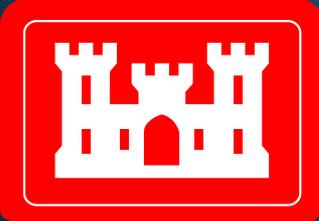


# HOODS EXPANSION: PUBLIC SCOPING MEETINGS EUREKA, CA



5 August 2019



# MEETING OUTLINE

- EPA-USACE Presentation (40 min)
  - Ocean Dumping Program Description
  - Humboldt Harbor Dredging History
  - HOODS History
  - Environmental Monitoring Results
  - Preliminary Options for Expanding HOODS
  - Other Options incl Nearshore Sand Placement
  - Next Steps
- Public Comments and Questions (50 min)
- Additional Comment Opportunities

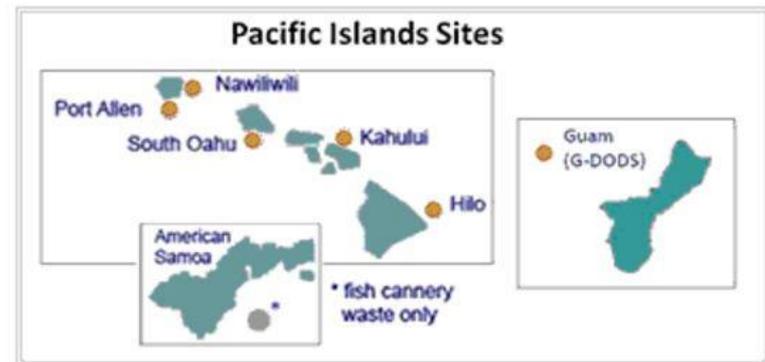


# OCEAN DISPOSAL SITES IN EPA REGION 9

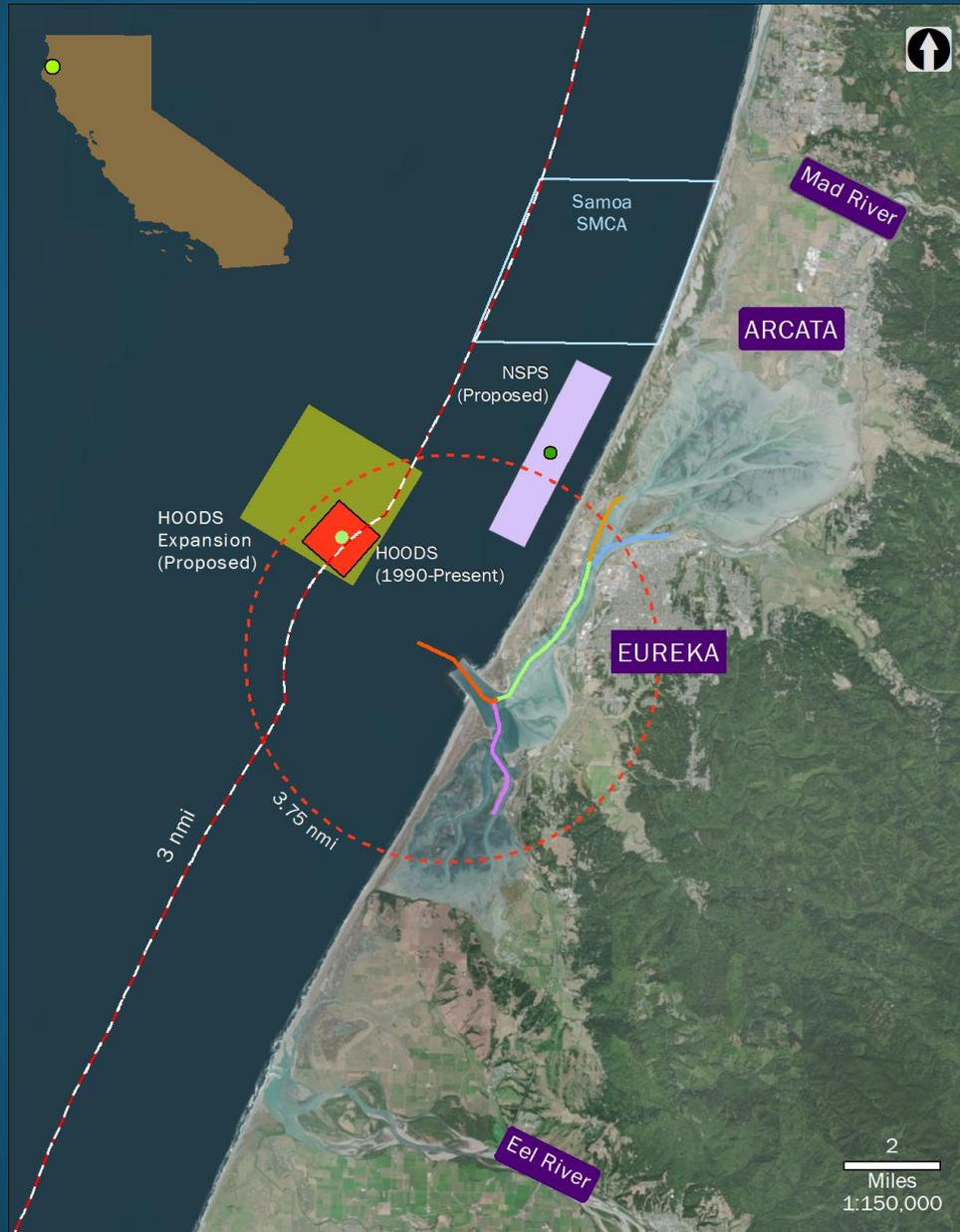
## Ocean Disposal Sites in Region 9

There are 12 EPA-designated ocean disposal sites for dredged material in Region 9: six along the California coast, five around the Hawaiian Islands, and the newly-established site west of Guam. Each site is managed according to a Site Management and Monitoring Plan (SMMP). EPA also manages one ocean disposal site for fish processor waste in American Samoa.

- **Guam Deep Ocean Disposal Site (G-DODS)**
  - northwest of Apra Harbor, Guam
- **Humboldt Site (HOODS)**
  - off Eureka, CA
- **San Francisco Deep Ocean Disposal Site (SF-DODS)**
  - off San Francisco, CA
- **San Francisco Channel Bar Site (SF-8)**
  - off San Francisco, CA
- **Los Angeles Site (LA-2)** –
  - off San Pedro, CA
- **Newport Bay Site (LA-3)** –
  - off Newport Beach, CA
- **San Diego Site (LA-5)** –
  - off San Diego, CA
- **Hawaii Sites**
  - South Oahu, off Honolulu, HI
  - Hilo, off Hilo, HI
  - Kahului, off Maui, HI
  - Nawiliwili, off Kauai, HI
  - Port Allen site, Kauai, HI



# HUMBOLDT BAY AREA

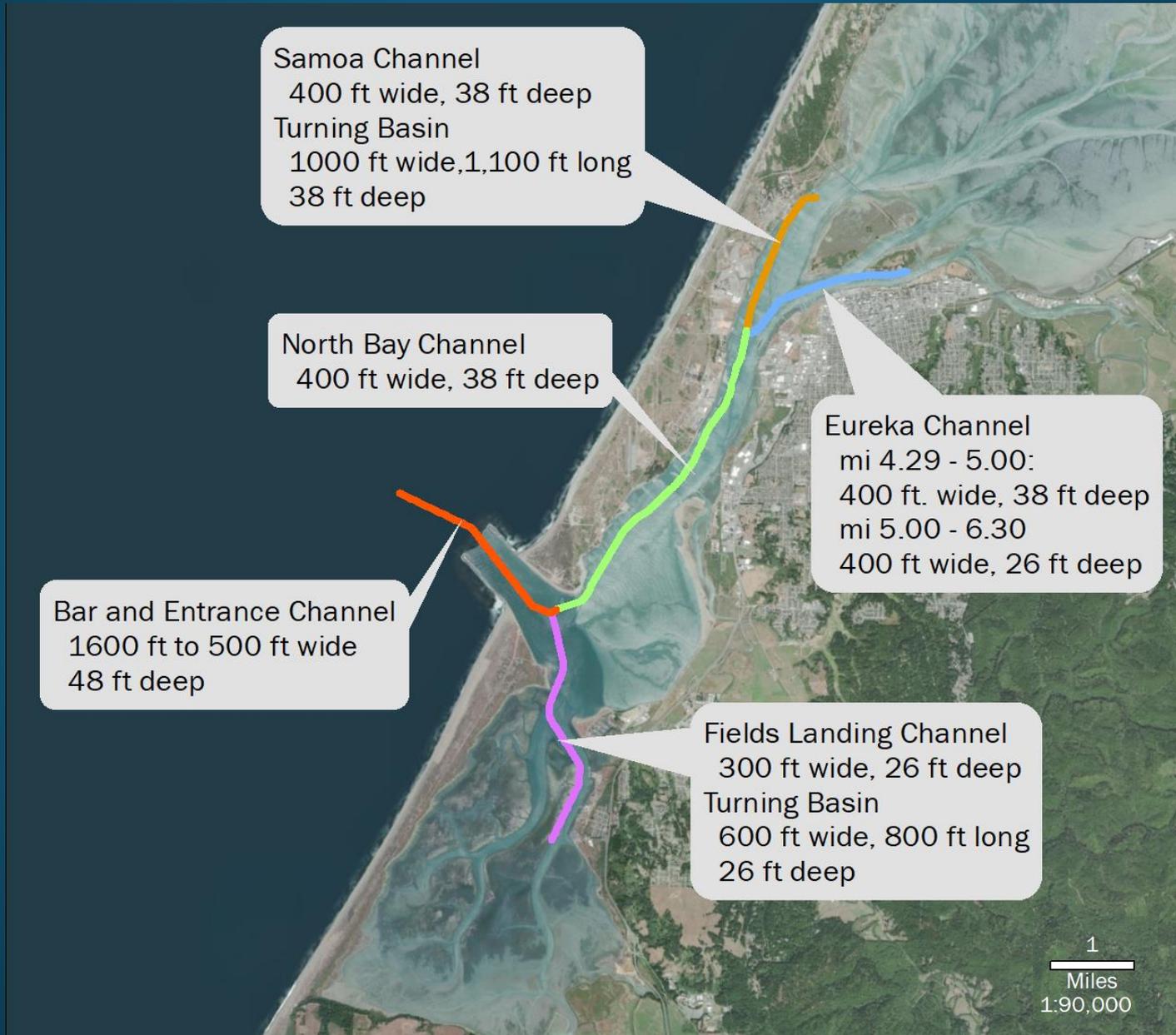


# HUMBOLDT HARBOR NAVIGATION MILESTONES

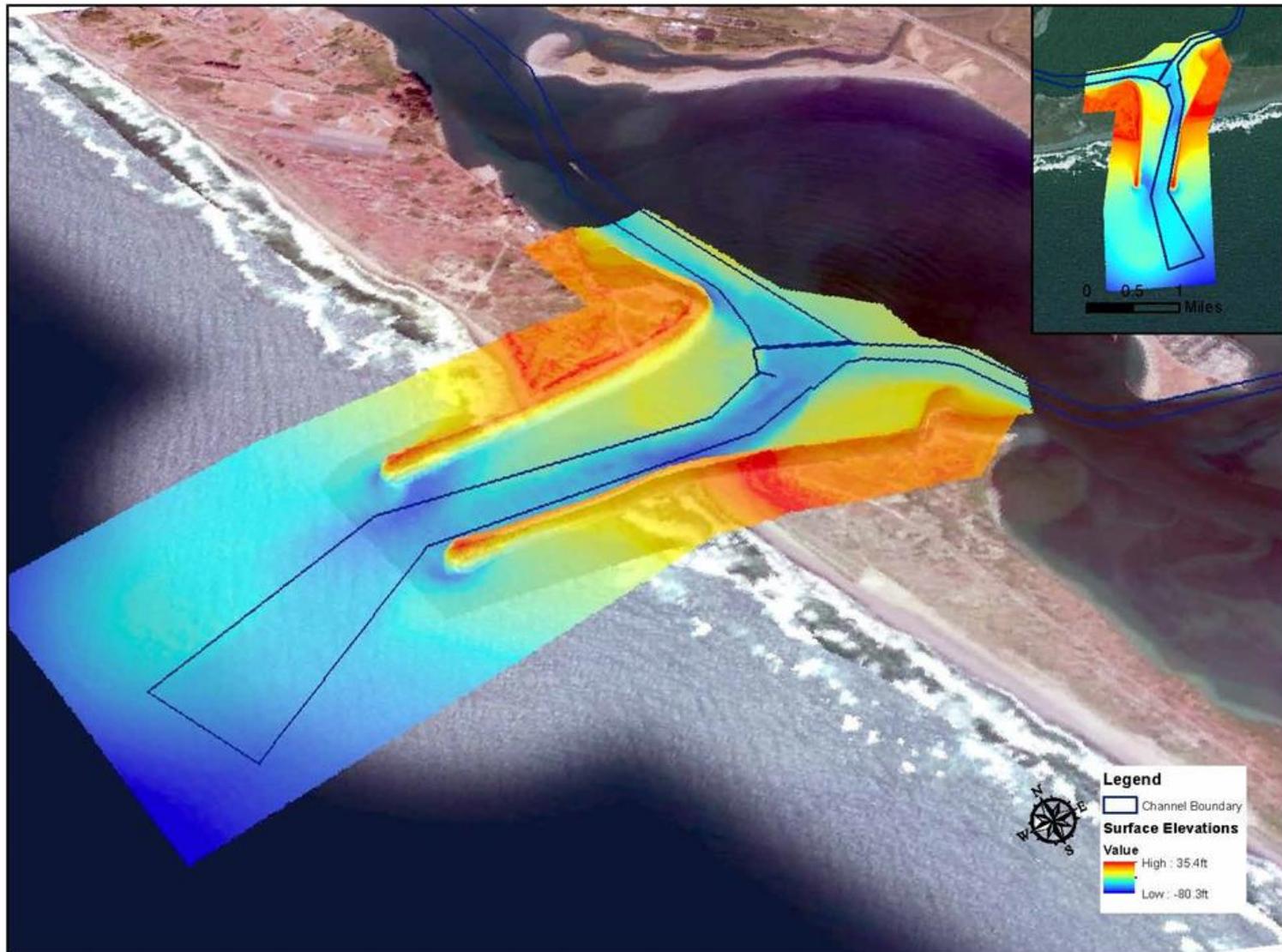
1806	First recorded chart of Humboldt Bay by the Wiyot Indians
1881	First USACE project authorized, the Eureka Channel is dredged
1896	Bar Channel deepened to 25 feet deep and 100 feet wide
1939	Entrance Channel completed: 30 feet deep and 500 feet wide
1954	Entrance Channel deepening completed to 40 feet
1964-1965	Extreme damage to jetties, 100-ton blocks washed away
1971	Humboldt Bay Bridge completed, connecting the North Spit with Eureka
1977	USACE names jetties a historical engineering landmark
1995	EPA designates HOODS as a new permanent disposal site
1999	Bar and Entrance Channel deepened to 48 feet MLLW
1999	Deepening of Samoa Turning Basin to 38 feet MLLW
2005	EPA closes some disposal cells at HOODS due to mounding of sand
2008	EPA conducts benthic monitoring at HOODS
2014	EPA conducts extensive monitoring at and around HOODS
2005-2019	USACE continues to place ~1,000,000 cy/year of sand at HOODS
2006-2019	Sand mounding causes EPA to close additional disposal cells at HOODS
2021	HOODS expected to reach full capacity



# HUMBOLDT HARBOR FEDERAL CHANNELS

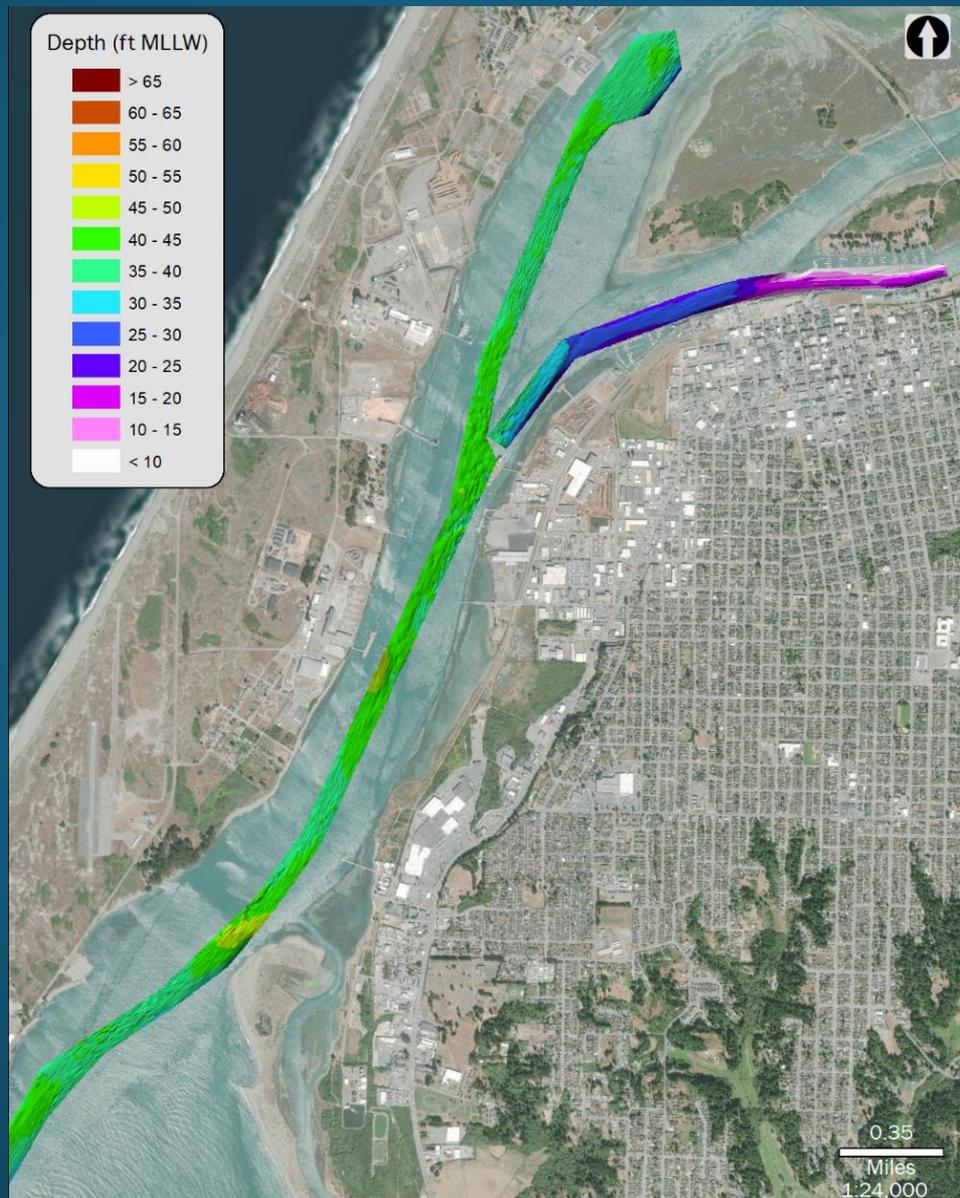


# MORPHOLOGY OF THE HARBOR ENTRANCE

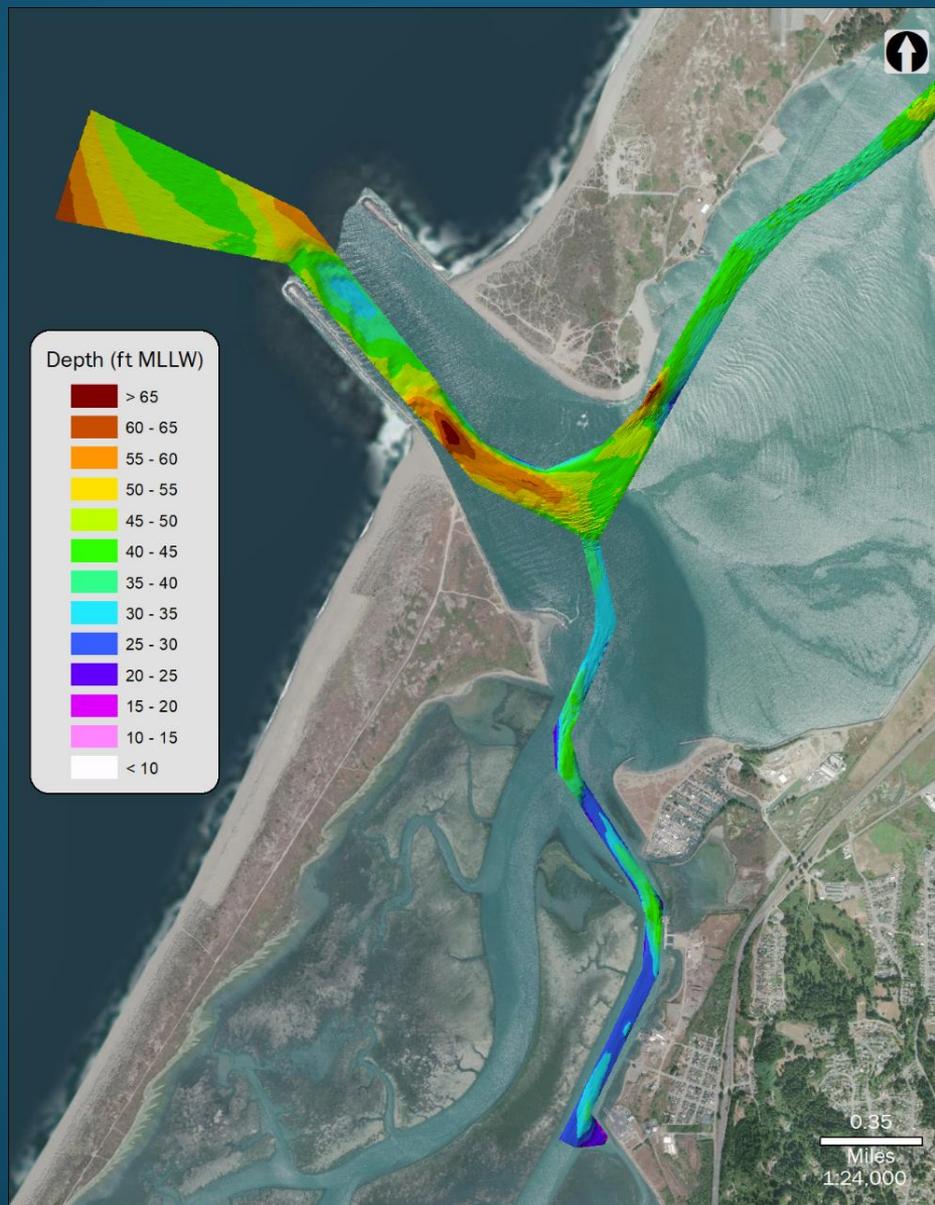


# HUMBOLDT HARBOR FEDERAL CHANNELS

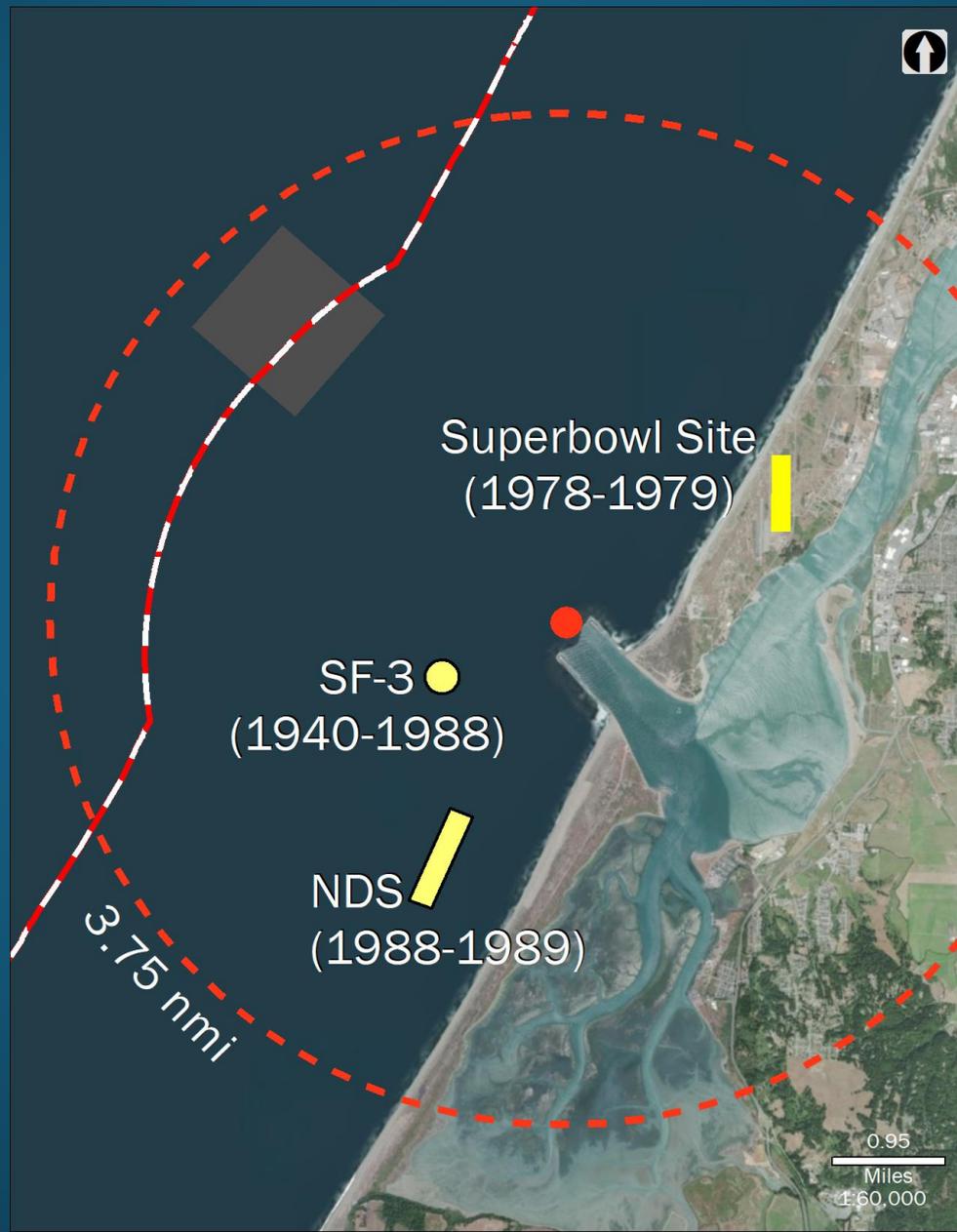
## 2015 BATHYMETRY



# HUMBOLDT HARBOR FEDERAL CHANNELS 2015 BATHYMETRY



# DISPOSAL BEFORE HOODS





# HUMBOLDT HARBOR FEDERAL CHANNELS ANNUAL DREDGE VOLUMES

## ALL MATERIAL PLACED AT HOODS SINCE 1995



# STATIONS

BAR & ENTRANCE CHANNEL  
(48 FT)

0+00 - 135+00

NORTH BAY CHANNEL  
(38 FT)

135+00 - 309+00

SAMOA CHANNEL  
(38 FT)

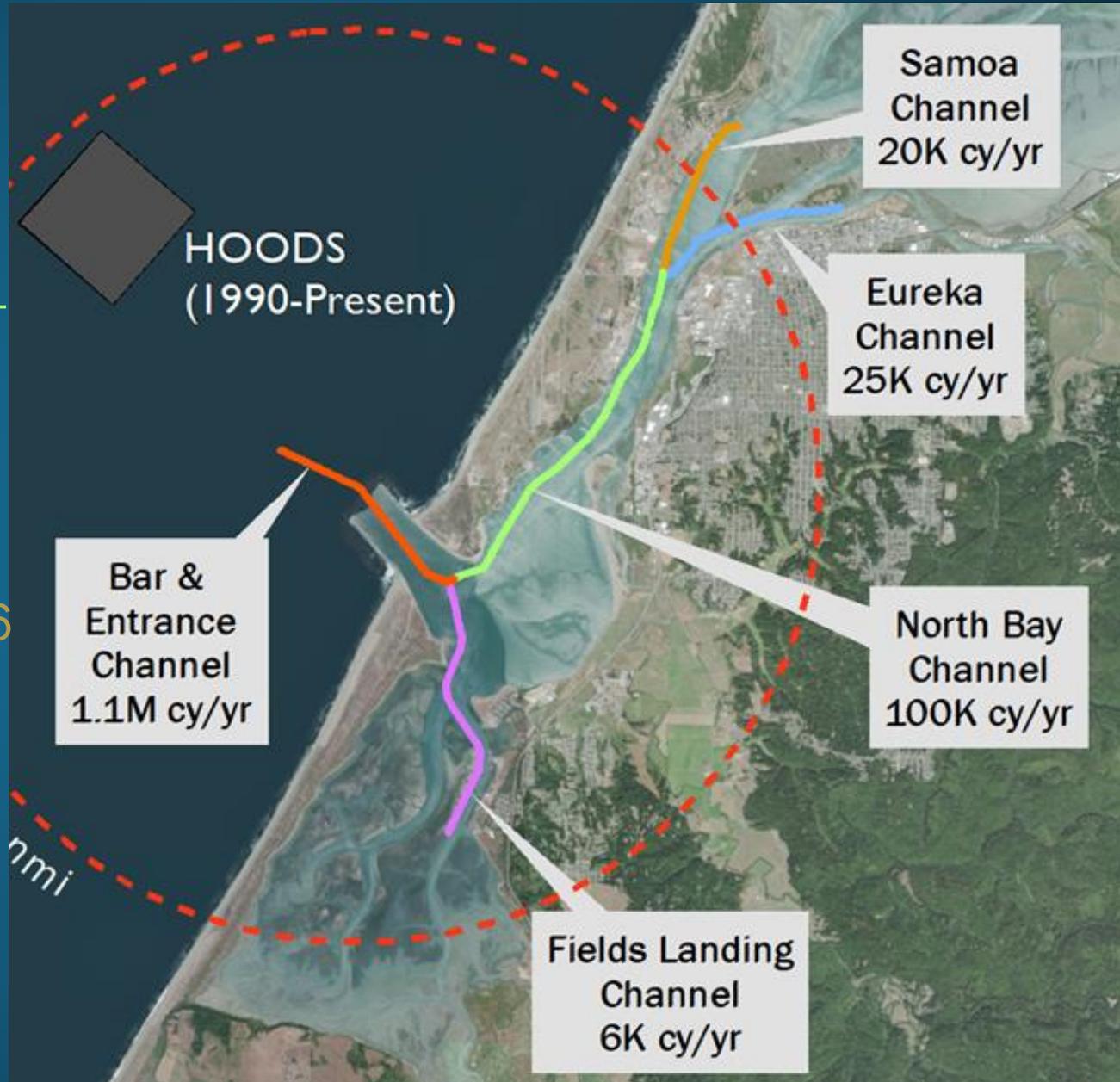
309+00 - 392+46

EUREKA CHANNEL  
(38-26 FT)

0+00 - 89+70

FIELDS LANDING CHANNEL  
(26 FT)

0+00 - 124+36



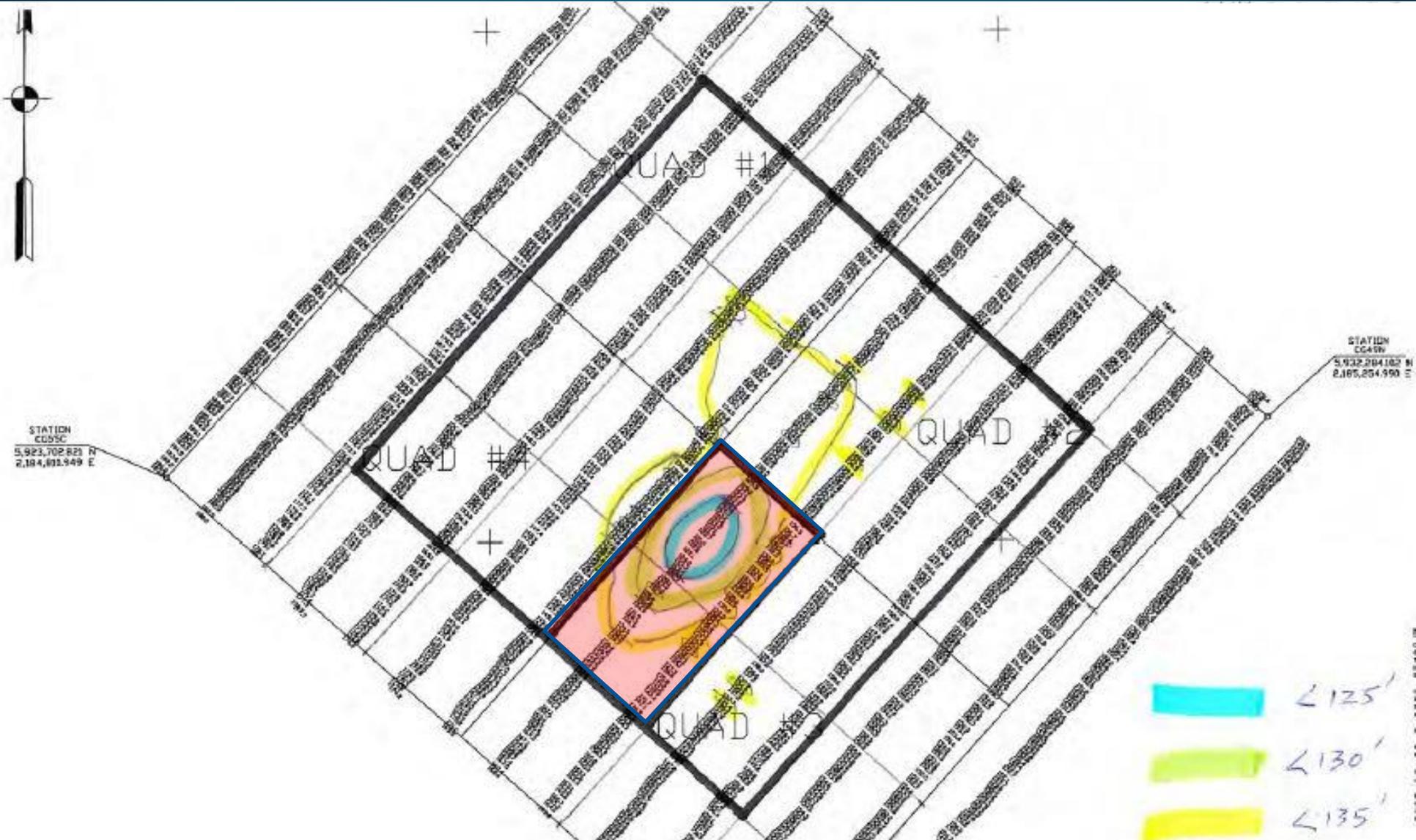
# VOLUME OF SHOALED SEDIMENT ABOVE THE AUTHORIZED<sup>14</sup> DEPTH PLUS ONE FOOT OF OVERDEPTH (yd<sup>3</sup>) FEBRUARY 2019

STATIONS	STANDARD	SIDE SLOPES	1' OD	TOTAL
Bar & Entrance Channel (48 ft)				
0+00 - 135+00	1,898,550	103,934	348,111	2,350,595
North Bay Channel (38 ft)				
135+00 - 309+00	168,054	22,443	84,078	274,575
Samoa Channel (38 ft)				
309+00 - 392+46	105,219	20,018	57,324	182,561
Eureka Channel (26 ft)				
0+00 - 89+70	807,155	109,169	105,575	1,021,899
moceanFields Landing Channel (26 ft)				
0+00 - 124+36	44,203	15,849	17,993	78,045

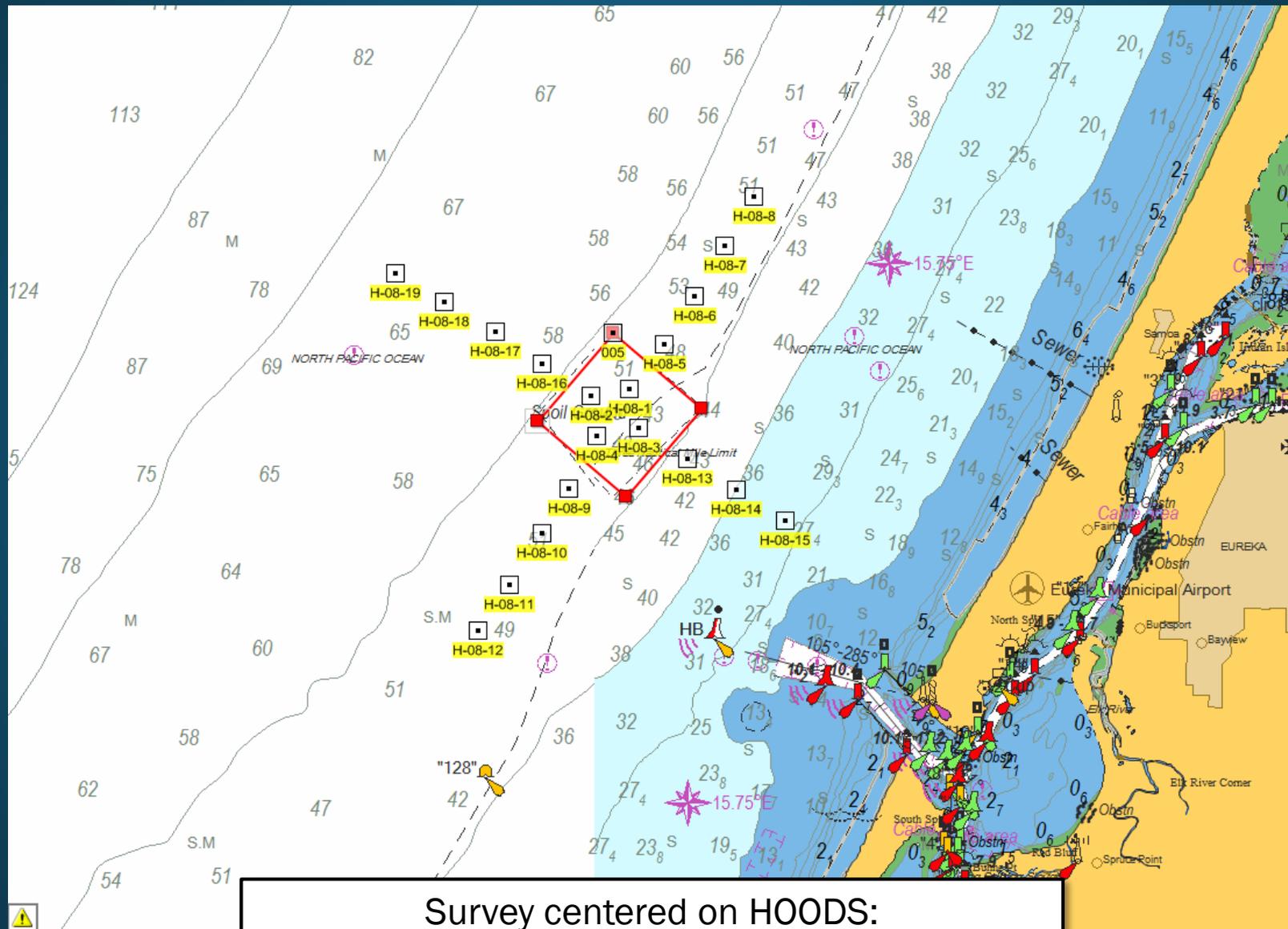
**TOTAL = ~4,000,000 yd<sup>3</sup>**



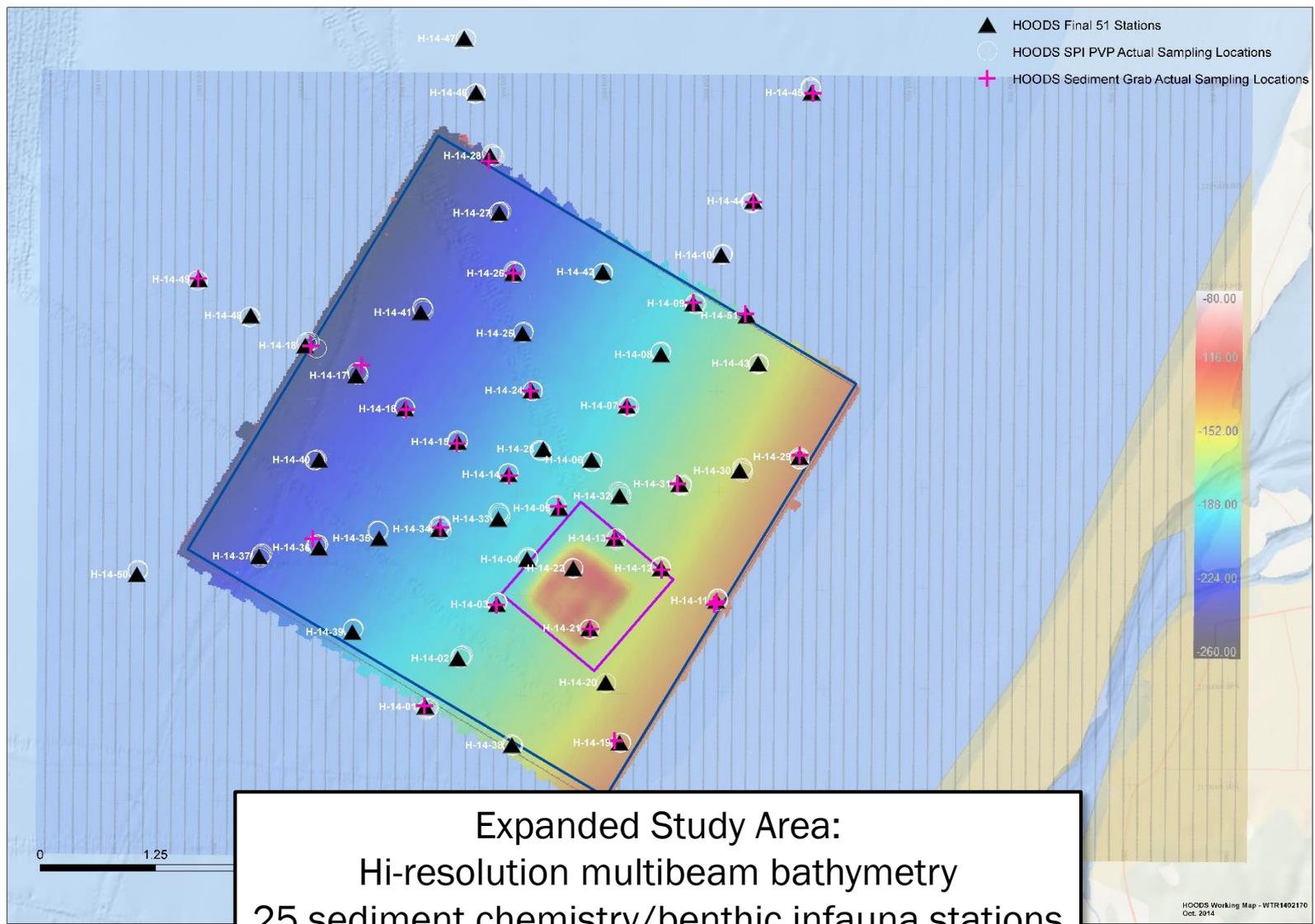
# SAND MOUNDING: CELL CLOSURES START IN 2005



# EPA MONITORING IN 2008



# EPA MONITORING IN 2014

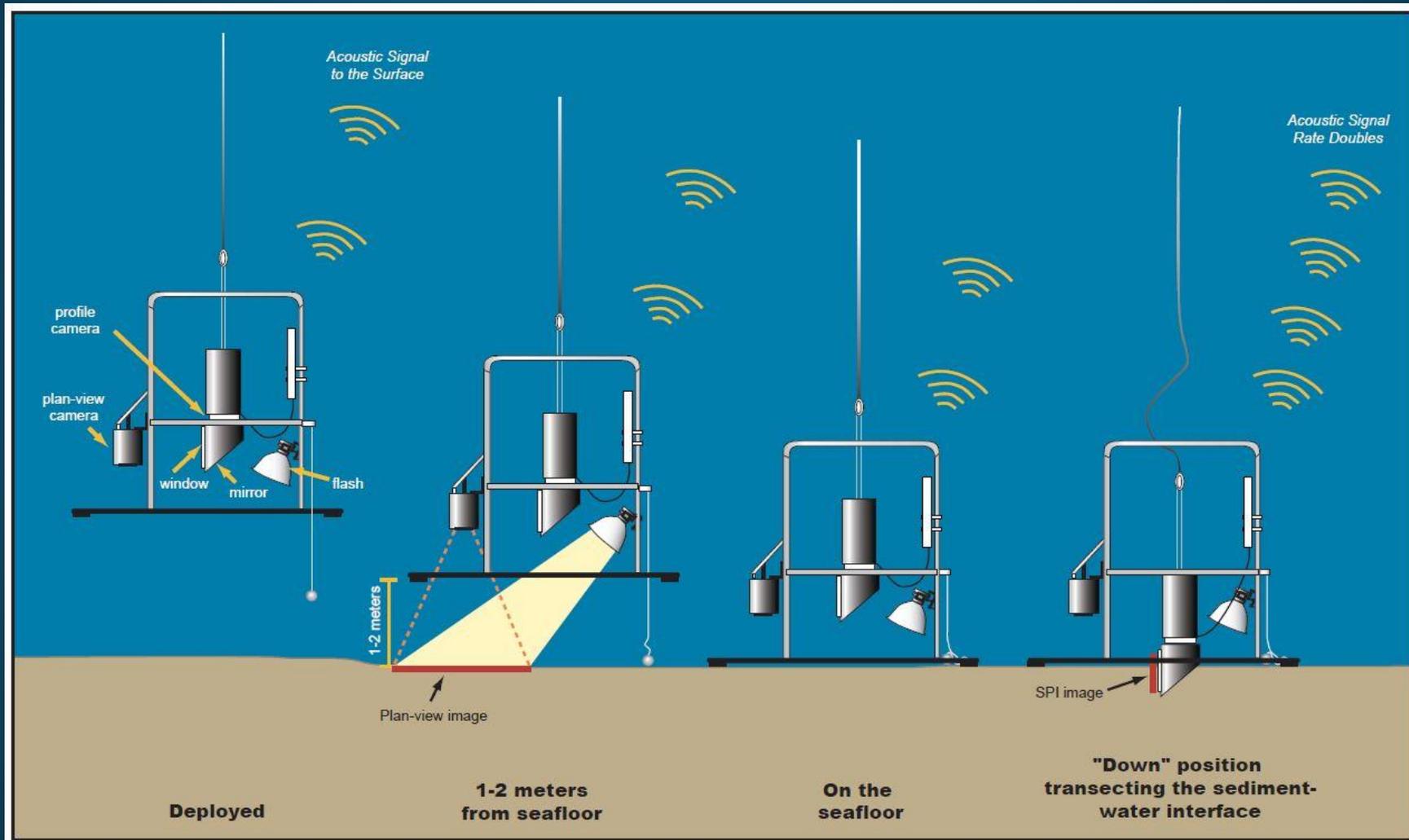


Expanded Study Area:  
Hi-resolution multibeam bathymetry  
25 sediment chemistry/benthic infauna stations  
51 SPI and PV imagery stations

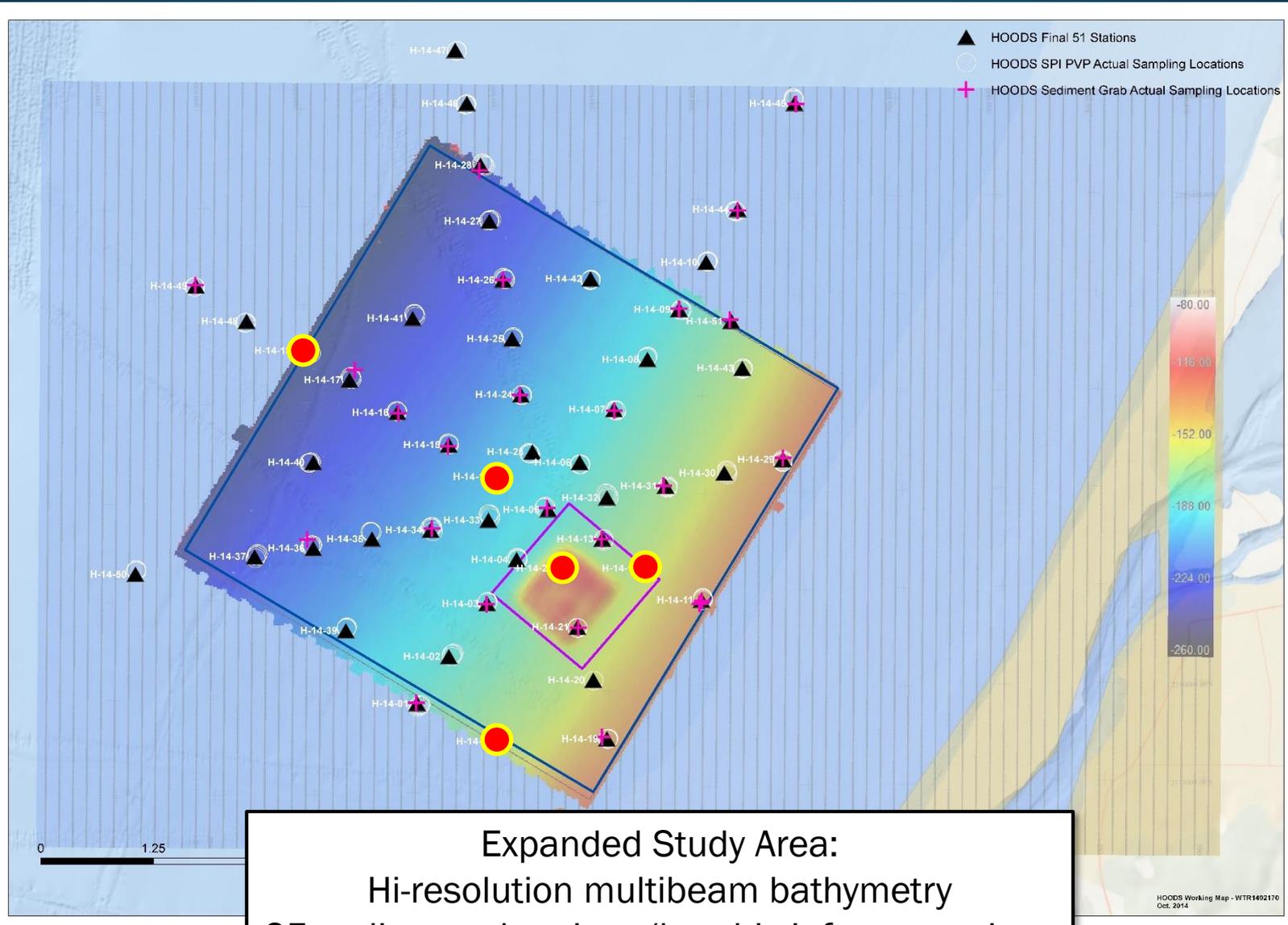
HOODS Working Map - WTR1402170  
Oct. 2014



# SPI/PV CAMERA



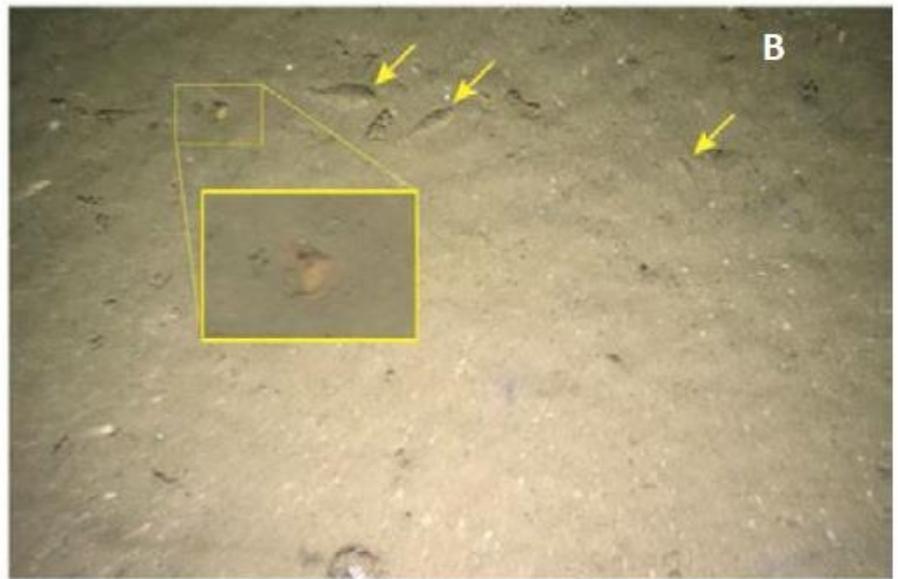
# EPA MONITORING IN 2014



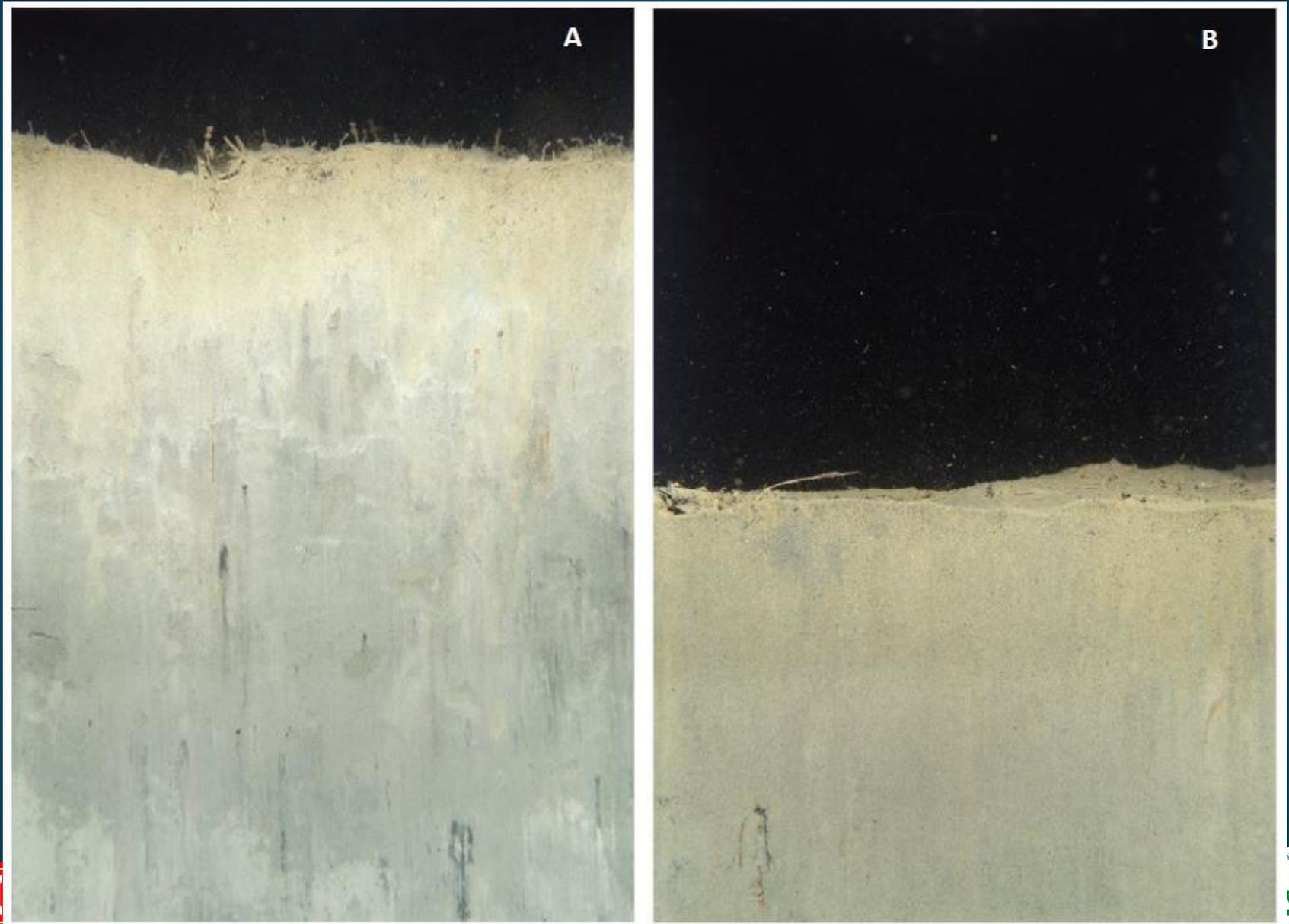
Expanded Study Area:  
Hi-resolution multibeam bathymetry  
25 sediment chemistry/benthic infauna stations  
51 SPI and PV imagery stations



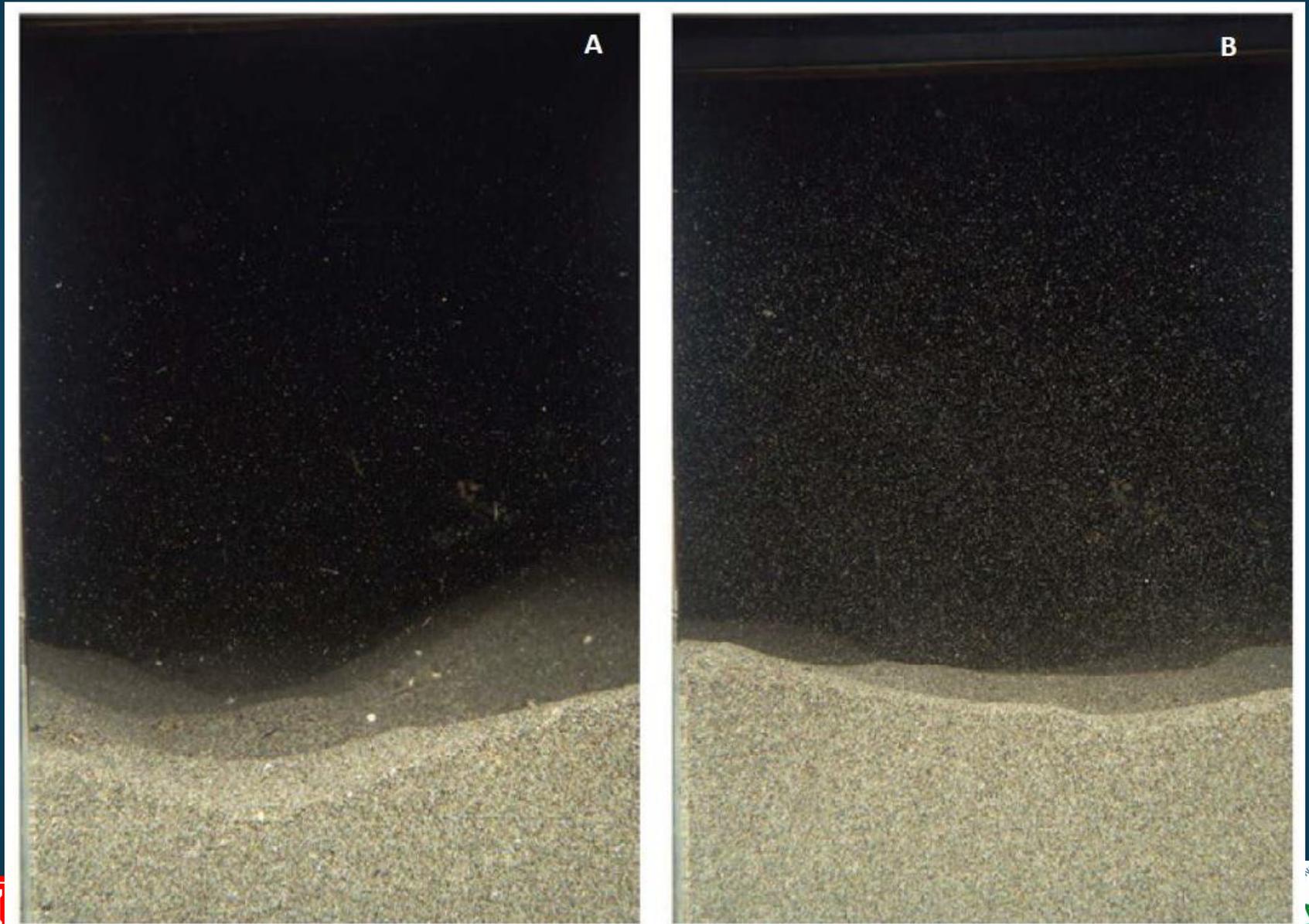
# EPA MONITORING IN 2014

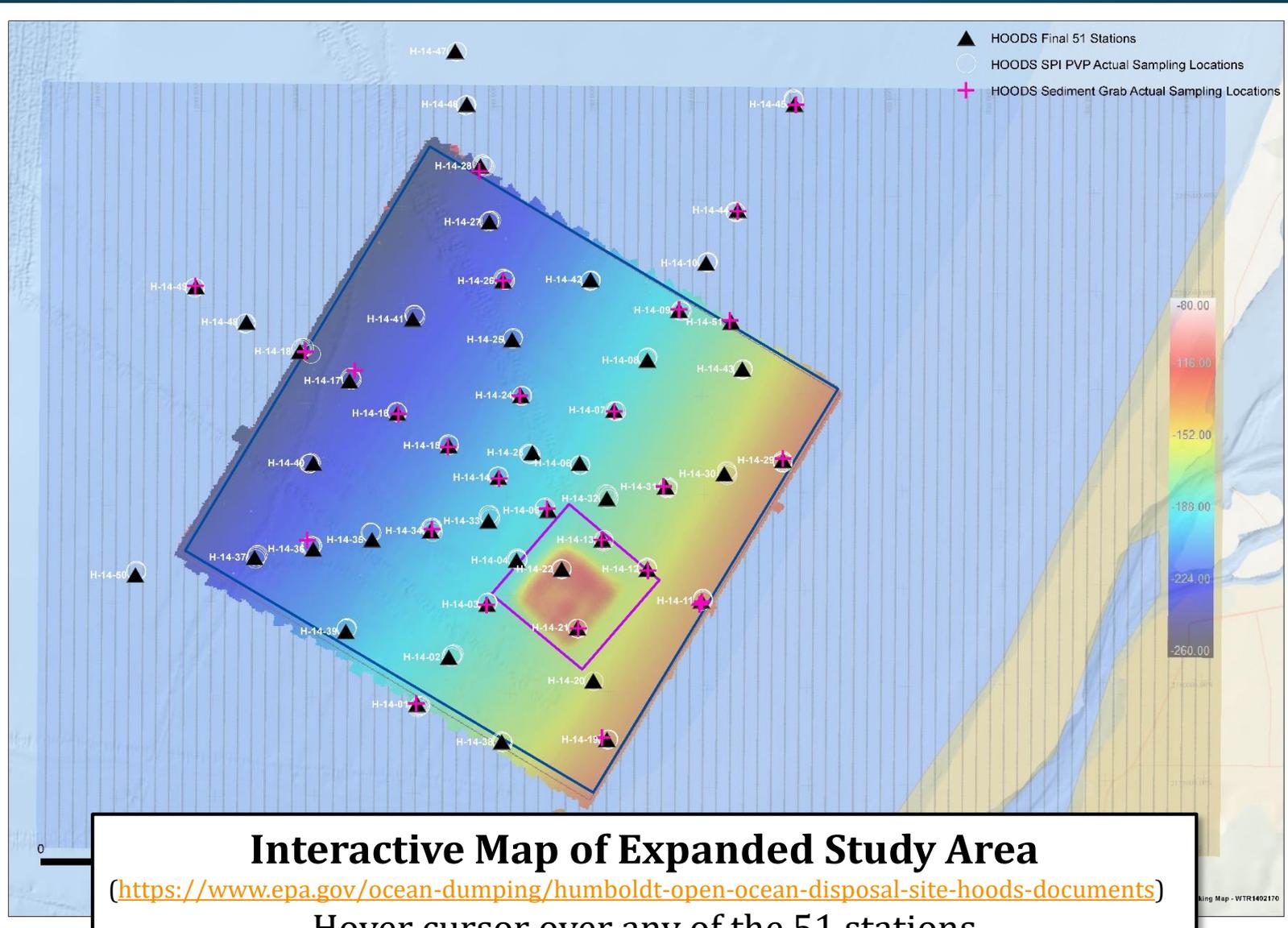


# EPA MONITORING IN 2014



# EPA MONITORING IN 2014





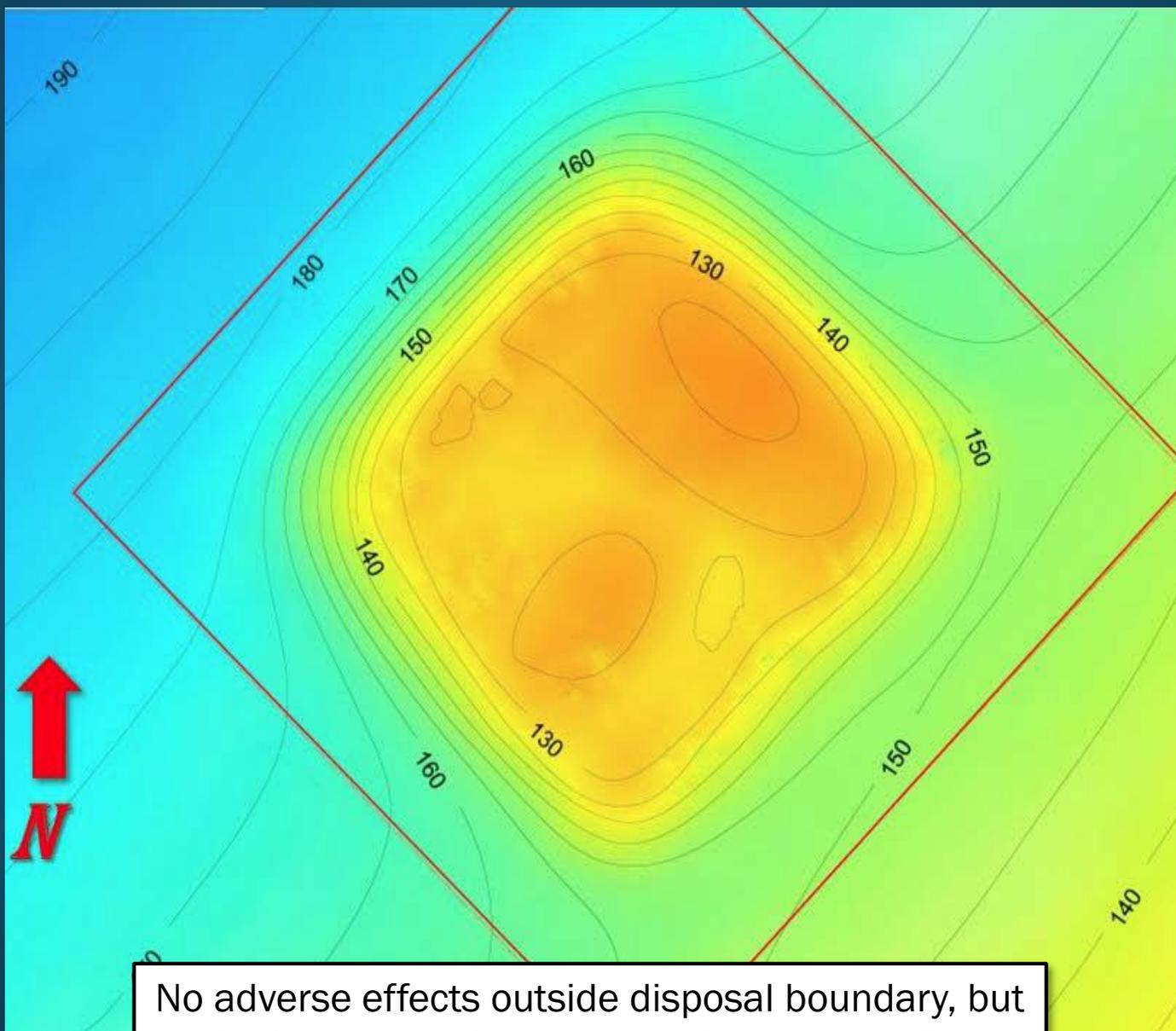
## Interactive Map of Expanded Study Area

(<https://www.epa.gov/ocean-dumping/humboldt-open-ocean-disposal-site-hoods-documents>)

Hover cursor over any of the 51 stations to show seafloor images for that station.



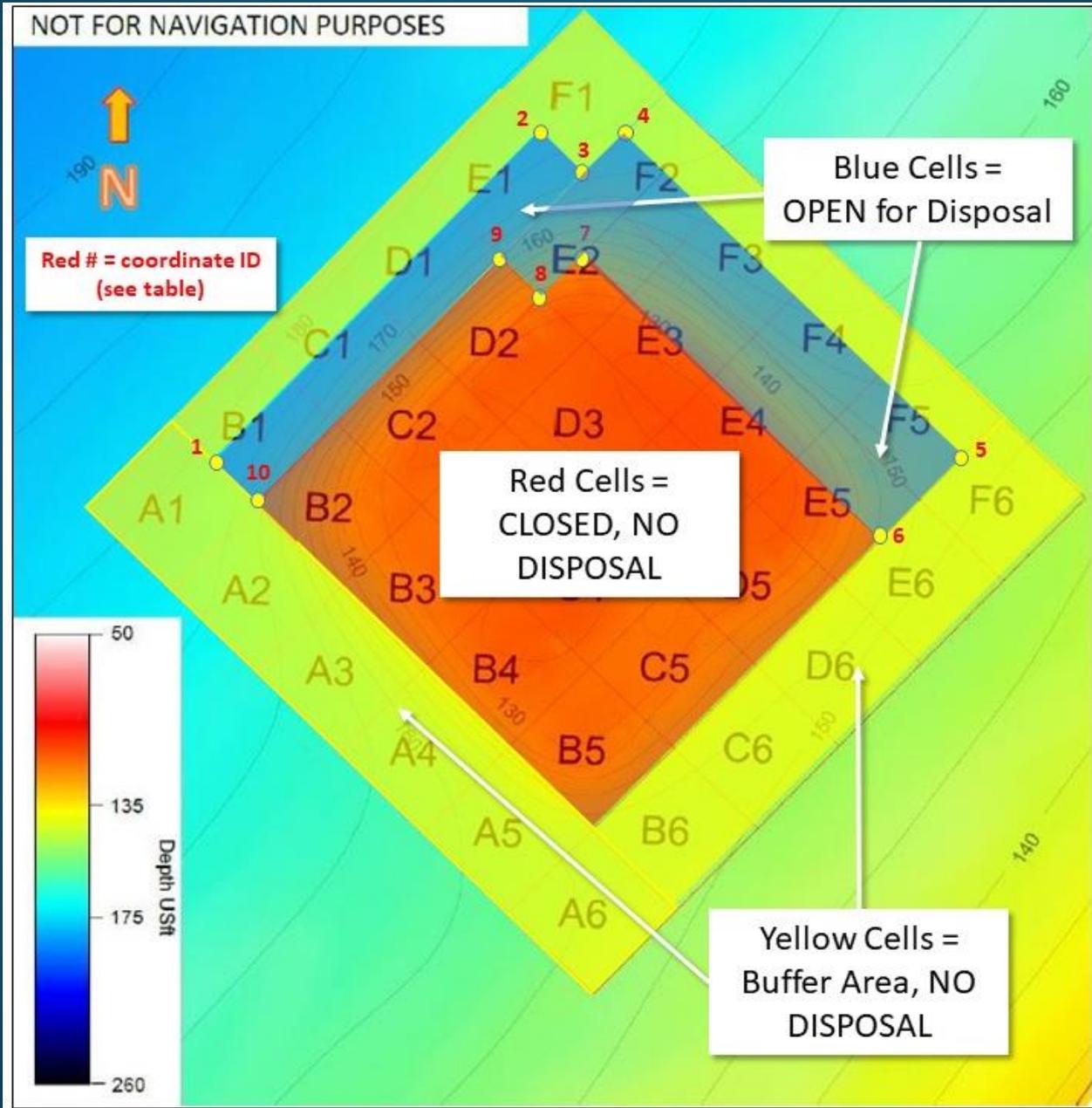
# 2014 MONITORING FINDINGS



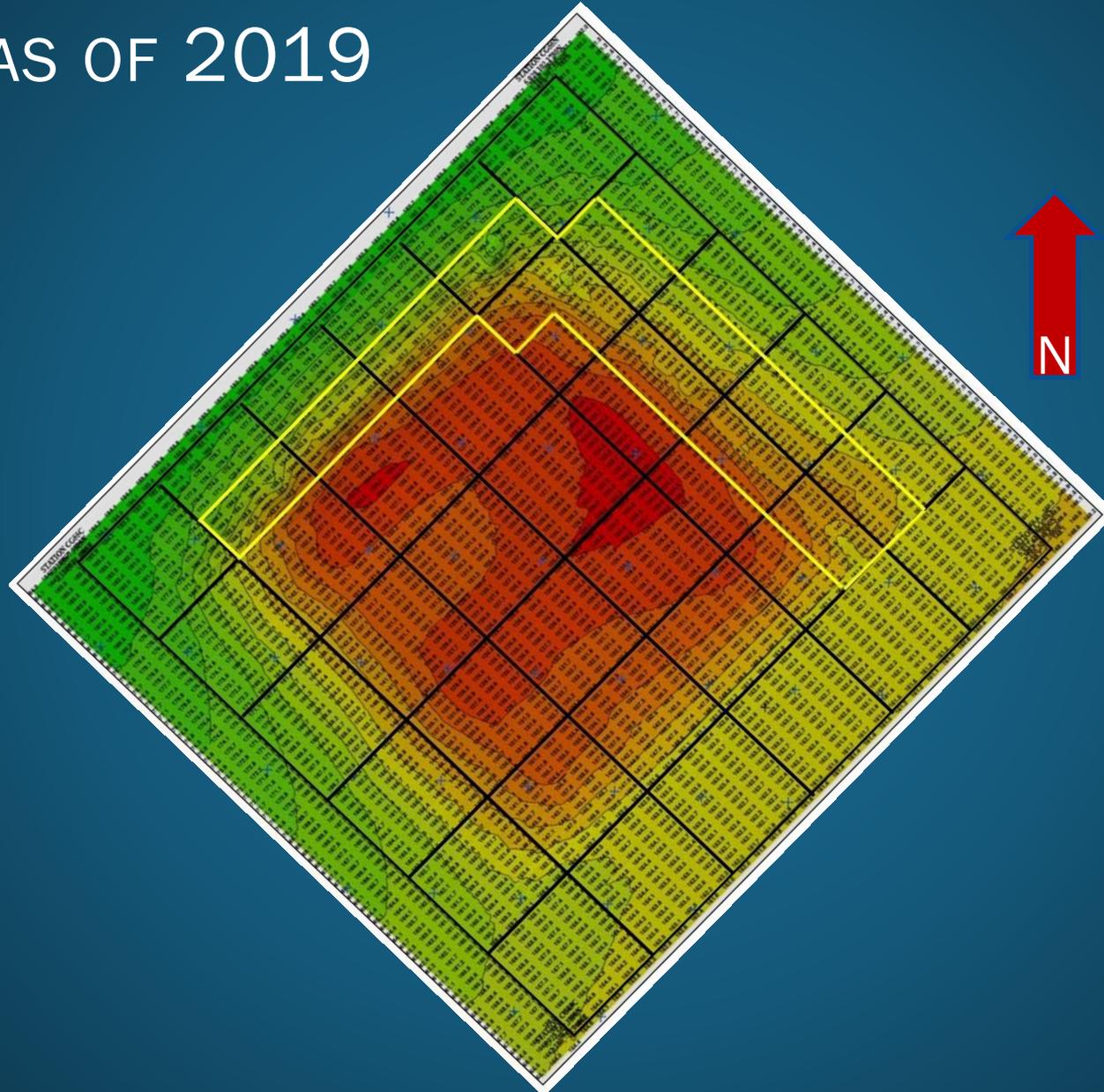
No adverse effects outside disposal boundary, but site is now nearing capacity due to mounding



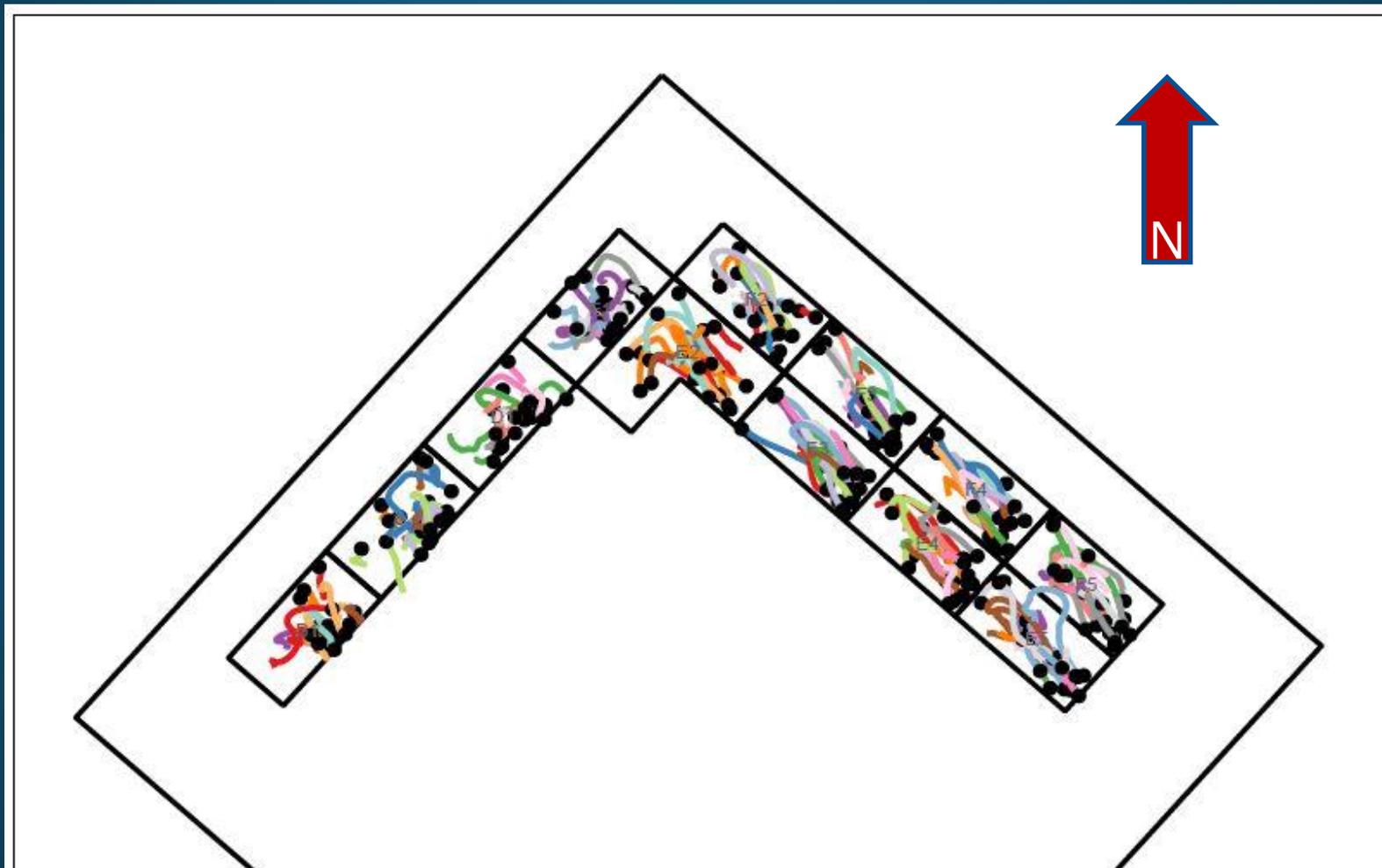
# MANAGING MOUNDING AT HOODS



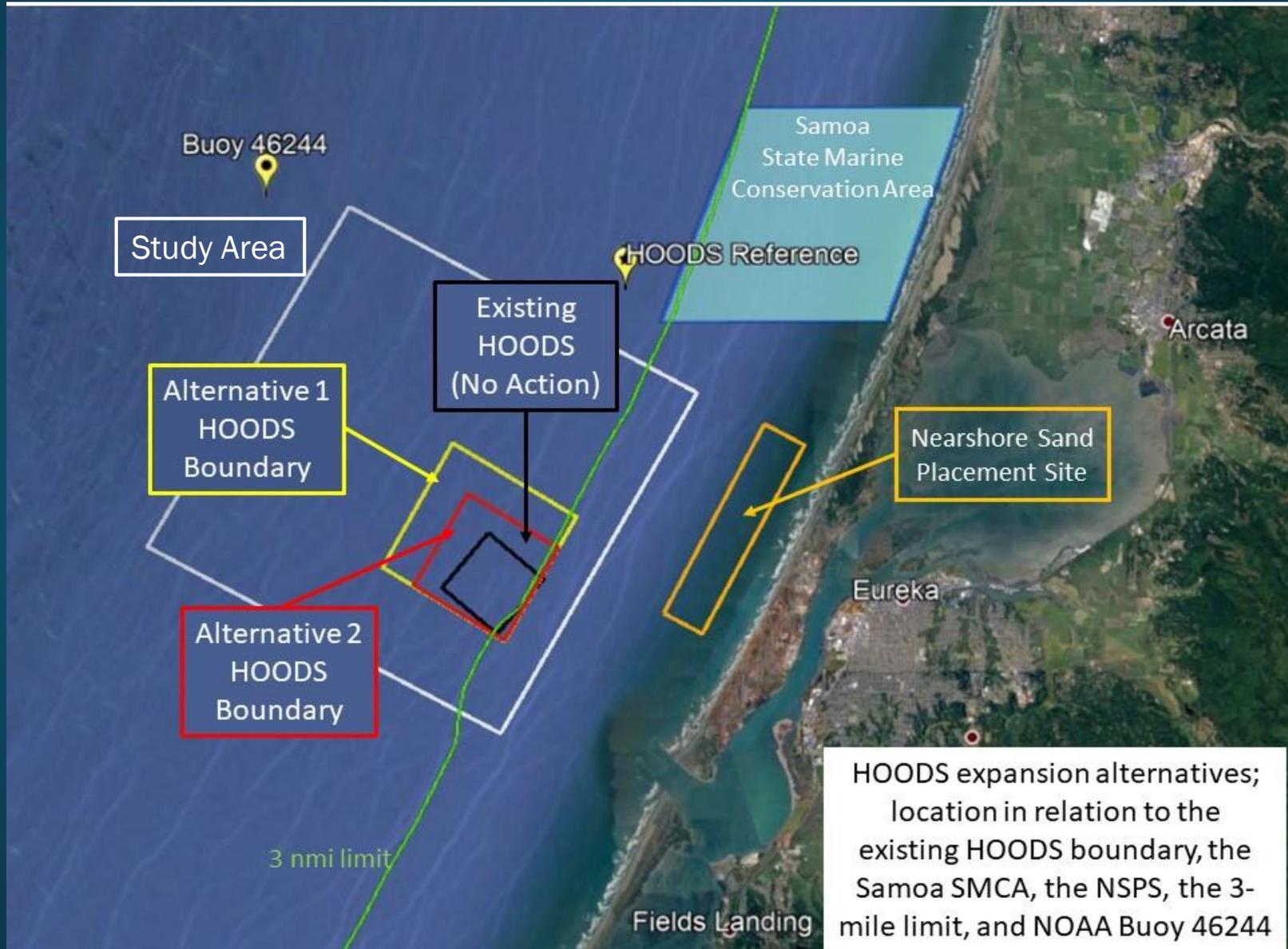
# HOODS SAND MOUND AND ACTIVE CELLS AS OF 2019



# MANAGING MOUNDING AT HOODS



# HOODS EXPANSION ALTERNATIVES



HOODS expansion alternatives; location in relation to the existing HOODS boundary, the Samoa SMCA, the NSPS, the 3-mile limit, and NOAA Buoy 46244



# HOODS Expansion: Key Resources

Available via the EPA web site:

<https://www.epa.gov/ocean-dumping/humboldt-open-ocean-disposal-site-hoods-documents>

- HOODS EIS 1995
- Interactive Monitoring Map 2014
- Monitoring Synthesis Report 2016
- HOODS Expansion Project Description 2019
- HOODS Site Management/Monitoring Plan



# HOODS Expansion: Next Steps

This week: Public Scoping Meetings in Eureka

Early 2020: Publish EA and Proposed Rule  
Public Comment Period & Public Meeting(s)

Spring 2020: Response to comments  
Coastal Commission Public Hearing

Summer 2020: Publish Final Rule  
Use of Expanded HOODS

Future: Monitor Nearshore Sand Placement Site?

For more information or to provide written comments, contact  
Brian Ross, Dredging & Sediment Management Team (WTR-2-2)  
US EPA Region 9, 75 Hawthorne Street, San Francisco CA 94105  
[ross.brian@epa.gov](mailto:ross.brian@epa.gov), 415-972-3475



# NEARSHORE SAND PLACEMENT SITE

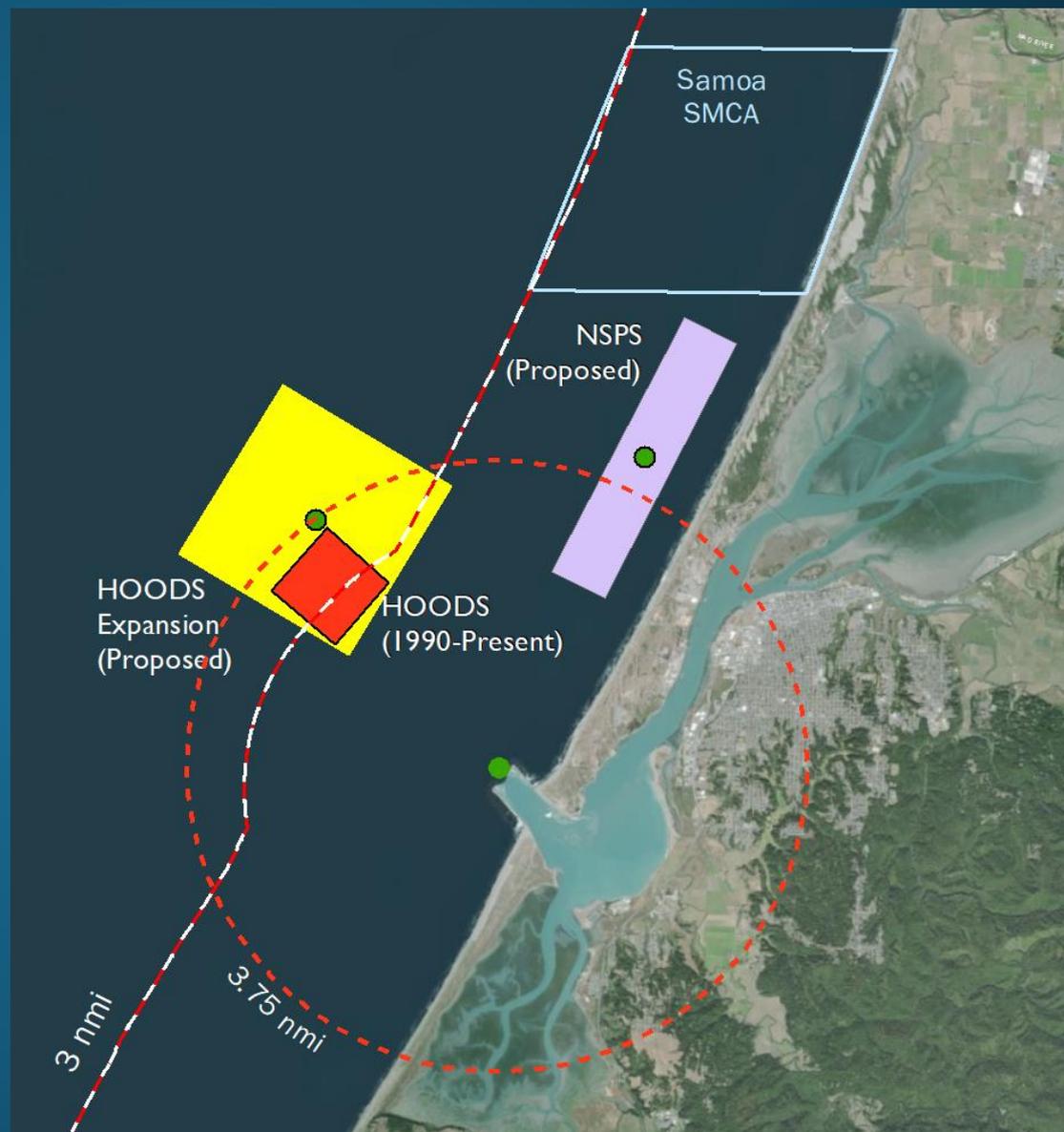
- Long-term alternative to offshore disposal?
- Clean sand only
- Littoral-cell placement to benefit coastal erosion
- Monitored demonstration needed



# NEARSHORE PLACEMENT EQUIDISTANT W/HOODS

## NEARSHORE SITE

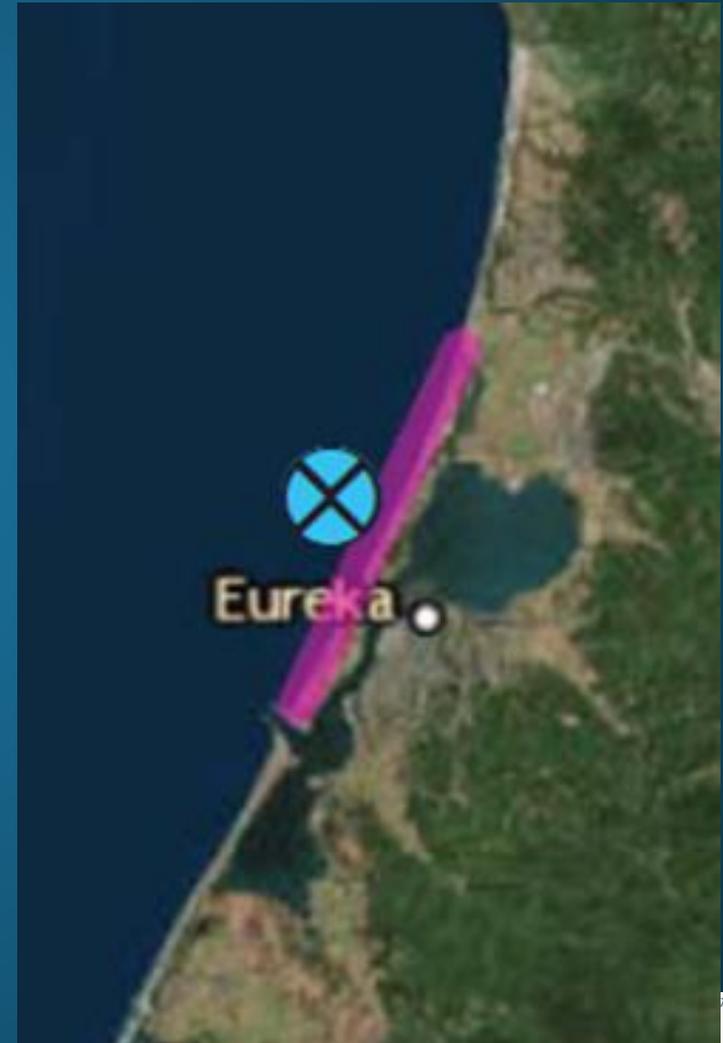
- Length: 20,000 ft
- Width: 4,000 ft
- Inner Depth: 25 ft
- Outer Depth: 80 ft
- Minimum Operating Depth (*Essayons*): 40 ft



# SEDIMENT MOBILITY TOOL

[HTTP://NAVIGATION.USACE.ARMY.MIL/SEM/SEDIMENTMOBILITY](http://navigation.usace.army.mil/sem/sedimentmobility)

PARAMETER	USER INPUT
Shoreline Angle	31°
Placement Site Latitude	40.85° N
Placement Site Longitude	-124.21° W
WIS Station	83046
Years of WIS Data	1980 – 2016
$d_{50}$	0.2 mm
Nearshore Placement Depth	45.0 ft



## WAVE CHARACTERISTICS AT NEARSHORE PLACEMENT SITE

$H_s$ (ft)	8.5
$T_s$ (s)	11.7
$\sigma_s$ (ft)	4.2
$H_{0.1}$ (ft)	14.2
$H_e$ (ft)	26.5
$T_e$ (s)	17.2

## CALCULATED DEPTH OF CLOSURE

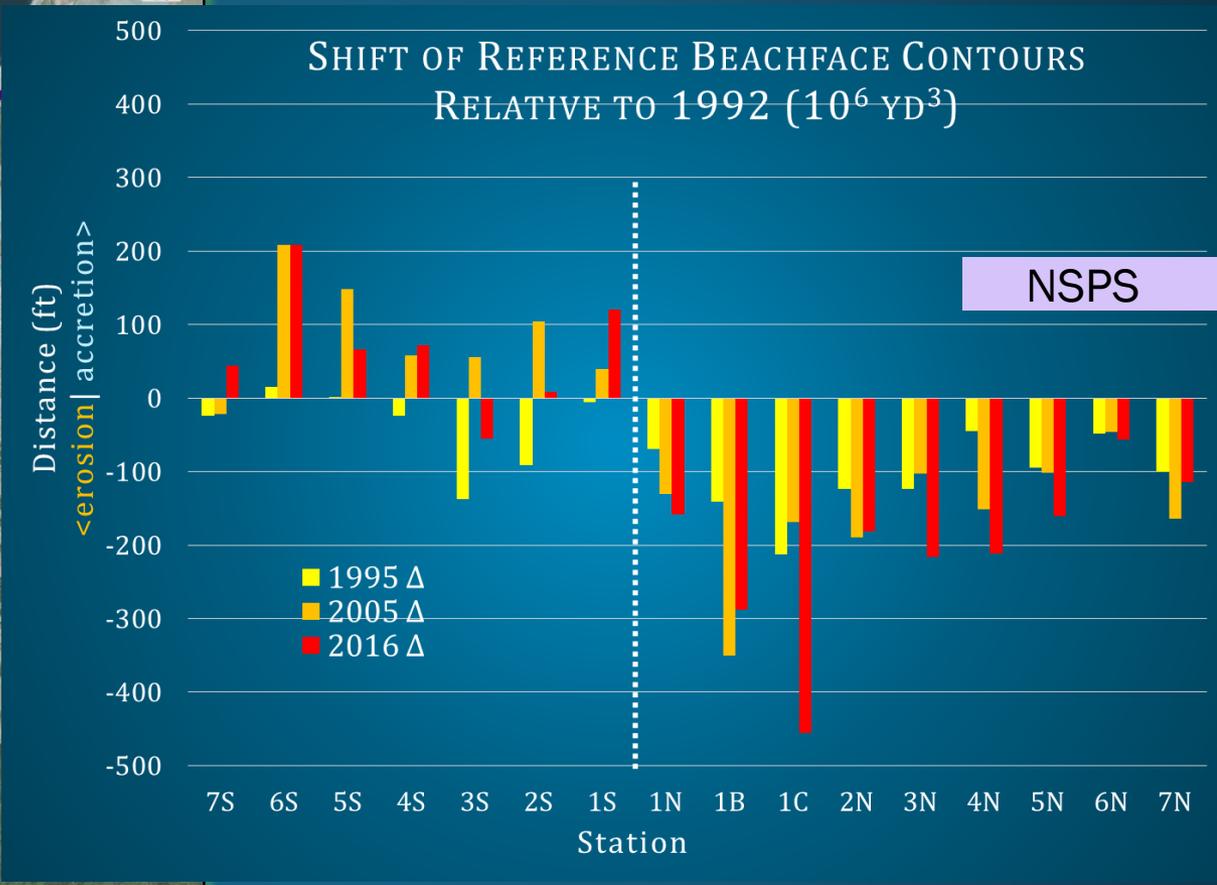
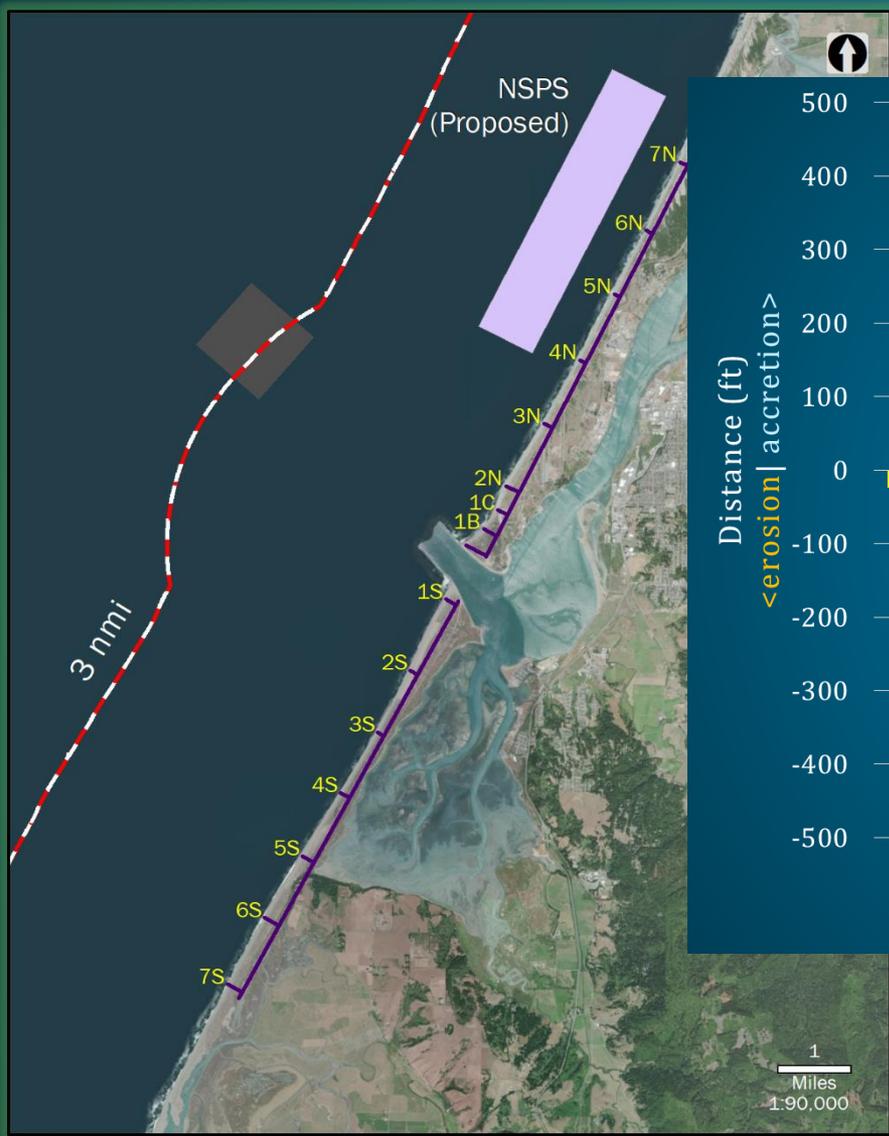
MODEL	DEPTH (FT)
Hallermeier Inner	55
Hallermeier Inner Simplified	63

## CROSS-SHORE SEDIMENT MIGRATION

$d_{50}$ (mm)	PREDICTED DIRECTION
0.1	99% offshore
0.2	59% onshore
0.3	93% onshore
0.4	99% onshore
0.5	100% onshore



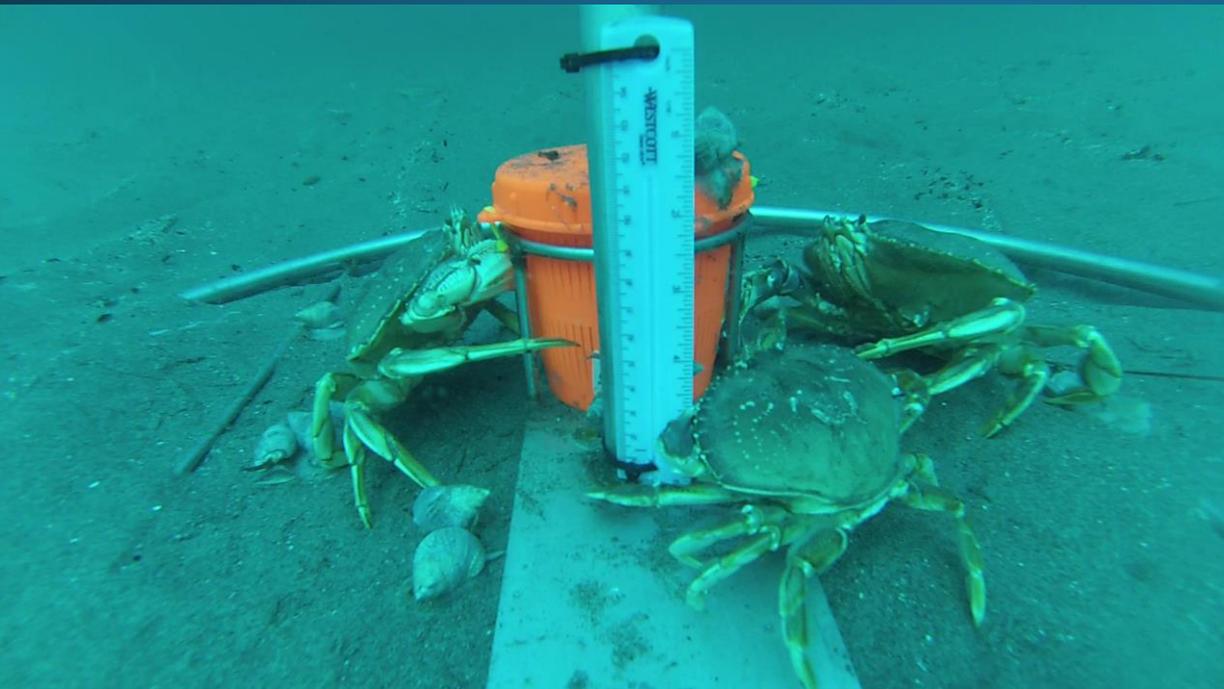
# HUMBOLDT HARBOR USACE SHORELINE MONITORING



- The Reference Contour is ~11 ft above MLLW
- Light-green rectangle shows the approximate longshore location of the NSPS off the eroding North Spit



# BEHAVIOR OF DUNGENESS CRABS AT THE MOUTH OF THE COLUMBIA RIVER DURING THIN-LAYER NEARSHORE SAND PLACEMENT



CURTIS ROEGNER  
NOAA FISHERIES  
Curtis.Roegner@NOAA.GOV



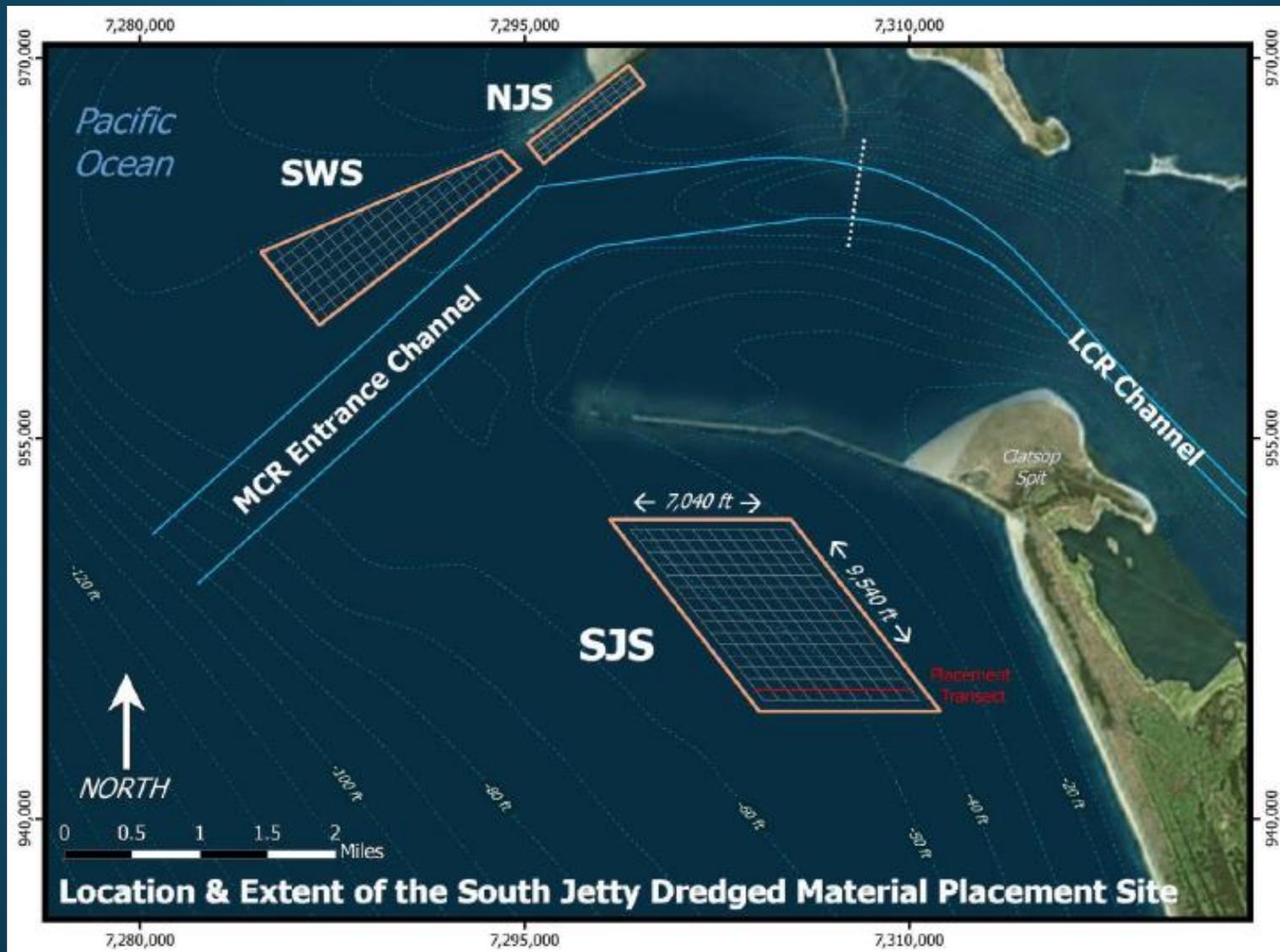
Study for the  
Portland District, USACE

YouTube videos at: [fish\\_00\\_head](#)

Synopsis video at: [https://www.youtube.com/watch?v=c49s8\\_f5ivU](https://www.youtube.com/watch?v=c49s8_f5ivU)

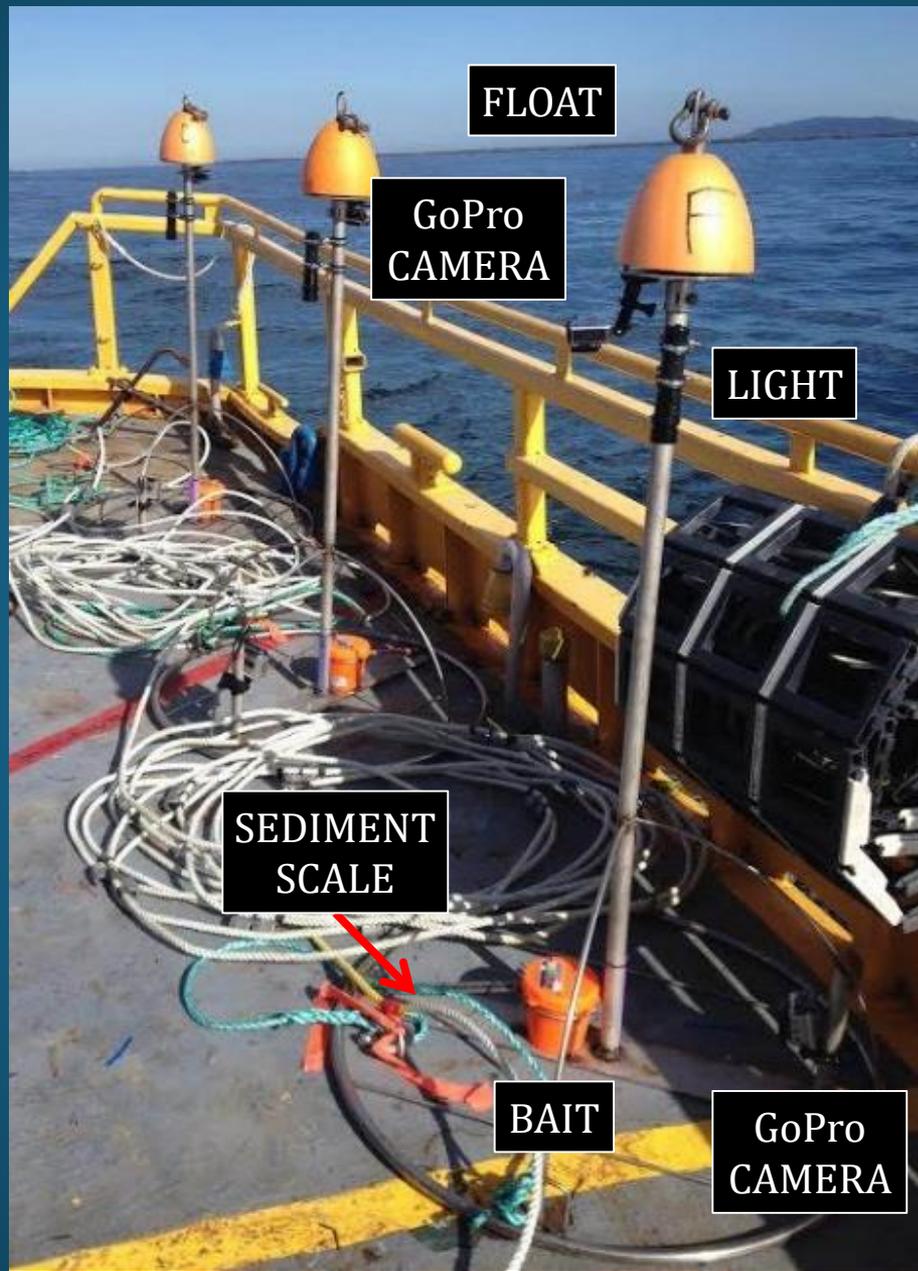


# Nearshore Placement at the South Jetty Beneficial Use Site, Mouth of the Columbia River



# CAMPOD

AKA  
BENTHIC  
VIDEO LANDER



FLOAT

GoPro  
CAMERA

LIGHT

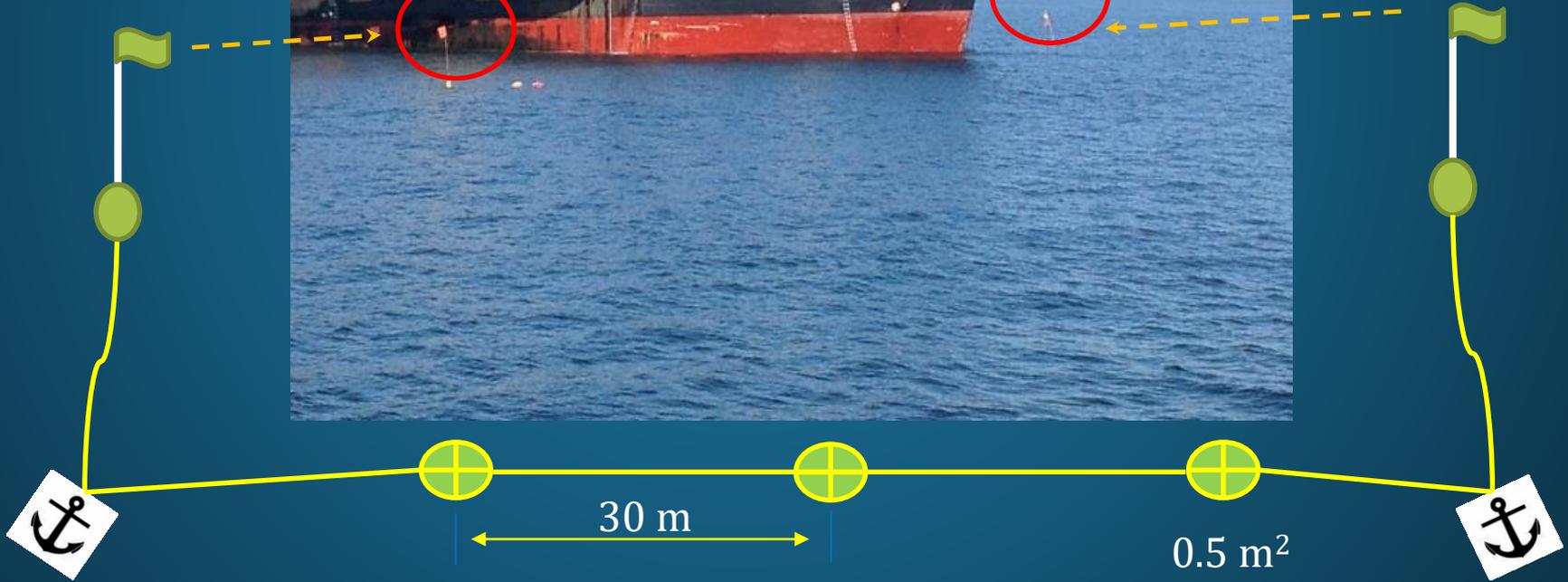
SEDIMENT  
SCALE

BAIT

GoPro  
CAMERA



# CAMPod ARRAYS



CamPod daisy chain



# SEDIMENT DEPOSITION EVENT



YouTube videos at: [fish\\_00\\_head](#)

Synopsis video at: [https://www.youtube.com/watch?v=c49s8\\_f5ivU](https://www.youtube.com/watch?v=c49s8_f5ivU)



# CAMPoD: DEPOSITION EVENT (16x)

YouTube videos at: [fish\\_00\\_head](#)

Synopsis video at: [https://www.youtube.com/watch?v=c49s8\\_f5ivU](https://www.youtube.com/watch?v=c49s8_f5ivU)



# DEPOSITION EVENTS

YouTube videos at: [fish\\_00\\_head](#)

Synopsis video at: [https://www.youtube.com/watch?v=c49s8\\_f5ivU](https://www.youtube.com/watch?v=c49s8_f5ivU)

# MOVEMENT OF TAGGED CRABS



YouTube videos at: [fish\\_00\\_head](#)

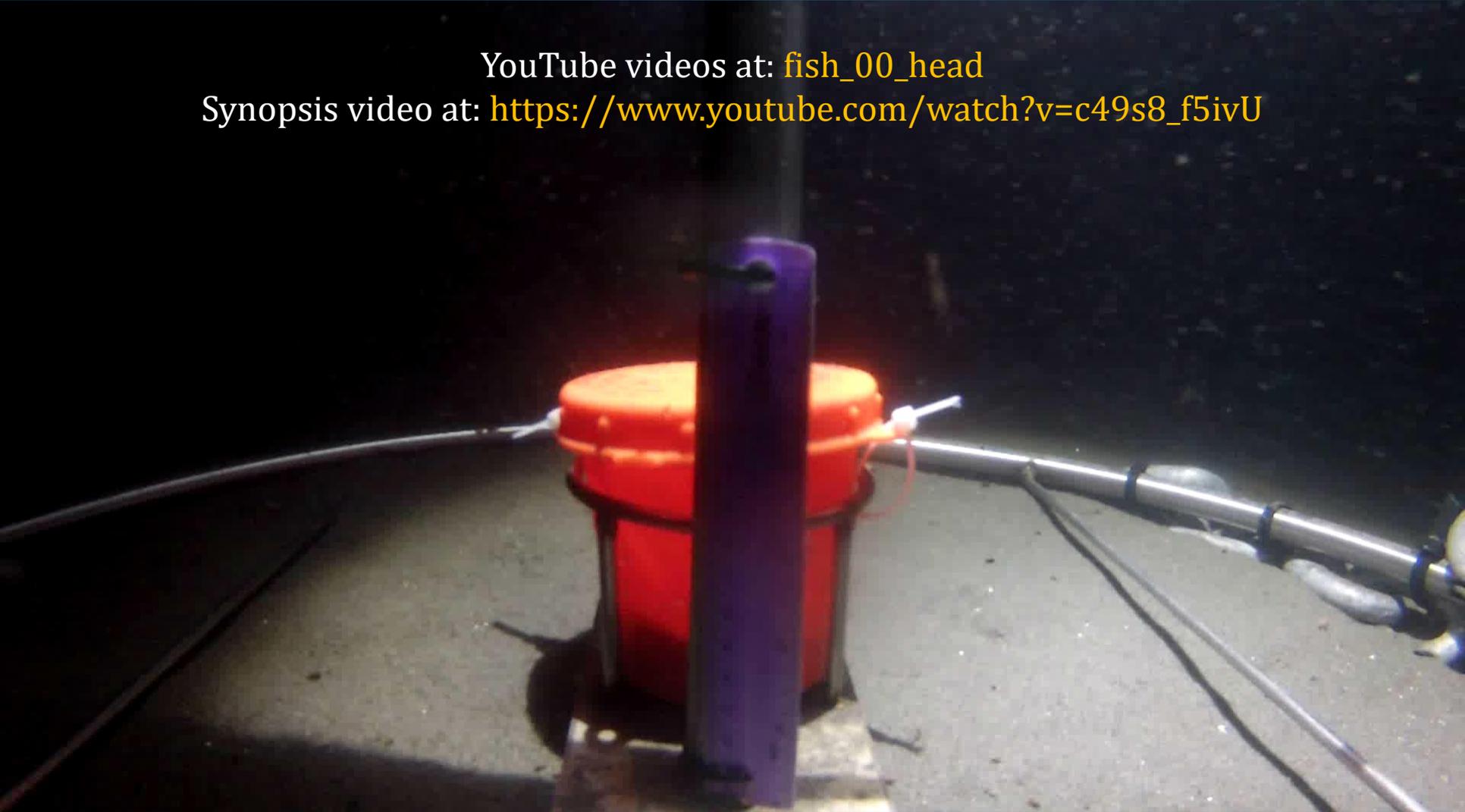
Synopsis video at: [https://www.youtube.com/watch?v=c49s8\\_f5ivU](https://www.youtube.com/watch?v=c49s8_f5ivU)



# CAMP0D: DEEP WATER SITE @ 70 M (PLUME DISPERSED)

YouTube videos at: [fish\\_00\\_head](#)

Synopsis video at: [https://www.youtube.com/watch?v=c49s8\\_f5ivU](https://www.youtube.com/watch?v=c49s8_f5ivU)



# QUESTIONS?

For more information or to provide written comments, contact  
Brian Ross, Dredging & Sediment Management Team (WTR-2-2)  
US EPA Region 9, 75 Hawthorne Street, San Francisco CA 94105  
[ross.brian@epa.gov](mailto:ross.brian@epa.gov), 415-972-3475