

AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Federal Clean Water Act, as amended, (33 U.S.C. §1251 et seq.; the "CWA"),

Acadia Aquaculture Inc.

is authorized to discharge from a concentrated aquatic animal production facility located

**East of Long Island, off Dunhams Cove in Blue Hill Bay
Blue Hill, Maine**

to the receiving water named

Blue Hill Bay, Maine Coastal Waters

in accordance with effluent limitations, monitoring requirements and other conditions set forth herein.

This permit shall become effective 30 days after the date of signature.

This permit and the authorization to discharge shall expire at midnight, five (5) years from the effective date.

This is a new permit.

This permit consists of 25 pages in Part I including effluent limitations, monitoring requirements, etc., and 35 pages in Part II including General Conditions and Definitions.

Signed this 21st day of February, 2002

COPY- SIGNED ORIGINAL ON FILE
AND AVAILABLE FROM REGIONAL OFFICE

/signature/
Linda M. Murphy, Director
Office of Ecosystem Protection
Environmental Protection Agency - New England
Boston, MA

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A. SPACIAL LIMITS AND BOUNDARIES

The combined surface area of the 10 discrete net pens and appurtenant surface structures is defined as a 54 meter by 132 meter rectangular area of approximately 1.8 acres. Additionally, a covered feed storage barge will be moored onsite adjacent to the pen system.

The combined surface and subsurface area of the facility, including the outer boundaries of a bottom mooring system, is contained within a rectangular area of approximately 325 meters in a north-south direction by 402 meters in an east-west direction, for a total area of approximately 33 acres. The facility is located approximately 457 meters (1500 feet) east of Long Island, off Dunham's Cove. The coordinates defining the facility boundaries are as follows:

	<u>North Latitude</u>	<u>West Longitude</u>
NW corner	44°20'13.0"	68°28'55.7"
NE corner	44°20'13.0"	68°28'36.5"
SE corner	44°20'02.2"	68°28'36.5"
SW corner	44°20'02.2"	68°28'55.7"

The location of the facility is identified as Site #2 as depicted on Attachments A and B to this permit.

Once the facility has been moored securely to the sea floor, the applicant shall position the four corners of the net pen system and support barge using a differential global positioning system (DGPS). The coordinates shall be recorded to the closest decimal second of latitude and longitude, and submitted to EPA within 30 days of securing the facility to the sea floor.

B. DESCRIPTION OF DISCHARGE

The permittee may discharge from 10 discrete floating net pens the following: fish excrement, ammonia excretions, fish feed, and drugs approved by the Food and Drug Administration (FDA) for treatment of salmonids (which approval may include other fish species,) that are applied in accordance with federal and state laws. Unapproved drugs, including those authorized by FDA for limited use under the Investigational New Animal Drug (INAD) program, are prohibited (See Section L). Domestic waste is not authorized for discharge. Such waste shall be collected and transported off site for disposal at a land-based facility equipped to treat domestic waste, and in accordance with state laws.

C. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The following tables (I.C.1-6) identify specific numeric limits and/or monitoring requirements associated with the authorized discharge from this facility, as described above. Additional information on monitoring requirements can be found under Section F (Benthic Monitoring, Video/Photo Surveys, and Water Quality Monitoring). Additional information on permit limits can be found under Section E (Impact Thresholds).

C.1 EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date and lasting through expiration the permittee is authorized to discharge pollutants from 10 discrete floating net pens that form a single 10 pen system to the waters of Blue Hill Bay subject to meeting the following conditions, and reporting these data in the monthly discharge monitoring report:

Sea Water Characteristic	Table I.C.1 - Daily Minimum, Weekly Average and Monthly Average Limits at Five Meters Downcurrent from the Net Pen System			Minimum Monitoring June 1 through September 30	
	Mid-Net Pen Depth	Mid-Water Column Depth	One Meter Above Sea Floor	Frequency	Type
Dissolved Oxygen Concentration	6.0 mg/l ^{1,2}	6.0 mg/l ^{1,2}	6.0 mg/l ^{1,2}	1/Week	Probe/Grab
Dissolved Oxygen Saturation	≥85% ²	≥85% ²	≥85% ²	1/Week	Probe/Grab
Salinity	Report ‰	Report ‰	Report ‰	1/Week	Probe/Grab
Transparency	Report Nearest 0.5 Meters	-	-	1/Week	Secchi Disk 30 cm
Temperature	Report °C	Report °C	Report °C	1/Week	Probe/Grab
Depth of Sample	Report Meters	Report Meters	Report Meters	1/Week	Probe/Line

Footnotes for Table I.C.1:

¹ DO concentration limit applies to the area within the net pens and extending 5 meters beyond the perimeter of the net pen structures in all directions on the surface, and extending down to the sea floor/water column interface. (i.e., the water column mixing zone).

² Unless due to causes unrelated to the net pen operation, as documented by the permittee by corresponding measurements collected 100 meters east of the eastern edge of the pen system. If DO at a distance of less than 5 meters is below 6.0 mg/l concentration, then samples shall be taken just beyond 5 meters (5-7 meters) and at two additional locations, at the same depth: 100 meters east, and 100 meters downcurrent of the facility. The results shall be reported in the cover letter with that month's Discharge Monitoring Report. Beyond the 5 meter mixing zone, dissolved oxygen saturation must comply with the state standard of 85%.

Transparency readings should taken on the shaded side of the vessel or pen system using a viewing scope to penetrate the surface of the water. The depth of disappearance and reappearance should be measured using a graduated line, and the depths averaged. Weather and sea state conditions should be recorded and included as an attachment to the monthly report. Monitoring for salinity, temperature, and DO concentration and saturation may be conducted using an electronic membrane probe or equivalent. See Section F.3 for additional information.

C. 2 FEED DISCHARGE EFFLUENT LIMITATIONS AND FISH MONITORING REQUIREMENTS

During the period beginning on the effective date and lasting through expiration the permittee is authorized to discharge pollutants from 10 discrete floating net pens that form a single 10 pen system to the waters of Blue Hill Bay subject to meeting the following conditions, and reporting these data in the monthly discharge monitoring report:

Table I.C.2 - Feed Discharge and Fish Monitoring and Limits		
Estimated Number of Fish at Facility at End of Month	Total Pounds of Feed Used During This Calendar Month	Total Pounds of Feed Used Year to Date
Report Total Numbers by Average Weight and Age 1. Dunhams Cove Facility 2. All Facilities Combined Report Only	Report Total Pounds for all Pens Combined at: 1. Dunhams Cove Facility 2. All Facilities Combined Report Only	Report Total Pounds for all Pens Combined at: 1. Dunhams Cove Facility 2. All Facilities Combined Limit = 2,151,000 lbs per year ¹

Footnotes for Table I.C.2:

¹ This limit applies to combined feeding at all net pen facilities owned or operated by the permittee in Blue Hill Bay, including Trumpet Island Fish Farm, for a 12 month period starting on the effective date that fish are transferred to the Dunhams Cove facility. This limit may be proposed for modification, with opportunity for public comment, based upon new information.

Additional monthly feed and fish monitoring and reporting requirements are outlined in Section J.9 (Special Conditions).

C.3 FARFIELD AND REFERENCE SITE WATER QUALITY MONITORING REQUIREMENTS

During the period beginning on the effective date and lasting through expiration the permittee is authorized to discharge pollutants from 10 discrete floating net pens that form a single 10 pen system to the waters of Blue Hill Bay subject to meeting the following conditions:

Table I.C.3 - Water Quality, Nutrient, and Phytoplankton Monitoring						
Sea Water Characteristic	Monitoring at Four Sites ¹ Depth Below Water Surface				Minimum Monitoring June through September 30	Type
	2 Meters	6 Meters	12 Meters	30 Meters	Frequency	
Dissolved Oxygen Concentration	Report mg/l	Report mg/l	Report mg/l	Report mg/l	1/Month	Grab
Dissolved Oxygen Saturation	Report mg/l	Report mg/l	Report mg/l	Report mg/l	1/Month	Grab
Temperature	Report °C	Report °C	Report °C	Report °C	1/Month	Grab
Salinity	Report ‰	Report ‰	Report ‰	Report ‰	1/Month	Grab
Dissolved Ammonia Nitrogen	Report mg/l	Report mg/l	Report mg/l	Report mg/l	1/Month	Grab
Dissolved Nitrate Nitrogen	Report mg/l	Report mg/l	Report mg/l	Report mg/l	1/Month	Grab
Dissolved Nitrite Nitrogen	Report mg/l	Report mg/l	Report mg/l	Report mg/l	1/Month	Grab
Total Organic Nitrogen	Report mg/l	Report mg/l	Report mg/l	Report mg/l	1/Month	Grab
Total Nitrogen	Report mg/l	Report mg/l	Report mg/l	Report mg/l	1/Month	Grab
Total Phosphorus	Report mg/l	Report mg/l	Report mg/l	Report mg/l	1/Month	Grab
Dissolved Silicates	Report mg/l	Report mg/l	Report mg/l	Report mg/l	1/Month	Grab
Chlorophyll <i>a</i>	Report µg/l	Report µg/l	Report µg/l	Report µg/l	1/Month	Grab
Phaeophytin	Report µg/l	Report µg/l	Report µg/l	Report µg/l	1/Month	Grab

C.3 FARFIELD AND REFERENCE SITE WATER QUALITY MONITORING REQUIREMENTS (Continued)

Table I.C.3 - Water Quality, Nutrient, and Phytoplankton Monitoring (Continued)			
Parameter	Monitoring Requirements at Each of Five Sites ¹	Minimum Monitoring June through September 30	
Geographic Position	Report Latitude DD-MM-SS.S Report Longitude DD-MM-SS.S	1/Month	GPS
Time	Report HHMM	1/Month	Time Piece
Current Direction	Report Degrees Magnetic	1/Month	Compass
Height of Tide	Report to Nearest Half Meter Above/Below Mean Low Water	1/Month	GPS, Tables
Depth (Corrected For Tide)	Report to Nearest Half Meter	1/Month	Echo Sounder
Water Transparency ²	Report Averaged Depth to Nearest Half Meter Report Observer's Initials	1/Month	Secchi Disk 30 cm
Phytoplankton ³	Report Dominant and Target Taxa ³	1/Month	20 Micron Net w/Water Bottle

Footnote for Table I.C.3:

1 The five nutrient monitoring sites are located as follows: two approximately 100 meters north and south of the facility, respectively; one at position 44°19'54"N, 68°29'06" W (in Dunhams Cove); one at position 44°20'12"N, 68°27'54" W (approximately 1200 meters east of facility,) and one at position 44°20'55"N, 68° 32'30" W (west of Long Island) . The 100 meter sites shall be established following pen placement. Time and date of sampling, current direction, and geographic positions using DGPS shall be collected and reported for each sample. See Section F.3.c for additional reporting requirements.

² Water transparency readings should taken on the shaded side of the vessel using a viewing scope to penetrate the surface of the water. The depth of disappearance and reappearance should be measured using a graduated line and averaged. Weather and sea state conditions should be included as an attachment to the monthly report.

³ See Section F.3.c for detailed monitoring requirements and list of target organisms.

Data collected for monitoring requirements in Table I.C.3 shall be submitted to EPA and DEP by December 15 of each year.

C.4 VIDEO/PHOTO MONITORING REQUIREMENTS

During the period beginning on the effective date and lasting through expiration the permittee is authorized to discharge pollutants from 10 discrete floating net pens that form a single 10 pen system to the waters of Blue Hill Bay subject to meeting the following conditions:

Table I.C.4 - Video/Photo Monitoring of Substrate					
Monitoring Characteristic	Substrate Video Monitoring Transects				
	Transect Upcurrent Edge ¹	Transect From Upcurrent Edge Proceeding North 60 m ¹	Transect From Downcurrent Edge Proceeding South 60 m ¹	Frequency	Type
Video Tapes and/or Photographs of Substrate	Report Monitoring Date Submit Video Tape or Photos And Supporting Info ¹	Report Monitoring Date Submit Video Tape or Photos And Supporting Info ¹	Report Monitoring Date Submit Video Tape or Photos And Supporting Info ¹	2/Year April 1 - May 31 ² & August 1 - Sept. 30 ³	Color Video or Color Photographs

Footnotes for Table I.C.4:

¹ See Section F.2 for additional information and reporting requirements.

² Spring video/photo survey shall be submitted to EPA and DEP within 60 days of conducting survey

³ Fall video/photo survey shall be submitted to EPA and DEP by December 15 of each year

C.5 SEDIMENT MONITORING REQUIREMENTS

During the period beginning effective date and lasting through expiration the permittee is authorized to discharge pollutants from 10 discrete floating net pens that form a single 10 pen system to the waters of Blue Hill Bay subject to meeting the following conditions:

Table I.C.5 - Sediment Monitoring and Limits ¹						
Monitoring Characteristic	Sample Location ¹			Monitoring		
	Within 5 m of Net Pen System ¹	10 - 20 m from Edges of System ¹	30 m from Edges of System ^{1,2}	Reference Sites North and South ¹	Frequency	Type
Redox Potential	Report Sampling Date Submit Sampling Results	Report Sampling Date Submit Sampling Results	See Footnote 2	Report Sampling Date Submit Sampling Results	Annually August 1 - September 30	Sediment Grab Millivoltmeter ¹
Redox Potential Discontinuity Layer	Report cm	Report cm	See Footnote 2	Report cm	Annually August 1 - September 30	Sediment Grab Core
Total Copper ³	Report mg/kg dry wt	Not Applicable	Report mg/kg dry wt	Report mg/kg dry wt	Prior To Pen Installation, Once/2 Years ⁴	Sediment Grab
Total Zinc ³	Report mg/kg dry wt	Not Applicable	Report mg/kg dry wt	Report mg/kg dry wt	Prior To Pen Installation, Once/2 Years ⁴	Sediment Grab
Anoxic Sediments, Gas Formation, and <i>Beggiatoa</i>	Report Sampling Date Submit Sampling Results	Report Sampling Date Submit Sampling Results	See Footnote 2	Report Sampling Date Submit Sampling Results	Annually August 1 - September 30	Sediment Grab Core

Footnotes for Table I.C.5:

¹ See Section F.1 for additional information on monitoring and reporting requirements, reference sites, and impact thresholds.

² See Section F.1.a for a description of conditions that trigger the need to collect samples at 30 meters.

³ See Section I.2 for additional information on copper and zinc monitoring.

⁴ See Section I.2 for circumstances that require monitoring every two years.

C.6 INFAUNA MONITORING REQUIREMENTS

During the period beginning effective date and lasting through expiration the permittee is authorized to discharge pollutants from 10 discrete floating net pens that form a single 10 pen system to the waters of Blue Hill Bay subject to meeting the following conditions:

Table I.C.6 - Benthic Infauna Monitoring and Limits ¹						
Monitoring Characteristic	Sample Location			Monitoring		
	Within 5 m of Net Pen System ¹	10 -20 m From Edges of Pen System ¹	30 m From Edges of Pen System ^{1,2}	Reference Sites North and South ¹	Frequency	Type
Azoic Conditions	Report Sampling Date Submit Sampling Results/0.1m ¹	Report Sampling Date Submit Sampling Results/0.1m ¹	See Footnote 2	Report Sampling Date Submit Sampling Results/0.1m ²	Annually August 1 - Sept. 30	Sediment Grab Core
Pollution-Tolerant Taxa Absolute and Relative Abundance ¹	Report Sampling Date Submit Sampling Results/0.1m ²	Report Sampling Date Submit Sampling Results/0.1m ²	See Footnote 2	Report Sampling Date Submit Sampling Results/0.1m ²	Annually August 1 - Sept. 30	Sediment Grab Core
Pollution-Sensitive Taxa Absolute and Relative Abundance ¹	Report Sampling Date Submit Sampling Results/0.1m ²	Report Sampling Date Submit Sampling Results/0.1m ²	See Footnote 2	Report Sampling Date Submit Sampling Results/0.1m ²	Annually August 1 - Sept. 30	Sediment Grab Core
Total Taxa Richness and Absolute Abundance ¹	Report Sampling Date Submit Sampling Results/0.1m ²	Report Sampling Date Submit Sampling Results/0.1m ²	See Footnote 2	Report Sampling Date Submit Sampling Results/0.1m ²	Annually August 1 - Sept. 30	Sediment Grab Core

Footnotes for Table I.C.6:

¹See Sections E and F for additional information on monitoring requirements, listed taxa, and permit limits.

² See Section F.1.a for a description of conditions that trigger the need to collect samples at 30 meters.

All data to be submitted to EPA and DEP by December 15 of each year. See Section Q.

D. ALLOCATED IMPACT ZONES

This permit designates two impact zones: (1) a Water Column Mixing Zone, and (2) a Sediment Impact Zone. The discharge shall not contain materials in concentrations or combinations that can cause a lethal response to organisms passing through the Water Column Mixing Zone. Minimum requirements for benthic conditions within the Sediment Impact Zone are listed below. Outside the impact zones, discharges from the facility shall not contain materials in concentrations or combinations that are hazardous or toxic to aquatic life, or would impair existing uses or the uses designated by the classification of the receiving waters.

Water Column Mixing Zone. The Water Column Mixing Zone is defined as the area within the net pens and extending 5 meters beyond the perimeter of the net pen structures in all directions on the surface, and extending down to the sea floor/water column interface. Within this mixing zone, numeric water quality criteria established in Maine's water quality standards may be exceeded as long as acutely toxic (lethal response) conditions are prevented (See Section I.1), however, at no time shall the discharge be permitted to cause DO concentration to fall below 6.0 mg/l.

Sediment Impact Zone. The Sediment Impact Zone is divided into two zones with corresponding warning levels and Impact Limits. Zone I includes the area of sea floor directly beneath the net pens, and extending 5 meters out in all directions from the perimeter of the net pens. Zone II extends from 5 meters to 30 meters from the pen system in all directions. Beyond Zone II, Maine water quality standards require that discharges shall not impair benthic conditions to the extent there are adverse impacts which result in detrimental changes in the resident biological community. An exceedence of the Impact Limits listed in Section E (Impact Thresholds) would be a violation of Maine's narrative standards. Most metrics include thresholds which provide a warning that benthic impacts are approaching unacceptable levels.

The permittee shall notify EPA and DEP as soon as he has reason to believe any warning levels that are specified for the Sediment Impact Zone may have been exceeded. At that time, or upon notification by EPA, the facility shall review its current operations and propose any changes necessary to assure that Impact Limits are not exceeded. Exceeding one or more Impact Limits constitutes a permit violation. This proposal shall be submitted to EPA and DEP within 30 days following notification by EPA. If the degree by which warning levels are exceeded in subsequent monitoring events is increased, or if an Impact Limit is exceeded at any time, the facility shall submit to EPA and DEP for review and approval a recovery plan and implementation schedule for modification of operations. This proposal shall be submitted to EPA and DEP within 30 days following notification by EPA. Such modifications may include, but are not limited to, reducing standing stock, reduced feeding, fallowing of the site and/or collection of settled materials before they reach the sea floor. Physical disturbance such as harrowing, dragging, or other mechanical means shall not be used to mitigate bottom conditions. EPA and DEP may require additional monitoring to determine the effectiveness of these measures or continuing trends in benthic conditions. Nothing in this paragraph shall be interpreted to restrict or constrain EPA's authority to take enforcement action to address violations of the Impact Limits. Submission and implementation of a recovery plan does not negate the existence of a violation, but will be considered by EPA in determining what, if any, enforcement response is appropriate.

If multi-year monitoring reveals that benthic impacts are limited to one side of the pen system, but extend beyond the designated Sediment Impact Zone, EPA may modify the permit, with opportunity for public comment, to all the impact zones and monitoring may be shifted accordingly, as long as the original spatial extent of the impact zones are not exceeded.

The impact limits and metrics used in this permit to evaluate biological and physical conditions on the sea floor are but one definition of those benthic conditions that would represent non-attainment of narrative water quality standards. Following data collection and analysis, if the existing metrics are found to be inappropriate or insufficient to provide the necessary information to determine that state water quality standards are being protected, the metrics and/or Impact Limits may be changed through permit modification to improve the permit's effectiveness.

E. IMPACT THRESHOLDS

Within Sediment Impact Zone I (≤ 5 meters) the following impact thresholds shall apply:

<u>Metric</u>	<u>Warning Level</u>	<u>Impact Limit (Violation)</u>
1. Redox Potential (Eh) ¹	mean value -100 to 0 mV _{NHE} ^{1,6}	mean value <-100 mV _{NHE} ^{1,6}
2. Gas Formation	presence of anoxic sediments ⁶	compelling evidence ^{2,6}
3. <i>Beggiatoa</i> Coverage	patchy ^{3,6}	$\geq 50\%$ photo coverage ^{4,6}
4. Anoxic Sediments	patchy ^{3,6}	$\geq 50\%$ photo coverage ^{4,6}
5. Pollution-Tolerant Taxa ⁵	contribution (no. of individuals) of any single taxa > 90% ^{5,6}	report data
6. Azoic Conditions	> 50% reduction in mean total abundance compared to mean reference site value ⁸	absence of infauna ⁶

Within Sediment Impact Zone II (5 -30 meters) the following impact thresholds shall apply:

<u>Metric</u>	<u>Warning Level</u>	<u>Impact Limit (Violation)</u>
1. Redox Potential (Eh) ¹	mean value -100 to < +100 mV _{NHE} ^{1,6}	mean value <-100 mV _{NHE} ^{1,6} to mean reference site value
2. Gas Formation	any presence in Zone I ⁶	compelling evidence ^{2,6}
3. <i>Beggiatoa</i> Coverage	compelling evidence ⁶	$\geq 50\%$ photo coverage ^{4,6}
4. Anoxic Sediments	compelling evidence ⁶	$\geq 50\%$ photo coverage ^{4,6}
5. Pollution-Tolerant Taxa ⁵	contribution of all listed taxa combined >70% of total abundance ^{5,6,8}	report data
AND		
6. Pollution-Sensitive Taxa ⁷	>50% reduction in mean abundance of listed taxa compared to mean reference site value ⁸	report data
7. Taxa Richness	>25% reduction in mean number of all taxa compared to mean reference site value ⁸	report data
8. Azoic Conditions	> 50% reduction in mean total abundance compared to mean reference site value ⁸	absence of infauna ⁶

Beyond the Sediment Impact Zone II ($\geq 30\text{m}$) the following impact thresholds shall apply:

<u>Metric</u>	<u>Impact Limit (Violation)</u>
1. Redox Potential (Eh) ¹	report data
2. Gas Formation	compelling evidence ^{2, 6}
3. <i>Beggiatoa</i> Coverage	compelling evidence ^{2, 6}
4. Anoxic sediments	compelling evidence ^{2, 6}
5. Pollution-Sensitive Taxa ⁷	Significant decrease in mean number of listed taxa compared to mean reference site value ^{7, 9}
6. Taxa Richness	Significant decrease in mean number of total taxa compared to mean reference site value ⁹

Notes

¹ Redox Potentials (Eh) shall be measured and reported in millivolts (mV) relative to the normal hydrogen electrode (NHE) for the top 3 cm of the sediment profile. See Wildish et al. 1999 for an acceptable approach to redox sampling, analysis, and instrument calibration.

² Compelling evidence includes photo or video documentation, diver observations, or sediment analyses that reveals actual off-gassing, or evidence of gas formation including “pimpled” sediments combined with the smell of hydrogen sulfide gas emitted from grab samples, or the presence of *Beggiatoa*, and such conditions are not observed at the reference sites.

³ *Beggiatoa* or anoxic sediments shall be considered “patchy” if coverage is non-continuous and occupies less than 50% of the area, as determined by EPA from the review of video footage and/or photographs taken beneath or adjacent to each pen.

⁴ Percent cover shall be determined by EPA from the review of video footage and/ or photographs taken beneath or adjacent to each pen.

⁵ Pollution-tolerant taxa include the following polychaete and oligochaete worms: Capitellidae (*Capitella capitata*), Cirratulidae (*Chaetozone setosa* and *Tharyx* spp.), Tubificidae, and Enchytraeidae. These organisms were categorized as pollution tolerant due to their association with organic enrichment or opportunistic nature, as described in several references, including Borja, et al. 2000, and Findlay and Watling, 1995.

⁶ Unless similar abundances, conditions, or values exists at reference site.

⁷ A list of pollution-sensitive taxa was developed based on infauna collected at the facility site during baseline studies conducted 22 October 1998 and referenced to Borja, et al. 2000 and other sources. This list may be modified following additional benthic studies that are required in order to establish two reference sites. The pollution-sensitive taxa for the facility site are as follows: Nuculidae (*Nucula* spp.), Nuculanidae (*Nuculana* sp. and *Yoldia* spp.), Orbinidea (*Scoloplos* sp.), Paraonidae (*Aricidea* spp.) and Ampharetidae (*Ampharete* sp.), and Sipunculid worms.

⁸ Exceeding a numeric warning level in Zone II will require additional sampling within 60 days of initial sampling at a distance of approximately 30 meters from the facility, and possibly the appropriate reference site, to determine whether or not the presence and/or abundance of infauna at both sites are statistically similar. Prior to this additional sampling, the permittee shall submit a proposed sampling plan and statistical analysis to EPA for review and approval.

⁹ Significance will be based on statistical analysis at a confidence interval acceptable to EPA, and meeting generally accepted professional standards.

F. BENTHIC MONITORING, VIDEO/PHOTO SURVEYS, AND WATER QUALITY MONITORING

F.1. Benthic Monitoring

Benthic monitoring shall be conducted annually in August or September, and will focus on sediment conditions and the infaunal community. The following monitoring design may be modified based on EPA's review of the monitoring results, which would represent new information not available during development of this permit. Data collected during the fall benthic monitoring shall be submitted to EPA and DEP by December 15 of each year. It is the permittee's responsibility to conduct a timely review of the sampling data to determine if any warning levels have been exceeded, which would then require additional sampling. Any subsequent sampling will be required within 60 days of initial sampling in order to minimize natural variation in benthic conditions and infauna presence and abundance. If any warning level has been exceeded, the permittee shall submit to EPA a plan to conduct additional sampling to determine whether or not differences between test sites and reference sites are significant. The data collected during follow-up sampling shall be submitted to EPA and DEP by December 15 of that year. See Tables C.5 and C.6 for a summary of monitoring requirements.

a. Sediments

Redox potentials (Eh) shall be measured and reported in millivolts (mV) relative to the normal hydrogen electrode (NHE) for the top 3 cm of the sediment profile. The three samples collected at each distance shall be reported individually and averaged. See Wildish et al. 1999 for an acceptable approach to redox sampling, analysis, and instrument calibration. Samples shall be collected from a grab or box type corer having an area sufficient to collect acceptable samples. The apparent redox potential discontinuity layer shall also be measured at each site and reported.

The entire grab sample shall be inspected for evidence of anoxia, the presence of *Beggiatoa* type bacterial mats, and gas formation (hydrogen sulfide or methane). The surface color of the sediment sample, and any evidence of gas formation (e.g. pimpled sediments, hydrogen sulfide odor) or *Beggiatoa* shall be reported. If subsamples are taken from a grab or box type corer for the sediment analysis and the remaining sample used for infauna analysis, no more than one-quarter of the surface of each sample can have been removed for the sediment analysis. Core samples shall be inserted to resistance or 15 cm, whichever is less. The depth of the core shall be reported.

Sediment and infauna samples shall be collected at the same locations. Six samples shall be collected within the footprint of the net pen system, with three equally spaced samples collected on each side (i.e. north and south sides,) along the axis of the of the pen system (See Figure F.1). Additionally, three samples shall be collected 10 - 20 meters north and south side of the pen system at the same approximate position relative to the samples collected along the edge of the pen system (See Figure F.1,) and at two designated reference sites. In assessing impacts to the sediments and infauna relative to the established thresholds listed under Section E, samples collected north and south of the facility shall be evaluated separately relative to their respective reference sites. The location (i.e., GPS coordinates and reference to the pen system,) time, and current direction shall be recorded at each sample site.

If warning levels for infauna abundance and community structure are exceeded in Sediment Impact Zone II (5-30 meters from pen system,) the permittee is required to collect additional samples within 60 days of initial sampling at 30 meters from the pen system and the appropriate reference site to determine whether or not impact limits established for the edge of the sediment impact zone and beyond (≥ 30 m) have also been exceeded. A violation will occur if the abundance and richness (i.e. number of taxa) of pollution-sensitive taxa and total taxa found at 30 meters from the pen system are significantly less than reference site values, as determined using statistical analysis acceptable to EPA. These limits are intended to ensure Maine's water quality standards for Class SB waters are maintained at the edge of the Sediment Impact Zone.

Benthic Monitoring Reference Sites

Two reference sites shall be selected: one north or south, and one to the east, at a distance of at least 1,000 meters from the facility. These sites will be selected based on similar bathymetry, sediment type, grain size, bottom currents, and benthic infauna as compared to the facility site. The permittee shall submit reference site proposals to EPA following the necessary data collection and analyses. The stocking of fish onsite may not commence until reference sites are approved by EPA.

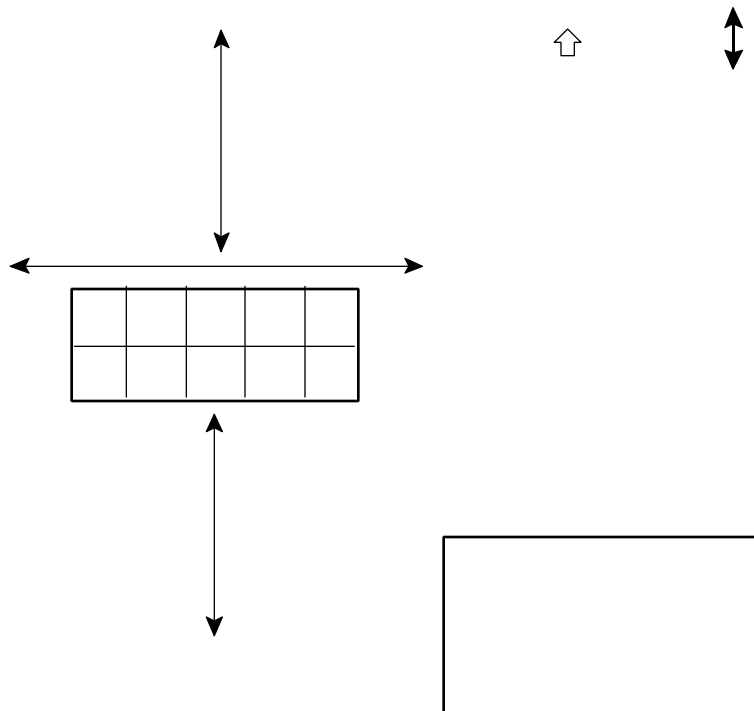
b. Infauna

Single cores 4 inches or greater in diameter shall be taken from the sediment grabs described above. If the size of grab does not provide sufficient material for all samples then multiple samples shall be taken at the same location. Cores must be inserted to resistance or 15 cm, whichever is less. Depth of the core shall be reported. Infauna samples shall be sieved through a U.S. Standard No. 50 sieve (1.0 mm mesh). Organisms shall be fixed in 10% buffered formalin and stained with a 1% Rose Bengal staining solution. After 5 days in the formalin solution, the formalin shall be replaced with 70% ethanol to ensure preservation of the organisms's integrity. Organisms shall be identified to the lowest practical taxonomic level and enumerated. A conversion coefficient shall be developed to convert the core sample surface area to 0.1m² for reporting family abundance and richness.

The graphic below (Figure 1) portrays video/photo transect alongside pen system during an ebb tide. This transect would be shifted to the south side of the pen system during a flood tide.

See Section F.1.a for a description of conditions that trigger the need to collect samples at 30 meters.

Figure 1 (Not to Scale)



F.2. Video/Photo Surveys

Because water depths on site exceed the State of Maine's safe working depth limit of 85 feet for SCUBA diving, video surveys normally conducted by divers will instead be obtained using one or more of the following methods: a video camera mounted on a tethered sled, a tethered drop still camera, or a tethered drop video camera. If still photos are taken with a tethered camera, one photograph shall be taken at least every 10 meters along each transect.

Video surveys shall be conducted twice a year: once in April or May, and once again in August or September. A video/photo transect shall be conducted beneath the pens, or directly adjacent to the walkway on the up current edge of the pens, along the axis of the pen system, and extend 30 meters beyond the pen system on each end (See Figure F.1). This monitoring documents conditions within Zones 1 and 2 of the Sediment Impact Zone (i.e. within 5 m, and between 5-30m of the pen system). Video coverage of sediments beneath or adjacent to the feed barge shall be noted on the film narrative. The results of the spring monitoring shall be submitted to EPA and DEP within 60 days of conducting the survey. The results of the fall survey shall be submitted by December 15 of each year. See Table C.4 for a summary of monitoring requirements.

Since the axis of the net pen system will be oriented perpendicular to the predominant current flows, two additional video transects shall be required, both beginning at the mid-points along the axis of pen system and extending 60 meters in the up current and down current directions, respectively (See Figure 1). This monitoring documents conditions within Zones 1 and 2, and areas beyond the Sediment Impact Zone extending out to 60 meters.

Unless a tethered drop still camera is used, the survey shall be documented with continuous video footage. The filmed survey shall document the sediment type and color, as well as features, noting erosional or depositional areas. The survey shall also document the flora/fauna observed as to their relative abundance, as well as any feed pellets or other man-made debris. The presence of *Beggiatoa* type mats shall be noted, and its growth described as light, moderate, or heavy. Black sediments, spontaneous or induced gassing, or the presence of pimpled sediments shall be noted. "Pimpled" sediments may also represent the presence of infauna, and as such, will not be used exclusively to determine compliance with an Impact Limit unless such marks are readily distinguishable from infauna burrows. Nets located on the bottom shall be positioned relative to the pen system, and the extent to which the net is buried beneath sediments shall be noted. Relative abundance should be characterized approximately as follows: abundant, frequently present within the film coverage; common, seen occasionally throughout the film coverage or existing in patches; rare, only seen once or in a few places throughout the dive.

The film coverage shall be in color, and of sufficient detail and clarity to allow for the accurate assessment of benthic conditions. The camera should be positioned at a height above the substrate that will provide approximately 1 square meter of bottom coverage, and be illuminated with sufficient artificial light to enable the accurate identification of epibenthic organisms and sediment conditions. A brief written narrative with the tape or photos describing reference points shall be provided. All film documentation shall include the dates on which it was taken, the direction of the current, and the geographic positions of the start- and endpoints of the transects.

F.3. Water Quality Monitoring

a. Dissolved Oxygen

Three water samples shall be analyzed for dissolved oxygen (DO) concentration and saturation, temperature and salinity weekly from June 1 through September 30. Temperature and salinity measurements shall be used to determine percent saturation of dissolved oxygen and stratification. Samples should be taken one hour before slack low water, and before 9:00 a.m.. If sampling frequency does not permit taking a sample at slack tide then the sample should be taken before 9:00 a.m..

Although the preferred method is the "Winkler Titration" (Azide modification), of Standard Methods (APHA,

AWWA, WPCF, most current edition), the use of the membrane electrode method is acceptable, considering the multiple depths required for the profile. The zero and standard calibration methods described in the most current edition of Standard Methods and the instrument manufacturer's instructions must be followed. Recalibration for quality control shall be conducted monthly during the sampling period. Air calibration readings must be recorded at the beginning and end of each interval during which the meter is on. One duplicate reading per profile shall be taken and reported to verify that the meter is reading consistently. Furthermore, at the beginning and end of each sample season, calibration curves comparing probe to Winkler readings for at least four dissolved oxygen concentrations ranging from less than 20% to 100% saturation shall be constructed. If more than one meter is used, curves shall be developed for each meter. These curves shall be submitted with all data by December 15 of each year.

Sampling Locations: The sampling location shall be within 5 meters of the downcurrent edge of the pen system where water passes through two pens stocked with fish. The samples shall be taken at mid-pen depth (i.e. if the containment net is 6 meters deep, take the sample at 3 meters from the surface), mid-water column depth, and within 1 meter of the sea floor. If DO concentration levels below 6.0 mg/l are recorded at any depth, additional samples shall be taken to determine that the DO depression is a result of the facility's discharge. In order to make this determination, DO values collected just beyond 5 meters from the pens (5-7 meters) must be greater than or equal to readings taken 100 meters east of the facility at the same depth. If it is determined that the DO depression is associated with the facility, then readings shall also be taken 100 meters downcurrent from the facility to determine if the DO depression extends beyond the immediate area of the pens. Geographic positions using a differential global positioning system (DGPS) shall be collected and reported for each sample.

b. Nutrient Monitoring

Monthly from June through September, samples shall be collected for DO (concentration and saturation), temperature, salinity, total phosphorus, chlorophyll *a*, phaeophytin, total nitrogen, and dissolved ammonia nitrogen (NH_3/NH_4), nitrate/ nitrite nitrogen (NO_2/NO_3), organic nitrogen, silicate (SiO_4) at five sites (see below). In addition, water transparency shall be determined based on secchi disk readings, and reported at each monitoring site. The results of nutrient monitoring shall be submitted to EPA and DEP by December 15 of each year.

c. Phytoplankton Monitoring

Monthly from June through September, samples shall be collected for phytoplankton at the five nutrient monitoring sites listed below. At each site, one sample shall be collected using a 20 micron mesh plankton net fitted with a collection bottle. The net shall be lowered to a depth of 5 meters and slowly raised up through the water column to just below the surface. Continue raising and lowering net until a three minute sample has been collected. Sampling, analysis, and reporting shall be in accordance with standard operating procedures developed for the Maine Phytoplankton Monitoring Program. Samples shall be analyzed and reported for the presence and abundance of the three most dominant phytoplankton species, as well as four target species: *Alexandrium tamarense*, *Dinophysis* spp., *Prorocentrum* spp., and *Pseudonitzschia* spp.. Phytoplankton samples may be collected through participation in the Maine Phytoplankton Monitoring Program coordinated by Maine Department of Marine Resources. Contact the Program Coordinator at 207-633-9555 for more information. EPA encourages full participation in this monitoring program, however, sampling frequencies beyond what is listed in this permit are voluntary. The results of phytoplankton monitoring shall be submitted to EPA and DEP by December 15 of each year.

d. Nutrient Monitoring Sites

The five nutrient monitoring sites are located as follows: two approximately 100 meters north and south of the facility, respectively; one at position 44°19'54"N, 68°29'06" W (in Dunhams Cove); one at position 44°20'12"N, 68°27'54" W (approximately 1200 meters east of facility,) and one at position 44°20'55"N, 68° 32'30" W (west of Long Island). The 100 meter sites shall be established following pen placement. Time and date of sampling, current direction, and geographic positions using DGPS shall be collected and reported for each sample.

Samples shall be collected using bottle samplers or pump, and analyzed in accordance with EPA Methods as specified in 40 CFR 136, or equivalent (See Section F.4 - References). Instrument calibration shall be in accordance with manufacturer's recommendations.

F.4. References

- APHA/AWWA/WPCF. 1992. Standard methods for examination of water and wastewater. 18th Ed. American Public Health Association, 1015 Fifteenth Street NW, Washington D.C. 20005. 1268 pp.
- Borja, A., J. Franco, V. Perez. 2000. A marine biotic index to establish the ecological quality of soft-bottom benthos within European estuarine and coastal environments. *Mar. Pol. Bul.* 40: No. 12. 1100-1114.
- Findlay, R.H., L. Watling, L.M. Mayer. 1995. Environmental Impact of Salmon Net-Pen Culture on Marine Benthic Communities in Maine: A Case Study. *Estuaries*. Vol. 18: No. 1A. pp. 145-179.
- Long, E.R., D.D. MacDonald, S.L. Smith, F.D. Calder. 1995. Incidence of Adverse Biological Effects Within Ranges of Chemical Concentrations in Marine and Estuarine Sediments. *Environmental Management* Vol. 19, pp. 81-97.
- USEPA. Nov. 1997. The Incidence and Severity of Sediment Contamination in Surface Waters of the United States. Vol. 1: National Sediment Quality Survey. (EPA 823-R-97-006) pp. D-1 -10.
- USEPA. 1997. Methods for the Determination of Chemical Substances in Marine and Estuarine Environmental Matrices - 2nd Edition. (EPA/600/R-97/072). National Exposure Research Laboratory, Cincinnati, OH.
- USEPA. 1995. QA/QC Guidance for Sampling and Analysis of Sediments, Water, and Tissues for Dredged Material Evaluations. (EPA 823-B-95-001). Office of Water, Washington, DC. Pp 50-100.
- USEPA. 1986-1991. Recommended protocols for measuring selected environmental variables in Puget Sound. U.S. EPA Region 10, Puget Sound Estuary Program. Seattle, WA.
- USEPA. 2000. Estuarine and Coastal Marine Waters: Bioassessment and Biocriteria Technical Guidance. (EPA 823-B-95-001). Office of Water, Washington, DC.
- Wildish, D.J., H.M. Akagi, N. Hamilton, and B.T. Hargrave. 1999. A recommended method for monitoring sediments to detect organic enrichment from mariculture in the Bay of Fundy. *Can. Tech. Rep. Fish. Aquat. Sci.* 2286: 31p.

G. NARRATIVE LIMITATIONS

The following narrative limitations apply to waters beyond the designated Water Column Mixing Zone and substrate beyond the designated Sediment Impact Zone, as applicable.

1. The discharge shall not contain a visible oil sheen, foam, or floating solids at any time which would impair the uses designated by the classification of the receiving waters.
2. Discharges from the facility shall not contain materials in concentrations or combinations that are hazardous or toxic to aquatic life, or that would impair the existing or designated uses of the receiving waters.
3. The discharge shall not cause visible discoloration or turbidity in the receiving water that would impair the existing or designated uses of the receiving waters.

4. The facility shall not discharge suspended or settleable solids that will cause an adverse impact, or impair any existing or designated uses of the receiving waters.
5. The discharge shall not produce or result in undesirable or nuisance aquatic species (e.g. noxious algae blooms). See Section K.10 for details on requirements for reporting within 24 hours.
6. The discharge shall not cause a depression in dissolved oxygen that will cause an adverse impact, or impair any existing or designated uses of the receiving waters.
7. The discharge shall not impart color, taste, toxicity, or any other properties to the receiving waters in amounts that would impair existing or designated uses of that water body.
8. Notwithstanding specific conditions of the permit, the discharge shall not cause a violation of water quality standards.

H. NOTIFICATIONS TO EPA CONCERNING DISCHARGE OF POLLUTANTS NOT IN PERMIT

There shall be no discharge of pollutants from the facility other than fish excrement, ammonia excretions, unconsumed fish food, and certain drugs approved by FDA for treating salmonids. The permittee may request authorization to discharge pollutants not listed in this permit, however, such an action would first require a permit modification which includes an opportunity for public review and comment, as well as EPA review and approval.

In the event that a toxic pollutant not listed in the permit is discharged from this facility, the permittee must immediately notify EPA (Office of Environmental Stewardship, Maine Water Enforcement Officer (tel.) 617-918-1811 (fax) 617-918-1809) and Maine DEP (Water Resources Regulation Office, (tel.) 207-207-287-3901,) regardless of the discharge quantity. The permittee shall follow reporting requirements described in Section M for the unplanned discharge of petroleum products and other hazardous materials.

I. LIMITATIONS AND MONITORING FOR TOXIC POLLUTANTS IN DISCHARGE

I.1. Water Column Monitoring

The discharge of toxic pollutants into the waters of the United States in concentrations toxic to aquatic organisms is prohibited. Waters within the confines of the net pens are waters of the United States. Testing of the effluent for the presence of toxic pollutants in the water column will not be required routinely since the normal discharge is expected to be free of toxic pollutants in toxic concentrations.

I.2. Sediment Monitoring

Sediments within or beyond the Sediment Impact Zones I or II shall not contain toxic pollutants originating from the facility in concentrations or combinations that are likely to have an adverse impact to benthic infauna or epifauna, or bio-accumulate in organisms such that those organisms can adversely impact marine life that prey upon them. Such marine life includes, but are not limited to, demersal finfish, lobster, and marine mammals. Baseline levels of copper and zinc will be determined by sediment sampling at the facility site prior to the installation of the pen system. If the permittee intends to use nets impregnated with copper compounds, then monitoring for total copper is required every two years at the facility site, as well as two reference sites. Similarly, if the permittee intends to use a zinc additive as a nutritional supplement in feed, then monitoring for total zinc is required every two years at the facility, as well as two reference sites. Upon request by EPA, the permittee shall provide EPA and DEP with a complete list of feed ingredients within 30 days. If copper or zinc levels in sediments within Sediment Impact Zone I or II are found in concentrations exceeding 34 mg/kg and 150 mg/kg dry weight, respectively, unless consistent with reference

and/or baseline levels, then the permit may be modified to include copper and/or zinc limits based on this new information. See references listed in Section F.4 (EPA 823-R-97-006, and Long et al. (1995).

Individual sediment samples shall be collected at the 6 designated sample sites located within 5 meters of the pen system, 6 designated sample sites 30 meters from the pen system, and three replicate samples at each of the two designated reference sites (see Figure F.1). Samples shall be taken with a sediment grab, and subsamples taken to ensure that only the top 2 cm of sediment are collected. Sampling, handling, preservation, storage, and analysis shall be conducted in accordance with EPA approved methods. See references listed in Section F.4 (EPA 1995, and 1986-1991) for appropriate guidance. Baseline sampling results shall be submitted to EPA and DEP by December 15 of the first year fish are stocked on site, and by December 15 every two years thereafter.

The discharge of drugs, as described in Section L may result in the permit being modified to require sediment chemistry testing to determine if drugs are accumulating in the sediments in toxic concentrations. This determination will be made by EPA based on the type and frequency of the drug discharged, as well as the manner in which it is discharged.

J. SPECIAL CONDITIONS

1. Reproductively viable non-North American Atlantic salmon stocks are prohibited at this facility. Non-North American Stock is defined as any Atlantic salmon (*Salmo salar*) which possess genetic material derived partially (hybrids) or entirely (purebreds) from any Atlantic salmon stocks of non-North American heritage, regardless of the number of generations that have passed since the initial introduction of the non-North American genetic material.
2. Transgenic salmonids are prohibited at this facility. Transgenic salmonids are defined as species of the genera *Salmo*, *Oncorhynchus* and *Salvelinus* of the family Salmonidae and bearing, within their DNA, copies of novel genetic constructs introduced through recombinant DNA technology using genetic material derived from a species different from the recipient.
3. Prior to placement/stocking of salmon into pens, certification that the salmon comply with Special Conditions No. 1. and 2. above shall be submitted to EPA.
4. Personnel from the EPA, Army Corps of Engineers (Corps), U.S. Fish & Wildlife Service (USFWS) and National Marine Fisheries Services (NMFS) shall be allowed to inspect the work authorized by this permit during normal operation hours. These personnel will follow the site's contamination prevention procedures, as necessary. These personnel shall be allowed to purchase salmon from the facility to monitor compliance with Special Conditions No. 1. and 2. Operational records shall be made available to these personnel for their inspection at their request.
5. Prior to placement in pens, each Atlantic salmon smolt/juvenile shall carry a mark that will identify each fish to this facility. Marks used must be permanent and, if internal tags are used, the presence of a tag must be externally detectable (visually or by means of a mechanical or electronic device). Prior to placement, the mark will be filed with EPA and record of the marks will be maintained by the permittee.
6. The intentional release of live Atlantic salmon to the receiving waters beyond the confines of the net pens is prohibited. The facility shall employ a fully functional marine containment system designed, constructed, and operated so that no fish from any of the ten discrete net pens of the facility escape to open water. Because all fish at this facility will be uniquely marked, the documented presence of one or more fish with that mark in a Distinct Population Segment (DPS) river or rivers over a seven day time span will be considered an "escape episode." A DPS of anadromous Atlantic salmon have been identified in the following rivers: Dennys, Machias, East Machias, Pleasant, Narraguagus, Ducktrap, Sheepscot, and Cove Brook. Each escape episode will be considered a violation of this Special Condition. The permittee shall document and report in writing to EPA within 30 days all recapture efforts undertaken subsequent to any escape. If any escaped fish from this facility are detected in any DPS river, in

order to reduce the likelihood of any further escapes: 1) the permittee shall conduct an independent assessment of his/her containment system through the use of an experienced contractor; 2) based on the results of this assessment, the permittee shall implement modifications necessary to correct the situation; and 3) if the permittee does not implement these modifications, pens must be removed from the water within six months of the contractor's assessment.

7. Records of the containment systems shall be maintained by the permittee to track pen history, the types of pens at this facility, date of manufacture, date of installation, modifications and repairs, inspections. These records will be made available to EPA, USFWS, NMFS, and the Corps upon request.

8. At least 45 days prior to transferring fish to this facility, the permittee shall submit to EPA for review and approval an integrated loss control plan for this facility. The plan shall include a schedule for preventive maintenance and inspection of the containment system. It shall also address methods of predator deterrence, contingency escape recovery protocols, storm preparedness measures, and facility husbandry practices, including removal of fish mortalities, and fish transfer procedures during stocking and grading.

9. The permittee shall maintain an inventory tracking system that allows clear, accurate inventory tracking of all size classes (i.e. average weight and age) of Atlantic salmon, including documentation of any escapes. The permittee shall provide this information to EPA in tabular form on a monthly and per-pen basis, clearly identifying the total number of fish, number of smolts transferred, fish harvested, mortalities, and escapes.

10. The permittee shall report any known or suspected escapes within 24 hours to the following contacts: EPA Office of Environmental Stewardship, Maine Water Enforcement Officer (tel.) 617-918-1811 (fax) 617-918-1809; - NMFS Endangered Species Coordinator (tel.) 978-281-9116, (fax) 978-281-9394; USFWS Endangered Species Coordinator, (tel.) 207-827-5938 ext. 20, (fax) 207-827-6099; USFWS, Maine Rivers Coordinators Office, (tel.) 207-469-6701, (fax) 207-496-6702; U.S. Army Corps of Engineers, Maine Project Office, (tel.) 207-623-8367, (fax) 207-623-8206, Maine DEP Water Resources Regulation Office, (tel.) 207-207-287-3901, Maine DMR Finfish Aquaculture Monitoring Program (tel.) 207-633-9500, (fax) 207-633-9579. See the Escape Reporting Form (Attachment C).

11. This authorization only allows the culture of Atlantic salmon in the permitted structures. No other species of fish may be raised at this facility without prior written approval from EPA.

K. BEST MANAGEMENT PRACTICES FOR FISH PEN OPERATIONS

1. The permittee shall remove fish carcasses from the net pens on a daily basis. The discharge of blood, viscera, fish carcasses, or transport water containing blood associated with fish mortalities or harvesting activities is prohibited.

2. The disposal of feed bags and other solid wastes into the waters of the United States is prohibited.

3. The permittee shall operate the net-pen facility so as to minimize the concentration of net-fouling organisms discharged into the receiving waters.

4. The discharge associated with pressure washing nets is prohibited. The use of air-drying, mechanical, and other non-chemical procedures to control net-fouling organisms is encouraged.

5. The discharge of biocides and any other sterilizing agents used to clean nets, boats, or gear onsite is prohibited.

6. The use of materials containing or treated with tributyltin (TBT) compounds is prohibited.

7. The storage of predator control or containment nets on the sea floor is prohibited. Any net accidentally dropped or

lost during storm events that is not recovered immediately shall be tagged with a float, positioned using differential GPS, numbered, and reported to EPA and DEP within 24 hours. Unless a time extension is granted by EPA, the net shall be recovered within 30 days from the date lost, and EPA and DEP shall be notified on the date the net is recovered.

8. The permittee shall employ techniques and technologies to minimize the loss of unconsumed food and food fines from the pens so that feed does not accumulate on the sea floor.

9. The permittee shall notify EPA and DEP in writing at least 30 days prior to any planned addition to, or reorientation of, the existing net pen system, as it is described in Section A. Such modifications may warrant modifications to the benthic monitoring plan.

10. The permittee shall report to EPA and DEP within 24 hours, any unusual events at the facility that might cause an environmental impact. Reportable “unusual events” would include, but not be limited to, fish kills (i.e. wild fish, and cultured salmon beyond expected mortality rates), algal blooms, confirmation of fish infected with infectious salmon anemia (ISA) or other transmittable disease, and any incident that causes or contributes to damage to net pens or other equipment that, in turn, could result in salmon escapement. Also included as a reportable incident is the discharge overboard of any packaged feed beyond the confines of the net pens that in total exceeds 25 kg (55 lbs.) or the discharge of medicated feed, either loose or packaged, that in total exceeds 25 kg. The permittee shall report: 1) the amount of feed discharged; 2) whether or not it was packaged; 3) the type of drug mixed into the feed and its concentration, if applicable; 4) tidal current direction and sea state, and; 5) a brief description of the circumstances that lead to the incident.

If an algal bloom is identified, the permittee shall first contact Maine DMR at 207-633-9555, and follow water sampling, phytoplankton identification, and reporting procedures established by Maine DMR for the Maine Phytoplankton Monitoring Program (See Section F.3.c).

L. BEST MANAGEMENT PRACTICES FOR DISEASE CONTROL

1. Drugs approved by FDA for treatment of salmonids (which approval may include other fish species) may be discharged. Unapproved drugs, including those authorized by FDA for limited use under the Investigational New Animal Drug (INAD) program, are prohibited. The discharge of specific INAD drugs may be approved through permit modification at the permittee’s request following EPA’s receipt and review of available environmental data, and opportunity for public comment. Authorization to discharge INAD drugs may include additional permit conditions and/or limitations, including specific monitoring requirements that EPA considers necessary to ensure water quality standards are protected. The discharge of all drugs shall be in accordance with applicable FDA regulations. The discharge of any approved drug administered as preventive treatment is prohibited unless the following conditions are met: the treatment must be prescribed by a licensed veterinarian; the drug must be approved by FDA for salmonids; treatment and route of administration must be consistent with the drugs intended use, and prior written approval by EPA has been granted. The use of vaccines as a preferred means to control disease is encouraged.

2. The discharge of FDA approved drugs into the receiving waters shall be in accordance with the intended use, practices, and concentrations prescribed on the product labels. Drugs prescribed by a licensed veterinarian in an amount, frequency, or application method greater than those identified on the product label shall not be discharged to the receiving waters if such amounts, frequencies, or application methods have not been evaluated and found acceptable by FDA and EPA relative to their effects on marine and estuarine organisms. Therefore, the discharge of any drug at a frequency or in a concentration greater than those identified on the product label, or applied in a manner other than those described on the product label, shall require approval by EPA prior to discharge. EPA recommends that orally-applied drugs be mixed into the feed at the time of manufacture, or mixed off-site.

3. The discharge of any drug shall be reported to EPA and Maine DEP within 30 days of application at the addresses provided in Section Q. Included in this report shall be the following information for each treatment: 1) date and time of treatment; 2) drug used; 3) concentration of drug administered and total quantity used, including amount of feed used if applied through feed; 4) approximate number of fish, as well as number of pens treated; 5) route of administration; 6) predominant current direction during treatment.

M. BEST MANAGEMENT PRACTICES FOR PETROLEUM AND HAZARDOUS MATERIAL STORAGE AND USE

Any event that leads to the discharge of oil (including but not limited to: motor fuels, heating fuels, lubricating and hydraulic oils, waste oils, and transformer mineral oils) or hazardous substance into the navigable waters of the U.S., or adjoining shorelines, in a quantity sufficient to cause a film or sheen upon the surface of the water, or cause a sludge or emulsion to be deposited beneath the surface of the water or upon the adjoining shoreline, shall be reported immediately to the National Response Center (NRC) (800-424-8802), in accordance with section 311 (b)(5) of the CWA, 33 U.S.C. § 1321 (b)(5), and the regulations promulgated thereunder at 40 CFR Part 110. Such a discharge, from either the net pen facility or a vessel tending the facility, shall be reported immediately to the NRC, as well as the National Park Service (at 207-288-3360), the National Hazardous Materials Duty Office (at 703-505-0275 (cell phone,) or 888-614-0672 (pager),) the Local Emergency Planning Commission, (at 207-667-7575 for Hancock County), and the Maine Department of Environmental Protection via the State Police (at 800-452-4664).

The permittee shall prepare and submit to EPA a Petroleum and Hazardous Material Storage and Use Plan. This plan shall include information and procedures related to the prevention of spills and unplanned discharges of any petroleum products including diesel fuel, gasoline, lubrication oils, or any other hazardous materials used at the facility, including animal drugs. The plan shall be reviewed and approved by EPA prior to the siting of any petroleum products or hazardous materials at the facility.

1. The plan shall provide a complete list, including quantities, of all petroleum products and other hazardous materials stored at and transferred between the offshore facility, its support craft, and its shore-based storage facilities. The plan shall be amended when petroleum products and other hazardous materials not currently listed are transferred to the offshore facility, and a copy sent to EPA and DEP.
2. The plan shall include descriptions of the procedures used to prevent, control and/or treat spills and unplanned discharges of petroleum products and other hazardous materials according to the type and magnitude of spill or discharge.
3. The plan shall include a description of the supplies and equipment maintained onsite which prevent, control or treat spills and unplanned discharges, and a compliance schedule to install any necessary items. Supplies should include spill kits sufficient to contain a spill equal to the maximum amount of fuel stored on board the feed barge or support craft, whichever is greater.
4. The plan shall include a description of the reporting system which will be used to alert responsible facility management, and appropriate legal and regulatory authorities named above.
5. The plan shall include the definition of a "reportable oil spill," as defined under section 311 of the CWA, to ensure the permittee and facility staff are aware of the minimum discharge quantity that must be reported.
6. All members of the facility's staff shall have an operational familiarity with the plan. Documentation of staff training shall be made available to EPA upon request.

7. The plan shall be fully implemented upon initiation of fish stocking.
8. If the facility at any point becomes subject to the Oil Pollution Prevention regulations at 40 CFR Part 112 and stores oil in excess of the minimum threshold amounts listed in 40 CFR § 112.1 (d)(2), then the Petroleum and Hazardous Material Storage and Use Plan shall also include any additional conditions required by those regulations.

N. LIGHT, NOISE AND DEBRIS CONTROL AGREEMENT

While EPA has not included in this discharge permit conditions for controlling light or noise emanating from the facility, or conditions for the presence of debris from the facility on neighboring shorelines, it is aware of and supports a signed agreement between the permittee and the Superintendent of Acadia National Park that addresses these issues. The agreement includes limits on generator noise and the use of lights, as well as identifies routine hours of operation, feeding schedules, and aesthetic considerations associated with the facility. The agreement also prohibits the permittee from using Long Island for any commercial purpose, and identifies the permittee's responsibility to collect any debris that does reach Long Island on an "as needed" basis. The permittee has also agreed to notify the National Park Service immediately in the event of any accident or incident that may result in any equipment or material from the facility being washed up on the shores of Long Island. Finally, the agreement establishes an annual review by both parties of all issues included in the signed agreement, and a discussion of any new issues of mutual interest.

O. QUALITY ASSURANCE FOR ENVIRONMENTAL MONITORING AND CONTAINMENT SYSTEMS

Prior to any environmental data collection, infauna identification, analysis work, or containment system assessment associated with this permit, the permittee shall provide to EPA documentation of the employee's or contractor's demonstrated capabilities to conduct such work. Additionally, sampling techniques and analysis methods that differ from those identified in this permit shall be provided to EPA for review and approval.

P. REOPENER CLAUSE

This permit is subject to modification, revocation and reissuance, or termination at the request of any interested person (including the permittee) or upon any federal or state agency initiative. However, permits may only be modified, revoked or reissued, or terminated for the reasons specified in 40 CFR §122.62, 122.63, or 122.64, and following the procedures set forth in 40 CFR §124.5. This includes new information which was not available at the time of permit issuance and would have justified the application of different permit conditions at the time of issuance including future monitoring results. All requests for permit modification must be addressed to EPA in writing and shall contain facts or reasons supporting the request.

Q. MONITORING AND REPORTING

1. Monthly monitoring results required under Part I.C.1 and C.2 of this permit obtained during the previous month shall be summarized for each month and reported on separate Discharge Monitoring Report forms provided by EPA and postmarked no later than the 15th day of the month following the completed reporting period. The first report is due on the 15th day of the month following the introduction of fish to the Dunhams Cove site.

A signed copy of the Discharge Monitoring Report form, and all other reports required herein, shall be submitted to EPA and Maine DEP at the following addresses:

U.S. Environmental Protection Agency

Office of Ecosystem Protection
Water Quality Unit (CWQ)
One Congress Street Suite 1100
Boston, MA 02114-2023

Maine Department of Environmental Protection
State House Station #17
Augusta, Maine 04333

2. Monitoring requirements in Part I.C.3, I.C.4 (fall survey), I.C.5, and I.C.6, as well as any other compliance reports required in this permit shall be submitted to EPA and Maine DEP at the addresses listed above by December 15 of each year, unless otherwise specified in the permit. This information shall be submitted in summary form with supporting data, analyses, reports, and videos. Spring video monitoring reports shall be submitted within 60 days of conducting survey. Quality assurance documentation shall be submitted to EPA and DEP for review and approval prior to the commencement of any collection or analysis efforts, unless previously approved by EPA.

3. Phytoplankton monitoring results shall also be submitted monthly to Maine DMR at the address below.

Maine Department of Marine Resources
Box 8
West Boothbay Harbor, ME 04575

Additional copies of all of the above data, etc., are to be provided by the permittee to the Maine Department of Marine Resources, National Marine Fisheries Service, U.S. Fish and Wildlife Service, and the U.S. Army Corps of Engineers, unless waived.

Attachments:

- Attachment A - Vicinity Map of Project Area designated as Site #2
- Attachment B - Lease Location Map of Project Area designated as Site #2
- Attachment C - Escape Reporting Form