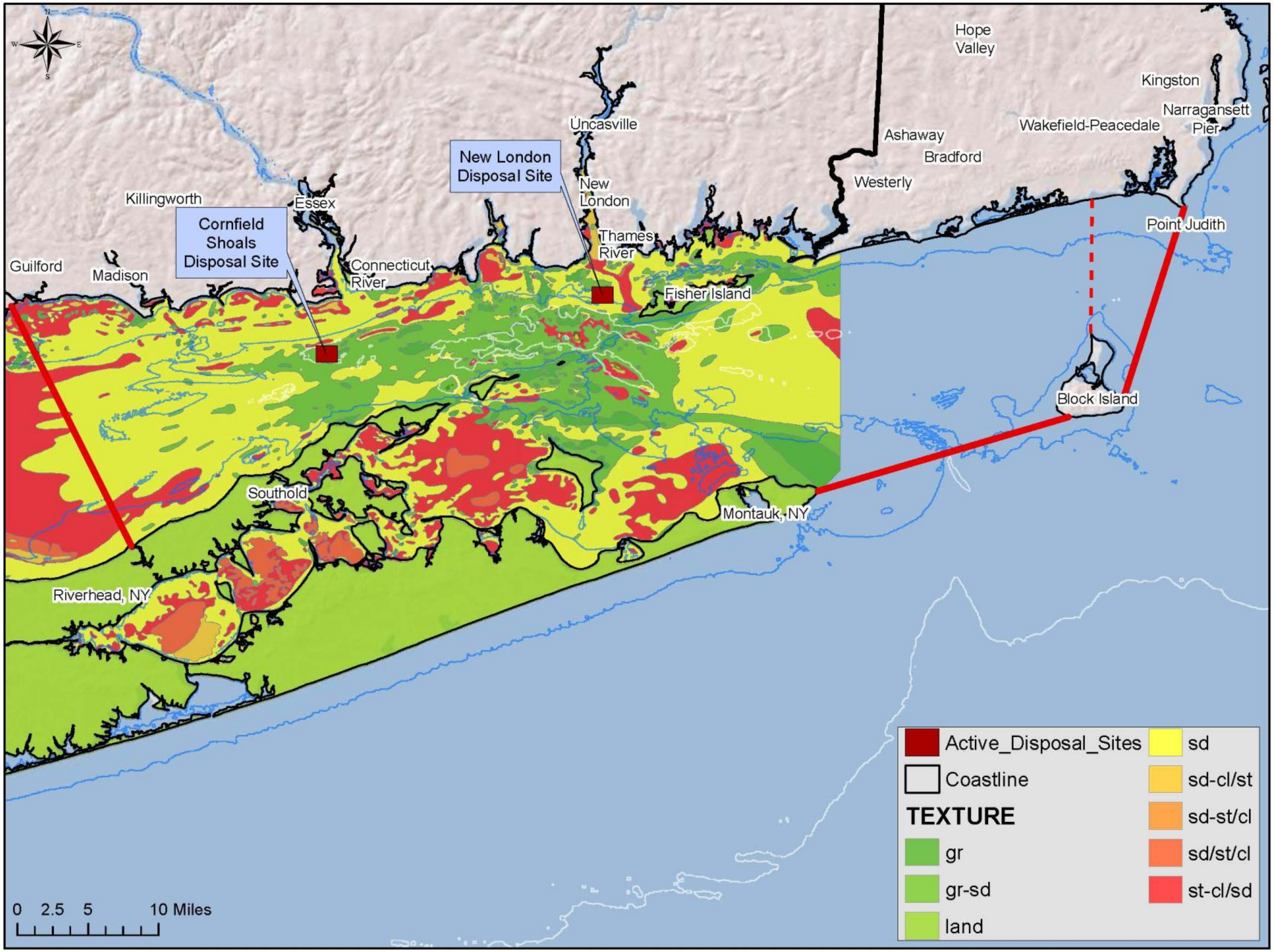
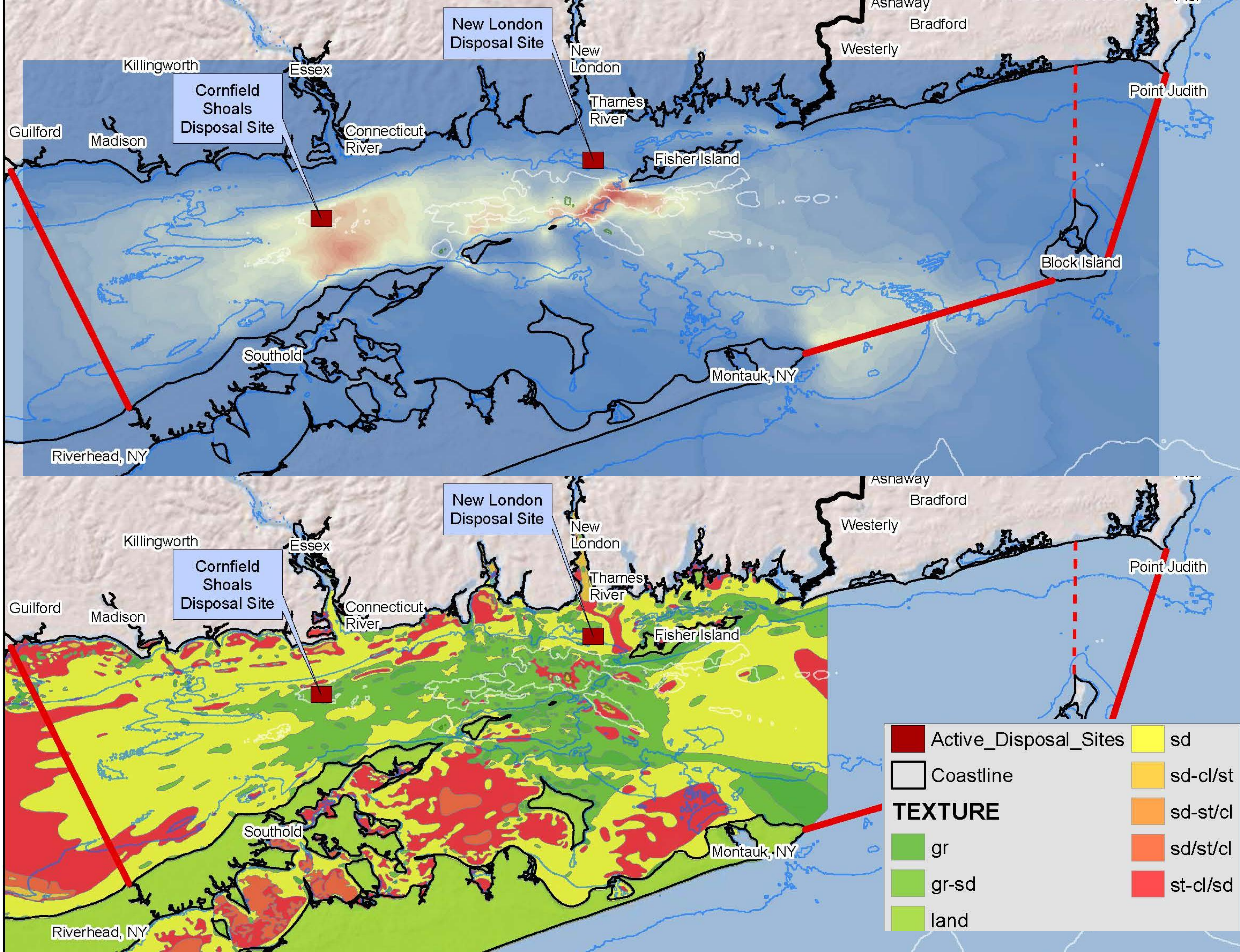
Approach to Screening

- Tier 1: Rule out areas based on the following
  - Valuable marine habitats – 228.5(a)
    - Gravel and hardbottom areas were identified previously as important to maintain, are these still applicable?
  - Areas of high dispersion potential 228.6(a)(6)
    - Last time only containment sites were warranted. What type(s) of dredged material disposal site(s) are needed?
      - Containment – All materials remain at the location where they are placed
      - Dispersive – Materials are allowed to be moved off of the placement location through currents, etc.

Sediment Characteristics





Ashaway
Bradford
Westerly
New London Disposal Site
New London
Thames River
Killingworth
Essex
Cornfield Shoals Disposal Site
Guilford
Madison
Connecticut River
Fisher Island
Point Judith
Block Island
Southold
Montauk, NY
Riverhead, NY
Active_Disposal_Sites
Coastline
TEXTURE
gr
gr-sd
land
sd
sd-cl/st
sd-st/cl
sd/st/cl
st-cl/sd

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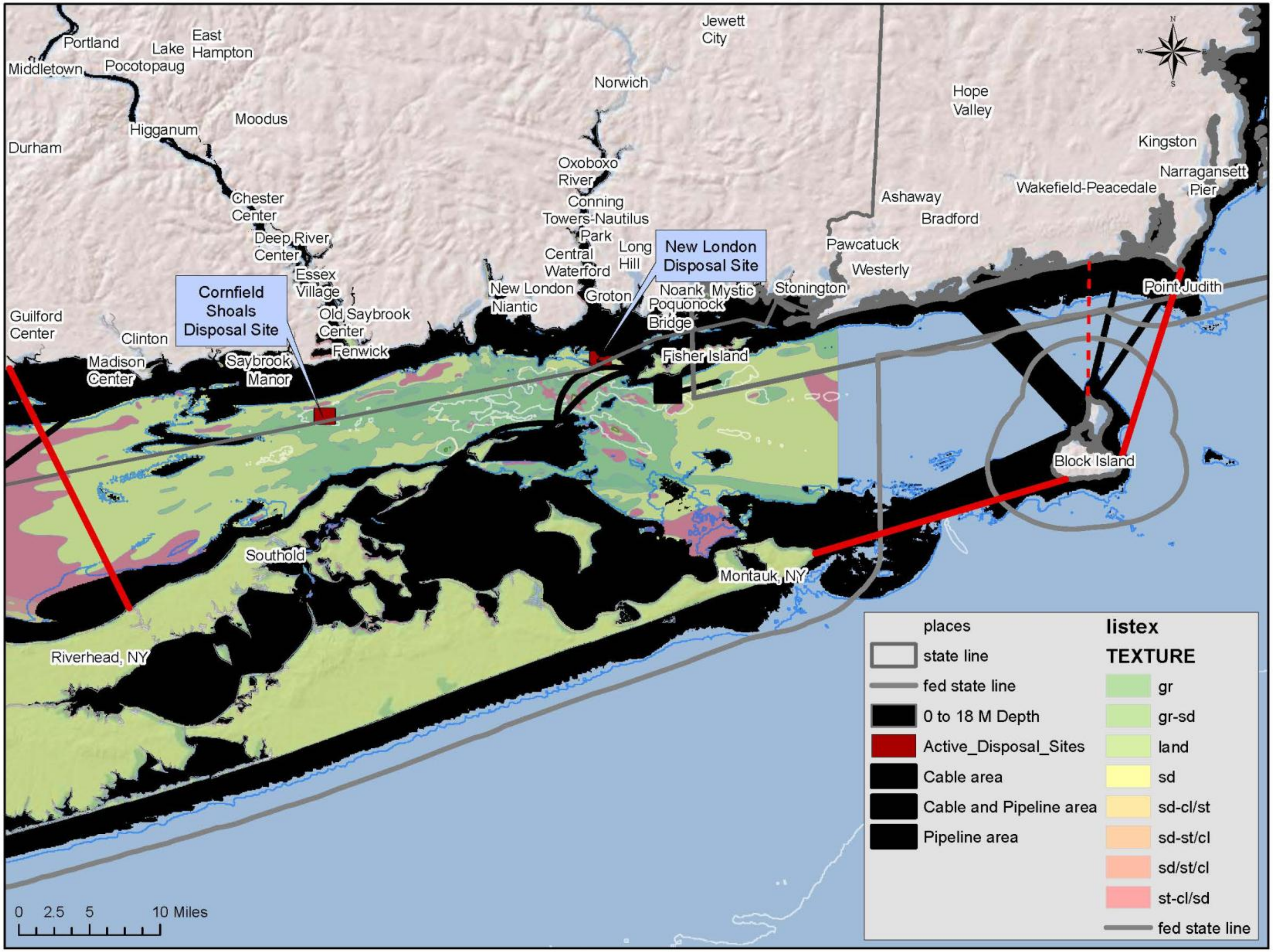
Approach to Screening
Tier 1 Type Screening Results



Approach to Screening

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- Tier 2: Identify specific alternative site locations
  - Minimizing impact to
    - Archeological resources – 228.6(a)(11)
    - Fish habitats, fish concentrations – 228.5(a); 228.6(a)(8)
    - Living resources (breeding, spawning, nursery, feeding, passage) – 228.6(a)(2)
    - Benthic community – 228.6(a)(9)
    - Shellfisheries/fisheries resource areas – 228.6(a)(8)
  - Historic Disposal Sites and Continental Shelf – 228.5(e)
  - Preferred siting of areas were also based on a series of site characteristics (e.g., prevailing current direction and velocity, compatible sediment types) – 228.5(d); 228.6(a)(5); 228.6(a)(6)

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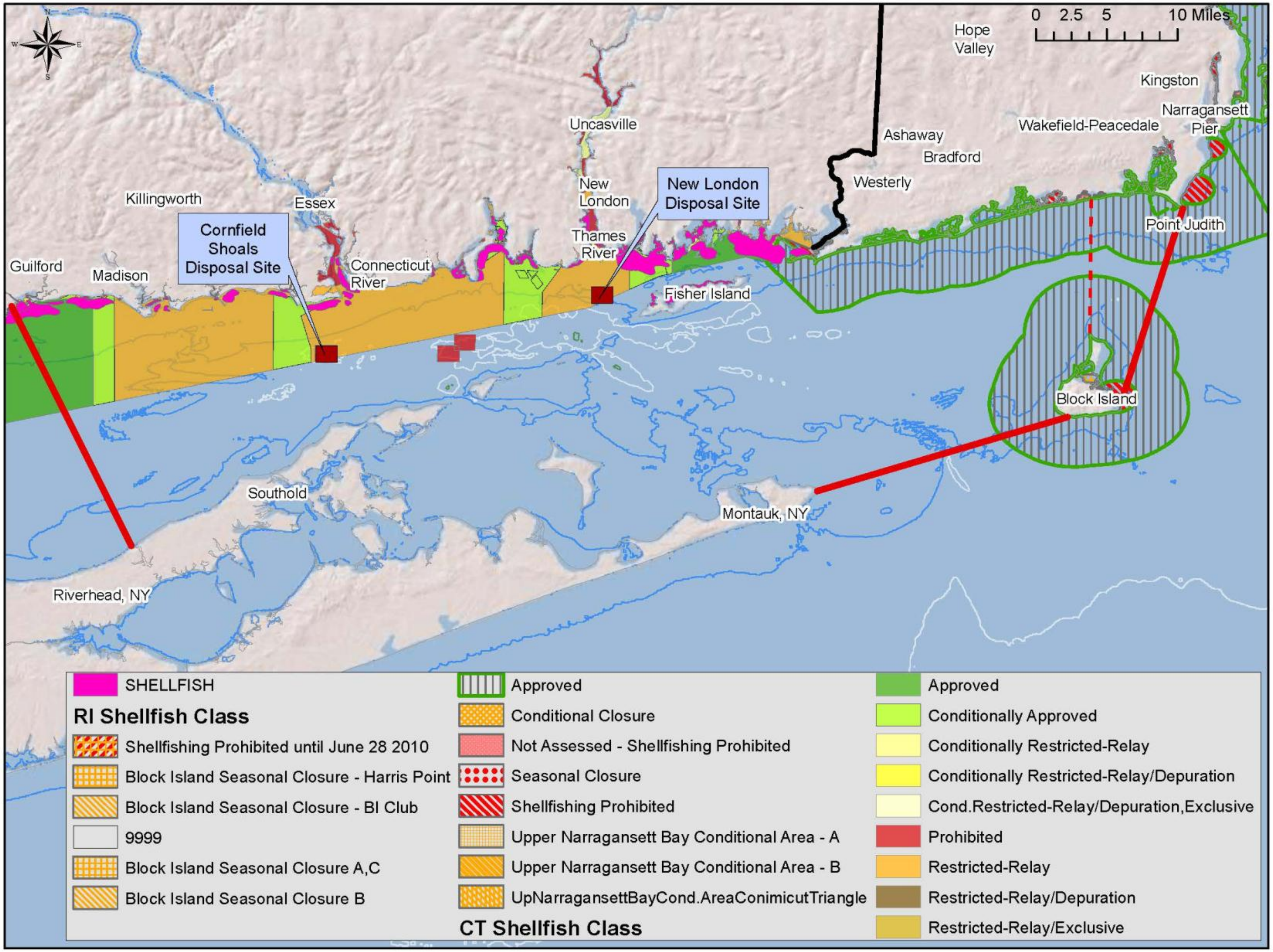
Minimizing Impact – Approved/ Prohibited Shellfish Areas



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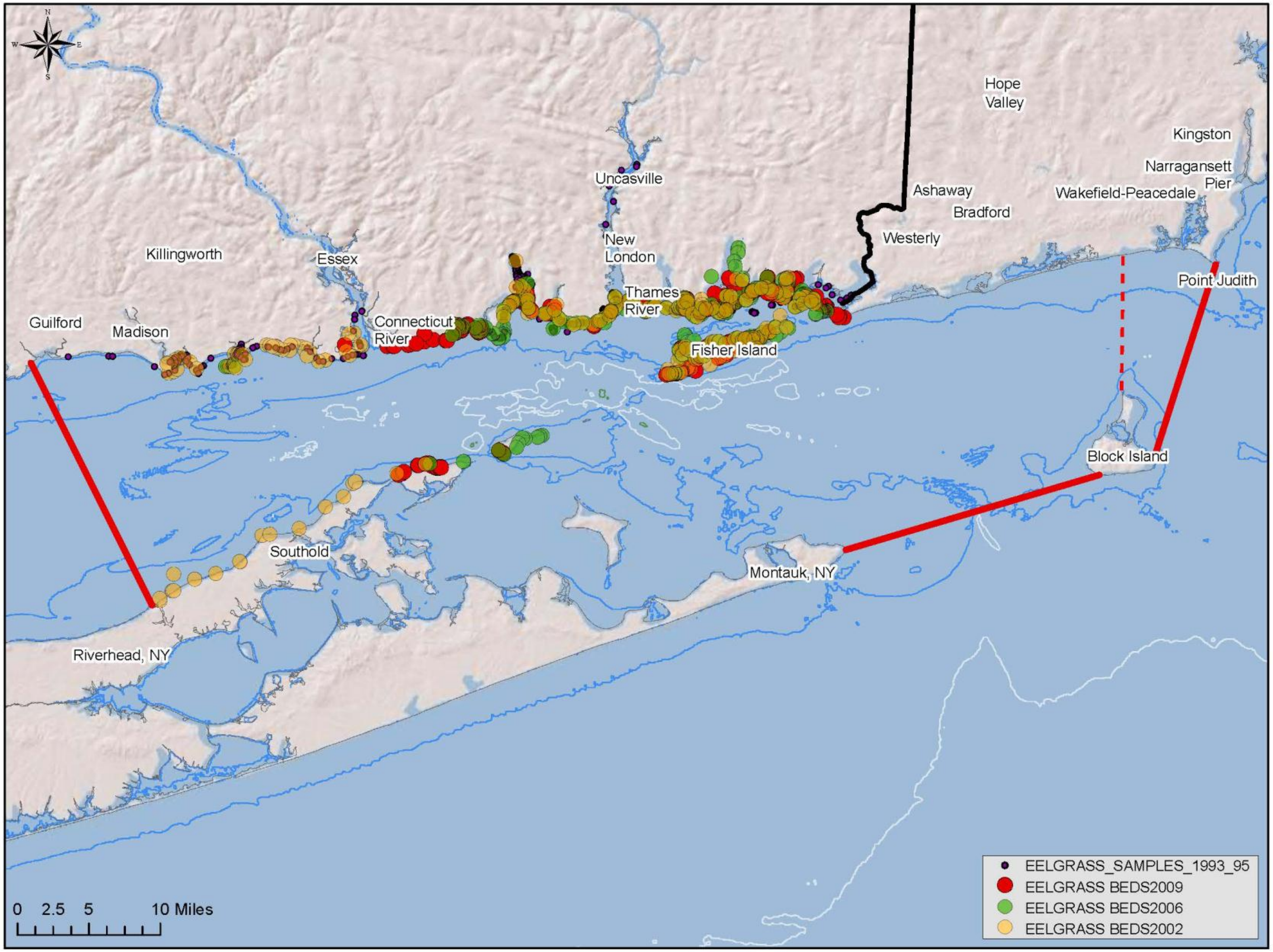
Minimizing Impact - Eelgrass Beds



Approach to Screening

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    - Archeological resources – 228.6(a)(11)
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    - Shellfisheries/fisheries resource areas – 228.6(a)(8)
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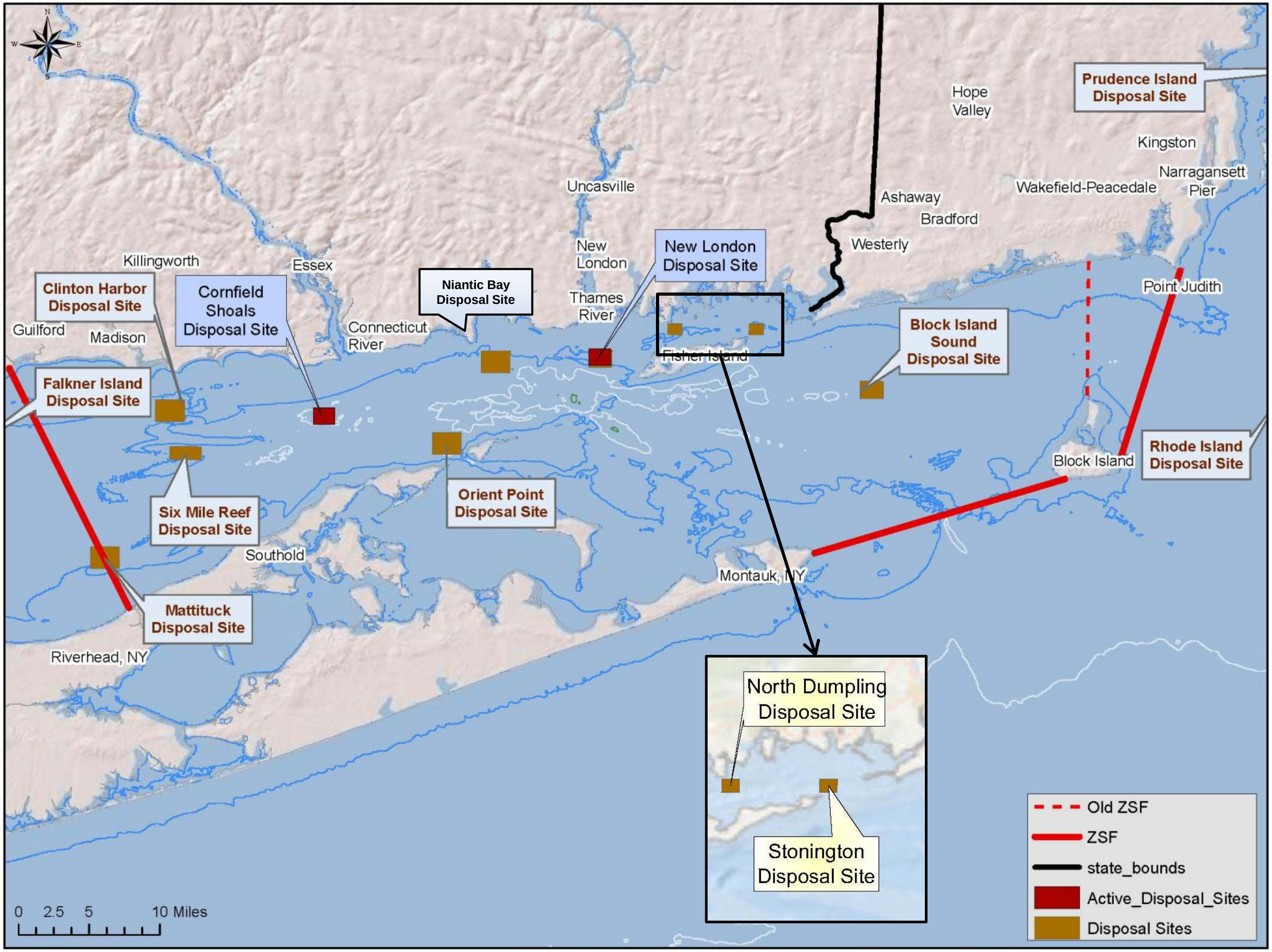
  - Preferred siting of areas were also based on a series of site characteristics (e.g., prevailing current direction and velocity, compatible sediment types) – 228.5(d); 228.6(a)(5); 228.6(a)(6)

Historic and Active Disposal Sites



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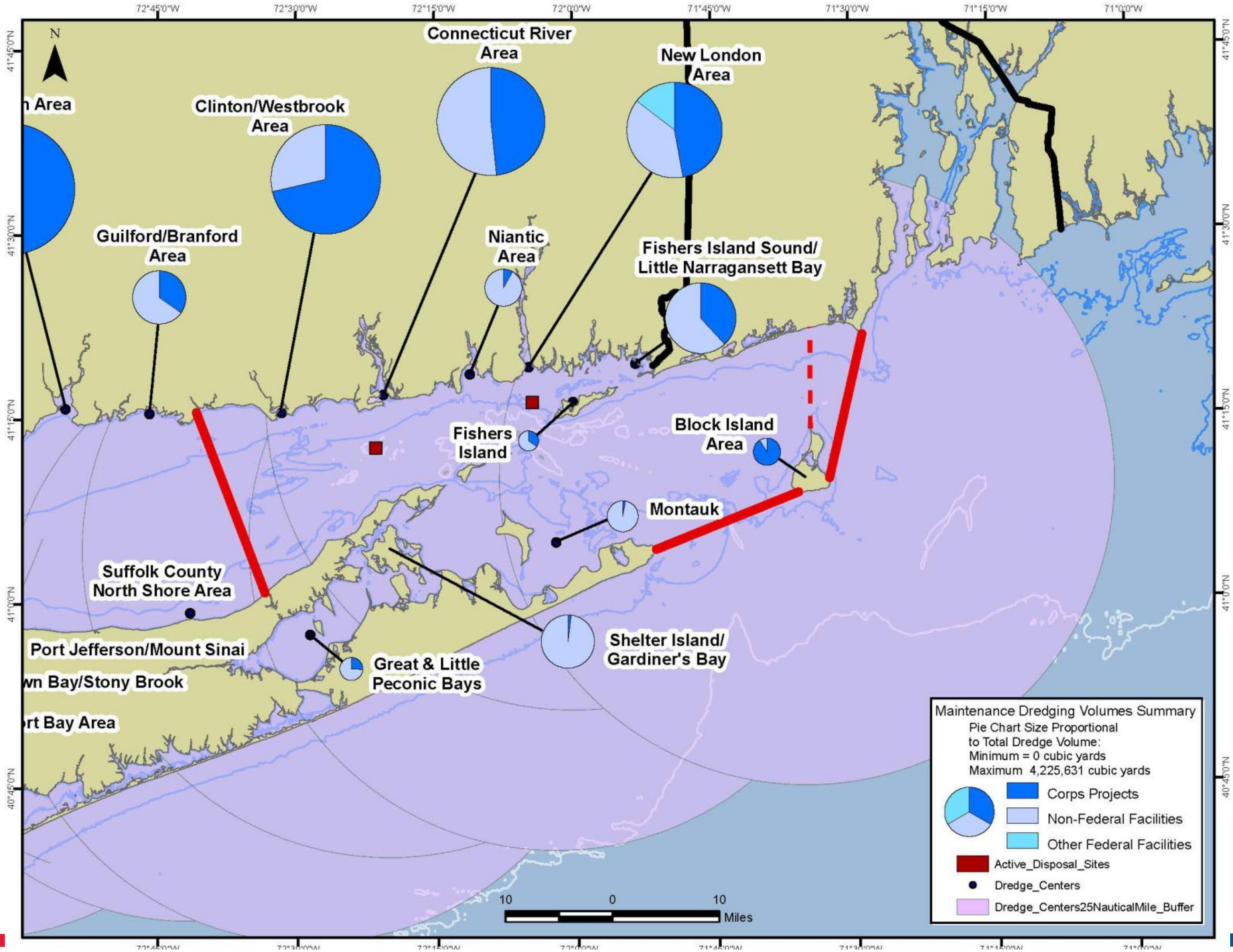
Continental Shelf and Areas within 25 nm of Dredging Centers



Approach to Screening

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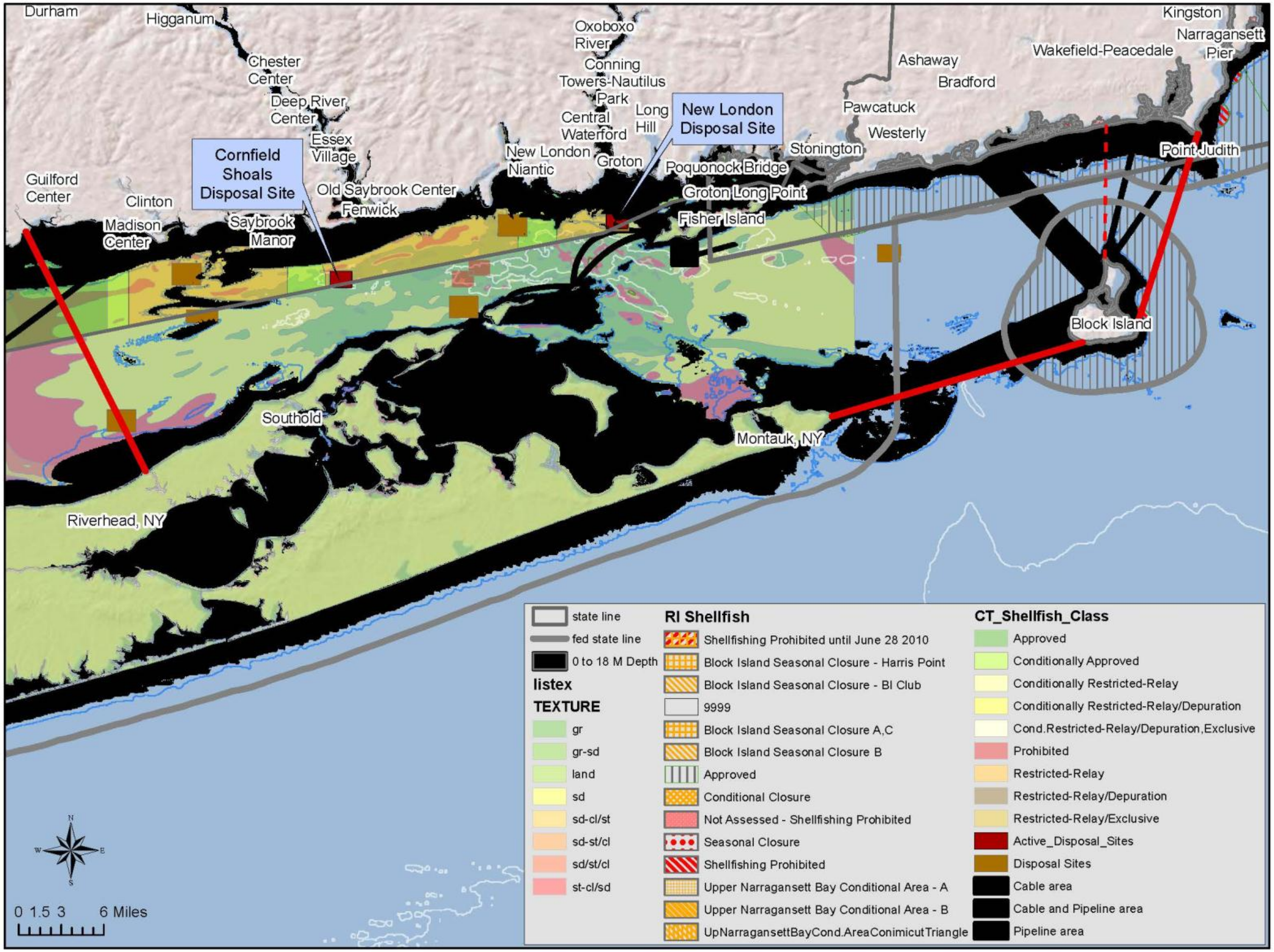
  - Preferred siting of areas were also based on a series of site characteristics (e.g., prevailing current direction and velocity, compatible sediment types) – 228.5(d); 228.6(a)(5); 228.6(a)(6)

Approach to Screening
Tier 2: Preliminary Screening Results for Discussion Only



Tier 2 Alternative Site

- Several factors must be considering when assessing an area as an alternative site.
  - Site Boundaries – 228.5(d), 228.6(a)(4), 228.6(a)(5)
  - Buffer Zones – 228.5(b), 228.6(a)(6)
  - Reference areas for monitoring and testing – 228.6(a)(5)

Tier 2 Alternative Site(s)

- Factors to be discussed in the SEIS
  - Once alternative site(s) are selected
    - Tier 1 criteria will be addressed as appropriate in SEIS
    - Tier 2 criteria will be examined in detail in the SEIS
  - Additional SEIS siting considerations will include:
    - Existing water quality - 228.6(a)(9)
    - Nuisance Species - 228.6(a)(10)
    - Economic impacts - 228.6(a)(8)
    - Site protection requirements – Environmental consequences
      - 228.10 Evaluating disposal site impacts

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Next Steps

- Finalized criteria that will be used to conduct the screening
  - Minimum depth
  - Bottom types to avoid
  - Containment, Dispersive, or Both
  - Site Protection Requirements
- Identify and acquire more recent or available data to use in the screening
- Identify data gaps and conduct studies to fill them
  - Sediment Stability/Instability
  - STFATE Modeling
  - Minimum Shear stress verification

Appendix C: Presentation - Physical Oceanography Study

(James O'Donnell, UConn)

College of Liberal Arts and Sciences
Marine Sciences

UCONN

Recent Physical Oceanography Data Update and Observation and Model Plans

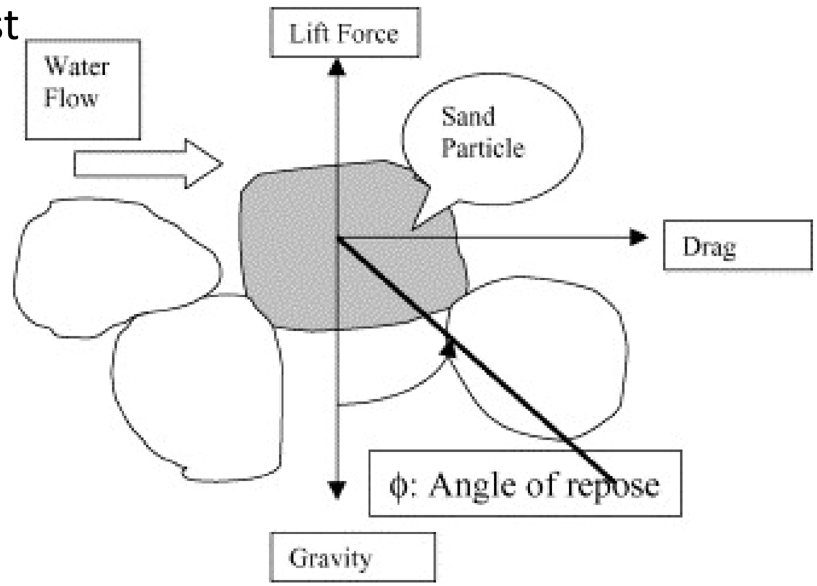
James O’Donnell
University of Connecticut

Overview

1. Introduction
2. Bottom Stress and circulation are central to the site designation process.
   a) Consideration of all possible sites is only possible if models are used to "interpolate" between the limited location and times data is available.
   b) A well tested model requires data for evaluation.
3. Summary of the data required to predict the range of circulation and bottom stresses expected throughout the ZSF.
4. Summary of data available
5. Observation Plan
6. Modeling plans

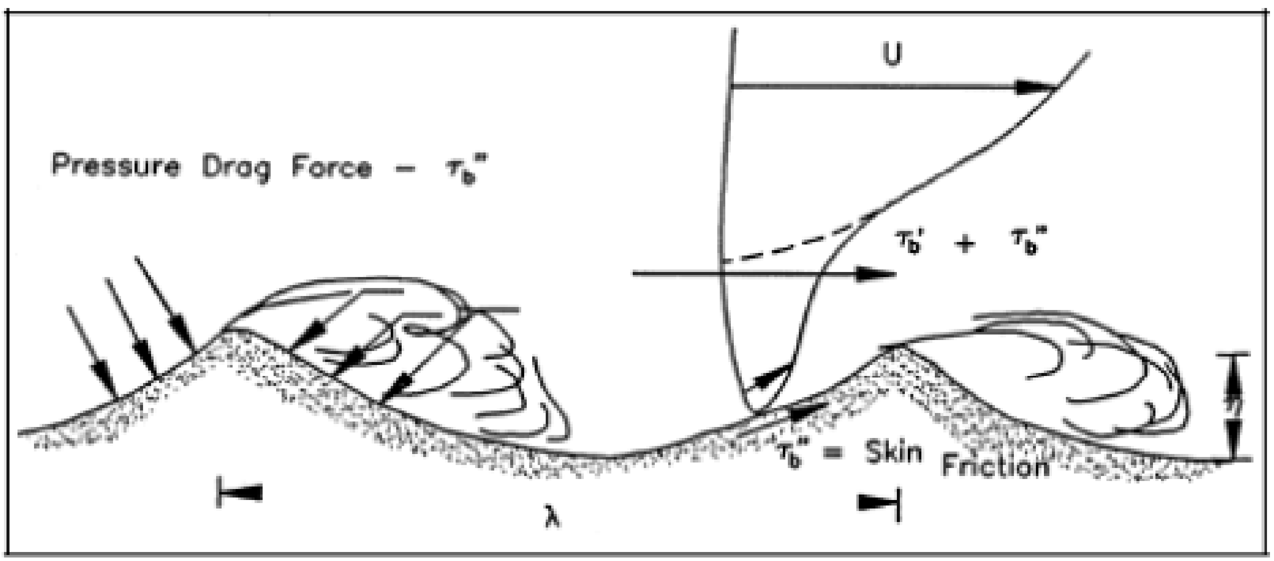
Physics of Sediment Transport

For sediment resuspension the lift force due to the flow around it must exceed the gravity force.



The lift and drag forces slow the water and this effective force per unit area is called the shear stress.

Bedforms have a similar effect on the flow… they slow it down.



Shields Curve

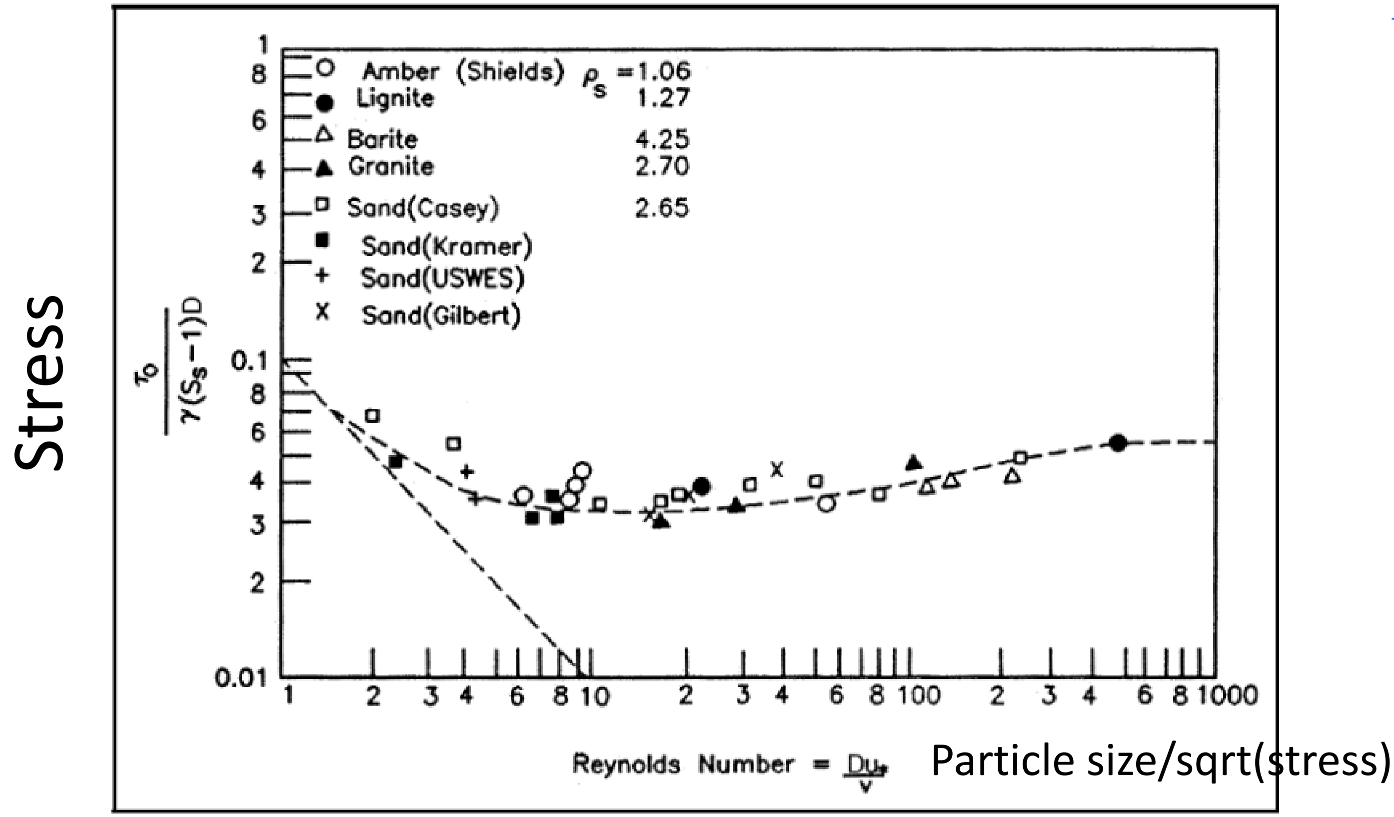


Figure III-6-7. Shields diagram for initiation of motion in steady turbulent flow (from Raudkivi (1967))

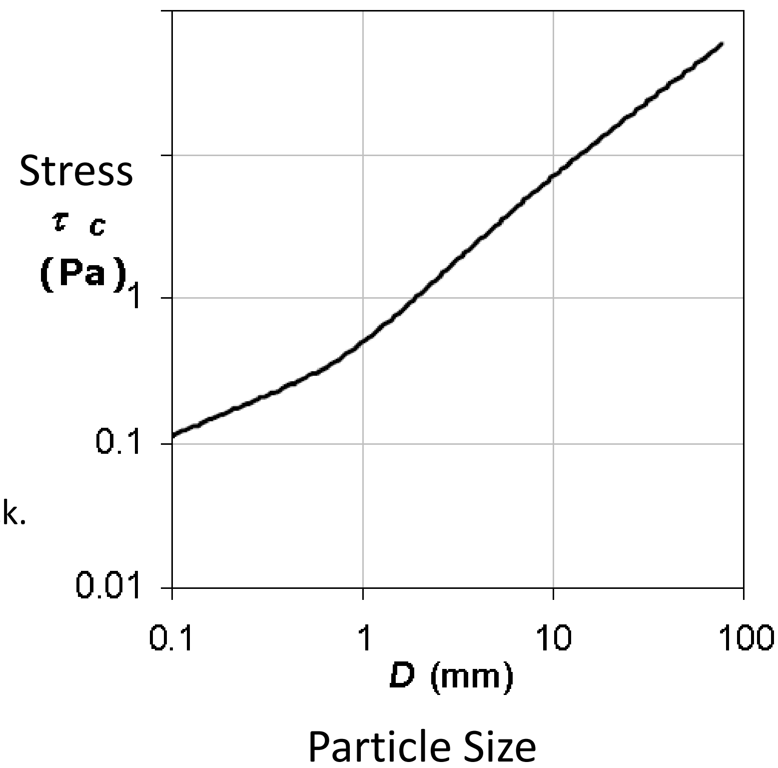
More simply

$$S^* = \frac{\sqrt{(s-1)gD^3}}{\mu/\rho} \quad \text{and } s = \frac{\rho_s}{\rho} \quad (2.65\pm5\%)$$

The trend on the diagram can be represented by the function

$$\tau_c^* = 0.105(S^*)^{-0.3} + 0.045\exp\left[-35(S^*)^{-0.59}\right]$$

From: Peter Wilcock, UC Berkeley
http://calm.geo.berkeley.edu/geomorph//wilcock/wilcock.html



Journal of Oceanography, Vol. 56, pp. 311 to 317, 2000

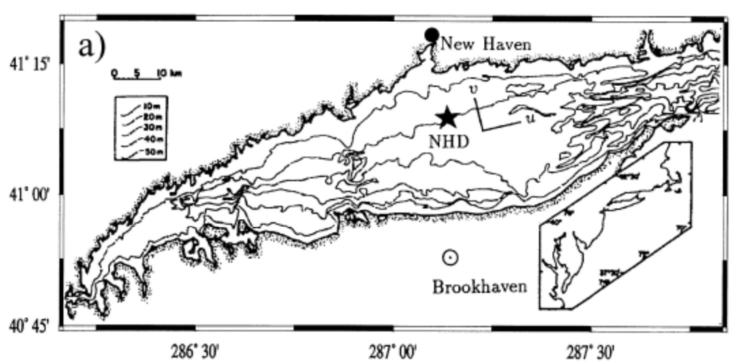
Storm Enhanced Bottom Shear Stress and Associated Sediment Entrainment in a Moderate Energetic Estuary

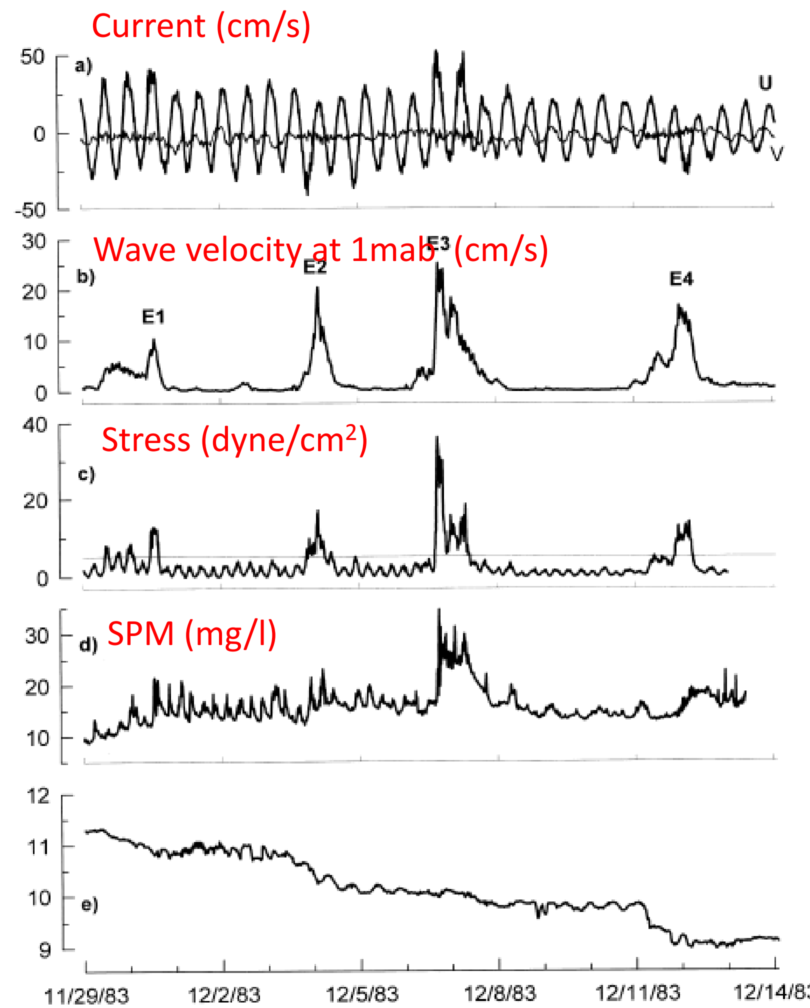
YuHuai Wang*, W. Frank Bohlen and James O'Donnell

Department of Marine Sciences, University of Connecticut, Groton, CT 06340, U.S.A.

(Received 3 April 1999; in revised form 1 September 1999; accepted 11 October 1999)

Several important mechanisms for storm-induced entrainment of estuarine cohe sediments are analyzed using field measurements collected in a moderately energ estuary, central Long Island Sound, U.S.A. The sediment concentration hydrographic data were obtained by an array of sensors mounted at 1 m above bottom. The bottom sediment in the study site composed mostly of silt and silty s: The study showed that the bottom shear stress, computed using a wave-current in action model, increased significantly during the episodic wind events. A la resuspension event was triggered by a frontal passage when strong wind-driven rents augmented the tidal currents. The timing of storm waves with respect to tidal phase also was a critical factor. Based on the changes of suspended sedin concentration, the bottom appeared to respond to the shear stress in two phases: tidal resuspension and the storm-induced erosion. During each tidal cycle, entr ment was associated with resuspension of high water content, loosely consolid: material. During episodic events, a thin layer of more consolidated bed below sediment-water interface was eroded by the enhanced bottom stress.





UCONN

2. Summary of data needs – controlling factors.

1. Current in the ZSF controlled by tides, density variations and winds.
2. Bottom stress if determined by current and waves.
3. Waves are generated by wind.
4. We want to know the circulation and stress during normal conditions (for each season) and for extreme conditions.
5. We can only observe them all for selected interval and at a few places so we need a model to generalize the observations.

3. What is available ?

- Three great resources:

1. Woods Hole Group (2011). Long Island Sound Dredged Material Management Plan (DMMP) Phase 2 Literature Review Update June 2010, Prepared for U.S. Army Corp of Engineers, Contract No. W912WJ-09-D-0001-TO-0022

2. O'Donnell, J., R. E. Wilson, K. Lwiza, M. Whitney, W. F. Bohlen, D. Codiga, T. Fake, D. Fribance, M. Bowman, and J. Varekamp (2013). The Physical Oceanography of Long Island Sound. In *Long Island Sound: Prospects for the Urban Sea.* Latimer, J.S., Tedesco, M., Swanson, R.L., Yarish, C., Stacey, P., Garza, C. (Eds.), 2013 (Elsievier, In press).

3. Codiga, D. L. and David S. Ullman (2010). Characterizing the Physical Oceanography of Coastal Waters Off Rhode Island, Part 1: Literature Review, Available Observations, and A Representative Model Simulation (http://seagrant.gso.uri.edu/oceansamp/pdf/appendix/02-PhysOcPart1-OSAMP-CodigaUllman2010.pdf.)

- And our Task 2 report

4. Summary of data needs – variables

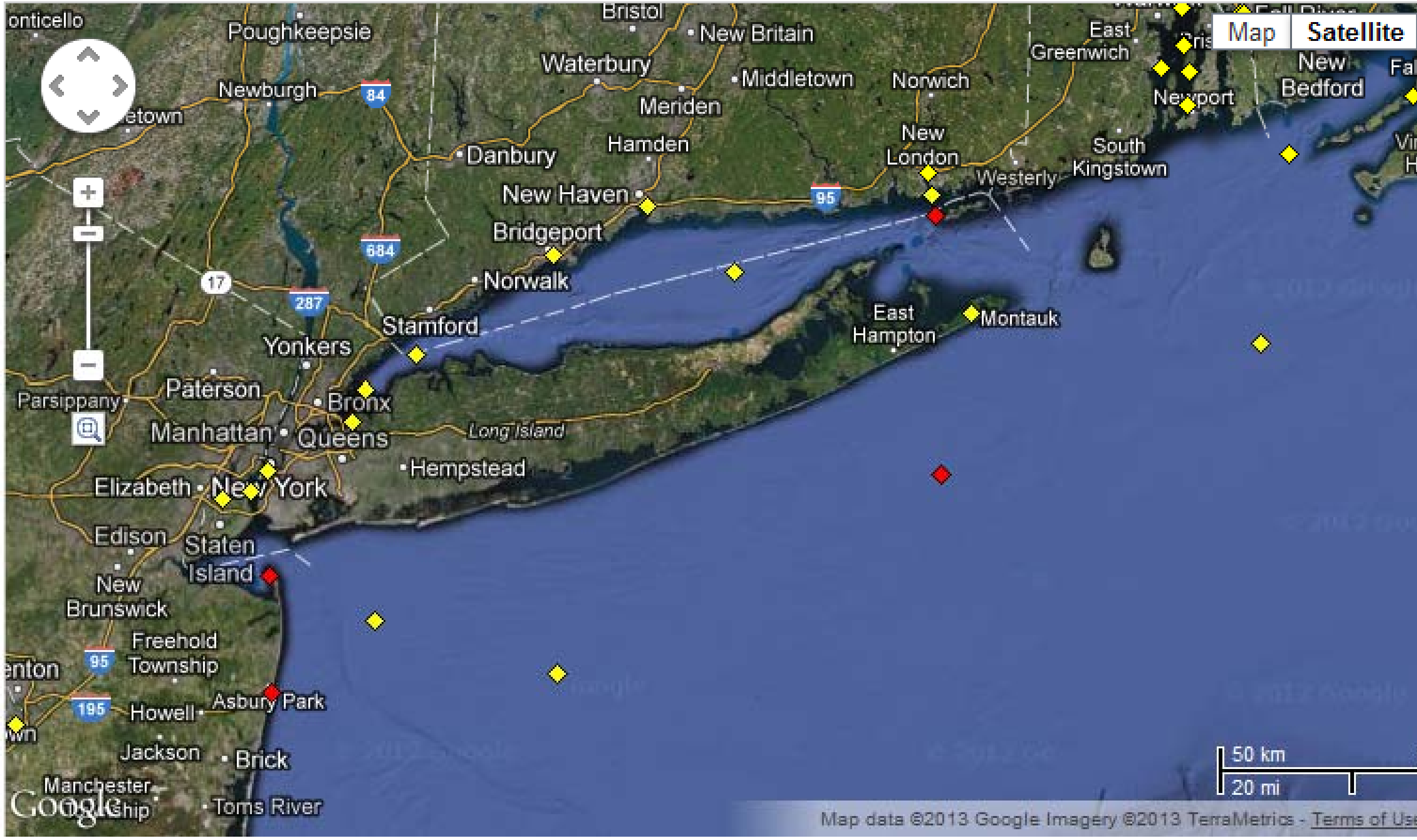
UCONN

1. Sea level at the edge of the shelf to force tides and the interior of the model domain to check it.
2. Wind over the ocean to force the circulation and waves.
3. Solar radiation to force temperature variations.
4. River discharge measurements to force variations in salinity.
5. Salinity and temperature measurements at boundaries to prescribe conditions and in the interior to check predictions.
6. Current measurements to evaluate the model predictions
7. Wave measurements to evaluate the model predictions
8. Bottom stress measurements to evaluate the model prediction

Sea Level

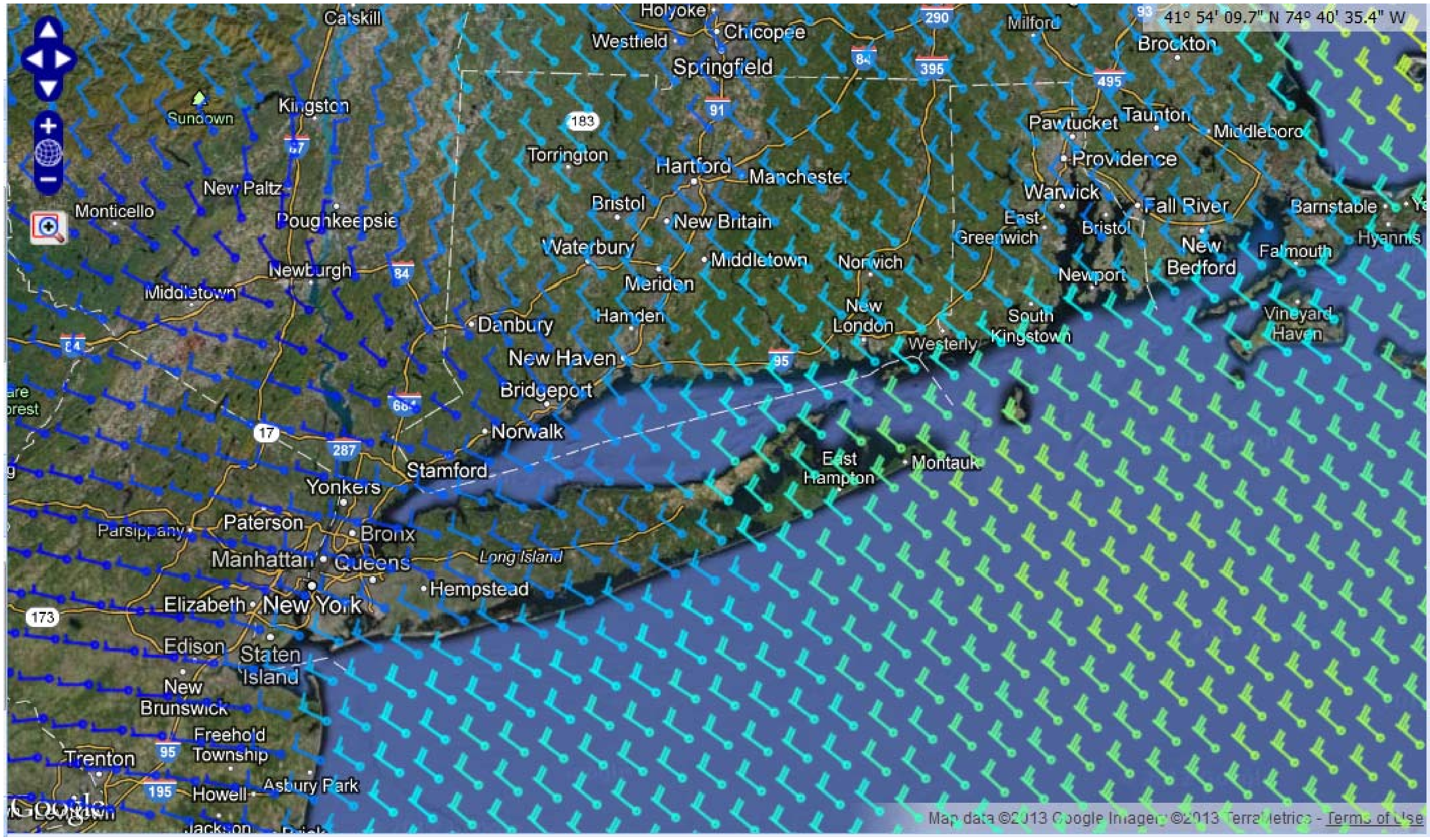
http://tidesandcurrents.noaa.gov/geo.shtml?location=Bridgeport

Wind-data



http://www.ndbc.noaa.gov/

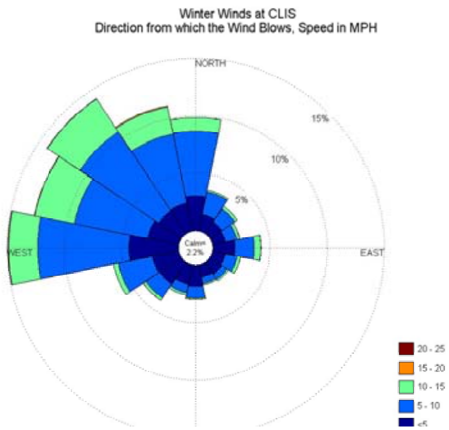
Wind- Analyses

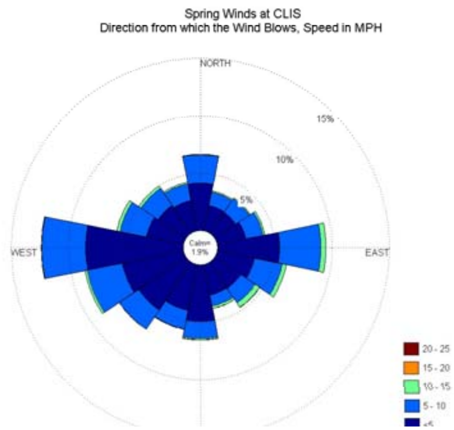


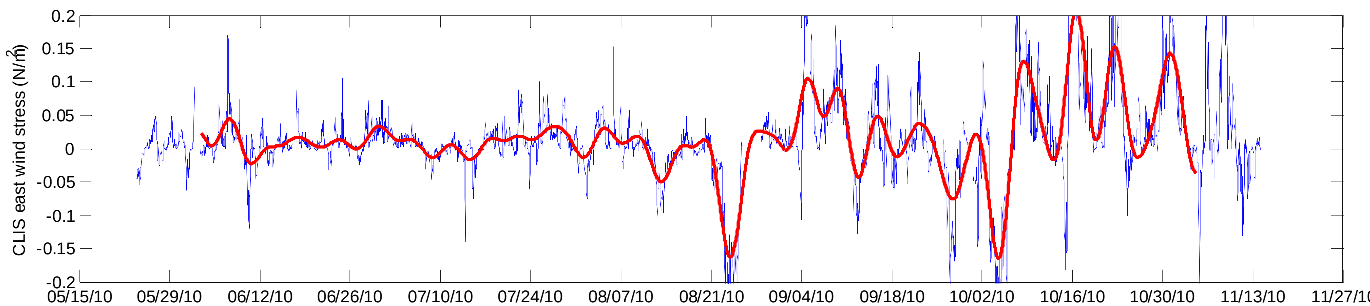
Forecast from http://www.nco.ncep.noaa.gov/pmb/nwprod/analysis/

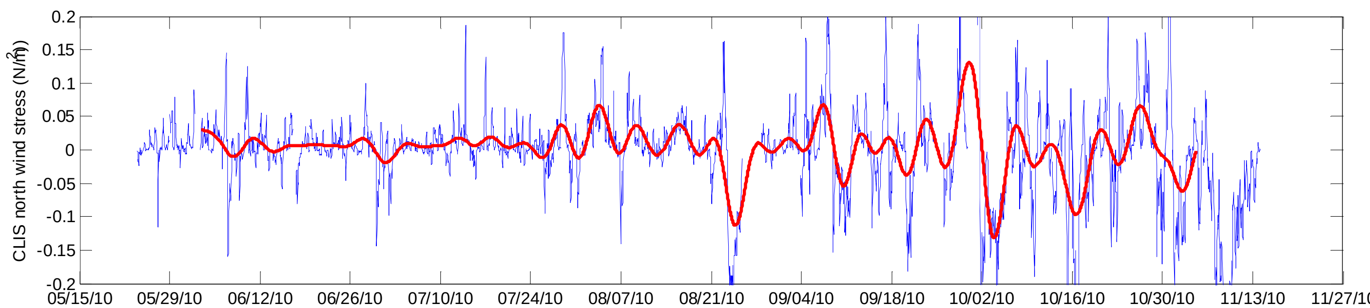
Viewer: http://maracoos.org

Seasonal variation in Wind









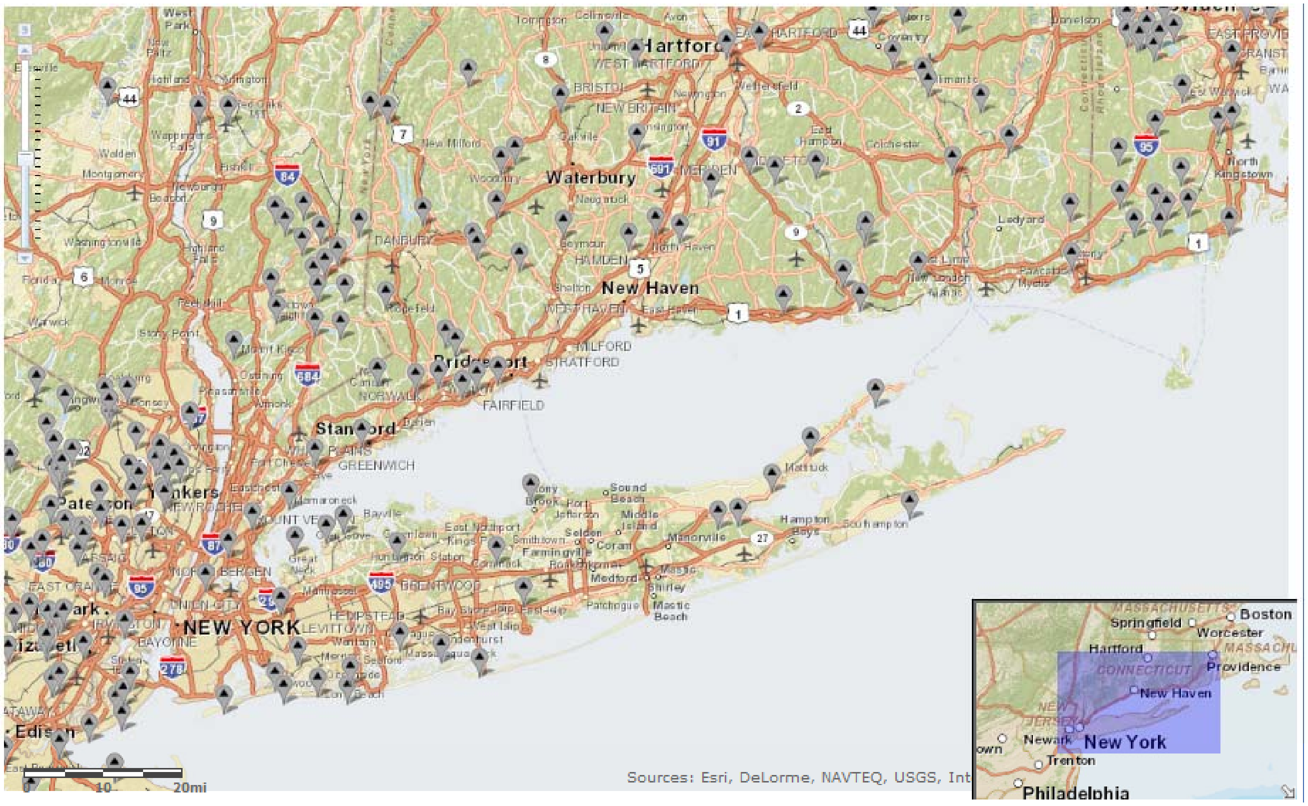
UCONN

Radiation

DATA

River Discharge (water level)

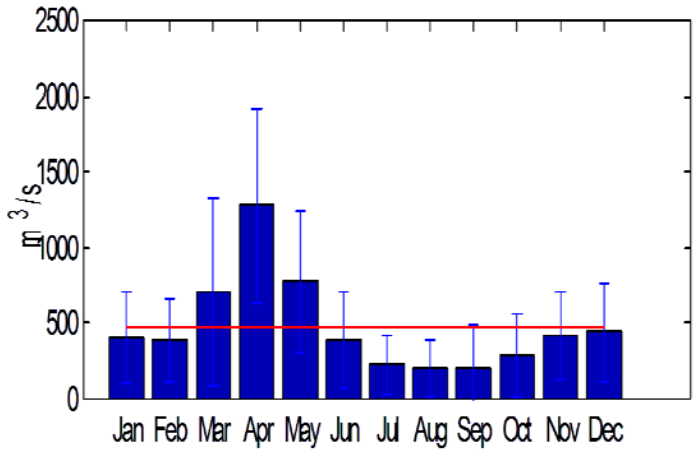
UCONN

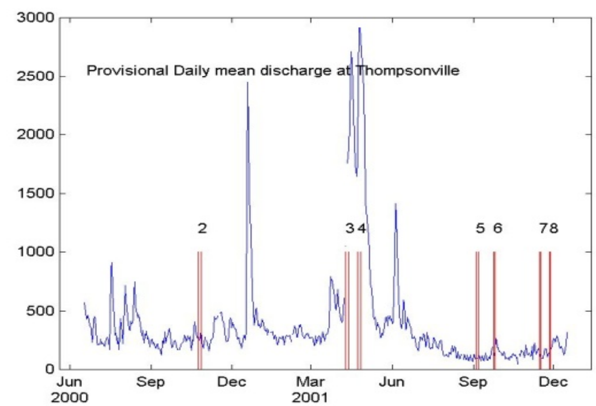


http://maps.waterdata.usgs.gov/mapper/index.html?state=ct

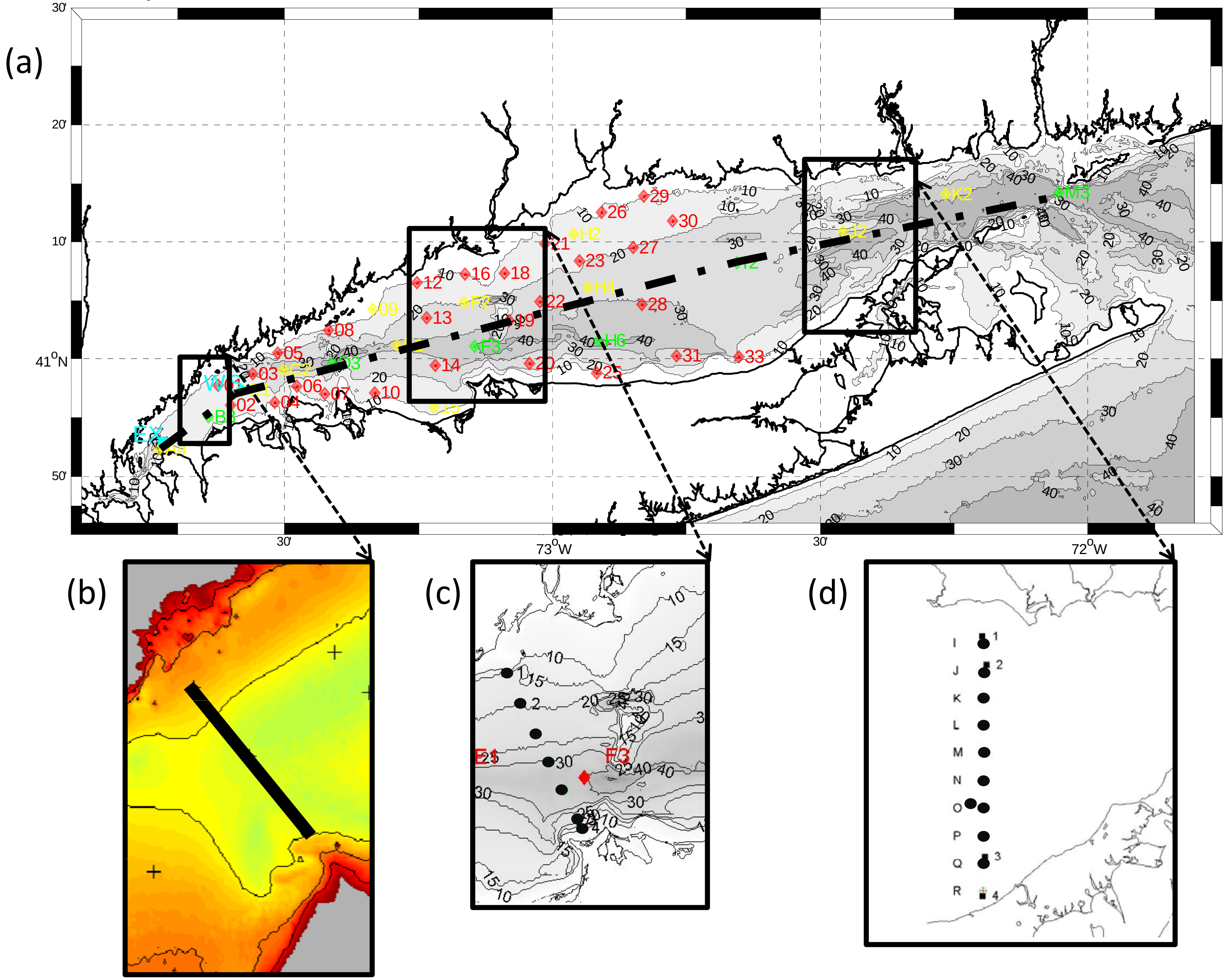
USGS maintains a large network if level/flow gauges. Most freshwater arrives through a few (~10) source and we will focus effort on these.

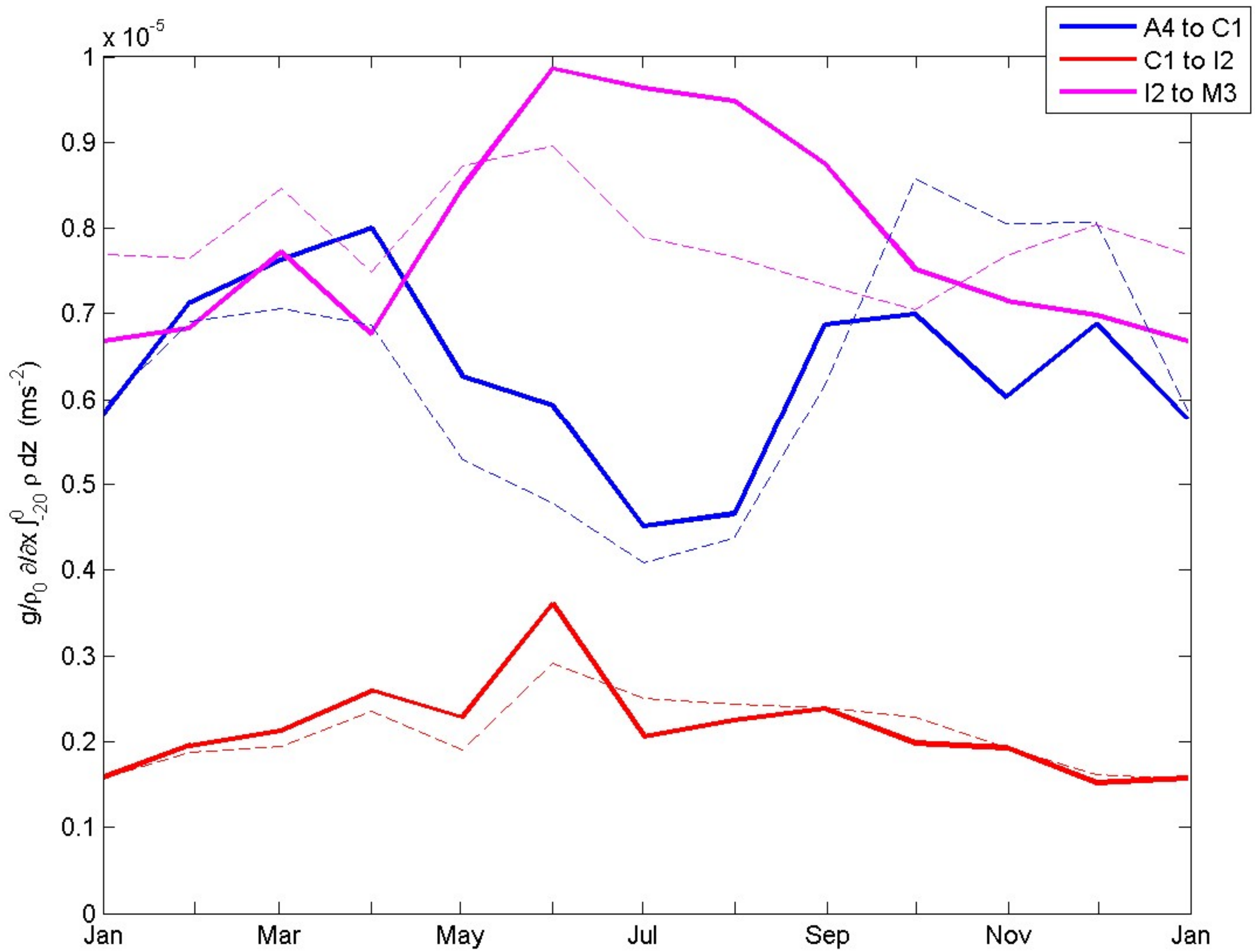
Seasonal Variability in River Discharge





Salinity & temperature
-ship Profiles from CTDEP. LISICOS & RESLIS

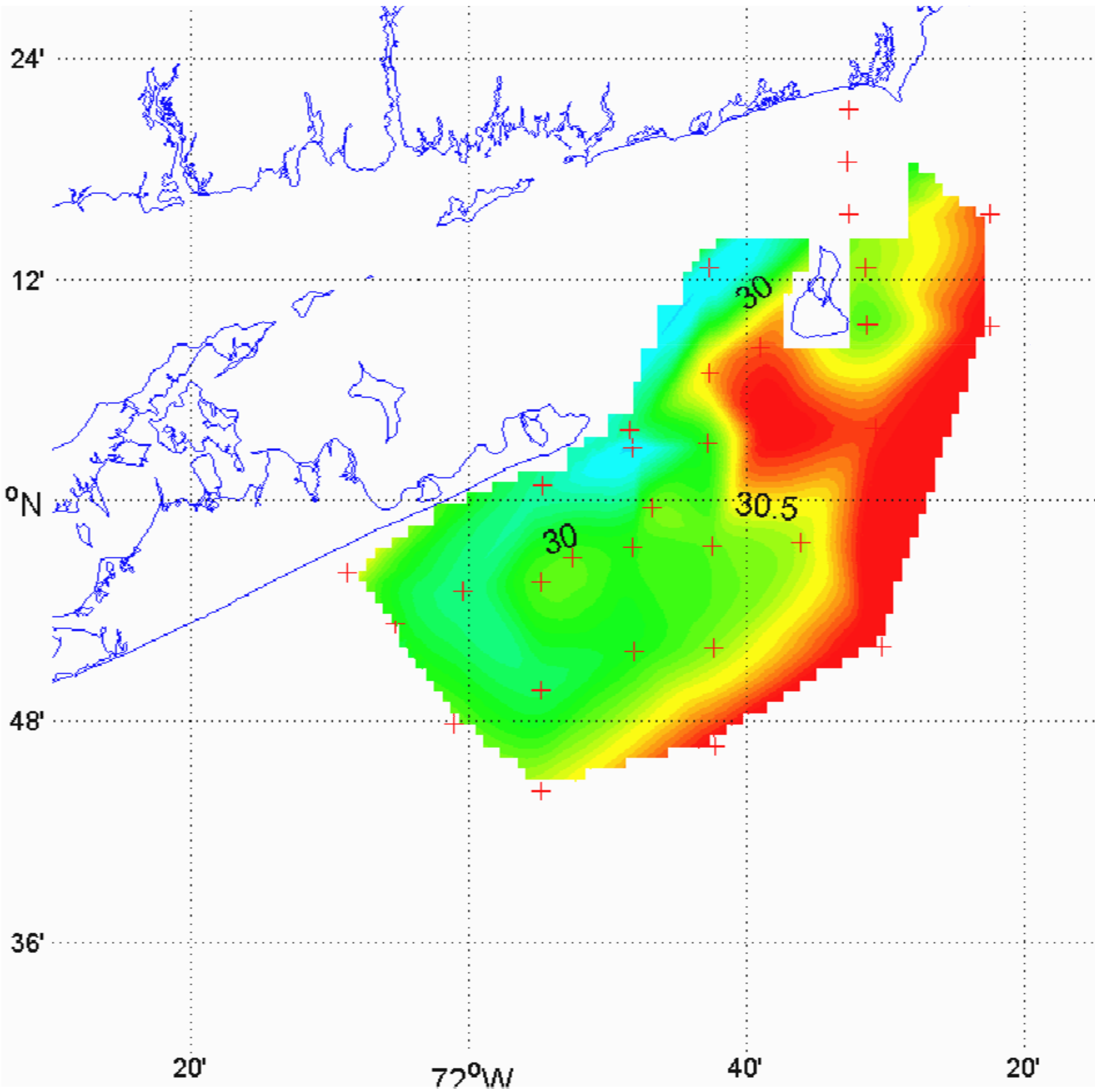



A4 to C1
C1 to I2
I2 to M3
x 10^-5
$g/\rho_0\ \partial/\partial x \int_{-20}^{0} \rho\ dz$ (ms^-2)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Jan
Mar
May
Jul
Sep
Nov
Jan

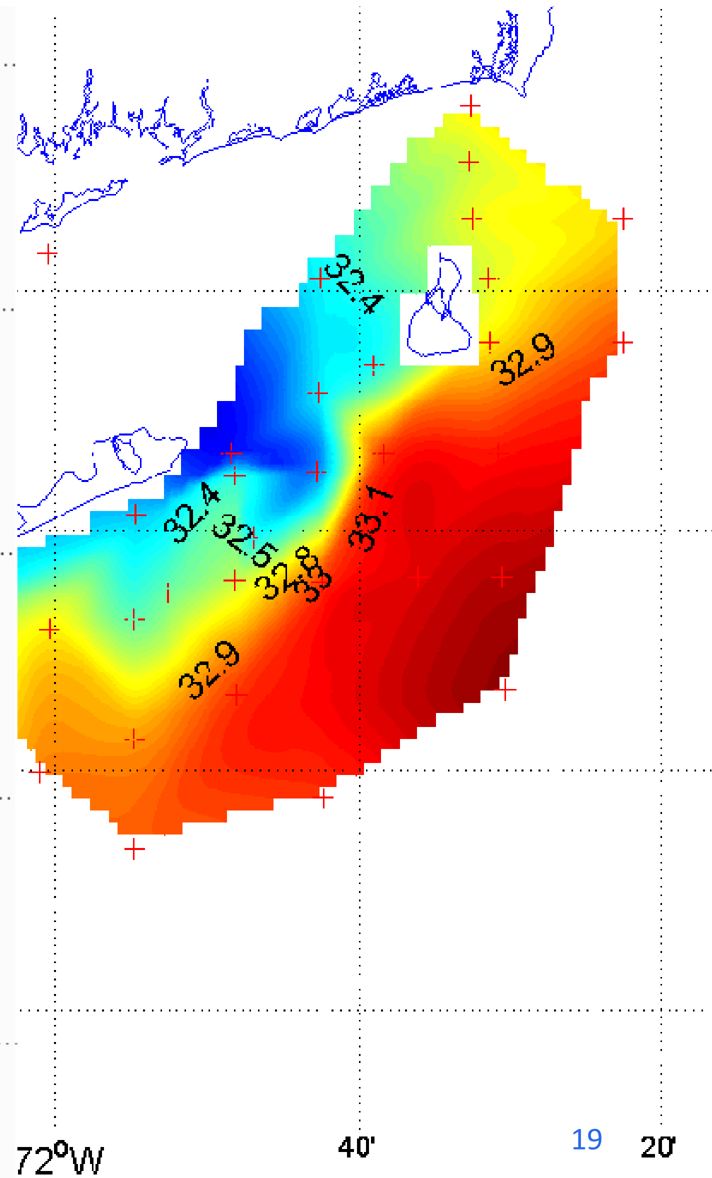
UCONN

Salinity & temperature
Ship Profiles – FRONT program

JNS4: April 23-25, 2001

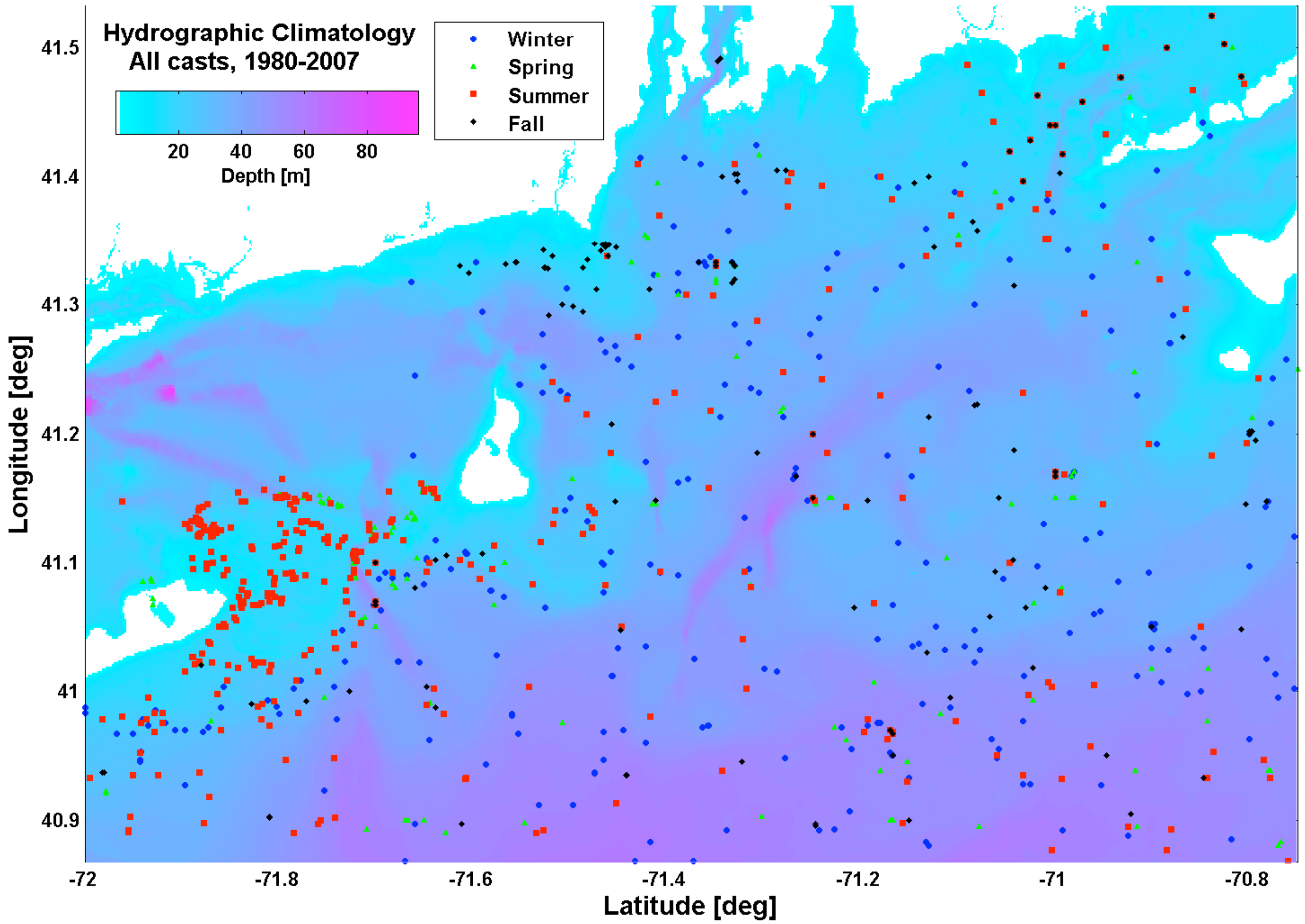


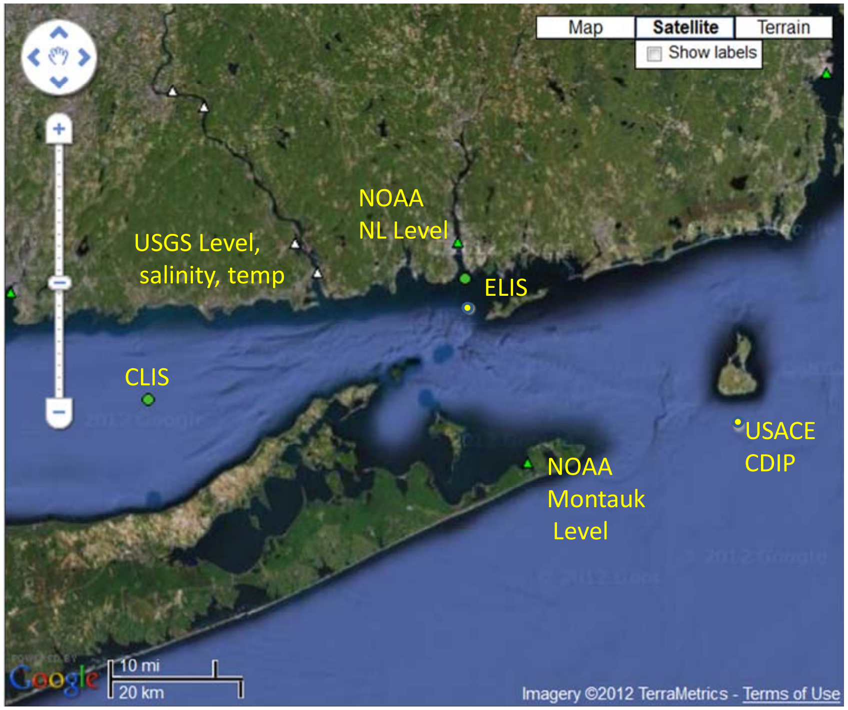
JNS8: Nov 26-27 2001



From Codiga and Ullman, 2011: Characterizing the Physical Oceanography of Coastal Waters Off Rhode Island, Part 1: Literature Review, Available Observations, and A Representative Model Simulation

UCONN





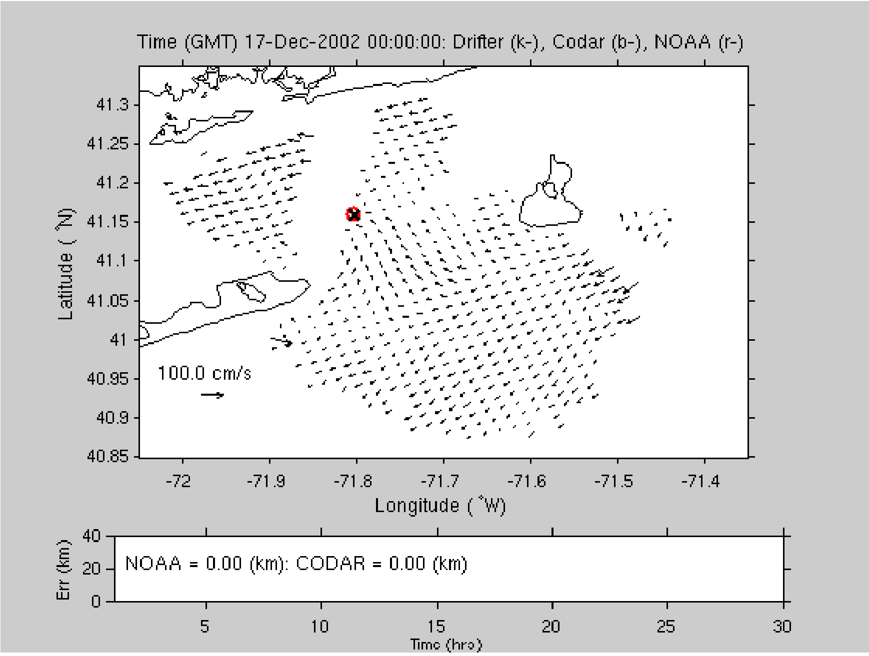
Salinity & temperature, from Buoys.

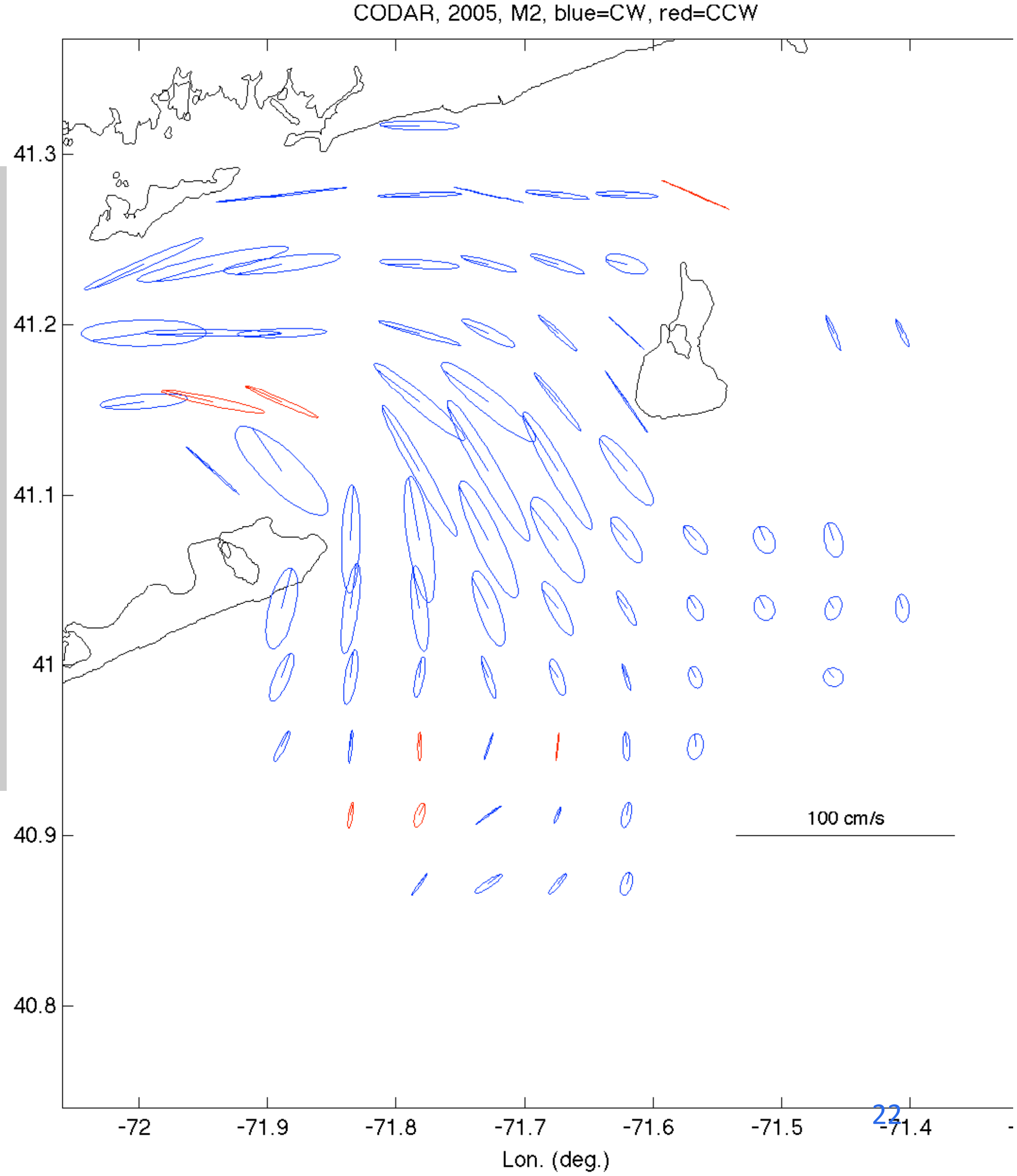
UCONN

S-salinity, **T**-temperature, **DO**-dissolved oxygen (membrane sensor), O-dissolved oxygen (optical sensor), CH-chlorophyll (RFU only)

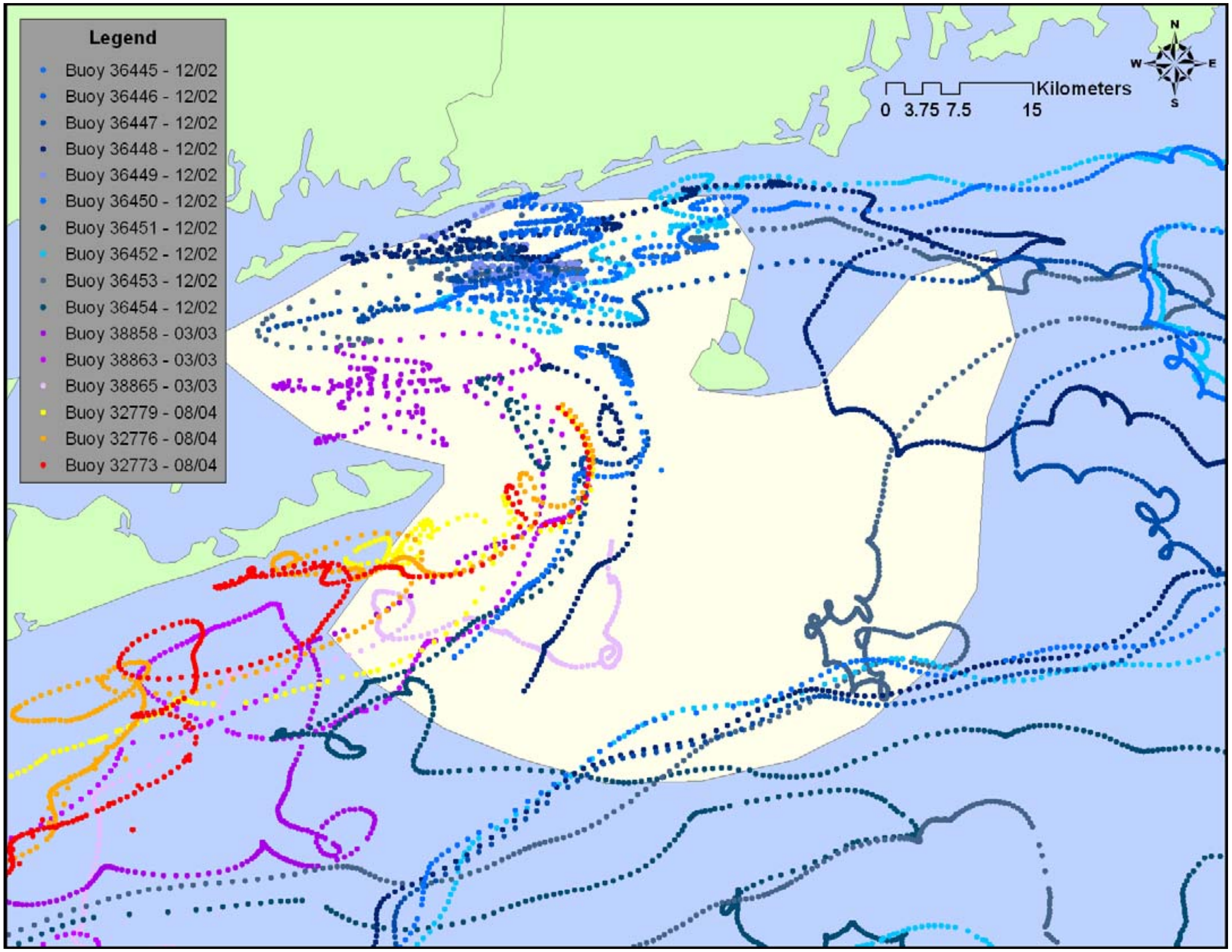
	CLIS Water			ELIS water		
Year	SFC	MID	BTM	SFC	MID	BTM
2012	S,T,CH,O	---	---		---	---
2011	S,T,CH,O	---	---		---	---
2010	S,T,CH,O	---	---	S,T,DO	---	---
2009	S,T,CH,O	---	---	S,T,DO	---	---
2008	S,T,DO	---	---	S,T,DO	---	---
2007	S,T,DO	---	---	S,T,DO	---	---
2006	S,T,DO	---	---	S,T,DO	---	---
2005	S,T,DO	S,T,DO	S,T,DO	S,T,DO	---	S,T,DO
2004	S,T,DO	S,T,DO	S,T,DO	S,T,DO	---	S,T,DO
2003	S,T,DO	S,T,DO	S,T,DO	S,T,DO	---	S,T,DO
2002	S,T,DO	S,T,DO	S,T,DO	S,T,DO	---	S,T,DO
2001	---	---	---	S,T,DO	---	S,T,DO
2000	---	---	---	S,T,DO	---	S,T,DO
1999	---	---	---	S,T,DO	---	---

Currents: HF RADAR Vectors in BIS 2002 - 2012





Currents: Lagrangian Drifter Data from BIS

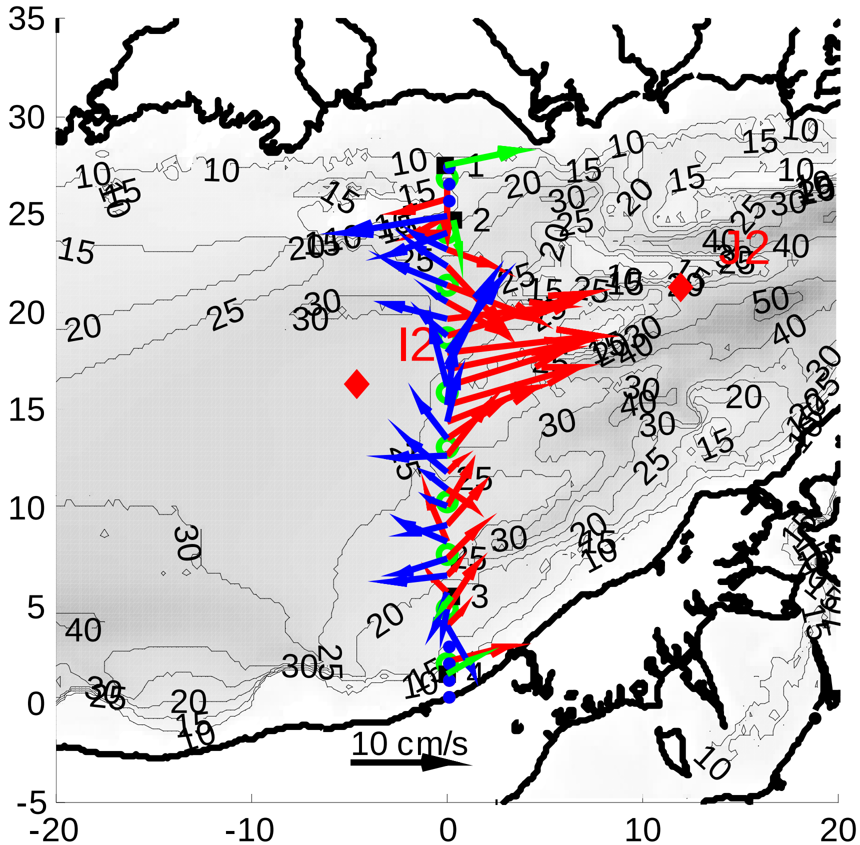


GPS Drifter Tracks
Dec 2002
March 2003
August 2004

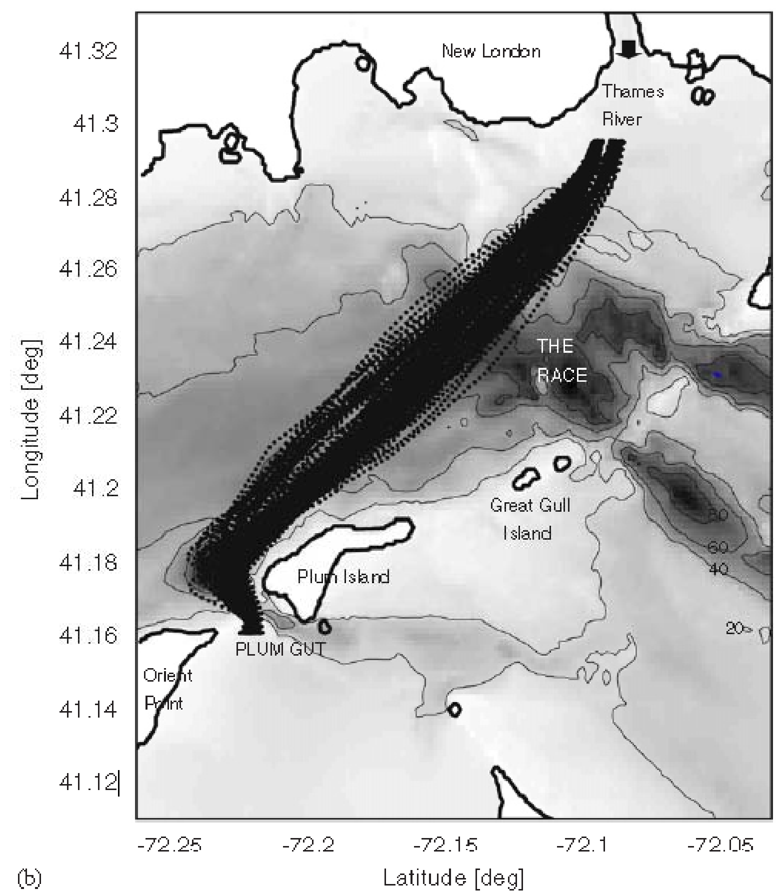
White region represents where CODAR observations are obtained more than 10% of the time

Currents from Ship Surveys: RESLIS and NL-OP Ferrry

From 'Donnell & Bohlen, 2003

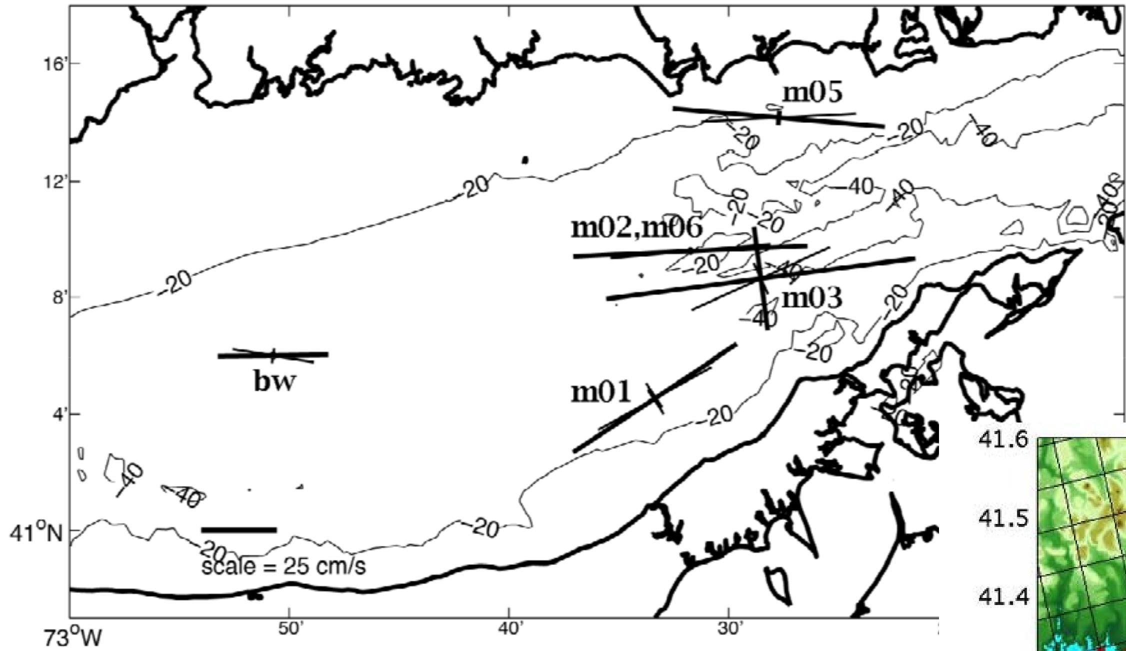


From Codiga & Aurin, (2007)

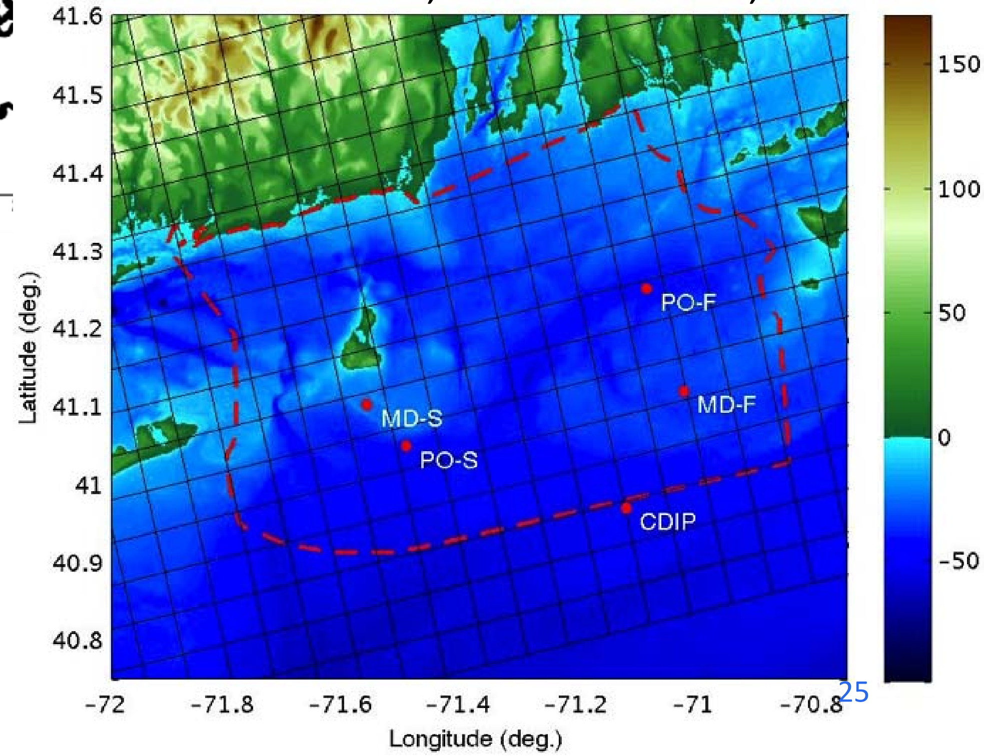


Currents from Moorings

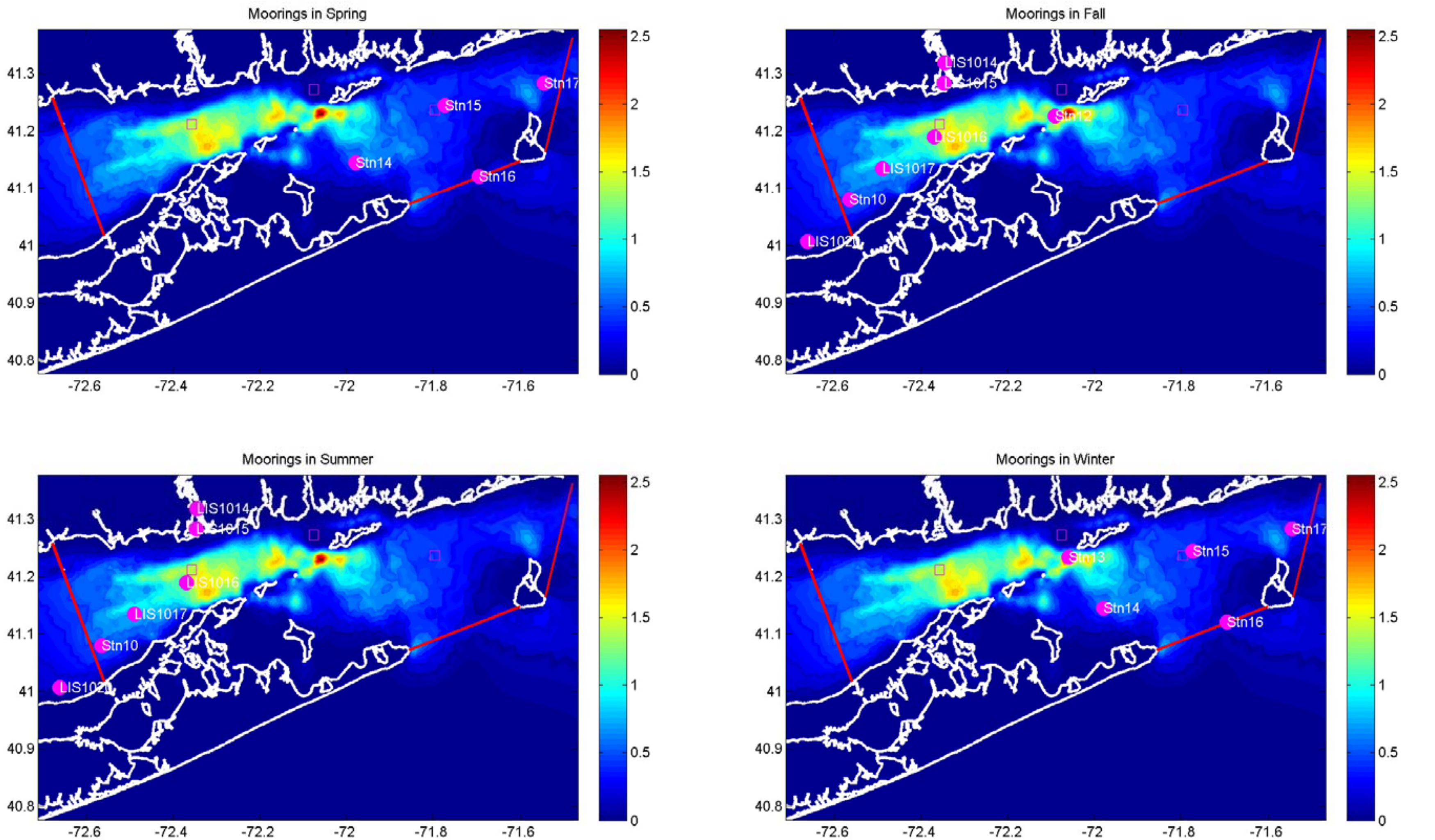
LISICOS, From Bennett et al. 2010



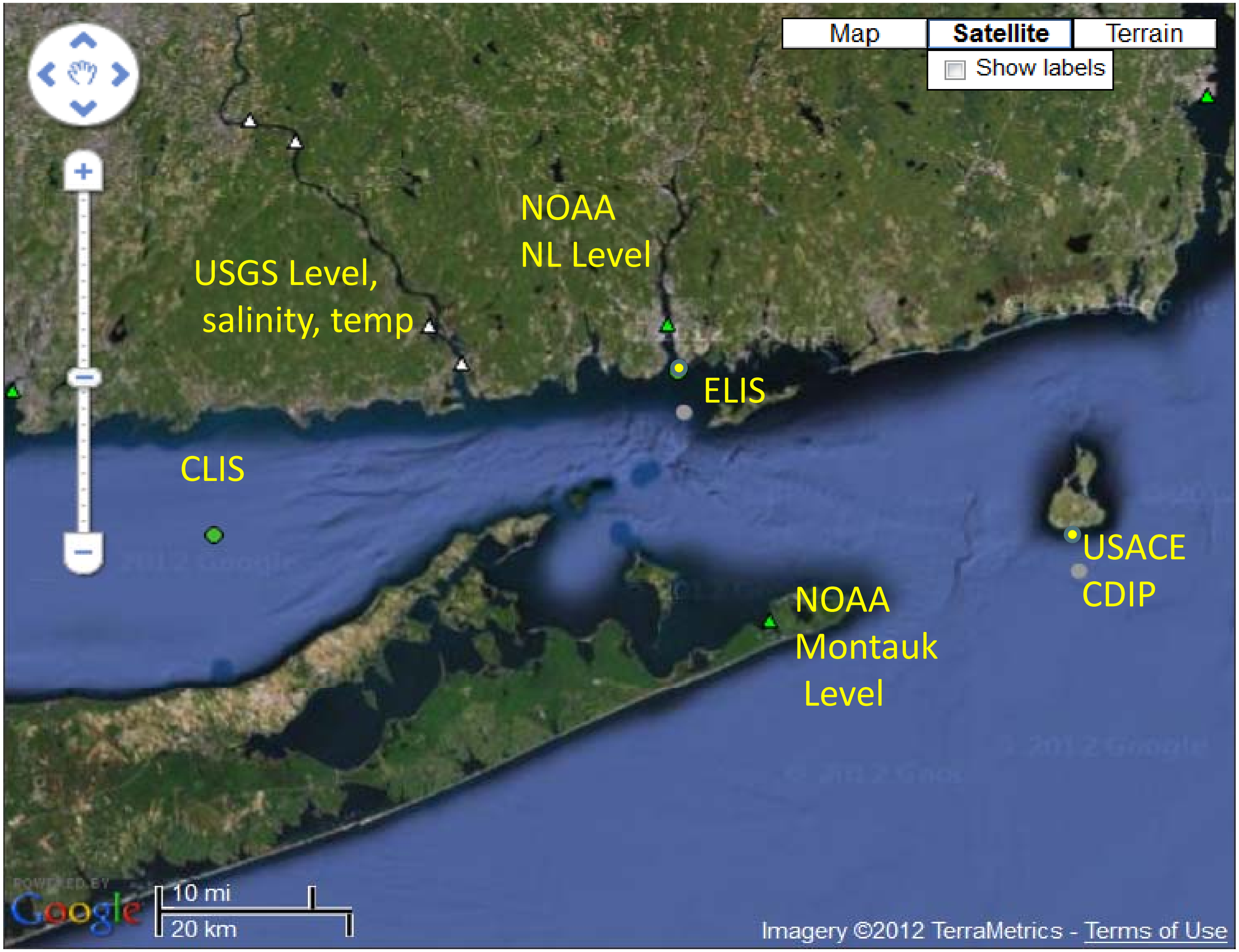
RI SAMP, From Grilli et al, 2011



NOAA Current Meters 1988-89 & 2010



Waves


Map
Satellite
Terrain
Show labels
NOAA
NL Level
USGS Level,
salinity, temp
ELIS
CLIS
USACE
CDIP
NOAA
Montauk
Level
10 mi
20 km
Imagery ©2012 TerraMetrics - Terms of Use

Bottom Stress – no measurements

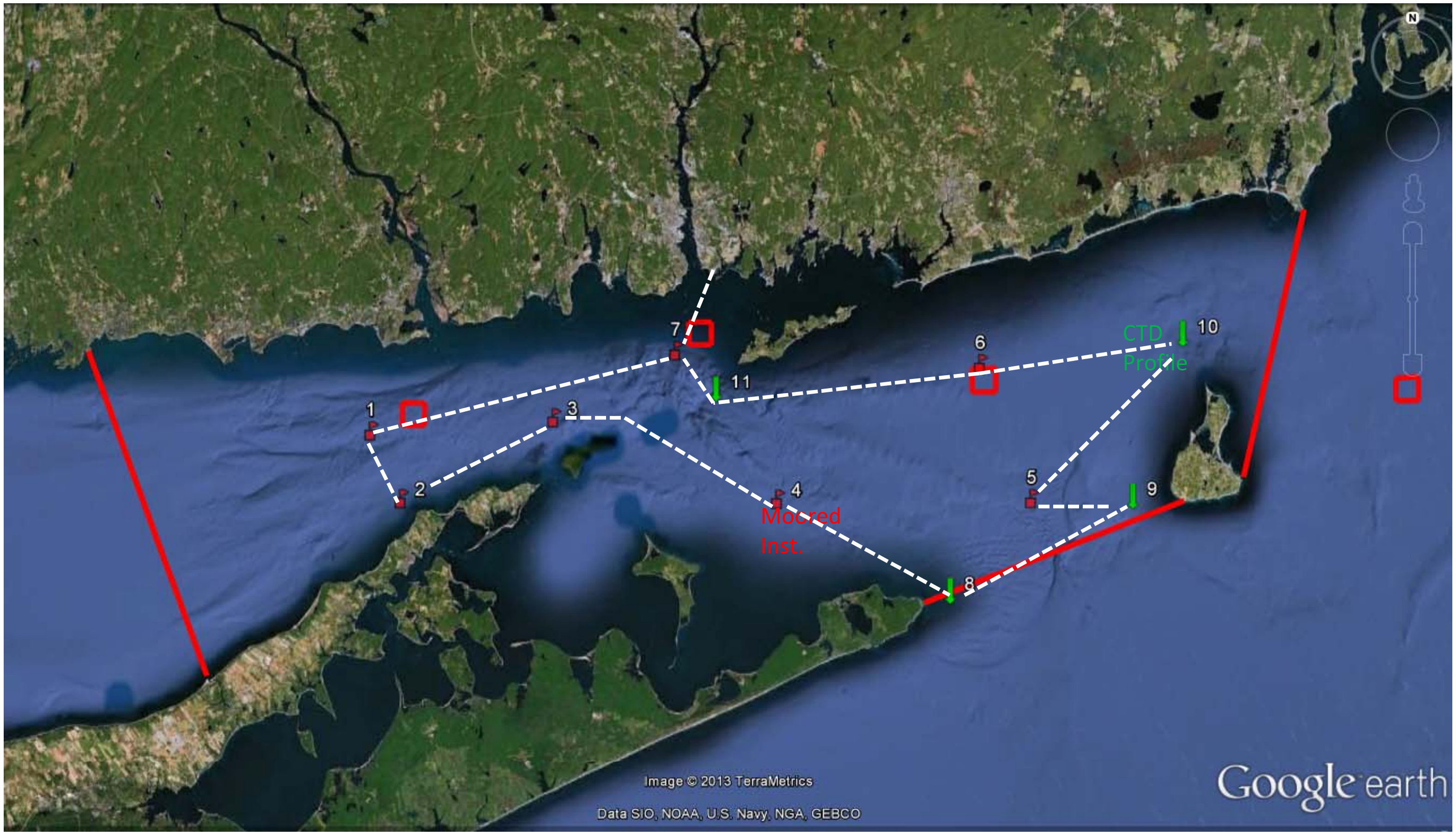
Summary

- No Stress
- Waves only at CLIS buoy ZSF
- No North-Sound variation in density in LIS
- No hydrography or current profile measurements in BS-RIS
- Seasonal variations in wind & wave and river discharge are substantial.

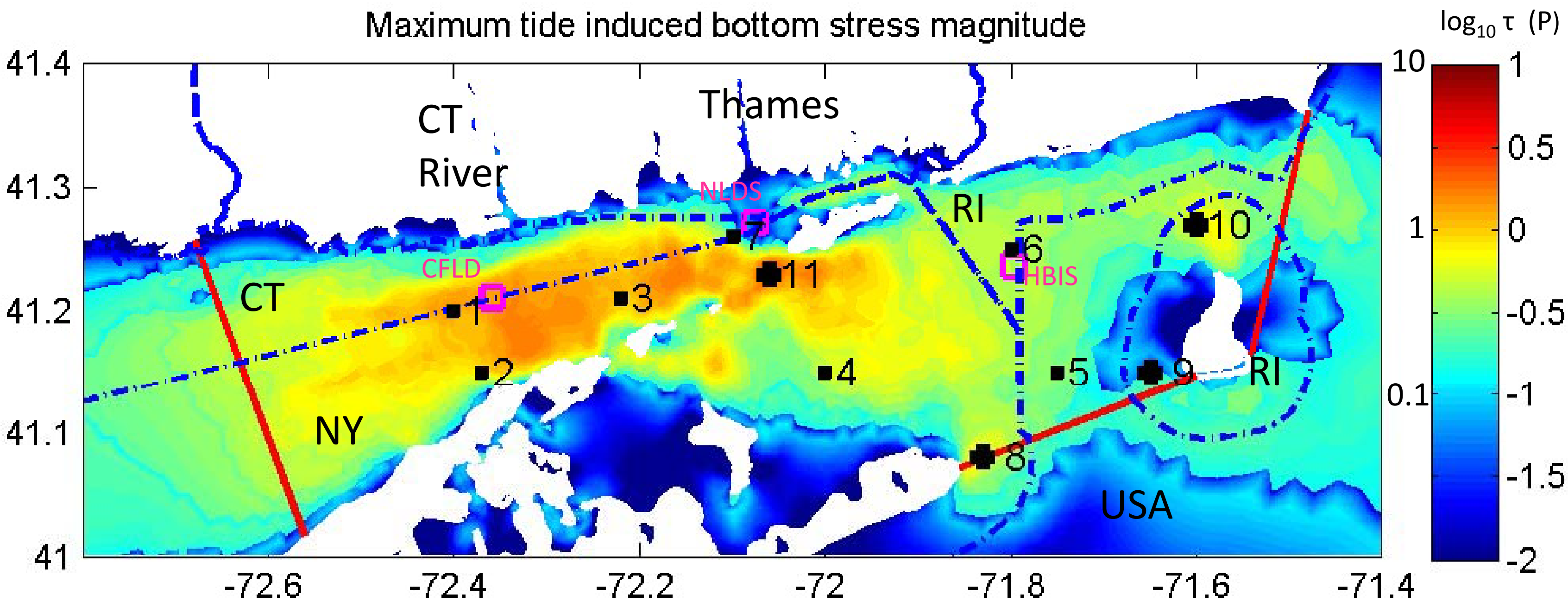
5. Proposal for Observations

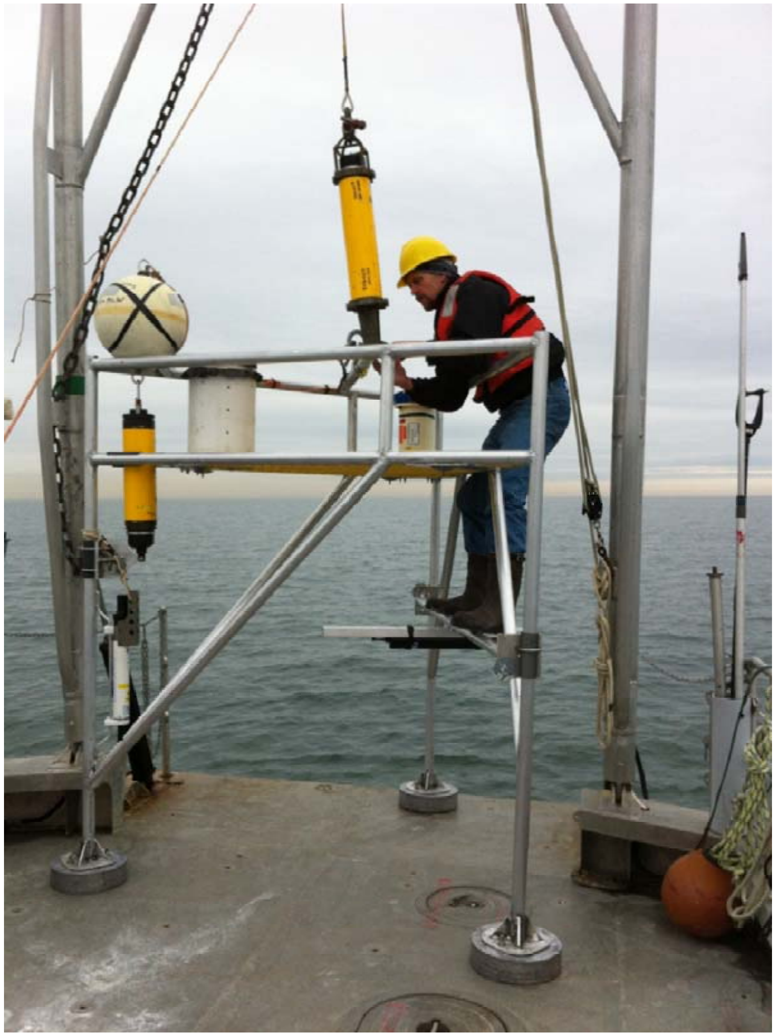
- October-March have frequent high winds from NE
- Wind forcing is less in May-Sept
- River Flow is high Mar-May and below average the rest of the year
- Need current, wave and stress measurement in a range of locations in each forcing regime.
  - Windy, low flow (Feb-March)
  - Windy High Flow (April-May)
  - Calm, below average flow (June-July)

Stations, ZSF and Disposal Sites



Stations, ZSF and Disposal Sites on preliminary stress estimate





Bottom Instrumentation

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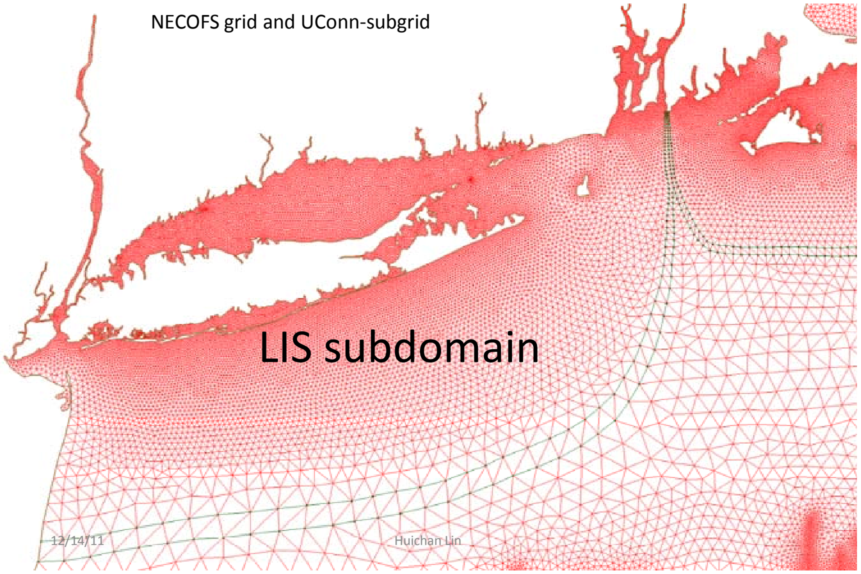
1. Upward looking RDI ADCP to measure profile (1-0.5m resolution) of current and wave statistics
2. Downward looking Nortek ADCP with 5cm resolution bottom to 75cm to measure stress and acoustic backscatter intensity
3. CTD to measure salinity, temperature and bottom pressure
4. Optical backscatter at .2 and .8 m to infer SPM concentrations

Profiling Instrumentation

1. Hull mounted ADCP to survey current patterns
2. CTD to measure salinity, temperature and pressure
3. OBS 3+, optical backscatter to infer SPM concentrations
4. Water sampler for SPM concentration calibrations
5. LISST-100 to measure particle size spectra
6. AC9 Optical absorption spectra for discriminating organic and inorganic material

UCONN

Model - FVCOM



Outer domain simulated by UMass Operationally through NOAA funding

This is a well established code and has been implemented in LIS already.

It is nested inside the UMass Dartmouth Regional Model.

FVCOM will be used to simulate the circulation and wave height and period distributions.

Challenges are to get hydrography variability correct in the ZSF domain and wave model implemented and assessed.

Integration of Model and Data

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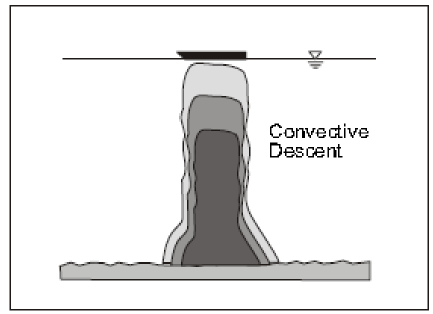
- Use observed winds and river flows to drive model and predict the salinity, temperature, current and waves, and bottom stress.
- Compare to the new and archived observations and evaluate FVCOM performance in LIS.
- Describe the uncertainties.
- Simulate the behavior under extreme events

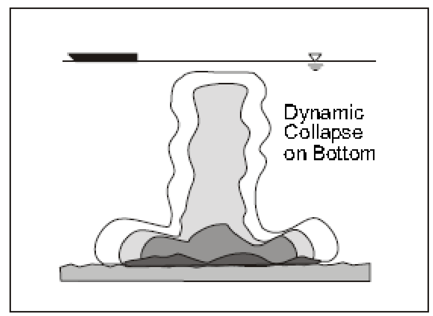
Analyses

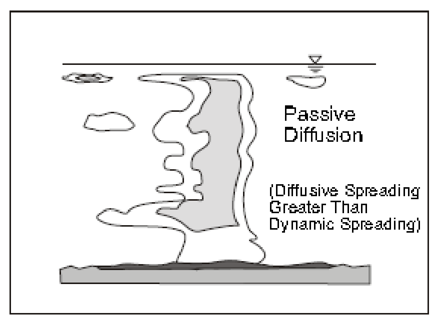
- Observations and model predictions will be used to describe the distributions of current and stress for site screening.
- When sites are being considered there reults will be used to drive the STFATE and LTFATE models.

Models STFATE- LTFATE

- STFATE – Near field transport during disposal operations
- FVCOM will provide currents, waves and shear for STFATE studies at sites under consideration







LTFATE

UCONN

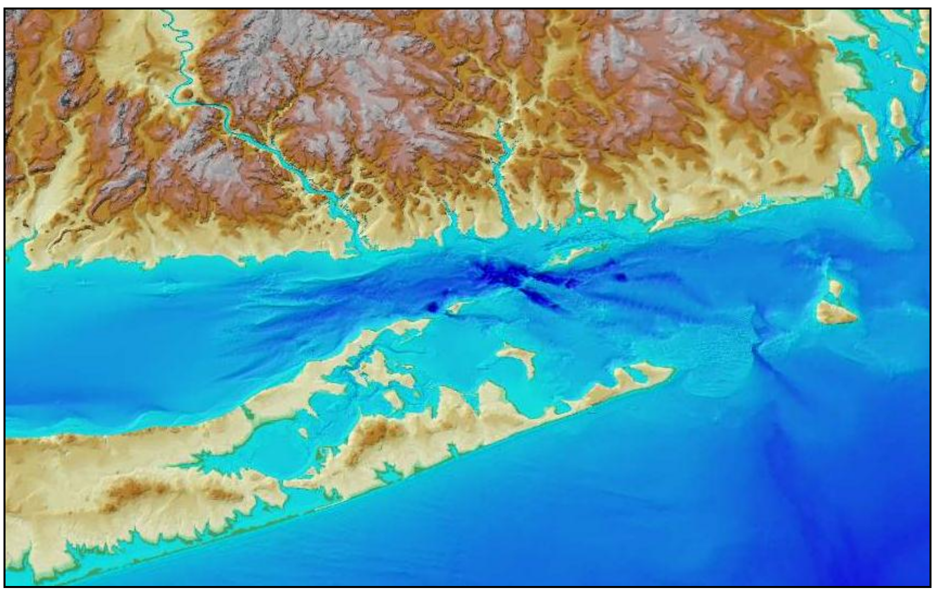
- LTFATE simulates the long term transport of resuspended materials from disposal mound. This requires regional current patterns, and waves forecasts from FVCOM. We will simulate the effects of historic events at alternative sites

Appendix A-7

MINUTES OF COOPERATING AGENCY GROUP MEETING 2

Supplemental Environmental Impact Statement for the Designation of Dredged Material Disposal Sites in Eastern Long Island Sound, Connecticut and New York

Minutes of Cooperating Agency Meeting 2



Prepared for: **United States Environmental Protection Agency**

Sponsored by: **Connecticut Department of Transportation**

Prepared by: **Louis Berger**

with support from

University of Connecticut

May 2013

Eastern Long Island Sound – Supplemental EIS

Cooperating Meeting 02 – Minutes

TOPIC:	**Site Screening and Physical Oceanography Study Update**	
DATE OF MTG:	May 20, 2013	
LOCATION:	Webinar	
TIME:	10:00am to 1:30pm	
PARTICIPANTS:	**Cooperating Agencies**	
	• Connecticut Department of Transportation CTDOT):	Joe Salvatore
	• US Environmental Protection Agency, Region 1:	Jeannie Brochi Mel Cote Alicia Grimaldi
	• Conn. Dept. of Energy and Environmental Protection:	George Wisker
	• US Army Corps of Engineers, New England District:	Cathy Rogers Mark Habel Michael Keegan Steven Wolf Tom Fredette
	• US Army Corps of Engineers, New York District:	Nancy Brighton
	• NOAA/National Marine Fisheries Service:	Diane Rusanowsky
	• US Environmental Protection Agency, Region 2:	Patricia Pechko
	• New York State Department of State:	Jim Leary Kari Gathen Jennifer Street Jessica Leary
	• New York State Dept. of Environmental Conservation:	Charles de Quillfeldt
	University of Connecticut (UConn) Project Team (under contract to CTDOT)	
	• University of Connecticut:	James O'Donnell Walter Bohlen
	• The Louis Berger Group, Inc. *(Prepared minutes):*	Bernward Hay Amy Atamian
SUBMITTED ON:	June 10, 2013	

The primary goal of the meeting was to provide (1) an update on the site screening, and (2) an update of the physical oceanographic study, in preparation for the Eastern Long Island Sound (ELIS) Supplemental Environmental Impact Statement (SEIS).

Introduction (Jeannie Brochi, USEPA)

Jeannie Brochi stated that this Cooperating Agency meeting was a follow-up to the first Cooperating Agency meeting, held on January 8, 2013. She further stated that two documents were provided for review and comment by Cooperating Agency members; the documents consisted of the minutes of the first meeting in January, and the report of the first two Public Scoping Meetings.

The objective of this meeting was to identify open water sites to be investigated further as potential disposal sites for dredged material. Ms. Brochi requested input on alternative sites that are being considered. Further, she asked for feedback on data collected so far and for additional relevant information and data that agency members knew about.

Updated Site Screening (Presentation by Bernward Hay, The Louis Berger Group, Inc.)

Bernward Hay noted that this presentation was an extension of the presentation provided by Battelle during the first Cooperating Agency meeting in January. The expanded presentation also included data and information provided by the Rhode Island Coastal Resources Management Council (RICRMC) and the NYSDOS. The presentation consisted of two parts:

- Presentation of screening layers based on an expanded data set
- Discussion of potential alternative sites

Key points of the presentation were as follows (his presentation is attached as Appendix B):

- *Slides 2 and 3 – Zone of Siting Feasibility (ZSF):* Consisting of the Eastern Long Island Sound (ELIS) and Block Island Sound (BIS).

- *Tier 1 criteria – Sediment stability/instability (Slides 7 to 13):* New information was added from a multibeam survey conducted by the National Oceanographic and Atmospheric Administration (NOAA) and the U.S. Geological Survey (USGS) over the last decade. This information is available for the much of the ELIS, and is currently being processed by the USGS for the BIS. It provides detailed information about the bottom topography of the area. Additional sediment texture information is also available for the entire ZSF from the USGS data base. Areas of high bottom stress (as a result of tidal currents and roughness of the substrate) generally coincide with areas of coarser sediment texture.

- *Tier 1 criteria – Areas of Conflicting Use (Slides 14 to 16):* The ZSF contains cable corridors, and installed cables. There are no pipelines in the open waters of the ZSF. Vessel density data *(Slide 15)* show the preferred commercial vessel traffic along the long axes of the ELIS and BIS. (The density grid was created using tracklines that were generated from the 2009 United States Automatic Identification System Database; the data grids represent only 339 days in 2009.) The recreational boating traffic occurs closer to shore, and between harbors in Connecticut and New York, as expected. The layer for Conservation Areas *(Slide 16)* is still being developed; additional data are being sought from cooperating agencies.

- *Tier 1 criteria – Biological Resources (Tier 17 to 18):* Shellfish bed data for Connecticut are based on currently available data in the CTDEEP database; data are still needed for Rhode Island and New York. Similarly, fishing area information so far is only available for Rhode Island. CTDEEP has been conducting trawl surveys in Long Island Sound. The data is being evaluated for appropriate incorporation into the screening layers.

- *Tier 2 criteria – Biological Resources (Slides 22 to 23):* Eelgrass bed information has been added for New York and Rhode Island. Frank Bohlen stated that the information for Connecticut requires refinement; he will provide a report with updated information. Shellfish zoning information is still being sought for New York. Jennifer Street stated that zoning information is available in New York State's database.

- *Tier 2 criterion – Active and Historic Sites (Slide 24):* The Marine Protection, Research, and Sanctuaries Act (MPRSA) states that, wherever feasible, USEPA will designate open-water dredged material disposal sites that have been used historically. There are two active and five historic sites within the ZSF in water depths greater than 18 m (60 feet). This depth was used in the Central/Western Long Island Sound EIS as a screening layer due to the potential resuspension of sediment in shallower waters.

- *Tier 2 criterion – Archaeological and Cultural Resources (Slide 25):* The data were obtained from NOAA's database and distinguish ship wrecks and 'obstructions'. There are four shipwrecks/obstructions located within the historic Clinton Harbor Disposal Site.

- *Alternative Energy (Slides 29 to 32):* The information was obtained from the U.S. Department of Energy. The 'Wind Power Classification' within the ZSF is comparatively low, indicating low wind energy potential relative to other offshore locations nearby. Similarly, the 'Wave Power Density' (a measure for wave energy potential) is low compared to the open ocean. The 'Kinetic Power Density' (a measure for tidal energy potential), is highest in the 'Race', but overall the tidal energy potential within the ZSF is small relative to the area south of Cape Cod.

- *Dredging needs for the Long Island Sound area for a 20-year horizon* (from DMMP, 2009, Dredging Needs report): The greatest dredging needs exist in Connecticut. Transportation costs increase with increasing travel distance from a dredging center. In addition, larger waves in Block Island Sound and the open ocean increase the environmental risk through 'short dumps'. MPRSA states that the USEPA will designate ocean dumping sites beyond the edge of the Continental shelf, wherever feasible. However, due to the broad shelf along the eastern United States, the distance from the Connecticut coast to the edge of the Continental Shelf (200 m depth) is approximately 80 nautical miles.

Comments made at the end of the first part:

- Charles deQuillfeldt stated that the Plum Gut and the Race are important recreational fishing areas. Bernward Hay stated that there is fishing data available through CTDEEP's trawl surveys that is currently being reviewed.

The second part of the presentation focused on potential alternative sites. Bernward Hay discussed key issues for consideration in the selection *(Slide 33)*, and presented an overview of eleven potential sites selected based on the initial screening. These sites include the following:

Eastern Long Island Sound (Slide 34):

1. Cornfield Shoal Disposal Site *(active site)*
2. Six Mile Reef Disposal Site *(historic site)*
3. Clinton Harbor Disposal Site *(historic site)*
4. Orient Point Disposal Site *(historic site)*
5. Niantic Bay Disposal Site *(historic site)*
6. New London Disposal Site *(active site)*

Block Island Sound (Slide 35):

7. Deep Hole south of Fishers Island – West *(new site)*

8. Deep Hole south of Fishers Island – East *(new site)*
9. Deep Hole south of Fishers Island – Center *(new site)*
10. Block Island Sound Disposal Site *(historic site)*
11. Area north of Montauk *(new site)*

Bernward Hay then discussed each site in more detail, based on relevant available information *(Slides 36 to 60).* (Information on bathymetry, sediment texture, key morphological features, etc. is included on the slides.) A preliminary assessment for each site included identifying relative advantages (+), relative disadvantages (-), neutral (o), and missing data (?). He concluded with a slide that summarized these factors *(Slide 61).* This slide was designed to start the discussion for comparing sites.

Comments after the presentation consisted of the following:

- Kari Garhen stated that she appreciated the incremental process of going through the data, but thought that it was premature to identify any site on such limited data. She was concerned that there appeared to be a conclusion made about biological habitats in the area without recognizing other activities or available data such as toxicity levels, or cumulative impacts from previous dumping. She noted that the New London Disposal Site was given a' plus' for biological resources [on the summary table - *Slide 61*], although there was no acknowledgement of the historical use of this site and the level of toxicity present there. She also questioned the ability to draw any conclusion on mound stability in the absence of any recognition that there may be disagreement historically as to whether or not material that has been disposed at the site can still be accounted for, located, and documented to this date. Therefore, she questioned the neutrality symbol [o] used for historical disposal sites, as she believed the conclusion was premature. She also questioned the perception that open water disposal sites (OWDS) needed to be in close proximity to dredging centers, and asked how this compared to other USEPA Regions nationwide, and asked further if there was an expectation that OWDS needed to be within 5 nautical miles (nm) from dredging centers. She believed that distance to dredging centers should not be on the summary table without having a better understanding of why this should be a factor for site selection. She further stated that she was not sure how conclusions regarding biological data were made. Specifically, New York has Significant Coastal Fish and Wildlife Habitats, and none of them were included on the maps, which she thought was needed considering that sediment moves around and could impact such areas. The web link for this information was provided by Jennifer Street.

- Jean Brochi responded that the current information was based on best available information. Existing data is being reviewed and incorporated, so that additional data needed for this process can be identified.

- Diane Rusanowsky stated the Northeast Region National Marine Fisheries Service is preparing a GIS-based vehicle for expressing Essential Fish Habitat (EFH) that might be helpful. The contact is David Stevenson. She noted that the data in nearshore areas is not as detailed. The U.S. Fish and Wildlife Service (USFWS) has a similar habitat designation program that was prepared for certain New England and Rhode Island coastal areas that could be added as overlays. Peter Foster is working on a project that consists of a review of a number of different uses and current data (including fish survey data) for NY and CT; he is putting this information into GIS format.

- Charles deQuillfeldt stated that the Long Island Sound Study (LISS) has various stewardship sites identified both along the CT and NY shoreline (including Plum Island and a number of other sites). There might be GIS maps available to be obtained from the LISS website.

- Mel Cote, in response to Kari Garhen's comments, stated that there was no set distance between dredging centers and disposal sites. There is a wide range nationwide (from a few miles up to perhaps

50 miles), but the vast majority of disposal sites are within 5 to 10 miles from shore. He will provide a link with the coastal disposal sites in all USEPA regions. It shows that Region 1 has fewer disposal sites than most regions and they are spread further apart, but, overall, Region 1 is not an anomaly.

- Kari Garhen asked if these sites were actively used. Mel Cote responded that they vary considerably in term of use.

- Bernward Hay asked if any one of the eleven identified site for the ELIS SEIS could be taken of the list at this time for specific environmental or other reasons. Charles deQuillfeldt stated that the Orient Point and Montauk sites will be of concern because of fishing, recreational boating, and reaction from the public to those sites. Mel Cote noted that most dredged material disposal activity occurs between October and March, thus avoiding the season of heavy recreational use.

- Jean Brochi stated that the preliminary summary information will be revisited, other data will be reviewed, and data gaps will be identified. It will include habitat and biological resources, fisheries, as well as archaeological and cultural resources. The USEPA will reach out to tribes to identify culturally significant areas. Another issue will be mound stability; physical oceanographic data will be available in about a month for preliminary review. Ms. Brochi stated further that the SEIS process pertains to the open-water portion of the project area; the dredging need was established by the DMMP project. The USEPA will also review a no-action alternative and other alternatives. She further stated that the slides of today's presentations will be made available in pdf format. She asked for comments and recommendations.

Break for lunch between approximately 12:00pm and 12:30pm.

After lunch, Jim O'Donnell presented an update of his physical oceanography study "Observation and Model Plan and Status (Appendix C). The overview included the scientific background, modeling approach, and field observation plan.

The meeting was adjourned at approximately 1:30pm.

Appendix A: Invitation and Agenda
(Jeannie Brochi, USEPA)

From: Brochi, Jean [mailto:Brochi.Jean@epa.gov]
Sent: Thursday, May 16, 2013 4:31 PM
To: Jennifer.Street@dos.ny.gov; dgoulet@crmc.ri.gov; jwillis@crmc.ri.gov; george.wisker@ct.gov; joseph.salvatore@ct.gov; mark.l.habel@usace.army.mil; Nancy.J.Brighton@usace.army.mil; Catherine.J.Rogers@usace.army.mil; Lou.chiarella@NOAA.gov; diane.rusanowsky@noaa.gov; dxmcreyn@gw.dec.state.ny.us; Benjamin.J.Duarte@uscg.mil
Cc: Pechko, Patricia; Pabst, Douglas; Grimaldi, Alicia; Pechko, Patricia; Pabst, Douglas; Cote, Mel; Hamjian, Lynne; Grimaldi, Alicia; Hay, Bernward; O'donnell, James (james.odonnell@uconn.edu); Atamian, Amy; Bohlen, Walter (walter.bohlen@uconn.edu); Jennifer.Street@dos.ny.gov; dgoulet@crmc.ri.gov; jwillis@crmc.ri.gov; george.wisker@ct.gov; joseph.salvatore@ct.gov; mark.l.habel@usace.army.mil; Herter, Jeff (DOS); Nancy.J.Brighton@usace.army.mil; Catherine.J.Rogers@usace.army.mil; Lou.chiarella@NOAA.gov; diane.rusanowsky@noaa.gov; dxmcreyn@gw.dec.state.ny.us; Benjamin.J.Duarte@uscg.mil
Subject: FW: MONDAY MAY 20th 10-2 WEBINAR LIS SEIS Cooperating Agency Meeting #2

Hello,

On Monday, May 20th, EPA will host the 2nd Cooperating Agency meeting for the LIS SEIS.
The agenda and some handouts are attached to this email. I have also attached the public scoping report document for your review. Please provide comments by June3rd.

The objective of the meeting is to discuss the site screening process, review available data in GIS, and recommend open water locations for further investigation. Thank you for your assistance.

You may join the webinar by clicking on the following link:

Invited By:	**Jean Brochi (Brochi.Jean@epa.gov)**
Where:	**https://epa.connectsolutions.com/r4r7l6bifb3/**
When:	**05/20/2013 9:45 AM - 2:45 PM**
Time Zone:	**(GMT-05:00) Eastern Time (US and Canada)**

The call in number is:

```
     with a start date and time of 05/20/2013 10:00 AM
     and a ending date and time of 05/20/2013 02:30 PM

Dial-In Number:     (617) 918-2823

Password:            355003
```

May 20, 2013 – CT DOT, WEBINAR (Adobe Connect)

ELIS SEIS Cooperating Agency Meeting #2

Agenda

10:00 am	Introductions/Objectives Jean Brochi, EPA
10:15 am	Physical Oceanographic Study Jim O'Donnell, UCONN
10:30 am	ELIS SEIS Site Screening Bernward Hay, LBG
12:00 pm	Break
12: 30 pm	ELIS SEIS Site Screening (continued)
1:00 pm	Discussion
2:00 pm	Wrap Up/Next Steps (Factsheet, Public Scoping Report, Public Scoping Meetings)

Appendix B: Presentation - Site Screening

(Bernward Hay, Louis Berger Group, Inc.)

Eastern Long Island Sound Supplemental EIS (SEIS):

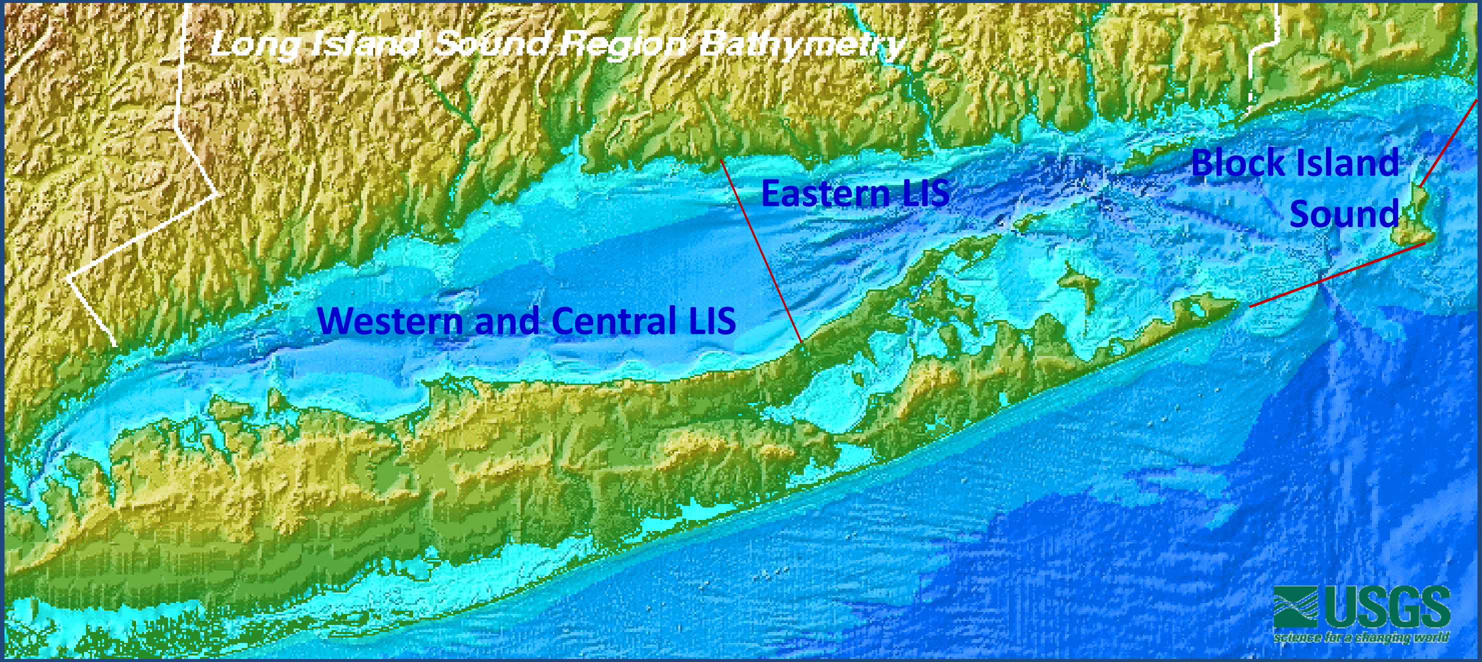
GIS Screening for Potential Alternative Dredged Material Disposal Sites

Cooperating Agency Meeting 2

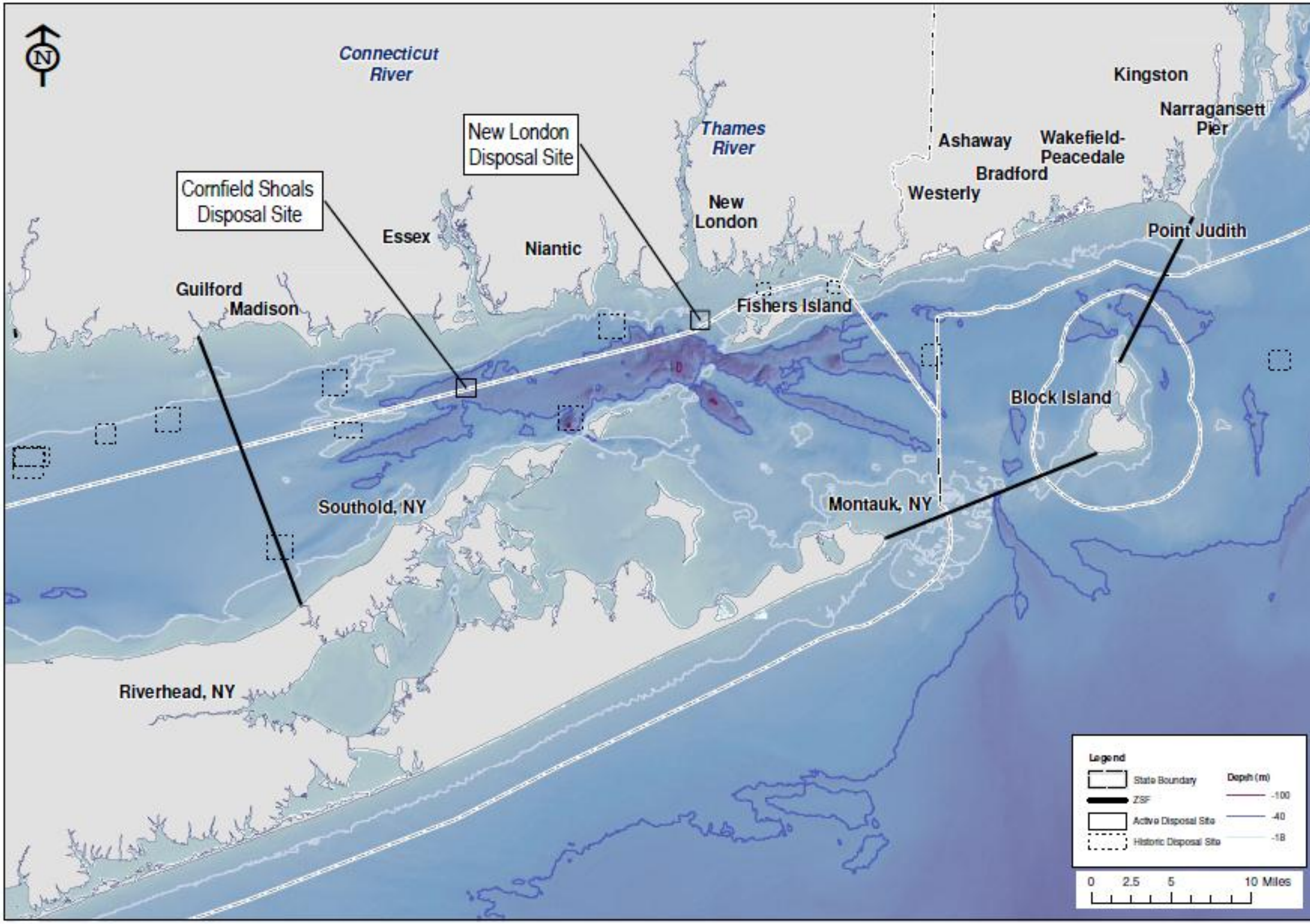
May 20, 2013

Zone of Siting Feasibility

- SEIS will address the eastern region of Long Island Sound, and Block Island Sound



Zone of Siting Feasibility



Screening Objective

Identify….

- Areas within the ZSF acceptable for locating an open water disposal site designated under the Ocean Dumping Regulations

- Specific alternative disposal site(s) within the acceptable area(s) for further evaluation in the SEIS

General Approach to Screening

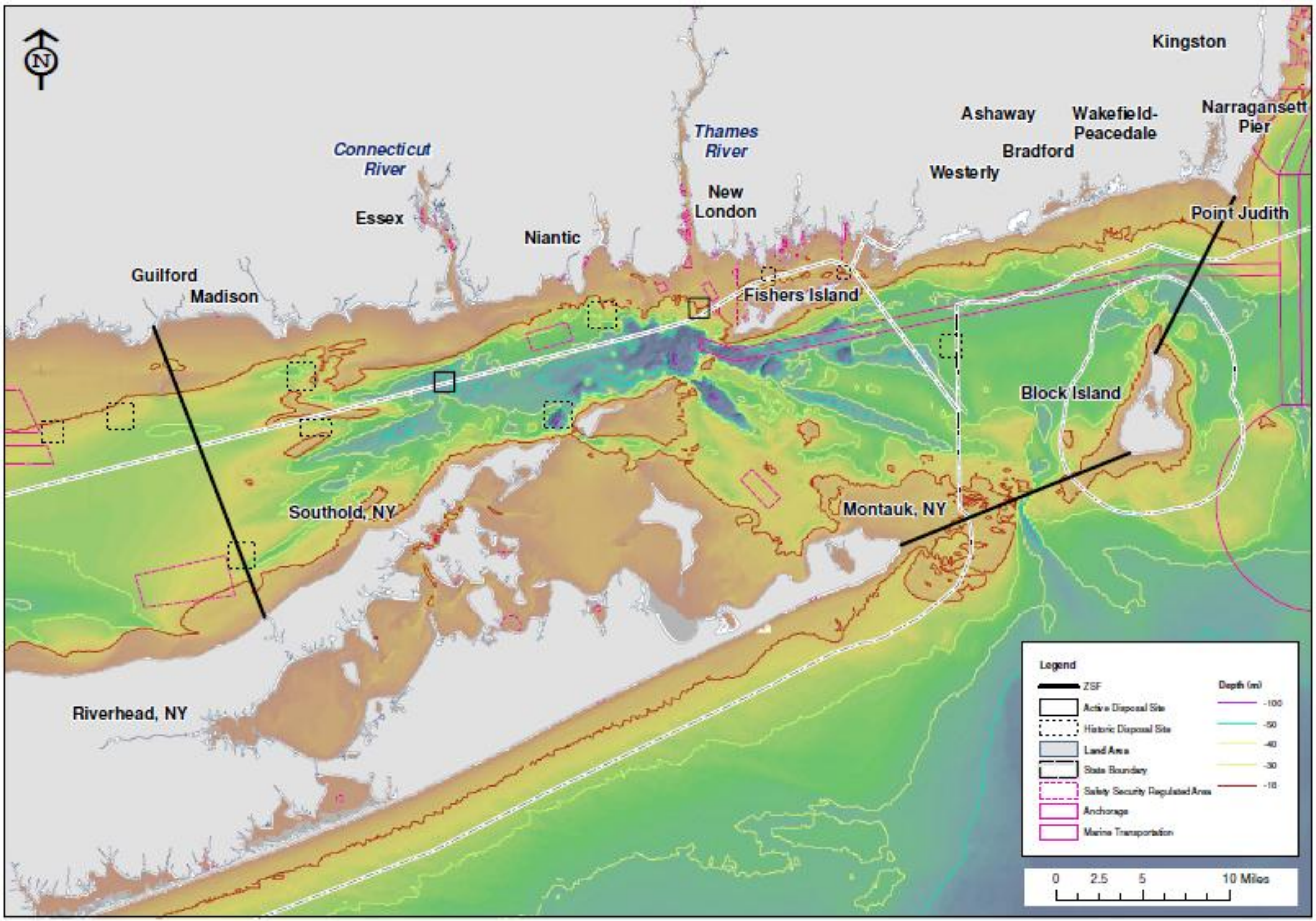
- Marine Protection, Research, and Sanctuaries Act (1972): Criteria or ocean dredged material site designation
  - 5 general criteria (40 CFR 228.5)
  - 11 specific criteria (40 CFR 228.6)

- Screening levels
  - Tier 1 – Evaluate sites
  - Tier 2 – Further investigate recommended sites

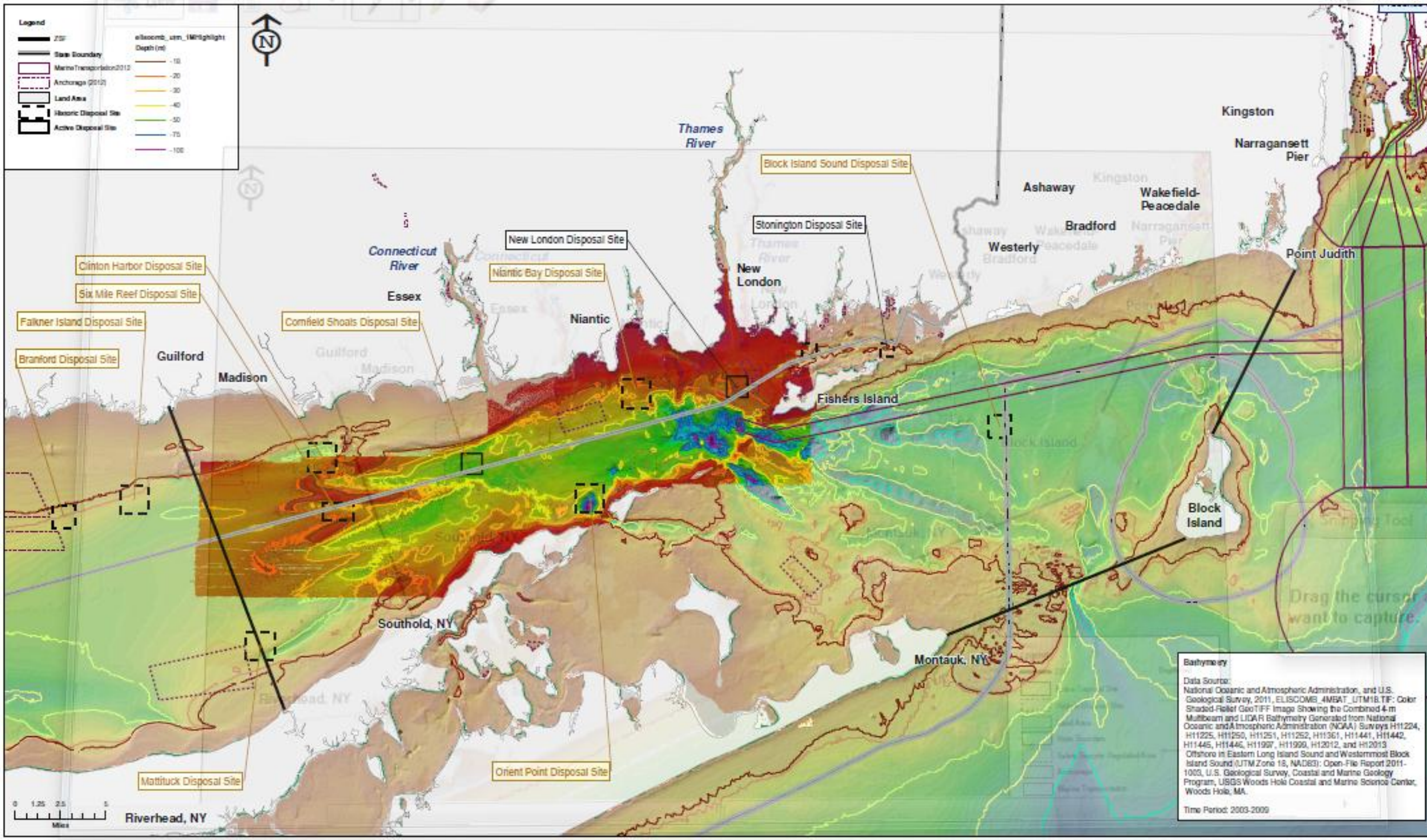
Tier 1 and 2 Screening Criteria

- Sediment Stability/Instability
  - Bathymetry
  - Currents and Waves; Bottom Stress
  - Sediment Texture (resuspension potential; habitat proxy)
- Areas of Conflicting Uses
  - Infrastructure (cables, pipelines)
  - Navigation (shipping lanes, anchoring areas)
  - Conservation Areas (sanctuaries, wildlife refuges, National Seashores, parks, artificial reefs)
- Biological Resources
  - Shellfish Beds
  - Benthic Community
  - Fish Habitat, Fish Concentrations, and Fishing Areas
  - Breeding, Spawning, Nursery, Feeding, and Passage Areas

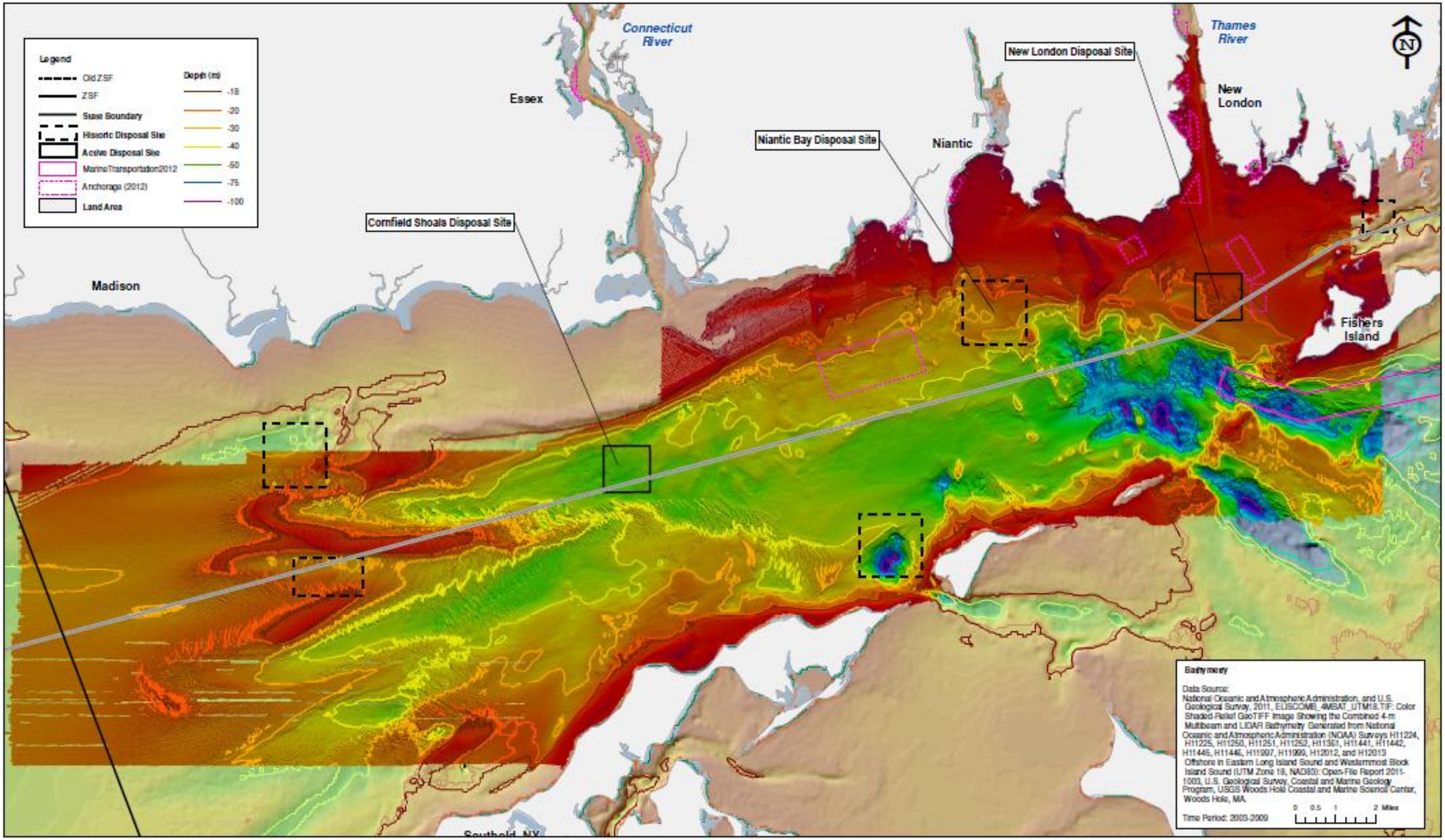
Tier 1: Bathymetry (ZSF)



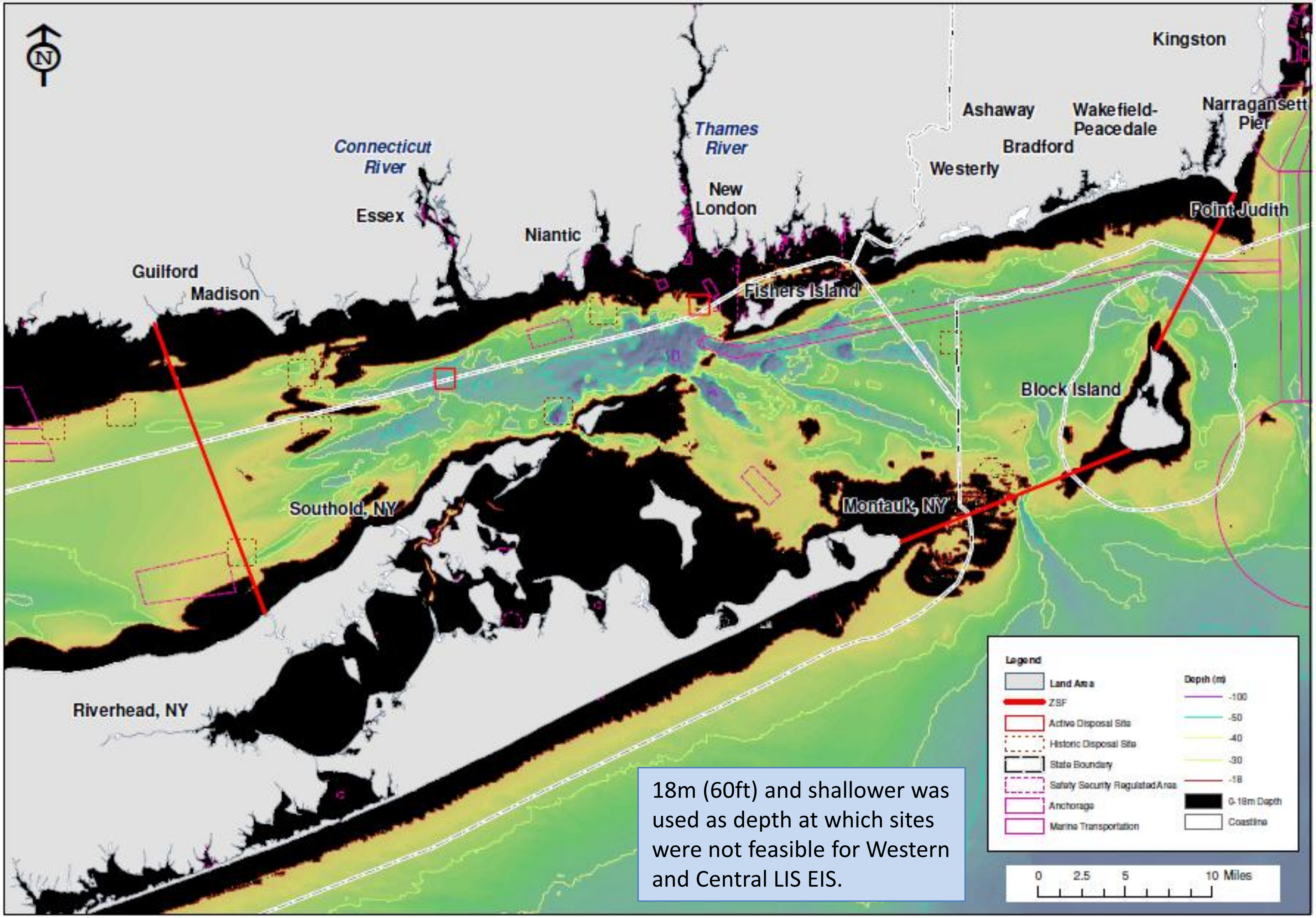
Tier 1: Bathymetry (ZSF)



Tier 1: Bathymetry (Eastern LIS)

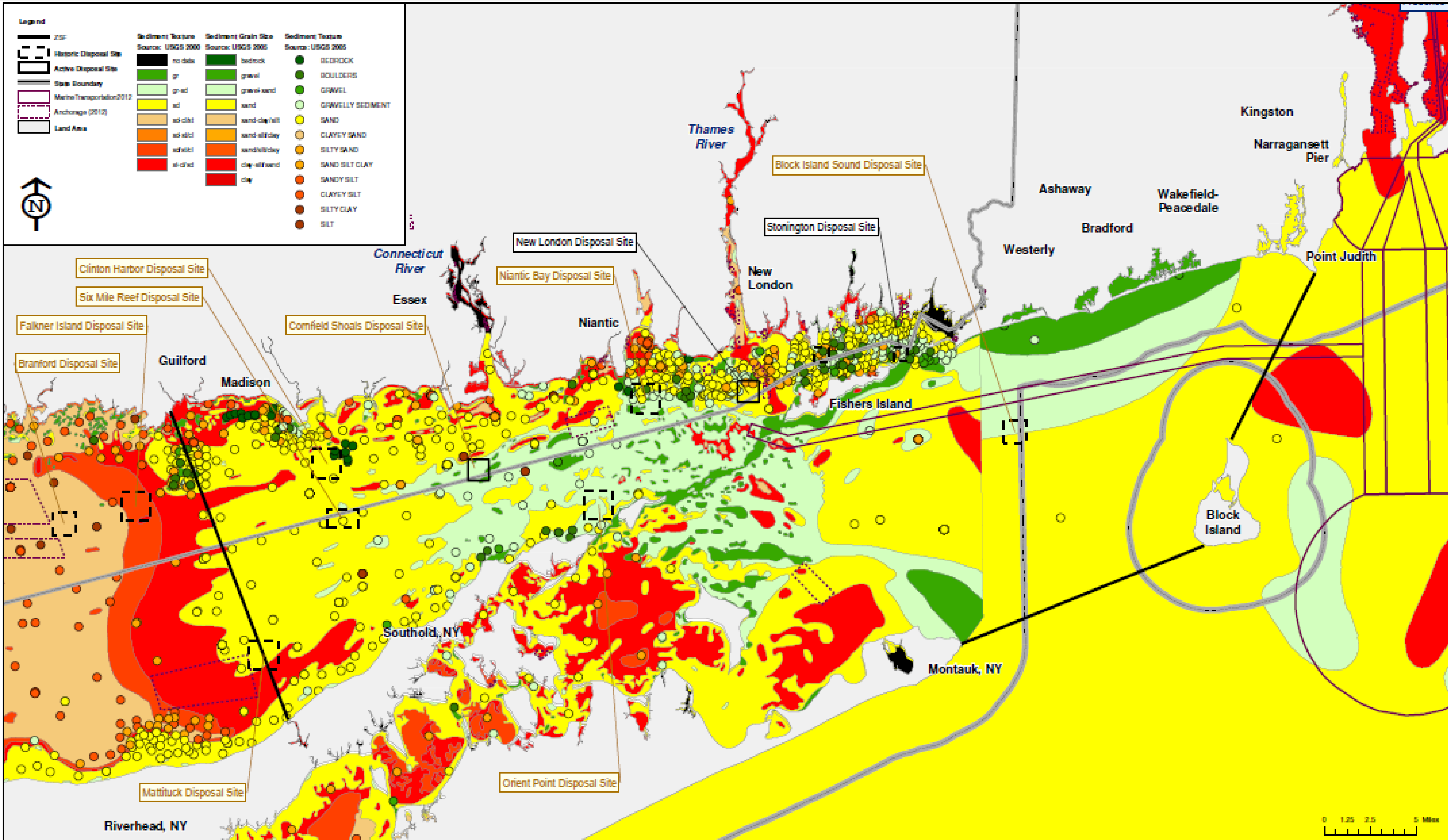


Tier 1: Bathymetry (>18 m)

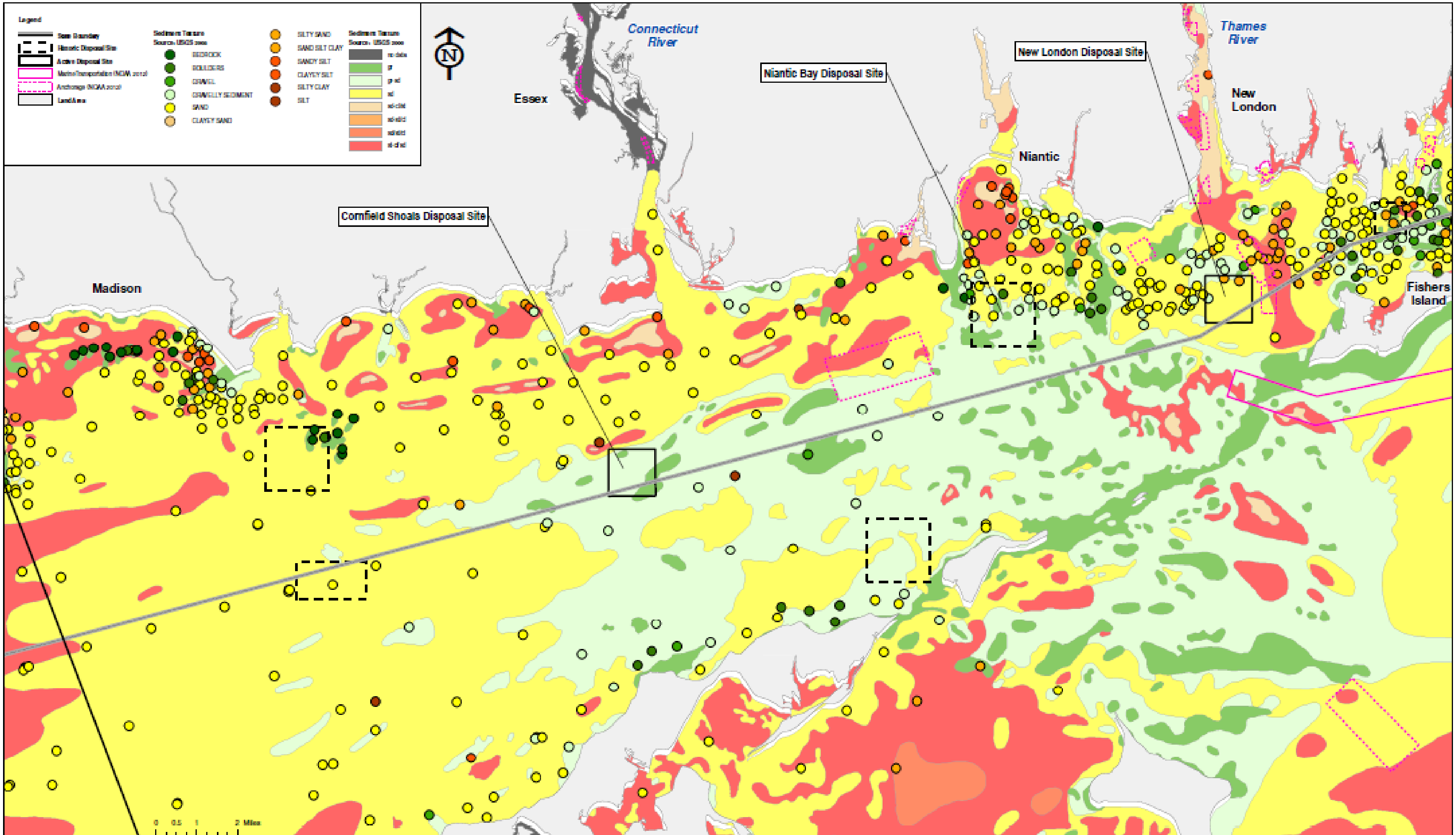


18m (60ft) and shallower was used as depth at which sites were not feasible for Western and Central LIS EIS.

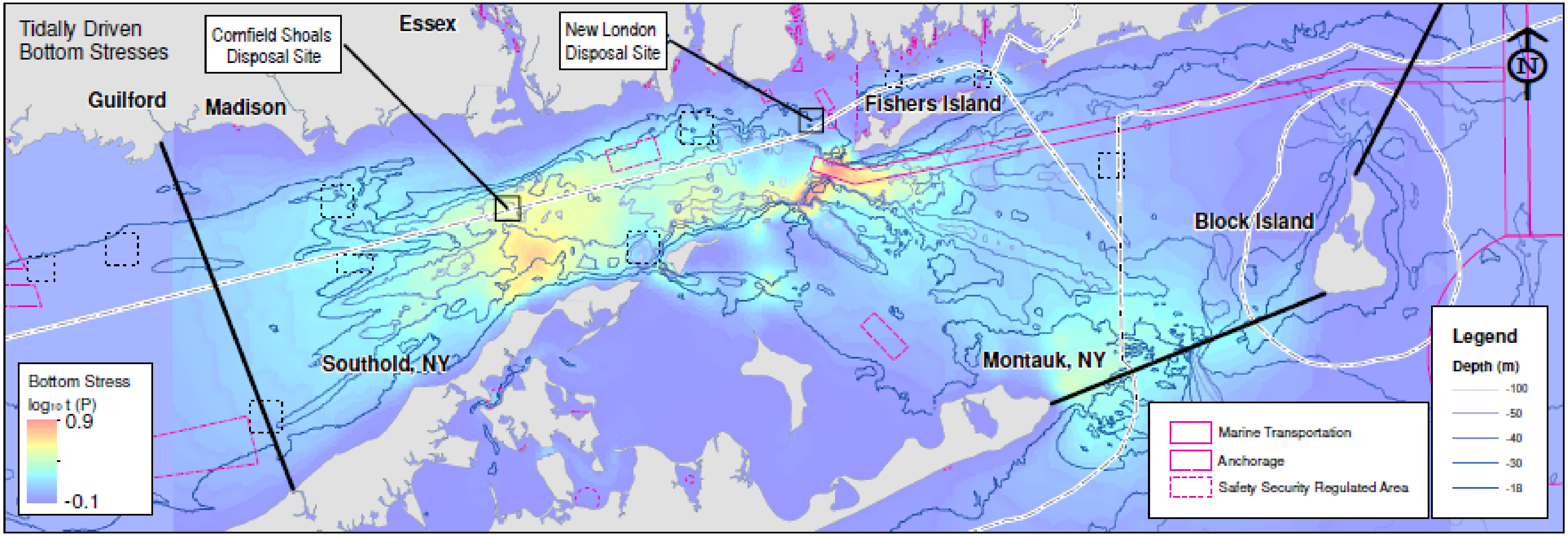
Tier 1: Sediment Characteristics (ZSF)

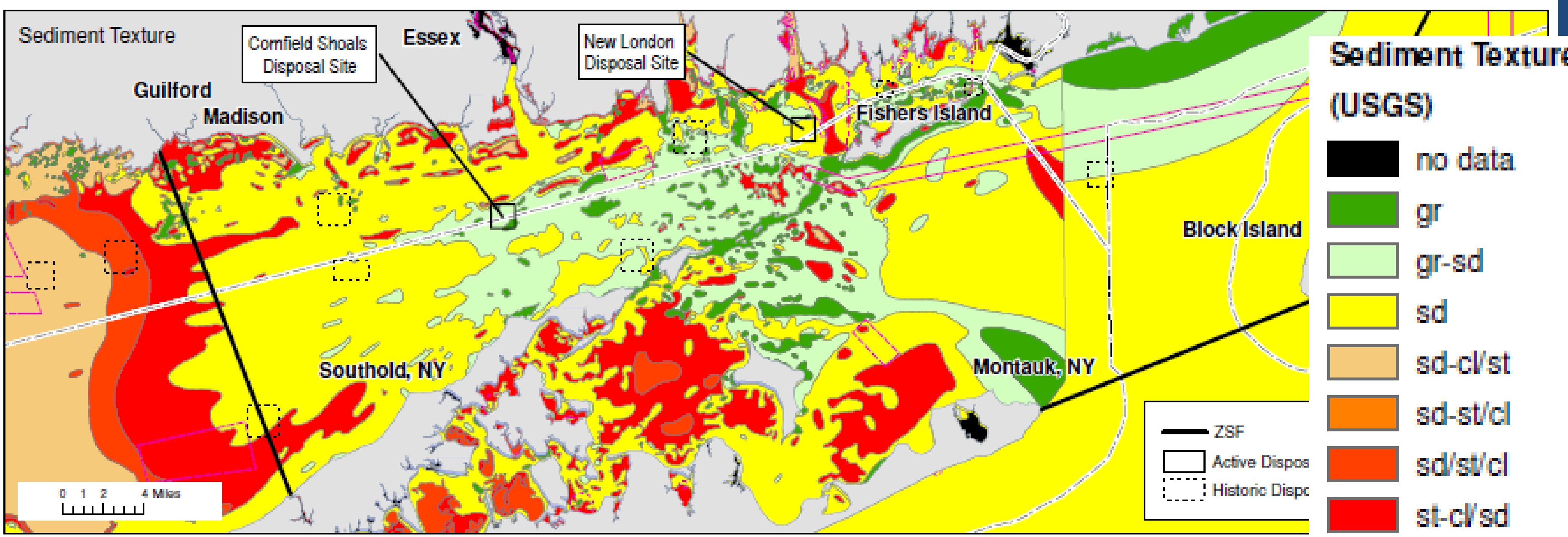


Tier 1: Sediment Characteristics (ELIS)

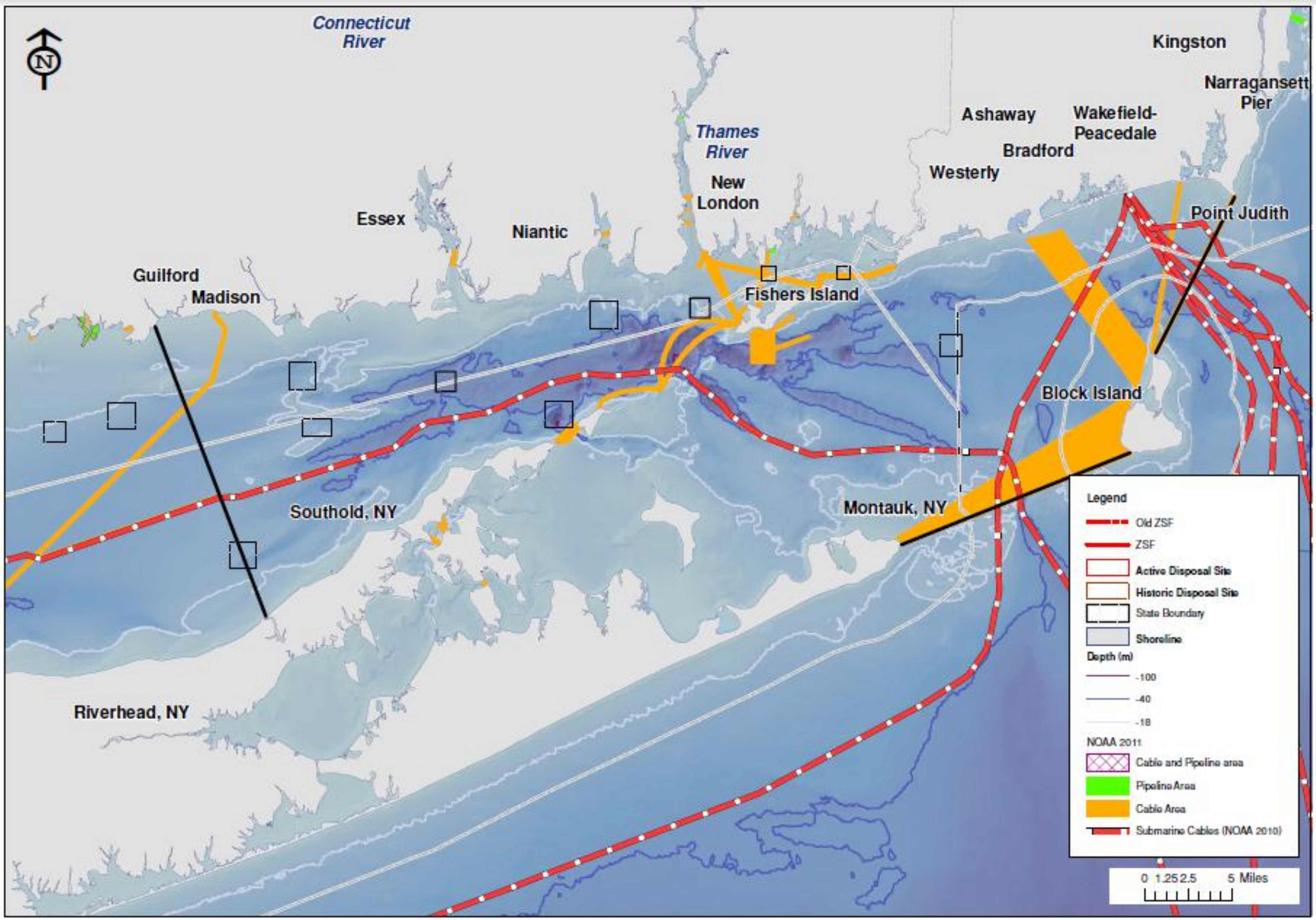


Tidally-Driven Bottom Stress and Sediment

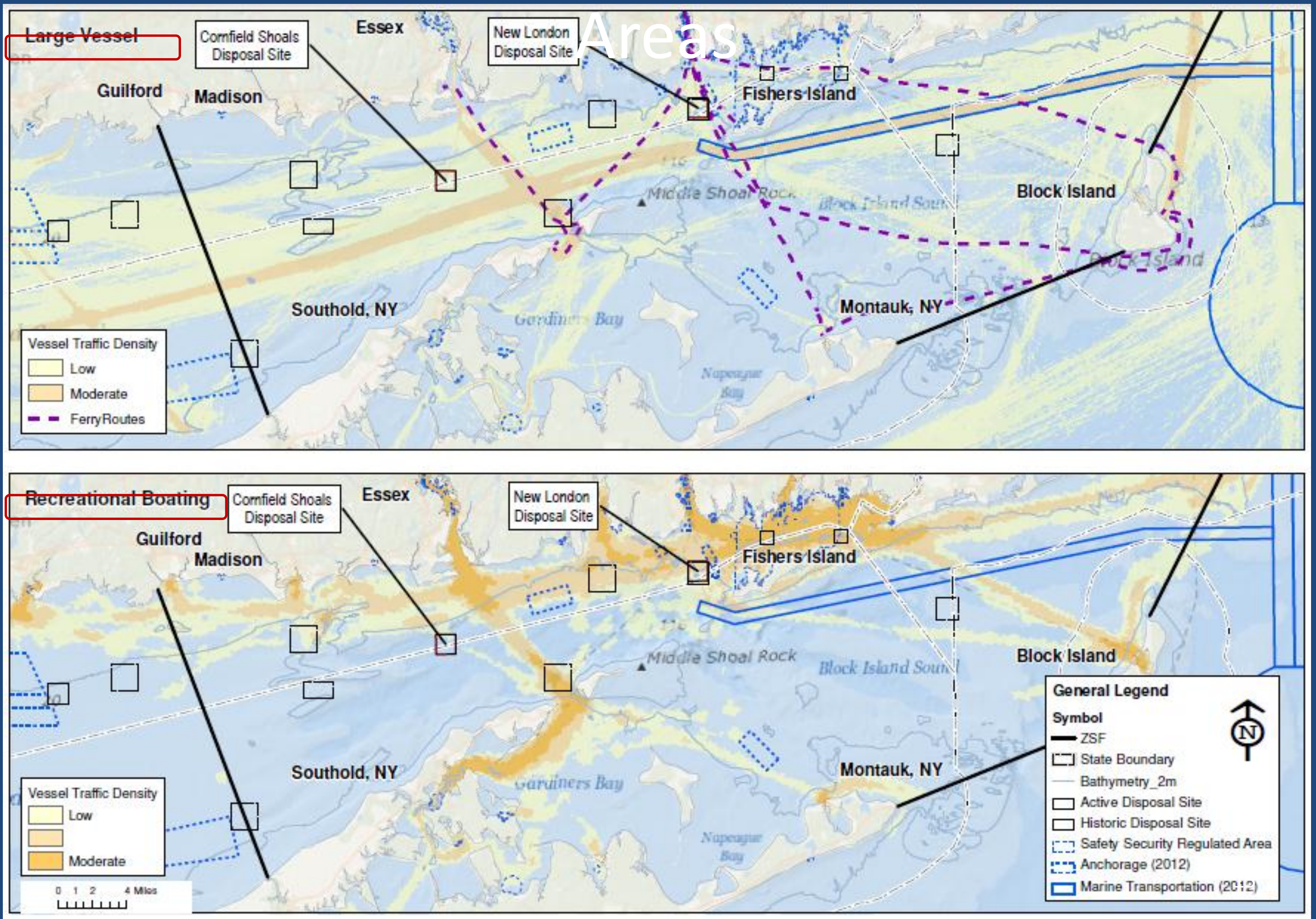




Tier 1: Cables and Pipelines

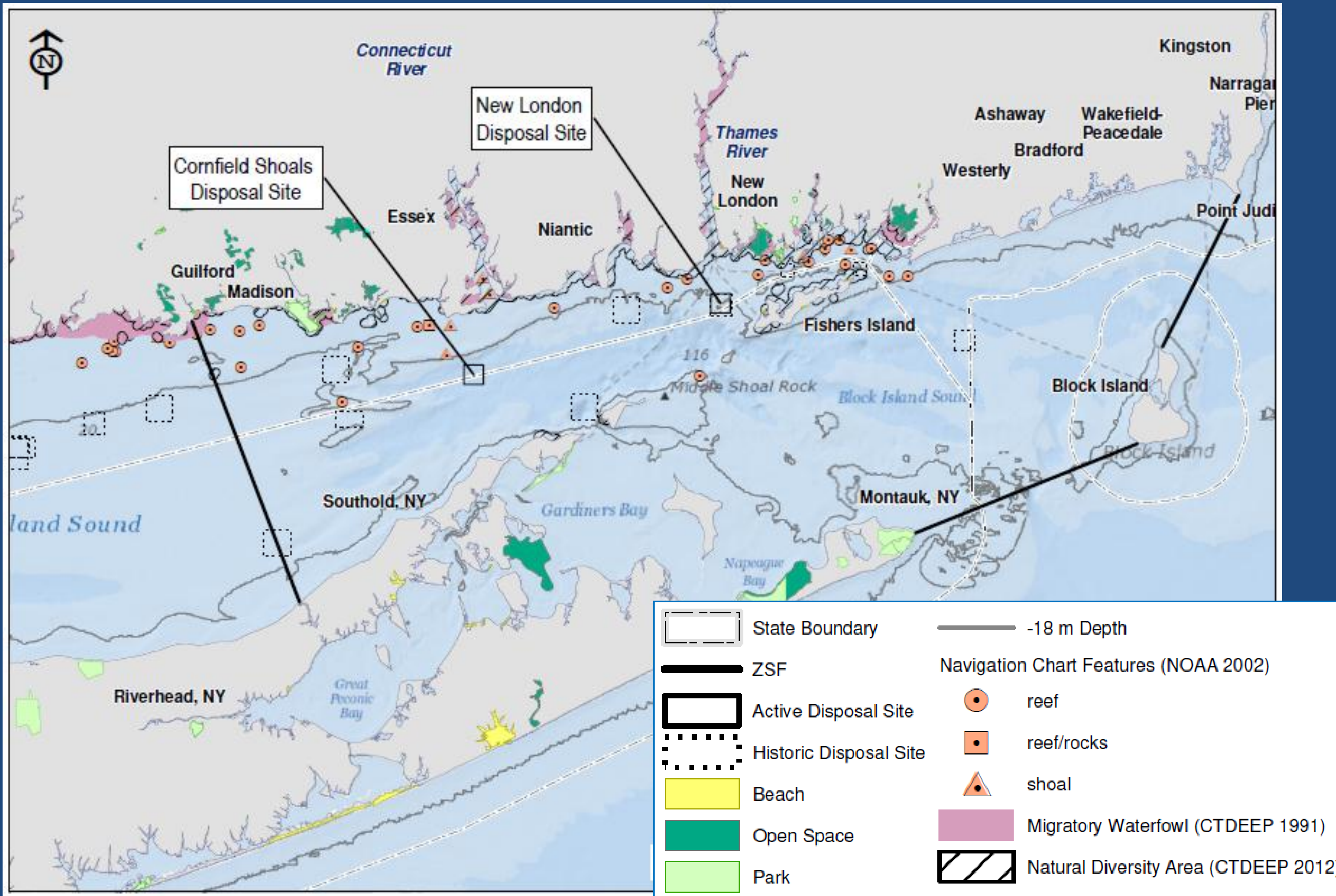


Tier 1: Vessel Traffic Density, Anchoring Areas

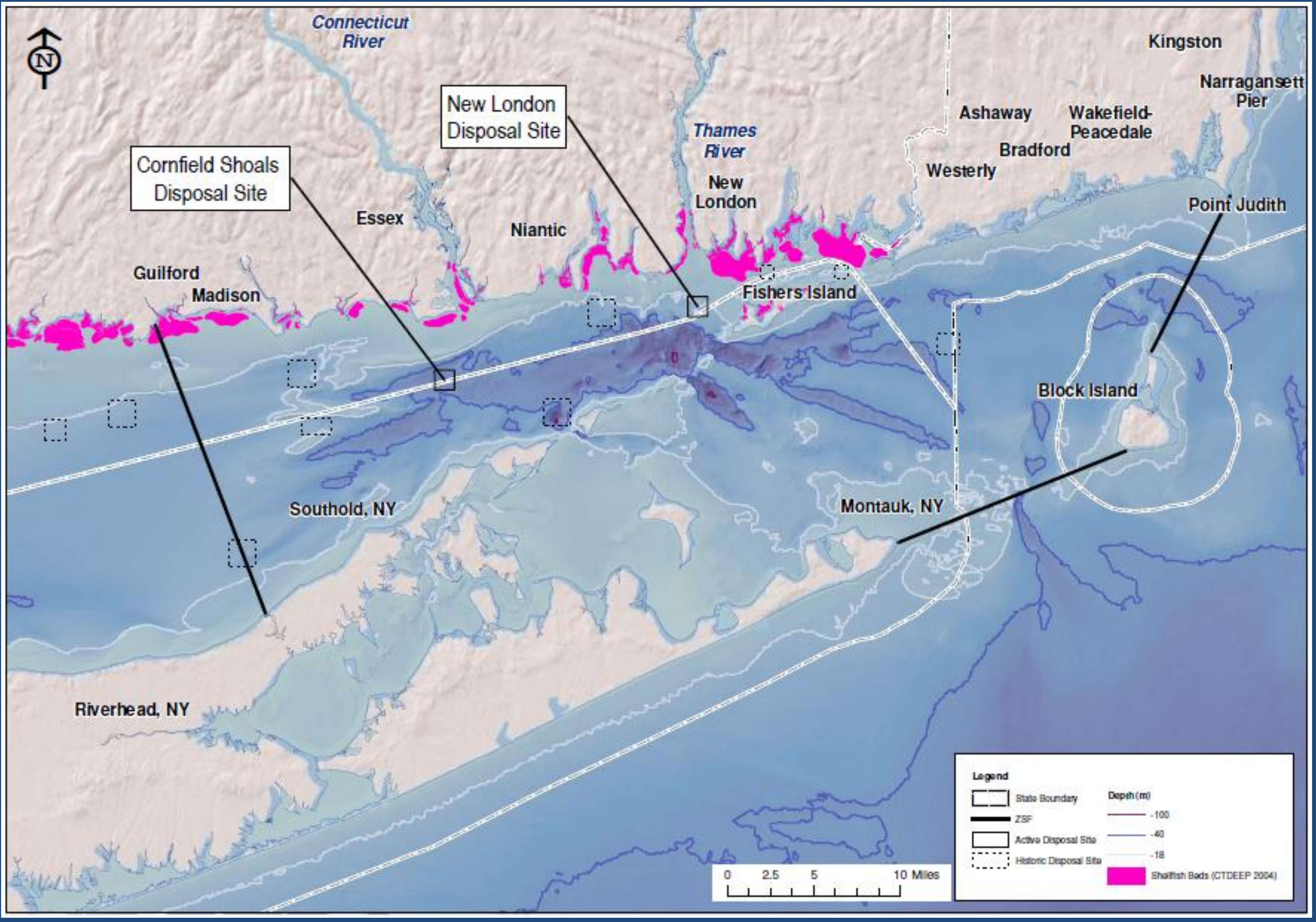


Tier 1: Conservation Areas (More data needed)

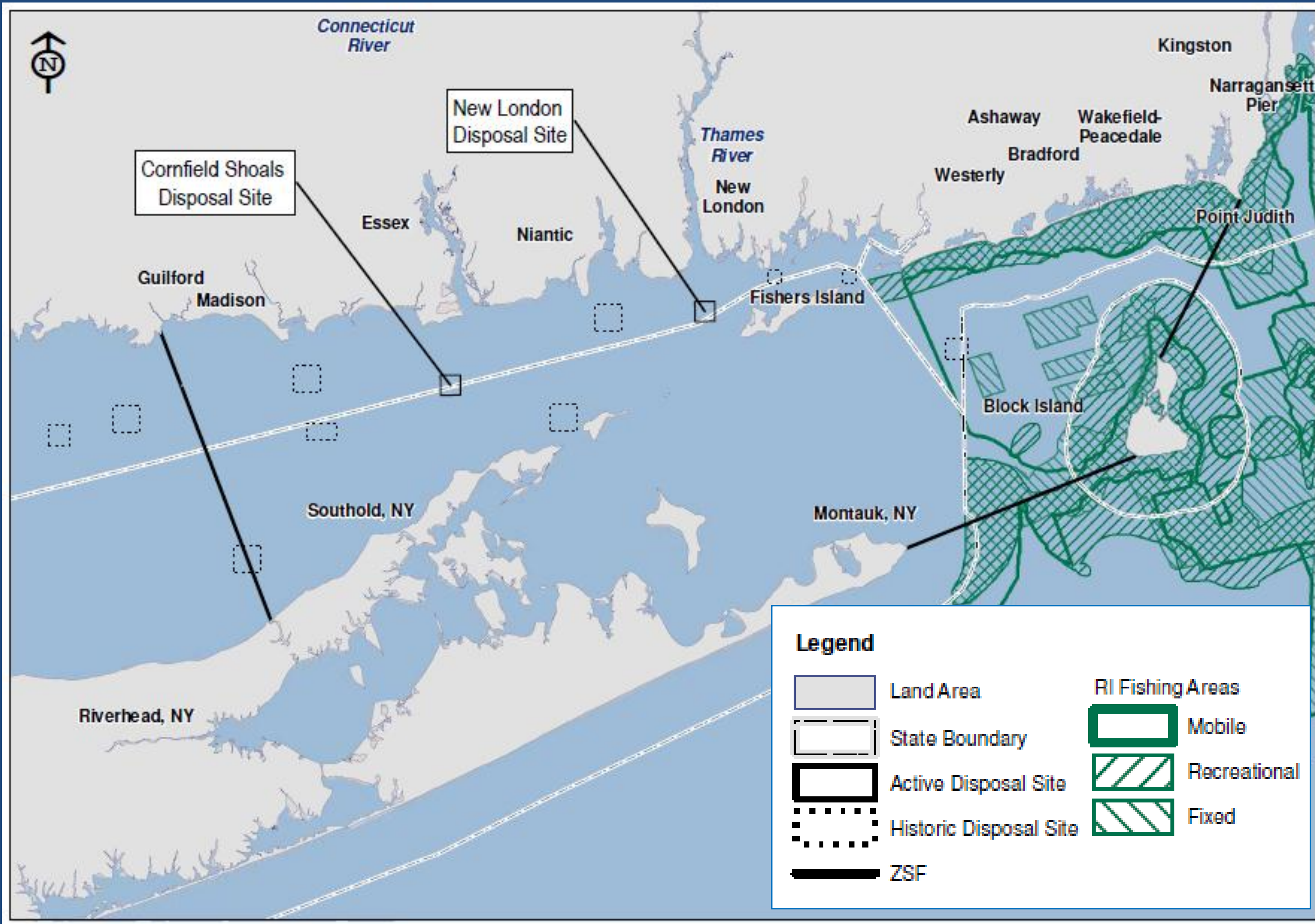
(sanctuaries, wildlife refuges, national seashores, parks, artificial reefs, etc.)



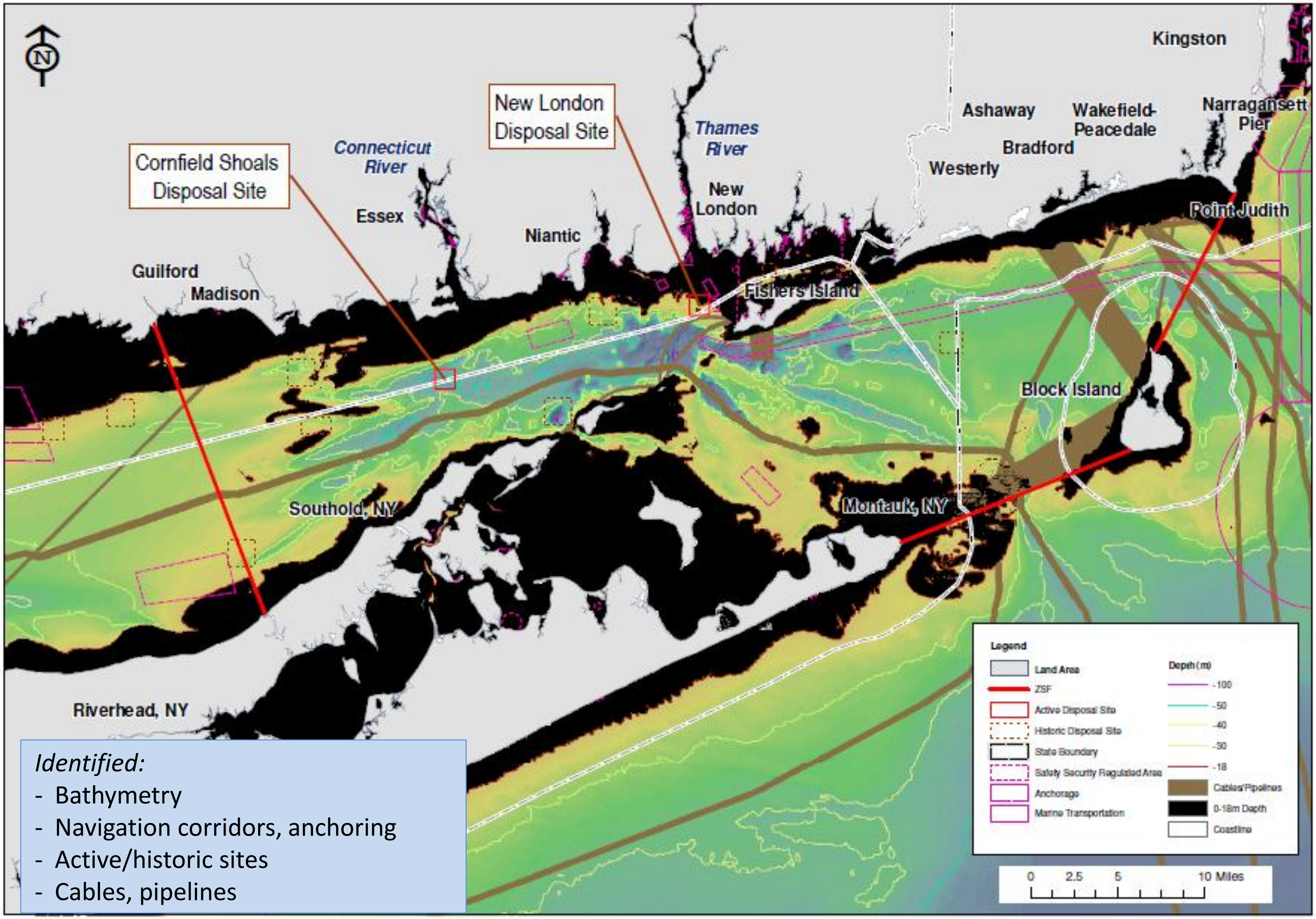
Tier 1: Shellfish Beds (NY+RI Data needed)



Tier 1: Fishing Areas (additional data needed)



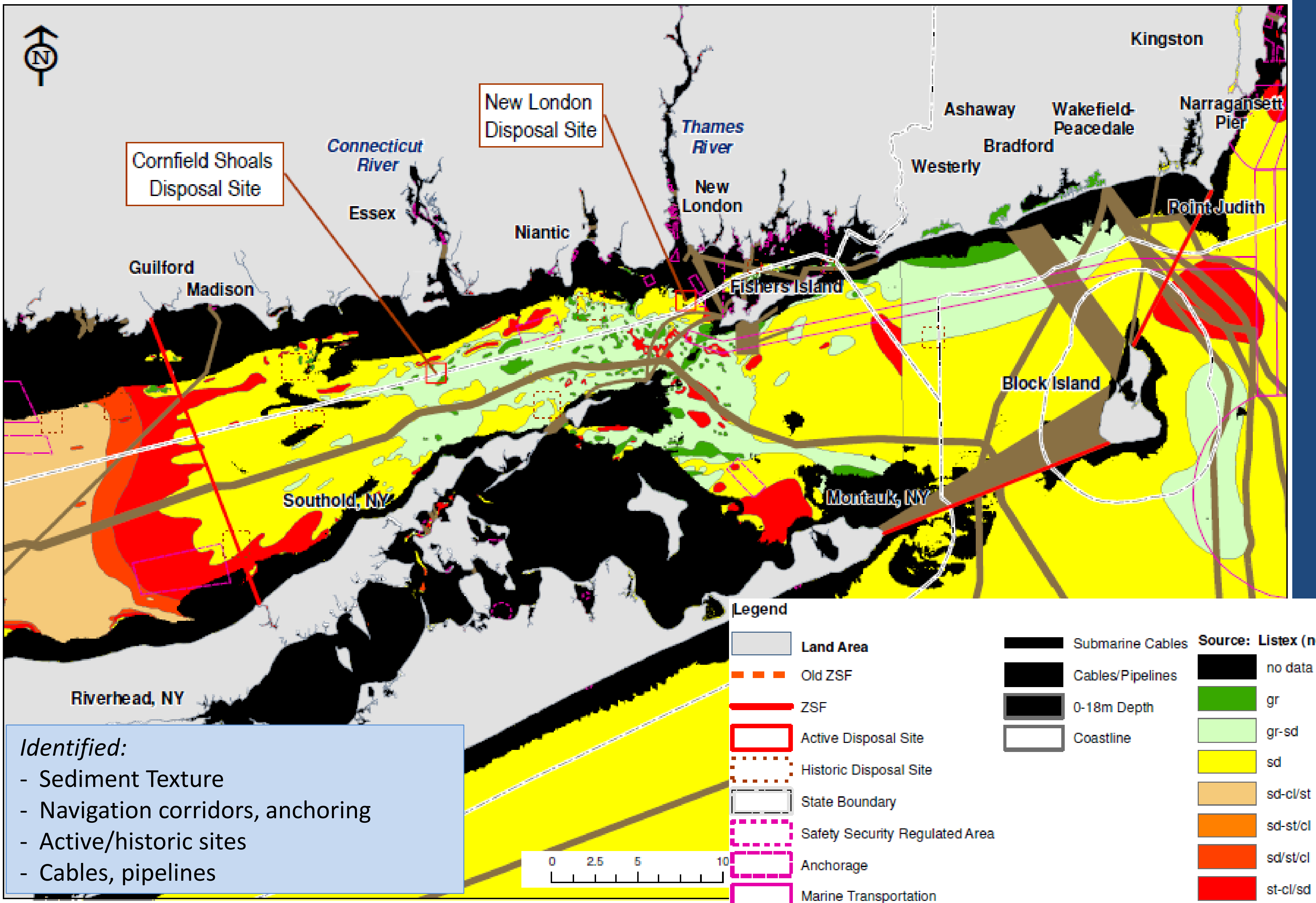
Tier 1 Overlay 1: Base - Bathymetry



Identified:

- Bathymetry
- Navigation corridors, anchoring
- Active/historic sites
- Cables, pipelines

Tier 1 Overlay 2: Base - Sediment Texture



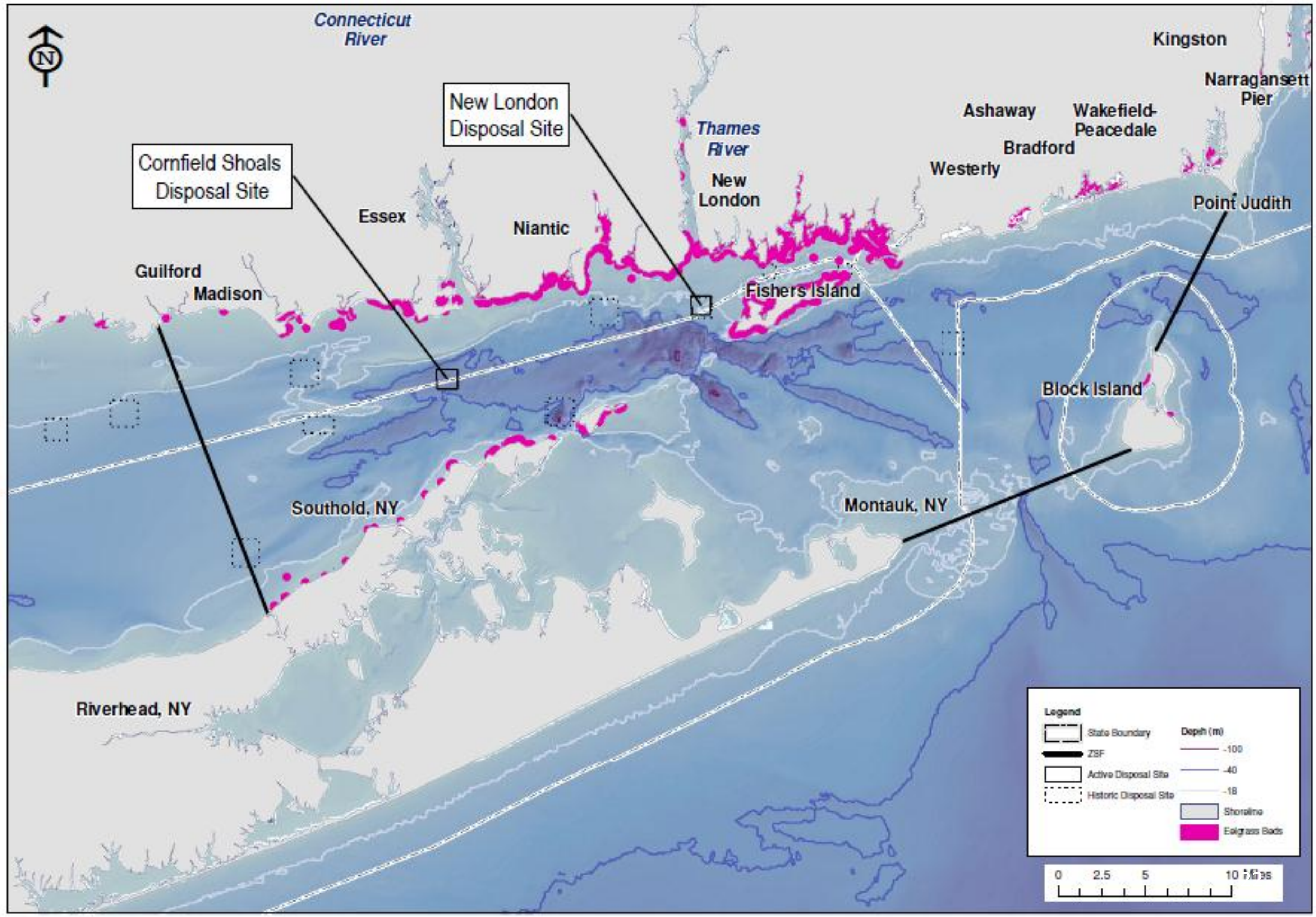
Identified:

- Sediment Texture
- Navigation corridors, anchoring
- Active/historic sites
- Cables, pipelines

Tier 2: Key Screening Criteria

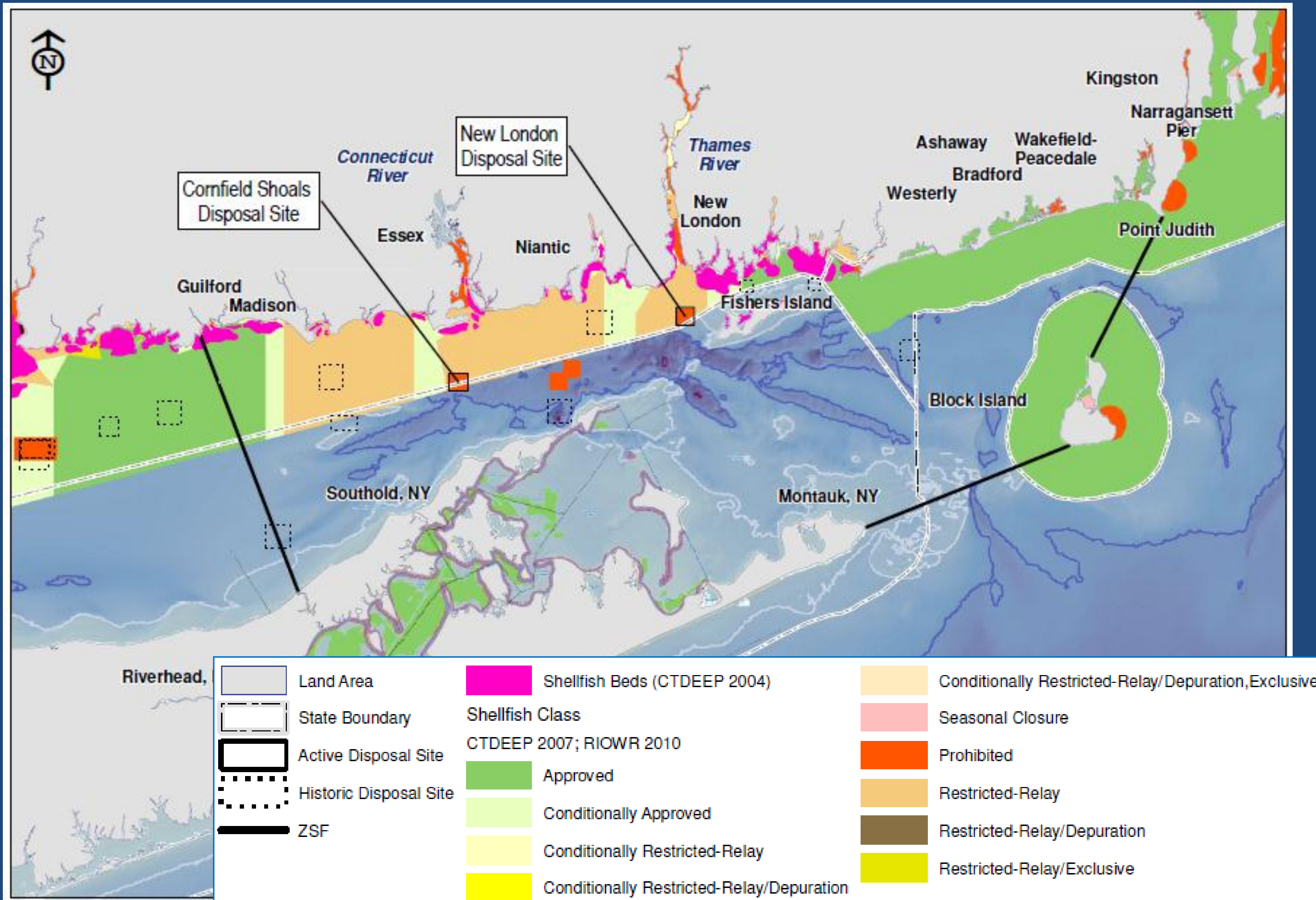
- Biological Resources
  - Eelgrass Beds
  - Shellfish Zoning
  - Essential Fish Habitat
- Active/Historic Disposal Site vs. New Sites
- Historic and Cultural Resources
- Recreation
  - Recreational Navigation
  - Proximity to Beaches

Tier 2: Eelgrass Beds

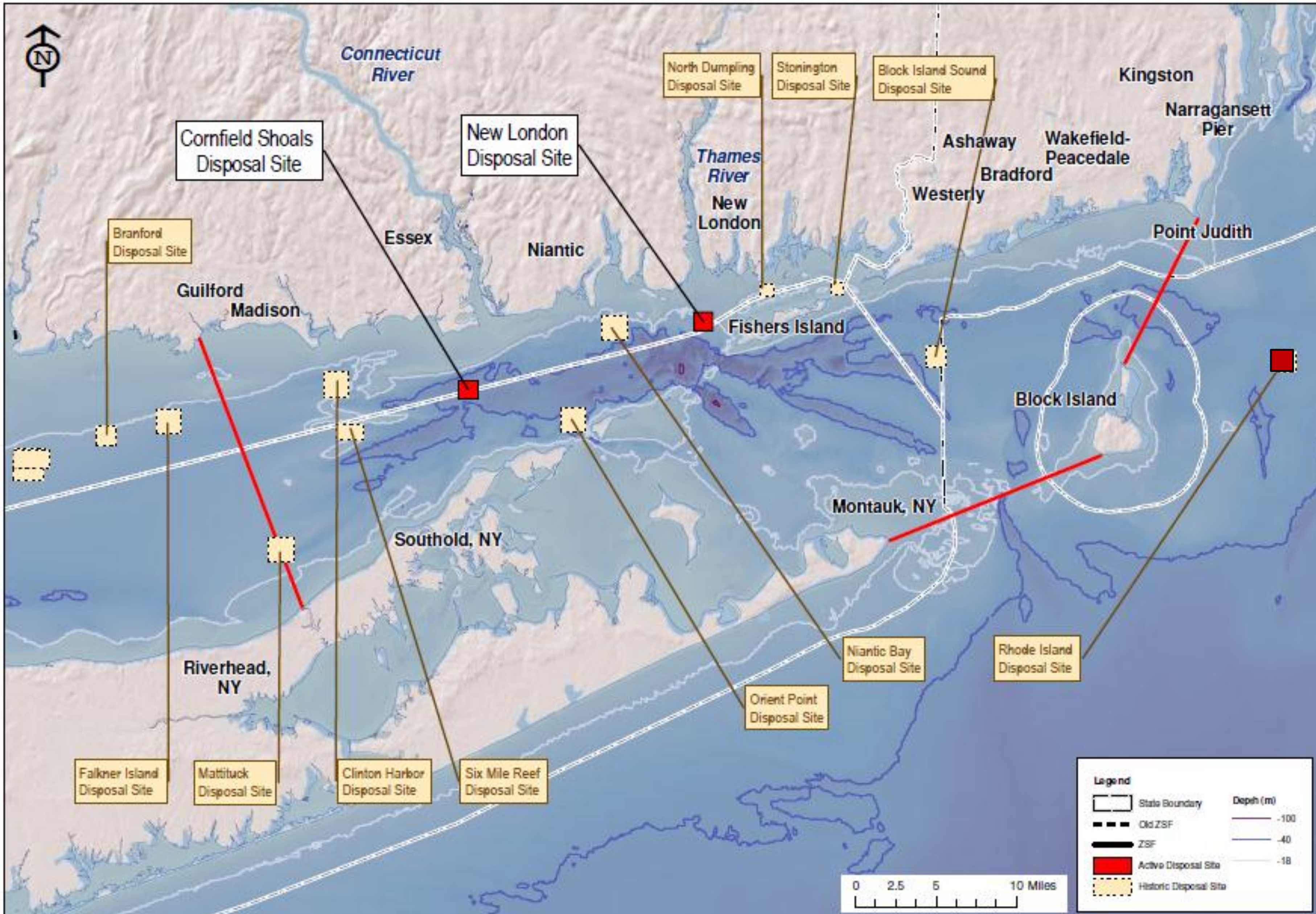


Tier 2: Approved/ Prohibited Shellfish Areas

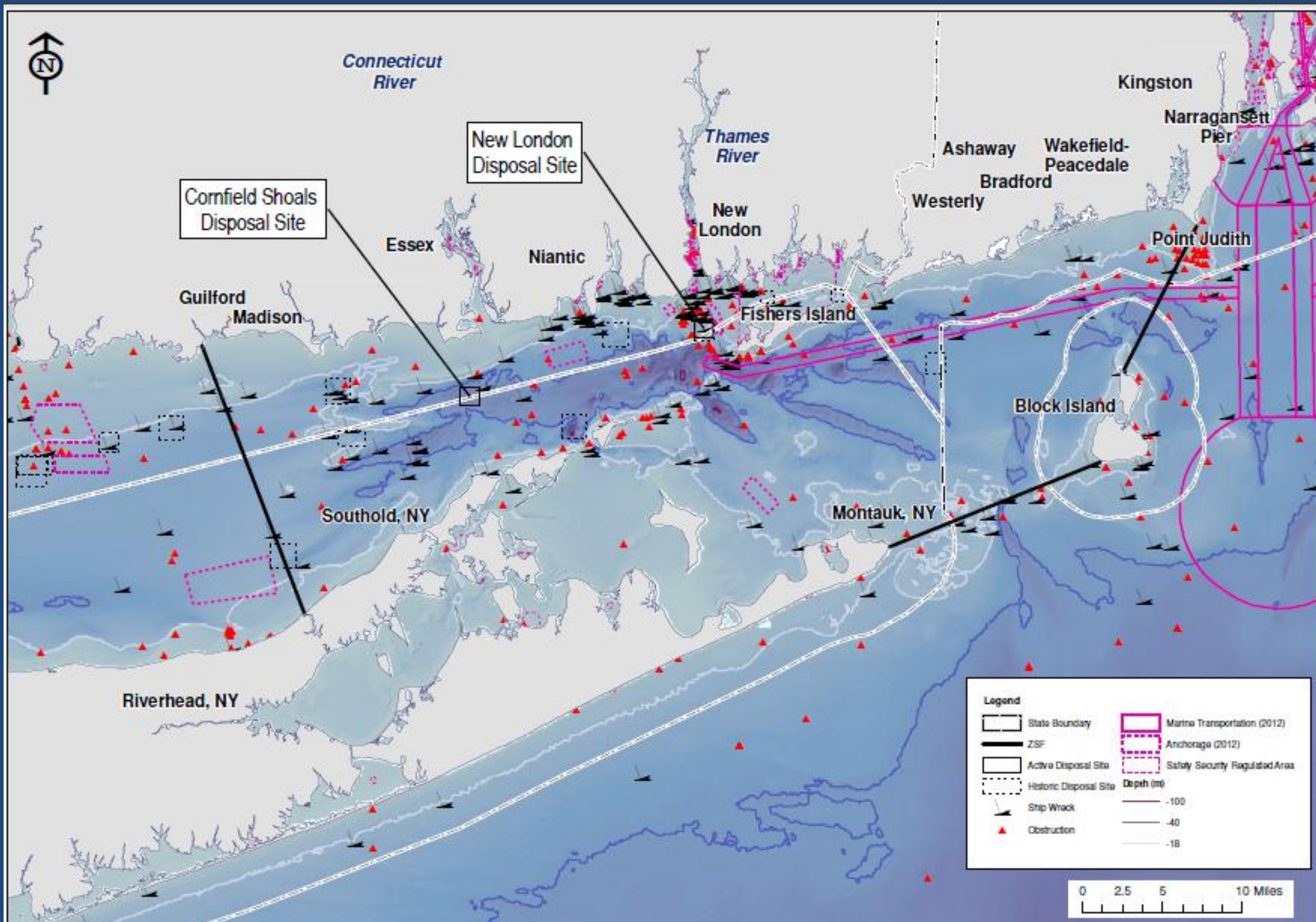
(additional NY data needed)



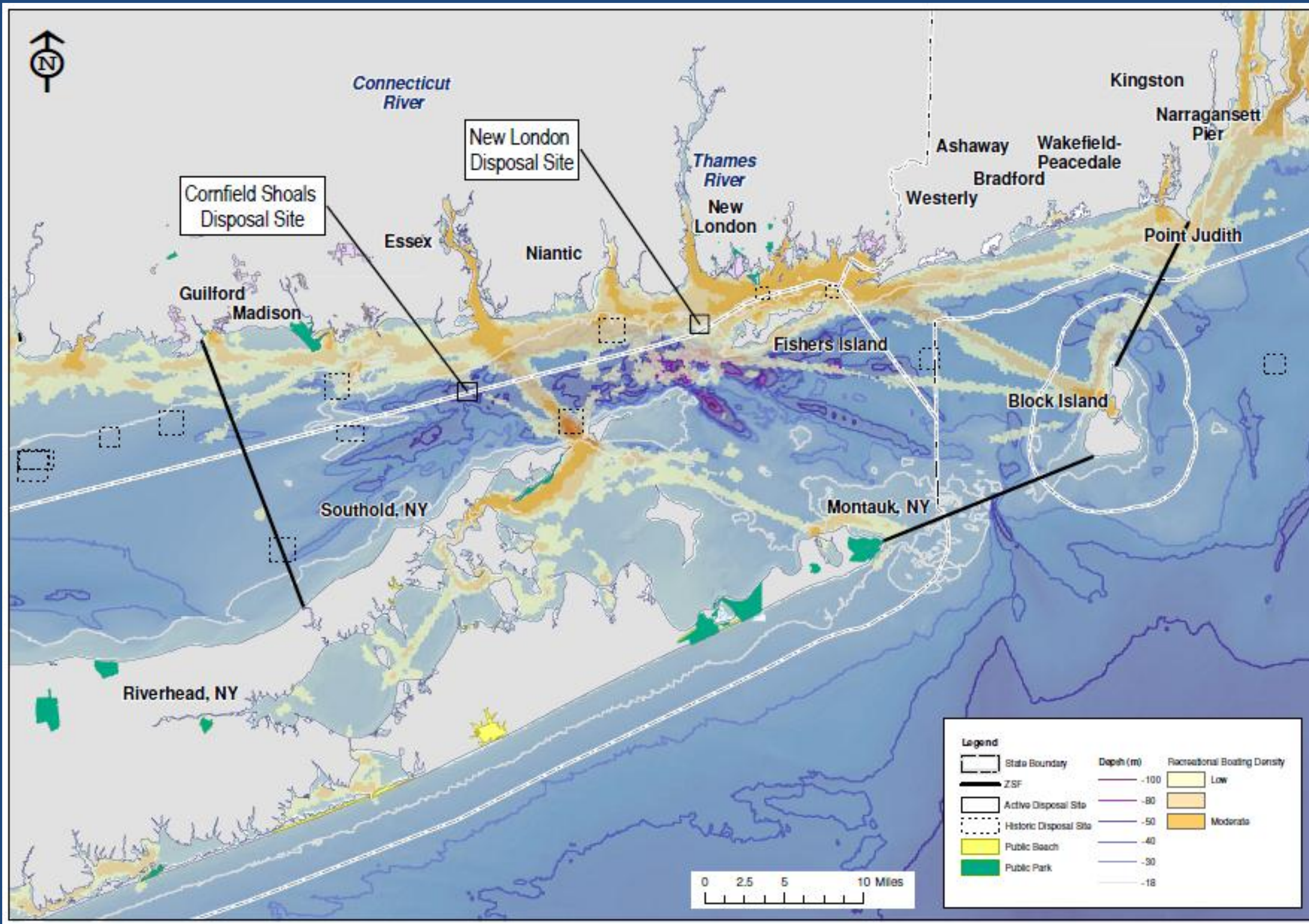
Tier 2: Active and Historic Disposal Sites



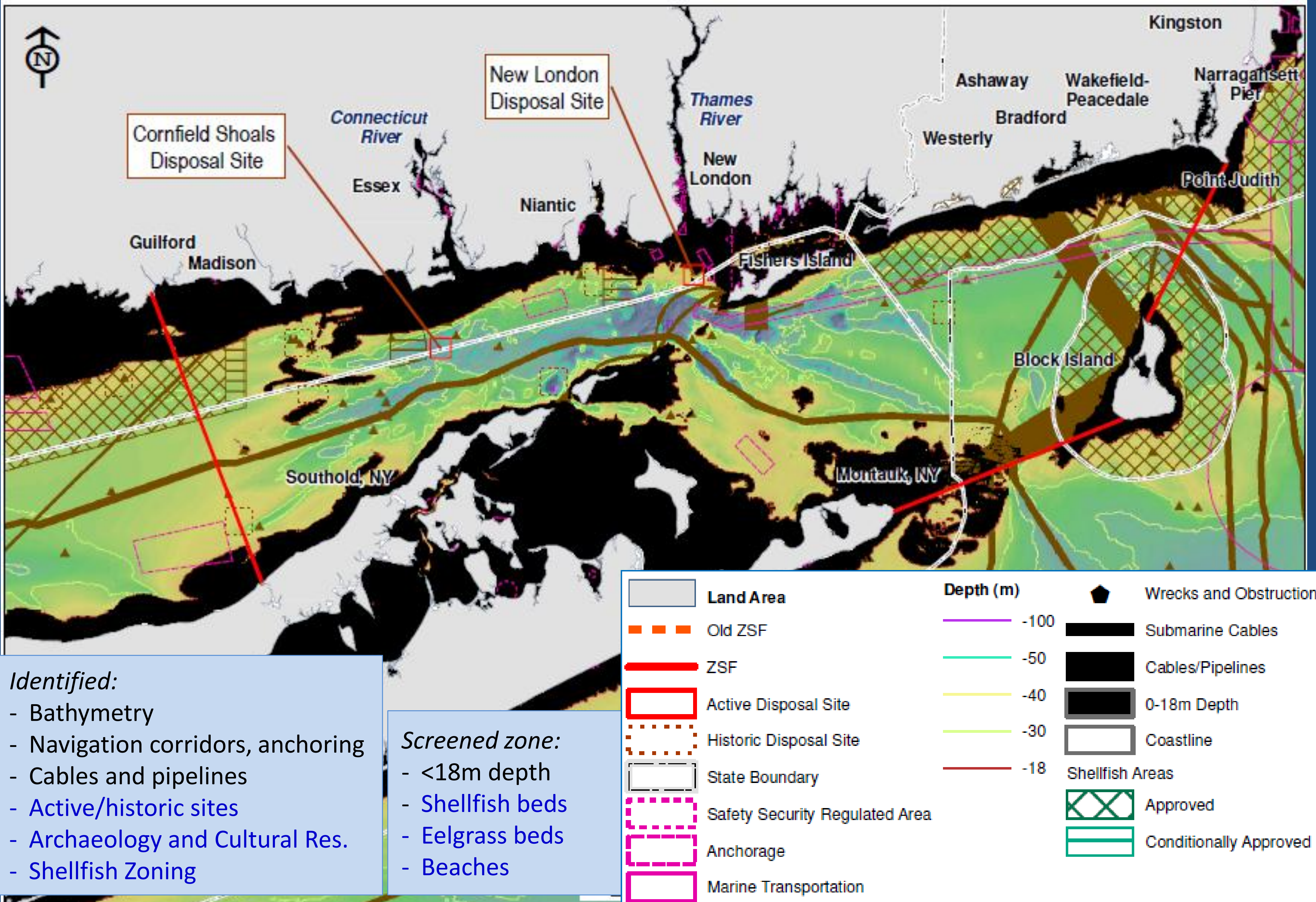
Tier 2: Archaeological and Cultural Resources



Tier 2: Recreational Areas and Navigation



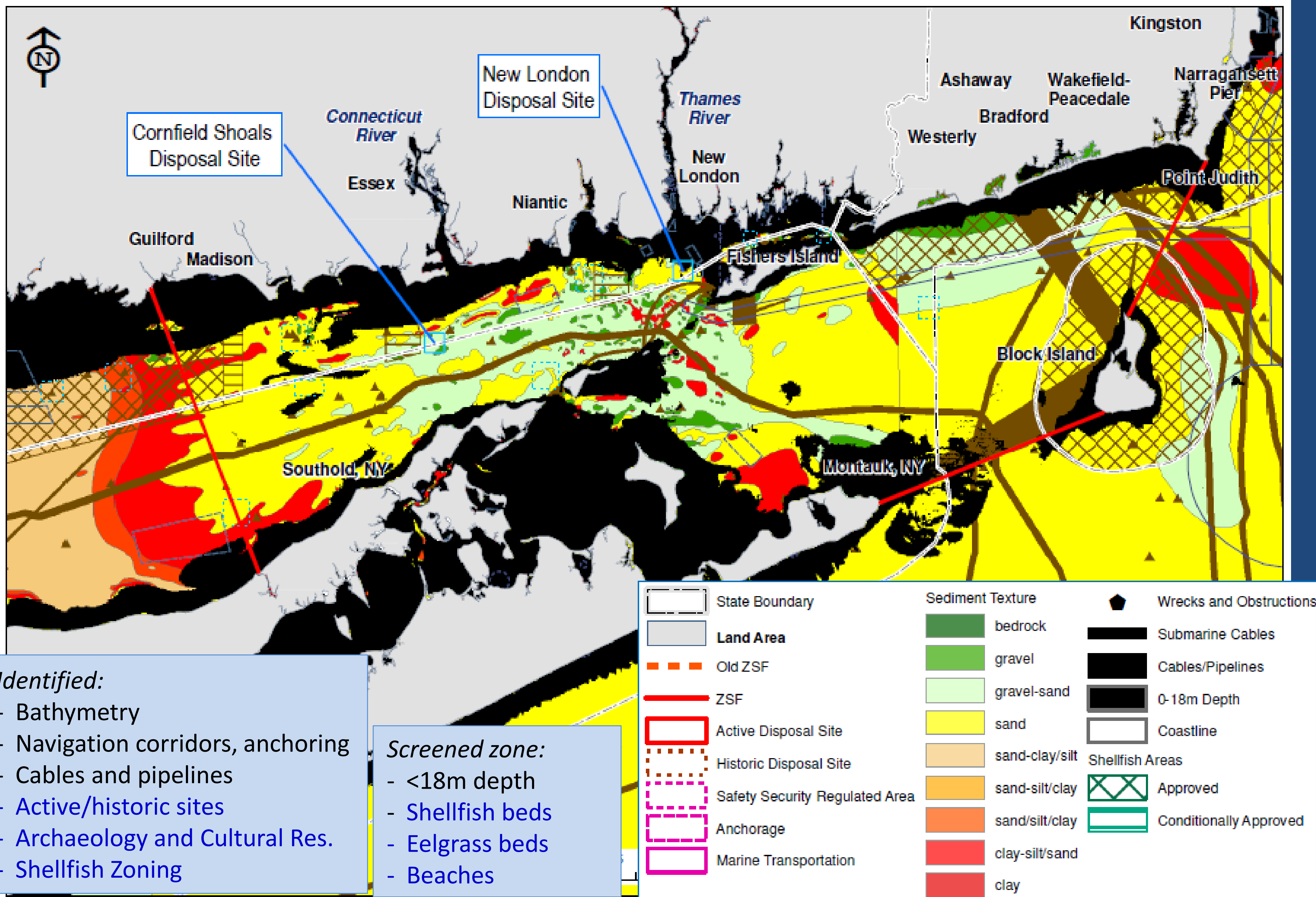
Tier 2 Overlay 1: Base - Bathymetry



Identified:
- Bathymetry
- Navigation corridors, anchoring
- Cables and pipelines
- Active/historic sites
- Archaeology and Cultural Res.
- Shellfish Zoning

Screened zone:
- <18m depth
- Shellfish beds
- Eelgrass beds
- Beaches

Tier 2 Overlay 2: Base - Sediment Texture



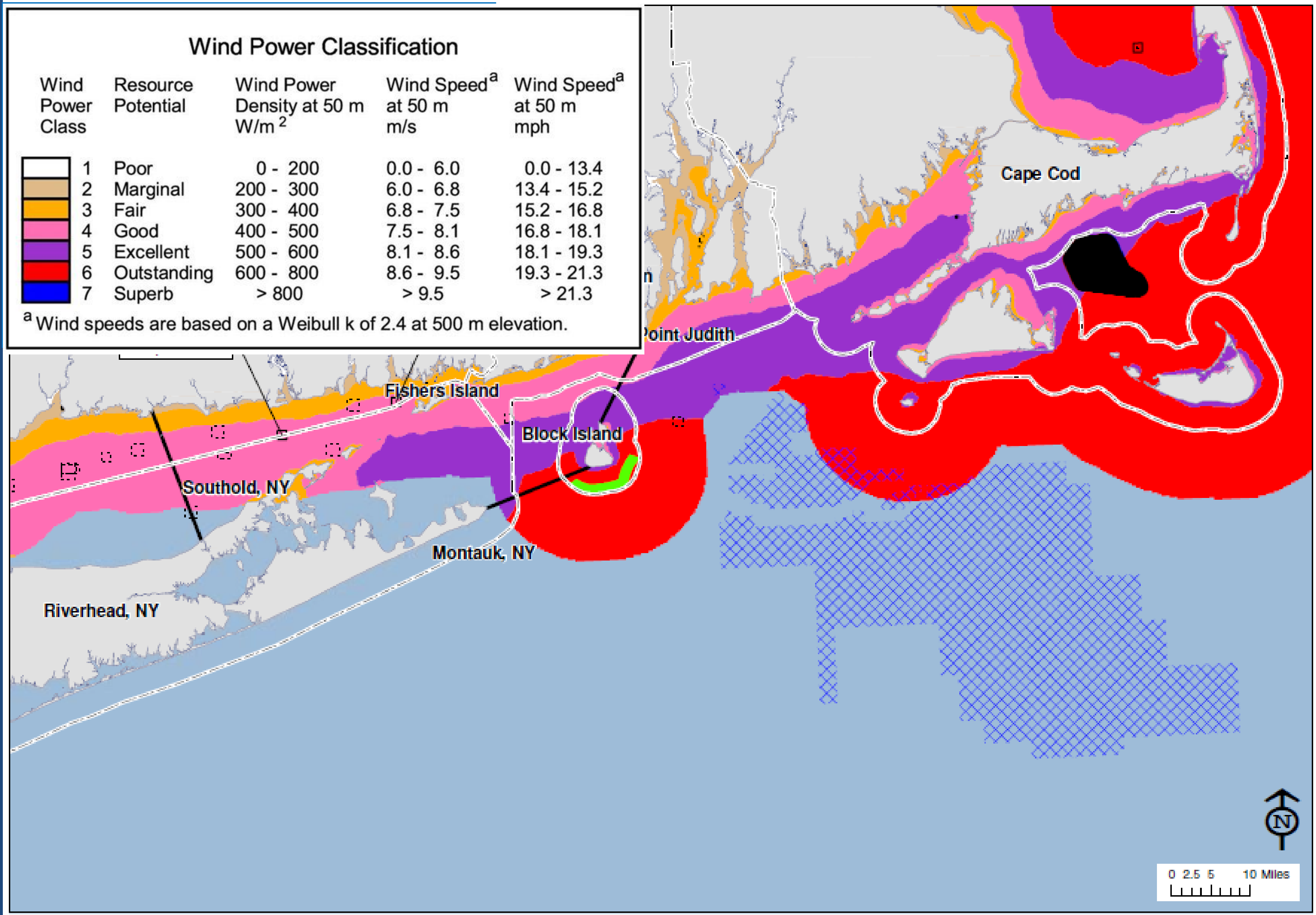
Identified:

- Bathymetry
- Navigation corridors, anchoring
- Cables and pipelines
- Active/historic sites
- Archaeology and Cultural Res.
- Shellfish Zoning

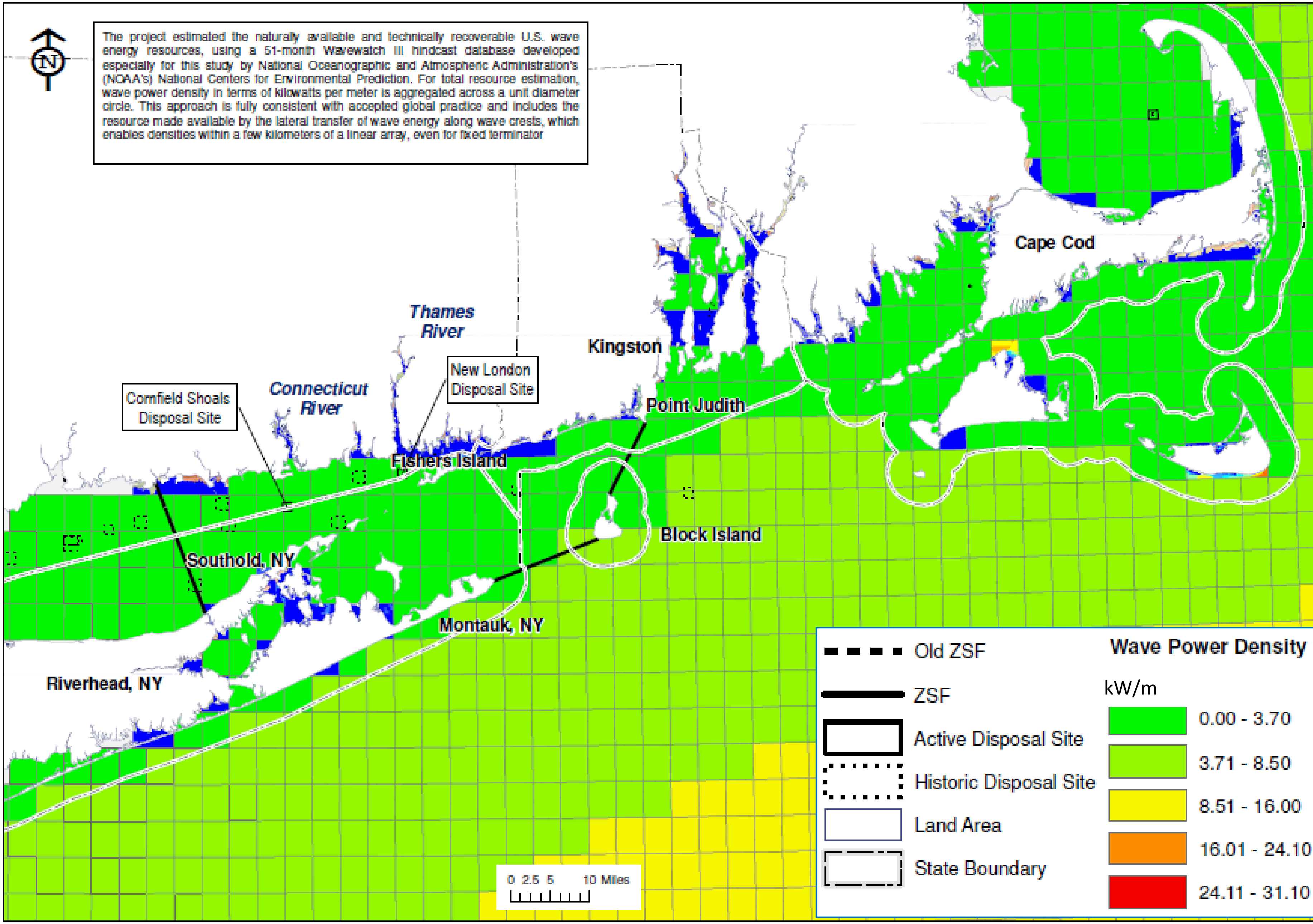
Screened zone:

- <18m depth
- Shellfish beds
- Eelgrass beds
- Beaches

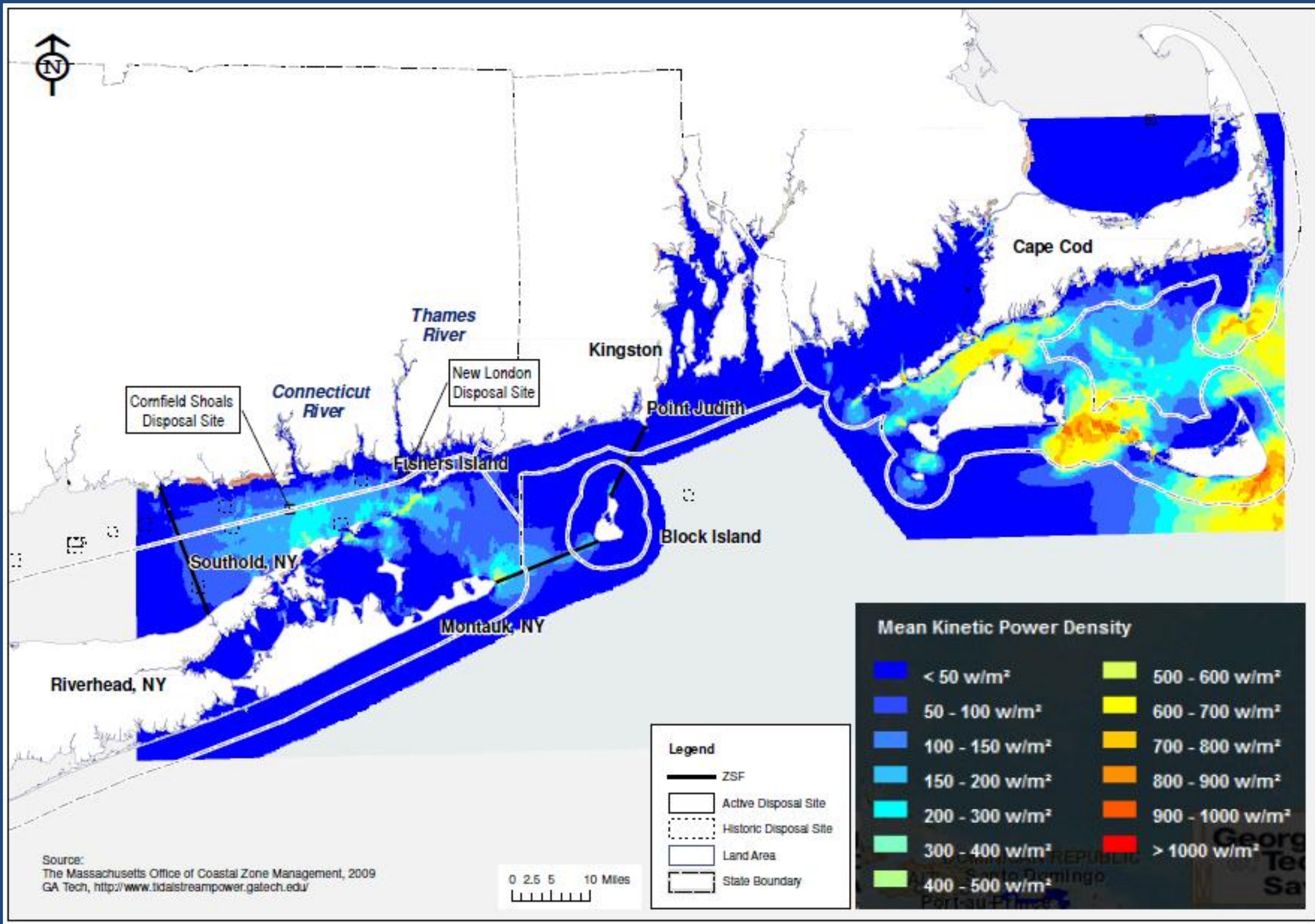
Alternative Energy – Wind



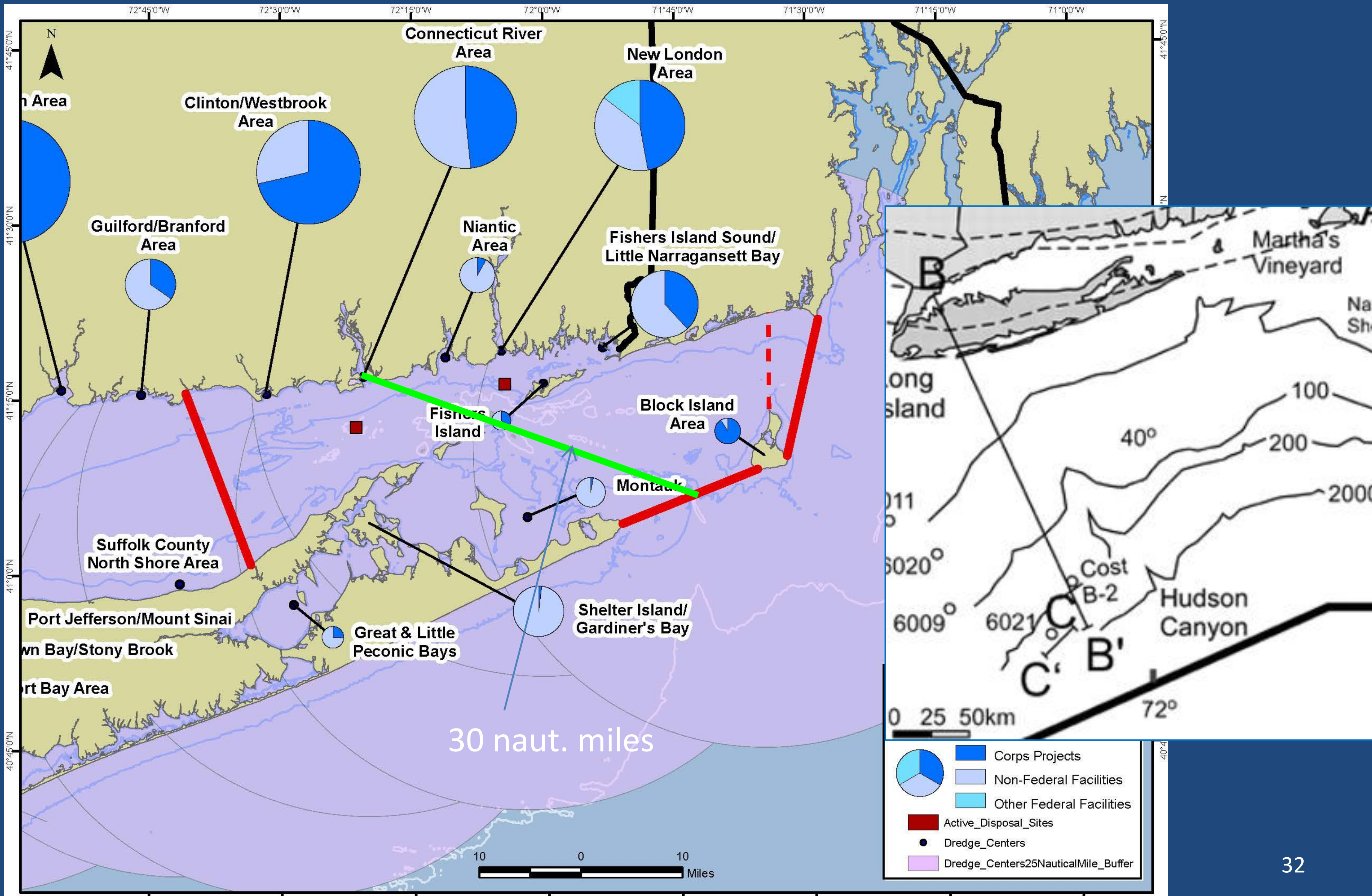
Alternative Energy – Wave



Alternative Energy – Tidal



Continental Shelf and Areas within 25 nm of Dredging Centers

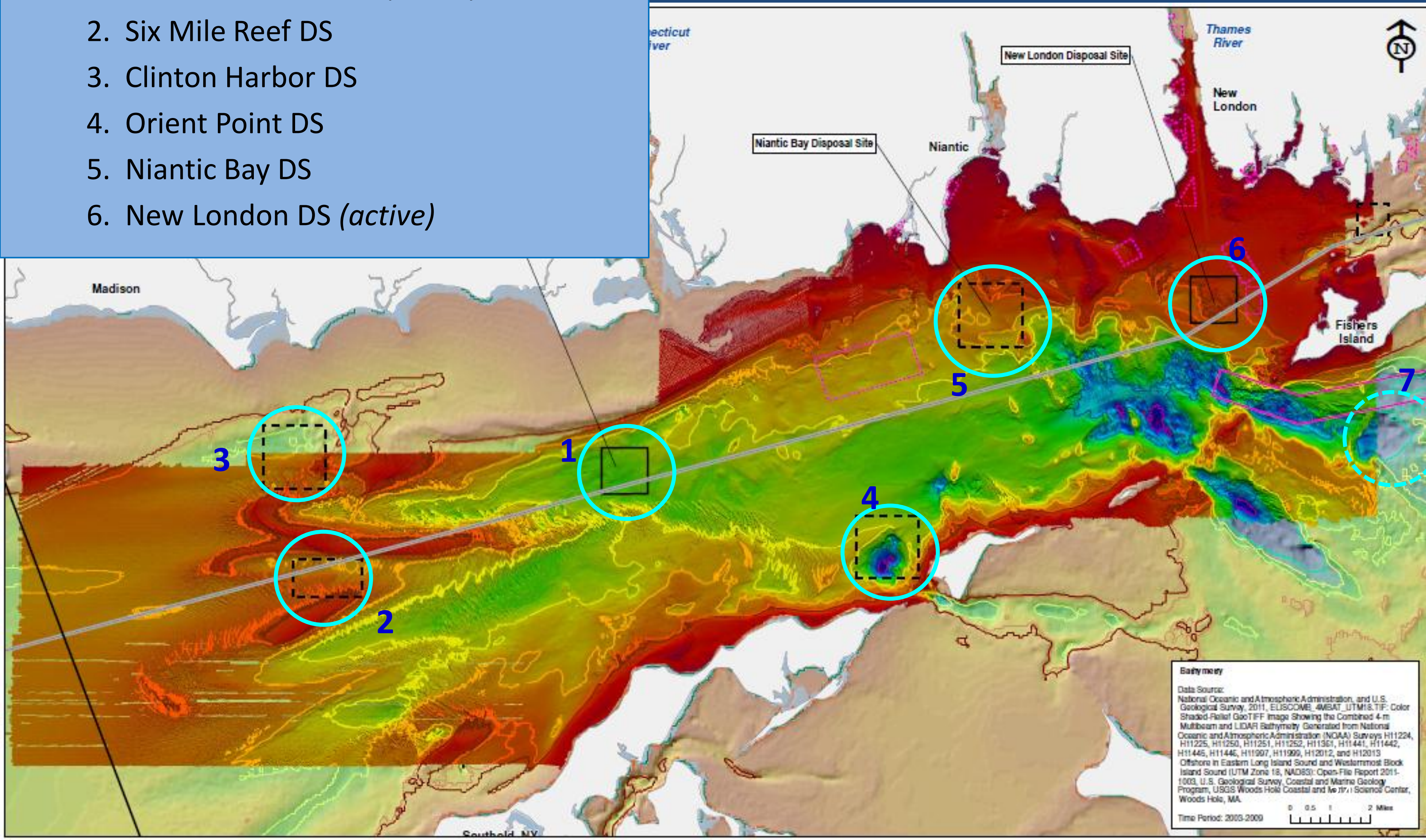


Alternative Site Discussion

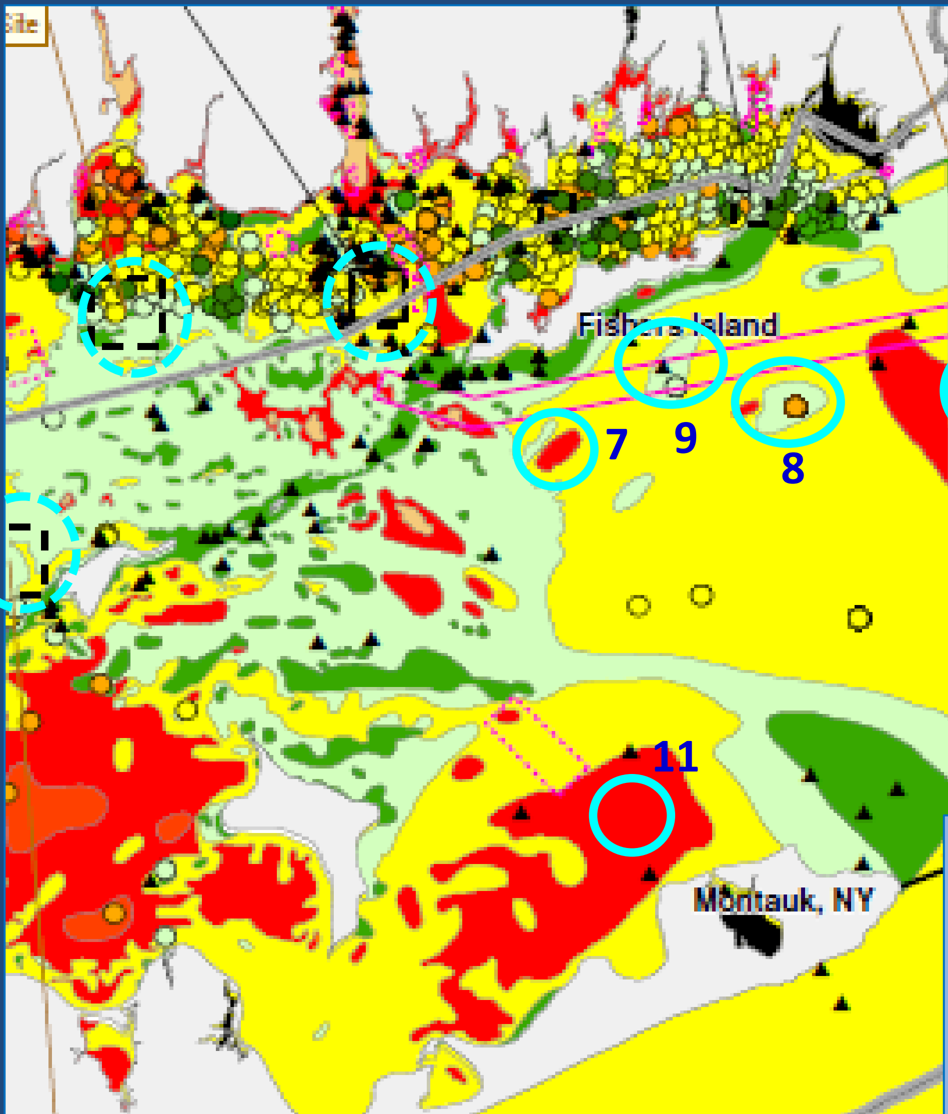
- Site Characteristics
- Valuable Marine Habitats
  - Gravel and hardbottom areas were identified previously as important to maintain
- Conservation Areas
- Economy, Safety, and Environment
- Active/Historic vs New Disposal Areas

Alternative Site Discussion: Eastern Long Island Sound

1. Cornfield Shoals DS (*active)*
2. Six Mile Reef DS
3. Clinton Harbor DS
4. Orient Point DS
5. Niantic Bay DS
6. New London DS *(active)*



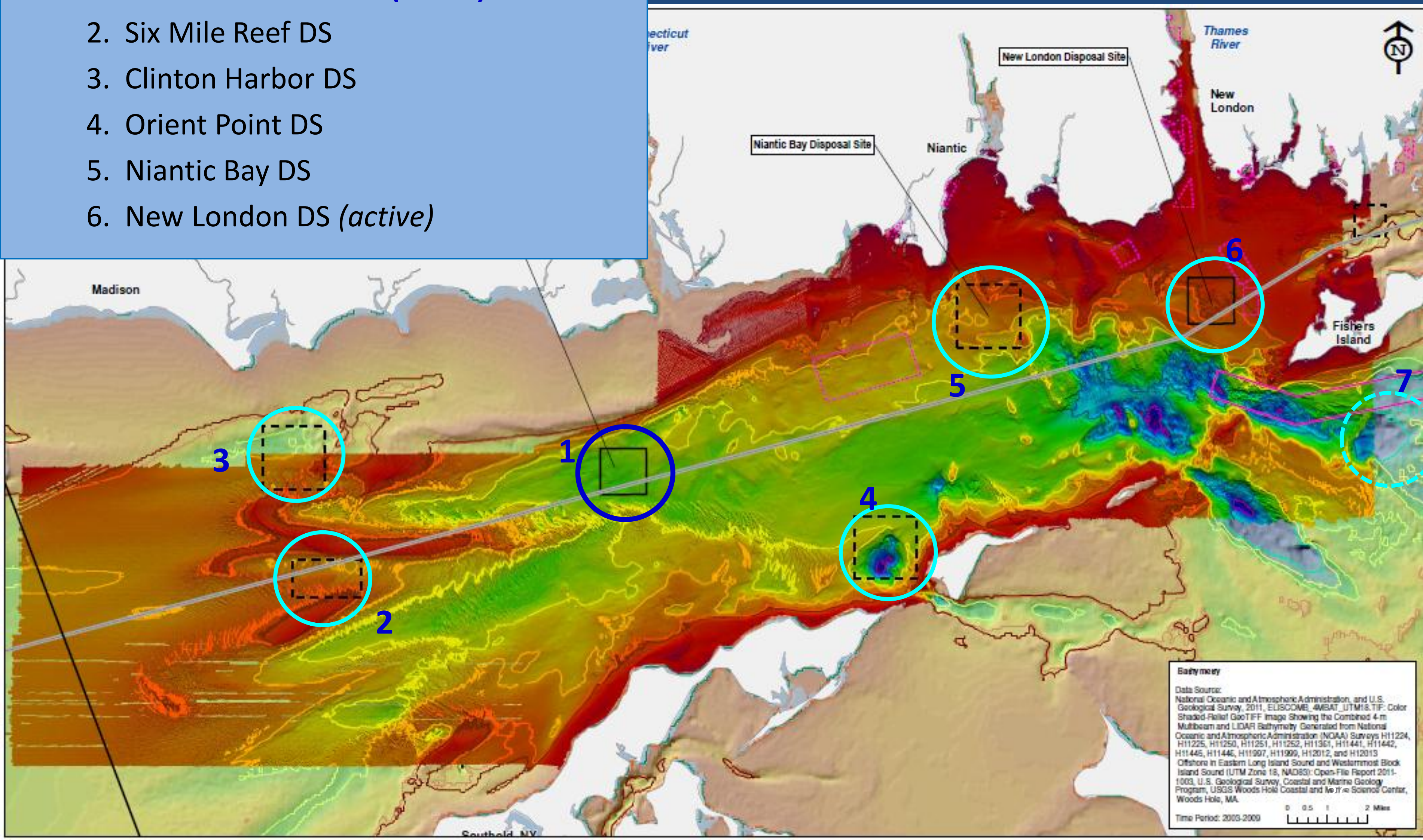
Alternative Site Discussion: Block Island Sound



7. Deep Hole south of Fishers Island - west
8. Deep Hole south of Fishers Island – east
9. Deep Hole south of Fishers Island – center
10. Block Island Sound Disposal Site
11. Area North of Montauk

Alternative Site Discussion: Eastern Long Island Sound *(cont.)*

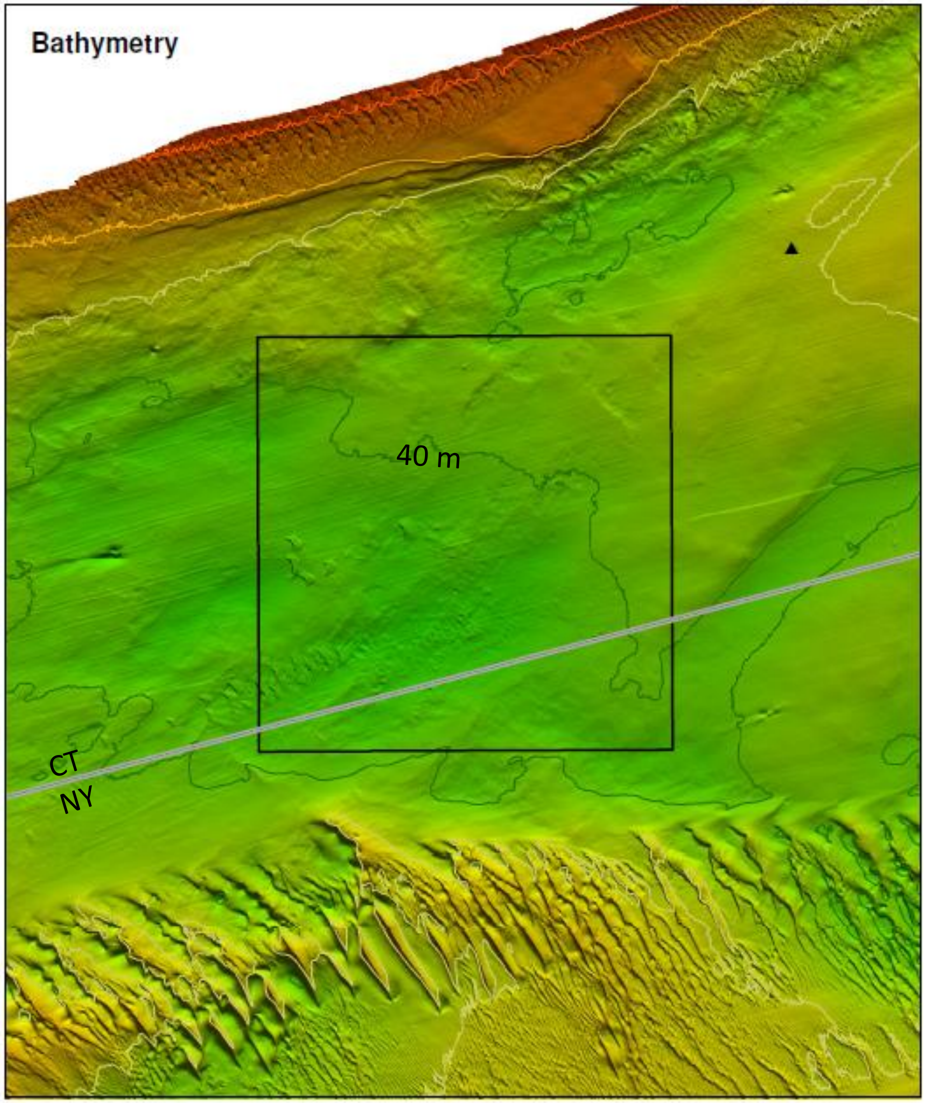
1. **Cornfield Shoals DS (*active*)**
2. Six Mile Reef DS
3. Clinton Harbor DS
4. Orient Point DS
5. Niantic Bay DS
6. New London DS *(active)*

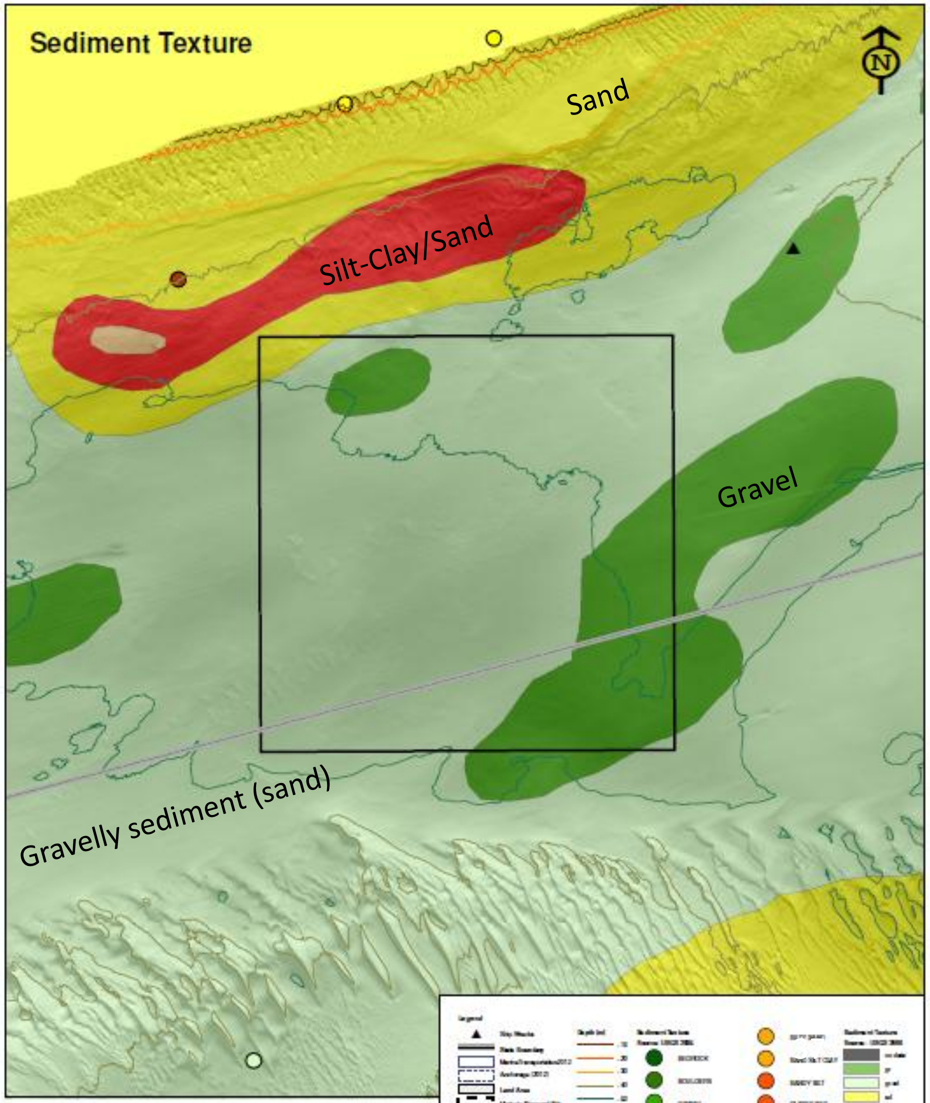


1. Cornfield Shoals Disposal Site

- + Deep area (150 ft)
- + Long Sand Shoal to north
- + Near dredging centers
- + Active site

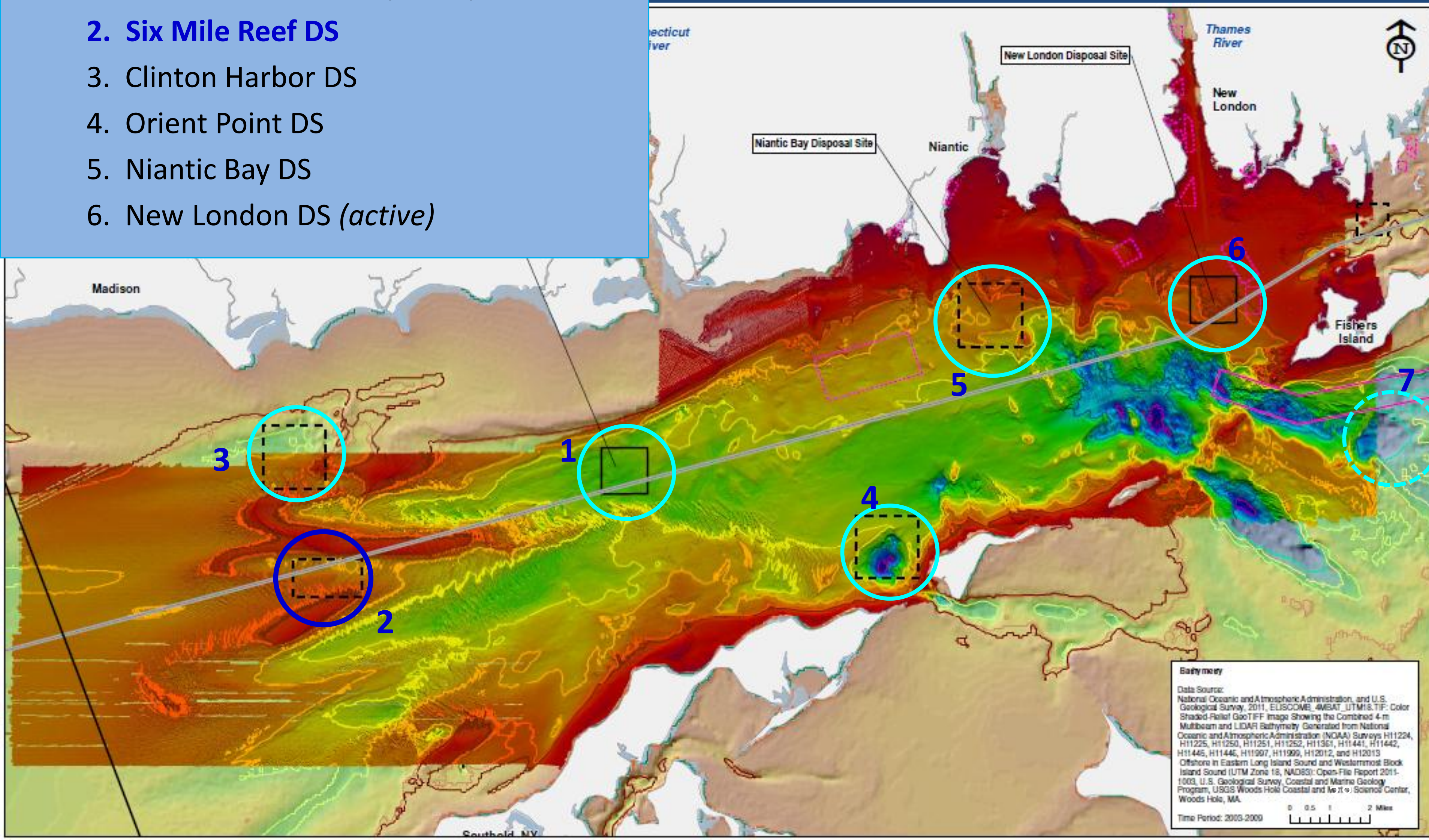
- o Zoned for restricted shellfishing (CT)
- - Gravelly sand
- o Transport direction WSW-ENE





Alternative Site Discussion: Eastern Long Island Sound *(cont.)*

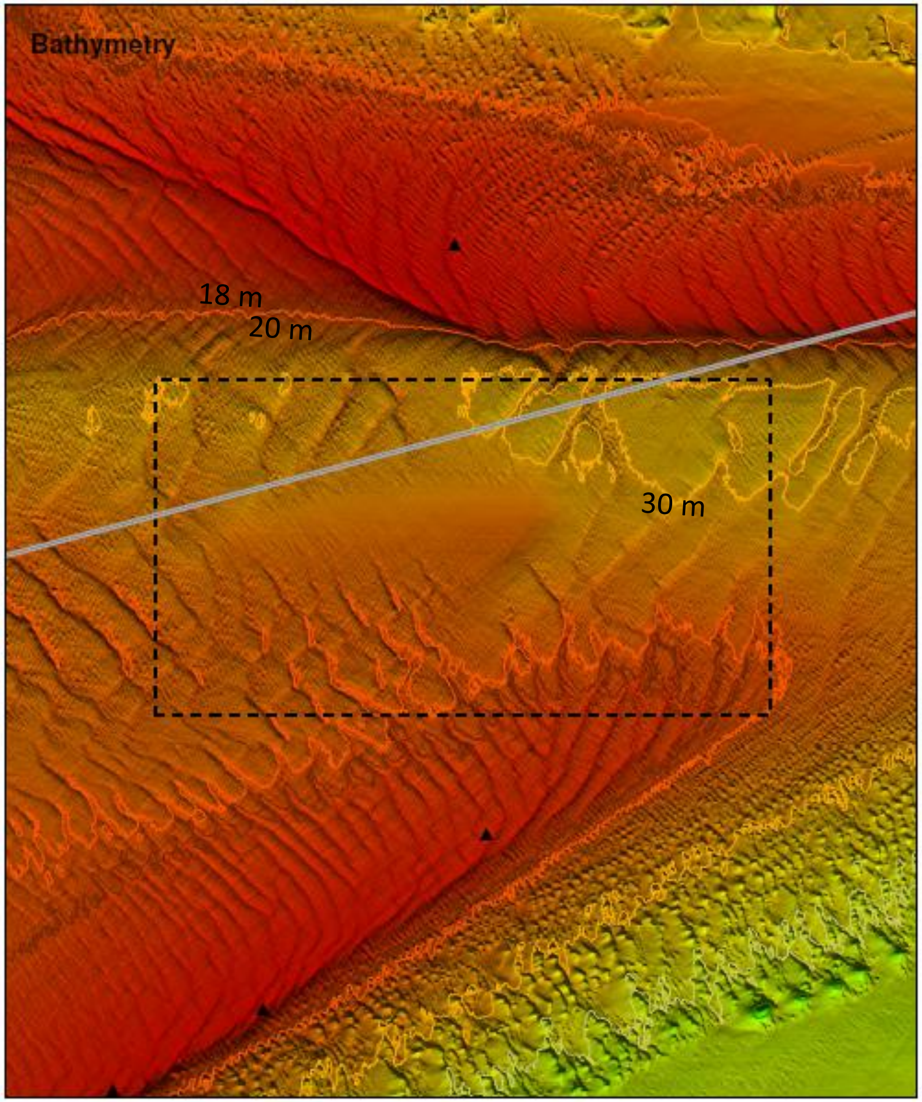
1. Cornfield Shoals DS (*active)*
2. **Six Mile Reef DS**
3. Clinton Harbor DS
4. Orient Point DS
5. Niantic Bay DS
6. New London DS *(active)*

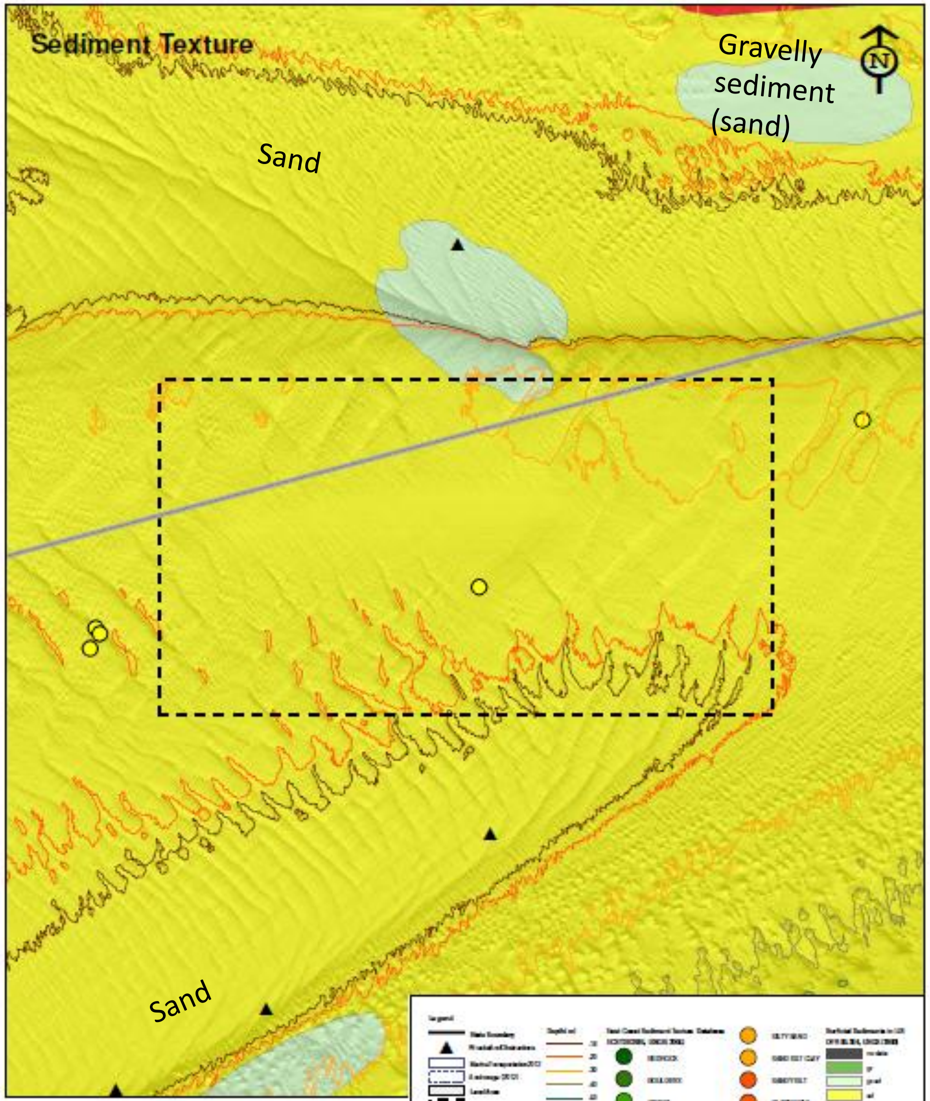


2. Six Mile Reef Disposal Site

- o Shallow (62-110 ft; 19-35 m)
- \- Sand waves
- \+ Near dredging centers (Clinton: 6 nm)

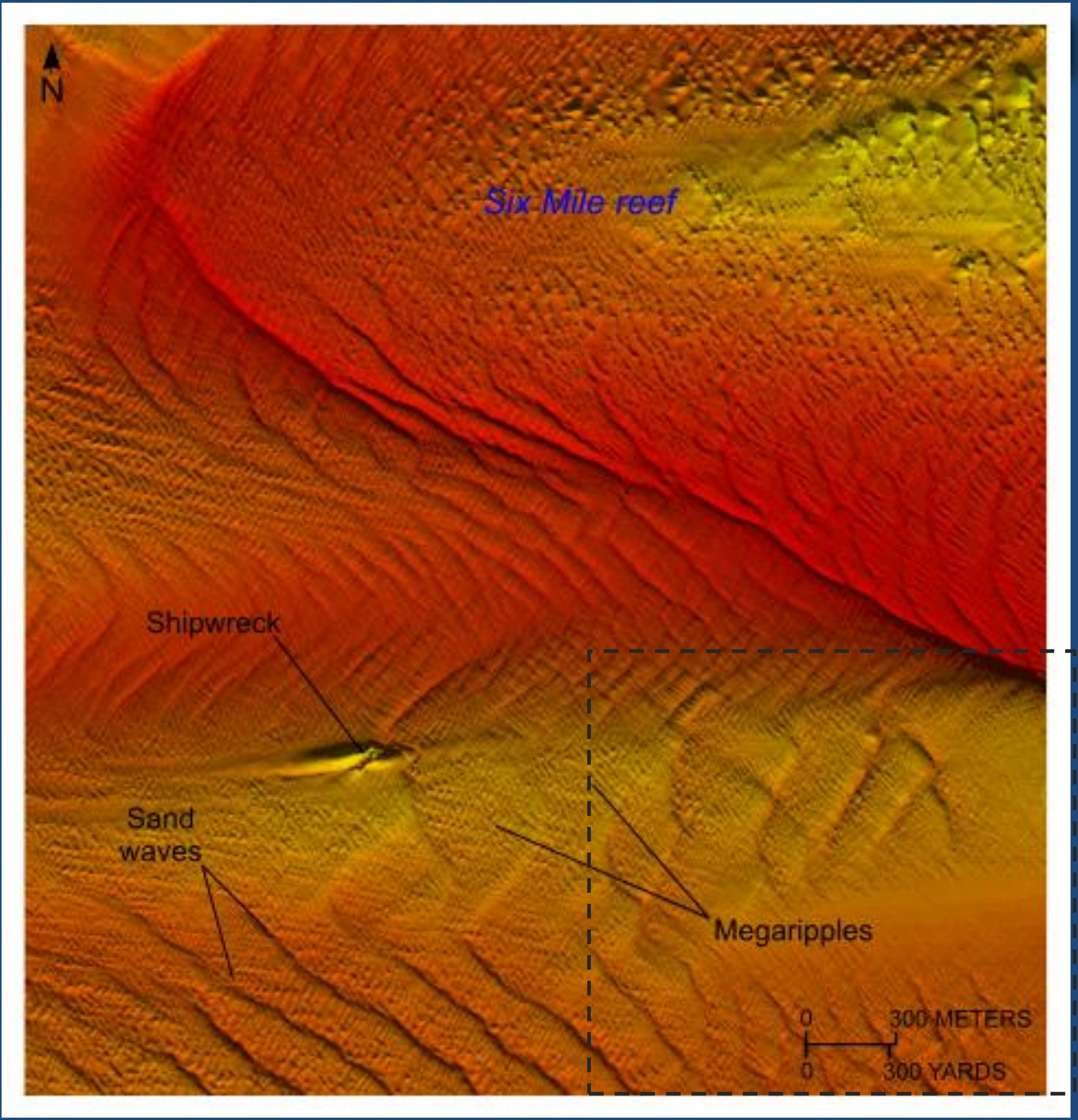
- o Historic site
- o 3.5 mi east of approved shellfishing zone (CT)
- \- Currents move in W-E direction





Six Mile Reef

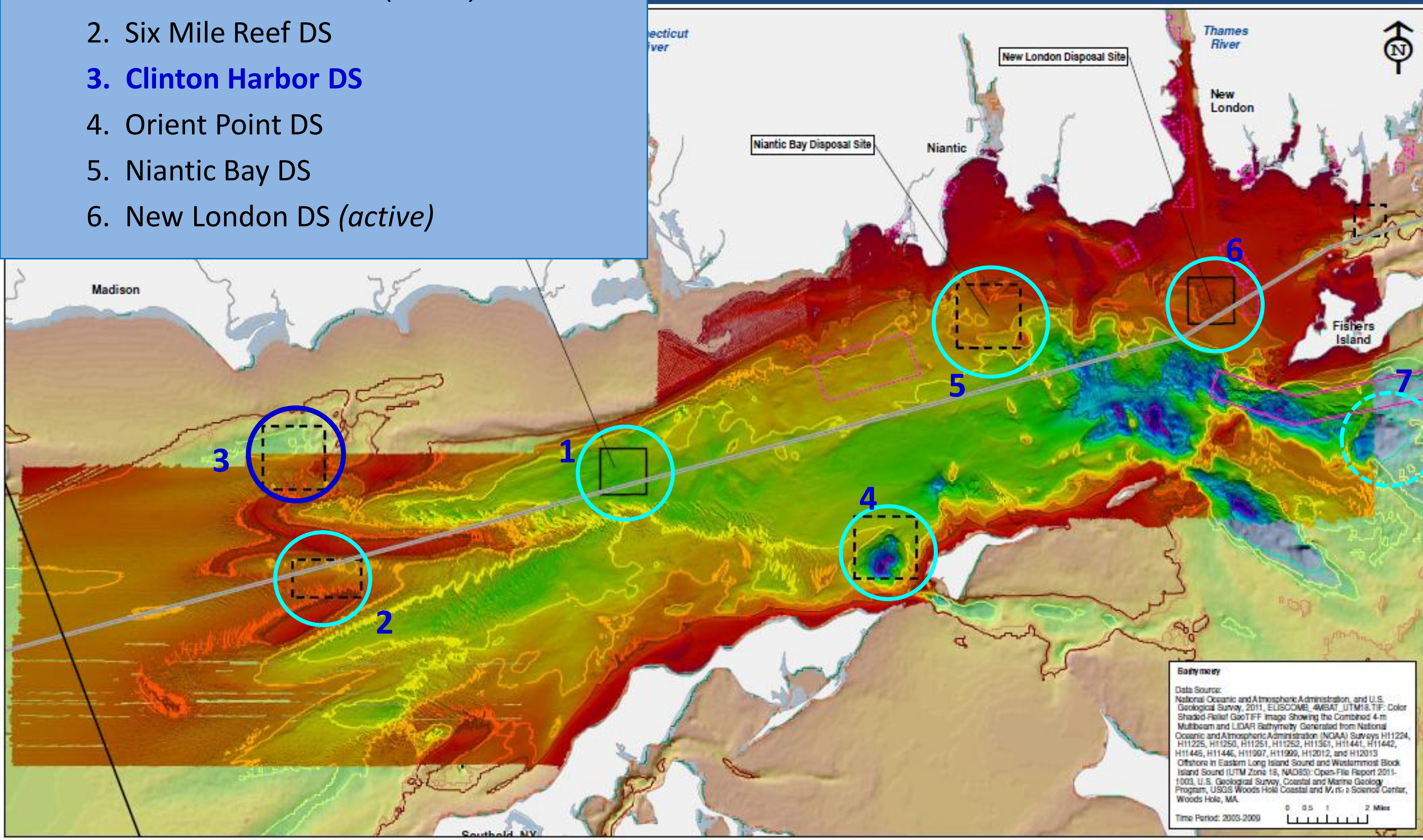
(Close-up)



http://pubs.usgs.gov/of/2011/1003/html/figures.html

Alternative Site Discussion:
Eastern Long Island Sound *(cont.)*

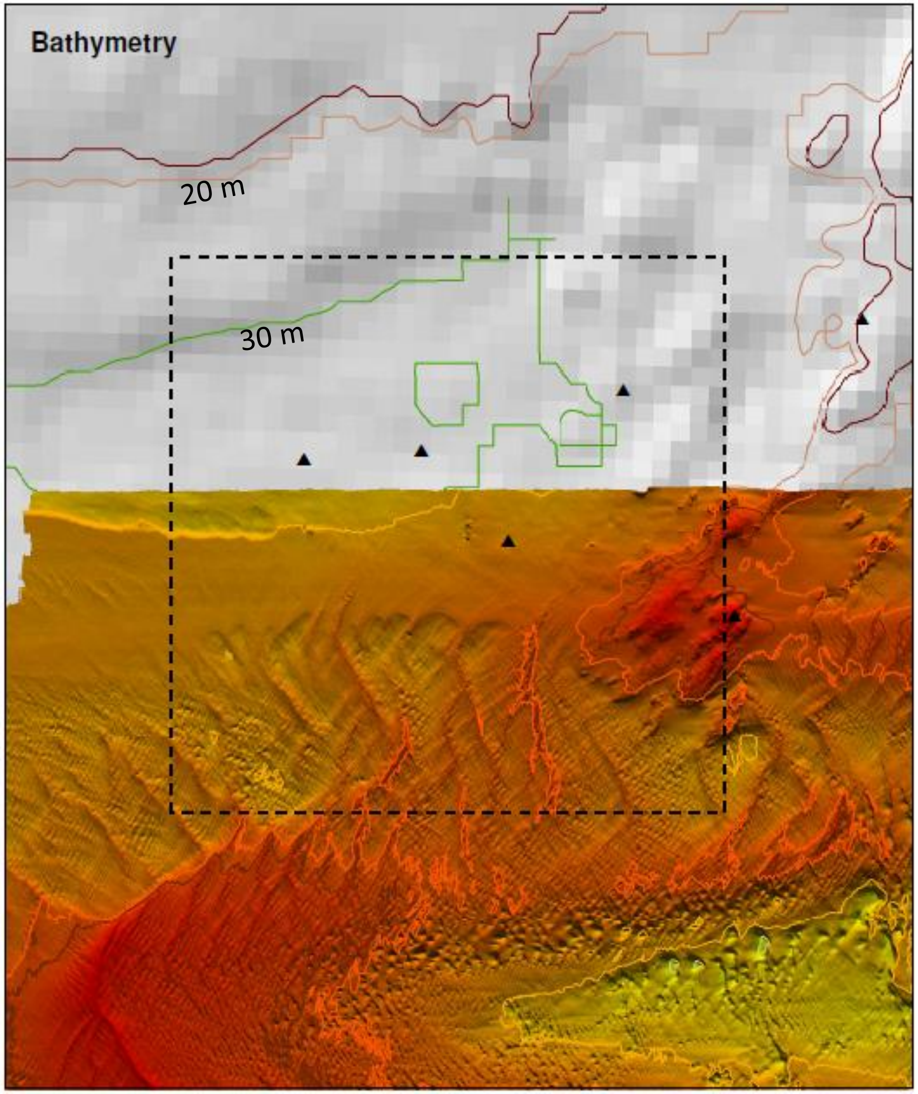
1. Cornfield Shoals DS *(active)*
2. Six Mile Reef DS
3. **Clinton Harbor DS**
4. Orient Point DS
5. Niantic Bay DS
6. New London DS *(active)*

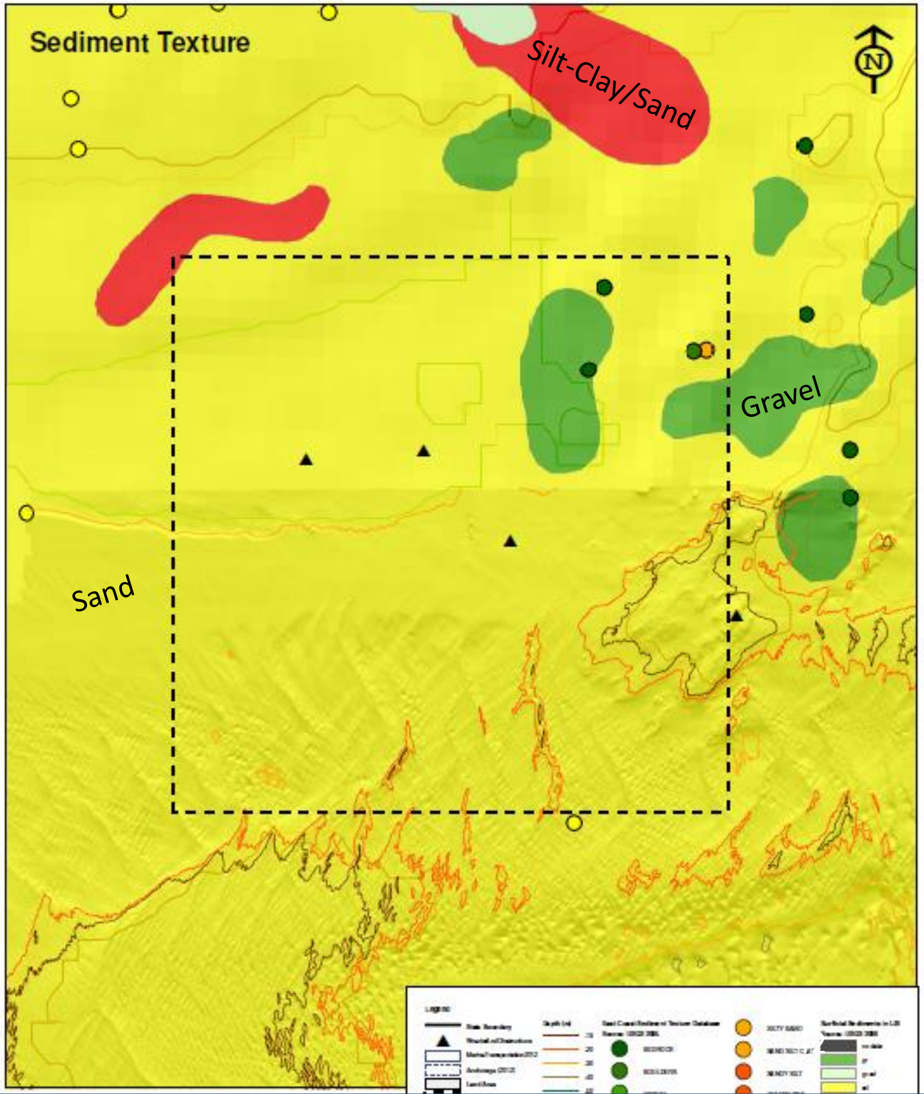


3. Clinton Harbor Disposal Site

- o Shallow depth: (up to 110 ft; 35 m)
- \- Sand
- \+ Near dredging centers (Clinton: 3 nm)
- o Historic site

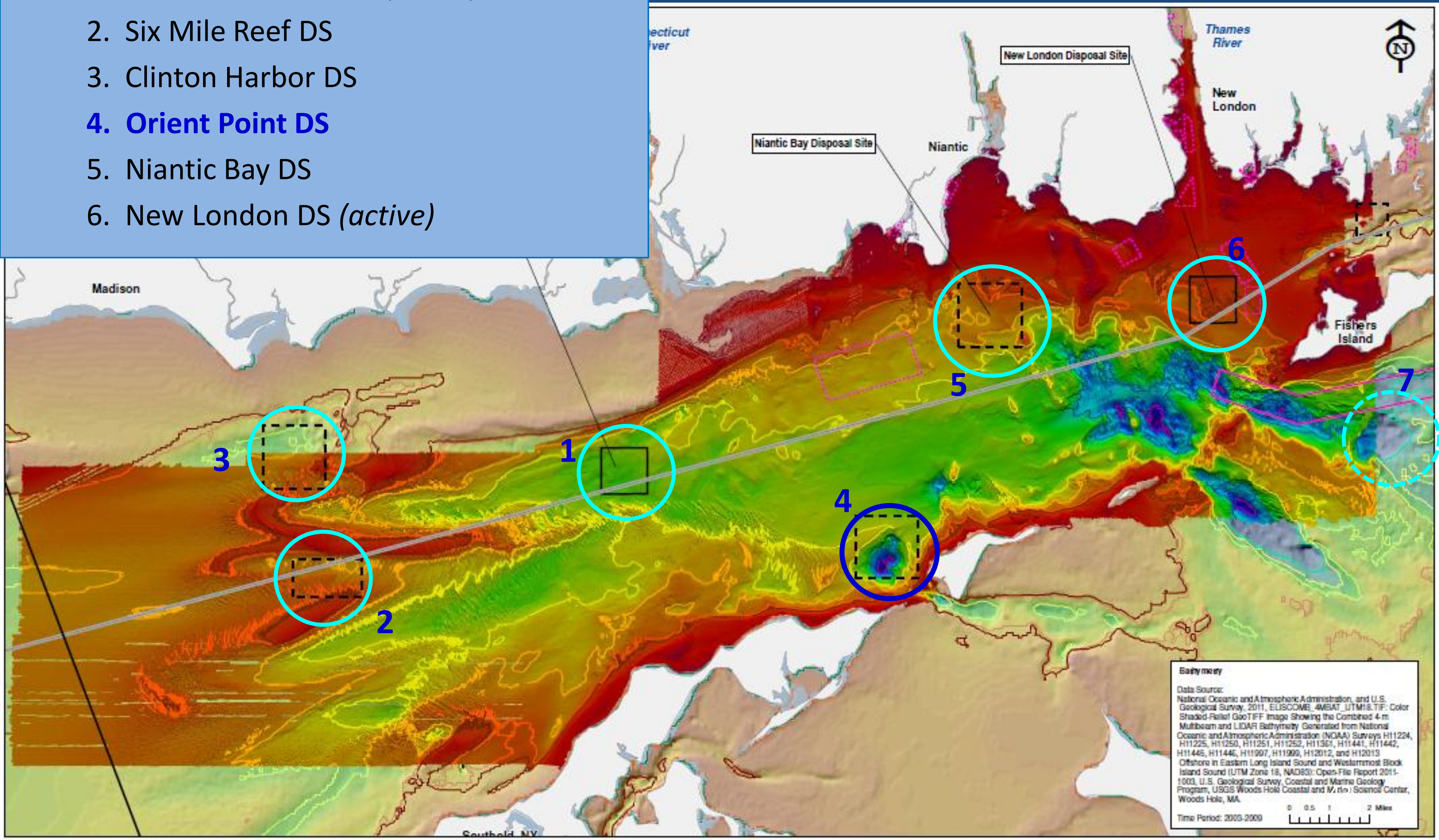
- \- Close to shore (1.5 nm)
- o 3 mi east of approved shellfishing zone (CT)
- ? Biological resources (gravel and rocky areas in NE)
- ? Archaeological resources (4 wrecks)





Alternative Site Discussion: Eastern Long Island Sound *(cont.)*

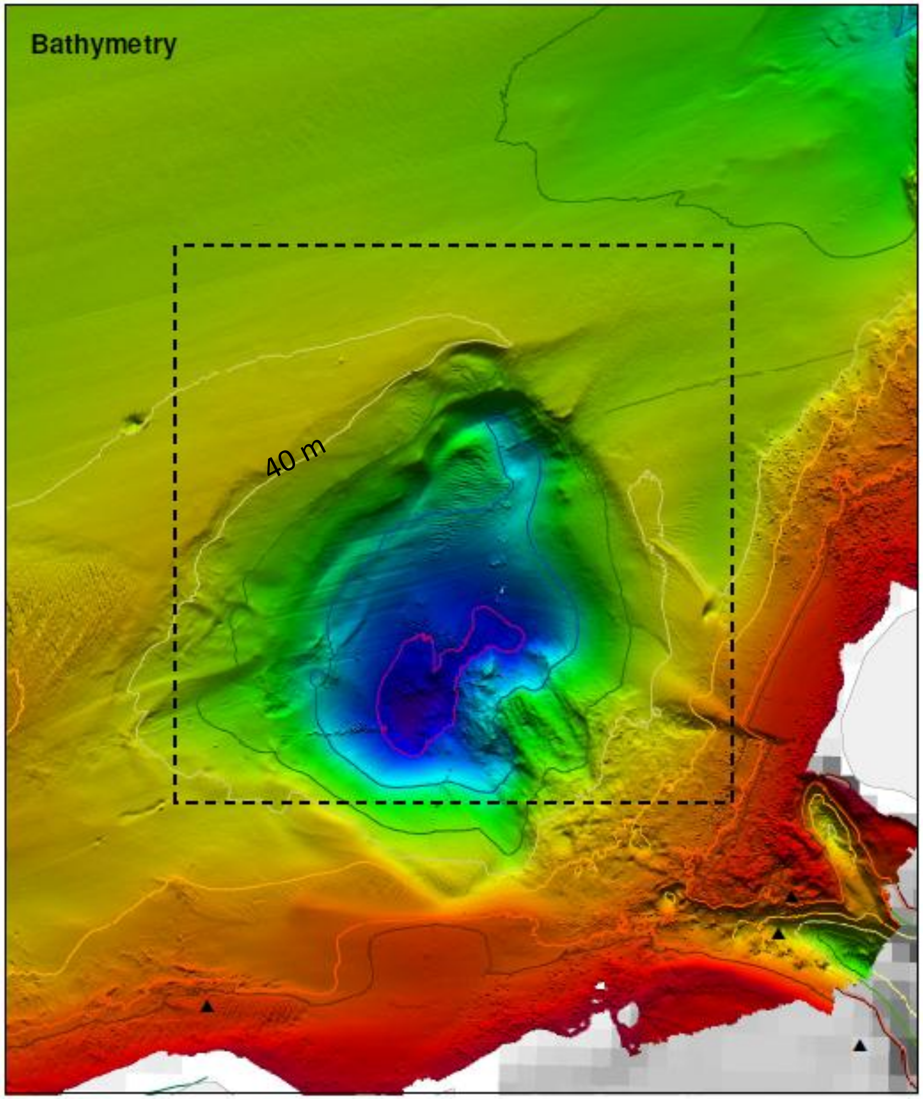
1. Cornfield Shoals DS (*active)*
2. Six Mile Reef DS
3. Clinton Harbor DS
4. **Orient Point DS**
5. Niantic Bay DS
6. New London DS *(active)*

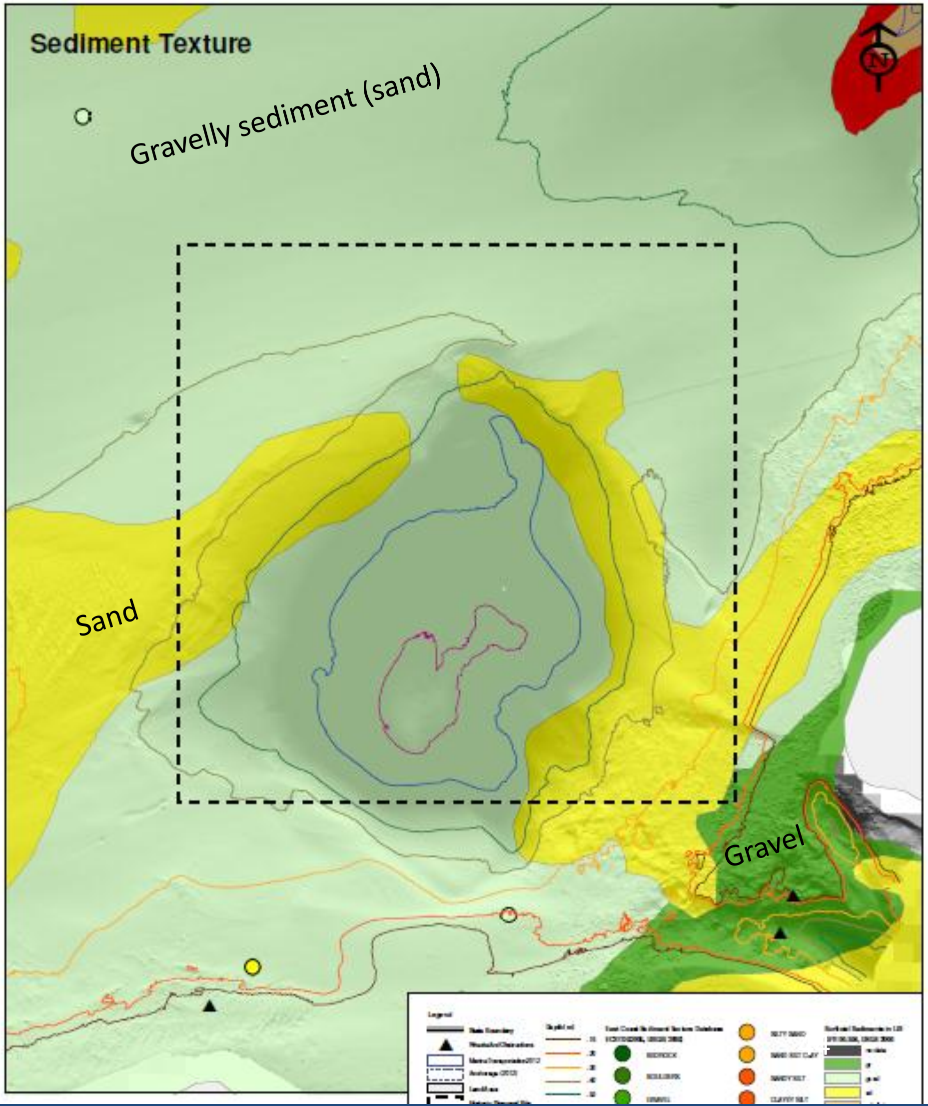


4. Orient Point Disposal Site

- \+ Deep depression (300 ft; 100m)
- o Medium distance to dredging centers (CT River: 8 mi; NL: 15 mi)
- o Historic site

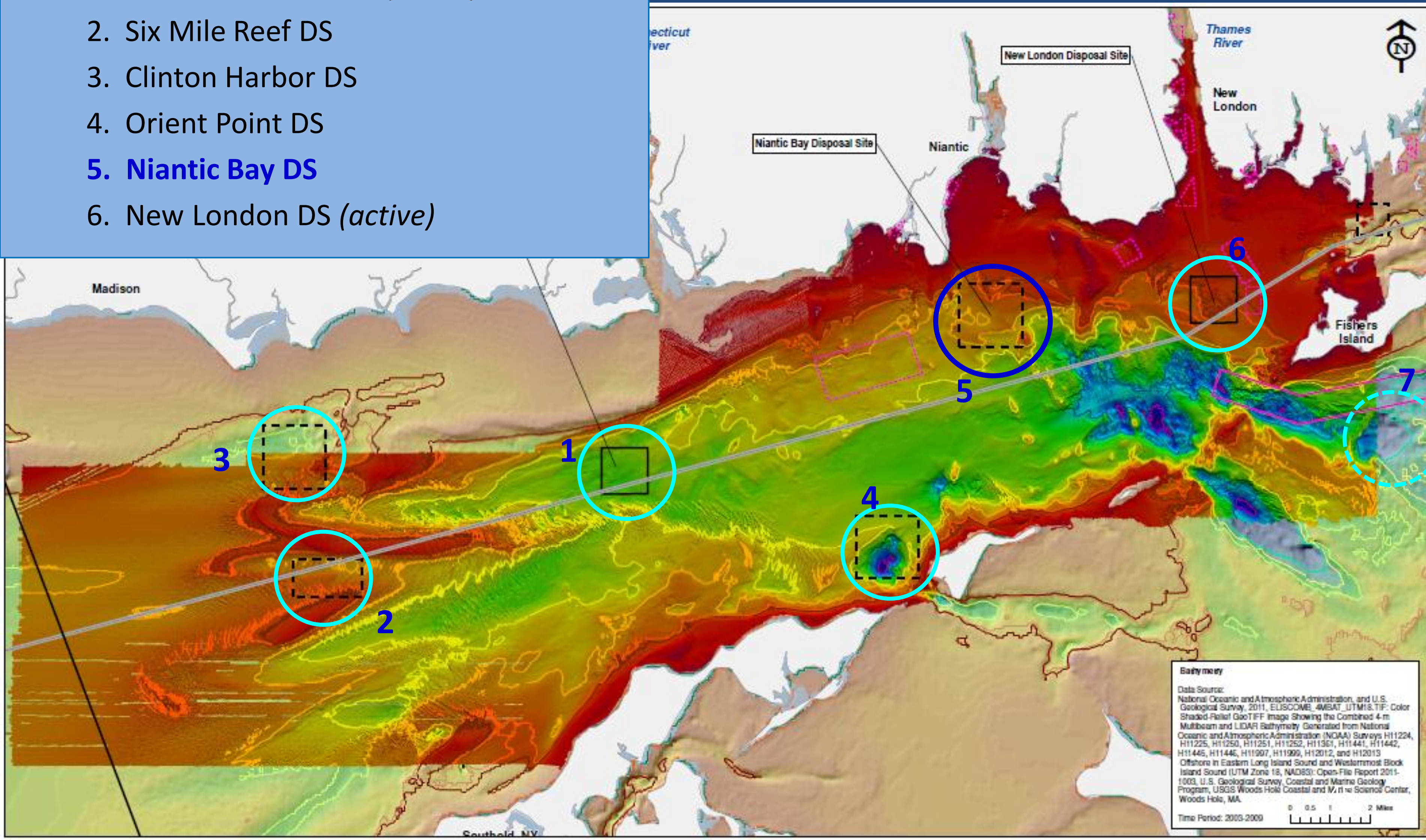
- ? Shellfish resources
- \- Gravelly sand
- ? Transport into Gardiners Bay (outgoing tide?)
- \- Navigation (Ferry traffic to Orient Point)





Alternative Site Discussion: Eastern Long Island Sound *(cont.)*

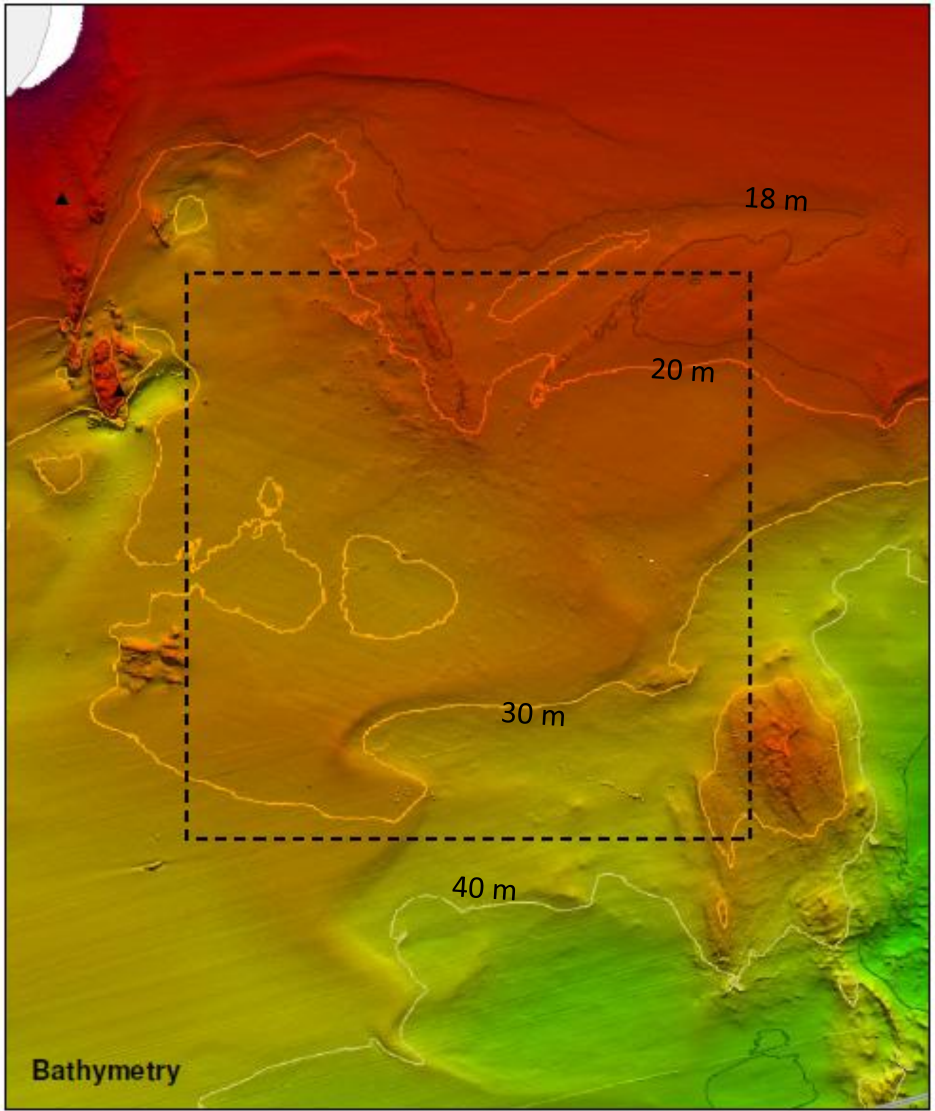
1. Cornfield Shoals DS *(active)*
2. Six Mile Reef DS
3. Clinton Harbor DS
4. Orient Point DS
5. **Niantic Bay DS**
6. New London DS *(active)*

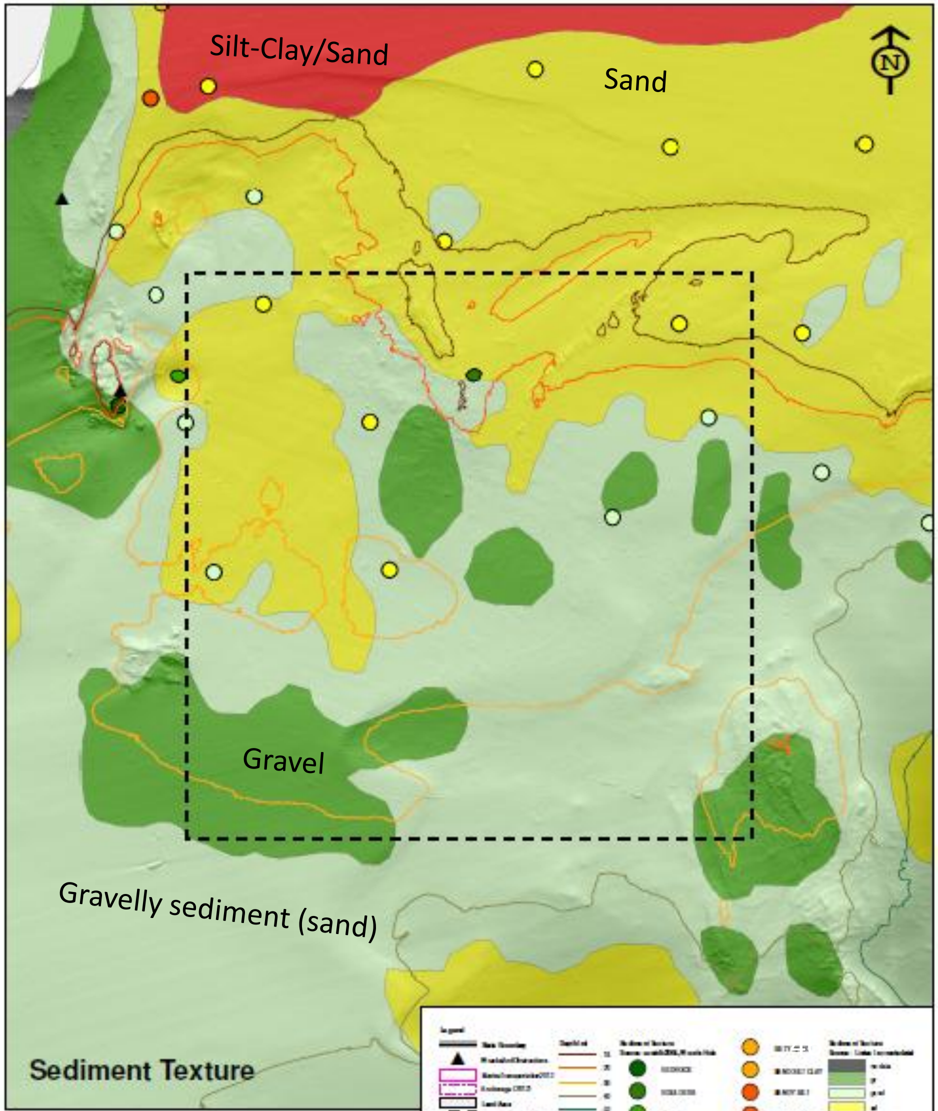


5. Niantic Bay Disposal Site

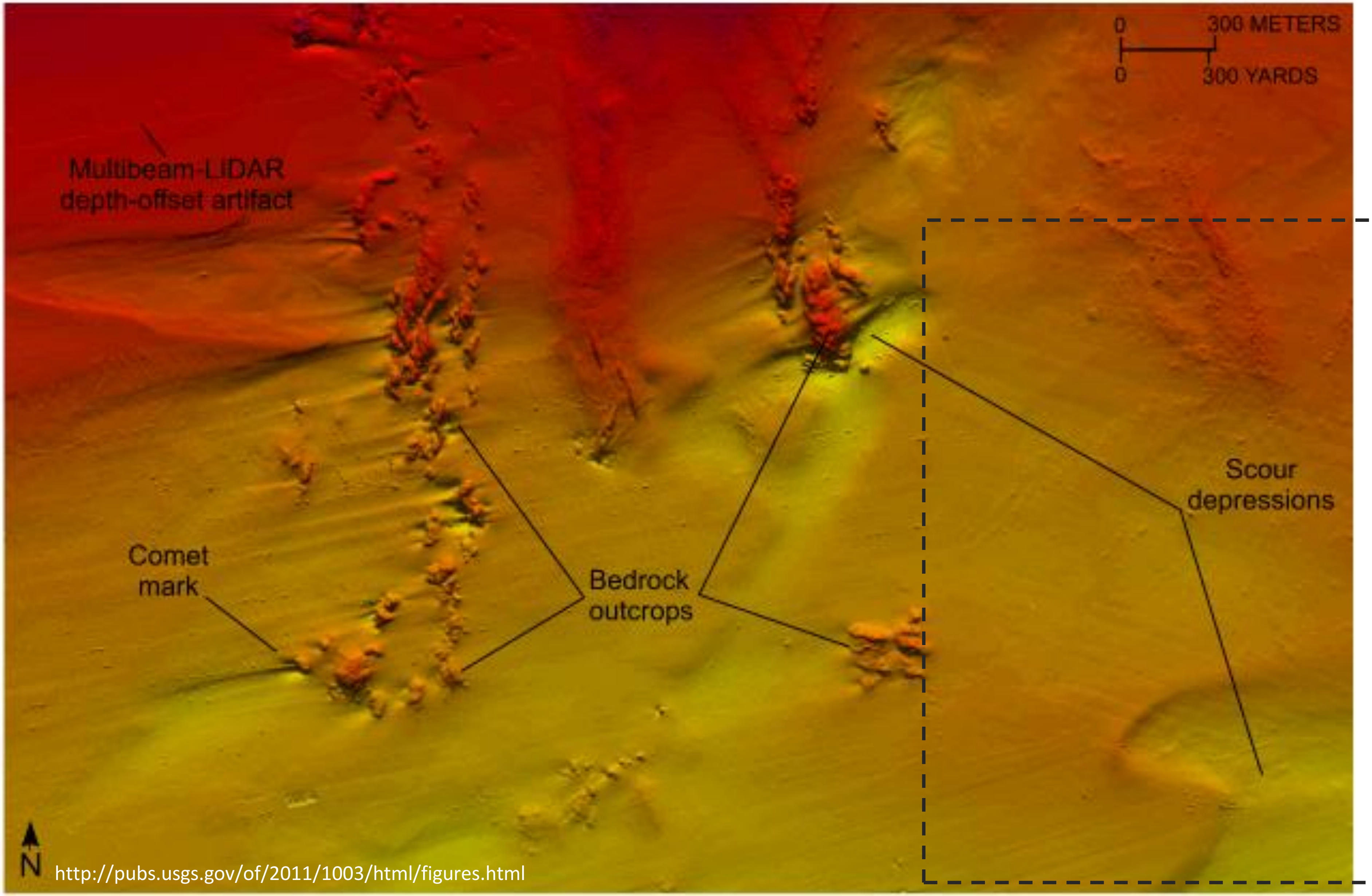
- \+ Deep area (up to 130 ft; 40m)
- \+ Near dredging centers
- o Outside rocky areas
- o Historic site

- o Zoned for restricted shellfishing/cond. approved (CT)
- -/? Sand; gravelly sand
- o Transport direction WSW-ENE





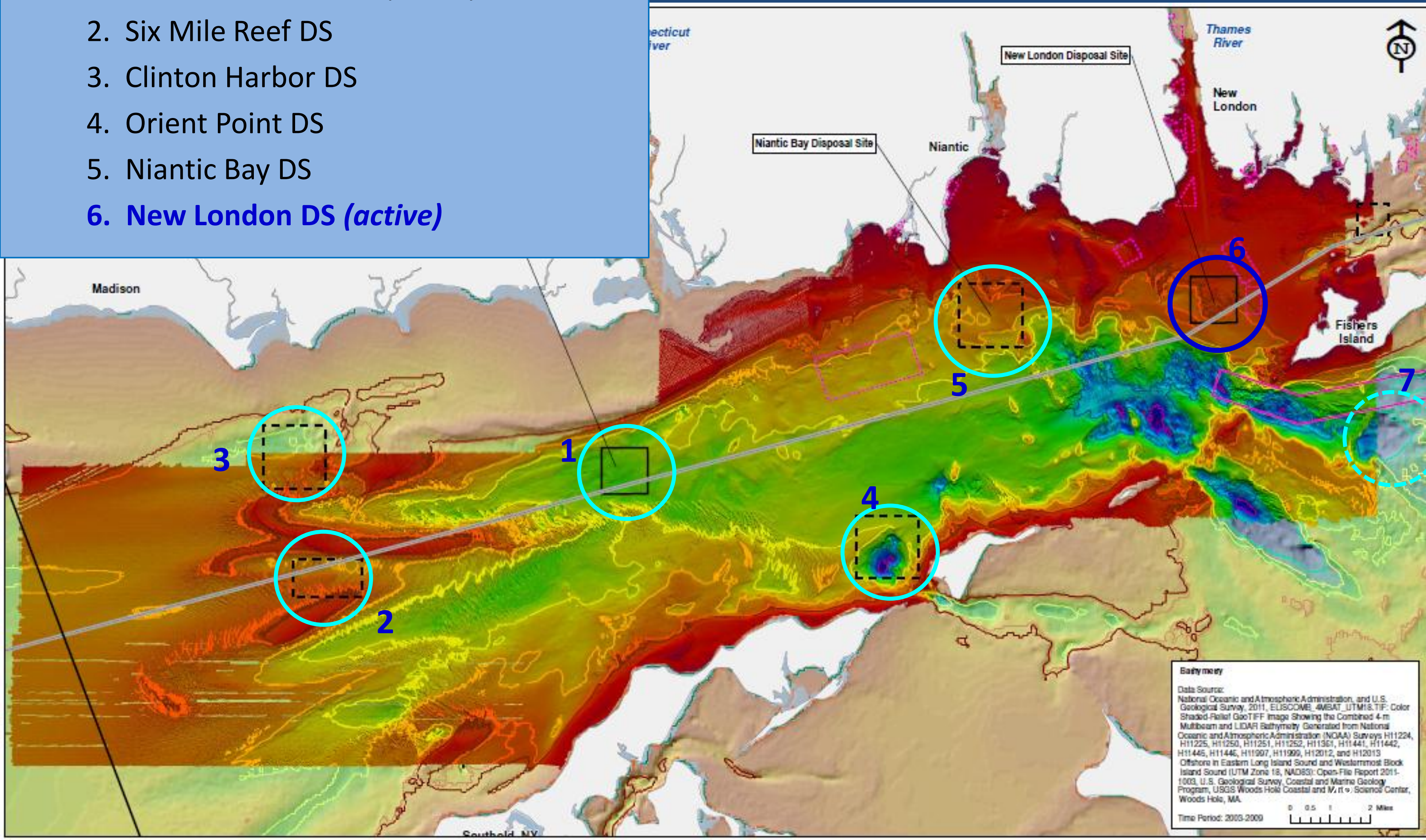
Area around Niantic Bay Disposal Site (Close-up)



http://pubs.usgs.gov/of/2011/1003/html/figures.html

Alternative Site Discussion: Eastern Long Island Sound *(cont.)*

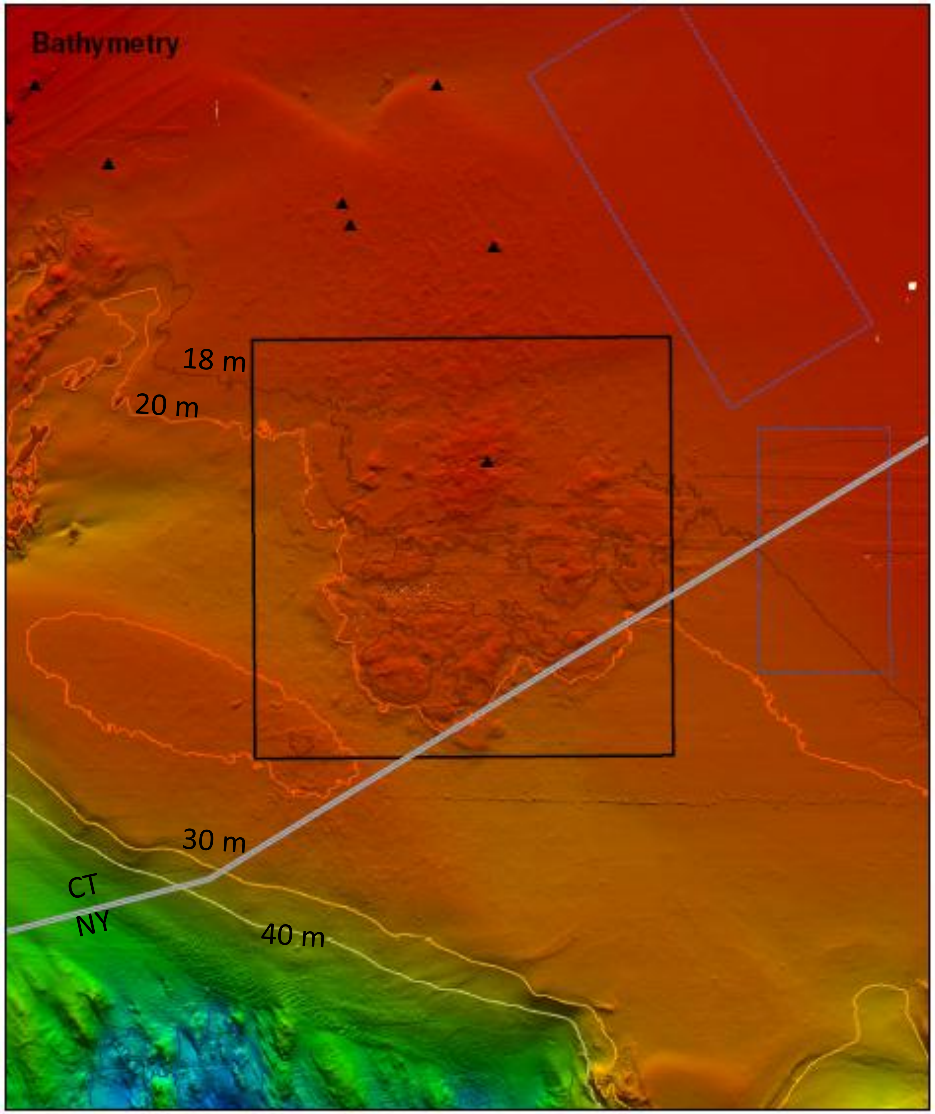
1. Cornfield Shoals DS (*active)*
2. Six Mile Reef DS
3. Clinton Harbor DS
4. Orient Point DS
5. Niantic Bay DS
6. **New London DS *(active)***

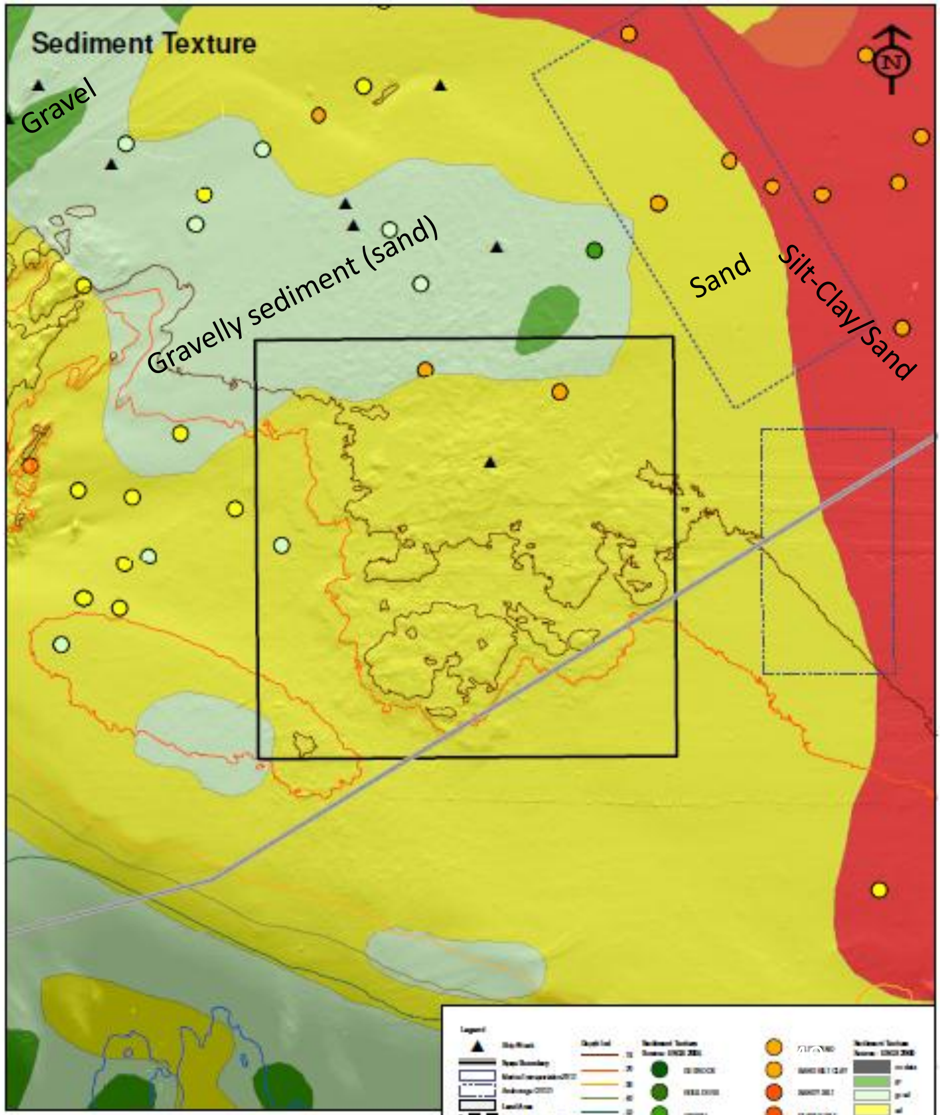


6. New London Disposal Site

-/o Shallow (up to 50-70 ft; 15-21 m)
+ Near dredging centers (NL: 5 nm)
+ Located away from rocky areas
+ Active site

o Zoned for restricted shellfishing (CT)
+ Fine grained sediment
- Navigation zone
? Cable corridor (active cable?)

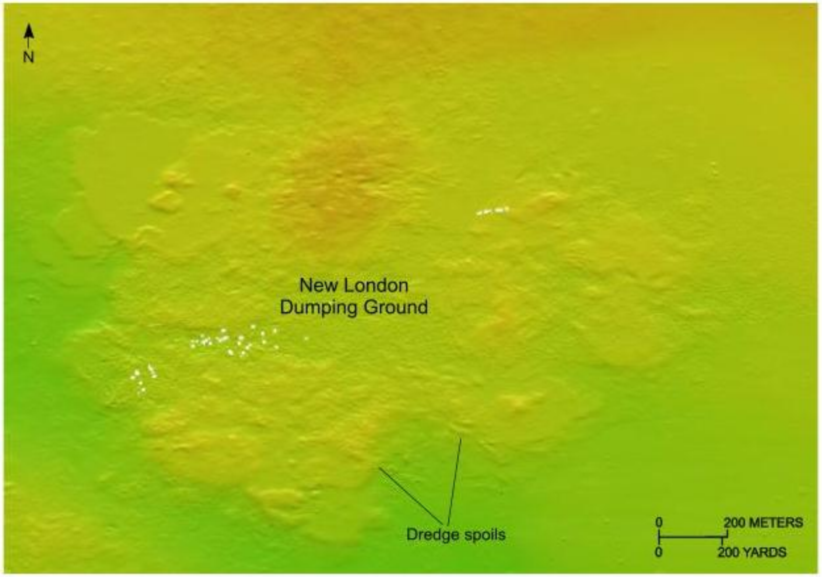


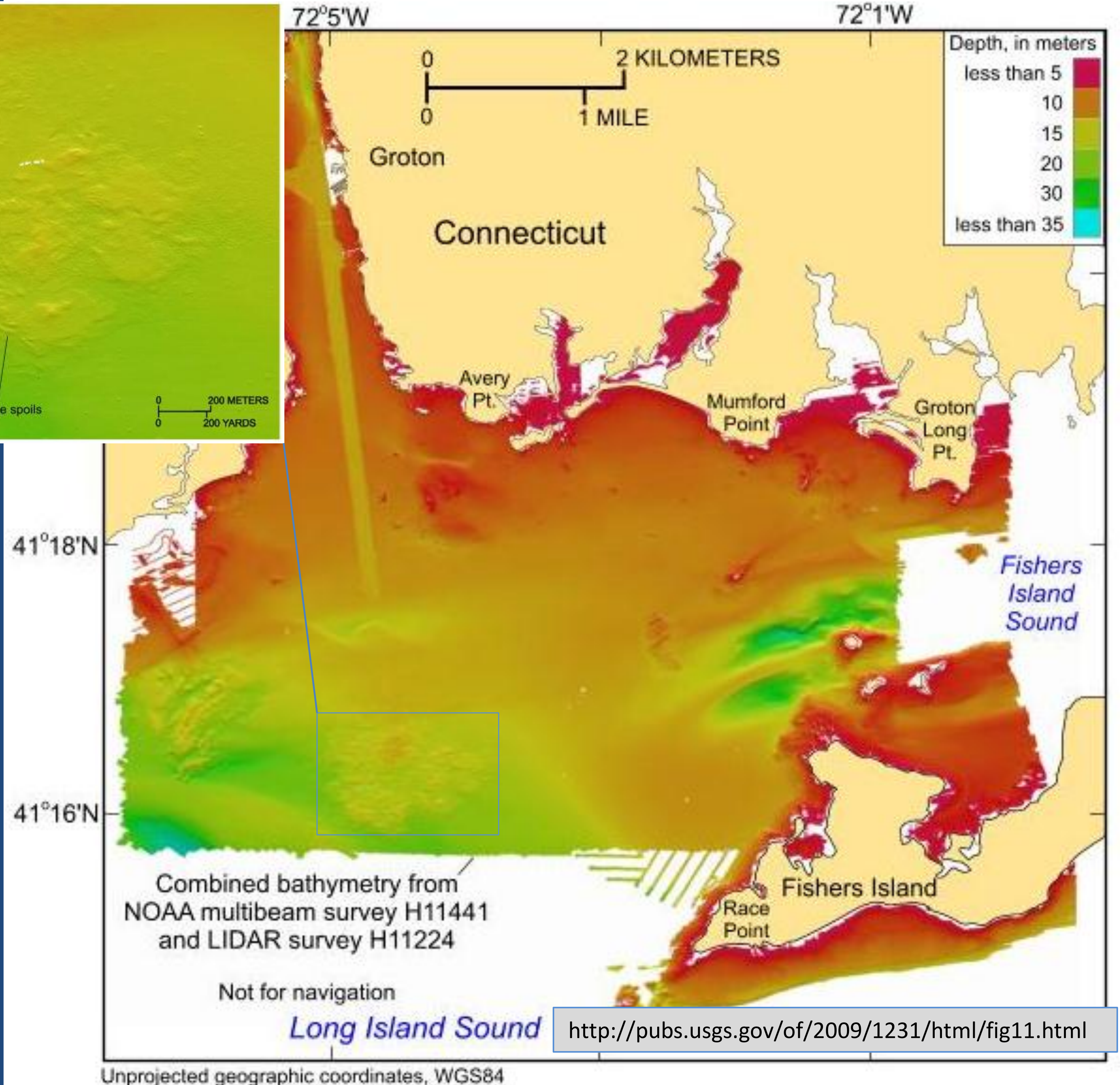


New London Disposal Site

Bathymetry

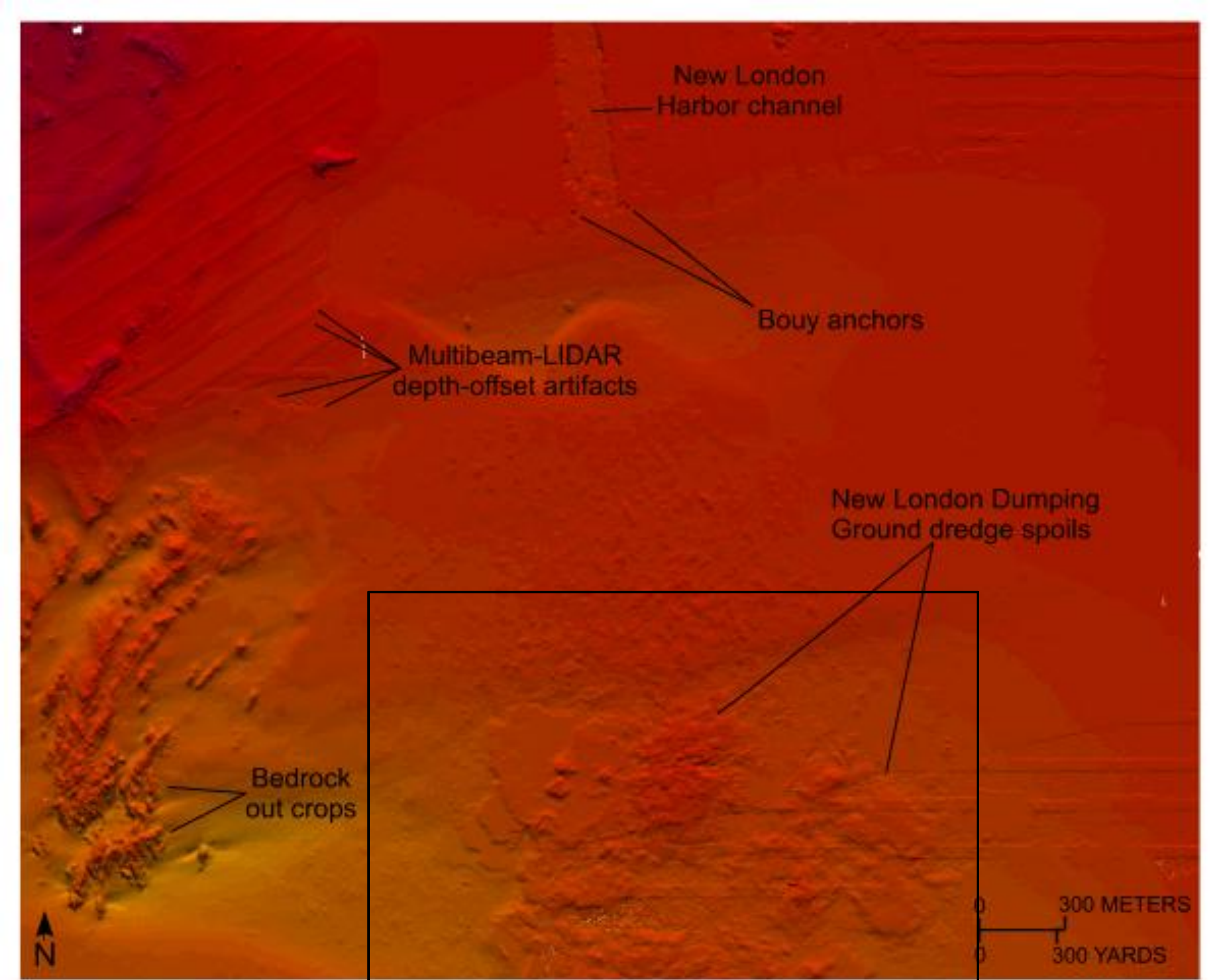
NOAA Multibeam and LIDAR survey)





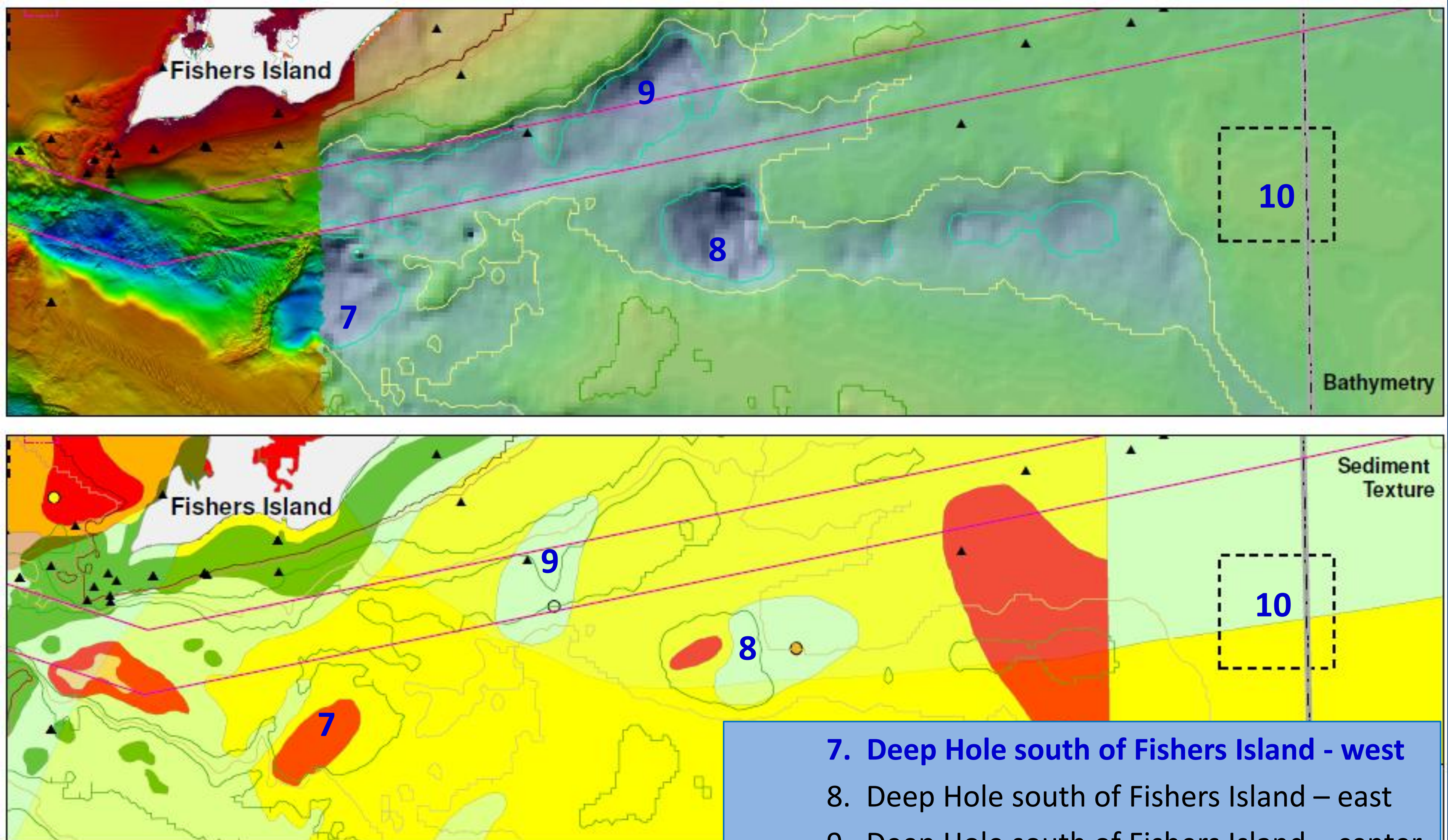
http://pubs.usgs.gov/of/2009/1231/html/fig11.html

Area around New London DS (close-up)



http://pubs.usgs.gov/of/2011/1003/html/figures.html

7-10. Block Island Sound

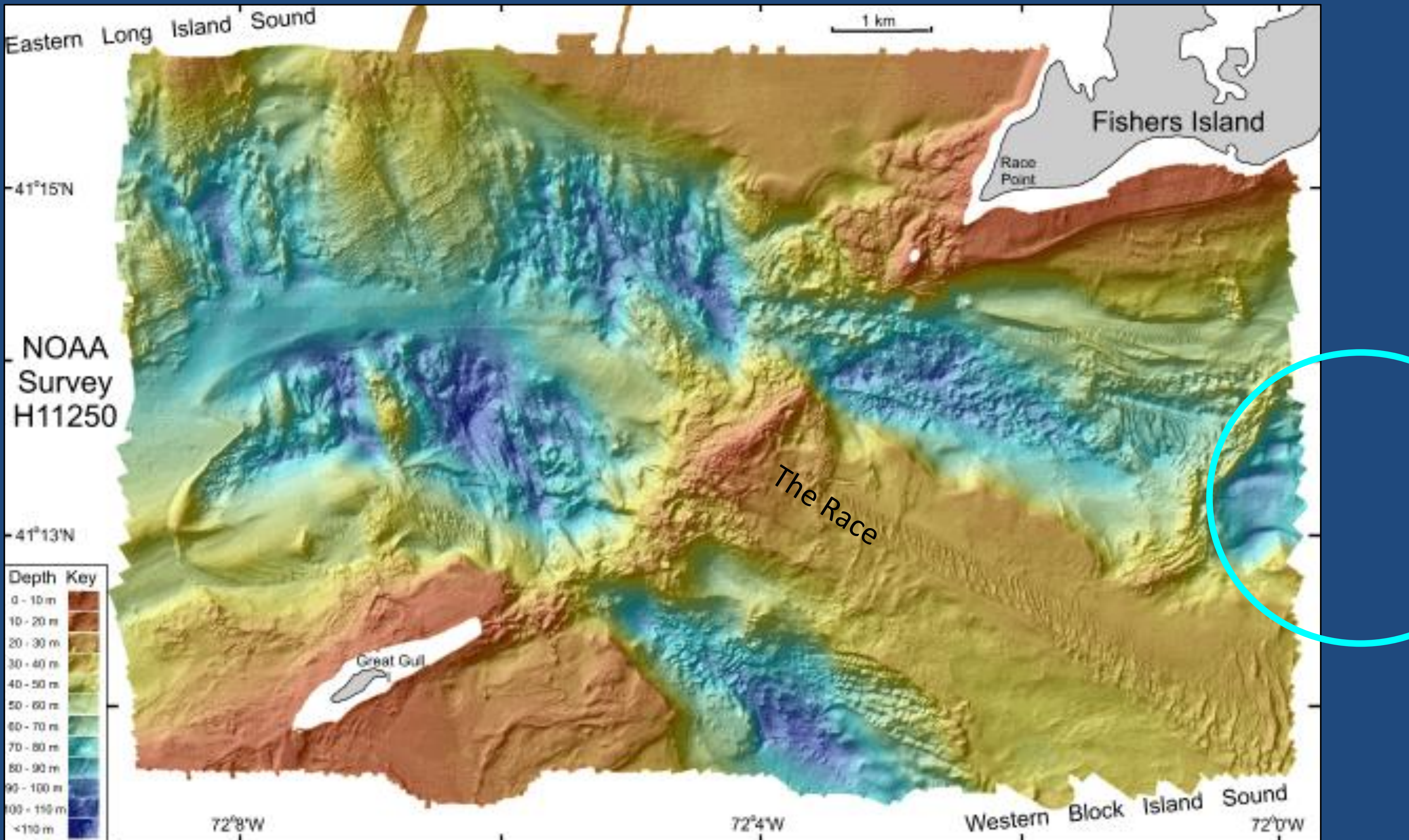


7. **Deep Hole south of Fishers Island - west**
8. Deep Hole south of Fishers Island – east
9. Deep Hole south of Fishers Island – center
10. Block Island Sound Disposal Site

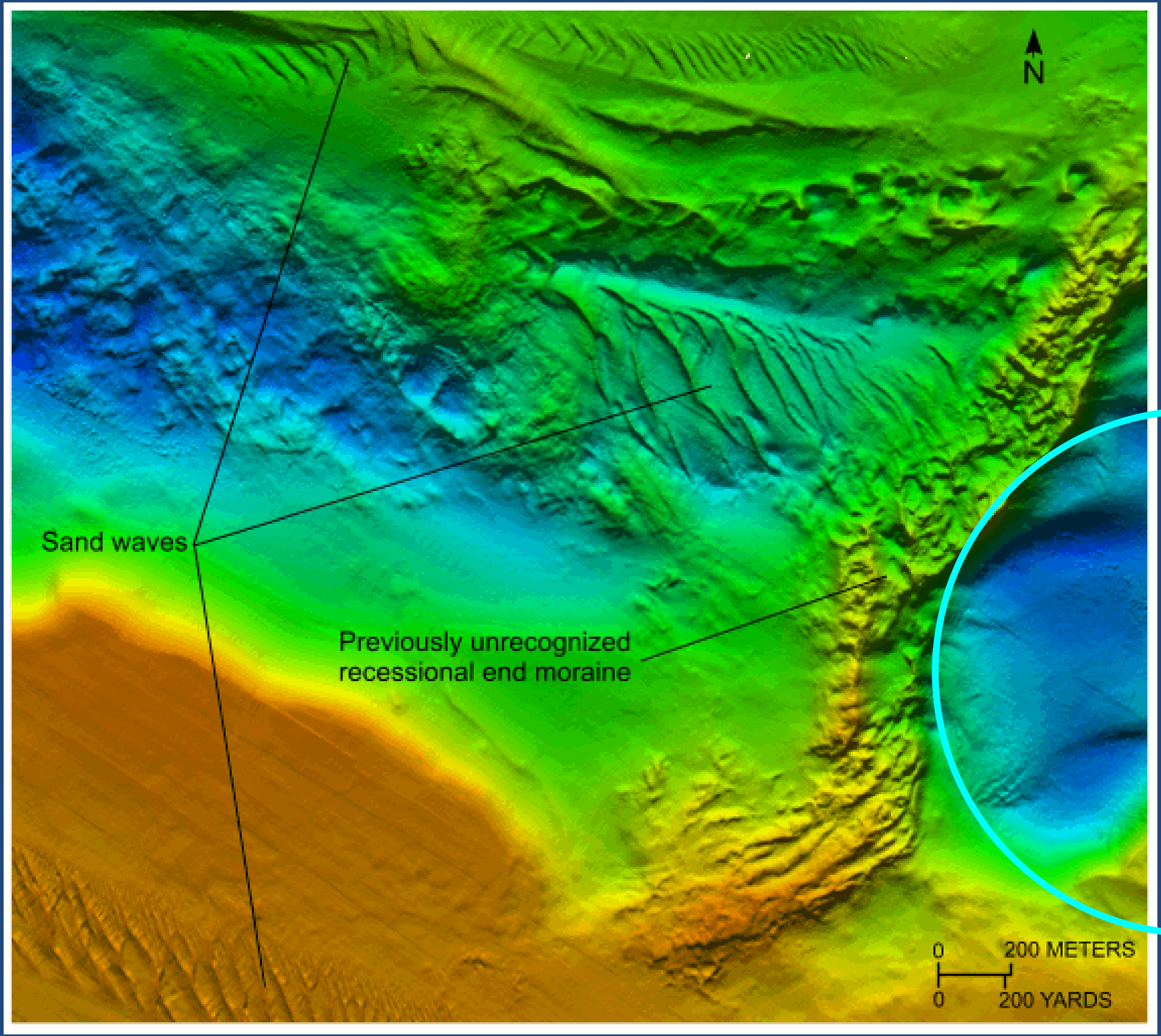
7. Deep Hole south of Fishers Island - west

+ Deep depression (270 ft; 90m)
o Medium distance to dredging centers (NL: 9 nm)
- New site
o Navigation area

-/? Dispersive (Silt/clay: likely Pleistocene deposits)
? Biological resources
? Tidal energy potential



Deep Hole south of Fishers Island – west (close-up)

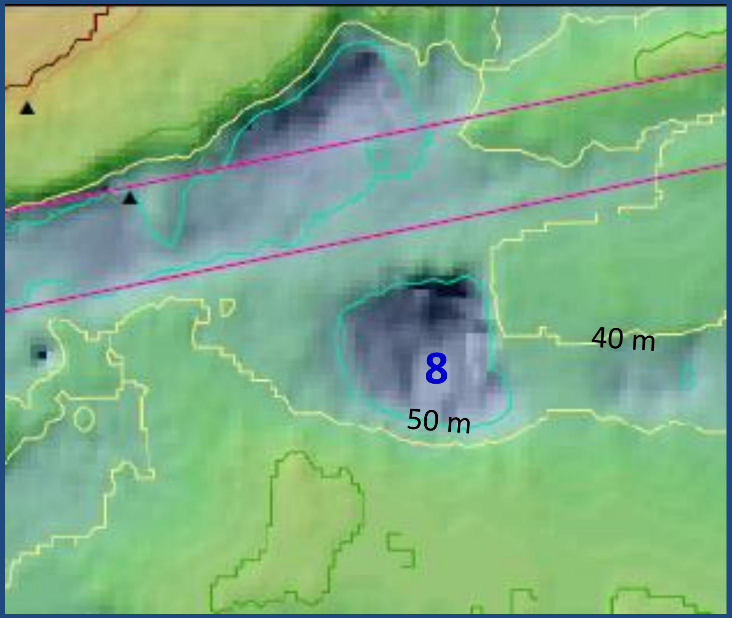


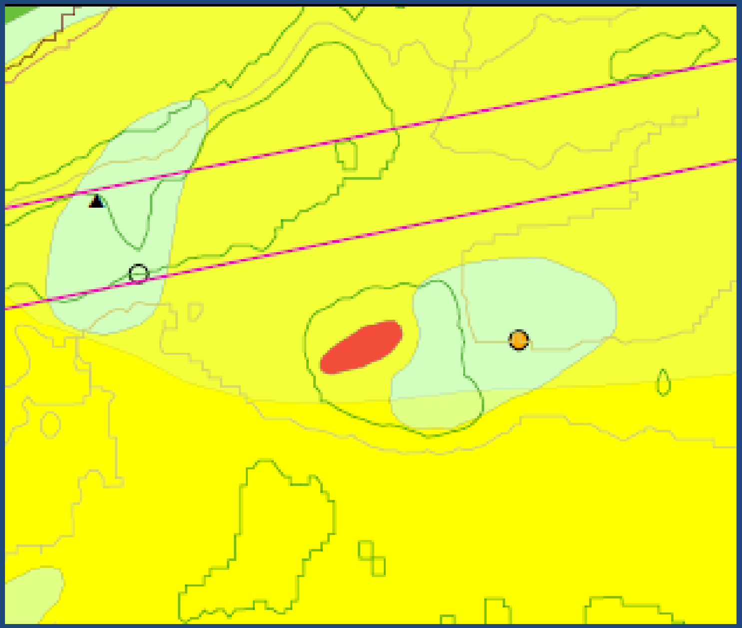
http://pubs.usgs.gov/of/2011/1003/html/figures.html

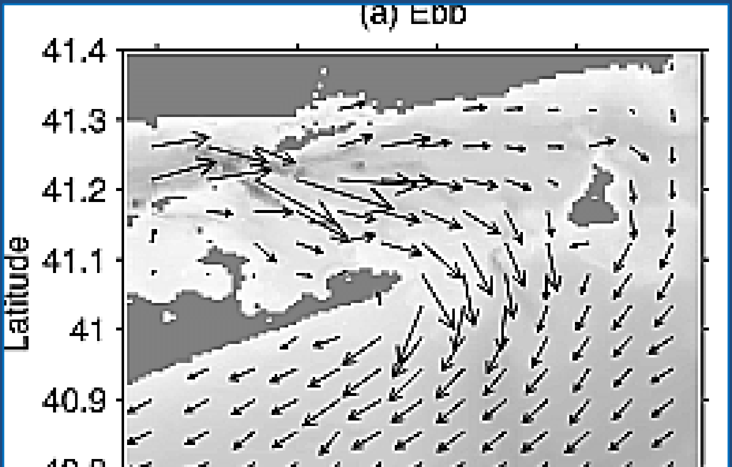
8. Deep Hole south of Fishers Island - east

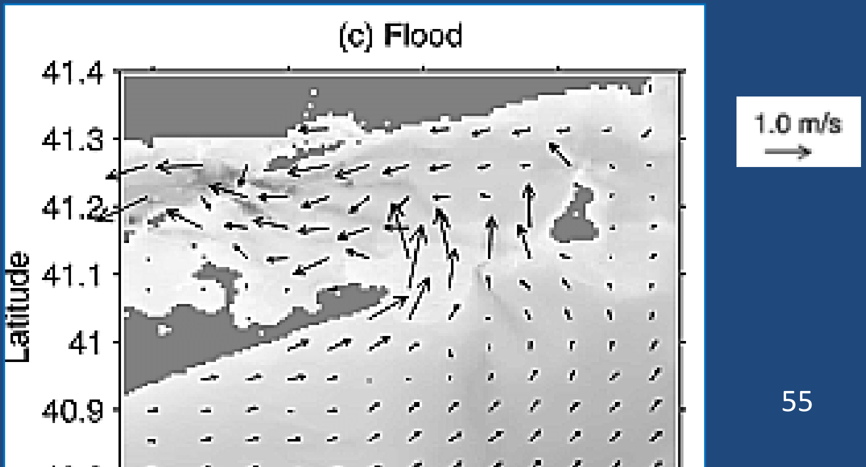
- \+ Deep depression (325ft; 100m)
- -/o Long distance to dredging centers (NL: 12 mi; CT River: 19 mi)
- \- New site

- -/? Gravelly sand (silt/clay: Pleistocene deposits?)
- ? Biological resources
- \- Higher waves in Block Isl. Sound (barge transport)
- \- Dredge material management (depth/slope)







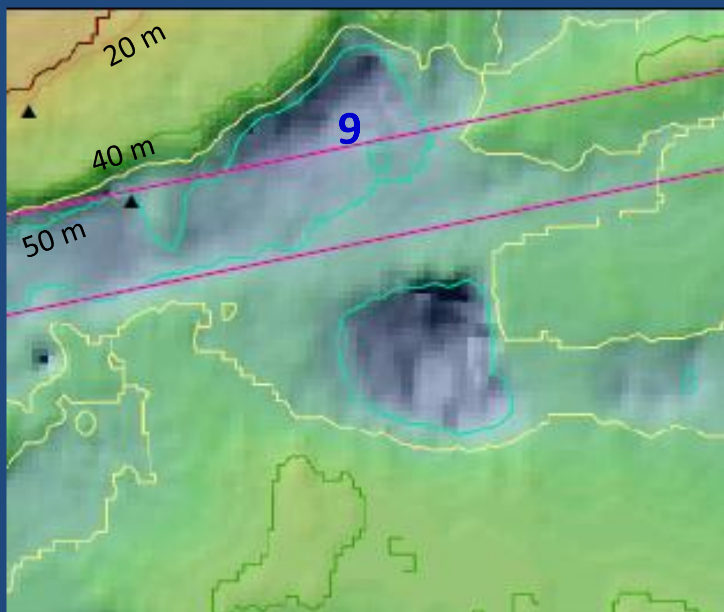


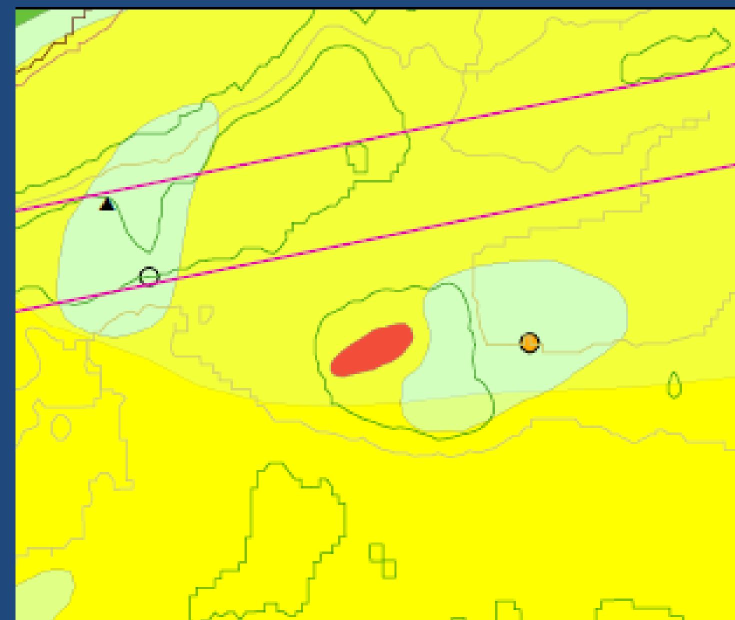
J. Geophys. Res.: Oceans, v. 109, 2004

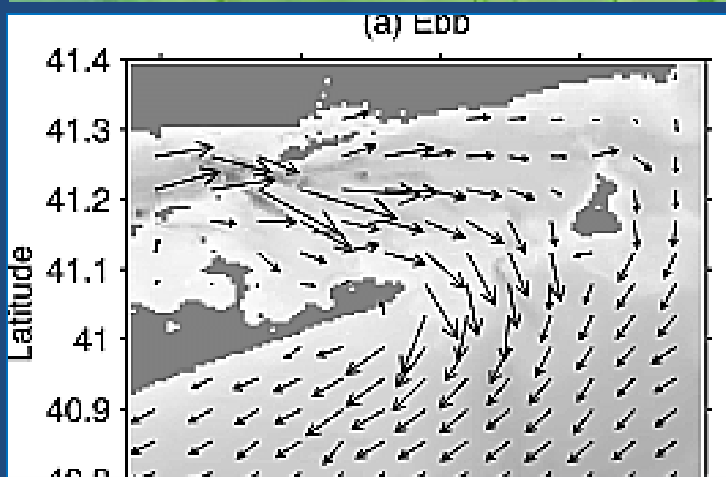
9. Deep Hole south of Fishers Island - center

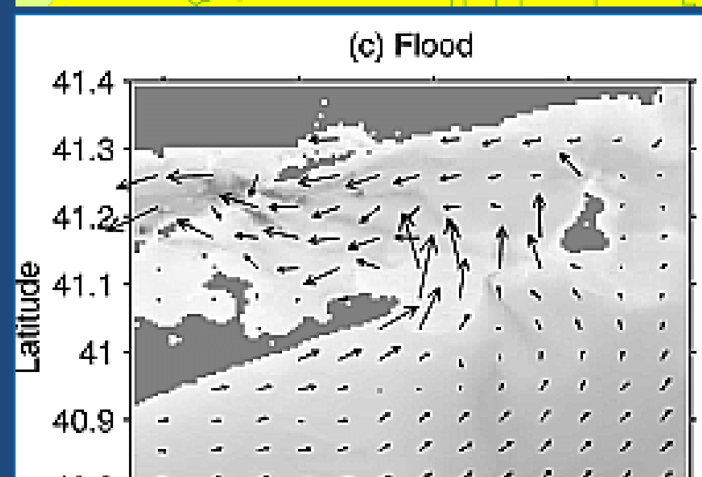
+ Deep depression (up to 241ft; 80m)
-/o Long distance to dredging centers
(NL: 12 mi; CT River: 19 mi)
- New site

- Sand /gravelly sand
? Biological resources
- Higher waves in Block Isl. Sound (barge transport)
- Within recommended navigation zone



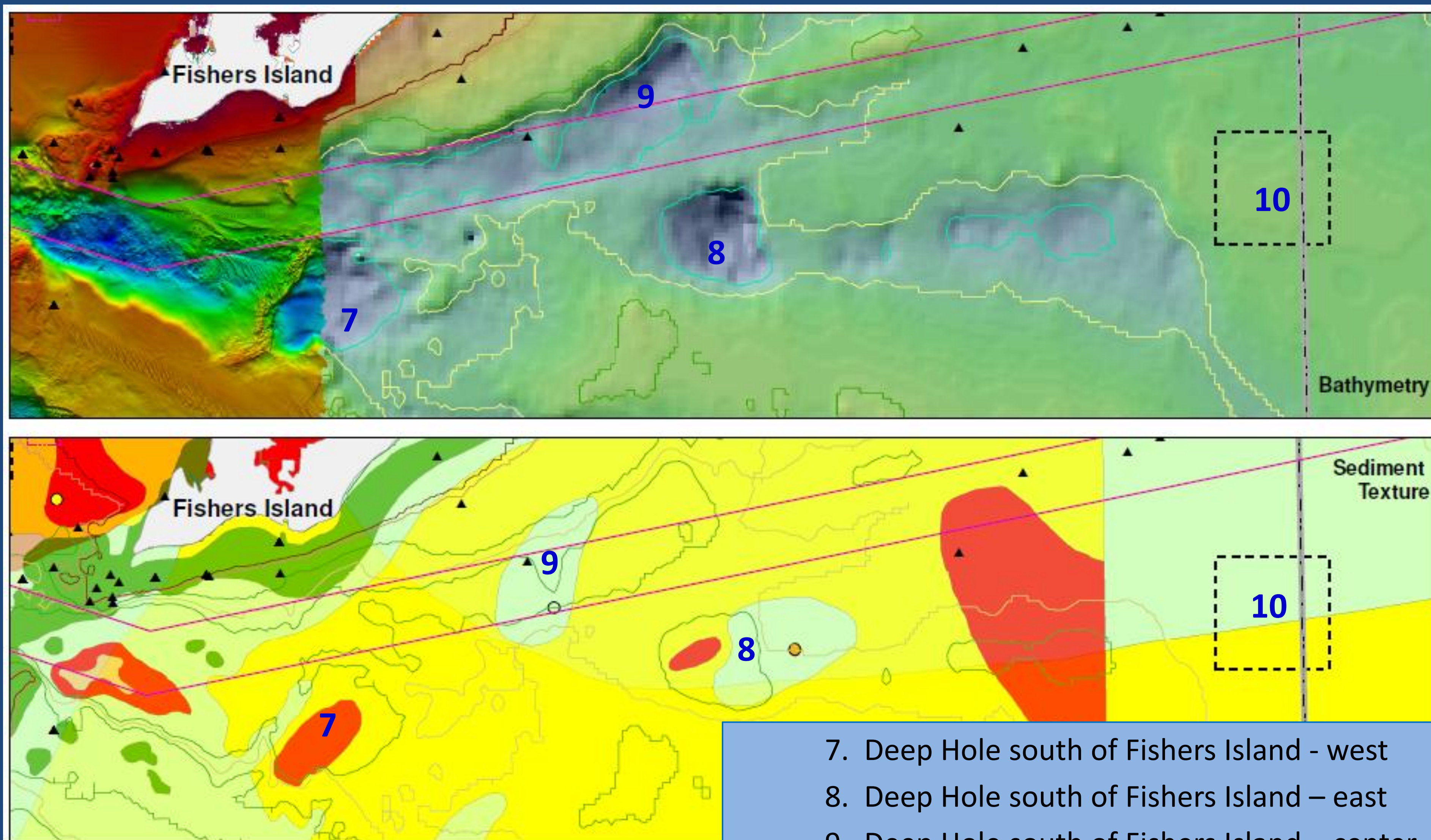






J. Geophys. Res.: Oceans, v. 109, 2004

7-10. Block Island Sound *(cont.)*



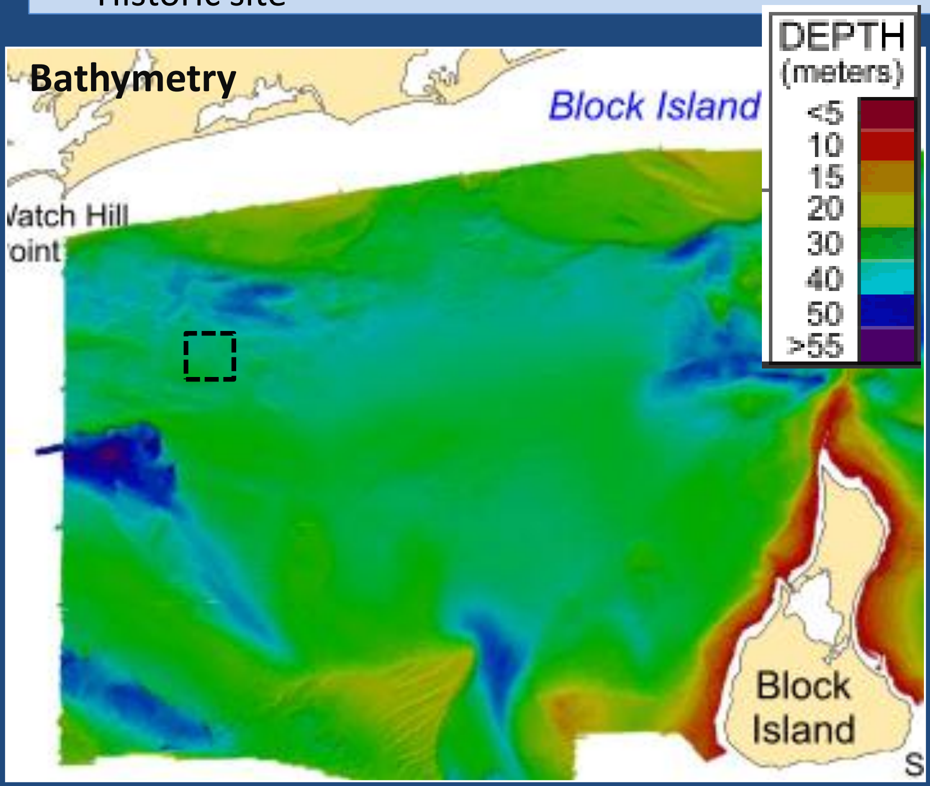
7. Deep Hole south of Fishers Island - west
8. Deep Hole south of Fishers Island – east
9. Deep Hole south of Fishers Island – center
10. **Block Island Sound Disposal Site**

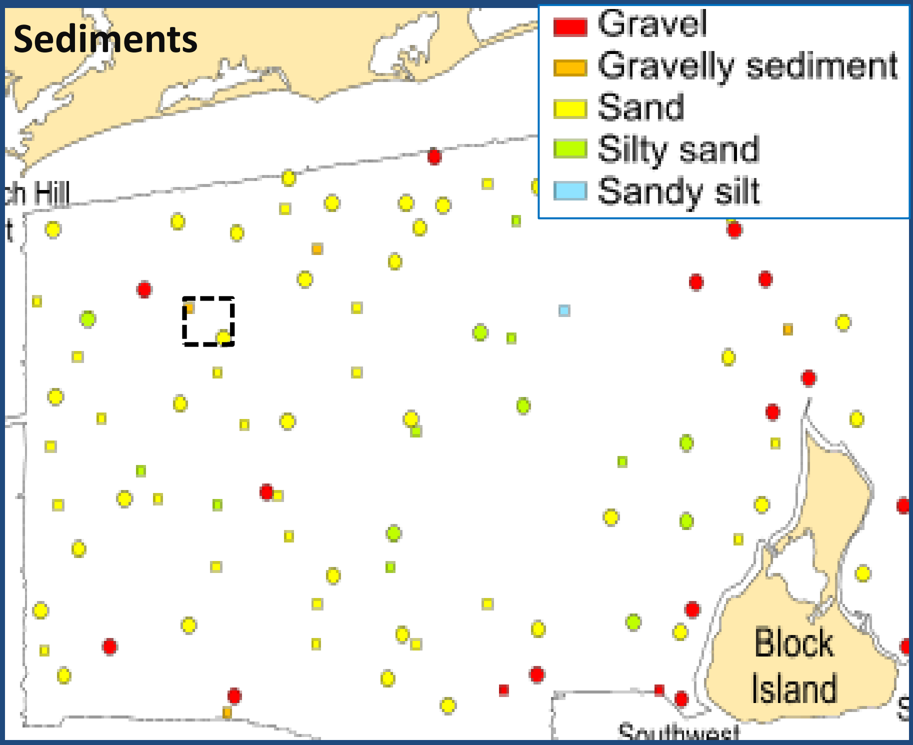
10. Block Island Sound Disposal Site

+ Deep (110 ft; 35 m)
- Long distance to dredging centers (NL: 18nm; CT River: 25 nm)
- Historic site

-/? Sand

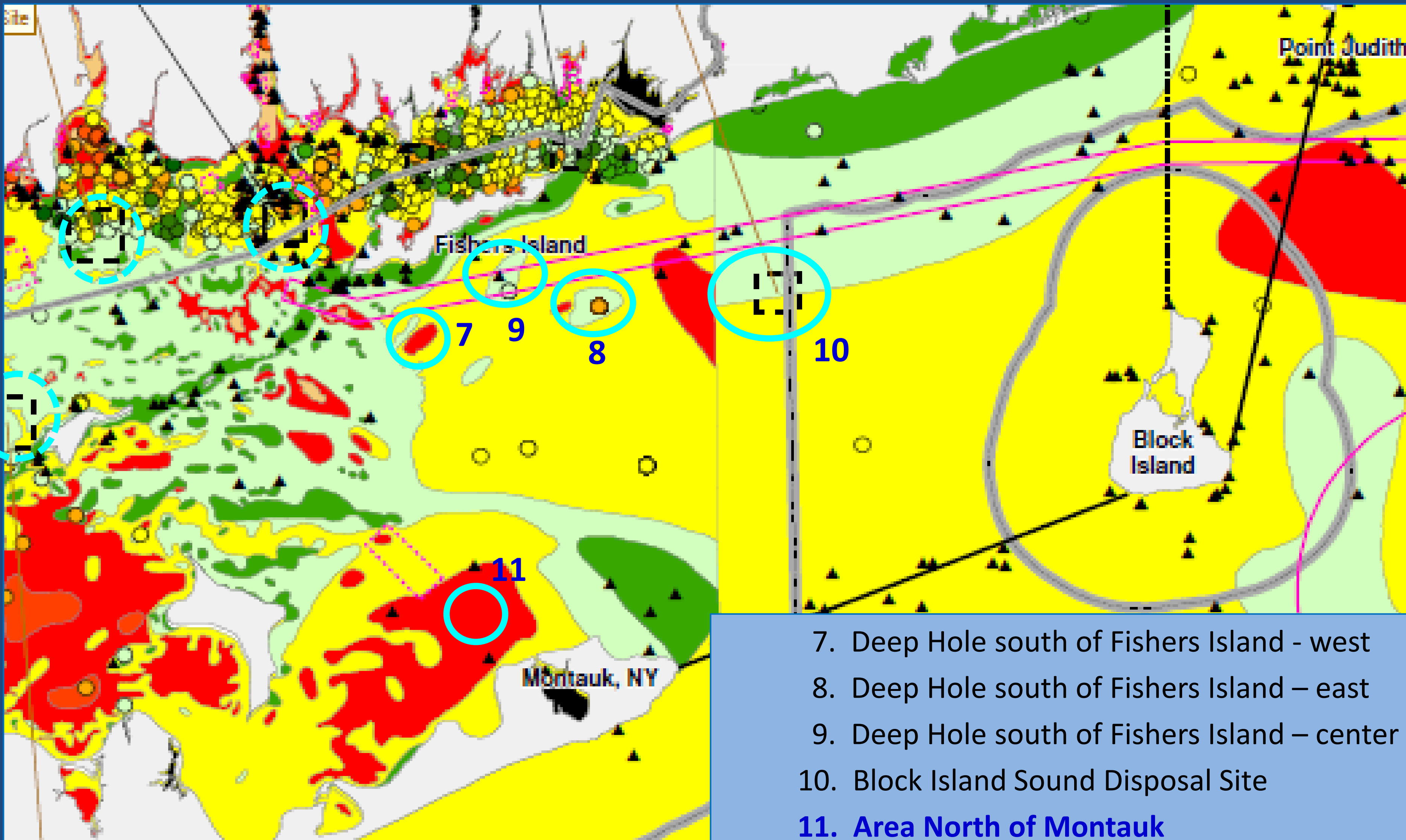
? Biological resources





http://pubs.usgs.gov/of/2012/1005/html/fig14.html

Alternative Site Discussion: Block Island Sound *(cont.)*

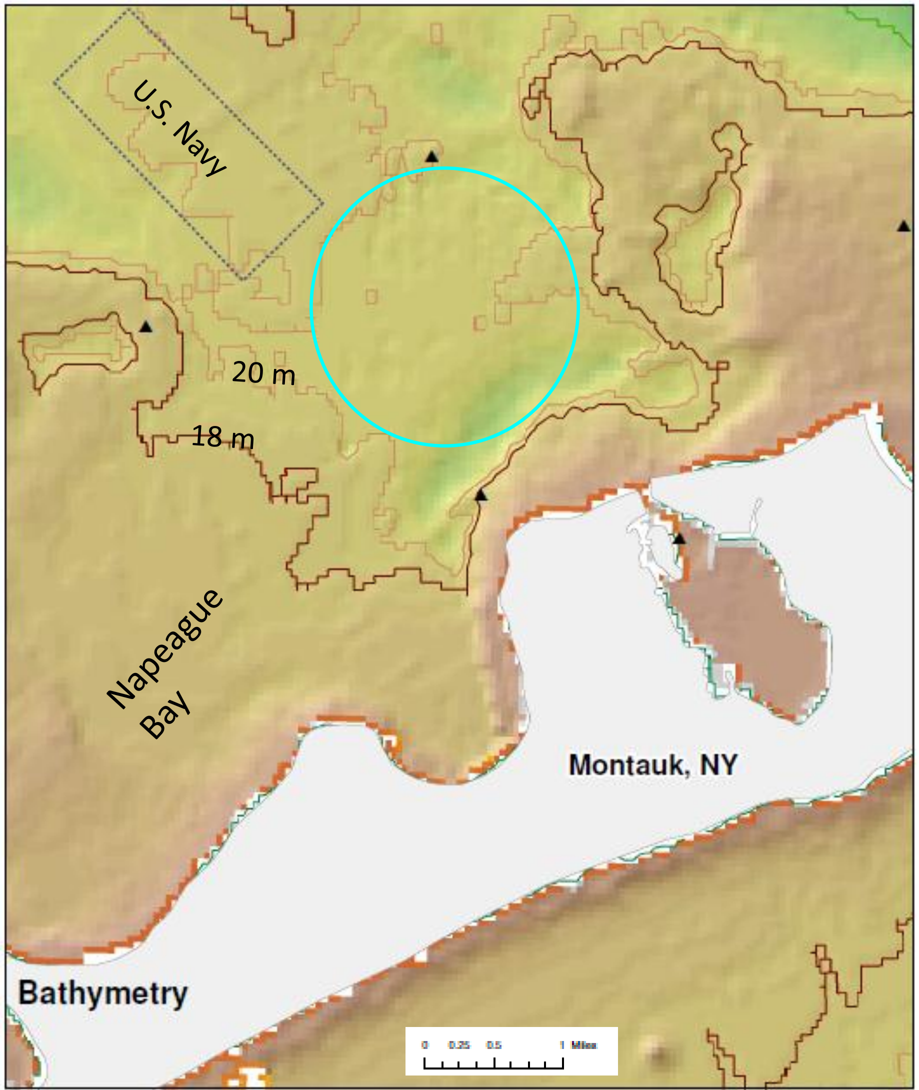


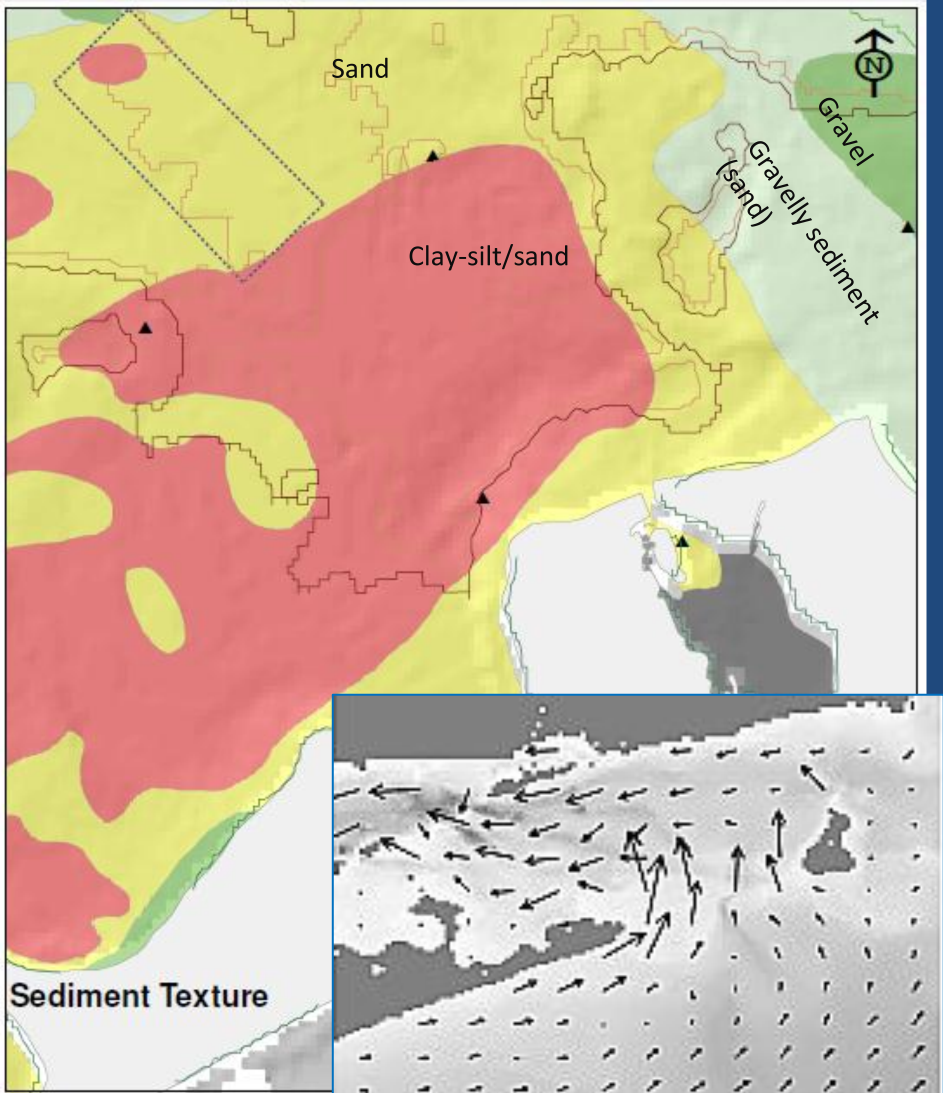
7. Deep Hole south of Fishers Island - west
8. Deep Hole south of Fishers Island – east
9. Deep Hole south of Fishers Island – center
10. Block Island Sound Disposal Site
11. **Area North of Montauk**

11. Area north of Montauk

- o Shallow (60-80 ft; 18-24 m)
- \- Long distance to dredging centers
  (NL: 16 nm; CT River: 21 nm)
- \- New site

- o Restricted U.S. Navy submarine anchorage
- +/? Containment (silt-clay/sand)
- ? Biological resources
- \- Close to shore (beaches; houses)





Alternative Site Discussion – Summary

	Eastern Long Island Sound						Block Island Sound				
	1	2	3	4	5	6	7	8	9	10	11
Sites	**Cornfield Shoals Disposal Site**	**Six Mile Reef Disposal Site**	**Clinton Harbor Disposal Site**	**Niantic Bay Disposal Site**	**Orient Point Disposal Site**	**New London Disposal Site**	**Deep Hole south of Fishers Island - west**	**Deep Hole south of Fishers Island - east**	**Deep Hole south of Fishers Island - center**	**Block Island Sound Disposal Site**	**Area north of Montauk**
Site Characteristics - Depth	+	-	o	+	+	-	+	+	+	o	-
Site Characteristics - Bottom Topography/Sediment Type	-	-	-	-/?	-	+	-	-/?	-/?	-/?	+/?
Distance to Dredging Centers	+	o	+	+	o	+	o	-	-	-	-
Active/Historic/New Disposal Site	+	o	o	o	o	+	-	-	-	-	-
Distance to Beaches areas	o	o	o	o	o	o	-	-	-	o	-
Distance to Commercial and Recreational Fisheries	o	o *1*	o *1*	o	o	o	o	o	o	o	?
Habitat /Biological Resources	o	o/?	?	o	?	+	?	?	?	?	?
Distance to Shellfish Beds	o	o *1*	o *1*	o	o	o	o	o	o	o	?
Distance to existing Habitat /Biological Resources	o	o/?	?	o	?	+	?	?	?	?	?
Disposal Site Managem. (mound stability, capacity, sed. type)	o	o	o	o	o	o	o	o	o	o	o
Historic and Cultural Resources			wrecks								
Navigation Considerations (anchorage, shipping lanes)						*2*			*2*		*2*
Distance to Conservation Area (Marine Sanctuary, preserve)					?					?	?
Other Use Conflicts (cables, pipelines)						cable?					
Other		morphology					barge transport - larger waves				

1 Approx. 3 miles east of *Approved* shellfishing zone.
2 Anchorage or vessel lane areas nearby

\+ Relative Advantage
\- Relative Disadvantage
o Neutral
? Need more data for screening

Appendix C: Presentation - Physical Oceanography Study Update
(James O'Donnell, UConn)

College of Liberal Arts and Sciences
Marine Sciences

UCONN

Observation and Model Plans and Status

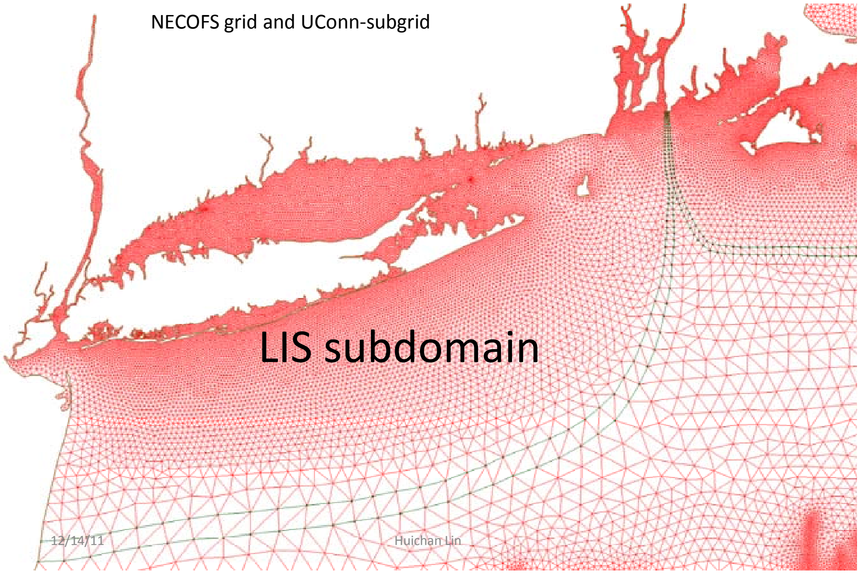
James O'Donnell
University of Connecticut

Overview

UCONN

1. Introduction
2. Bottom Stress and circulation are central to the site designation process.
   a) Consideration of all possible sites is only possible if models are used to “interpolate” between the limited location and times data is available using a model.
   b) Development and evaluation of model requires data.
3. Model
4. Summary of the data required to predict the range of circulation and bottom stresses expected throughout the ZSF.
5. Observation Plan

Model - FVCOM



Outer domain simulated by UMass Operationally through NOAA funding

This is a well established code and has been implemented in LIS already.

It is nested inside the UMass Dartmouth Regional Model.

FVCOM will be used to simulate the circulation and wave height and period distributions, and bottom stress.

Challenges are to get hydrography variability correct in the ZSF domain and wave model implemented and assessed.

Integration of Model and Data

- Use observed winds and river flows to drive model and predict the salinity, temperature, current and waves, and bottom stress.
- Compare to the new and archived observations and evaluate FVCOM performance in LIS.
- Describe the uncertainties.
- Simulate the behavior under extreme events

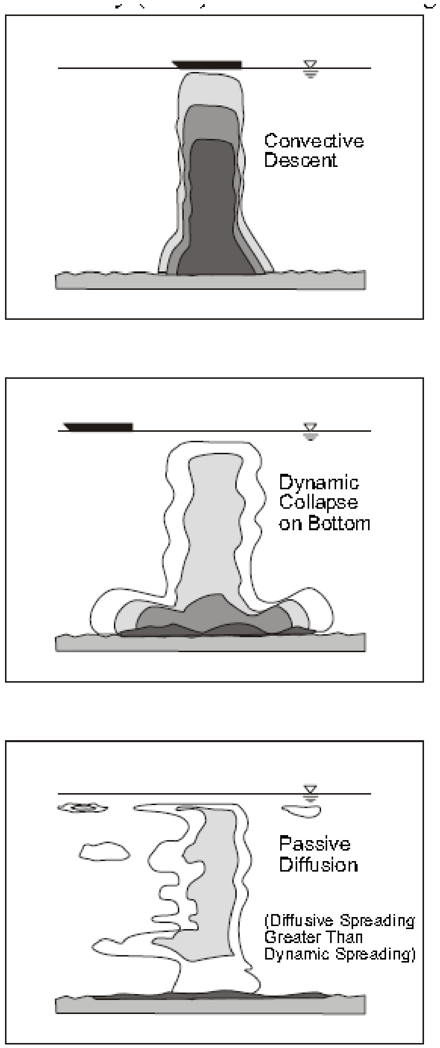
Analyses

UCONN

- Observations and model predictions will be used to describe the distributions of current and stress for site screening.
- Uncertainties will be based on model-data comparisons
- When sites are being considered there results will be used to drive the STFATE and LTFATE models.
- Uncertainties will be propagated by mulitple simulations.

Models STFATE- LTFATE

- STFATE – Near field transport during disposal operations
- FVCOM will provide currents, waves and shear for STFATE studies at sites under consideration
- Multiple simulations will define areas of potential impacts



LTFATE

UCONN

- LTFATE simulates the long term transport of resuspended materials from disposal mound. This requires regional current patterns, and waves forecasts from FVCOM. We will simulate the effects of historic events at alternative sites

2. Summary of data needs – controlling factors.

UCONN

1. Current in the ZSF controlled by tides, density variations and winds.
2. Bottom stress if determined by current and waves.
3. Waves are generated by wind.
4. We want to know the circulation and stress during normal conditions (for each season) and for extreme conditions.
5. We can only observe them all for selected interval and at a few places so we need a model to generalize the observations.

3. What is available ?

UCONN

- Three great resources:

1. Woods Hole Group (201). Long Island Sound Dredged Material Management Plan (DMMP) Phase 2 Literature Review Update June 2010, Prepared for U.S. Army Corp of Engineers, Contract No. W912WJ-09-D-0001-TO-0022

2. O'Donnell, J., R. E. Wilson, K. Lwiza, M. Whitney, W. F. Bohlen, D. Codiga, T. Fake, D. Fribance, M. Bowman, and J. Varekamp (2013). The Physical Oceanography of Long Island Sound. In *Long Island Sound: Prospects for the Urban Sea.* Latimer, J.S., Tedesco, M., Swanson, R.L., Yarish, C., Stacey, P., Garza, C. (Eds.), 2013 (Elsievier, In press).

3. Codiga, D. L. and David S. Ullman (2010). Characterizing the Physical Oceanography of Coastal Waters Off Rhode Island, Part 1: Literature Review, Available Observations, and A Representative Model Simulation (http://seagrant.gso.uri.edu/oceansamp/pdf/appendix/02-PhysOcPart1-OSAMP-CodigaUllman2010.pdf.)

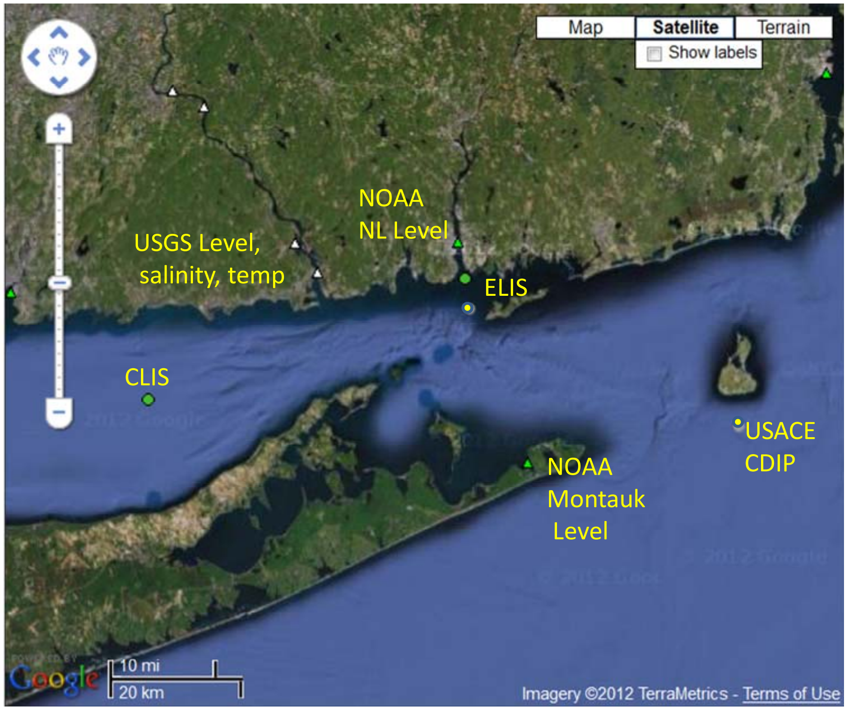
- And our Task 2 report

4. Summary of data needs – variables

UCONN

1. Sea level at the edge of the shelf to force tides and the interior of the model domain to check it.
2. Wind over the ocean to force the circulation and waves.
3. Solar radiation to force temperature variations.
4. River discharge measurements to force variations in salinity.
5. Salinity and temperature measurements at boundaries to prescribe conditions and in the interior to check predictions.
6. Current measurements to evaluate the model predictions
7. Wave measurements to evaluate the model predictions
8. Bottom stress measurements to evaluate the model prediction

Salinity & temperature, from Buoys.



S-salinity, **T**-temperature, **DO**-dissolved oxygen (membrane sensor), O-dissolved oxygen (optical sensor), CH-chlorophyll (RFU only)

	CLIS Water			ELIS water		
Year	SFC	MID	BTM	SFC	MID	BTM
2012	S,T,CH,O	---	---		---	---
2011	S,T,CH,O	---	---		---	---
2010	S,T,CH,O	---	---	S,T,DO	---	---
2009	S,T,CH,O	---	---	S,T,DO	---	---
2008	S,T,DO	---	---	S,T,DO	---	---
2007	S,T,DO	---	---	S,T,DO	---	---
2006	S,T,DO	---	---	S,T,DO	---	---
2005	S,T,DO	S,T,DO	S,T,DO	S,T,DO	---	S,T,DO
2004	S,T,DO	S,T,DO	S,T,DO	S,T,DO	---	S,T,DO
2003	S,T,DO	S,T,DO	S,T,DO	S,T,DO	---	S,T,DO
2002	S,T,DO	S,T,DO	S,T,DO	S,T,DO	---	S,T,DO
2001	---	---	---	S,T,DO	---	S,T,DO
2000	---	---	---	S,T,DO	---	S,T,DO
1999	---	---	---	S,T,DO	---	---

Data Gap Summary

UCONN

- No Stress
- Waves only at CLIS buoy ZSF
- No North-Sound variation in density in LIS
- No hydrography or current profile measurements in BS-RIS
- Seasonal variations in wind & wave and river discharge are substantial.

5. Proposal for Observations

- October-March have frequent high winds from NE
- Wind forcing is less in May-Sept
- River Flow is high Mar-May and below average the rest of the year
- Need current, wave and stress measurement in a range of locations in each forcing regime.
  – Windy, low flow (March + Nov-Dec)
  – Windy High Flow (April-May)
  – Calm, below average flow (June-July)

Station	Latitude (degrees north)	Longitude (degrees west)
1	41.2000	72.4000
2	41.1500	72.3700
3	41.2583	72.2422
4	41.1500	72.0000
5	41.1500	71.7500
6	41.2500	71.8000
7	41.2600	72.1000

UCONN

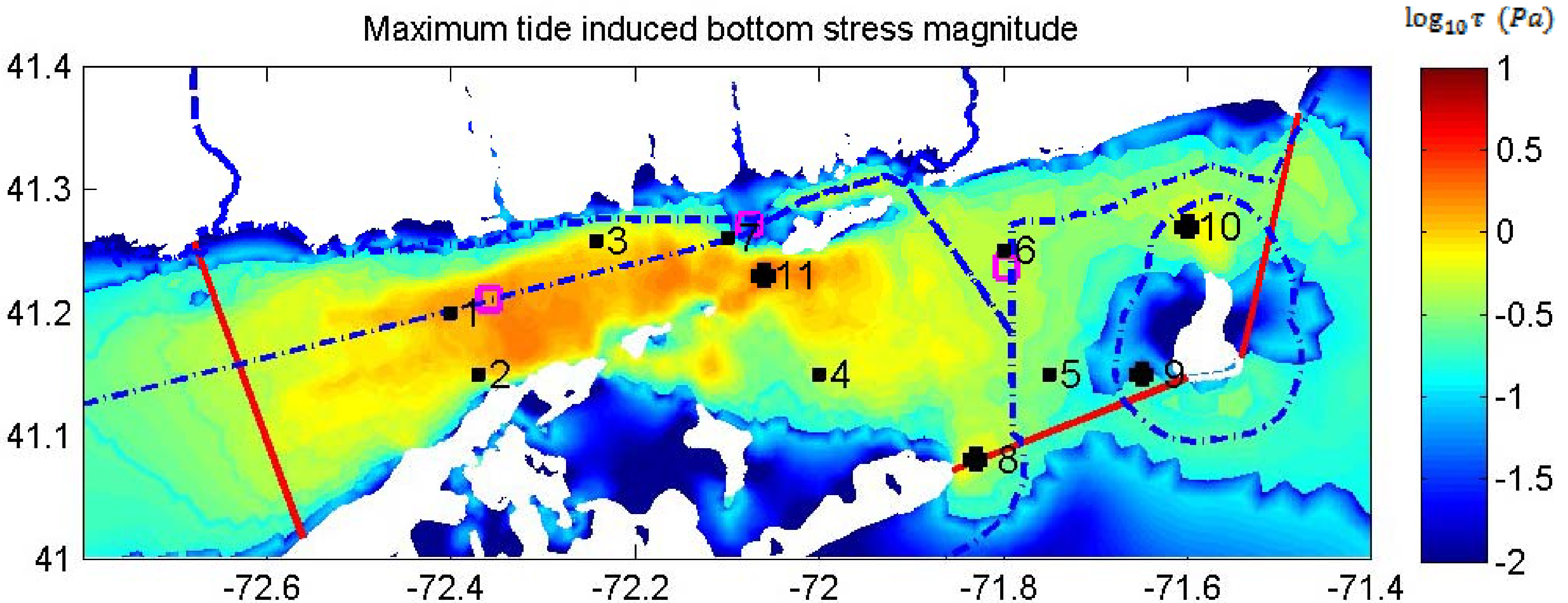
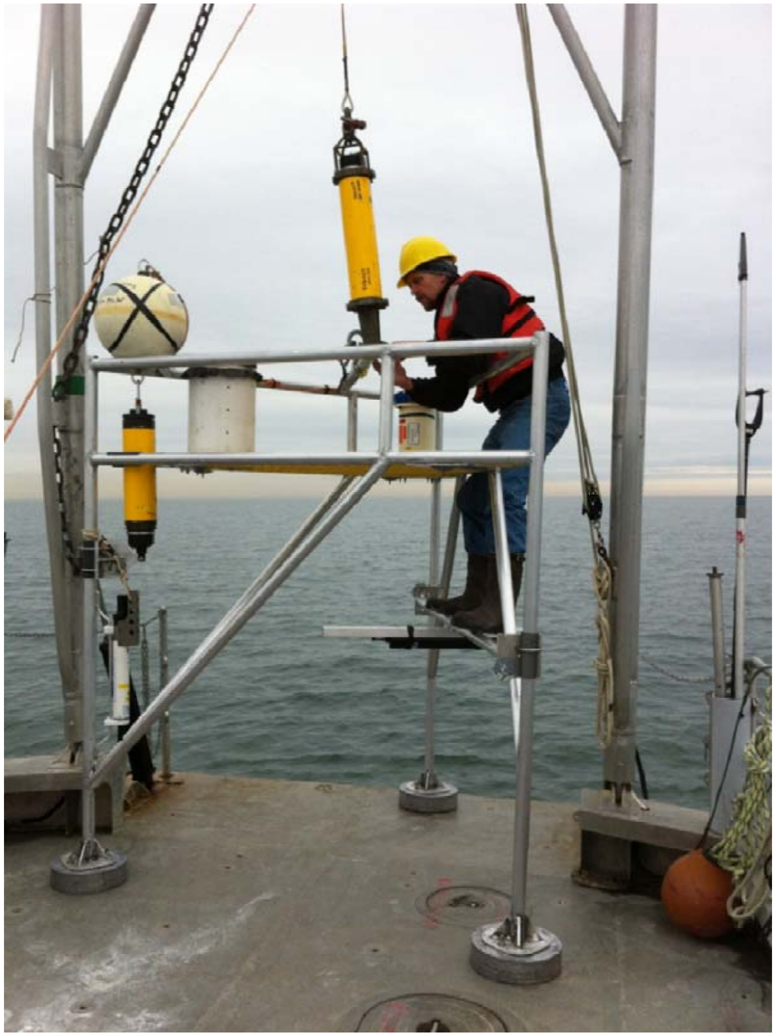


Figure 5. A map of the eastern end of LIS and the Block Island Sound with colors showing preliminary estimates of the distribution of the maximum bottom stress (N/m^2) produced by tidal currents alone. The red lines show the boundaries of the zone of siting feasibility (ZSF). The black squares show the proposed locations of moored current measurements. The open magenta squares indicate the location of existing or historical dredge material disposal sites.



Bottom Instrumentation

UCONN

1. Upward looking RDI ADCP to measure profile (1-0.5m resolution) of current and wave statistics
2. Downward looking Nortek ADCP with 5cm resolution bottom to 75cm to measure stress and acoustic backscatter intensity
3. CTD to measure salinity, temperature and bottom pressure
4. Optical backscatter at .2 and .8 m to infer SPM concentrations

Profiling Instrumentation

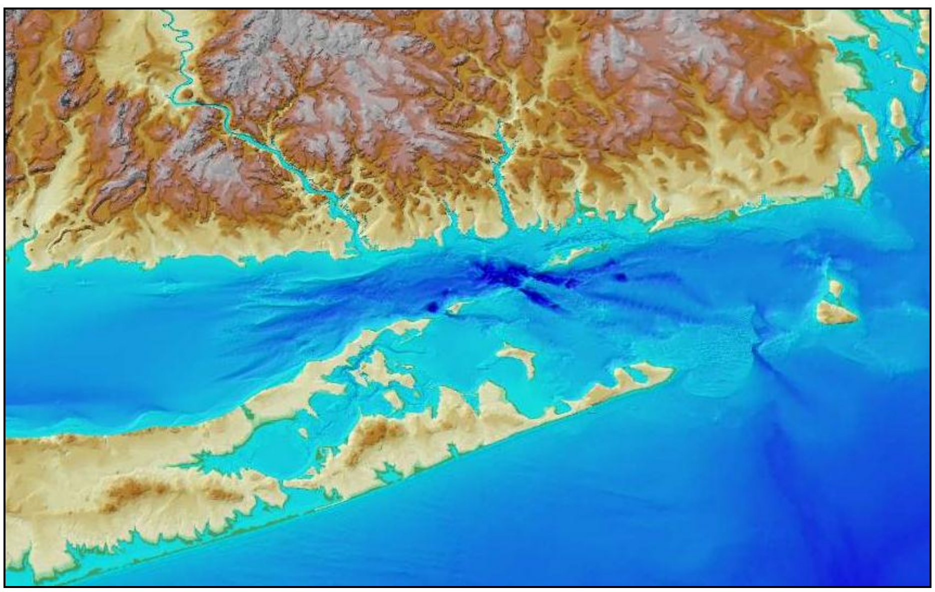
1. Hull mounted ADCP to survey current patterns
2. CTD to measure salinity, temperature and pressure
3. OBS 3+, optical backscatter to infer SPM concentrations
4. Water sampler for SPM concentration calibrations
5. LISST-100 to measure particle size spectra
6. AC9 Optical absorption spectra for discriminating organic and inorganic material

Appendix A-8

MINUTES OF COOPERATING AGENCY GROUP MEETING 3

Supplemental Environmental Impact Statement for the Designation of Dredged Material Disposal Sites in Eastern Long Island Sound, Connecticut and New York

Minutes of Cooperating Agency Meeting 3



Prepared for: **United States Environmental Protection Agency**

Sponsored by: **Connecticut Department of Transportation**

Prepared by: **Louis Berger**

with support from

University of Connecticut

June 2013

Eastern Long Island Sound – Supplemental EIS

Cooperating Meeting 03 – Minutes

TOPIC:	**Site Screening - Second Update**	
DATE OF MTG:	June 18, 2013	
LOCATION:	Webinar	
TIME:	1:30pm to 2:35pm	
PARTICIPANTS:	**Cooperating Agencies**	
	• Connecticut Department of Transportation CTDOT):	Joe Salvatore
	• US Environmental Protection Agency, Region 1:	Jeannie Brochi
	• Conn. Dept. of Energy and Environmental Protection:	George Wisker
	• US Army Corps of Engineers, New England District:	Cathy Rogers Mark Habel Tom Fredette
	• US Army Corps of Engineers, New York District:	Nancy Brighton
	• US Environmental Protection Agency, Region 2:	Patricia Pechko
	• New York State Department of State:	Jim Leary Kari Gathen Jennifer Street
	• New York Department of Environmental Conservation:	Charles deQuillfeldt
	University of Connecticut (UConn) Project Team (under contract to CTDOT)	
	• University of Connecticut:	James O'Donnell
	• The Louis Berger Group, Inc. *(Prepared minutes):*	Amy Atamian Len Warner (at 2:00pm)
SUBMITTED ON:	August 5, 2013	

The primary goal of the meeting (see agenda in Appendix A) was to review comments made on the presentation of Cooperating Agency Meeting 2 on May 20, 2013, and to discuss the upcoming public meetings.

Specifically, the USEPA received comments from NYSDOS, USACE New England District, and USEPA Region 2 on the initial screening presentation made during Cooperating Agency Meeting 2. Comments and questions pertained to the following issues:

- Commercial and fishing data: More data needed.
- Legend and presentation format (color, font size, etc.)
- The summary sheet was a bit confusing. (It was meant to be a tool to summarize the GIS layers and their use.)
- Tier 1 and 2 screening approach

- 18 meter black-out contour, especially at the New London Disposal Site and the use of sediment texture data.
- Request to add significant fish and coastal wildlife habitat and deepwater coral sites
- Baseline chemical characterization of sediment

Jean Brochi asked if there were additional comments and questions. There were none.

In response to the comments received, revisions were made to Slides 16-18 and 23-27 of the original presentation. Jean Brochi summarized the key changes made; Amy Atamian discussed details. Key changes include the following (revised slides are included in Appendix B):

- *Slide 16 - Conservation Areas:* Deep water corals: Two points were available in the NOAA data base. The New York State significant habitat data layer was added. Some data from Rhode Island for refuges and preserves were added. Local Waterfront Revitalization Plan: Zones were added.

- *Slide 17 - Shellfish beds:* Now shows 2009 shellfish bed locations which include a few beds from the north shore of Long Island. Also now included is 1994 shellfish information for Rhode Island. Additional available data for Gardiners Bay and Peconic Bay (Suffolk County Aquaculture Leasing Program) still needed to be added.

  Amy Atamian asked about any additional available data for New York's north shore of Long Island Sound (LIS). Charles deQuillfeldt stated that any active leases in Long Island Sound are west of the Eastern Long Island Sound (ELIS) study area (Debbie Barnes from NYSDEC may have some information; 631-444-0483). He also stated that no surveys are available (as far as he knows) that show locations of shellfish beds.

- *Slide 18 - Fishing Area:* Relevant information on fishing areas for New York and Connecticut waters is still lacking.

  Charles deQuillfeldt mentioned that NYSDEC does not have spatial information either; commercial harvesters may have some information. A question was asked if this data could be obtained from the Atlantic States Marine Fisheries Commission (ASMFC) or the Fishery Management Council. Charles deQuillfeldt stated that this is unlikely but he will check into it. A lot of the commercial harvesters cannot use nets in Long Island Sound. Amy Atamian stated that there was an area east of Gardiners Island that was classified for multiple use commercial fishing. Charles deQuillfeldt stated that this area would not extend eastwards beyond a line from Orient Point (or Plum Island) to Montauk, as Suffolk County does not have leasing rights in Block Island Sound (BIS).

- *Slide 23 - Approved/ Prohibited Shellfish Areas:* The Rhode Island data set was updated with 2013 data that were recently posted on the web. Also, now shows areas in Gardiners and Peconic Bay that are part of the leasing program.

  Charles deQuillfeldt stated that information on closed shellfishing areas for New York State is available in 6NYCRR Part 41 which has maps of approved and prohibited shellfishing areas. He also stated that some prohibited locations were missing on the slide, such as one at Plum Island and another one by Greenport around the sewage treatment plant outfall. He further stated that the regulations only list permanent closures, not temporary closures.

- *Slide 24 - Active and historic disposal sites:* The Rhode Island Sound disposal site was updated to 'active'.

- *Slide 25 - Archaeological and cultural resources:* The previously used data set from the Northeast Ocean Data Portal was updated to the current NOAA's Automated Wreck and Obstruction Information System (AWOIS). Data from the archaeological study performed in 2010 for the DMMP are not included as the study was only in nearshore areas and GIS data are not available.

- *Slide 26 - Recreational areas and navigation:* Parks and beach locations were added from a DMMP study. Amy Atamian will check on the data for the New York State data layer for parks. Charles deQuillfeldt suggested adding the Long Island Sound Stewardship sites to this slide, available from the Long Island Sound Study website. Jennifer Street stated that she will provide information on municipal, county-level park areas (including beaches) to be added.

- *Slide 27- Overlay 1 Base – Bathymetry:* Not yet updated. NOAA archaeological data need to be checked.

Jean Brochi then discussed a draft of the presentation and the agenda for the Public Meetings on June 25 (NY) and 26 (CT): Bernward Hay will start the meeting. Jean Brochi will give a project update, followed by site screening overview. Then the meeting will be opened up for discussion and next steps. Comments will not be specifically requested as it is an informational meeting.

Jean Brochi then reviewed the draft presentation[1] for the meeting. Key elements of the presentation consisted of the following:

- Overview of applicable regulations for dredged material disposal
- EPA's role in dredging and dredged material management
- Reminder of the active dredged material disposal sites
- History leading up to the SEIS
- Zone of Siting Feasibility, focused on ELIS
- Update on activities (Notice of Intent; comments received; public scoping document; data gap analysis and literature search is ongoing; physical oceanography study is ongoing; initial screening of sites from January to June; additional screening with data collection from June through August; etc.)
- Approach to screening: Tier 1 and Tier 2 will be confusing, thus the approach will focus instead on MPRSA criteria. The evaluation will include GIS layers and data located through the literature search.
- Examples of screening criteria (based on MPRSA)
- Would like to share that there are six areas in ELIS and five areas in BIS that could be considered for potential disposal sites.
- Plans to ask the Public for any additional existing information or data, if known.
- Discussion of historic sites, as documented by the USACE.
- Bathymetry for ZSF.

Kari Gathen asked about the difference between a cable area and a submarine cable. Amy Atamian stated that 'cable areas' are areas delineated on the NOAA charts and they could be 500 feet on either side of the actual cables location within these areas; submarine cables are also shown as linear features like that on the NOAA charts.

Tom Fredette asked about the alignment of a submarine cable crossing the Rhode Island Sound Disposal Site. Amy Atamian stated she would review the adequacy of the spatial resolution on the original data layer.

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[1] Note: The final version of the presentation is available in the Public Scoping Meeting Report for the meetings.

A comment was made about being more consistent with the color palette throughout the various slides.

Jean Brochi then asked if there were any objections to using the slide with the dredging centers in the public meeting presentation. There were none. Mark Habel suggested editing the 25-mile circles.

Jean Brochi listed 'next steps' to include the following:

- Focus on additional data to fill data gaps, especially for sediment, biological resources, and fisheries
- Gather additional cultural resources data
- Conduct the physical oceanography study with preliminary data to be presented at another Cooperating Agency meeting in late summer or early fall
- Focus current data collection efforts on priority areas in the ELIS around the active sites, but also continue efforts to locate more data for other sites
- Hold another public meeting in late fall (perhaps late October or November) and congressional meetings and briefings.

Jean Brochi asked for suggestions of other information that should be presented. There were none. She stated that the final agenda and presentation would be provided to the Cooperating Agency members prior to the public meetings.

Jean Brochi also anticipates the following upcoming requests for input by the Cooperating Agencies:

- In 2005, the EPA sent out a lobster survey to lobster fishermen. Some of the questions could be asked differently or converted into a multiple-choice format. Input will be sought also from the USACE about lessons learned during some of the surveys conducted for the DMMP.
- Review of preliminary data from the physical oceanography study.

Jean Brochi will also be reaching out to tribes to obtain relevant information.

The meeting was adjourned at approximately 2:35pm.

APPENDICES

Appendix A: Invitation and Agenda (Jeannie Brochi, USEPA)

From: Brochi, Jean [mailto:Brochi.Jean@epa.gov]
Sent: Friday, June 14, 2013 2:14 PM
To: Pechko, Patricia; Pabst, Douglas; Grimaldi, Alicia; Cote, Mel; Hamjian, Lynne; Hay, Bernward; O'donnell, James (james.odonnell@uconn.edu); Atamian, Amy; Bohlen, Walter (walter.bohlen@uconn.edu); Jennifer.Street@dos.ny.gov; dgoulet@crmc.ri.gov; jwillis@crmc.ri.gov; george.wisker@ct.gov; joseph.salvatore@ct.gov; mark.l.habel@usace.army.mil; Herter, Jeff (DOS); Nancy.J.Brighton@usace.army.mil; Catherine.J.Rogers@usace.army.mil; Lou.chiarella@NOAA.gov; diane.rusanowsky@noaa.gov; dxmcreyn@gw.dec.state.ny.us; Benjamin.J.Duarte@uscg.mil
Cc: kari.gathen@dos.ny.gov; james.leary@dos.ny.gov
Subject: LIS SEIS COOPERATING AGENCY MEETING #3

Hello,

This is a reminder that EPA is hosting a **Cooperating Agency Webinar** next **Tuesday, June 18th from 1:30-3:30pm**

1) Agenda (also see attached)/to be discussed:

- comments from Cooperating agencies on May 20th presentation
- changes made to the May 20th presentation
- the presentation for the public meeting
- the agenda for the public meeting
- logistics for the public meeting

2) Link to Webinar: Meeting Name: LIS SEIS COOPERATING AGENCY MEETING #3
Invited By: Jean Brochi (Brochi.Jean@epa.gov)
When: 06/18/2013 1:30 PM – 3:30 PM
To join the meeting:
https://epa.connectsolutions.com/r10ifmi57ix/

3) Audio Conference: Dial-In Number: (617)918-2822, Password: 255664

Please feel free to contact me if you have any questions.
Regards,
Jeannie

June 18, 2013 – EPA Webinar -ELIS SEIS
Cooperating Agency Meeting #3

Agenda

1:30 pm Introductions/Objectives
Jean Brochi, EPA

1:35 pm Comments from Cooperating Agencies on the May 20th Screening presentation
Jean Brochi, EPA

1:45 pm Revisions to the May 20th Screening presentation
Jean Brochi, EPA and Amy Atamian, LBG

2:00 pm Agenda for the upcoming public meetings

2:05 pm Review the presentation for the public meetings

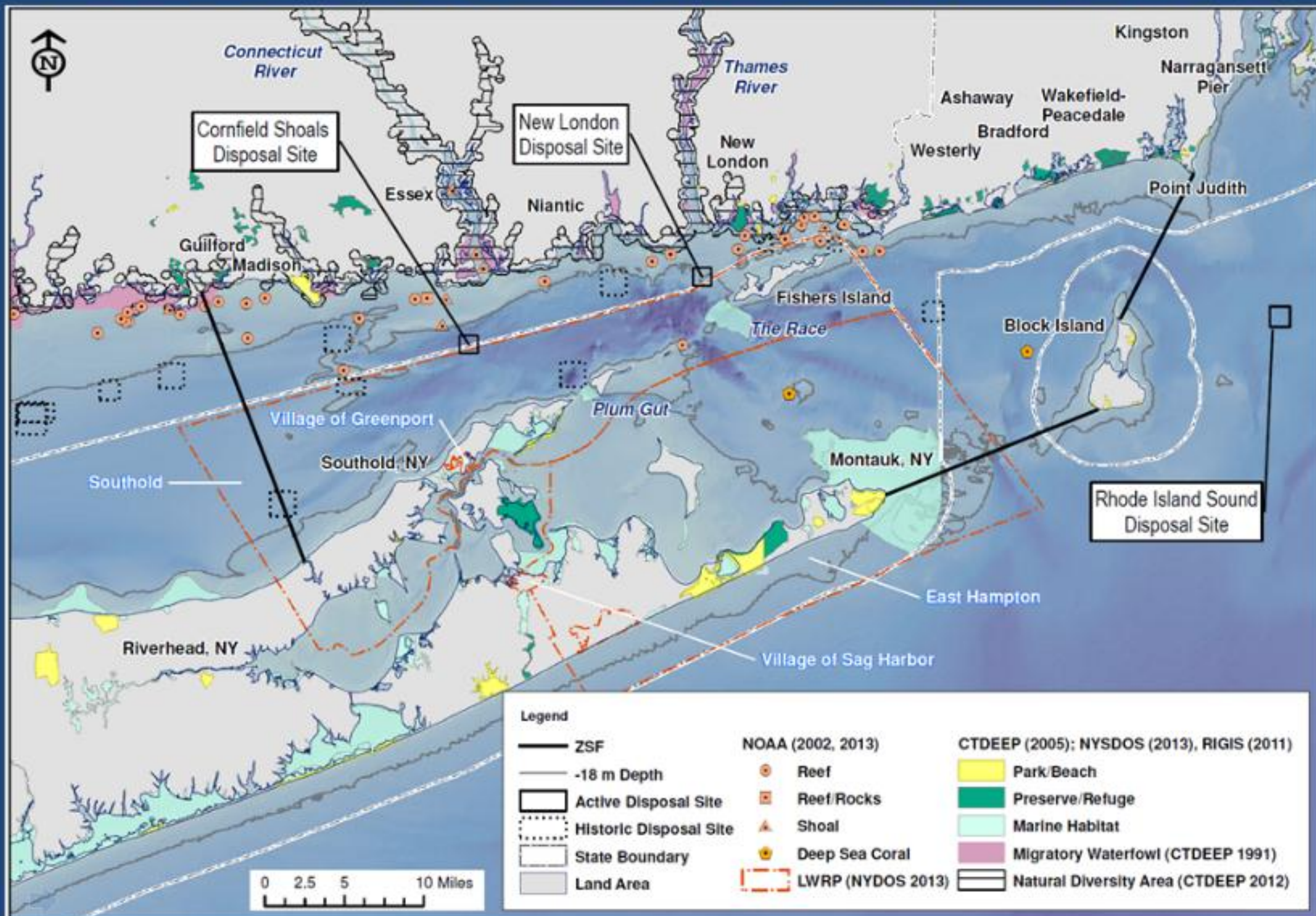
2:30 pm Next Steps – logistics for public meetings and other comments or discussion points

3:30 pm Adjourn

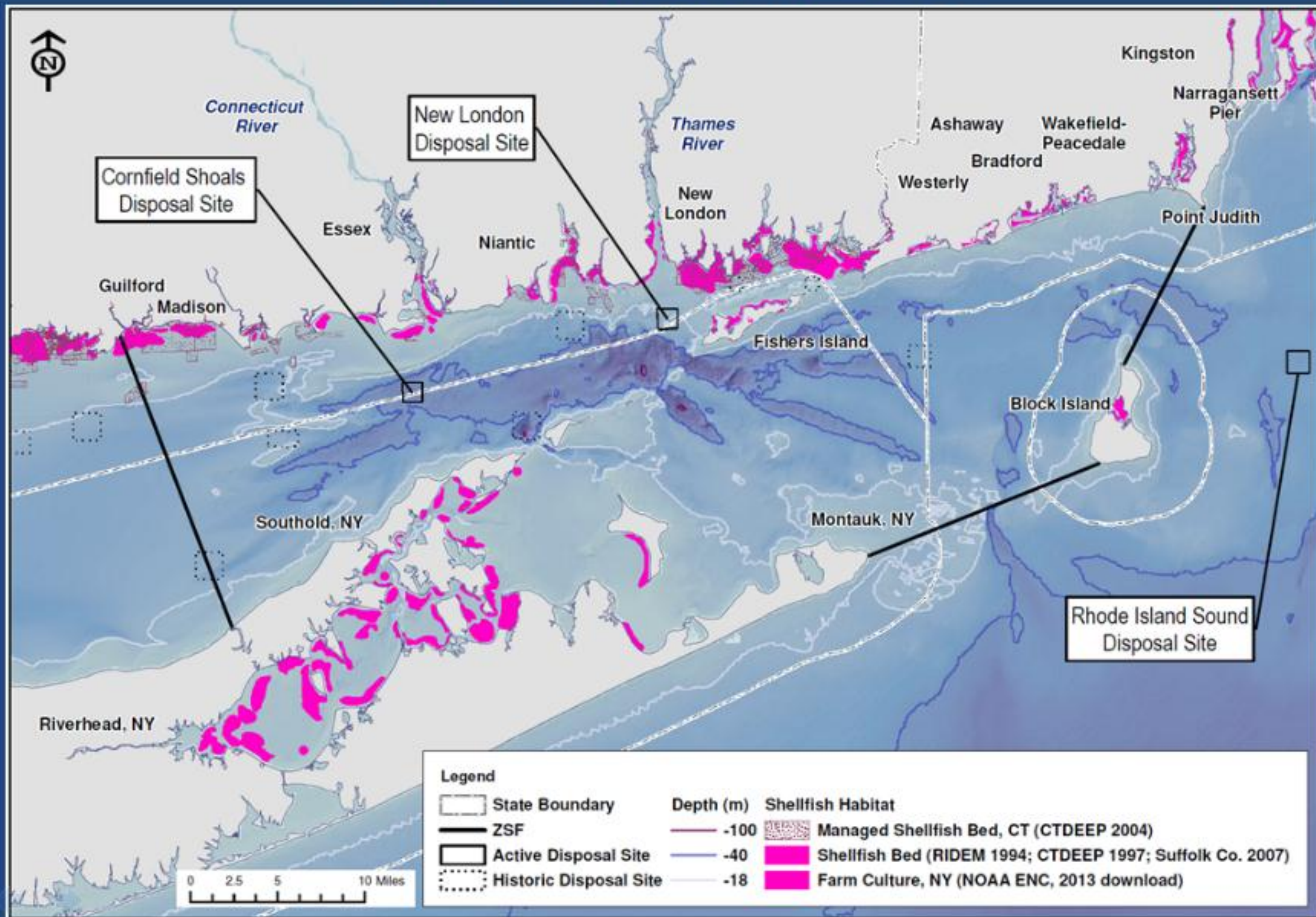
Appendix B: Updated Site Screening Slides (Amy Atamian, The Louis Berger Group, Inc.)

Conservation Areas

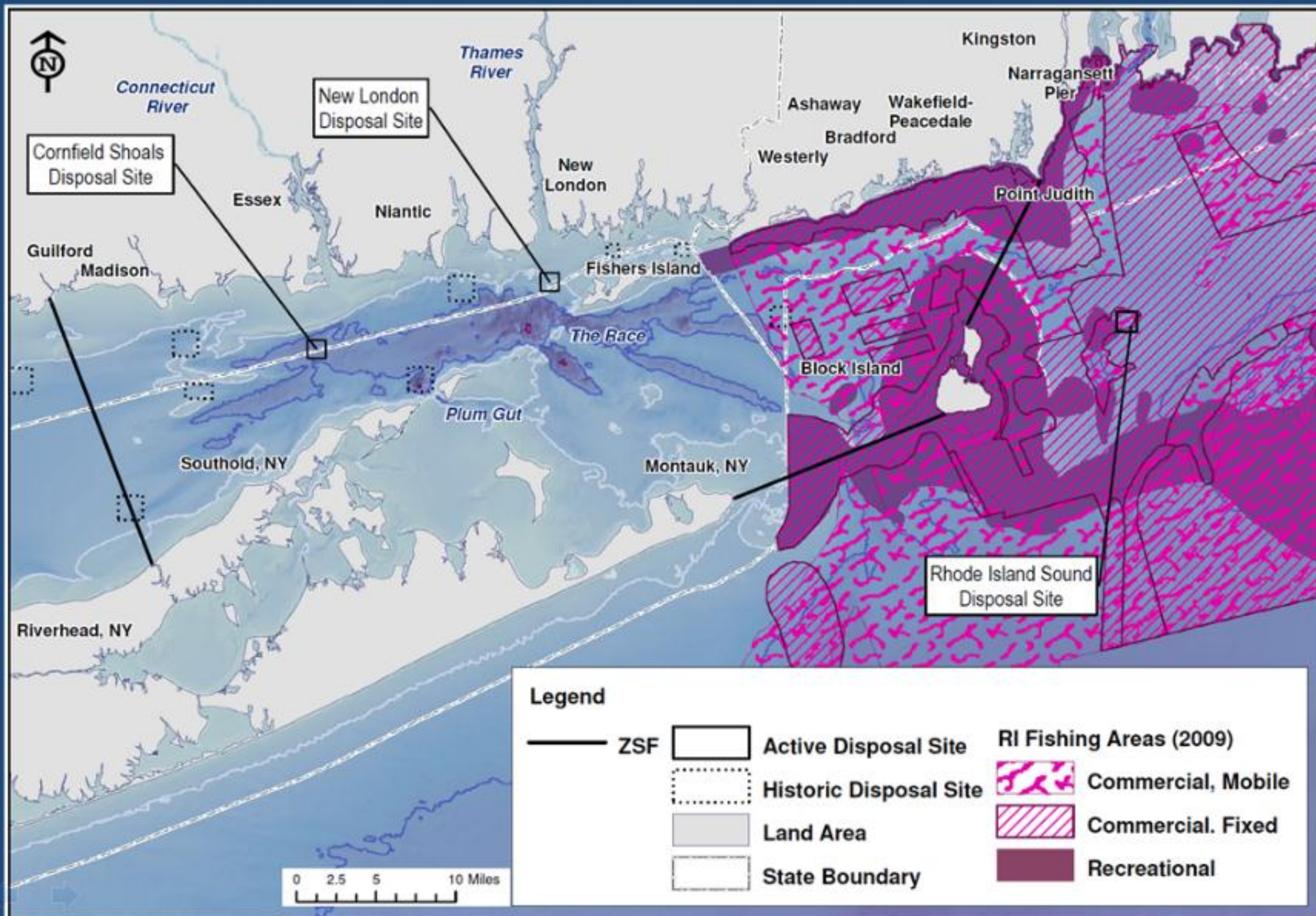
(sanctuaries, wildlife refuges, national seashores, parks, artificial reefs, etc.)



Tier 1: Shellfish Beds

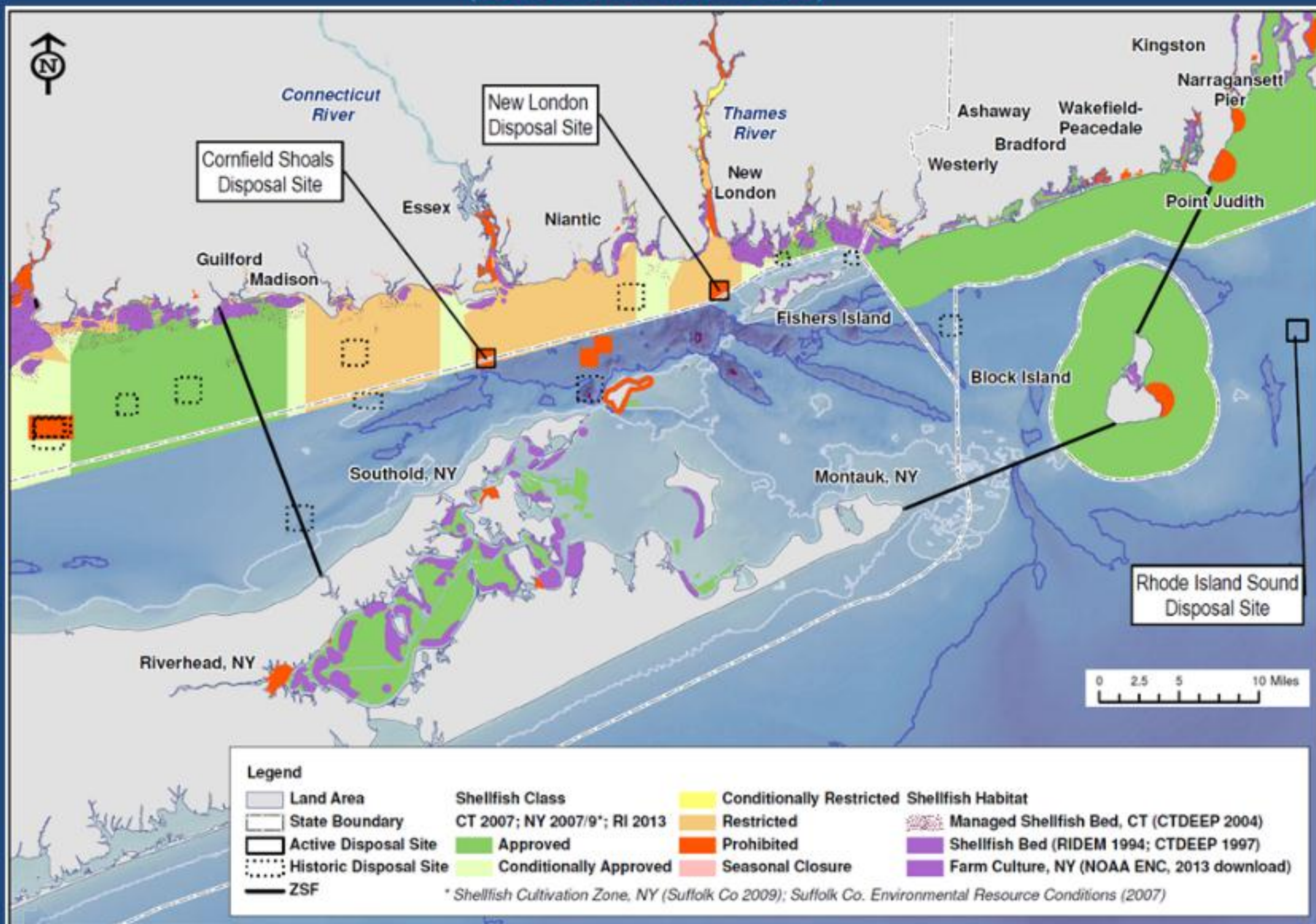


Tier 1: Fishing Areas (additional data needed)

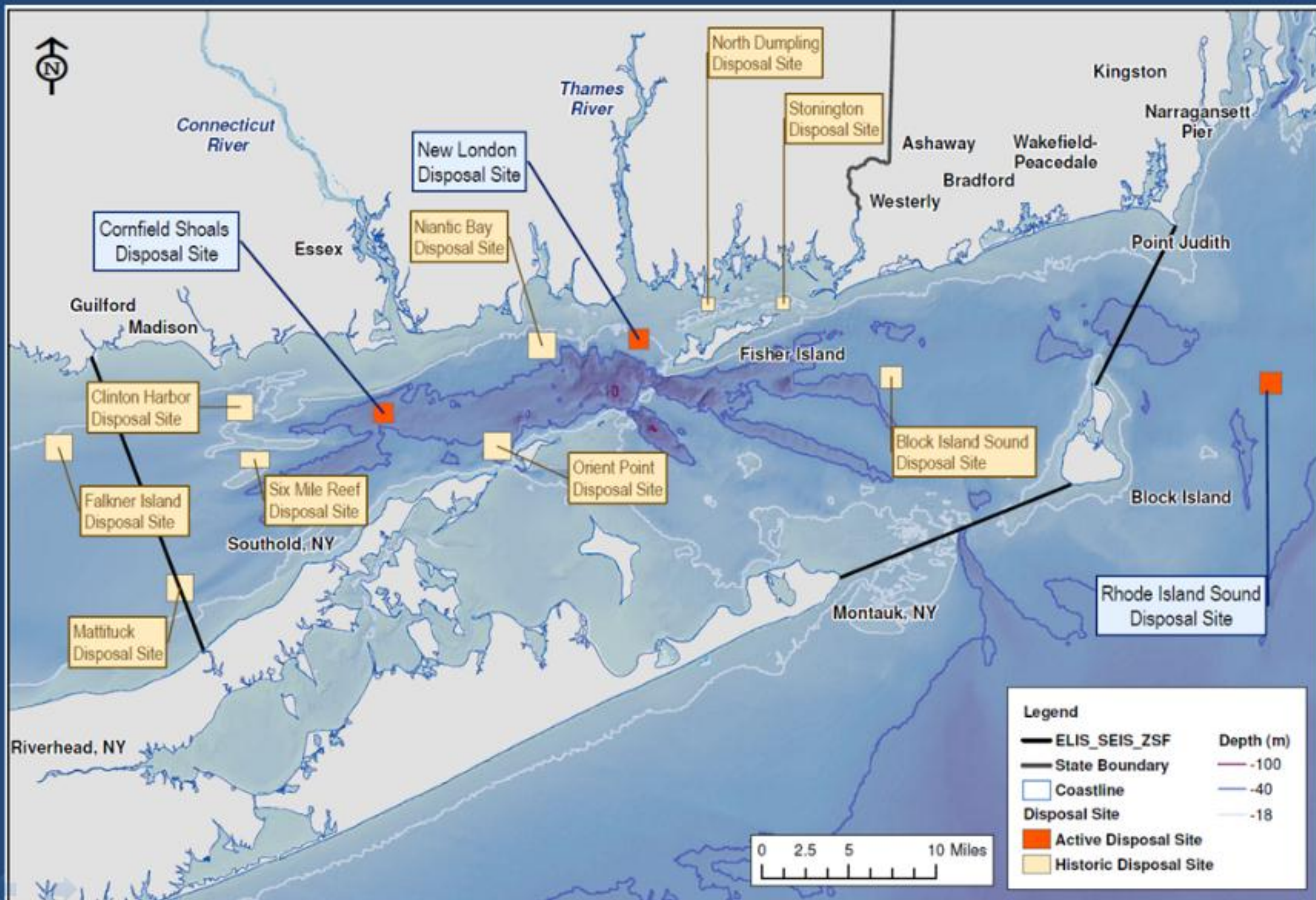


Tier 2: Approved/ Prohibited Shellfish Areas

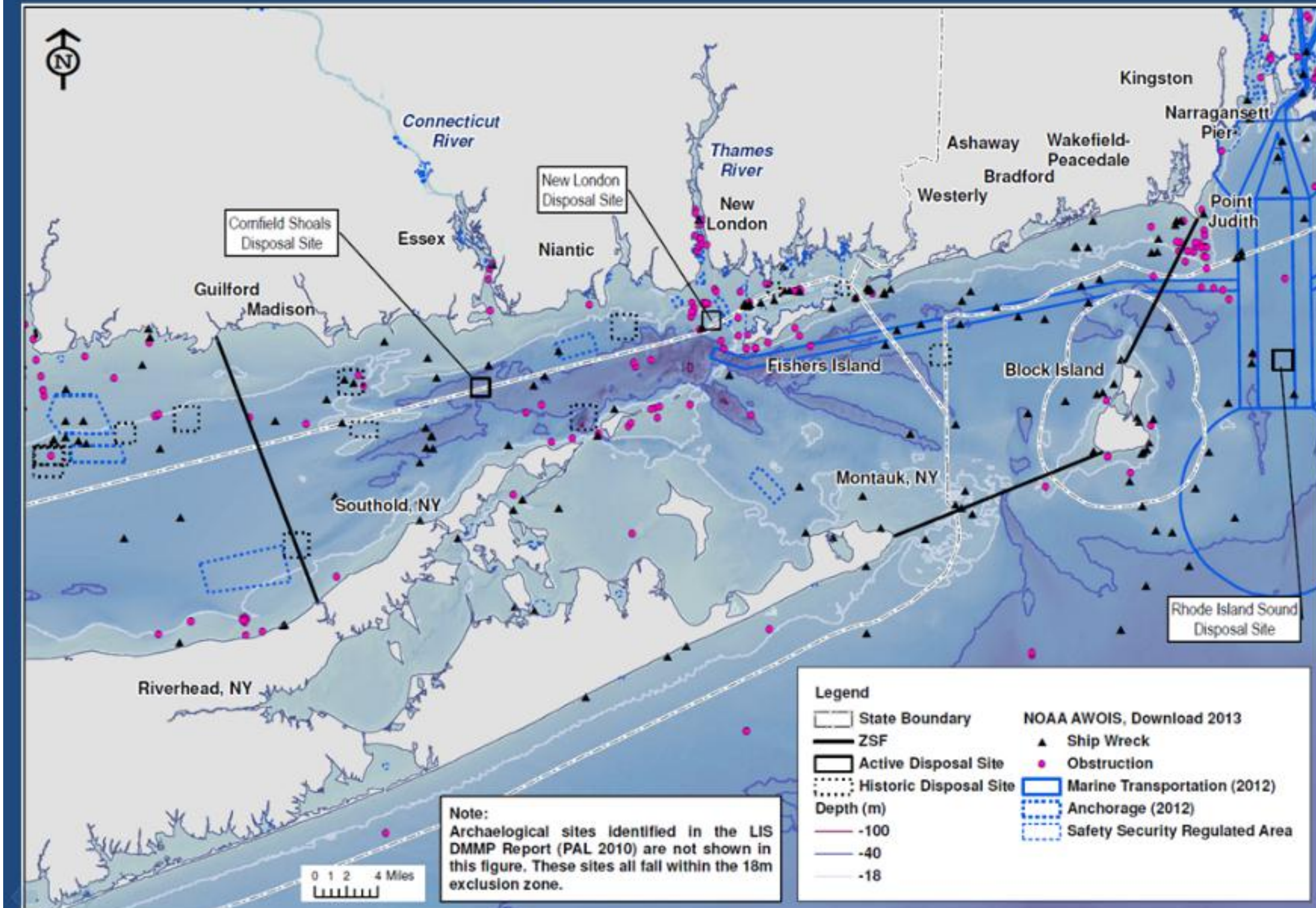
(additional NY data needed)



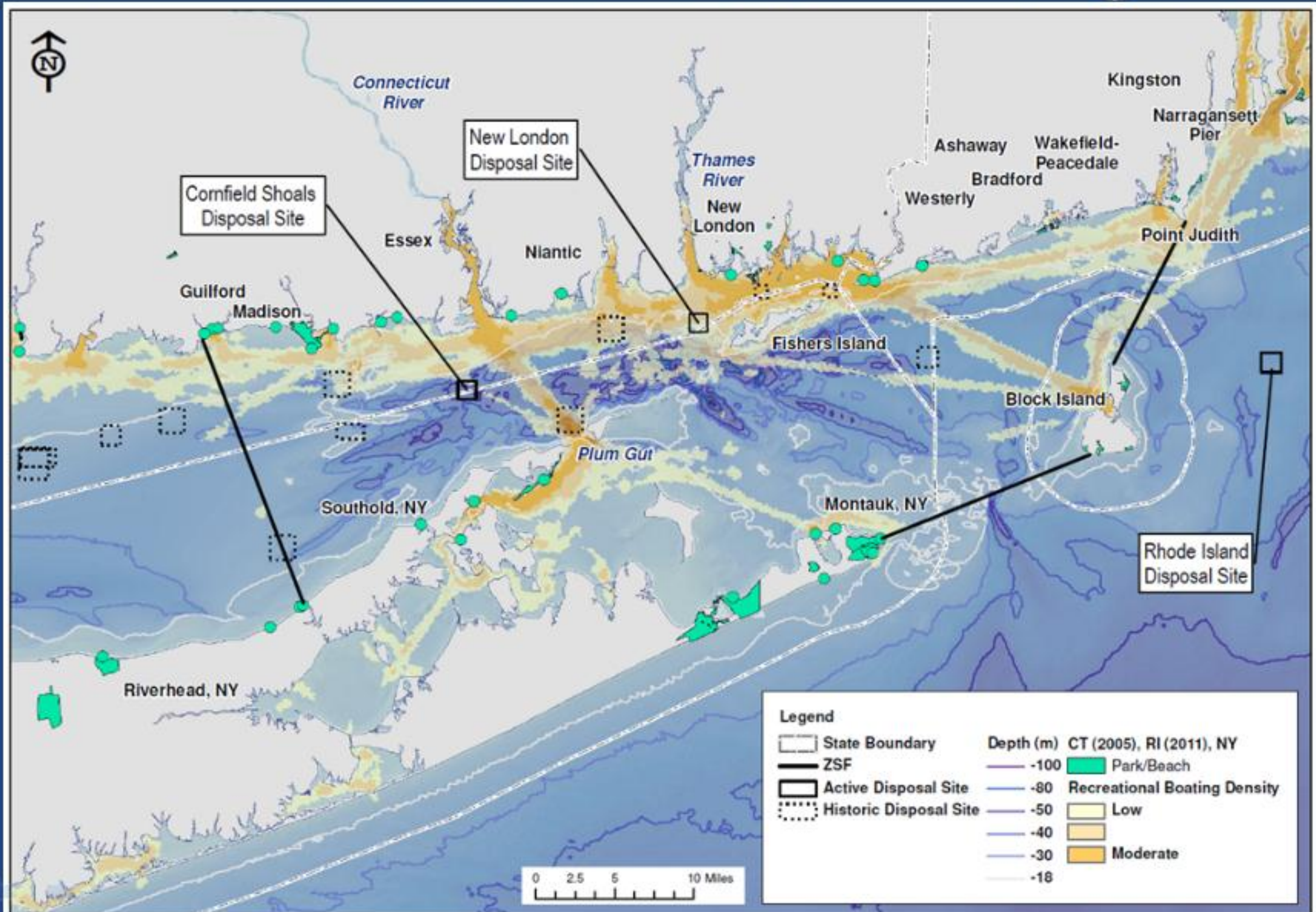
Tier 2: Active and Historic Disposal Sites

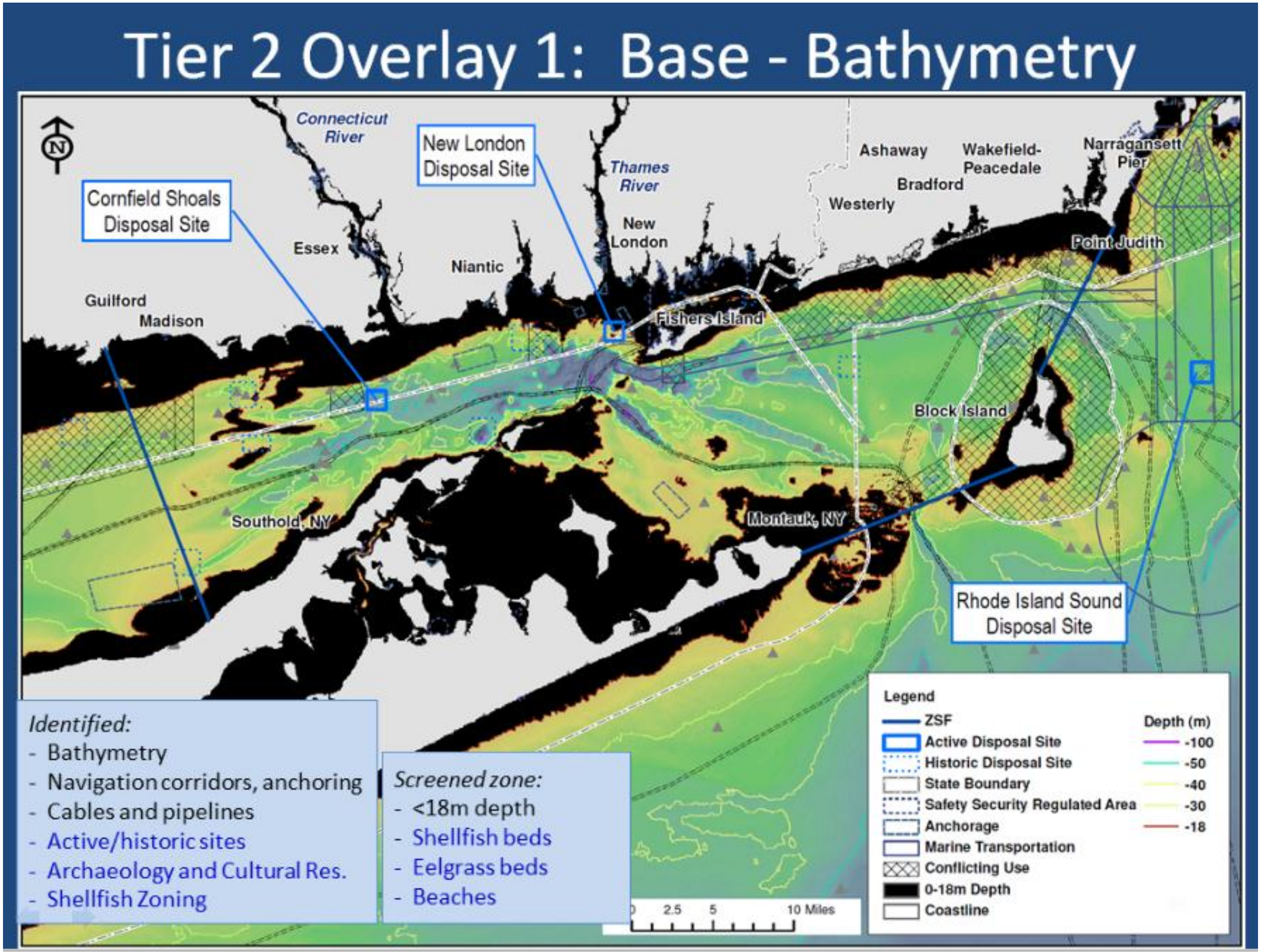


Tier 2: Archaeological and Cultural Resources



Tier 2: Recreational Areas and Navigation




Tier 2 Overlay 1: Base - Bathymetry
Connecticut River
New London Disposal Site
Thames River
New London
Cornfield Shoals Disposal Site
Essex
Niantic
Guilford
Madison
Fishers Island
Ashaway
Wakefield-Peacedale
Narragansett Pier
Bradford
Westerly
Point Judith
Block Island
Southold, NY
Montauk, NY
Rhode Island Sound Disposal Site
Identified:
- Bathymetry
- Navigation corridors, anchoring
- Cables and pipelines
- Active/historic sites
- Archaeology and Cultural Res.
- Shellfish Zoning
Screened zone:
- <18m depth
- Shellfish beds
- Eelgrass beds
- Beaches
2.5 5 10 Miles
Legend
ZSF
Active Disposal Site
Historic Disposal Site
State Boundary
Safety Security Regulated Area
Anchorage
Marine Transportation
Conflicting Use
0-18m Depth
Coastline
Depth (m)
-100
-50
-40
-30
-18

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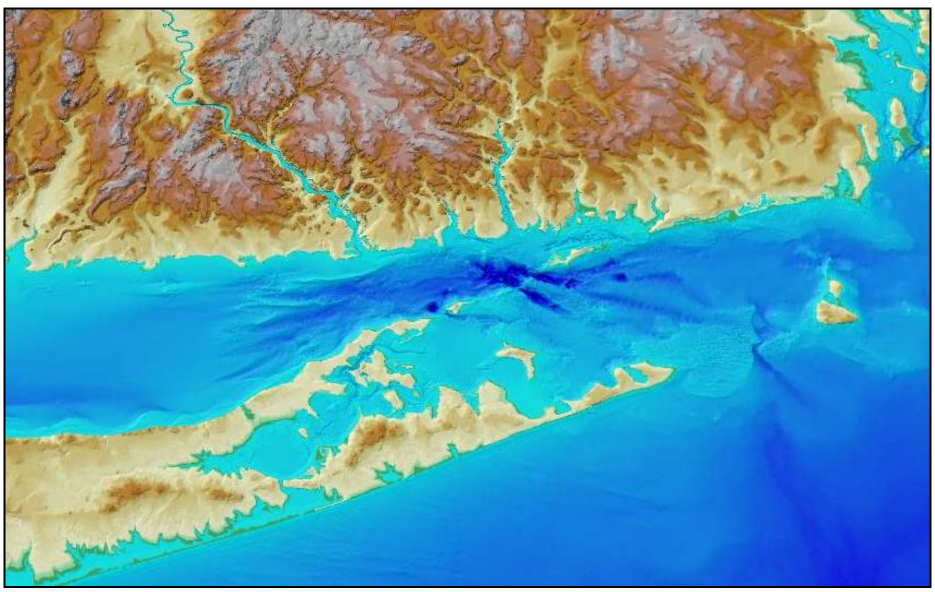
Appendix A-9

Minutes of Cooperating Agency Group Meeting 4

Supplemental Environmental Impact Statement for the Designation of Dredged Material Disposal Sites in Eastern Long Island Sound, Connecticut and New York

Minutes of Cooperating Agency Meeting 4



Prepared for: **United States Environmental Protection Agency**

Sponsored by: **Connecticut Department of Transportation**

Prepared by: **Louis Berger**

with support from

University of Connecticut

September 2014

Eastern Long Island Sound – Supplemental EIS

Cooperating Meeting 04 – Minutes

TOPIC:	**Physical Oceanography Study**	
DATE OF MTG:	September 5, 2014	
LOCATION:	Webinar	
TIME:	10:00am to 11:15am	
PARTICIPANTS:	**Cooperating Agencies**	
	• Connecticut Department of Transportation CTDOT):	Joe Salvatore
	• US Environmental Protection Agency, Region 1:	Jeannie Brochi
	• US Army Corps of Engineers, New England District:	Todd Randall
	• US Environmental Protection Agency, Region 2:	Patricia Pechko
	• New York State Department of State:	Kari Gathen Liz Podowski Jennifer Street Michael Zimmerman
	• New York Department of Environmental Conservation:	Charles deQuillfeldt Dawn McReynolds
	University of Connecticut (UCONN) Project Team (under contract to CTDOT)	
	• University of Connecticut:	James O'Donnell
	• Louis Berger *(Prepared minutes):*	Bernward Hay
SUBMITTED ON:	September 11, 2014	

The purpose of the meeting was to present the results of Physical Oceanography (PO) Study in preparation for the Eastern Long Island Sound (ELIS) region Supplemental Environmental Impact Statement (SEIS). The study was conducted by the University of Connecticut (UCONN) with support from Louis Berger; it was prepared for the U.S. Environmental Protection Agency (USEPA), and sponsored by the Connecticut Department of Transportation (CTDOT).

Jean Brochi introduced the meeting, stating that the presentation will be a summary of what is available in both the PO Field Data Report and the Model Report which was distributed to the Cooperating Agencies on August 22, 2014. She asked that clarifying questions on the reports or presentation could be asked at the end of the presentation. Written comments or questions could also be sent to her after review of documents. Charles deQuillfeldt stated that the Field Data Report could not be downloaded as NYSDEC's computer system currently has problems. Jean Brochi stated that would send a CD with the report.

James O'Donnell then presented the details of the study, consisting of the following components:

- Objective of the PO study
- Model overview

- Model calibration
- Evaluation of model simulations
- Analysis of results
- Summary of findings

The presentation is attached in Appendix 1: it followed the Field Data Report and Modeling Report prepared for this study (please refer to the appendix and the reports for details).

Questions after the presentation were as follows:

- Dawn McReynolds asked about the data recovery for currents and suspended sediment near the seafloor at the seven moored stations, which collected half or less data of the data targeted (*Slide 10 in Appendix 1).* She asked if the data recovered were sufficient to guarantee the 90% variance of the model.

  James O'Donnell responded that he needed a minimum of 75 days of data at each station for the model; this was achieved by the field program. During Campaign 1 (spring), the data return was lower compared to other campaigns, with Station DOT3 achieving less than 25 days of data. However, there is no degradation in the model because of that. The available data was sufficient to discriminate areas of high and low stress. The field program captured several storms; more than three in eastern Long Island Sound and more than two in Block Island Sound. This outcome is better than expected. Normally instruments deployed in these waters are even more affected by fishing activities than what was experienced during this study. Some instrument loss was anticipated when the field program was designed.

- Patricia Pechko asked if the conditions during the three campaigns (spring, summer, winter) were typical for these seasons.

  James O'Donnell stated that he considers them 'typical'. The study captured a fairly wide sample of conditions. In fact, the study observed that the *maximum* bottom stresses that occurred during the three seasons did not differ all that much. In other words, winter storms may have similar wind speeds as summer storms, although the frequency of storms may be less in the summer. However, due to the length of the field program, several good summer storms were captured.

- Michael Zimmerman inquired about the correlation between predicted and observed data which were very strong *(Slide 20 in Appendix 1),* asking if a standard error was determined and model results were adjusted accordingly.

  James O'Donnell responded that there were no adjustments to the data or the model as they are independent.

  Michael followed up asking if the difference between the model and the field data was considered in the subsequent modeling.

  James O'Donnell responded the correlation between model and field data was not used to adjust any model results.

- Patricia Pechko asked if Superstorm Sandy was a worst-case scenario, or if one of the more recent hurricanes would be a better example for worst-case conditions. In other words, why was Sandy selected as a worst-case storm?

  James O'Donnell responded that a 100-year long record of bottom stress or currents does not exist which would allow evaluating the severity of conditions during Sandy; in addition, there were no current velocity measurements during Sandy either. However, data are available for sea level and wind speeds *(Slides 27 and 28 in Appendix 1)* that allow an assessment of the severity of Sandy. The maximum sea level correlates with the maximum current velocities during a storm. In New London, the return period of sea level rise as a result of storm surge (based on a record of 70 years) is approximately 2 meters (m) *(Slide 29 in Appendix 1).* The peak surge in New London during Sandy was 2 m *(Slide 28)*, thus implying that it can be considered a 100-year storm.

James O'Donnell did the same analysis for Hurricane Irene which had a storm surge of 1.6 m, making it approximately a 20-year storm. While the impacts from hurricanes may be greater economically, current velocities in Long Island Sound are affected by storm surge. Part of the reason for the high storm surge in Long Island Sound during Sandy was not maximum wind speed (Sandy dropped to a' tropical storm' category), but rather the fact that the still high wind speeds during Sandy lasted for several days pushing the sea level continuously higher and resulting in severe flooding in the western part of Long Island Sound. After the storm, all the water accumulated in the Sound flowed out in the eastern part of the Sound.

Jean Brochi stated that the estimated schedule for the Draft SEIS at this time is December 2014 or January 2015. However, she stated further that there was a request during the last Cooperating Agency meeting to allow for more time for review of documents, which EPA will accommodate for future documents with a minimum of three weeks.

The webinar was adjourned at approximately 11:15am.

APPENDIX 1: Presentation by Dr. James O'Donnell (University of Connecticut): *Physical Oceanography of Eastern Long Island Sound Region*

Supplemental Environmental Impact Statement for the Designation of Dredged Material Disposal Site(s) in Eastern Long Island Sound, Connecticut and New York

Physical Oceanography of Eastern Long Island Sound Region

Prepared for: U.S. Environmental Protection Agency

Sponsored by: Connecticut Department of Transportation

Prepared by: University of Connecticut

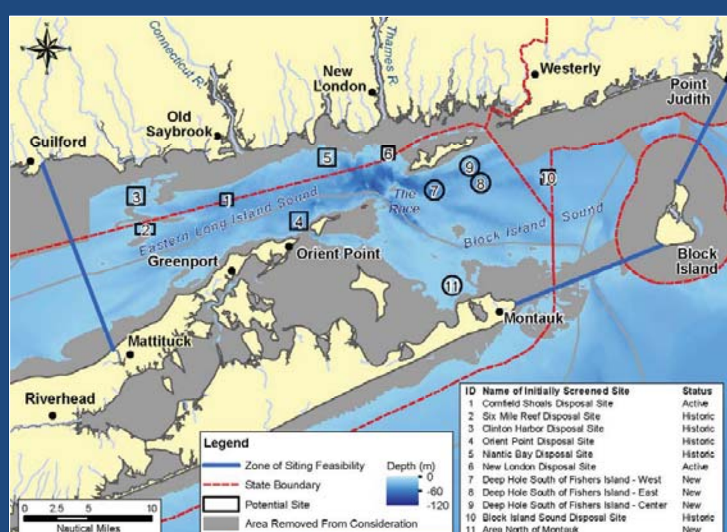
with support from: Louis Berger

Cooperating Agency Meeting 4 (Sept. 5, 2014)

Objective of PO Study

Support evaluation and selection of potential dredged material disposal sites within the Zone of Siting Feasibility (ZSF)

- Describe distribution of maximum bottom stress magnitudes expected in the ZSF including 'Superstorm Sandy' conditions **(a 100-year storm)**
- Characterize circulation in the ZSF to support assessment of potential off-site effects
- Acquire physical oceanography data to support future modeling of sediment transport at potential dredged material disposal sites



Zone of Siting Feasibility (ZSF). Initial screening identified (1) areas not suitable for locating dredged material disposal sites due to various constraints (gray zone), and (2) 11 sites for further investigation as potential disposal sites; these sites include two active and five historic disposal sites, and six 'new' sites not previously used for dredged material disposal. The background represents water depth.

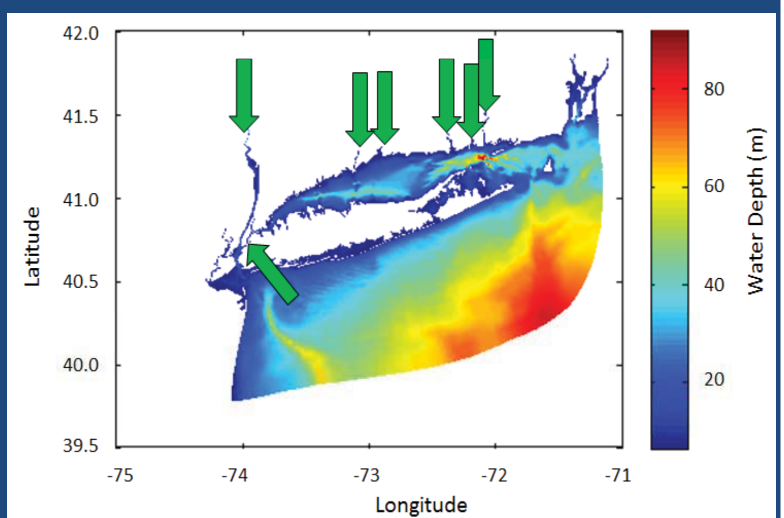
Outline

1. Model: *Configure and test*
2. Calibration: *Use available data*
3. Evaluation of Simulations
   - Field Program: *Collect data (currents and stress etc.) at a set of stations that are expected to exhibit a wide range of conditions*
   - Model Performance: *Evaluate predictions of model with new data*
4. Analysis
5. Summary

1. Model

FVCOM:

- Forced by Tides and NECOFS
- Observed River flow and wind
- Climatology for surface heat exchange
- Climatology for initial conditions



Bathymetry of the LIS model subdomain with the locations of freshwater sources (green arrows; from left to right: Hudson River, New York City wastewater treatment plants , Housatonic River, Quinnipiac River, Connecticut River, Niantic River, and Thames River).

1. Model *(cont.)*

An Unstructured Grid, Finite-Volume, Three-Dimensional, Primitive Equations Ocean Model: Application to Coastal Ocean and Estuaries

CHANGSHENG CHEN AND HEDONG LIU

School for Marine Science and Technology, University of Massachusetts–Dartmouth, New Bedford, Massachusetts

ROBERT C. BEARDSLEY

Department of Physical Oceanography, Woods Hole Oceanographic Institution, Woods Hole, Massachusetts

Conservation of Momentum: Reynolds Average Navier- Stokes Equation

$$\frac{\partial u}{\partial t} + u\frac{\partial u}{\partial x} + v\frac{\partial u}{\partial y} + w\frac{\partial u}{\partial z} - fv = -\frac{1}{\rho_o}\frac{\partial P}{\partial x} + \frac{\partial}{\partial z}\left(\boxed{K_m\frac{\partial u}{\partial z}}\right) + F_u,$$

At the seafloor

$$K_m\left(\frac{\partial u}{\partial z}, \frac{\partial v}{\partial z}\right) = \frac{1}{\rho_o}(\tau_{bx}, \tau_{by}),$$

where the stress is parameterized as

$$(\tau_{bx}, \tau_{by}) = \boxed{C_d}\sqrt{u^2 + v^2}(u, v)$$

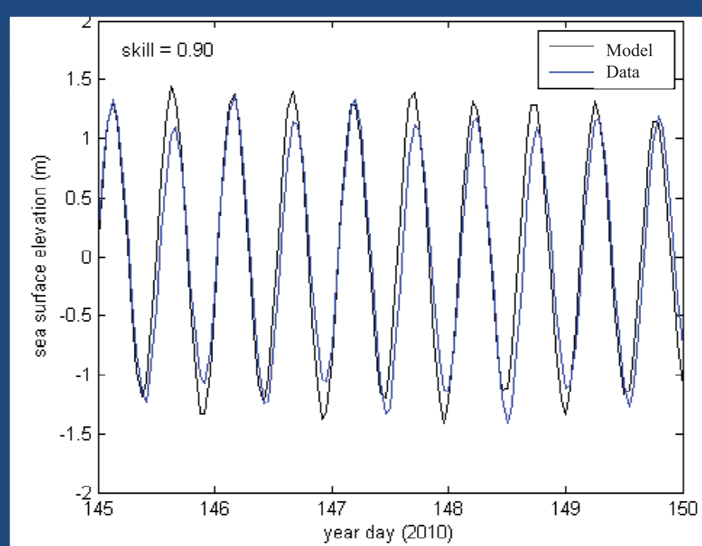
and the drag coefficient is written in terms of the roughness at the seafloor as

$$C_d = \max\left[\frac{k^2}{\ln\left(\frac{z_{ab}}{\boxed{z_o}}\right)^2}, 0.0025\right], \qquad (2.14)$$

where $k = 0.4$ is the von Kármán's constant and z_o is the bottom roughness parameter.

2. Calibration

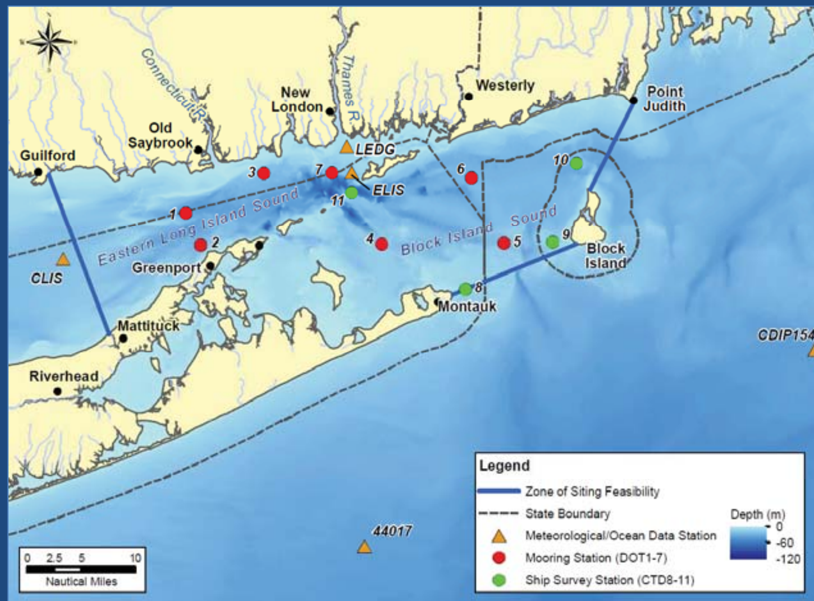
- Set z_0 =0.001 m to optimize the simulation of the sea level at Bridgeport for 2010
- Determine the Skill (variance in data explained/variance in data) to be 90%



Comparison of tidal heights at the NOAA Bridgeport tidal height gauge (BDR, blue) compared to those predicted by the FVCOM model (black) after iteratively calibrating the model using the 2010 NOAA data . Note that year day 1 is January 1, 2010.

3. Evaluation – Field Program

- Deploy instruments on 7 bottom tripods for 3 two-month observation campaigns to observe spring, fall and winter
- Conduct 6 cruises with water column measurements at the 7 tripod stations and 4 additional stations



Survey stations in the ZSF, as well as meteorological/ocean stations. The background represents water depth.

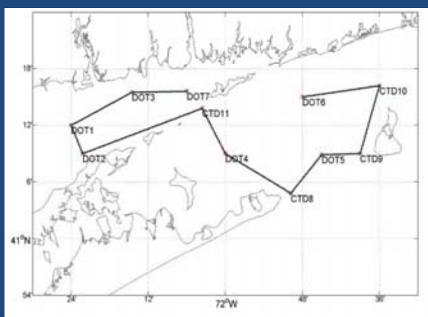
3. Evaluation – Field Program *(cont.)*

- Upward looking RDI ADCP for water column currents and waves
- Downward looking Nortek ADCP for stress
- 2 optical backscatter (OBS3+) for suspended sediment concentration
- SeaBird CTD (SBE SMP37) for salinity and temperature

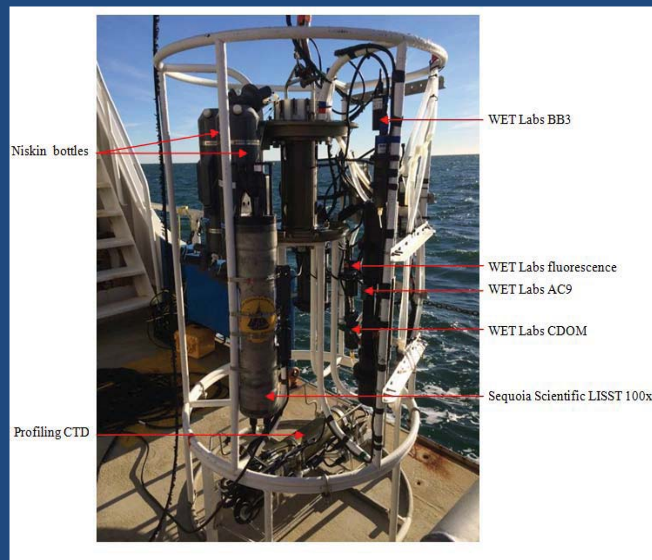
Left: Location of instruments in moored tripod frame
Right: Close-up of the OBS3+ mounts

3. Evaluation – Field Program *(cont.)*

- CTD for temperature and salinity
- Water sampler and optical instruments for future sediment transport modeling

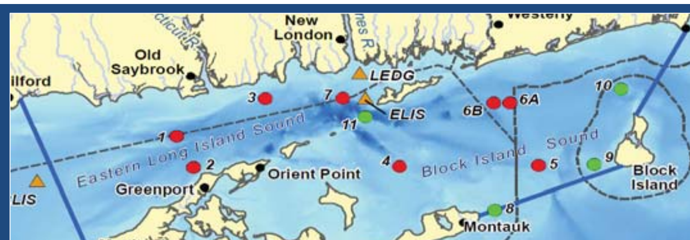


Example of a cruise track for ship surveys. The track varied for each cruise due to weather conditions and sea state.



Rosette sampler, equipped with a profiling CTD, Niskin bottles, and various optical sensors and particle analyzers.

Moored Stations - Data Recovery

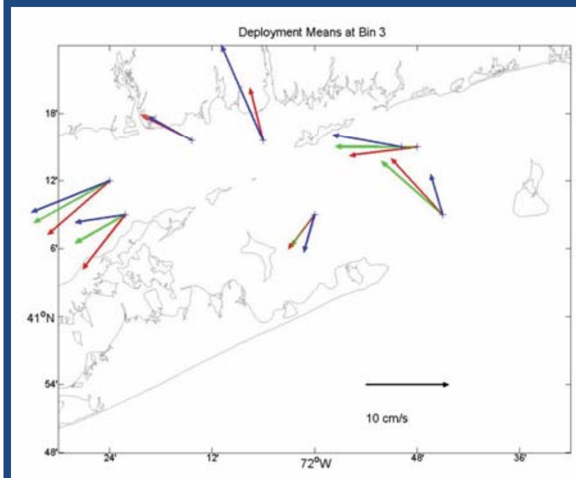


Para-meters	Temperature and Salinity near the Seafloor				Currents and Suspended Sediment near the Seafloor				Waves and Currents in the Water Column			
Sensor	*CTD (SBE SMP37)*				*Nortek ADCP & OBS3+ sensor*				*RDI ADCP*			
Mooring Stn	Campaign			Total	Campaign			Total	Campaign			Total
	1	2	3		1	2	3		1	2	3	
	days				days				days			
DOT1	66	58	57	181	25	29	54	108	66	58	57	181
DOT2	66	58	57	181	25	27	54	106	66	58	57	181
DOT3	66	58	57	181	24	32	53	110	0	58	57	115
DOT4	66	58	57	181	27	34	56	117	66	58	57	181
DOT5	66	58	57	181	27	30	57	114	66	58	57	181
DOT6 A/B	66	58	43	167	25	16	44	86	28	16	43	87
DOT7	49	58	57	164	28	34	27	89	0	58	57	115
Max Days	*66*	*58*	*57*	*181*	*66*	*58*	*57*	*181*	*66*	*58*	*57*	*181*

Full or near-full data (>90%)
About half or more data (45 - 90%)
About one quarter or more data (22.5 - 45%)
No data

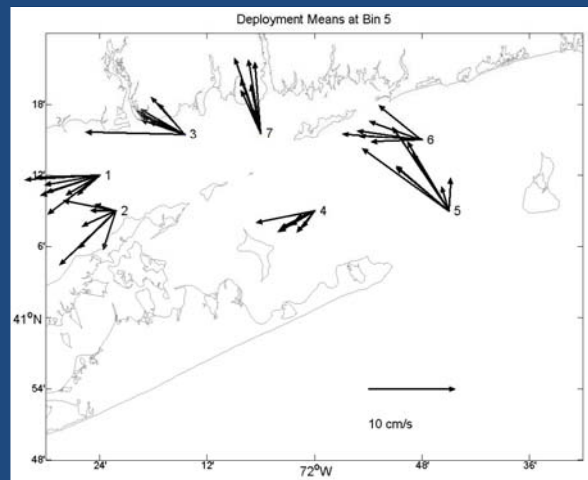
3. Evaluation – Field Program *(cont.)*

RDI ADCP means at ~3m from seafloor



Mean currents at Bin 3 of the RDI ADCP measurements during Campaigns 1 (green), 2 (red), and 3 (blue).

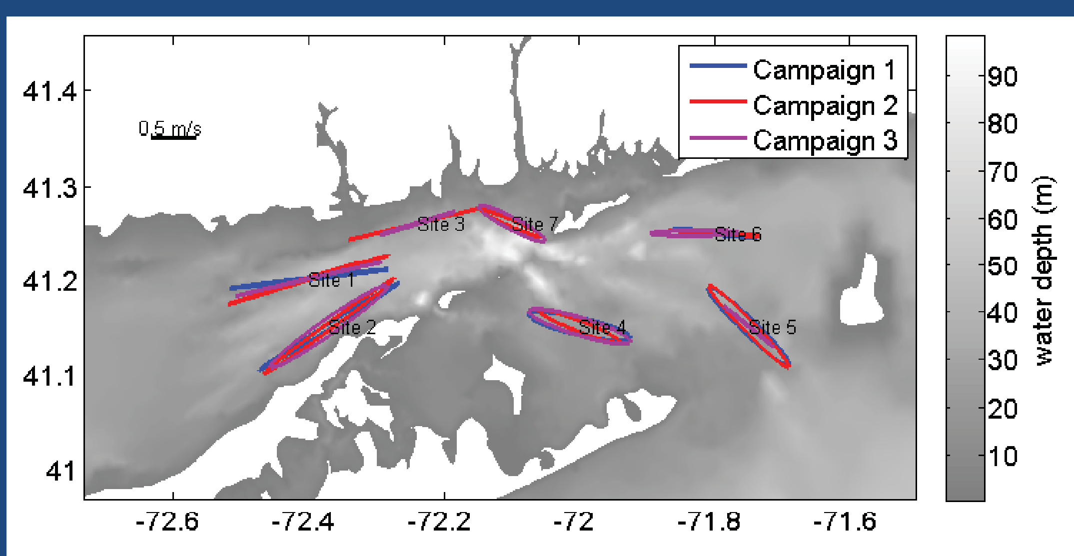
Nortek ADCP means at ~0.6m from seafloor



Mean velocity vectors at each moored station from the Nortek ADCP near the seafloor. The velocity scale is shown on graphic.

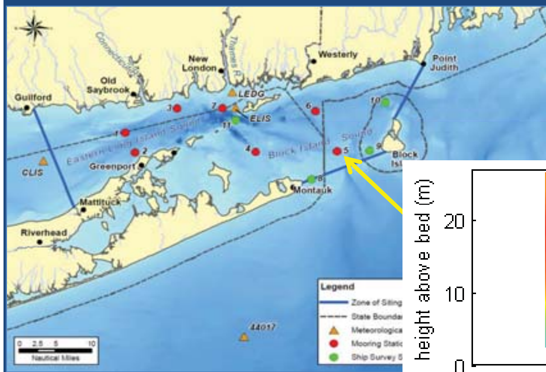
3. Evaluation – Field Program *(cont.)*

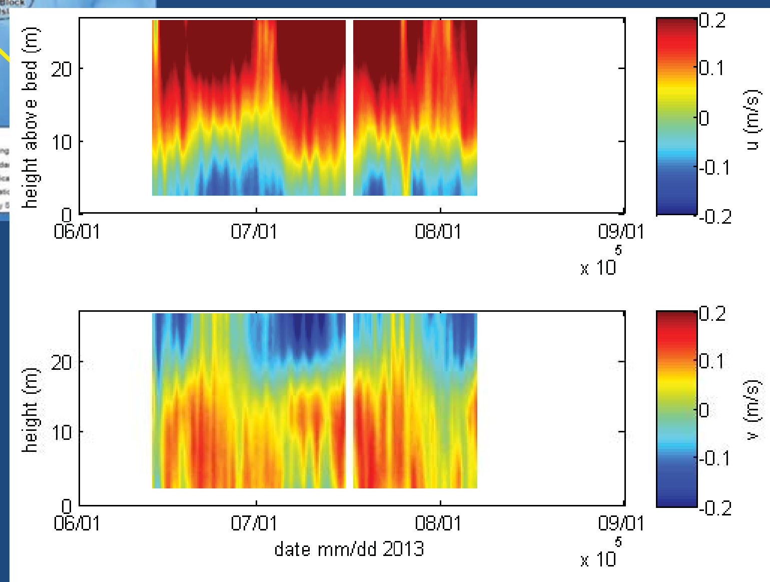
M2 Tidal Constituents



M2 ellipses for depth-average velocities from RDI ADCP measurements from the three campaigns (colors) and for FVCOM model (black) at all seven DOT stations. The grey shading represents mean water depth.

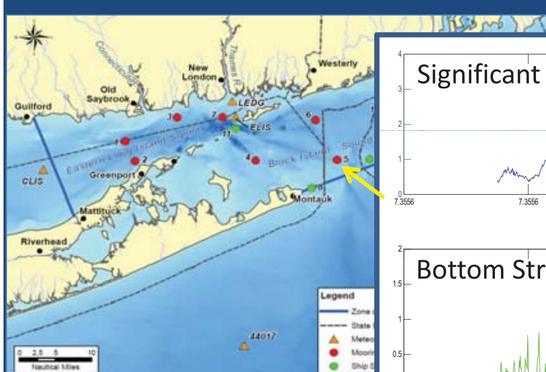
3. Evaluation – Field Program *(cont.)*

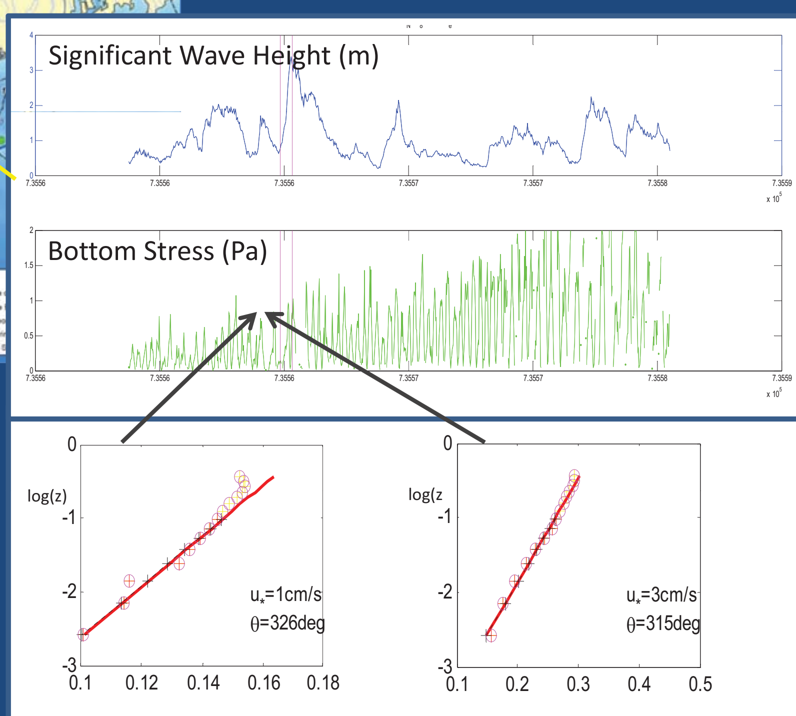




Low-pass filtered velocities for Station DOT5, Campaign 2. Eastward (upper graph) and northward (lower graph) components.

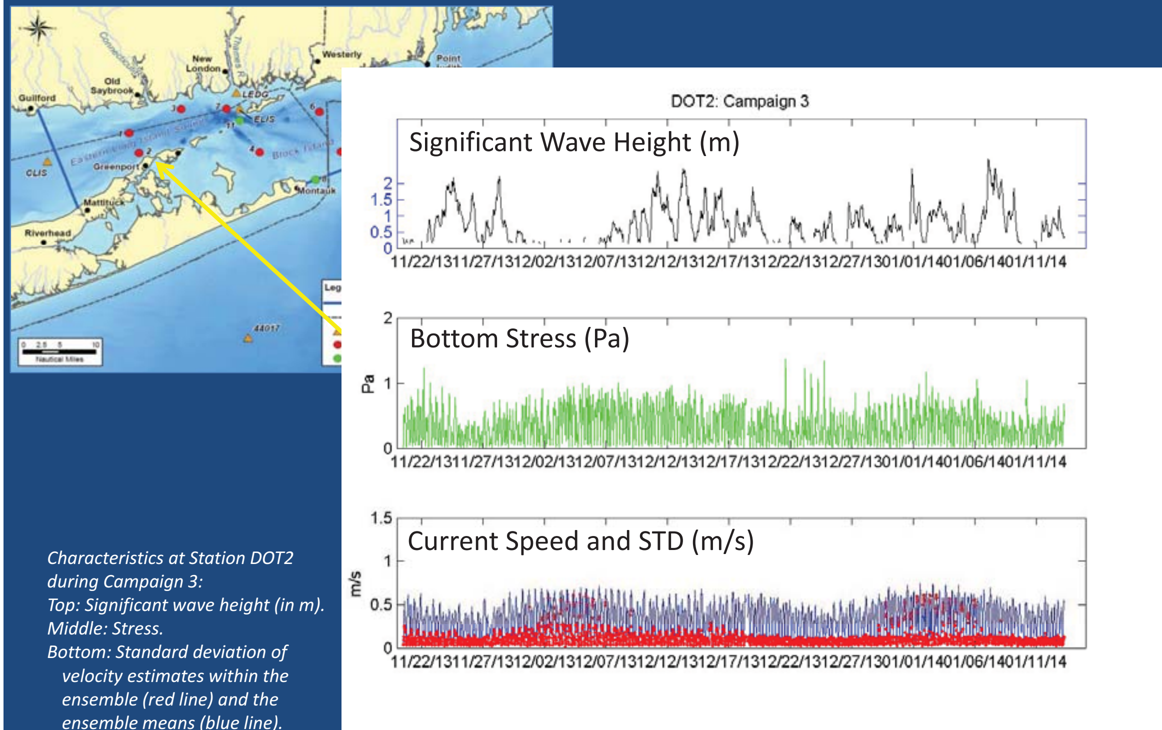
3. Evaluation – Field Program *(cont.)*





The variation of u(z) with log(z) for ensembles 297 and 317

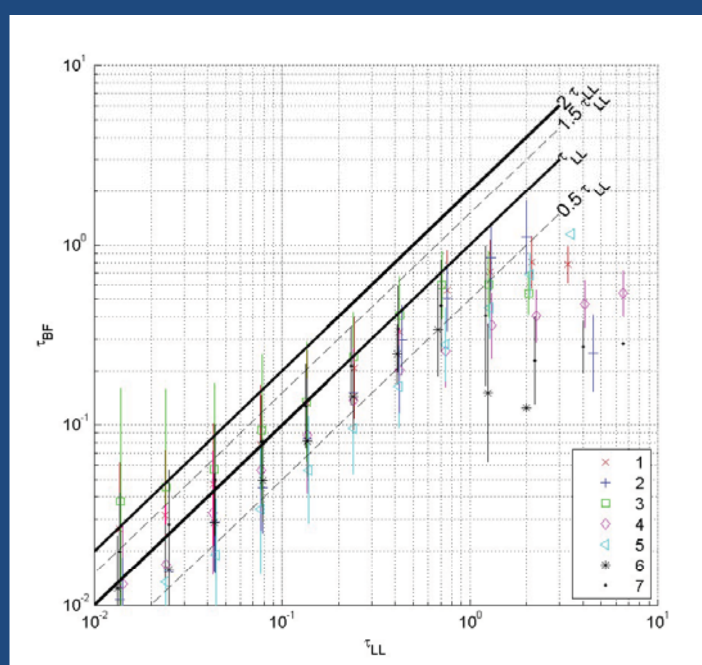
3. Evaluation – Field Program *(cont.)*



Characteristics at Station DOT2 during Campaign 3:
Top: Significant wave height (in m).
Middle: Stress.
Bottom: Standard deviation of velocity estimates within the ensemble (red line) and the ensemble means (blue line).

3. Evaluation – Performance

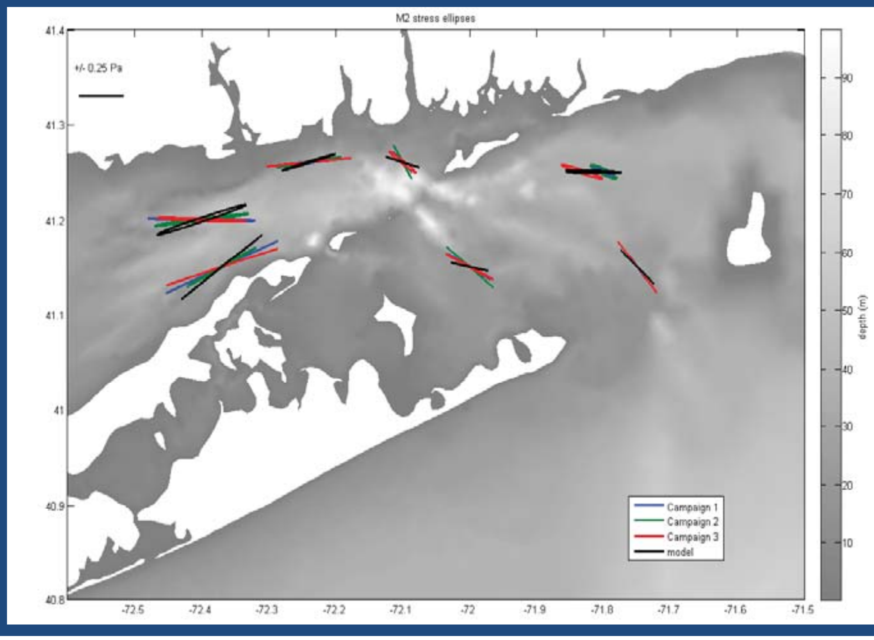
Measurements support the use of C_d =0.0025.



Summary of stress magnitude measurements using the log law and the bulk formula with C_d=0.0025. To suppress the noise inherent in turbulent quantities, measurements were bin-averaged. The key shows the stations numbers.

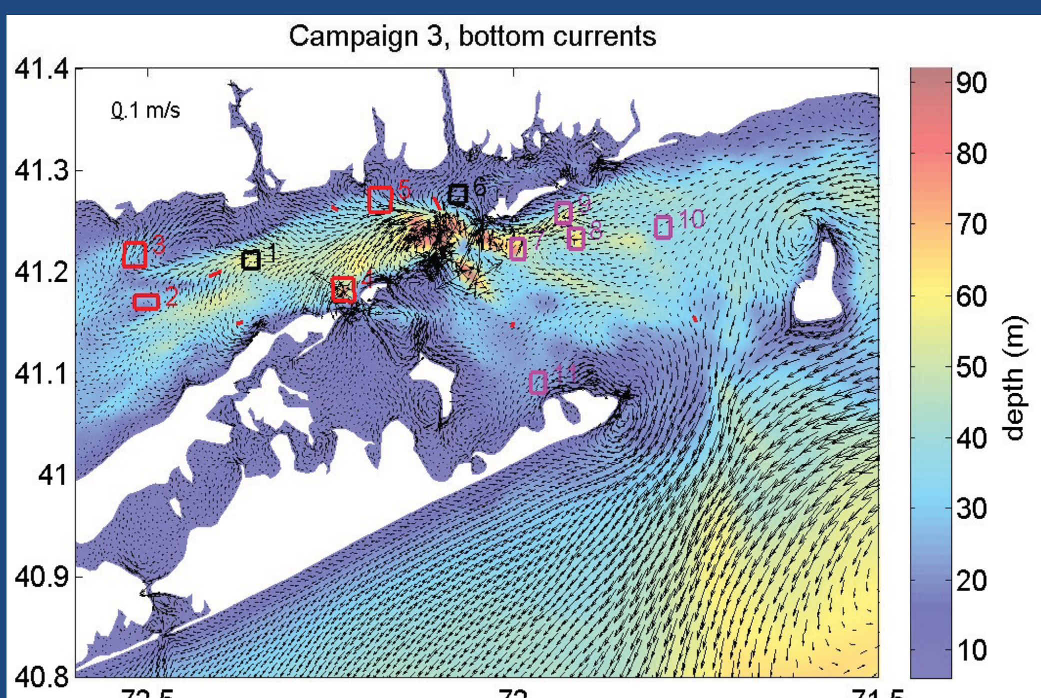
3. Evaluation – Performance *(cont.)*

Stress due to tides in data (color) and model (black) are in agreement



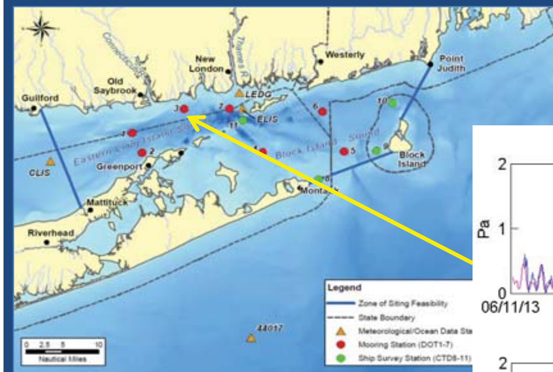
3. Evaluation – Performance *(cont.)*

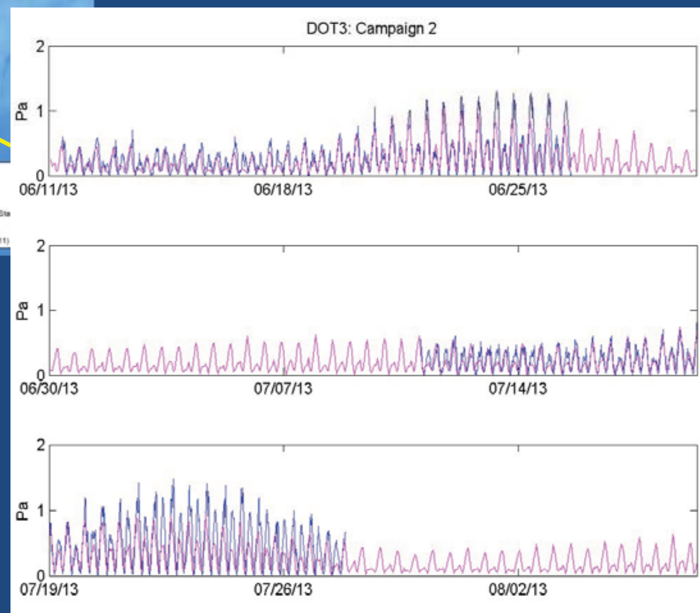
Model gets mean flow pattern correct



3. Evaluation – Performance *(cont.)*

Model simulations reproduce tidal and the spring-neap variations on observed stress

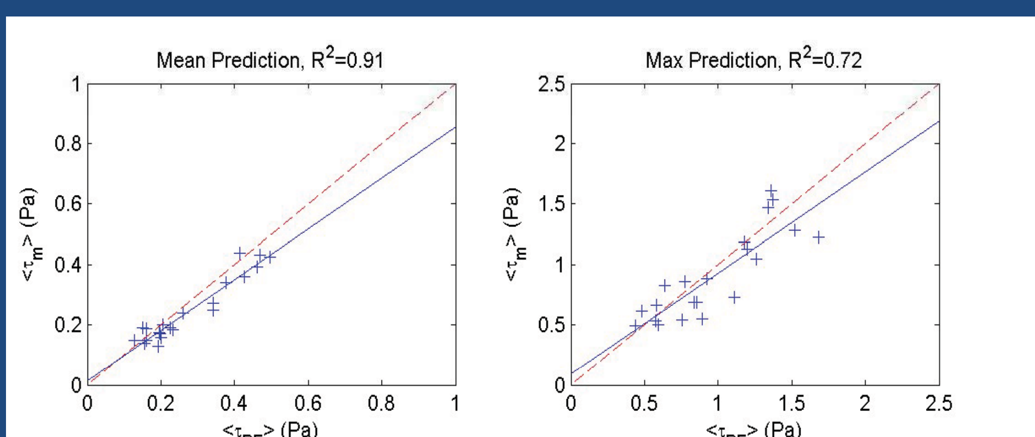




Model-predicted bottom stress at Station DOT3 during Campaign 2 in the summer of 2013 (magenta line). The blue line shows the measured stress using the bulk formula.

3. Evaluation – Performance *(cont.)*

- Model and observations agree on the campaign mean and maximum stress magnitudes.
- Model can effectively discriminate between places where the maximum measured stresses are large (>1 Pa) and those where they are smaller (<1Pa).



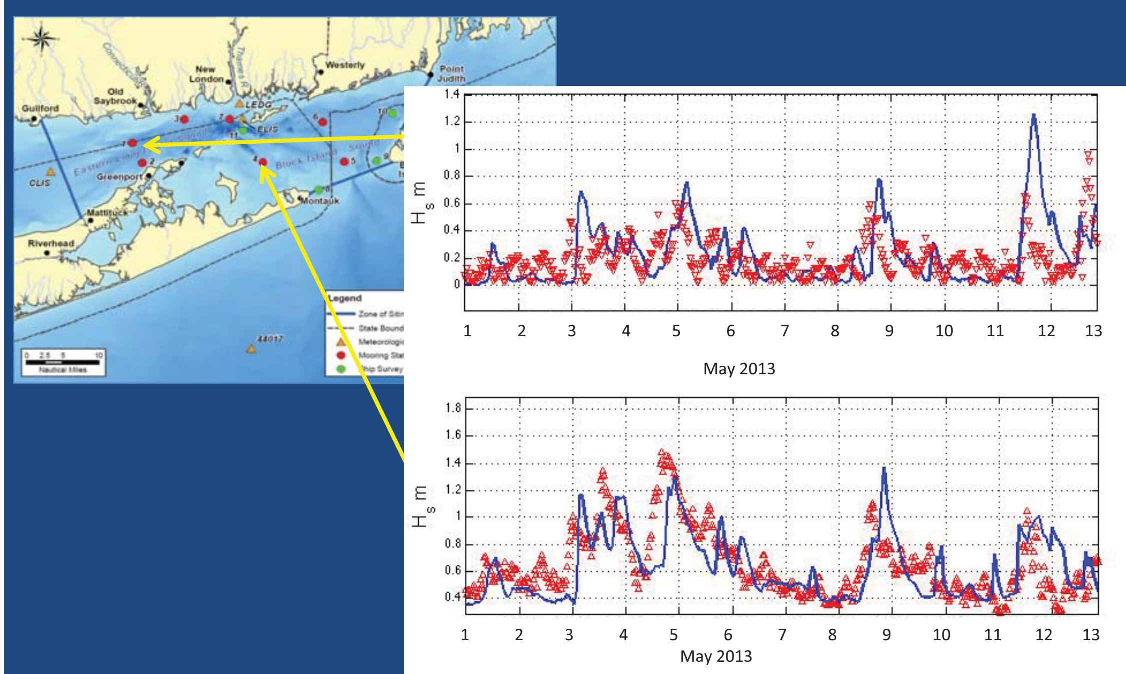
Left: Comparison of model predicted bottom stress magnitudes and mean bottom stress observed during the three campaigns. Points would all lie on the red dashed line if the model and data were in perfect agreement. The blue solid line shows the ordinary least-squares regression line which has a correlation coefficient of 0.91.
Right: Comparison of the predicted and observed maximum stress magnitudes. The correlation coefficient was 0.72.

3. Evaluation – Performance *(cont.)*

Model simulations reproduce tidal and spring-neap variations on observed stress

Station	Model Stress (Pa)		Observation Stress Magnitude					
	Mean	Max	Mean	Max	Correlation	Lag (hrs)	RMSE*	MAE**
Campaign 1								
DOT1	0.36	1.18	0.43	1.18	0.87	0.33	0.18	0.13
DOT2	0.43	1.28	0.50	1.52	0.85	0.33	0.24	0.16
DOT3	0.24	0.88	0.26	0.92	0.92	0.33	0.10	0.07
DOT4	0.17	0.50	0.20	0.60	0.89	0.38	0.07	0.05
DOT5	0.19	0.82	0.16	0.64	0.47	0.38	0.16	0.12
DOT6	0.15	0.49	0.13	0.44	0.86	-0.31	0.06	0.05
DOT7	0.14	0.69	0.16	0.84	0.65	0.67	0.12	0.08
Campaign 2								
DOT1	0.44	1.61	0.41	1.36	0.82	0.36	0.18	0.14
DOT2	0.39	1.22	0.46	1.68	0.67	0.67	0.28	0.20
DOT3	0.27	1.04	0.34	1.26	0.89	0.59	0.16	0.11
DOT4	0.19	0.55	0.23	0.89	0.83	0.76	0.12	0.09
DOT5	0.19	0.73	0.23	1.11	0.52	0.62	0.19	0.14
DOT6	0.19	0.62	0.15	0.48	0.84	0.42	0.08	0.06
DOT7	0.16	0.69	0.20	0.86	0.63	0.31	0.14	0.10
Campaign 3								
DOT1	0.34	1.47	0.38	1.34	0.79	0.84	0.19	0.13
DOT2	0.43	1.53	0.47	1.37	0.72	1.00	0.26	0.19
DOT3	0.25	1.12	0.34	1.20	0.83	0.50	0.17	0.11
DOT4	0.17	0.66	0.20	0.58	0.81	0.76	0.09	0.06
DOT5	0.20	0.86	0.21	0.77	0.65	-2.19	0.14	0.10
DOT6	0.15	0.53	0.16	0.58	0.66	0.16	0.09	0.06
DOT7	0.13	0.54	0.19	0.75	0.68	0.50	0.16	0.11

3. Evaluation – Performance *(cont.)*



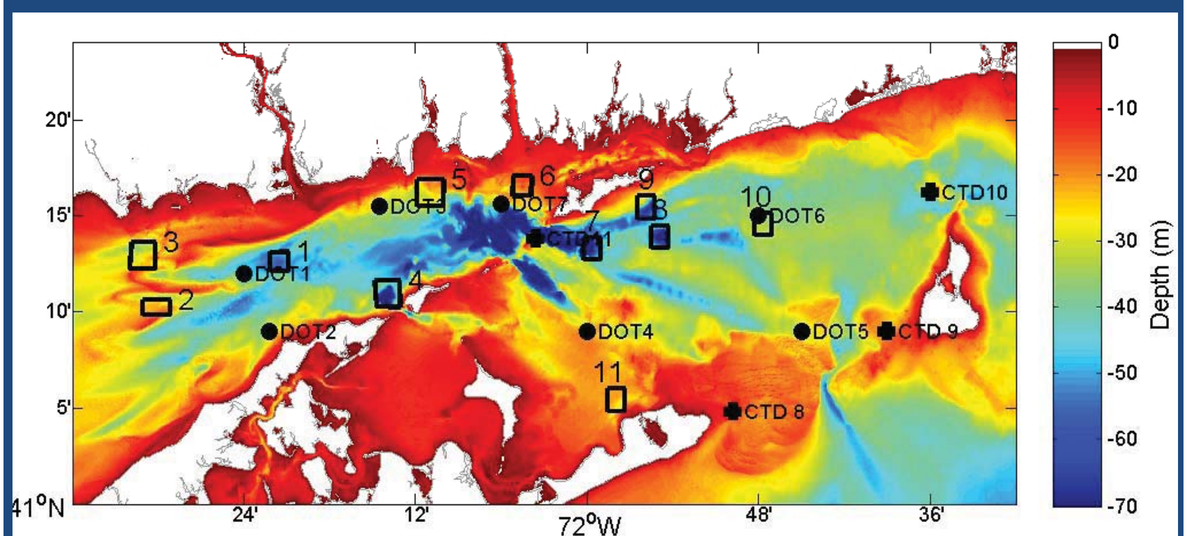
Comparison of model and observed significant wave height at Stations DOT1 (upper panel) and DOT4 (lower panel) during May 2013.

4. Analysis

- Find maximum bottom stress magnitude at each point in the ZSF in the three Campaigns
- Compare values at sites identified in the screening process
- Simulate period of a severe storm (Superstorm Sandy) and compare maximum stress magnitudes

4. Analysis *(cont.)*

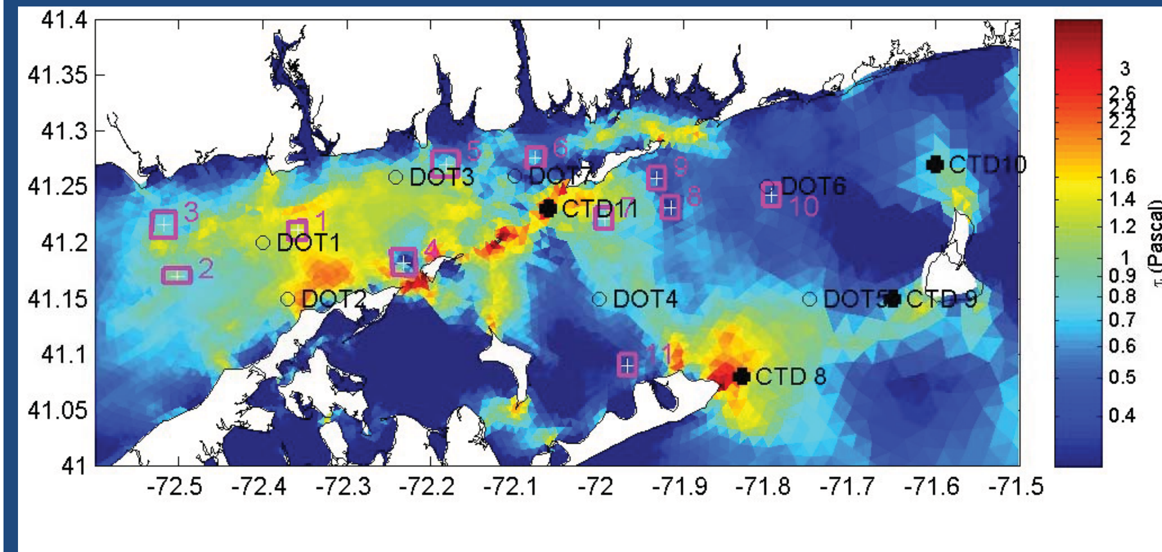
Bathymetry and locations of potential sites



Water depth and 11 potential dredged material disposal sites (open boxes) as identified during the initial screening process. Sites 1 and 6 are the active disposal sites (CSDS and NLDS, respectively). The seven mooring stations ('DOT') are identified by full circles; the four additional ship survey stations ('CTD') are identified by crosses.

4. Analysis *(cont.)*

- Spatial differences are much larger than seasonal variations
- Stress is high in much of ZSF

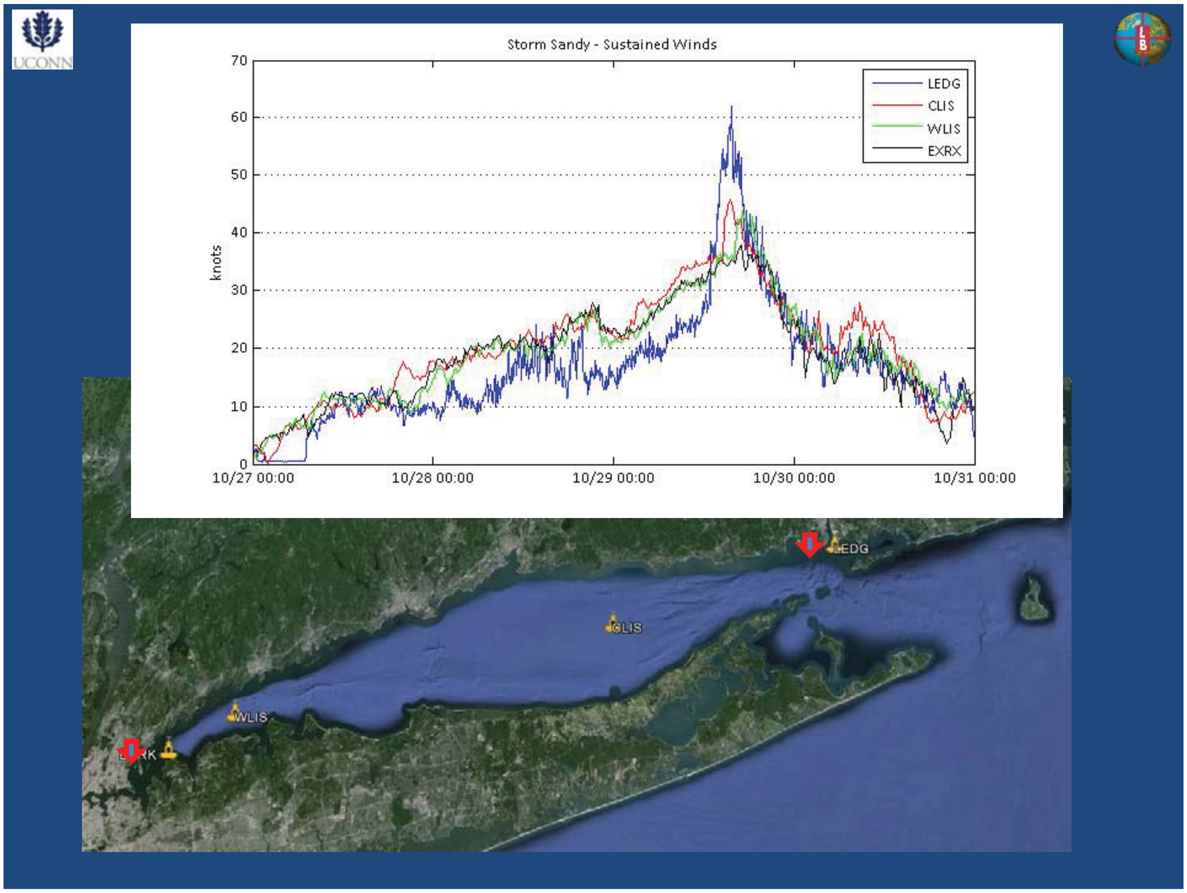


Maximum bottom stress during Campaign 3 (November 20, 2013, to January 16, 2014) for storm conditions (i.e., due to the principal tidal current constituents and the seasonal mean flow, as well as wind).

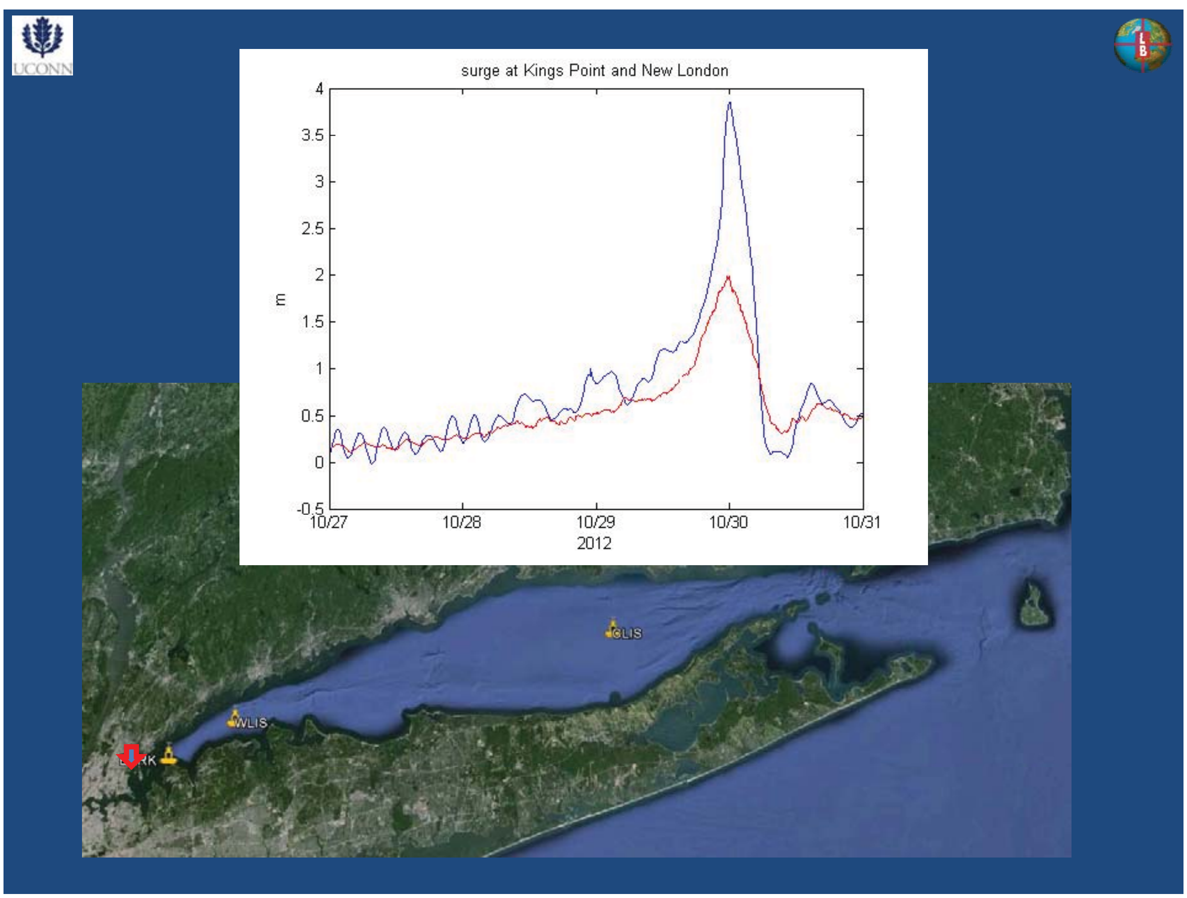
4. Analysis *(cont.)*

Maximum Bottom Stress (Pa) during Storm Conditions at Potential Dredged Material Disposal Sites

Potential Disposal Site			Maximum Bottom Stress (Pa)			Change in Maximum Bottom Stress during Storm Conditions relative to Fair-weather Conditions		
			1. (spring)	**2. (summer)**	**3. (winter)**	**1. (spring)**	**2.(summer)**	**3. (winter)**
ELIS	1	Cornfield Shoals Disposal Site	1.17	1.31	1.24	-7%	-8%	-5%
	2	Six Mile Reef Disposal Site	0.92	1.09	1.00	-7%	6%	-8%
	3	Clinton Harbor Disposal Site	0.72	0.71	0.81	6%	14%	1%
	4	Orient Point Disposal Site	0.52	0.61	0.48	61%	21%	7%
	5	Niantic Bay Disposal Site	0.73	0.97	0.84	-8%	19%	-2%
	6	New London Disposal Site	0.60	0.70	0.69	33%	31%	29%
BIS	7	Fishers Island-west	0.79	0.91	0.86	-5%	8%	17%
	8	Fishers Island-east	0.49	0.51	0.39	12%	-5%	-9%
	9	Fishers Island-center	0.39	0.50	0.38	20%	36%	15%
	10	Block Island Sound Disposal Site	0.49	0.63	0.44	6%	9%	-12%
	11	North of Montauk	0.31	0.31	0.34	0%	5%	-7%

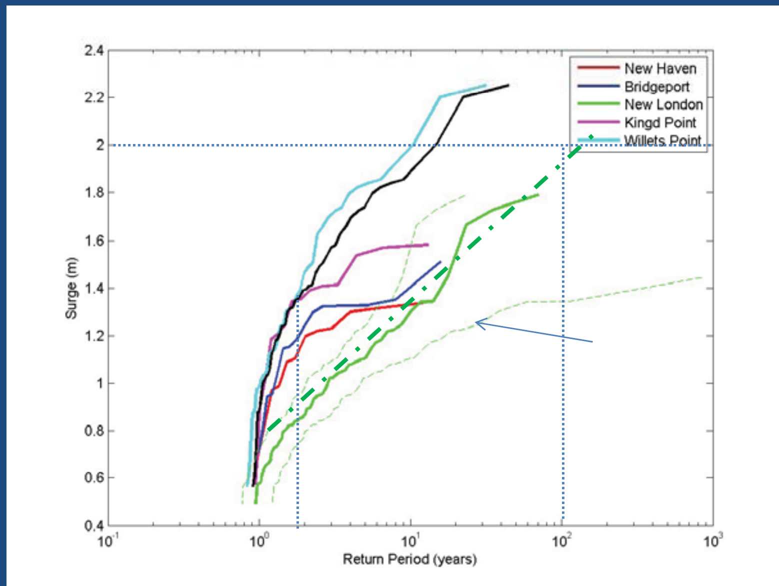


Storm Sandy - Sustained Winds
knots
10/27 00:00
10/28 00:00
10/29 00:00
10/30 00:00
10/31 00:00
LEDG
CLIS
WLIS
EXRX
CLIS
WLIS



surge at Kings Point and New London
m
10/27
10/28
10/29
10/30
10/31
2012
CLIS
WLIS

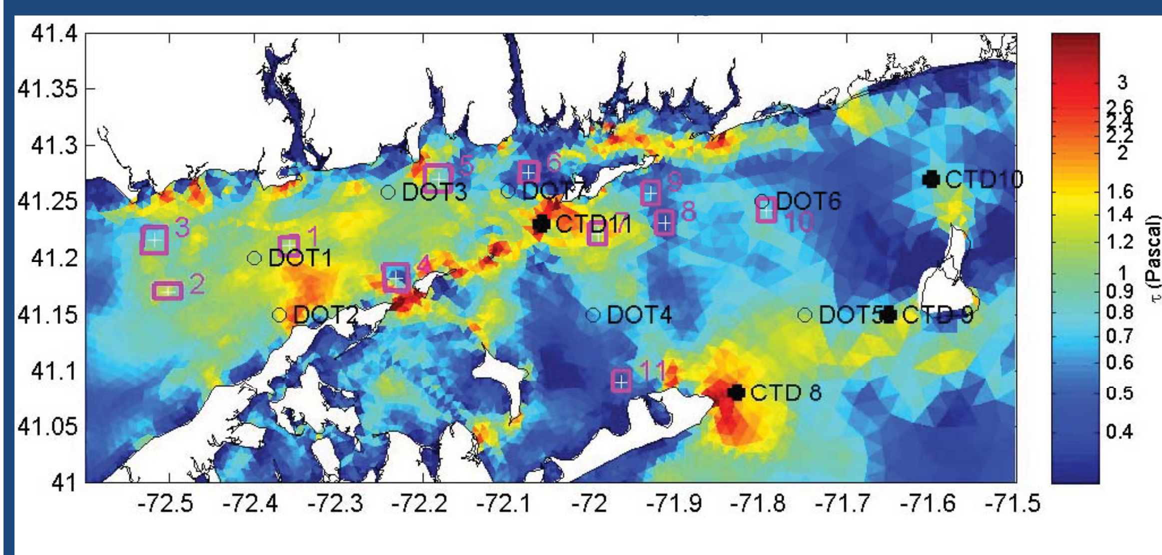
Using NOAA Sea Level data to 2012



Sandy surge return period is ~100 years at New London

4. Analysis *(cont.)*

<u>Superstorm Sandy</u> created higher maximum bottom stresses in some areas and lower stresses in other areas



Maximum bottom stress simulated for the period October 28 to 31, 2012 when Superstorm Sandy passed over New England.

4. Analysis *(cont.)*

Potential Disposal Site			Superstorm Sandy Conditions		
			Bottom Stress (Pa)	Change in Bottom Stress in 'Sandy' relative to Fair-weather Conditions in Campaign 3	Change in Bottom Stress in 'Sandy' relative to Storm Conditions in Campaign 3
ELIS	1	Cornfield Shoals Disposal Site	1.16	-11%	-6%
	2	Six Mile Reef Disposal Site	1.26	16%	25%
	3	Clinton Harbor Disposal Site	0.87	9%	8%
	4	Orient Point Disposal Site	0.53	17%	9%
	5	Niantic Bay Disposal Site	0.99	16%	19%
	6	New London Disposal Site	0.48	-10%	-30%
BIS	7	Fishers Island-west	1.17	58%	35%
	8	Fishers Island-east	0.46	5%	16%
	9	Fishers Island-center	0.55	69%	47%
	10	Block Island Sound Disposal Site	0.73	49%	68%
	11	North of Montauk	0.39	6%	14%

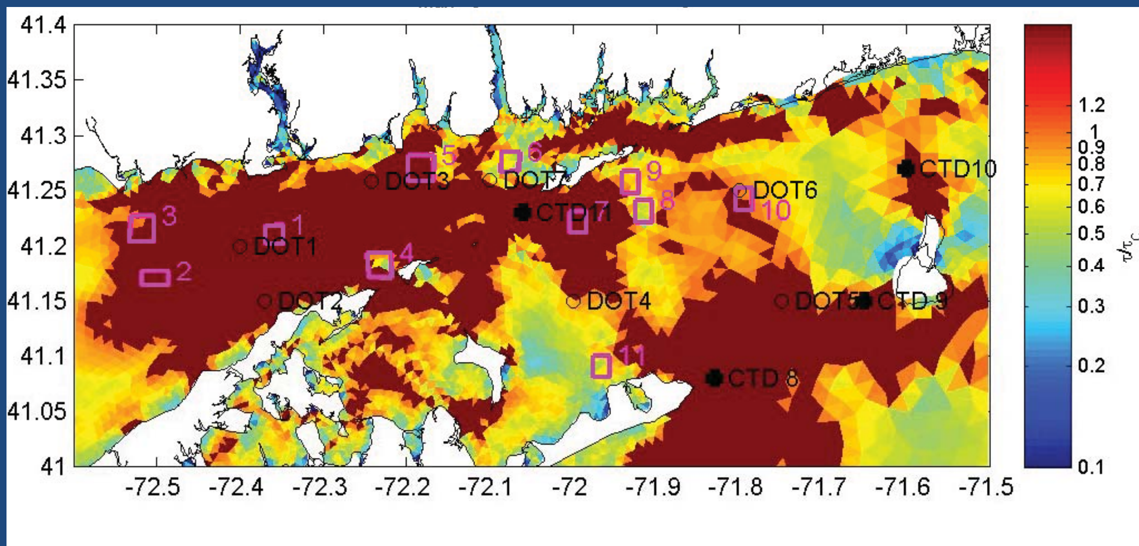
4. Analysis *(cont.)*

Stress Threshold for Erosion on Seafloor:

- Defined as the level of stress at which dredged material in a disposal area will be mobilized
- Depends upon sediment grain size, fraction of clay, volume fraction, level cohesiveness
- Based on a review of the literature, we choose 0.75 Pa as the design threshold

4. Analysis *(cont.)*

Brown areas show values of maximum bottom stress greater than threshold.



Areas with maximum bottom stress exceeding the 0.75 Pa threshold during the simulation of Superstorm Sandy (screened as a uniform brown layer). Areas with bottom stress below 0.75 Pa are scaled (see color key on the right).

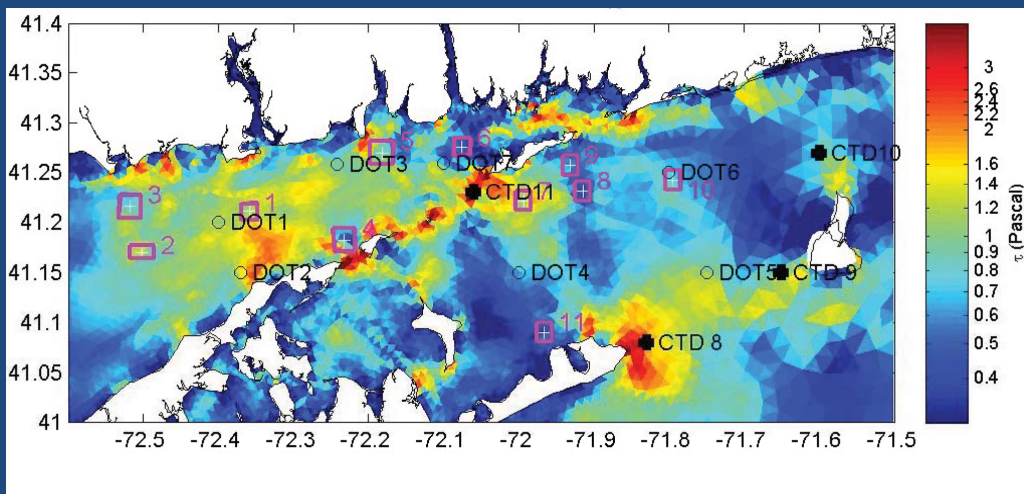
4. Analysis *(cont.)*

Comparison of Maximum Bottom Stress (Pa) for Potential Dredged Material Disposal Sites in the simulations of the three Observation Campaigns and Superstorm Sandy.

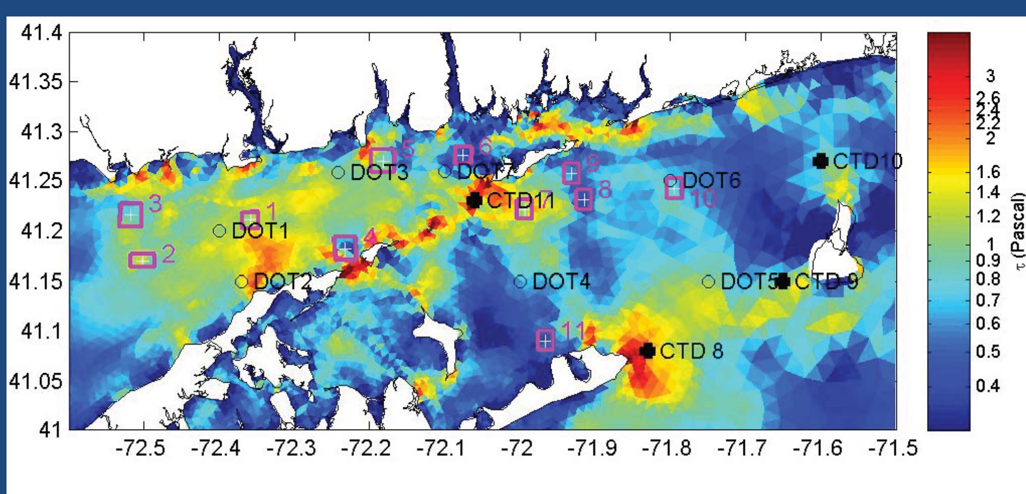
Potential Disposal Site				Maximum Stress in Simulations (Pa)	
ELIS	**BIS**	**No.**	**Site Name**	**Group**	**Highest Value**
●		1	Cornfield Shoals Disposal Site	>1	1.31
●		2	Six Mile Reef Disposal Site		1.26
	●	7	Fishers Island-west Disposal Site		1.17
●		5	Niantic Bay Disposal Site	0.75-1.0	0.99
●		3	Clinton Harbor Disposal Site		0.87
	●	10	Block Island Sound Disposal Site	<0.75	0.73
●		6	New London Disposal Site		0.69
	●	9	Fishers Island-center		0.55
●		4	Orient Point Disposal Site		0.53
	●	8	Fishers Island-east		0.46
	●	11	North of Montauk		0.39

5. Summary

- Model results explain measured bottom stress variations in space and time with errors that are substantially less than the differences between the maximum stresses at the 7 field sites.
- **Site 6 (New London DS)** is the only site in Eastern Long Island Sound with maximum bottom stress below the 0.75 Pa threshold.
-



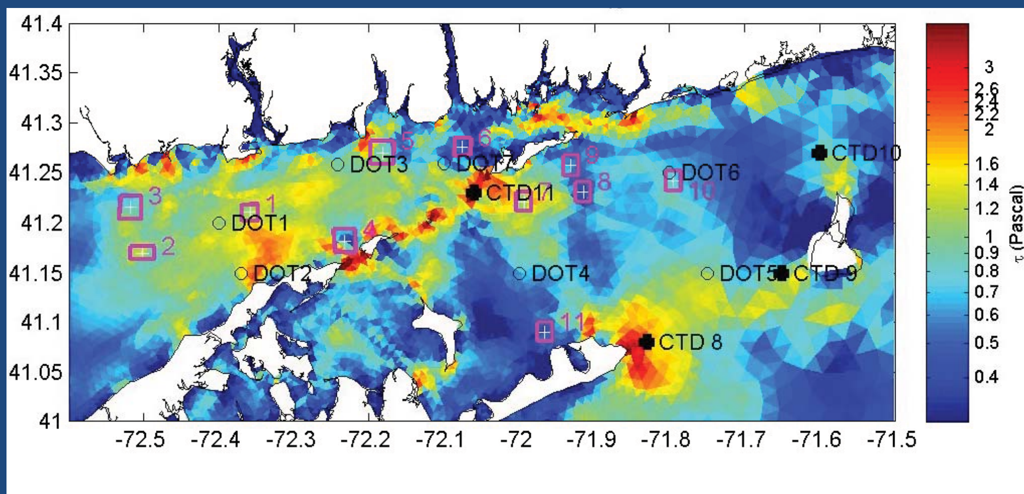
- **Sites 8, 9 and 11 (Fishers Island center and east, and North of Montauk)** in Block Island Sound show maximum bottom stress below 0.75 Pa threshold.



5. Summary

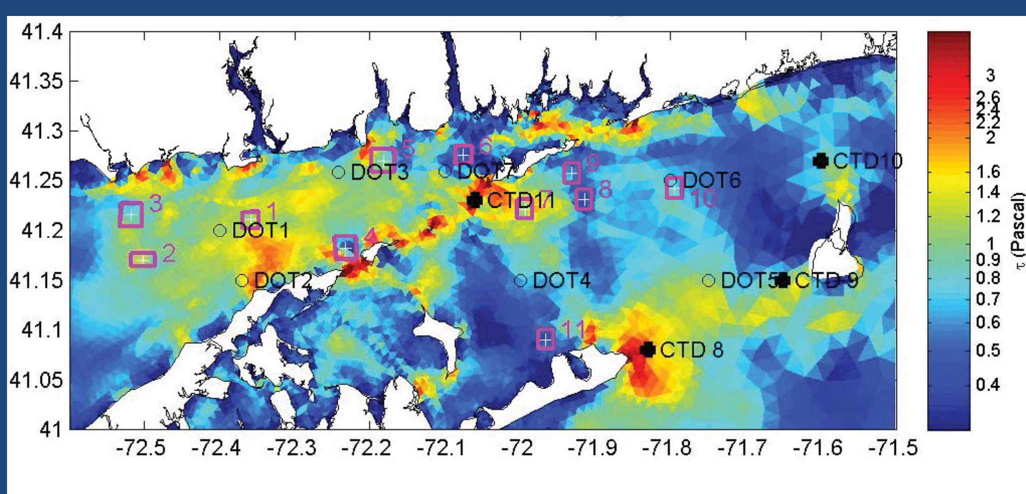
Sites 4 and 10 (Orient Point DS and Block Island Sound DS) show maximum stress below the 0.75 Pa threshold at the center of the site, but have values in excess of 0.75 Pa within the boundary.

Sites 5 and 3 (Niantic Bay and Clinton Harbor) show maximum stresses exceeding 0.75 Pa but less than 1 Pa.

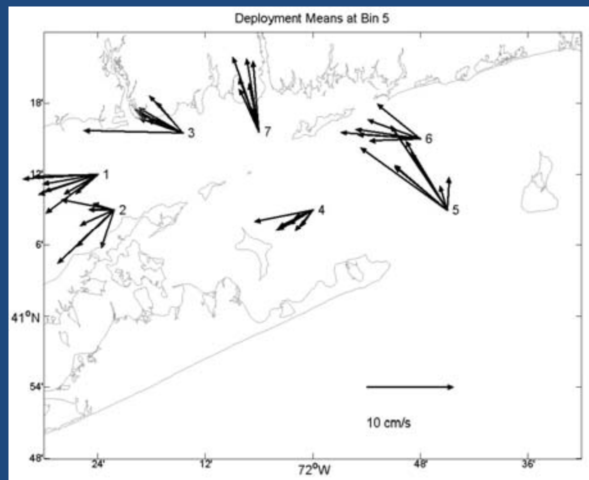


5. Summary

Sites 1, 2, and 7 (Cornfield Shoals, Six Mile Reef, and Fishers Island - west) have high maximum stresses.



5. Summary



Mean Flow is westward at all sites

Appendix A-10

TRIBAL CONSULTATION LETTERS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 1
5 Post Office Square, Suite 100
Boston, MA 02109-3912

July 15, 2015

Rodney Butler, Chairman
Mashantucket Pequot Tribal Office
Indiantown Road, P.O. Box 3060
Mashantucket, CT 06339-3060

Dear Chairman Butler:

The United States Environmental Protection Agency (EPA-Region 1) will release a draft Supplemental Environmental Impact Statement (SEIS) for the potential designation of long-term dredged material disposal sites for use in eastern Long Island Sound. Through this effort, we have an extensive public involvement program which includes the participation of federal, state, local government representatives serving as Cooperating Agencies.

The purpose of this letter is to inform you of the release of a draft SEIS for eastern Long Island Sound and to gauge your interest in government-to-government consultation, per the *EPA Policy on Consultation and Coordination with Indian Tribes*, prior to the final decision and rulemaking to be issued by EPA Region 1.

If you would like to discuss this further or wish to engage in government-to-government consultation, please contact Jean Brochi at 617-918-1536 by July 31, 2015. If we do not receive a response from you by this date, we will assume that you do not wish to pursue consultation on this matter and EPA Region 1 will move forward with its decision.

Sincerely,

Lynne A. Hamjian

Ken Moraff, Director for
Office of Ecosystem Protection

Cc: Tribal Environmental Director
Tribal Historic Preservation Officer (THPO)
Michael Stover, EPA R1 Tribal coordinator
Grant Jonathon, EPA R2 Tribal coordinator
Patricia Pechko, EPA R2

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 1
5 Post Office Square, Suite 100
Boston, MA 02109-3912

July 15, 2015

Kevin Brown, Tribal Chairman
Mohegan Tribal Office
13 Crow Hill Road
Uncasville, CT 06382

Dear Tribal Chairman Brown:

The United States Environmental Protection Agency (EPA-Region 1) will release a draft Supplemental Environmental Impact Statement (SEIS) for the potential designation of long-term dredged material disposal sites for use in eastern Long Island Sound. Through this effort, we have an extensive public involvement program which includes the participation of federal, state, local government representatives serving as Cooperating Agencies.

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Sincerely,

Lynne A. H

Ken Moraff, Director for
Office of Ecosystem Protection

Cc: Tribal Environmental Director
Tribal Historic Preservation Officer (THPO)
Michael Stover, EPA R1 Tribal coordinator
Grant Jonathon, EPA R2 Tribal coordinator
Patricia Pechko, EPA R2

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 1
5 Post Office Square, Suite 100
Boston, MA 02109-3912

July 15, 2015

Matthew Thomas, Chief
Narragansett Indian Tribe
P.O. Box 268
Charlestown, RI 02813

Dear Chief Thomas:

The United States Environmental Protection Agency (EPA-Region 1) will release a draft Supplemental Environmental Impact Statement (SEIS) for the potential designation of long-term dredged material disposal sites for use in eastern Long Island Sound. Through this effort, we have an extensive public involvement program which includes the participation of federal, state, local government representatives serving as Cooperating Agencies.

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Sincerely,

Lynne A. Hamjian

Ken Moraff, Director for
Office of Ecosystem Protection

Cc: Tribal Environmental Director
Tribal Historic Preservation Officer (THPO)
Michael Stover, EPA R1 Tribal coordinator
Grant Jonathon, EPA R2 Tribal coordinator
Patricia Pechko, EPA R2

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 1
5 Post Office Square, Suite 100
Boston, MA 02109-3912

July 15, 2015

Bryan Polite, Chairman
Shinnecock Indian Nation Tribal Office
P.O. Box 5006
Southampton, NY 11969

Dear Chairman Polite:

The United States Environmental Protection Agency (EPA-Region 1) will release a draft Supplemental Environmental Impact Statement (SEIS) for the potential designation of long-term dredged material disposal sites for use in eastern Long Island Sound. Through this effort, we have an extensive public involvement program which includes the participation of federal, state, local government representatives serving as Cooperating Agencies.

The purpose of this letter is to inform you of the release of a draft SEIS for eastern Long Island Sound and to gauge your interest in government-to-government consultation, per the *EPA Policy on Consultation and Coordination with Indian Tribes*, prior to the final decision and rulemaking to be issued by EPA Region 1.

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Lynne A. Hamjian

Ken Moraff, Director for
Office of Ecosystem Protection

Cc: Tribal Environmental Director
Tribal Historic Preservation Officer (THPO)
Michael Stover, EPA R1 Tribal coordinator
Grant Jonathon, EPA R2 Tribal coordinator
Patricia Pechko, EPA R2