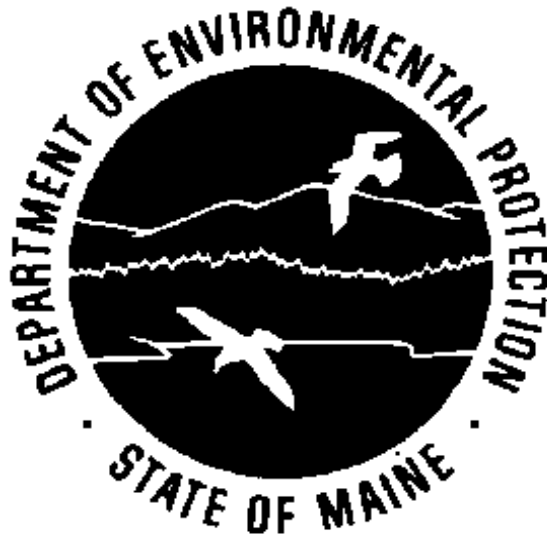


**STATE OF MAINE**  
**DEPARTMENT OF ENVIRONMENTAL PROTECTION**

**General Permit – Atlantic Salmon Aquaculture**

**Maine Pollutant Discharge Elimination System Permit  
Maine Waste Discharge License**



Bureau of Land and Water Quality

September 22, 2008

MEPDES Permit #MEG130000  
Waste Discharge License #W009020-5Y-B-R

MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION  
GENERAL PERMIT FOR ATLANTIC SALMON AQUACULTURE

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**IN THE MATTER OF**

ATLANTIC SALMON AQUACULTURE )	MAINE POLLUTANT DISCHARGE
GENERAL PERMIT )	ELIMINATION SYSTEM PERMIT
STATE OF MAINE )	AND
#MEG130000 )	WASTE DISCHARGE LICENSE
#W009020-5Y-B-R )	<b>RENEWAL</b>
<b>APPROVAL</b> )	

Pursuant to the provisions of the *Federal Water Pollution Control Act*, Title 33 USC, §1251, *Conditions of Licenses*, 38 M.R.S.A. § 414-A, and applicable regulations, the Maine Department of Environmental Protection (Department) has considered the renewal of Maine Pollutant Discharge Elimination System (MEPDES) permit #MEG130000 / Maine Waste Discharge License (WDL) #W009020-5Y-A-N (General Permit), with its supportive data, agency review comments, and other related materials on file and FINDS THE FOLLOWING FACTS:

**APPLICATION SUMMARY**

The Department is renewing MEPDES General Permit #MEG130000, which was issued by the Maine Board of Environmental Protection (BEP) on June 19, 2003, and is scheduled to expire on June 19, 2008. Pursuant to *General Permits for Certain Wastewater Discharges*, 06-096 CMR 529 (last amended June 27, 2007), “*prior to expiration of a general permit, the Department shall make a determination if it is to be renewed, and, if so, will commence renewal proceedings. If the general permit is to be renewed, it shall remain in force until the Department takes final action on the renewal.*” The 6/19/03 General Permit authorized discharges of certain pollutants resulting from the operation and maintenance of Atlantic salmon aquaculture facilities. The Atlantic salmon aquaculture facilities that qualify for coverage under the 6/19/03 General Permit are limited to those located in Class SB or SC marine waters east of Naskeag Point in Brooklin, except those waters in the area north of a line from Schoodic Point in Winter Harbor to Baker Island in Cranberry Isles, then west to Naskeag Point in Brooklin, Maine.

**REGULATORY SUMMARY**

On January 12, 2001, the Department received authorization from the U.S. Environmental Protection Agency (USEPA) to administer the National Pollutant Discharge Elimination System (NPDES) permit program in Maine. From that point forward, the program has been referenced as the MEPDES permit program.

On August 23, 2004, the USEPA promulgated effluent guideline limitations (EGLs) for *Concentrated Aquatic Animal Production Point Source Category* at 40 CFR Part 451. 40 CFR Part 451 Subpart B, *Net Pen Subcategory*, is applicable to discharges from Atlantic salmon aquaculture facilities that produce 100,000 pounds or more per year of aquatic animals.

## **REGULATORY SUMMARY (cont'd)**

On September 19, 2007, the Department modified the 6/19/03 General Permit to change the date of compliance in Part II.I.4.h. of the General Permit, which requires all fish placed in net pens to be identifiable through external means as commercially-reared and identifiable as to the individual facility into which they were placed, from July 31, 2007 to July 31, 2009.

On April 22, 2008, the Department published a public notice of its intent to renew the 6/19/03 General Permit in two newspapers with daily distribution pursuant to *Rules Concerning the Processing of Applications and Other Administrative Matters*, 06-096 CMR 2 (effective August 1, 1994).

## **PERMIT SUMMARY**

**This permitting action is significantly different from the 6/19/03 permitting action and 9/13/07 modification in that it is:**

1. Eliminating the requirement for facilities to participate in the Finfish Aquaculture Monitoring Program (FAMP) administered by the Maine Department of Marine Resources (MeDMR);
2. Eliminating previous Special Condition K, *Husbandry Practices*;
3. Eliminating the requirement to report the facility's food conversion ratio (FCR);
4. Eliminating near-field and far-field ambient water quality monitoring requirements (previous Special Condition E.6 and E.7);
5. Revising the sediment and benthic monitoring characteristics and requirements (Special Condition E.5 of this permit);
6. Revising the warning level and impact limit thresholds for the sediment mixing zone (Special Condition F of this permit);
7. Revising the Department's maximum review time from 14 days following receipt of a completed Notice of Intent to 30 days following receipt;
8. Revising the submission deadline for video records and schematic of the video track (Special Condition E.4 of this permit) from 90 days of the monitoring event to "as soon as possible following a reasonable opportunity to review data prior to submission, or within 45 days following the monitoring event, whichever period is sooner";
9. Revising the requirement to submit written reports of video/photographic monitoring events from every time a video record is created to only those times when benthic infauna measurements are made (Special Condition E.4 of this permit);
10. Revising the horizontal predator net minimum separation criterion (Special Condition J.7 of this permit) from 3 meters to 1 meter;

**PERMIT SUMMARY (cont'd)**

11. Eliminating the requirement to notify the Department of changes in the mooring system configuration (previous Special Condition J.8) as this information is reported to the Army Corps of Engineers and available upon request;
12. Revising the 24-hour reporting requirements at Special Condition J.8 of this permit;
13. Eliminating the NOI requirement to identify activities within 1,000 meters of a reference site; and
14. Eliminating the narrative condition specifying that discharges shall not produce or result in harmful algae blooms (previous Special Condition D.5 of this permit) as this is otherwise covered in the permit.

## CONCLUSIONS

Based on the findings in the attached Fact Sheet, dated September 19, 2008, and subject to the conditions listed in Parts I and II of this General Permit, the Department makes the following **CONCLUSIONS**:

1. The discharge from a salmon aquaculture facility covered under this General Permit, either by itself or in combination with other discharges, will not lower the quality of any classified body of water below such classification.
2. The discharge from a salmon aquaculture facility covered under this General Permit, either by itself or in combination with other discharges, will not lower the quality of any unclassified body of water below the classification which the Department expects to adopt in accordance with state law.
3. The provisions of the State's antidegradation policy, *Classification of Maine Waters*, 38 M.R.S.A. § 464(4)(F), will be met, in that:
  - (a) Existing in-stream water uses and the level of water quality necessary to protect and maintain those existing uses will be maintained and protected;
  - (b) Where high quality waters of the State constitute an outstanding national resource, that water quality will be maintained and protected;
  - (c) The standards of classification of the receiving water body are met or, where the standards of classification of the receiving water body are not met, the discharge will not cause or contribute to the failure of the water body to meet the standards of classification;
  - (d) Where the actual quality of any classified receiving water body exceeds the minimum standards of the next highest classification that higher water quality will be maintained and protected; and
  - (e) Where a discharge will result in lowering the existing water quality of any water body, the Department has made the finding, following opportunity for public participation, that this action is necessary to achieve important economic or social benefits to the State.
4. The discharge from a salmon aquaculture facility covered under this General Permit will be subject to effluent limitations that require application of best practicable treatment as defined in 38 M.R.S.A. § 414-A(1)(D).

## ACTION

Based on the findings and conclusions as stated above, the Department APPROVES the renewal of General Permit #MEG130000, *Atlantic Salmon General Permit*, for the discharge of certain pollutants resulting from the operation and maintenance of Atlantic salmon aquaculture facilities to Class SB or SC waters located east of Naskeag Point in Brooklin, except those waters in the area north of a line from Schoodic Point in Winter Harbor to Baker Island in Cranberry Isles, then west to Naskeag Point in Brooklin, Maine, SUBJECT TO THE ATTACHED CONDITIONS, including:

1. The attached General Conditions included as Part I of this General Permit.
2. The attached Special Conditions included as Part II of this General Permit.
3. *Maine Pollutant Discharge Elimination System Permit Standard Conditions Applicable To All Permits*, revised July 1, 2002, copy attached.
4. The expiration date of this permit is five (5) years from the date of signature below.

DONE AND DATED AT AUGUSTA, MAINE, THIS 22<sup>nd</sup> DAY OF September, 2008.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: \_\_\_\_\_  
DAVID P. LITTELL, Commissioner

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of Public Notice: April 22, 2008

Date filed with Board of Environmental Protection: \_\_\_\_\_

## **PART I – GENERAL CONDITIONS**

### **A. AUTHORITY**

A permit is required for the direct or indirect discharge of pollutants to waters of the State pursuant to *Water Pollution Control*, 38 M.R.S.A. § 413. The Department may issue a general permit authorizing the discharge of certain pollutants pursuant to 06-096 CMR 529. The similarity of discharges from salmon aquaculture facilities has prompted the Department to issue this General Permit renewal for those facilities located in Class SB or SC waters east of Naskeag Point in Brooklin, except those waters in the area north of a line from Schoodic Point in Winter Harbor to Baker Island in Cranberry Isles, then west to Naskeag Point in Brooklin, Maine. A violation of a condition or requirement of a General Permit constitutes a violation of the State's water quality laws, and subjects the discharger to penalties under *Organization and Powers*, 38 M.R.S.A. § 349. Nothing in this General Permit is intended to limit the Department's authority under the waste discharge and water classification statutes or rules. This General Permit does not affect requirements under other applicable Maine statutes and Department rules.

### **B. SPECIALIZED DEFINITIONS**

In addition to the definitions found in *Definitions in the Waste Discharge Permitting Program*, 06-096 CMR 520 (effective January 12, 2001) and in the waste discharge and water classification laws, the following terms have the following meanings when used in this General Permit.

1. **Atlantic Salmon Aquaculture Facility.** "Atlantic salmon aquaculture facility" or "facility" means a single net pen or group of net pens and appurtenances within a single leasehold granted by the Department of Marine Resources and operated by a single owner with a common management plan for the purpose of rearing Atlantic Salmon (*Salmo salar*).
2. **Net Pen.** "Net pen" means a floating structure within a leasehold granted by the MeDMR in the marine waters of the State constructed of netting, mesh or similar materials for the purpose of holding and containing Atlantic salmon.
3. **New Facility.** "New facility" means any Atlantic salmon aquaculture facility commencing operation after the date of issuance of this General Permit within a leasehold that has not been used for Atlantic salmon aquaculture in the preceding five years.
4. **Notice of Intent (NOI).** "Notice of Intent" or "NOI" means a notification of intent to seek coverage under this General Permit made by the owner of an Atlantic salmon aquaculture facility to the Department on a form provided by the Department.



## PART I – GENERAL CONDITIONS

### C. APPLICABILITY AND COVERAGE

Coverage under this General Permit is limited to those Atlantic salmon aquaculture facilities that conform with the requirements specified in this section and that have had a NOI accepted by the Department. Applicability of this General Permit is limited to activities described in the NOI that are in conformance with the terms of this General Permit.

1. **Area of coverage.** This General Permit covers Atlantic salmon aquaculture facilities operated in the marine waters of the State classified as SB or SC that are in compliance with the standards of their ascribed classifications and are located in the following areas:

All Class SB or SC waters located east of Naskeag Point in Brooklin, except those waters located in the area north of a line from Schoodic Point in Winter Harbor west to Baker Island in Cranberry Isles, then west to Naskeag Point in Brooklin, Maine.

2. **Effect on waters.** The facility will not have a significant adverse effect on water quality or violate the standards of the receiving water's classification.
3. **Current velocity.** Each facility covered by this General Permit must be located in an area that has an average current velocity, as measured over at least one tidal cycle under representative oceanographic conditions, of not less than 5 cm per second at a point one half of the distance between the bottom of the net pens and the sea floor. Additionally, the current velocity shall, in consideration of the physical conditions at individual locations covered by this General Permit, be sufficient to avoid degradation of water quality and benthic conditions described in State water quality standards and limits contained in this General Permit.
4. **Other permits required.** To operate under this General Permit and fulfill the title, right, or interest requirements of 06-096 CMR 2 (11)(D), a facility must demonstrate that it has a valid, current or conditional leasehold from the MeDMR pursuant to *Leases and Special Licenses*, 12 M.R.S.A. § 6072 or § 6072-A, and a valid permit issued by the U.S. Army Corps of Engineers pursuant Section 10 of the *Rivers and Harbors Act of 1899*, Title 33 USC 403.
5. **Fish density of facilities covered.** The maximum rearing density of a facility in kilograms of fish per cubic meter of net pen volume shall be provided in the facility's application materials and maintained at or below that level during coverage by this General Permit. The rearing density shall be low enough to avoid degradation to water quality and benthic conditions described in State water quality standards and limits contained in this General Permit.

## **PART I – GENERAL CONDITIONS**

### **C. APPLICABILITY AND COVERAGE (cont'd)**

- 6. Stratification of the water column.** Facilities covered by this General Permit shall not be located in waters that demonstrate significant, persistent vertical stratification during summer months. In determining if the water column is stratified, the Department will evaluate results on a site-specific basis considering duration and magnitude of vertical temperature and density changes in the water column.

### **D. NOTIFICATION AND ACCEPTANCE**

- 1. Notice of Intent (NOI) Required.** An entity meeting the requirements and seeking coverage under this General Permit shall submit a completed NOI with the appropriate initial permit fee to the Department for review and approval. NOI forms may be obtained from, and completed forms must be sent by certified mail (return receipt requested) to:

Department of Environmental Protection  
Bureau of Land and Water Quality  
Division of Water Quality Management  
Permitting Section  
17 State House Station  
Augusta, ME 04333-0017

Alternately, an applicant may hand-deliver completed NOI forms to the Department's Augusta office. The Department reserves the right to request additional information from the applicant based on review of the NOI. Permitting information, forms, and Augusta office directions may be obtained by contacting the Department's Waste Discharge Licensing Unit at (207) 287-3901 or toll-free at 1-800-452-1942. Additionally, a copy of the General Permit, associated fact sheet and other forms may be obtained at: <http://www.maine.gov/dep/blwq/docstand/wd/gp.htm>.

- 2. New facilities.** Any entity intending to seek coverage under this General Permit for a new facility shall notify the Department at the time an application for a leasehold is made to the MeDMR, or at least 90 days prior to the planned operation of the facility, whichever is sooner. The notice to the Department shall include information necessary for the Department to evaluate the expected impact of the new facility on existing water quality. At a minimum, this shall consist of the information referred to in General Condition I.D.3.a-r and Special Condition E.2; and proposed maximum feeding rates and amounts. The Department may require additional site-specific information as necessary. Pursuant to 38 M.R.S.A. § 464(4)(F), the Department will determine if the proposed activity may cause a significant lowering of existing water quality. In the event such a determination is made, the facility may not be covered under this General Permit. The facility may apply for an individual MEPDES permit from the Department. New facilities

## PART I – GENERAL CONDITIONS

### D. NOTIFICATION AND ACCEPTANCE (cont'd)

originally permitted with an individual MEPDES permit must operate for a minimum of two years (for example, following the harvest of a year-class) under that permit to demonstrate that it does not have significant adverse effects on existing water quality before being eligible to receive coverage under this General Permit.

3. **Required NOI Information.** A complete NOI must contain the following information for each facility.
  - a. The legal name, address and telephone number of the owner and operator of the facility;
  - b. The name and location of the facility, including the town and map coordinates;
  - c. A chart showing the exact location, mean low water depth, and configuration of pen moorings systems and support platforms;
  - d. The directions of prevailing currents and average current velocity;
  - e. A description of the number, type, size and configuration of net pens that may be used, along with associated structures, and the minimum clearance to the sea floor;
  - f. The maximum number, stocking density and total weight of fish to be contained in the facility at any time;
  - g. A list of all drugs or medications that the facility anticipates may be used and duration, route of administration and concentration of each application;
  - h. A list of disinfectants, biocides, anti-fouling agents or other similar chemicals that may be used;
  - i. The amount, rate of use and composition of fish feed, including trace ingredients;
  - j. A description of the system(s) to be used to dispense and monitor the consumption of feed and to detect the loss of uneaten feed;
  - k. A diagram showing intended sampling locations with GPS coordinates to meet testing requirements of this General Permit, including reference sites;
  - l. Evidence of the facility's leasehold application to the MeDMR;
  - m. Evidence of all required permits from the U.S. Army Corps of Engineers;
  - n. For new facilities or relocated mooring systems where existing information is not adequate to characterize the new location, baseline monitoring data. See Special Condition E.2 for baseline monitoring requirements;
  - o. A statement that a current Spill Prevention Control and Countermeasure plan, as required by Part II.L is available. In the case of new facilities, the plan shall be made available prior to operation of the facility;
  - p. Evidence that a public notice of the NOI submission was published within 30 days prior to filing the NOI with the Department pursuant to 06-096 CMR 2;
  - q. For new applicants only, a Certificate of Good Standing issued by the Maine Secretary of State and evidence that the applicant has the technical and financial capacity and intent to comply with all terms and conditions of the applicable license and to satisfy all applicable statutory or regulatory criteria; and
  - r. The signature of an authorized person in accordance with *Applications for Waste Discharge Licenses*, 06-096 CMR 521 (effective January 12, 2001).

**Failure to submit all required NOI information may result in finding the NOI incomplete for processing and may delay processing or result in denial of the NOI.**

## **PART I – GENERAL CONDITIONS**

### **D. NOTIFICATION AND ACCEPTANCE (cont'd)**

4. **Public Notice and Filing of a NOI.** Pursuant to 06-096 CMR 2, within 30 days prior to filing the NOI with the Department, an applicant for coverage under this General Permit shall give public notice of its intent to submit a NOI to the Department. A copy of the NOI must be filed with the civil jurisdiction (for example, municipal office(s) or County Commissioners' office) in which the facility is located at the time it is submitted to the Department. An original or photocopy of the public notice must be submitted to the Department with the NOI.
5. **Review of NOI and Other Information.** Upon review of a NOI for determination of coverage under this General Permit, the Department may, at its discretion, require an applicant to apply for an individual MEPDES permit for any proposed discharges. In making such a determination, the Department may consider factors including, but not limited to, expressed comments from state or federal agencies or the general public, the location of the waterbody and water quality issues particular to that area, and the location of the proposed facility and water quality issues particular to that area. The Department will consider, among other things, the administrative record created by the Department and MeDMR in determining if a facility can comply with this General Permit.
6. **Effective Date of Coverage.** The Department shall notify an applicant of coverage under this General Permit within 31 calendar days of receipt of each complete NOI or date of public notice publication, whichever is later, as to whether or not coverage for the specific discharge is permitted. If the Department does not notify the applicant within 31 calendar days of this time, the NOI is accepted and coverage is granted. In the event coverage is not granted, the Department shall notify the applicant of the reason(s) for not granting coverage. A person may apply for issuance of an individual MEPDES permit if the proposed discharge(s) is not acceptable for coverage under this General Permit.
7. **Transfer of Ownership.** In the event that the ownership of a facility is transferred to a new owner, coverage under this General Permit may be transferred by the new owner notifying the Department in writing, provided the new owner proposes no significant changes in the facility or its operation. The notice must include documentation that the new owner has: 1) a Certificate of Good Standing issued by the Maine Secretary of State; 2) title, right or interest in the facility; and 3) the technical and financial capacity to comply with this General Permit. Such notification must be made within two weeks of the transfer. If increases or significant changes in the discharge are proposed, a new NOI must be filed.

## **PART I – GENERAL CONDITIONS**

### **D. NOTIFICATION AND ACCEPTANCE (cont'd)**

8. **Changed Conditions.** In the event a facility covered by this General Permit proposes to make significant changes in the nature or scope of the operations of facilities described in a NOI previously approved, the permit holder shall notify the Department as soon as becoming aware of and before implementing such changes. Based on its evaluation of the proposed changes, the Department may require the submittal of a new NOI or that an individual permit be obtained. Significant changes include, but are not limited to, any amendment or modification to the facility's leasehold from the MeDMR that would affect compliance with this General Permit. Reportable changes may include, but are not limited to, relocated or new mooring systems or more fish or density than indicated in the approved NOI.

### **E. CONTINUING COVERAGE AND TERMINATION**

1. **Notices By Applicant and Payment of Fees.** The term of this General Permit is five years. Coverage under this General Permit will be continued from year to year through payment of an applicable annual fee pursuant to *Maine Environmental Protection Fund*, 38 M.R.S.A. § 353-B, provided there are no changes in the facility or its operation as described in the NOI. Prior to expiration of this General Permit, the Department shall make a determination if it is to be renewed, and, if so, will commence renewal proceedings. If the General Permit is to be renewed, it shall remain in force until the Department takes final action on the renewal. Upon reissuance of a renewal General Permit, persons wishing to continue coverage shall apply for coverage under the renewal General Permit not later than 30 days following the effective date of the new General Permit.
2. **Individual Permit Coverage.** The Department may require, or an interested party may request for consideration, that a facility covered under this General Permit obtain an individual MEPDES permit for any of the reasons specified at 06-096 CMR 529(2)(b)(3)(i)(A-G), or any other factors that the that the Department deems relevant.
3. **Exclusion from Coverage.** A facility may request that it be excluded from coverage under this General Permit and apply for an individual MEPDES permit pursuant to 06-096 CMR 529(3)(iii-v). When an individual MEPDES permit is issued to a facility otherwise subject to this General Permit, the applicability of this General Permit to that facility is automatically terminated on the effective date of the individual MEPDES permit.

## **PART II – SPECIAL CONDITIONS**

Atlantic salmon aquaculture facilities obtaining coverage under this General Permit are subject to the discharge limitations, monitoring requirements and management practices specified in the following sections and must, at all times, comply with the State's water quality laws outside of the designated mixing zones (see Special Condition C, *Mixing Zones*, of this General Permit).

### **A. GENERAL LIMITATIONS**

A permittee covered under this General Permit may discharge from the floating net pens identified in the accepted NOI the following pollutants: fish excrement, fish feed, and drugs pursuant to Special Condition K, *Use of Drugs for Disease Control*. Additionally, other discharges incidental to the normal and proper operation of the facility, such as the loss of fish scales and treatment compounds used on structures and vessels to limit marine growth, may occur provided they do not have significant adverse effects on water quality, and that they are minimized to the greatest extent practical through implementation of best management practices (BMPs).

Domestic waste shall not be discharged and must be collected and transported to a land-based facility authorized to dispose domestic waste.

### **B. FEEDING RATES AND MONITORING**

The permittee shall employ efficient feed management and feeding strategies that limit feed input to the minimum amount reasonably necessary to achieve production goals and sustain targeted rates of aquatic animal growth. These strategies must minimize the accumulation of uneaten food beneath the pens through the use of active feed monitoring and management practices. **The permittee shall maintain a real-time monitoring system** designed to track the rate of feed consumption and detect uneaten feed passing through the net pens. Such systems include, but are not limited to, acoustic sonar detection or video cameras. There shall not be any significant accumulation of unconsumed feed on the sea floor beneath or adjacent to net pens.

## PART II – SPECIAL CONDITIONS

### C. MIXING ZONES

This General Permit designates two mixing zones: (1) a Water Column Mixing Zone, and (2) a Sediment Mixing Zone. Outside the designated Mixing Zones, discharges from the facility shall not cause or contribute to conditions that are hazardous or toxic to aquatic life, or that would impair the uses designated by the classification of the receiving waters. At individual facilities, the location of the mixing zones may be shifted to reflect the effect of currents unique to a specific site, provided that the offset mixing zones are no larger in area than those defined by the size of the net pen(s).

1. **Water Column Mixing Zone.** The Water Column Mixing Zone is defined as the area within and extending 30 meters beyond the perimeter of a net pen in all directions on the surface, and down to the sea floor/water column interface.

**The dissolved oxygen concentration within the water column mixing zone shall not be lower than 6 mg/L at any point from the surface down to the sea floor/water column interface.** The Department reserves the right to require routine or periodic dissolved oxygen monitoring within the water column mixing zone for any facility covered under this General Permit. In the event that a facility determines ambient DO within the water column mixing zone is less than 6 mg/L, the Department will take into consideration DO monitoring results from up-current and down-current monitoring stations in determining a facility's contribution to low ambient DO. Except for dissolved oxygen percent saturation, water quality within the water column mixing zone shall comply with the applicable standards specified at *Standards for Classification of Marine and Estuarine Waters*, 38 M.R.S.A. §465-B. A facility covered under this General Permit shall at no time cause non-compliance of numeric or narrative water quality standards outside the designated water column mixing zone.

2. **Sediment Mixing Zone.** The Sediment Mixing Zone is defined as the sea floor directly below a net pen and extending on the sea floor 30 meters beyond the perimeter of each net pen in all directions. See Special Condition II.F for limitations on changes that may occur within the Sediment Mixing Zone.

## PART II – SPECIAL CONDITIONS

### D. NARRATIVE EFFLUENT LIMITATIONS

1. Discharges shall not cause a visible oil sheen, foam, or floating solids at any time that would impair the uses designated by the classification of the receiving waters;
2. Discharges 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. Discharges shall not cause toxicity, visible discoloration, turbidity or other effects to the receiving water that would impair the existing or designated uses of the receiving waters;
4. The permittee shall not discharge suspended or settleable solids that will have significant adverse effects on the quality or any uses of the receiving water body; and
5. Notwithstanding compliance with specific conditions of this General Permit, the discharge shall not cause or contribute to violations of water quality standards.

### E. MONITORING REQUIREMENTS

1. **Sampling information.** For all benthic monitoring samples collected, the permittee shall measure and maintain records of the following information. All monitoring information and records required by the General Permit shall be kept current at all times and made available to representatives of the Department, MeDMR, and USEPA upon request.
  - a. The sampling location, recorded as latitude and longitude to the nearest one-tenth second
  - b. The date and time of day
  - c. The current direction in relation to true north
  - d. The tidal stage to the nearest one-half meter above/below mean low water
  - e. The depth of water
2. **Baseline monitoring. Before a facility commences operation at a site not used for aquaculture in the previous 5 years,** the facility shall submit baseline site information describing the intended site to the Department. This information shall include the site's location, water depth, temperature, salinity, current flow, dissolved oxygen profiles, bottom type(s), sediment grain size, evidence of out-gassing, sulfide, copper, zinc and a description of the kinds and abundance of flora and fauna present to the lowest practical taxonomic level at sufficient locations to fully describe conditions at the site. A minimum of three benthic baseline samples shall be collected for each bottom type at the facility location and analyzed to allow for statistical comparisons. Baseline sampling shall be conducted in accordance with a sampling plan approved by the Department, and shall be done during the months of August through October, unless otherwise



## PART II – SPECIAL CONDITIONS

### E. MONITORING REQUIREMENTS (cont'd)

approved by the Department. To the extent relevant and acceptable data are available from previous studies, they may be used.

3. **Feed discharge and fish monitoring requirements.** The facility shall maintain and **report monthly** to the Department, on a reporting form approved by the Department, the following information.
  - a. The number of net pens in use, including type, size and configuration;
  - b. The age, weight and number of fish in each net pen;
  - c. The number and total weight of fish contained in all net pens in use;
  - d. The total amount of feed added to each net pen; and
  - e. The total amount of feed added to all net pens.
  
4. **Video and photographic monitoring requirements.** The facility shall conduct color video or photographic evaluations of the sea floor under and adjacent to each net pen system at a minimum frequency of **twice per year (once in April or May and again in August through October)** as follows. Multiple evaluations may be needed where independent pens or systems preclude coverage by one transect. Monitoring and evaluation shall be conducted in accordance with methods specified by the Department.

The Department may provide a permittee with an annual written waiver for the spring monitoring for individual facilities when: 1) there have been no fish on the site since the previous video monitoring event; or 2) monitoring the preceding fall indicates that the warning levels specified in Special Condition F are not exceeded and there are no other indications of adverse conditions resulting from the facility's operation; and 3) the permittee provides written request (return receipt required for postal mail; delivery receipt required for electronic mail) to the Department compliance inspector for consideration of said waiver.

Table E.4. Video and photographic monitoring requirements. <sup>1-5</sup>

Monitoring Characteristic	Substrate Video Monitoring/Transect			
	Transect Beneath Pens	Transect 60 m up-current from edge of pens	Transect 60 m down-current from edge of pens	Frequency
Video Records or Photographs of Substrate	Report	Report	Report	2 per year

## PART II – SPECIAL CONDITIONS

### E. MONITORING REQUIREMENTS (cont'd)

#### Footnotes to Table E.4.

1. Reports of monitoring shall include the date(s) on which monitoring was conducted and the video records or photographs, along with all supporting information including a site schematic of the video track or still photo locations in relation to the net pens. The beginning and ending points of transects, all sample points, and all reference site sample points, if applicable, shall be located by GPS following Department standards, including but not limited to, an accuracy of less than 10 meters.

Video records and schematic of the video track shall be submitted to the Department **as soon as possible following a reasonable opportunity to review data prior to submission, or within 45 days following the monitoring event, which ever period is sooner.**

The permittee shall **immediately report** to the Department any evidence of non-compliance, water quality or benthic impacts observed during the video survey.

Written reports of video/photographic monitoring events shall be submitted to the Department **as soon as possible following a reasonable opportunity to review data prior to submission, or within 90 days following the monitoring event only when taxa measurements are made.**

The Department may provide a written extension for these data submission deadlines if necessary due to extenuating circumstances beyond the control of the permittee.

2. Except as provided below, the survey shall be documented with continuous video footage. The recorded survey shall document:
  - a. The sediment type and color, as well as features, noting erosional or depositional areas;
  - b. The flora/fauna observed as to their relative abundance;
  - c. The presence of feed pellets or other debris lost as a result of the facility operation;
  - d. The presence of *Beggiatoa* or *Capitella* type mats and its growth described as light, moderate, or heavy;
  - e. Relative abundance of *Beggiatoa* or *Capitella* shall be characterized approximately as follows: abundant (frequently present within the video coverage); common (seen occasionally throughout the video coverage or existing in patches); rare (only seen once or in a few places throughout the dive);

## PART II – SPECIAL CONDITIONS

### E. MONITORING REQUIREMENTS (cont'd)

#### Footnotes to Table E.4. (cont'd)

- f. The presence of black or dark colored sediments, spontaneous or induced gassing, or the presence of pimpled sediments. **Sediments shall be tested for gassing by at least two separate hand swipes wherever *Beggiatoa* or *Capitella* type mats or dark colored sediments are observed or at random locations if mats or dark sediments are not observed;** and
  - g. The location and appearance of any nets located on the bottom and their locations relative to the pen system, the extent to which the net(s) is buried beneath sediments.
3. If water depths at a facility exceed the State of Maine's safe working depth limit of 85 feet for SCUBA diving or divers determine that conditions are not safe to perform the scheduled video monitoring event, video surveys normally conducted by divers may instead be obtained using one or more of the following methods: a video camera mounted on a tethered sled, a tethered drop still camera, tethered drop video camera or equivalent. If still photos are taken with a tethered camera, one photograph shall be taken at least every 10 meters along each transect. If divers determine that they can not safely conduct the video monitoring, 1) the video monitoring event shall be rescheduled, if possible, when safe diving conditions resume; or 2) the monitoring event may proceed using the alternate methodologies specified above and the permittee shall provide as part of the written video/photographic report(s) documentation of the unsafe condition(s) and reason(s) the video survey could not be rescheduled.
  4. A video/photo transect shall be conducted beneath the pens (or, if not possible due to depths beyond 85 feet or physical constraints, directly adjacent to the up-current edge of the pens) along an axis representing the direction of the prevailing current, and extend 60 meters beyond the pen system on each end, and located to best reflect the extent of the facility's impact on benthic conditions. Video coverage of sediments beneath or adjacent to feed or service barges shall be noted on the video narrative.

## **PART II – SPECIAL CONDITIONS**

### **E. MONITORING REQUIREMENTS (cont'd)**

#### Footnotes to Table E.4. (cont'd)

5. The video 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 one 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 video record or photos describing reference points shall be provided. All video 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. The Department reserves the right to require a permittee to conduct additional video or photo transects if: 1) the quality of the videos/photos is deemed insufficient or not representative to determine compliance with this General Permit or applicable water quality standards; or 2) conditions observed in the videos/photos warrant additional monitoring to determine compliance with this General Permit.

**PART II – SPECIAL CONDITIONS**

**E. MONITORING REQUIREMENTS (cont'd)**

5. **Sediment and benthic monitoring requirements.** The permittee shall conduct monitoring of the sediments on the sea floor as follows. Benthic monitoring shall focus on sediment conditions and the infaunal community. The reference site is described in Special Condition G. The Department may require that the monitoring required by this condition be continued following removal or relocation of a net pen as necessary to evaluate residual impacts. Monitoring and evaluation shall be conducted in accordance with methods specified by the Department.

**Table E.5.** Sediment and benthic monitoring requirements. <sup>(1) (2) (3) (9)</sup>

Monitoring Characteristics	Sample Stations and Reporting Requirements		Minimum Monitoring Frequency Requirements
	Within the mixing zone	30 m from net pens	
Sulfide <sup>(4)</sup>	Report uM	Report uM	2/year in Apr-May and Aug-Oct <sup>(5)</sup>
Anoxic Sediments, Gas Formation, <i>Beggiatoa</i> and <i>Capitella</i> mats <sup>(6)</sup>	Report	Report	2/year in Apr-May and Aug-Oct <sup>(5)</sup>
Benthic Infauna <sup>(10)</sup> [Taxa Present, Taxa Abundance, Total Abundance minus abundance of <i>Capitella capitata</i> , and Shannon-Wiener Diversity Index]	Report /0.1 square m	Report /0.1 square m	1/5 years <sup>(7)</sup>
Percent Solids	Report %	Report %	1/5 years <sup>(7)</sup>
Sediment grain size	Report % sand, silt, clay and gravel	Report % sand, silt, clay and gravel	1/5 years <sup>(7)</sup>
Total Organic Carbon in Sediment	Report mg/g	Report mg/g	1/5 years <sup>(7)</sup>
Copper, Total metal	Report mg/kg Dry weight	Report mg/kg Dry weight	1/5 years <sup>(8)</sup>
Zinc, Total metal	Report mg/kg Dry weight	Report mg/kg Dry weight	1/5 years <sup>(8)</sup>
Medications used <sup>(11)</sup>	Report ug/kg Dry weight	Report ug/kg Dry weight	Not less than 7 days nor more than 30 days following use of each medication

See Pages 20-23 of this General Permit for applicable footnotes.

## **PART II – SPECIAL CONDITIONS**

### **E. MONITORING REQUIREMENTS (cont'd)**

#### Footnotes to Table E.5.

1. Sampling stations. Samples for all parameters (“Monitoring Characteristics” listed in Table E.5) shall be collected in triplicate from four sampling stations required by this section. Results for all individual samples shall be reported to the Department in addition to mean values. The transect utilized for sediment sampling shall be the same as that utilized for video/photo monitoring as described in Special Condition E.4 Footnote #4 (that is, along an axis representing the direction of the prevailing current, and extending 60 meters beyond the pen system on each end, and located to best reflect the extent of the facility’s impact on benthic conditions).

There shall be a minimum of 4 sampling stations along the transect with a minimum of 2 on each end of the net pens to represent conditions outside of and within the designated mixing zone as follows:

- a. Outside Mixing Zone: Along the transect at a point 30 meters from the outside edge of the pens
- b. Within Mixing Zone: Samples shall be collected along the transect at a point 5 meters from the outside edge of the pens. However, the Department reserves the right to require sampling at other specific locations based on reviews of video records or other site-specific considerations.

At each of the 4 sample stations, a minimum of 3 individual samples (total of 12 discrete sample points) shall be collected along a line perpendicular to the transect line. One sample shall be taken adjacent to the transect line and the other two samples shall be taken at a distance of 2 meters away from the transect line in both directions. If a sample is not possible at the 2-meter distance due to rocky conditions or other impediments, the sample should be taken as close to the 2-meter point as possible.

In order to fully evaluate conditions, the Department may require additional sampling locations on a case-by-case-basis.

2. Sampling times. Sediment and benthic monitoring shall be conducted at the same time that video monitoring is conducted.
3. Sediment sample collection, handling, preservation, storage, and analysis shall be conducted in accordance with USEPA approved methods.

## PART II – SPECIAL CONDITIONS

### E. MONITORING REQUIREMENTS (cont'd)

#### Footnotes to Table E.5. (cont'd)

4. Sulfide monitoring. Core samples for sulfide must consist of the top 2 cm of the seafloor. If sediment grain size or sediment depth at one or more sampling locations does not allow for the collection of sediments for sulfide analysis as required herein, the permittee shall provide a narrative in the report required by this section describing these.
5. Video and sulfide monitoring shall be conducted at least **twice per year** (once during the months of April – May and once during the months of August – October). The Department may provide an individual facility with an annual written waiver for the April – May sulfide sampling event if the video monitoring is waived pursuant to Special Condition E.4 of this General Permit.
6. Each grab sample shall be inspected for evidence of anoxic sediments (including hydrogen sulfide or methane gas formation or odor and surface color of sediments) and the presence of *Beggiatoa* or *Capitella* type mats. **The results of each grab sample inspection (whether positive or negative for any of these conditions) shall be reported to the Department.** If sub-samples 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.
7. Benthic infauna, sediment grain size, total organic carbon monitoring, percent solids, and metals (copper and zinc) shall be monitored at least **once every 5 years** during the months of August – October and sampling shall be performed in the first year when fish at the facility are at or near their maximum biomass for that growing cycle.

The Department reserves the right to require additional benthic infauna sampling based on best professional judgment taking into account the timing, frequency and severity of monitoring results that exceed the Warning Level or Impact Limit thresholds for any parameter established in Special Condition F of this General Permit, *Warning and Impact Thresholds*. When benthic infauna testing is determined to be the most appropriate Department response to an exceedence, the permittee shall coordinate with the Department to ensure monitoring is performed as soon as possible after such a determination is made.

The Department reserves the right to require more frequent or additional sediment or benthic infauna measurements for an individual facility based on test results, video surveys, or other relevant information.

## PART II – SPECIAL CONDITIONS

### E. MONITORING REQUIREMENTS (cont'd)

#### Footnotes to Table E.5. (cont'd)

- Sediment grain size, total organic carbon monitoring, metals (copper and zinc) and percent solids determinations shall be performed **every time benthic infauna are sampled**.
8. Copper and zinc monitoring. Measurements shall be conducted **once every five years and each time benthic infauna measurements are made**, and shall be performed at a time when fish at the facility are at or near their maximum biomass for that monitoring period. Reports shall include the percent solids of the sediment sampled. Core samples for metals must consist of the top 2 cm of the seafloor.
  9. Reports shall include the date(s) of the sampling and the results of the analyses, along with all supporting information including a site schematic of the sample locations. Reports, in a format approved by the Department, **shall be submitted to the Department within 150 days** of the monitoring event. However, based on prior monitoring or other information that indicate the facility may be adversely impacting the sediment, the Department may require, in writing, earlier submission of monitoring reports. The Department may provide a written extension for this submission deadline if necessary due to extenuating circumstances beyond the control of the permittee.
  10. Single core samples of 4 inches or greater in diameter shall be taken from the sediment for taxa measurements (infauna samples) and 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 1.0 mm mesh sieve. Organisms shall be fixed in 10% buffered formalin solution and stained with a 1% Rose Bengal staining solution. After one day or more in the formalin solution, the formalin shall be replaced with 70% ethanol to ensure preservation of the organism's integrity. Organisms shall be identified to the lowest practical taxonomic level, enumerated, and reported to the Department in raw form and per square meter or 0.1 m<sup>2</sup>. Species diversity, richness, total abundance and total abundance minus the number of *Capitella capitata* shall also be reported. Shannon-Weiner Diversity Index results shall not be reported if the cumulative number of organisms present in all samples from one sampling station is less than 50. Reference specimens shall be maintained at the facility (or facility headquarters) for examination by Department staff or its designee for a period of at least 3 years following collection. The Department may require more specific identification of organisms in order to determine compliance with this General Permit.



**PART II – SPECIAL CONDITIONS**

**E. MONITORING REQUIREMENTS (cont'd)**

Footnotes to Table E.5. (cont'd)

11. Sediment monitoring for medications shall include analysis for the compound(s) used and any known primary metabolites. The Department may provide a written waiver for this monitoring requirement if the facility provides conclusive evidence (as determined by the Department) that medications used do not pose a potential to accumulate in sediments or organisms for sufficient time as to pose a potential threat to water quality or aquatic life. Core samples for medications must consist of the top 2 cm of the seafloor.

**F. WARNING LEVEL AND IMPACT THRESHOLDS**

With respect to the sediment and benthic monitoring specified in Special Conditions E.4 and E.5 of this General Permit, the following criteria will be applied by the Department in determining if discharges from a facility are causing or contributing to impairment of the State's water quality criteria.

**Table F.1.** Sediment Mixing Zone [under or within 30 m of net pen(s)] Warning and Impact Thresholds At Any Sampling Station.

<u>Metric</u>	<u>Warning Level</u>	<u>Impact Limit</u>
Sulfide <sup>(1)</sup>	Mean 2500 – 6000 uM at any station	Mean >6000 uM at any station
<i>Beggiatoa</i> Coverage	≥25% photo coverage <sup>(2)(3)</sup>	≥ 50% photo coverage <sup>(2)(3)</sup>
Anoxic Sediments <sup>(4)</sup>	≥25% photo coverage <sup>(2)(3)</sup>	≥ 50% photo coverage <sup>(2)(3)</sup>
Benthic Infauna <sup>(5)</sup>	>50% reduction in Shannon- Wiener diversity index OR >50% reduction of total abundance minus <i>Capitella</i> <i>capitata</i> OR >25% reduction in taxa richness OR >50% total abundance composed of <i>Capitella capitata</i>	Report Information

See Pages 24-25 of this General Permit for applicable footnotes.

**PART II – SPECIAL CONDITIONS**

**F. WARNING LEVEL AND IMPACT THRESHOLDS (cont'd)**

**Table F.2.** Sediment Impact Thresholds At Any Sampling Station Beyond Sediment Mixing Zone ( $\geq 30$  m from the nets pens).

<u>Metric</u>	<u>Impact Limits</u>
<b>Class SB waters</b>	<b>The habitat must be characterized as unimpaired. Discharges shall be of sufficient quality to support all estuarine and marine species indigenous to the receiving water without detrimental changes to the resident biological community</b>
Benthic Infauna	>25% decrease in Shannon-Wiener diversity index OR >25% decrease in total abundance minus <i>Capitella capitata</i> OR >25% total abundance composed of <i>Capitella capitata</i> OR >25% reduction in total taxa richness
<b>Class SC waters</b>	<b>The habitat must be of sufficient quality to support all species of fish indigenous to the receiving waters and maintain the structure and function of the resident biological community.</b>
Benthic Infauna	>50% decrease in Shannon-Wiener diversity index OR >50% decrease in total abundance minus <i>Capitella capitata</i> OR >50% total abundance composed of <i>Capitella capitata</i> OR >25% reduction in total taxa richness
<b>Class SB and SC waters</b>	
Sulfide <sup>(1)</sup>	Mean >3000 uM at any station
<i>Beggiatoa</i> Coverage	>5% photo coverage
Anoxic Sediments <sup>(4)</sup>	Compelling evidence <sup>(6)</sup>

See Pages 24-25 of this General Permit for applicable footnotes.

Footnotes to Tables F.1 and F.2:

1. Mean values for sulfide shall be the average of all individual samples collected at a station at a given distance from the net pens (for example, mean value of all samples taken at a distance of 30 meters from net pen). **Results of individual samples shall also be provided to the Department.**
2. Percent coverage shall be determined by the Department from the review of video footage and /or photographs taken beneath or adjacent to each net pen.

## **PART II – SPECIAL CONDITIONS**

### **F. WARNING LEVEL AND IMPACT THRESHOLDS (cont'd)**

#### Footnotes to Tables F.1 and F.2 (cont'd):

3. Unless similar abundance or values exist in the baseline or reference site specified in this permit, or are the result of natural conditions, as determined by the Department based on best professional judgment.
4. Anoxic sediments consist of dark colored or significantly darkened sediment in comparison to natural conditions in the area, and/or the formation of hydrogen sulfide or methane gas as characterized by emission of gas bubbles, “pimpled sediments” or odors in the sediment, when such conditions are not observed in available baseline or reference site, or are a result of natural conditions as determined by the Department.
5. Benthic infauna criteria shall be evaluated taking into consideration changes in grain size and the number of organisms in each sample.
6. 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 and the smell of hydrogen sulfide gas emitted from grab samples and that such conditions are not observed in available baseline or reference site, or are the result of natural conditions as determined by the Department.

The forgoing impact limits represent one definition of conditions that would represent non-attainment of narrative water quality standards. To assess compliance, the Department may consider the results of monitoring conducted pursuant to this permit, the conditions found in available baseline or reference site for comparative purposes and other available information. This information may include, but is not limited to, total abundance, diversity indices, dominant taxa, the percentage of mollusks, echinoderms and crustaceans, and trophic levels. In doing so, the Department may determine that other conditions found at an individual station may constitute a violation of narrative water quality standards.

The Department may take into account the presence of pollution-sensitive species when making a determination about the impact under this section. A list of pollution-sensitive taxa is determined from pre-operation baseline studies and/or available reference site specified in this permit. Such species include, but are not limited to, amphipods and cumaceans. Pollution-tolerant taxa include: *Capitella capitata*, *Oligocheata*, and other taxa that may be present as determined from baseline information and/or the reference site.

## **PART II – SPECIAL CONDITIONS**

### **F. WARNING LEVEL AND IMPACT THRESHOLDS (cont'd)**

Physical disturbance such as harrowing, dragging, or other mechanical means shall not be used to mitigate bottom conditions unless approved in writing by the Department.

**The permittee shall notify the Department as soon as it has reason to believe the warning levels that are specified for the Sediment Mixing Zone may be exceeded.**

At that time, or upon notification by the Department, the facility shall review its past operations and propose any changes that it deems necessary to assure that impact levels are not exceeded. If the degree by which warning levels are exceeded in subsequent monitoring events is increased, or if an impact level is exceeded at any time, the facility shall include in its notification, for the Department's for review and approval, a plan and implementation schedule for modification of operations. Such modifications may include, but are not limited to, reducing standing stock, reduced feeding, and/or fallowing of the site. New fish shall only be stocked into pens as described in a plan approved by the Department. The Department may require additional monitoring to determine the effectiveness of these measures or continuing trends in benthic conditions.

### **G. REFERENCE SITES**

The facility shall maintain reference sites and baseline information approved by the Department to provide comparative information on water quality and benthic conditions in the area of the net pens. Where a facility can satisfactorily demonstrate to the Department that relevant reference site information can not be obtained, the Department may grant a written waiver for this condition. Where sufficiently detailed and relevant baseline data are available, those data may be used in place of or in combination with reference station data for comparative information in evaluating the results of benthic monitoring tests. At a minimum, the monitoring characteristics specified in Table E.5. of this General Permit shall be monitored for consideration. Baseline information is required in certain circumstances pursuant to Special Condition E.2 of this General Permit.

### **H. TOXIC IMPACTS**

1. The discharge of toxics into the waters of the State in concentrations identified by the Department as toxic to aquatic organisms is prohibited. When waters are temporarily contained within a barrier, such as a plastic tarpaulin, for the application of medications, at the point the barrier is removed the concentration of those medications shall not pose a risk of causing lethal effects on organisms passing through the water column. Within the water column mixing zone, acutely toxic (lethal response) conditions must not occur. At the edge of the water column mixing zone concentrations of any compound cannot exceed levels known to cause acute or chronic toxicity to marine organisms, or sub-lethal effects from repeated exposure.

## **PART II – SPECIAL CONDITIONS**

### **H. TOXIC IMPACTS (cont'd)**

2. Sediments within or beyond the Sediment Mixing Zone shall not contain toxics originating from the facility in concentrations or combinations that are likely to have a significant adverse effect on benthic infauna or epifauna, or bio-accumulate in organisms such that those organisms can have a significant adverse effect on marine life that prey upon them. Such marine life includes, but is not limited to, demersal finfish, lobster, and marine mammals.

### **I. PROTECTION OF ATLANTIC SALMON**

1. All reproductively viable Atlantic salmon placed in net pens must be of North American origin.
  - a. Non-North American stock is defined as any Atlantic salmon (*Salmo salar*) that 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. For the purposes of this permit, classification of brood fish as either North American or non-North American stock will be based on genetic evaluation of each fish's DNA in accordance with Appendix A, *Atlantic Salmon Microsatellite Analysis Protocol*, of this General Permit. The Microsatellite Protocol shall be used to classify each brood fish.
  - b. Only individual fish determined to be North American, according to Appendix A, can be used to produce offspring to be placed in net pens. No fish classified as non-North American according to Appendix A can be utilized to create progeny for stocking in net pens.
  - c. Prior to January 1 of each year, genetic evaluation information developed pursuant to Appendix A shall be submitted to the National Marine Fisheries Service and/or the US Fish and Wildlife Service (collectively, the Services), with confirmation sent to the Department.
  - d. Prior to the transfer of any eggs from individual family lots, the permittee shall submit to the Department confirmation from the Services demonstrating compliance with Special Condition I.1.a above. The permittee will include in this letter information demonstrating that the origin of the fish is North American, including identification of the hatchery, testing results, and a description of the chain of custody of the fish. In the event any fish or gametes are classified as non-North American pursuant to Appendix A, the permittee shall also report to the Department and the Services the disposition of those fish or gametes. No eggs shall be transferred without prior written approval from the Department.

## PART II – SPECIAL CONDITIONS

### I. PROTECTION OF ATLANTIC SALMON (cont'd)

2. Personnel from the Department, the MeDMR, the USEPA, and the Services shall be allowed to inspect the facility during normal operation hours. These personnel will provide credentials attesting to their position and will follow the site's biosecurity procedures. Operational records regarding compliance with this general permit shall be made available to these personnel for their inspection upon request.
3. Transgenic salmonids. Transgenic salmonids are prohibited at these facilities. 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, and including descendants of individuals so transfected. This prohibition does not apply to vaccines.
4. In accordance with the following dates, fish introduced into net pens must be marked to designate their origin so that in the event they escape or are released from the facility they may be identified. At least 90 days prior to marking fish to be stocked, the permittee shall specify, to the Department and the Services for their review and approval, a description of the marking method(s) it proposes to use for this purpose. An approved QA/QC program needs to be in place to monitor compliance with aforementioned requirement. In the event similar or conflicting marks or marking methods are proposed by different facilities, the Department may require the permittee to make changes to assure that fish will be uniquely identifiable as to the facility into which they are placed.
  - a. **Through July 30, 2009**, all fish placed in net pens must be identifiable through external means as commercially-reared and be identifiable through any means as having been stocked in waters of the State and identify where the fish came from at a level that is more specific than a hatchery facility; which could include a hatchery sub-lot.
  - b. **By July 31, 2009**, all fish placed in net pens must be identifiable through external means as commercially-reared and identifiable as to the individual facility into which they were placed. Alternately, the Department may reopen this General Permit in order to consider other or new information concerning marking.
5. In the event that a commercially-reared Atlantic salmon is found in a river within the range of the Gulf of Maine distinct population segment of Atlantic salmon, as defined by the Services, and the individual facility from which it escaped cannot be identified, all facilities covered by this General Permit shall conduct third-party audits of containment procedures as described in Special Condition II.I.8, below. However, the Department, in consultation with the Services, may exempt a

## **PART II – SPECIAL CONDITIONS**

### **I. PROTECTION OF ATLANTIC SALMON (cont'd)**

- facility from these audits when circumstances preclude the possibility that it was the source of the escaped fish. The results of audits shall be submitted to the Department within 30 days of the facility being notified of the need to conduct the audit.
6. The intentional release of Atlantic salmon to the receiving waters beyond the confines of the net pens is prohibited.
  7. The permittees shall report any known or suspected escape of 25% or more of a cage population and/or more than 50 fish with an average weight of two kg each or more within 24 hours to the MeDMR at 207-624-6554 (or 800-432-7381 during off-hours). The caller should indicate they are providing notification of a reportable escape event at a marine cage. They should identify the location, Department and/or MeDMR site ID for marine cages, contact person and number, time of event, estimated size of escape, and actions being taken. An escape reporting form approved by the Department or the Services should be faxed to the Services (USFWS: 207-827-6099 and NMFS: 207-866-7342) and the Department (207-941-4584). Other smaller escape events must be logged according to the CMS and provided to the Department and the Services upon request.
  8. The facility shall employ a fully functional marine Containment Management System (CMS) designed, constructed, and operated so as to prevent the accidental or consequential escape of fish to open water. Each CMS plan shall include a site plan or schematic with specifications of that particular system. Each facility shall develop and utilize a CMS consisting of management and auditing methods to describe or address the following: site plan description, inventory control procedures, predator control procedures, escape response procedures, unusual event management, severe weather procedures and training. The CMS shall contain a facility specific list of critical control points (CCP) where escapes have been determined to potentially occur. Each CCP must address the following: the specific location, control mechanisms, critical limits, monitoring procedures, appropriate corrective actions, verification procedures that define adequate CCP monitoring, and a defined record keeping system.
    - a. The CMS will be audited at least once per year in any year with fish on site and within 30 days of a reportable escape (> 25% loss of individuals in a single cage or more than 50 fish 2 kg or larger) by a party other than the facility operator or owner qualified to conduct such audits and approved by the Department. A written report of these audits shall be provided to the facility and the Department within 30 days of the audit being conducted. If deficiencies are identified during the audit, the report shall contain a corrective action plan, including a timetable for implementation and re-auditing to verify deficiencies are addressed as in the corrective action plan

## PART II – SPECIAL CONDITIONS

### I. PROTECTION OF ATLANTIC SALMON (cont'd)

approved by the Department. Additional third party audits to verify correction of deficiencies shall be conducted in accordance with the corrective action plan or upon request of the Department. The facility shall notify the Department upon completion of corrective actions.

- b. On-site personnel responsible at each facility for routine operation shall be properly trained and qualified to implement the CMS. See Special Condition M of this General Permit.
- c. Each facility shall maintain complete records, logs, reports of internal and third party audits and documents related to the CMS. The submission of standing inventory at the facility, including all transfers in and out, losses associated with disease, predation or escapes reported to the Department of Marine Resources at the pen level of detail on a monthly basis pursuant to the requirements of *Leases and Special Licenses*, 12 M.R.S.A. § 6077, shall meet the requirements of the CMS.
- d. For new facilities, a CMS plan shall be prepared and made available to Department staff upon request for inspection and approval prior to fish being introduced into the facility.

### J. BEST MANAGEMENT PRACTICES FOR OPERATION OF THE FACILITY

1. Unless prohibited by prolonged periods of adverse weather, **the facility shall remove fish carcasses from the net pens at least once per week.** However, when diseases of regulatory concern are present or suspected in the area of the facility, carcasses shall be removed more frequently in accordance with the requirements of the MeDMR or the US Department of Agriculture. Carcasses shall not be disposed of into the receiving waters, but instead shall be collected and transported in leak-proof containers to an approved land-based disposal facility. Records of carcasses removed shall be maintained by the facility and made available to the Department and the MeDMR upon request.
2. The discharge of blood, viscera, or transport water containing blood associated with fish harvesting is prohibited.
3. There shall be no discharge of disinfectants, cleaning agents or similar products, except for losses that may occur incidental to the proper use of these agents. The facility shall maintain and follow best management practices for the use and control of these substances.
4. The discharge of solid waste is prohibited. The facility shall collect used feed bags and other solid wastes for transport, recycling and/or disposal at a recycling or disposal facility approved by the Department.



## PART II – SPECIAL CONDITIONS

### J. BEST MANAGEMENT PRACTICES FOR OPERATION OF THE FACILITY (cont'd)

5. The use of biocidal chemicals for cleaning nets on-site is prohibited. The use of air-drying, mechanical and other non-chemical procedures to control net-fouling organisms is encouraged. On-site mechanical cleaning and pressure washing of nets is permitted only if done in accordance with a management plan to assure that solids from these practices do not accumulate on the sea floor or cause or contribute to impairment of water quality standards, or non-compliance with Special Condition II.F. In order to control diseases of regulatory concern, net cleaning procedures required by the MeDMR or the US Department of Agriculture shall be followed. The on-shore disposal of materials removed from nets must be in compliance with applicable state and local laws. In the event that sediment monitoring indicates a potential for impact from copper or other anti-fouling agents or other established impact limits, the Department may require the use of alternate practices to avoid such effects.
6. Pursuant to *Prohibition on the use of tributyltin as an antifouling agent*, 38 M.R.S.A. § 419-A(2)(B), no person may distribute, possess, sell, offer for sale, apply or offer for application any substance that contains a tributyltin (TBT) compound in concentrated form that is labeled for mixing with paint or solvents to produce an antifouling paint for use on vessels, wooden lobster traps, fishing gear for marine waters, floats, moorings or piers.
7. When in use, **horizontal predator nets shall be maintained at least 1 meter above the sea floor at all times**. Nets may not impede the current flow or tidal exchange so as to contribute to the deposition of solids that would impair water quality standards. Vertical predator nets may extend to the sea floor. 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 the Department within 24 hours. The net shall be recovered within 30 days from the date lost, unless the Department allows a longer time in an individual case, and the Department shall be notified on the date the net is recovered (or next business day).
8. The permittee shall report to the Department **within 24 hours** (or next business day) of any event(s) at the facility that has the potential to cause non-compliance or that may endanger health or the environment. Additionally, the permittee shall report to the Department any unusual events at the facility that are not required to be reported to the Maine Department of Marine Resources and that may pose significant environmental impact. Upon request by the Department, the facility shall collect and preserve a water sample, and store it until such time that the Department can retrieve it.

## PART II – SPECIAL CONDITIONS

### K. USE OF DRUGS FOR DISEASE CONTROL

1. Drugs approved by the U.S. Food and Drug Administration (FDA) for Atlantic salmon aquacultural purposes may be used consistent with label instructions. Drugs authorized, but not approved, by the FDA may be discharged consistent with Special Condition II.K.3, below. All applications must comply with applicable FDA requirements. The discharge of any approved drug administered as preventative measures is prohibited unless the following conditions are met: the drug must be approved by FDA and the treatment and route of administration must be consistent with the drug's intended use. The term “discharge” includes any drug or other chemical treatment that is introduced to the fish through injection, ingestion, or immersion at the facility.
2. When the need to treat or control diseases necessitates the use of a FDA-approved drug not identified in a facility’s NOI, the facility shall notify the Department as soon as becoming aware of such circumstances. If advance notice is not possible, the facility shall notify the Department on the next business day after the use has begun. The notification shall include a description of the drug, its intended purpose, amount, concentration, duration of the use and information on aquatic toxicity. In the event the use is one-time occurrence of less than 30 days, an amended NOI need not be filed. **If the drug is to be used for more than 30 days, or if the use may be repeated, an amended NOI must be filed promptly pursuant to General Condition D.8.** If, upon review of information regarding the use of a drug pursuant to this section, the Department determines that significant adverse effects are likely to occur, it may restrict or limit such use.
3. INAD and extralabel drug uses. The discharge of drugs authorized by the FDA for use during studies conducted under the Investigational New Animal Drug (INAD) program is prohibited unless in accordance with specific consent given in writing by the Department. Proposals for the use of investigational drugs must demonstrate that the minimum amount of drug necessary to evaluate its safety, efficacy, and possible environmental impacts will be used. Proposals must also include an environmental monitoring and evaluation program that at a minimum describes sampling strategies, analytical procedures, evaluation techniques and a timetable for completion of the program.

The program must consider the possible effects on the water column, benthic conditions and organisms in or uses of the surrounding waters.

- a. The permittee must provide a written report to the Department of an INAD’s impending use **within 7 days** of agreeing or signing up to participate in an INAD study. The written report must identify the INAD to be used, method of use, the dosage, and the disease or condition the INAD is intended to treat.

## PART II – SPECIAL CONDITIONS

### K. USE OF DRUGS FOR DISEASE CONTROL (cont'd)

- b. For INADs and extralabel drug uses, the permittee must provide an oral report to the Department as soon as possible, preferably in advance of use, but **no later than 7 days** after initiating use of that drug. The oral report must identify the drugs used, method of application, and the reason for using that drug.
- c. For INADs and extralabel drug uses, the permittee must provide a written report to the Department **within 30 days** after initiating use of that drug. The written report must identify the drug used and include: the reason for treatment, date(s) and time(s) of the addition (including duration), method of application; and the amount added.
4. **The discharge of any drug or other disease control chemicals shall be reported to the Department within 30 days of the application.** Included in this report shall be the following: a) date and time of treatment; b) drug or disease control chemical used; c) concentration of drug or disease control chemical administered and total quantity used, including amount of feed used if applied through feed; d) approximate number of fish as well as number of pens treated; e) method of application; and f) predominant current direction during treatment.
5. **The facility shall place signs at the perimeter of its leasehold to notify the public that drugs are or have been in use at that facility.** The signs shall be maintained for the duration of the use and any withdrawal period following termination of use. The signs shall be at least 18 by 24 inches in size and read: "Medications are in use at this site. Contact the Maine Department of Environmental Protection or (company name) for details" and include a site designation.

### L. BEST MANAGEMENT PRACTICES FOR SPILL CONTROL

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 substances into the waters of the State, or adjoining shorelines in a quantity sufficient to cause a film or sheen upon 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 to the Department via the State Police at 1-800-452-4664 and the National Response Center at 1-800-424-8802.

**The facility shall maintain and implement a current Spill Prevention Control and Countermeasure (SPCC) Plan prepared by a Professional Engineer or other qualified professional.** This plan shall include information and procedures related to the prevention of spills and unplanned discharges of petroleum products including diesel fuel, gasoline, lubrication oils, or any other hazardous materials used at the facility.

## **PART II – SPECIAL CONDITIONS**

### **L. BEST MANAGEMENT PRACTICES FOR SPILL CONTROL (cont'd)**

1. The plan shall provide a complete list, including quantities, of all petroleum products and other hazardous materials stored at and transferred between the 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 facility.
2. The plan shall include descriptions of the procedures, including routine equipment inspections, 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 that prevent, control or treat spills and unplanned discharges. Supplies should include spill kits sufficient to contain a spill equal to the amount of product or material at the facility.
4. The plan shall include a description of the reporting system that will be used to alert responsible facility management, potentially effected landowners and municipalities, and appropriate legal and regulatory authorities.
5. All members of the facility's staff shall have an operation familiarity with the plan. Training shall include an annual mock spill exercise incident to review the response and reporting procedures of the plan. Documentation of staff training shall be made available to the Department upon request.
6. 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 section 112.1(d)(2), then the SPCC Plan shall also include any additional conditions required by those regulations.

### **M. 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 the Department 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 General Permit shall be provided to the Department for review and approval.

## **PART II – SPECIAL CONDITIONS**

### **N. MONITORING AND REPORTING**

All sample results and monitoring reports required by this General Permit shall be submitted to the Department at the following address:

Aquaculture Compliance Inspector  
Division of Water Quality Management  
Bureau of Land and Water Quality  
Maine Department of Environmental Protection  
106 Hogan Road  
Bangor, Maine 04401

### **O. SEVERABILITY**

In the event that any provision, or part thereof, of this permit is declared to be unlawful by a reviewing court, the remainder of the permit shall remain in full force and effect, and shall be construed and enforced in all aspects as if such unlawful provision, or part thereof, had been omitted, unless otherwise ordered by the court.

## Appendix A

### Atlantic Salmon Microsatellite Analysis Protocol

This protocol will be used to determine which Atlantic salmon can be used for breeding and production stock pursuant to Special Condition II.I of this General Permit. The protocol describes a standardized procedure to classify fish as either North American or non-North American stock and is largely based on the procedures used by King *et al.* (2001; *Molecular Ecology*, 10: 807-821). The permittee will be responsible for providing genotype data to the US Fish and Wildlife Service and the National Marine Fisheries Service (the “Services”) for data analysis and fish classification as described herein.

#### *DNA isolation*

Genomic DNA will be isolated from tissue, fin clip or scale samples from each fish intended for use as broodstock employing either a commercially available DNA extraction, such as PureGene (Gentra Systems) or DNeasy tissue kit (Qiagen Inc.) or a phenol/chloroform based extraction system such as used in Patton *et al.* (1997; *Can. J. Fish. Aquat. Sci.*, 54: 1548-1556) or, particularly for scales, a Chelex-resin based protocol such as given in King *et al.* (2001). DNA should be of sufficiently consistent quality and quantity to perform PCR analyses.

#### *Microsatellite analysis*

The loci used to classify brood fish as either North American or non-North American stock will be: Ssa85, Ssa171, Ssa197, and Ssa202 (O’Reilly *et al.* 1996); SSOSL311 and SSOSL438 (Slettan *et al.* 1995, 1996) and Ssa289 (McConnel *et al.* 1995). Additional loci are required for marking purposes via genetic parentage determination, and will be supplemental to the loci identified above that are used for continent of origin determination. Also, additional loci may be incorporated in the future by the Services to allow for unique genotypes or for additional identification purposes.

PCR conditions for the selected loci will essentially follow that of King *et al.* (2001) and Patton *et al.* (1997) with possible minor modifications for optimization of products of individual loci. The loci will be labeled with fluorescent dyes to allow for visualization, including Ned, Hex, and 6-Fam by ABI or any other comparable commercial supplier of labeled oligonucleotides. An appropriate size standard for genotyping will be used (such as the 500ROX by ABI). Microsatellite analysis will be performed using the ABI 3100 automated sequencer or any other commercial system providing equivalent results. Fragment analysis will be accomplished using a combination of GENESCAN and GENOTYPER software packages from ABI, or any other commercial system providing equivalent results. The facility will present electronic data tables from the GENOTYPER program, or in an equivalent program that is acceptable to the Services, to the Services in spreadsheet format in Excel or any other commercially available program providing equivalent results that allow the data to be easily reformatted for subsequent analyses. The output files (gel tracings) from GENESCAN and GENOTYPER will also be provided by the facility at the same time to help the Services assure data quality. Data provided must be complete at all loci for all fish.

### *Size verification of allelic products*

To ensure accurate sizing of allelic products from the aquaculture fish relative to the designations developed in the King laboratory (see King *et al.* 2001). The Services will provide an adequate supply of DNA samples from representative fish of known genotypes to enable calibration of equipment throughout the term of the controlling license conditions. Control samples will be used at the inception of the study to set the automated allele designation/binning parameters of the GENOTYPER or equivalent genotyping software so that all subsequent allele designations made for aquaculture fish will be sized relative to the standards.

### *Genetic screening*

Identification of North American aquaculture stock will be based on assignment tests performed with GeneClass, [www.montpellier.inra.fr/URLB/geneclass/geneclass.html](http://www.montpellier.inra.fr/URLB/geneclass/geneclass.html). Aquaculture fish will be compared to two reference groups. The first group will be comprised of samples from North America (Dennys, Ducktrap, East Machias, Machias, Narraguagus, Penobscot mainstem, Pleasant, Sheepscot, Conne, Gold, Gander, Miramichi, Saguenay, and Stewiacke rivers and aquaculture stocks derived from St John and Penobscot populations). The second group will be comprised of non-North American samples from at least 2 rivers each from Iceland, Norway, Finland, Scotland, Ireland, and Spain and the Landcatch aquaculture stock plus a hybrid stock crossing Landcatch with St John NB aquaculture salmon.

The likelihood for assigning any given fish to each reference population will be calculated using the program GeneClass. If the ratio of the likelihood scores indicates that North American origin is at least twice as likely as non-North American origin, then that fish will be considered to be of North American origin. All other fish will be classified as non-North American stock. In addition, those fish not able to be classified as either NNA or NA due to incomplete genotypes or insufficient sample size or quality will be considered non-North American. The Services will promptly report the results to the facility.

**MAINE POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT  
MAINE WASTE DISCHARGE LICENSE**

**FACT SHEET**

**DATE: SEPTEMBER 19, 2008**

**GENERAL PERMIT NUMBER: #MEG130000  
WASTE DISCHARGE LICENSE: #W009020-5Y-B-R**

**ATLANTIC SALMON AQUACULTURE  
GENERAL PERMIT  
issued by  
MAINE DEPARTMENT OF  
ENVIRONMENTAL PROTECTION**

**AREA OF COVERAGE AND RECEIVING WATER CLASSIFICATION:**

**CLASS SB OR SC MARINE WATERS EAST OF NASKEAG POINT IN BROOKLIN,  
EXCEPT THOSE WATERS IN THE AREA NORTH OF A LINE FROM SCHOODIC  
POINT IN WINTER HARBOR TO BAKER ISLAND IN CRANBERRY ISLES, THEN  
WEST TO NASKEAG POINT IN  
BROOKLIN, MAINE**

**DEPARTMENT CONTACTS:**

**Matthew Young  
Compliance and Technical Assistance  
Division of Water Quality Management  
Maine Dept. of Environmental Protection  
106 Hogan Road  
Bangor, Maine 04401  
ph: 207-561-5704  
e-mail: [matthew.r.young@maine.gov](mailto:matthew.r.young@maine.gov)**

**Bill Hinkel  
MEPDES Permitting  
Division of Water Quality Management  
Maine Dept. of Environmental Protection  
17 State House Station  
Augusta, Maine 04333-0017  
ph: 207-287-7659  
e-mail: [bill.hinkel@maine.gov](mailto:bill.hinkel@maine.gov)**



## 1. APPLICATION SUMMARY

Application: On April 22, 2008, the Maine Department of Environmental Protection (Department) provided public notice of its intent to renew the *Atlantic Salmon Aquaculture General Permit* #MEG130000, which was issued by the Maine Board of Environmental Protection on June 19, 2003, and is scheduled to expire on June 13, 2007. Pursuant to *General Permits for Certain Wastewater Discharges*, 06-096 CMR 529 (last amended June 27, 2007), “prior to expiration of a general permit, the Department shall make a determination if it is to be renewed, and, if so, will commence renewal proceedings. If the general permit is to be renewed, it shall remain in force until the Department takes final action on the renewal.” The 6/19/03 General Permit authorized discharges of certain pollutants resulting from the operation and maintenance of Atlantic salmon aquaculture facilities. The Atlantic salmon aquaculture facilities that qualify for coverage under the 6/19/03 General Permit are limited to those located in Class SB or SC marine waters east of Naskeag Point in Brooklin, except those waters in the area north of a line from Schoodic Point in Winter Harbor to Baker Island in Cranberry Isles, then west to Naskeag Point in Brooklin, Maine.

## 2. AUTHORITY AND REGULATORY SUMMARY

A permit is required for the direct or indirect discharge of pollutants to waters of the State pursuant to *Waste discharge licenses*, 38 M.R.S.A. § 413. Pursuant to 06-096 CMR 529, the Department may issue a general permit for a category of point sources located within the same geographic area whose discharges warrant similar pollution control measures. The similarity of discharges from Atlantic salmon aquaculture facilities prompted the Department to initiate development of a General Permit in 2003 for those waters where the assimilative capacity for the pollutants involved is relatively large in comparison to the anticipated discharge quantities. The Department maintains that the similarity of discharges from permitted facilities lends itself to the renewal of the 6/19/03 General Permit.

A violation of a condition or requirement of a general permit constitutes a violation of the State’s water quality laws, and subjects the discharger to penalties under *Organization and powers*, 38 M.R.S.A. § 349. Nothing in this General Permit is intended to limit the Department’s authority under the waste discharge and water classification statutes or rules. This General Permit does not affect requirements under other applicable Maine statutes and Department rules.

Pursuant to 12 M.R.S.A. subchapter II and 13-188 CMR, chapters 2 and 24, the MeDMR has regulatory authority over finfish aquaculture facilities. The MeDMR may issue leaseholds for the location and operation of aquaculture operations after considering, among other things, the effects on navigation, fishing, rights of riparian owners, natural resources and public uses. The MeDMR further regulates the transfer of fish into marine aquaculture operations and has responsibility for fish health issues.

Permits are required from the U.S. Army Corps of Engineers pursuant Section 10 of the *Rivers and Harbors Act of 1899*, Title 33 USC 403 for the installation of net pens in navigable waters of the United States, and for the protection of Atlantic salmon.

## 2. AUTHORITY AND REGULATORY SUMMARY (cont'd)

On January 12, 2001, the Department received authorization from the U.S. Environmental Protection Agency (USEPA) to administer the National Pollutant Discharge Elimination System (NPDES) permit program in Maine. From that point forward, the program has been referenced as the Maine Pollutant Discharge Elimination System (MEPDES) permit program. Each facility covered under this General Permit is assigned a unique MEPDES permit number, which will be utilized as the primary reference number for that facility.

On August 23, 2004, the USEPA promulgated effluent guideline limitations (EGLs) for *Concentrated Aquatic Animal Production Point Source Category* at 40 CFR Part 451. 40 CFR Part 451 Subpart B, *Net Pen Subcategory*, is applicable to discharges from Atlantic salmon aquaculture facilities that produce 100,000 pounds or more per year of aquatic animals.

On September 19, 2007, the Department modified the 6/19/03 General Permit to change the date of compliance in Part II.I.4.h. of the General Permit, which requires all fish placed in net pens to be identifiable through external means as commercially-reared and identifiable as to the individual facility into which they were placed, from July 31, 2007 to July 31, 2009.

On April 22, 2008, the Department published a public notice of its intent to renew the 6/19/03 General Permit in two newspapers with daily distribution (Bangor Daily and Portland Press Herald) pursuant to *Rules Concerning the Processing of Applications and Other Administrative Matters*, 06-096 CMR 2 (effective August 1, 1994).

## 3. PERMIT SUMMARY

- a. Terms and Conditions: **This permitting action is significantly different from the 6/19/03 permitting action and 9/13/07 modification in that it is:**
1. Eliminating the requirement for facilities to participate in the Finfish Aquaculture Monitoring Program (FAMP) administered by the Maine Department of Marine Resources (MeDMR);
  2. Eliminating previous Special Condition II.K, *Husbandry Practices*;
  3. Eliminating the requirement to report the facility's food conversion ratio (FCR);
  4. Eliminating near-field and far-field ambient water quality monitoring requirements (previous Special Condition at Part II.E.6 and 7);
  5. Revising the sediment and benthic monitoring characteristics and requirements (Special Condition II.E.5 of this permit);
  6. Revising the warning level and impact limit thresholds for the sediment mixing zone (Special Condition F of this permit);
  7. Revising the Department's maximum review time from 14 days following receipt of a completed Notice of Intent to 30 days following receipt;

### 3. PERMIT SUMMARY (cont'd)

8. Revising the submission deadline for video records and schematic of the video track (Special Condition II.E.4 of this permit) from 90 days of the monitoring event to “as soon as possible following a reasonable opportunity to review data prior to submission, or within 45 days following the monitoring event, whichever period is sooner”;
9. Revising the requirement to submit written reports of video/photographic monitoring events from every time a video record is created to only those times when benthic infauna measurements are made (Special Condition II.E.4 of this permit);
10. Revising the horizontal predator net minimum separation criterion (Special Condition II.J.7 of this permit) from 3 meters to 1 meter;
11. Eliminating the requirement to notify the Department of changes in the mooring system configuration (previous Special Condition II.J.8) as this information is reported to the Army Corps of Engineers and available upon request;
12. Revising the 24-hour reporting requirements at Special Condition II.J.8 of this permit;
13. Eliminating the NOI requirement to identify activities within 1,000 meters of a reference site; and
14. Eliminating the narrative condition specifying that discharges shall not produce or result in harmful algae blooms (previous Special Condition II.D.5 of this permit) as this is otherwise covered in the permit.

### 4. HISTORY

This section provides a summary of significant, recent historical events related to the General Permit.

Historically, the USEPA did not issue NPDES permits for finfish aquaculture facilities in Maine.

Enacted in 1987, 38 M.R.S.A. § 413(2-F) exempted aquaculture facilities from the need to obtain a Maine Waste Discharge License. The law did require that the Department certify to the MeDMR that a proposed aquaculture facility would not have a significant adverse effect on water quality before a lease could be issued.

In July 2000, citizens' groups filed suit under Federal law against three large Maine finfish aquaculture operators for violation of the Clean Water Act by discharging without a NPDES permit.

In 1998, a new subsection (10) was added to 38 M.R.S.A. § 413 requiring discharge licenses for aquaculture activities after the State received authorization from the USEPA to administer the NPDES program.

#### 4. HISTORY (cont'd)

In November 1999, the State applied to the USEPA for authorization to administer the NPDES program in Maine. Included in the application was a Memorandum of Agreement (MOA) between the Department and USEPA, Region I (subsequently revised in April 2000). Section III (10) of the MOA specifically addresses the permitting of aquaculture facilities and recognizes the Department's need to take appropriate action in MEPDES permits to protect the Atlantic salmon as an endangered species under Federal law.

On November 19, 1999, a Gulf of Maine distinct population of Atlantic salmon was listed as an endangered species. 64 Federal Register 62627.

On January 12, 2001, the Department received authorization from the USEPA to administer the NPDES permit program in Maine.

On February 2, 2002, the USEPA issued a NPDES permit for Acadia Aquaculture, a proposed new finfish aquaculture facility in Blue Hill Bay.

On July 2002, a proposed consent decree in settlement of the citizen lawsuit with one of the three companies was accepted by the Federal District Court.

On September 19, 2002, following the preparation of a preliminary draft permit by Department staff, the Board of Environmental Protection (Board) voted to assume jurisdiction of the General Permit and ordered that a public hearing be held pursuant to *Special Regulations for Hearing on Applications of Significant Public Interest*, 06-096 CMR 30 (last amended February 8, 1978). At a meeting on January 2, 2003, the Board posted the proposed General Permit to public hearing, and public notices of the hearings were published on January 7<sup>th</sup>, 16<sup>th</sup>, and 29<sup>th</sup> of 2003. A revised version of the proposed draft General Permit was circulated to interested persons on May 9, 2003, with the comment period closing on June 4, 2003.

On June 19, 2003, the Board issued a final Atlantic Salmon Aquaculture General Permit for a five-year term.

April 22, 2008 – The Department, acting as the applicant, published in a timely manner its public notice of intent to renew the 6/19/03 General Permit.

April 28, 2008 – The Department issued a proposed draft permit for a 30-day review and comment period. The draft permit comment period closed on May 28, 2008, and the Department received several significant comments, which are summarized at the end of this fact sheet. As a result of public comments, internal and inter-agency discussions, the Department identified several significant changes to the 4/28/08 draft permit. Consequently, on August 12, 2008, the Department issued a revised draft permit for a 14-day review and comment period to all parties who received the formal 30-day draft permit.

## 5. DESCRIPTION OF PERMITTED ACTIVITIES

Atlantic salmon aquaculture activities are conducted by placing fish in a system of one or more free-floating net pens moored in the open ocean. Most fish are introduced as juveniles and raised to adult size for harvest as a commercial food source. Some fish may be maintained as brood stock. The fish are grown or maintained by adding fish food and, as necessary, medications to the water. This General Permit authorizes only one species of fish to be reared at approved facilities – Atlantic salmon (*Salmo salar*) of North American origin. Fish are maintained on a year-round basis; the typical rearing period for Atlantic salmon is 18 to 20 months, during which they reach a size of 8 to 12 kg. The majority of discharges from a facility are expected to come from fish excrement and unconsumed feed. The discharges increase significantly during the months of August, September and October when the fish are growing more rapidly in response to increased feeding and optimum growing conditions. Medications may be used to combat infectious disease or parasites. The US Food and Drug Administration (USFDA) grants approval for specific uses of medications, although a veterinarian may prescribe an approved drug for a use or rate not described on its approved label. Additionally, the USFDA may authorize the use of Investigational New Animal Drugs (INAD) and aquaculture facilities may wish to use such medications as part of studies of their effectiveness. Other discharges incidental to the operation of an aquaculture facility include fish scales, disinfectants used to prevent the spread of disease, marine growth removed from nets and anti-fouling agents used to treat nets.

There are approximately 25 current finfish aquaculture leases issued by the Maine Department of Marine Resources (MeDMR). Of these, 23 are presently or have recently been in active use. The statewide total leased acreage is approximately 580 acres. The individual leases range in size from less than 5 acres to 45 acres. In most instances, however, only a small portion (about 10-15%) of the leased area is actually covered by net pens. In terms of net pens, the active facilities range from 6 to 25 pens with a circumference of 100 meters each, although if smaller pens are used the number of pens can be higher. The pens typically cover between 1 and 5 acres per site. The maximum number of fish contained per facility ranges from 61,000 to over 1,000,000 fish.

The location of Atlantic salmon aquaculture facilities is important to both their success in rearing fish and minimizing environmental impacts. Typically, the facility owners seek locations having adequate tidal flushing, appropriate water depths, temperatures and dissolved oxygen concentrations to optimize fish growth. Facilities must also be placed to avoid conflicts with other marine uses such as public access, fishing and navigation. Further, facility operators are concerned with not placing net pens in areas that have very low wintertime water temperatures, damaging ice floes or are subject to high wind or seas.

## 6. AREA OF COVERAGE/SITING CRITERIA

This General Permit limits coverage to those facilities located in Class SB or SC marine waters east of Naskeag Point in Brooklin, except those waters in the area north of a line from Schoodic Point in Winter Harbor to Baker Island in Cranberry Isles, then west to Naskeag Point in Brooklin, Maine. This area of coverage, which is identical to the area defined in the 6/19/03 General Permit, has been selected because any potential adverse impact on ambient water quality from Atlantic salmon aquaculture facilities operated as permitted are anticipated to be minimal. The tidal flushing and volume of water exchange is great and the natural input of nutrients from the Gulf of Maine is large in comparison to the loading from a properly operated facility. Many of the existing facilities are located in this area. The Department has chosen to exclude from the area of coverage the Blue Hill Bay and Frenchman's Bay regions, since these areas have less tidal flushing and nutrient loadings are a relatively greater concern. However, exclusion from General Permit coverage does not categorically make these areas unsuitable for finfish aquaculture, and individual permits may still be issued. Similarly, facilities locating in the waters of the State west of the coverage area may be permitted with individual permits.

The direct discharge of pollutants to Class SA waters is prohibited by *Standards for classification of estuarine and marine waters*, 38 M.R.S.A. § 465-B(1)(c); thus, Class SA waters within the geographic area of coverage are excluded.

The General Permit is carrying forward from the 6/19/03 General Permit an average current velocity below net pens of 5 cm per second, except near the times of slack tide. This minimum current velocity criterion is intended to ensure that a sufficient current is available to provide adequate mixing of pollutants leaving the net pens. The criterion is based on Department best professional judgment in consideration of related siting criteria utilized in other jurisdictions and significant debate and discussion at public hearings before the Board of Environmental Protection.

Requirements of the MeDMR and US Army Corps of Engineers also affect the location and operation of aquaculture facilities. The General Permit requires that facilities demonstrate they have obtained or will obtain these permits in order to assure facilities will not impair narrative water quality criteria such as fishing, navigation and public uses of adjoining waters.

## 7. ADMINISTRATIVE REQUIREMENTS

Many of the General Permit's administrative procedures and requirements are drawn from 06-096 CMR 2, 06-096 CMR 529 and applicable Maine laws. Individuals seeking coverage under this General Permit must file a Notice of Intent (NOI) containing sufficient information and facts (as required by General Condition I.D.3. of the General Permit) as to allow the Department to determine if the proposed facilities are anticipated to comply with the General Permit terms and conditions. Pursuant to 06-096 CMR 2, within 30 days prior to filing the NOI with the Department, an applicant for coverage under this General Permit is required to give public notice of its intent to submit a NOI to the Department, and an original or photocopy of the public notice must be submitted to the Department with the NOI.

Once a completed NOI is received, the Department has a maximum of 30 days in which to act on it. This is a change from the previous General Permit, which allowed a maximum of 14 days to act. This additional review time will ensure the Department has adequate time to review NOIs and to request additional information from applicants as necessary. If no other action is taken within that 30-day period, the NOI is considered approved on the 31st day following the Department's receipt of the NOI.

In the event that an activity covered by this General Permit occurs on property that is sold or otherwise transferred, 38 M.R.S.A. § 413(3), 06-096 CMR 2(21)(C), and General Condition I.D.7. of this General Permit govern the transfer of permits.

The term of this General Permit is five years. Coverage under this General Permit will be continued from year to year through payment of an applicable annual fee pursuant to *Maine Environmental Protection Fund*, 38 M.R.S.A. § 353-B, provided there are no changes in the facility or its operation as described in the NOI. Prior to expiration of this General Permit, the Department shall make a determination if it is to be renewed, and, if so, will commence renewal proceedings. If the General Permit is to be renewed, it shall remain in force until the Department takes final action on the renewal. Upon reissuance of a renewal General Permit, persons wishing to continue coverage shall apply for coverage under the renewal General Permit not later than 30 days following the effective date of the new General Permit.

## 8. CONDITIONS OF PERMIT

*Conditions of licenses*, 38 M.R.S.A. § 414-A, requires that the effluent limitations prescribed for discharges, including, but not limited to, effluent toxicity, require application of best practicable treatment (BPT), be consistent with the U.S. Clean Water Act, and ensure that the receiving waters attain the State water quality standards as described in Maine's Surface Water Classification System. In addition, 38 M.R.S.A., § 420 and 06-096 CMR 530 require the regulation of toxic substances not to exceed levels set forth in *Surface Water Quality Criteria for Toxic Pollutants*, 06-096 CMR 584 (effective October 9, 2005), and that ensure safe levels for the discharge of toxic pollutants such that existing and designated uses of surface waters are maintained and protected.

## 9. RECEIVING WATER QUALITY STANDARDS

This General Permit authorizes discharges to Class SB and SC waters. 38 M.R.S.A. § 465-B describes the standards for Class SB and SC waters. The General Permit is specifying for clarity that the habitat criteria established in Maine law for Class SB and SC waters, respectively, is applicable for the areas outside the sediment mixing zone.

## 10. RECEIVING WATER QUALITY CONDITIONS

This General Permit allows discharges only in locations where properly managed facilities are not anticipated to cause or contribute to violation of receiving water classification standards. There are only limited general monitoring data for marine waters in the area of coverage. In general, the Department has not identified any significant areas of concern that would indicate non-attainment of classification standards. Dissolved oxygen saturation has been observed to fall below minimum standards in limited areas and times in the summer. These conditions are often attributable to natural conditions such as thermal stratification. (Facilities covered by this General Permit shall not be located in waters that demonstrate significant, persistent vertical stratification during summer months.) While several areas are closed to shellfishing due to bacterial contamination, this does not bear on finfish aquaculture operations since they are not a source of bacteria of human origin. Limited information regarding the presence of toxic substances (for example, PCBs, PAHs, metals, etc.) indicates these are most likely to occur in locations in proximity to higher population densities or industrial uses such as marinas or petroleum terminals. Such activities are less prevalent in those regions of the State covered by this General Permit. Adverse benthic impacts may occur on the sea floor beneath facilities. A mixing zone has been established to limit impacts from accumulations of excess feed and/or fecal matter.

## 11. MIXING ZONES

Pursuant to *Enforcement generally*, 38 M.R.S.A. § 451, the Department may establish a mixing zone for any discharge at the time of application for a waste discharge license. The law states, in part,

*[t]he purpose of a mixing zone is to allow a reasonable opportunity for dilution, diffusion or mixture of pollutants with the receiving waters before the receiving waters below or surrounding a discharge will be tested for classification violations. In determining the extent of any mixing zone to be established under this section, the department may require from the applicant testimony concerning the nature and rate of the discharge; the nature and rate of existing discharges to the waterway; the size of the waterway and the rate of flow therein; any relevant seasonal, climatic, tidal and natural variations in such size, flow, nature and rate; the uses of the waterways in the vicinity of the discharge, and such other and further evidence as in the department's judgment will enable it to establish a reasonable mixing zone for such discharge. An order establishing a*



## 11. MIXING ZONES (cont'd)

*mixing zone may provide that the extent thereof varies in order to take into account seasonal, climatic, tidal and natural variations in the size and flow of, and the nature and rate of, discharges to the waterway.*

This General Permit is carrying forward from the 6/19/03 General Permit mixing zones for both the water column and sea floor beneath and adjacent to Atlantic salmon aquaculture facilities. For the water column, the mixing zone includes waters within and extending 30 meters beyond the net pens. In that area, the dissolved oxygen concentration must not fall below 6.0 mg/L and there may not be concentrations of any substance that would be acutely lethal to organisms drifting or swimming through the mixing zone. Acute lethality is generally evaluated on an exposure time of one hour. This combination of oxygen level and no acutely toxic affects will allow use of the waters within the mixing zone as an acceptable habitat for aquatic organisms.

With regard to the sea floor or benthic mixing zone, the General Permit is carrying forward a mixing zone beneath and extending out from the net pens a distance of 30 meters. Within each area, the General Permit allows some changes in fauna and physical characteristics of the sediment, but does not contemplate unlimited changes or the loss of all types of organisms.

## 12. DISCHARGE LIMITATIONS & CONTROLS

On August 23, 2004, the USEPA promulgated effluent guideline limitations (EGLs) for *Concentrated Aquatic Animal Production Point Source Category* at 40 CFR Part 451. 40 CFR Part 451 Subpart B, *Net Pen Subcategory*, is applicable to discharges from Atlantic salmon aquaculture facilities that produce 100,000 pounds or more per year of aquatic animals. It is noted that a facility that produces less than 100,000 pounds per year of Atlantic salmon and that seeks coverage under this General Permit will be subject to the minimum requirements of 40 CFR Part 451 incorporated herein.

40 CFR Part 451.21, *Effluent limitations attainable by the application of the best practicable control technology currently available (BPT)*, states that existing point sources provide BPT including:

*(a) Feed management. Employ efficient feed management and feeding strategies that limit feed input to the minimum amount reasonably necessary to achieve production goals and sustain targeted rates of aquatic animal growth. These strategies must minimize the accumulation of uneaten food beneath the pens through the use of active feed monitoring and management practices. These practices may include one or more of the following: Use of real-time feed monitoring, including devices such as video cameras, digital scanning sonar, and upweller systems; monitoring of sediment quality beneath the pens; monitoring of benthic community quality beneath the pens; capture of waste feed and feces; or other good husbandry practices approved by the permitting authority.*

## 12. DISCHARGE LIMITATIONS & CONTROLS (cont'd)

The new source performance standards (NSPS) for this subcategory are the same as the limitations specified in 40 CFR Part 451.21.

The General Permit requires that facilities utilize real-time control methods to monitor the amount of uneaten feed lost from the net pens. The most commonly used method is installation of video cameras in the water to observe feed falling through the water column. The amount of feed used at any given time varies on a number of factors, including fish size, water temperature and husbandry objectives.

Special Condition II.E.4 of this General Permit requires facilities to conduct video or photographic monitoring of the sea floor under and adjacent to each net pen system to identify potential water quality or sediment impacts caused by the operation of the facility. Special Condition II.E.5 of this General Permit requires facilities to conduct sediment and benthic monitoring on the sea floor with specific focus on sediment conditions and the infaunal community. Potential benthic impacts within the mixing zone are being controlled through “warning levels” and “impact levels” as established in Special Condition II.F of the General Permit. The impact levels represent unacceptable conditions. The warning levels represent conditions of concern that, if were to worsen, could become violations. For each area and limit, the facility is required to monitor or evaluate several parameters to determine compliance including, but not limited to: sulfide, the presence of *Beggiatoia* bacteria, *Capitella capitata* mats, benthic infauna, the formation of gas in the sediments, the presence of anoxic sediments, the relative abundance of organisms and the diversity of organisms present. Similarly, the General Permit establishes criteria for sediment outside of the mixing zone areas to define what conditions are considered to represent full attainment of narrative criteria for classes a SB and SC waters. The law does not prescribe exact numeric criteria for the criteria in the General Permit. The Department has, through BPJ, described conditions and measurements that most marine biologists consider indicative of adverse impact.

In this permitting action, the Department is establishing new metrics for sediment and benthic monitoring, namely *Capitella capitata* and percent solids. The new monitoring parameters are being established based on recommendations by the Department’s Division of Environmental Assessment (DEA) and MeDMR, and are intended to provide additional information to evaluate the health of the infaunal community.

Based on recommendations from the DEA, this permitting action is revising one component of evaluating infauna health by eliminating pollution-tolerant taxa and pollution-sensitive taxa from the warning and impact thresholds condition.

In this General Permit, the Department is eliminating redox potential monitoring from the sediment and benthic monitoring requirements based on new information which indicates that this test does not provide reliable results to characterize enrichment of sediments. Sulfide testing is being carried forward in this permitting action to assist in characterizing benthic impacts in terms of enrichment. This permitting action is eliminating previous Special Condition II.E. 6 and 7 (near-field and far-field water quality monitoring

## 12. DISCHARGE LIMITATIONS & CONTROLS (cont'd)

requirements) based on a review of monitoring data for the period of September 2003 – October 2007, which indicates substantial compliance with the numeric dissolved oxygen limitations. A total of 1 of 575 (0.2%) minimum dissolved oxygen concentration monitoring results is below the mixing zone limit of 6 mg/L (5.03 mg/L reported for one facility during August 2004). All remaining 574 DO concentration data points are above the 6 mg/L limit. A total of 18 of 565 (3%) dissolved oxygen percent saturation monitoring values were below the applicable Class SB standard of 85% saturation. (A total of 8 facilities reported the 18 exceedences and none is located in Class SC waters where a 75% saturation standard is applicable.) Ambient salinity, transparency, and temperature monitoring and reporting requirements required by Special Condition II.E. 6 and 7 are also being eliminated in this permitting action as the Department has collected adequate information for these parameters since implementation of the 2003 General Permit.

Special Condition II.J of the General Permit, *Best Management Practices for the Operation of the Facility*, contains certain requirements and prohibitions intended to control impacts from permitted facilities. This condition is being carried forward from the 6/19/03 General Permit, with the exception that the horizontal predator net minimum separation criterion has been revised from 3 meters to 1 meter. The Department finds no compelling reason to require a minimum 3-meter separation standard in the General Permit. This criterion is unnecessarily excluding several facilities from coverage under the General Permit.

Special Condition II.K of the General Permit, *Use of Drugs for Disease Control*, contains conditions for the use of U.S. Food and Drug Association-approved drugs. In large part this condition is being carried forward from the 6/19/03 General Permit; however, the following reporting requirements are being established to ensure consistency with the minimum requirements promulgated at 40 CFR Part 451.3:

1. The permittee must provide a written report to the Department of an INAD's impending use within 7 days of agreeing or signing up to participate in an INAD study. The written report must identify the INAD to be used, method of use, the dosage, and the disease or condition the INAD is intended to treat.
2. For INADs and extralabel drug uses, the permittee must provide an oral report to the Department as soon as possible, preferably in advance of use, but no later than 7 days after initiating use of that drug. The oral report must identify the drugs used, method of application, and the reason for using that drug.
3. For INADs and extralabel drug uses, the permittee must provide a written report to the Department within 30 days after initiating use of that drug. The written report must identify the drug used and include: the reason for treatment, date(s) and time(s) of the addition (including duration), method of application; and the amount added.

## 12. DISCHARGE LIMITATIONS & CONTROLS (cont'd)

Special Condition II.L of the General Permit, *Best Management Practices for Spill Control*, is carrying forward from the 6/19/03 General Permit a requirement for each facility to maintain and implement a Spill Prevention Control and Countermeasure (SPCC) Plan. Additionally, Special Condition II.E.5 requires facilities to conduct sediment monitoring following each use of medication to ensure medications are not accumulating in quantities or concentrations that would adversely affect the infaunal community.

This General Permit eliminates previous Special Condition K, *Husbandry Practices*, of the 6/19/03 General Permit. The Department has determined that the MeDMR provides adequate oversight of facility activities related to husbandry practices and that there are other control measures in this General Permit to prevent adverse environmental impacts from facilities operating in compliance with this General Permit.

## 13. DISCHARGE IMPACT ON RECEIVING WATER QUALITY

Atlantic salmon aquaculture facilities can cause changes in the immediate area of the net pens. Some deposition of material, primarily uneaten feed and feces, on the sea floor directly beneath and adjacent to net pens can be expected and has been documented during the term of the previous General Permit. The General Permit makes provisions for some adverse impacts within the benthic mixing zone, but all classification standards must be maintained outside that area. The deposition of organic materials on the sea floor can, through decomposition, result in depletion of oxygen in the sediments composing the sea floor. This, in turn, can render the area unsuitable for a normal number and diversity of natural organisms. Such conditions, which may occur in varying degrees, may be evidenced by the formation of gas in the sediment, the predominance of pollution-tolerant organisms or the loss of certain species. Since most of the accumulating material is biodegradable through natural processes, the reduction or suspension of aquaculture activities will allow mitigation of benthic impacts without long-term impacts.

The large number of fish in the net pens may, within the immediate water column, reduce dissolved oxygen concentrations due to respiration. The result may be saturation standards not being met under all conditions in summer months. However, it should be noted that minimum dissolved oxygen concentrations measured by facilities during the term of the previous General Permit at near-field and far-field monitoring stations have been more than adequate to sustain all marine life. The General Permit establishes a minimum dissolved oxygen concentration of 6.0 mg/L within the water column mixing zone and the saturation levels prescribed by the respective classification standards must be maintained outside the mixing zone at all times.

There are concerns that an aquaculture facility may harbor diseases or parasites that could spread to wild or other aquaculture facility. The use of disinfectants is a necessary part of preventative practices, and the Department supports their use consistent with recommendations of fish health authorities. However, the use of medications and disinfectants pose potential concerns for toxicity if discharged in excessive amounts. These effects include acute toxicity to non-target aquatic organisms in the immediate area of the use, chronic effects on benthic organisms and bioaccumulation in the food chain.

### **13. DISCHARGE IMPACT ON RECEIVING WATER QUALITY (cont'd)**

The placement of net pens in the water does limit certain narrative uses of the waterbody. These concerns include fishing and navigation. Aesthetic concerns including visual impacts, noises from the operation of equipment and boat traffic, were also raised during the development of the first General Permit in 2003. These arise from the physical placement of the pens, not discharge activities, and are therefore are not subject to regulation as pollutant discharges under this General Permit. However, the MeDMR lease approval process and the US Army Corps of Engineers permits for Atlantic salmon aquaculture operations both consider these topics. By requiring evidence of other permits, the General Permit does assure that the public concerns and interests are protected.

In November, 2000, the National Marine Fisheries Service and the United States Fish & Wildlife Service (collectively, the Services) issued a final rule listing Atlantic salmon populations in certain Maine rivers and streams as “endangered” under the federal Endangered Species Act. The listing identified several risks to Atlantic salmon posed by finfish aquaculture, including potential spread of diseases, and the potential that escaped cultured fish could disrupt reproduction of river populations of Atlantic salmon.

The General Permit contains conditions for Atlantic salmon aquaculture operations in three primary areas: loss prevention through audited containment practices, marking of fish to identify the origin of any fish that may escape, and use of only North American strains of Atlantic salmon.

The Department has considered each of these potential impacts and developed permit limits to address or control each. As permitted, Atlantic salmon aquaculture facilities operating in compliance with the terms of conditions of this General Permit will not cause unreasonable degradation of marine waters and will be in compliance with 38 M.R.S.A § 464(4)(A)(11).

### **14. PUBLIC COMMENTS**

Public notice of this intent to renew the 6/19/03 General Permit was made in the *Bangor Daily* and *Portland Press Herald* newspapers on April 22, 2008. The Department receives public comments on an application until the date a final agency action is taken on the application. Those persons receiving copies of draft permits shall have at least 30 days in which to submit comments on the draft or to request a public hearing, pursuant to *Application Processing Procedures for Waste Discharge Licenses*, 06-096 CMR 522 (effective January 12, 2001).

## 15. DEPARTMENT CONTACTS

Additional information concerning this permitting action may be obtained from, and written comments sent to:

William F. Hinkel  
Division of Water Quality Management  
Bureau of Land & Water Quality  
Department of Environmental Protection  
17 State House Station  
Augusta, Maine 04333-0017 Telephone: (207) 287-7659 Fax: (207) 287-3435  
e-mail: [bill.hinkel@maine.gov](mailto:bill.hinkel@maine.gov)

## 16. RESPONSE TO COMMENTS

During the period of April 28, 2008 through May 28, 2008, the Department solicited comments on the proposed draft Atlantic Salmon Aquaculture General Permit renewal. The Department received written comments from True North Salmon US, Inc. (TNS), MER Assessment Corporation (MER), the Maine Department of Marine Resources (MeDMR), the Services (jointly, the US Fish and Wildlife Service and the National Marine Fisheries Service), and the Sierra Club. Additionally, the Department met with the MeDMR, TNS and MER following close of the draft permit review period to discuss their comments on the draft permit. The significant comments from these interested groups and Department responses are summarized below.

### Permit Section I.B.1 – Specialized Definitions

**Comment #1:** The Services objected to changes in the definition of “Atlantic Salmon Aquaculture Facility” in the 4/28/08 draft permit. They stated that *“the ultimate application of such a definition to multiple leaseholds (or multiple “sites”) has yet to be tested, given that site-specific marking plans have not been proposed by the aquaculture industry and critically reviewed by the Services, MEDEP, and the ACOE. Furthermore, to address industry concerns for flexibility, we have had discussions about the possibility of combining more than one site under a single site mark where the sites are located close together, are managed by the same work crew, and have other characteristics that lend themselves to a single mark. To date, however, we have not identified any particular circumstances where such site consolidation would benefit individual growers and, for purposes of site-specific marking, is acceptable to the Services.”*

TNS requested, *“Please remove the word “immediately” to read as follows: “. . . means a single net pen or group of net pens and appurtenances within a single leasehold (or multiple leaseholds if net pens are ~~immediately~~ adjacent and managed as a single operation) . . .”*

## 16. RESPONSE TO COMMENTS (cont'd)

**Response #1:** The 4/28/08 draft permit contained the following definition:

*"Atlantic salmon aquaculture facility" or "facility" means a single net pen or group of net pens and appurtenances within a single leasehold (or multiple leaseholds if net pens are immediately adjacent and managed as a single operation) granted by the Maine Department of Marine Resources (MeDMR) operated by a single owner with a common management plan for the purpose of rearing Atlantic salmon (Salmo salar).*

This renewal permit contains conditions for Atlantic salmon aquaculture operations to be consistent with the minimum requirements of the Services and to satisfy requirements in Maine's NPDES authorization. Whereas the Services have commented that the definition in the 4/28/08 draft permit is unacceptable, the 4/28/08 draft permit is being revised by reverting to the definition established in the June 19, 2003 permitting action as follows:

*"Atlantic salmon aquaculture facility" or "facility" means a single net pen or group of net pens and appurtenances within a single leasehold granted by the Department of Marine Resources and operated by a single owner with a common management plan for the purpose of rearing Atlantic Salmon (Salmo salar).*

### Permit Section I.C.3 – Current velocity

**Comment #2:** TNS requested that the Department eliminate the average current velocity requirement of 5 cm/second asserting that imposition of this citing criterion is arbitrary.

**Response #2:** The 5 cm/second siting criterion received considerable debate during the adjudicatory proceedings at the Maine Board of Environmental Protection (Board) during development of the original 6/19/03 permit. In the response to comments section of the fact sheet associated with the 6/19/03 permit, the Department responded,

*With regard to horizontal velocity, some testimony urged that the current velocity limit should be dropped as a siting criterion for general permit coverage. Others suggested that the proposed limit of 5 cm/sec should be increased since the placement of net pens reduces the current below the pens. Conversely, it was suggested that net pens may funnel water below them and increase the velocity. Evidence on the record did not conclusively demonstrate either hypothesis. However, the Department does believe that horizontal mixing is one useful determinate in establishing general permit coverage. As pointed out in testimony, the proposed limit of 5 cm/sec is within the range used by other jurisdictions. In oral testimony, Department staff noted that a review of aquaculture sites having recent benthic compliance concerns suggests a relationship with a breakpoint of 5 cm/sec. While this is not*

## 16. RESPONSE TO COMMENTS (cont'd)

*conclusive, such empirical information does suggest that the proposed limit of 5 cm/m is in the appropriate range.*

The Department has no new compelling information to modify or eliminate the siting criterion established in the 6/19/03 permit, which was debated and ultimately approved by the Board. The Department is not making changes to the 4/28/08 draft permit with regard to the velocity current criterion.

### Permit Section I.C.6 – Stratification of the water column

**Comment #3:** TNS requested that the term “stratification” be defined.

**Response #3:** Permit Section I.C.6 specifies “Facilities covered by this General Permit shall not be located in waters that demonstrate significant, persistent vertical stratification during summer months.” In determining if the water column is stratified, the Department will evaluate results on a site-specific basis considering duration and magnitude of vertical temperature and density changes in the water column.

### Permit Section I.D.3.1 – Required NOI information: reference sites

**Comment #4:** TNS requested that the requirement to identify “activities within 1,000 meters of any reference sites that could influence water quality, such as marinas, other aquaculture facilities, or point source discharges” be eliminated from the permit, or that the Department prepare and make available a list of point source discharges relevant to this requirement.

**Response #4:** Part II.F of the 6/19/03 permit required facilities to identify sources within 1,000 meters of a proposed reference site that could potentially influence water quality. The Department has considered this request and believes it is reasonable to eliminate this required NOI information given that proposed reference sites must be reviewed and approved by the Department before data will be utilized for comparison purposes and compliance evaluations. The 4/28/08 draft permit is being revised by eliminating the aforementioned NOI requirement.

### Permit Section I.D.3.r – Required NOI information: technical and financial capacity

**Comment #5:** TNS requested the Department remove the requirement for the applicant to provide evidence of its technical and financial capacity where that information is already on file stating that the requirement is “unduly burdensome” when the Department already has that information for other NOIs submitted.

**Response #5:** The requirement at section I.D.3.r in the 4/28/08 draft permit is in error in that it required technical and financial capacity information for new *and* transfer applications. *Rules Concerning the Processing of Applications and Other Administrative Matters*, 06-096 CMR 2(21)(C)(1) (effective August 1, 1994) requires this information for transfer applications only. The 4/28/08 draft permit is being revised by modifying this NOI



## 16. RESPONSE TO COMMENTS (cont'd)

requirement to require a Certificate of Good Standing for new applications only. Conditions for transfer of ownership are specified at Permit Section I.D.7.

### Permit Section I.D.6 – Effective date of coverage

**Comment #6:** TNS requested that the effective date of coverage be revised to read *“The Department shall notify an applicant of coverage under this General Permit, or shall request additional information, within ~~31~~ 14 calendar days of receipt of each complete NOI or date of public notice publication, whichever is later. . .”* This revision addresses the issue stated on page 8 of the fact sheet, allowing permits without issues to be expediently processed.”

**Response #6:** The Department has determined that more time than was allotted in the 6/19/03 permit to review NOIs for completeness and approval is necessary given 1) the volume of information to review for each NOI submitted to the Department; 2) staff resources and workload; and 3) inter- and intra-departmental coordination. The Department does not believe the revision from 14 days to 30 days is unduly burdensome to applicants and will make every effort to expedite review of NOIs.

### Permit Section I.E.1 – Notices by applicant and payment of fees

**Comment #7:** TNS stated that *“coverage under the Notice of Intent should be consistent with the term of the permit and not ‘for a period of 12 months from the date the NOI is approved...’* This is likely an inadvertent reference, and should be corrected in the final permit.”

**Response #7:** The Department concurs that this section needs clarification. The 4/28/08 draft permit has been revised, in pertinent part, to clarify that coverage under the General Permit will be continued from year to year through payment of an applicable annual fee.

### Permit Section I.E.2 – Individual permit coverage

**Comment #8:** TNS requested that *“the provision be revised as follows: ‘The Department may require, ~~or an interested party may request,~~ that a facility covered under this General Permit obtain an individual MEPDES permit . . .’”* TNS asserts, *“As drafted, this provision suggests that the interested party may, by its request, require that a facility that is otherwise covered under a General permit instead obtain an Individual Permit; a determination to require an Individual Permit is, of course, within the sole jurisdiction of the Department.”*

**Response #8:** *Application Processing Procedures for Waste Discharge Licenses, 06-096 CMR 522(4)(a)* (effective January 12, 2001) states, in pertinent part, *“Permits may be modified, revoked and reissued, or terminated either at the request of any interested person (including the permittee) or upon the Department's initiative.”* The provision in the 4/28/08 draft permit is consistent with the Department's rules and applicable Maine law for modification, revocation and reissuance, or termination of permits. The 4/28/08 draft permit has, however, been revised slightly to clarify that the Department will consider requests to take action on existing permits.

## 16. RESPONSE TO COMMENTS (cont'd)

### Permit Section II.B – Feeding Rates and Monitoring

**Comment #9:** TNS requested that the requirement to report to the Department its food conversion ratio (FCR) be removed from the permit. TNS stated “*the permittee provides information related to the FCR in its monthly Discharge Monitoring Reports. To the extent that additional information is not in the monthly reports, that information is proprietary. Release of such additional information would provide an unfair business advantage to others in the industry.*” TNS additionally stated in comments received on August 26, 2008 (see explanation provided below “Response #38” below),

*TNS continues to request the FCR reporting requirement be removed from the General Permit. Many factors contribute to the FCR of a particular operation and to determine the direct cause and effect of environmental impact relative to FCR is difficult at best. Feed ingredients and formulations change throughout the life cycle of the fish and will continue to change as the industry faces the challenges of raw material scarcity and cost. Moreover, a perceived correlation between FCR and benthic impact at a particular site may not be, in fact, a proven correlation at any given site. Even if a correlation between FCR and benthic impact were determined at a particular location, it will change across different sites.*

*Finally, other factors exist that might make the FCR unreliable. For example, often fish such as Pollack or Cod enter cages in significant numbers and remain there until harvest. Presence of these fish will skew FCR numbers dramatically.*

**Response #9:** The Department has considered this request and has determined that FCR reporting is not necessary to assess compliance with the General Permit or water quality standards. Additionally, the information necessary to calculate a facility’s FCR is available through data submitted to the MeDMR.

### Permit Sections II.C.1 – Water column mixing zone and II.C.2 – Sediment mixing zone

**Comment #10:** TNS requested that the Department extend the water column mixing zone and the sediment mixing zone from 30 meters to 60 meters. TNS stated, “*A 30-meter Mixing Zone was selected in the previous permit based on the mixing zone used in a freshwater environment. The dynamic nature of a marine environment supports use of a larger mixing zone, and the science and experience supporting the larger mixing zone has been discussed with the Department several times over the last several years. The Department and the applicant have acknowledged that this revision of the General Permit would be the appropriate occasion to address this issue.*”

## 16. RESPONSE TO COMMENTS (cont'd)

**Response #10:** The 30-meter water column and sediment mixing zones were established in the 6/19/03 permit following considerable debate during the development stages of the permit. In its response to comments section of the fact sheet associated with the 6/19/03 permit, the Department stated,

*The authority for establishing a mixing zone is at 38 MRSA §451, and is a subjective standard. A mixing zone is intended to “allow a reasonable opportunity for dilution, diffusion or mixture of pollutants with the receiving waters before the receiving waters below or surrounding a discharge will be tested for classification violations.” In consideration of what is reasonable, several factors are to be considered: the nature and rate of the discharge, the nature and rate of mixing, the size of the waterway, seasonal or climatic changes and uses of the water way. The Department believes that the mixing zone as described in the proposed general permit is reasonable. While some lowering of normal standards is allowed within that area, they do not permit unchecked degradation, nor are the waters rendered unsuitable to support any uses. The 30-meter zone is comparatively small in a marine setting and most of the anticipated effects are temporary or transient. Several comments were concerned with the water column in particular. In that area, depression of DO levels would be due primarily to the respiration of fish being reared in and organisms growing on the nets, and not caused by a traditional discharge of pollutants that would exert a continuing oxygen demand. In any event, the water column standards in the mixing zone are sufficient to avoid any loss of normal or expected uses. The drift time through the 30-meter water column mixing zone at a current velocity of 5 cm/sec is 10 minutes.*

The Department has no new compelling information that the 30-meter water column and sediment mixing zones established in the 6/19/03 permit and that were the subject of debate at the Board are inappropriate or should be extended to 60 meters.

### Permit Section II.C.1 – Water column mixing zone

**Comment #11:** TNS requested that the dissolved oxygen concentration standard of 6 mg/L within the water column mixing zone be removed from the permit stating that “no scientific basis or regulatory basis has been provided as to why the level of 6 mg/L has been proposed.” Further, TNS verbally stated concerns that if natural conditions result in ambient DO less than 6 mg/L, the permit does not specify that the facility will not be considered in violation of the mixing zone standards.

## 16. RESPONSE TO COMMENTS (cont'd)

**Response #11:** Within the designated water column mixing zone, the Department has established a dissolved oxygen standard of 6 mg/L based on best professional judgment of dissolved oxygen that is fully adequate to protect designated uses within the mixing zone. In that area, the dissolved oxygen concentration must not fall below 6.0 mg/L and there may not be concentrations of any substance that would be acutely lethal to organisms drifting or swimming through the mixing zone. Acute lethality is generally evaluated on an exposure time of one hour. This combination of oxygen level and no acutely toxic affects will allow use of the waters within the mixing zone as an acceptable habitat for aquatic organisms. This matter was the subject of debate at Board proceedings during development of the 6/19/03 permit and was ultimately approved by the Board as a final condition in the permit. The Department has no new compelling information that the 6 mg/L standard is not appropriate for the water column mixing zone.

The Department has revised the 4/28/08 draft by including the following provision to Permit Section II.C.1. *“In the event that a facility determines ambient DO within the water column mixing zone is less than 6 mg/L, the Department will take into consideration DO monitoring results from up-current and down-current monitoring stations in determining a facility’s contribution to low ambient DO.”*

### Permit Section II.D.5 – Narrative effluent limitations

**Comment #12:** TNS requested that narrative effluent limitation #5 prohibiting discharges from producing or resulting in harmful algae blooms be removed from the permit, or that a causative factor and an objective standard be added to this provision. TNS asserts, *“the provision provides no standard to measure the cause of algae blooms. Without using a standard to measure the discharge, it cannot be determined whether any discharges result in harmful algae blooms. Inclusion of the above provision in the permit results in a permit requirement for a condition that may result naturally and leaves the aquaculture operator without notice as to what steps or measures must be undertaken to achieve compliance with the standard.”*

**Response #12:** The issue of algae blooms was debated before the Board during development of the 6/19/03 permit. In its response to comments in the fact sheet associated with the 6/19/03 permit, the Department stated, *“testimony offered evidence that the occurrence of green slime was documented in years prior to the significant development of the aquaculture industry. There is no information to demonstrate that the industry has caused or contributed to a worsening of these growths. The Department will, of course, continue to monitor on-going studies in this area to determine if aquaculture or any other discharges needs further regulation to prevent contributing to harmful algal blooms.”* The Department does not have compelling information that marine aquaculture activities are causing or significantly contributing to harmful algae blooms in Maine. Further, the narrative conditions established in the General Permit specify that the discharges shall not cause or contribute to violations of water quality standards; thus, the permit is protective of water quality without the aforementioned narrative limitation. In consultation with the MeDMR, the Department is revising the 4/28/08 draft permit by eliminating the narrative condition pertaining to harmful algal blooms. It is noted that MEPDES permits issued for other marine dischargers do not

## 16. RESPONSE TO COMMENTS (cont'd)

contain a narrative effluent limitation specifically addressing harmful algae blooms and that this revision is consistent with the MEPDES permitting program.

### Permit Section II.E.4 – Video and photographic monitoring requirements

**Comment #13:** TNS requested a “minor adjustment” to the annual written waiver provision for spring video monitoring. TNS requested the following changes to this provision: “*The Department may provide a permittee with an annual written waiver by March 1 of each year for the spring monitoring for individual facilities when . . .” “License holder will receive in writing the specifics of sampling requirements for each site by March 1 and July 1 of each year.” “No video sampling will be required if the sampling period falls within 6 months of post-stocking.”*

TNS stated, “*Receipt of the waiver or the specifics of sampling requirements after March 1 by the Permittee may result in unnecessary, costly and time-consuming monitoring activities which are not necessary due to site conditions.*”

**Response #13:** The 4/28/08 draft permit revised the spring monitoring waiver provision established in the 6/19/03 permit by including “no fish on the site since the previous video monitoring event” as a criterion for a waiver and stating that the waiver would be provided by the Department in writing. The specific requirements for video monitoring are provided in the permit and the Department does not believe the “specifics of sampling requirements” need be reiterated for each site by March 1 and July 1 of each year. The Department does not concur that locking into a decision by March 1 of each year will always prove most effective. For example, TNS has requested to increase the written video report submission deadline from 90 days to 120 days (see below). In that particular circumstance, the report of a video survey conducted in October may not be available to the Department until the end of the following February. In this case, the Department may be forced into not granting a spring video waiver by March 1<sup>st</sup> due to lack of adequate time to evaluate the most recent data. In light of TNS’ comment on this matter, the Department is revising the 4/28/08 draft permit by changing the annual spring monitoring waiver provision at Section II.E.4 to include a requirement for the permittee to submit a written request for a waiver and specifying that the request is deemed granted. The relevant revised section in the final permit reads as follows:

*The Department may provide a permittee with an annual written waiver for the spring monitoring for individual facilities when: 1) there have been no fish on the site since the previous video monitoring event; or 2) monitoring the preceding fall indicates that the warning levels specified in Part II.F are not exceeded and there are no other indications of adverse conditions resulting from the facility's operation; and 3) the permittee provides written request (return receipt required for postal mail; delivery receipt required for electronic mail) to the Department compliance inspector for consideration of said waiver.*

## 16. RESPONSE TO COMMENTS (cont'd)

**Comment #14:** MER stated that the requirement to submit video records and a schematic of the video transect within 10 business days following the monitoring event

*may prove difficult or impossible to achieve. In the interest of efficient use of time and travel, monitoring events are usually grouped into a single effort, i.e. multiple sites are monitored over the course of a full-week effort; these monitoring trips may be further extended in view of recent fuel cost increases. In a case where multiple sites are monitored over the course of a week followed by a weekend, the first recorded videos will not be able to be transcribed from the recording media to DVDs until the 7<sup>th</sup> or 8<sup>th</sup> day post-recording at the earliest. Transcription and copying of the video recordings for viewing on standard DVD players requires real-time speed recording, thus transcription and three copies (one each for company, DEP, DMR) requires a minimum of 4 hours per hour of recorded video. In view of the number of videos recorded per monitoring week (or monitoring trip) and the likelihood of extended field time it would be difficult for a contractor to assure being able to provide all video recordings, site data, and site schematics to the company(ies) within 10 days and consequently for the company to meet a 10-day DEP reporting requirement.*

MeDMR stated that they “support a faster turn around so that the agencies can recommend additional and timely monitoring based on an early finding of a problem” but questioned “if there might be some extenuating circumstances where the contractor is in the field continuously for a week or more that would make meeting this deadline difficult.” “Can DEP staff grant extensions to any deadline, for example, without the permittee violating the permit? It seems reasonable that there be some provision for this.”

TNS stated, “We strongly recommend that the site operator be required to submit video to the Department within 90 days (not 10 business days) following the monitoring event.”

**Response #14:** The intention of revising the video record submission deadline from 90 days in the 6/19/03 permit to 10 business days in the 4/28/08 draft was to improve the timeliness of visual review of conditions existing adjacent to and beneath the net pens. However, the Department concurs that MER raises a valid argument on this matter and is revising the 4/28/08 draft by changing Permit Section II.E.4. Footnote #1 to require submission of all video record data as soon as possible following a reasonable opportunity to review data prior to submission. The Department is revising the 10-day deadline to 45 days and adding a provision allowing the Department to provide a written extension to the video submission deadlines due to extenuating circumstances beyond the control of the permittee.

## 16. RESPONSE TO COMMENTS (cont'd)

***Comment #15:*** TNS requested that the requirement to submit written reports of video/photographic monitoring events be changed from 90 days following the monitoring event when taxa measurements are made to within 120 days following the monitoring event when taxa measurements are made. TNS stated, *“It is the experience of the permittee that there may be occasional delays in securing final laboratory analyticals, which often results in the inability of the Permittee to submit written reports prior to 120 days.”*

***Response #15:*** The 6/19/03 permit established a 90-day submission deadline which was carried forward in 4/28/08 draft permit. The intent of the Department is to obtain monitoring data in a timely manner to provide the most effective and responsive regulatory oversight possible. In the event of “occasional delays in securing final laboratory analyticals” or other circumstances that are outside the control of the permittee, the Department is revising the 4/28/08 draft by adding a provision to Permit Section II.E.4. Footnote #1 allowing written extensions to the video submission deadlines due to extenuating circumstances beyond the control of the permittee.

***Comment #16:*** TNS requested the following revision to Permit Section II.E.4 Footnote #3: *“If water depths at a facility exceed the State of Maine’s safe working depth limit of 85 feet for SCUBA diving, or if conditions are too dangerous for a video survey (e.g., presence of sharks), video surveys normally conducted by divers may instead be obtained using one or more of the following methods:...”*

***Response #16:*** Diver safety is of utmost importance when conducting video monitoring events at the permitted facilities. If a diver determines that conditions are not safe to perform the scheduled video monitoring event, the event should be rescheduled, if possible, rather than employing alternate methodologies. To ensure a facility is not in violation of this permit due to unsafe diving conditions, Permit Section II.E.4 Footnote #3 of the 4/28/08 draft permit is being revised as follows:

“If water depths at a facility exceed the State of Maine’s safe working depth limit of 85 feet for SCUBA diving or divers determine that conditions are not safe to perform the scheduled video monitoring event, video surveys normally conducted by divers may instead be obtained using one or more of the following methods: a video camera mounted on a tethered sled, a tethered drop still camera, tethered drop video camera or equivalent. If still photos are taken with a tethered camera, one photograph shall be taken at least every 10 meters along each transect. If divers determine that they can not safely conduct the video monitoring, 1) the video monitoring event shall be rescheduled, if possible, when safe diving conditions resume; or 2) the monitoring event may proceed using the alternate methodologies specified above and the permittee shall provide documentation of the unsafe condition(s) and reason(s) the video survey could not be rescheduled as part of the written video/photographic report(s).”

## 16. RESPONSE TO COMMENTS (cont'd)

### Permit Section II.E.5 – Sediment and benthic monitoring requirements

**Comment #17:** TNS, MeDMR and MER all requested that the sampling protocol for sediment and benthic monitoring within the mixing zone (Permit Section II.E.5.1.b) be revised from “where benthic impact is observed to be the greatest” to random locations.

Specifically, TNS stated, “*The purpose of sampling within the mixing zone is to acquire a sample representative of the conditions at the site. Identification of the location where benthic impact is observed to be the greatest ensures that the sample is not representative. Given the dynamic marine environment, a representative sample ensures sound sampling practices and results.*”

MeDMR stated, “*We continue, since the inception of the permit, to disagree with the sampling approach that biases results toward a violation. In the marine environment, patchiness is the rule. Six inches left or right can make a huge difference. Directing the sampler to seek out “worst case” conditions is hardly representative and bad science. Anyone can find a spot that collects organic matter.*”

MER stated,

*The requirement that samples be taken “**where benthic impact is observed to be the greatest based** on the sampler’s best professional judgment” either presupposes that the sampler (diver) is capable of “best professional judgment” regarding environmental impacts, which is rarely the case, or that the video recording be analyzed by the contractor who must then direct the divers to points of greatest benthic impact. In those cases where the divers are unable or unwilling to assume best professional judgment responsibility, after each video is recorded, the video tape would need to be brought ashore for viewing while the transect lines remained undisturbed to allow divers to sample those areas identified as having the greatest impact. This may prove practically and logistically difficult, if not impossible, at some sites.*

*Additionally, sampling only “where benthic impact is observed to be the greatest” will nearly certainly yield measurements result in the Warning or Impact level despite the fact that ‘where benthic impact is observed to be the greatest’ may represent bathymetric anomalies, i.e. depressions in the bottom where feed or feces may accumulate, that are not representative of the site as a whole. Random sampling, whether strictly random or systematically random at predetermined distances from the cages as currently performed, yields results reflective of the general condition of the bottom rather than a negatively biased condition as proposed here. We therefore recommend that either the current sampling strategy*



## 16. RESPONSE TO COMMENTS (cont'd)

*be continued or that sampling be carried out randomly within the mixing zone.*

**Response #17:** The 6/19/03 permit required sediment and benthic monitoring “within the mixing zone where benthic impact is observed to be the greatest.” The 4/28/08 draft permit did not modify this requirement.

Following considerable discussion on this matter with the MeDMR, the Department concurs that the sampling protocol for benthic monitoring should be changed to a predetermined location. This approach will provide for consistent and comparable monitoring among permitted facilities. However, the Department maintains that samples should be collected from areas where benthic impact is observed to be the greatest. Therefore, Permit Section II.E.5 Footnote #1(b) of the 4/28/08 draft permit is being revised as follows:

*Samples shall be collected along the transect at a point 5 meters from the outside edge of the pens. However, the Department reserves the right to require sampling at other specific locations based on reviews of video records or other site-specific considerations.*

The impact thresholds established in the permit for the sediment mixing zone represent the levels above which, and at any point, benthic impact conditions are unacceptable and may be unsuitable to support all designated uses for the waterbody. Hence, the Department reserves the right to require additional monitoring at specific locations observed in video records that represent obvious benthic impacts.

**Comment #18:** MER stated,

*The current recommendation of 90 days (not 90 business days) is half the time originally recommended as reasonable and we believe this to be a nearly impossible deadline to meet for all samples, particularly in years when numerous samples are collected. To meet the current 150-day reporting period, samples are processed chronologically in the order in which they are taken. As an alternative to requiring all benthic infauna samples to be completed within 90 days, we would recommend that, when expedited information is required for certain sites, these sites be identified as early as possible, preferably prior to sampling being carried out. Early identification of these sites would allow samples needing expedited processing to be moved up in the schedule to insure completion within the requested 90 days, so long as the number of expedited samples is not overwhelming; all non-expedited samples could be required to be completed within the current 150-day deadline.*

## 16. RESPONSE TO COMMENTS (cont'd)

MER further stated,

*Due to the cost and labor required to run TOC samples, cost-effective sample processing and measurement is currently performed in large batches. If the number of salmon aquaculture monitoring samples is deemed insufficient to warrant processing, samples are held frozen at the laboratory until additional samples are obtained. Although the laboratory has usually been able to meet the current 150-day processing time, due to the volume of samples (other than TOC) processed by the facility, it is unknown whether processing, analysis, and reporting by the Darling Center can be completed in order to meet a 90-day reporting deadline; experience to-date suggests this would be difficult, if not impossible.*

And the MeDMR stated,

*Requiring sediment and infauna results within 90 days is something we recommended in some earlier discussions. It was prompted by several instances where the State did not have the benefit of the results to base spring stocking decisions. Having thought more about the specifics of sample processing, we may have oversimplified reporting by combining too many variables. Sulfides can be reported within 10 days since they have to be processed almost immediately. These could be submitted with the videos. Those results, sulfides and videos, would enable us to prioritize those sites which would need to be processed within the 90 day window leaving the remaining samples to be reported within 120 days.*

**Response #18:** The 6/19/03 permit required submission of sediment and benthic monitoring reports within 150 days of the monitoring event, but included a provision to require earlier submission if prior benthic monitoring, video monitoring, or other information indicate the facility may be adversely impacting the sediment. In consideration of the comments above, the Department is revising the 4/28/08 draft permit at Permit Section II.E.5 Footnote #9 to revert back to the submission requirements established in the 6/19/03 permit with the addition of a provision to extend the deadline if necessary due to extenuating circumstances beyond the control of the permittee. The Department will notify a facility on a case-by-case basis if earlier submission of sediment and benthic reports/data is necessary to address documented or suspected adverse impacts to the sea floor.

**Comment #19:** MeDMR stated, “As a small technical point, note that one can not measure anoxia under the present photo coverage technique. Perhaps this needs to be dropped for purposes of credibility? Anoxia and its impact are already well covered under sulfides, hand swipes and infauna.”

## 16. RESPONSE TO COMMENTS (cont'd)

**Response #19:** The permit requires inspection for *evidence* of anoxic conditions in terms of gas bubbles, odor and surface color, not quantitative measurements.

**Comment #20:** TNS requested the Department “*remove the requirement that ‘Percent Solids’ be reported. The Permit does not provide any definition of Percent Solids, methodology to measure Percent Solids, or justification for the addition of this parameter in the permit.*”

**Response #20:** MeDMR requested that the renewal permit contain a requirement to report percent solids to assist in interpreting results of other tests when characterizing bottom conditions performing compliance evaluations. Permittees should consult the Department compliance inspector for acceptable test methodologies.

**Comment #21:** TNS requested that the Department “*exempt Oxytet from ‘Medications Used’ testing. Oxytet has been tested under the guidance of MDEP and there has been no finding of residual from this compound in sediment samples.*”

**Response #21:** Oxytetracycline was used 4 times at 4 facilities during the term of the 6/19/03 permit. Sampling was conducted for 2 of the treatments [2005 = <10 ppb, 2004 = 650 ppb]. The other 2 treatments occurred after the only lab in North America known to be able to analyze these compounds in sediment chose not to analyze such a small number of samples. The Department does not have sufficient information at this time to conclude that the use of oxytetracycline does not pose a potential to accumulate in sediments or organisms for sufficient time as to pose a potential threat to water quality or aquatic life and is carrying forward the monitoring requirement in this renewal permit.

**Comment #22:** TNS requested that requirements at Permit Section II.E.5, Footnote #7 (default benthic infauna monitoring requirements when results indicate exceedence of the warning levels of impact limits established in Permit Section II.F) be changed such that the Department has the option to require additional measurements rather than establishing a condition that requires benthic infauna monitoring regardless of other test results and the severity of an exceedence.

**Response #22:** The Department concurs that benthic infauna monitoring may not be the most appropriate response to an exceedence of the warning level of impact limit standards in all cases. Therefore, the Department is revising Permit Section II.E.5, Footnote #7 to specify the following:

*The Department reserves the right to require additional benthic infauna sampling based on best professional judgment taking into account the timing, frequency and severity of monitoring results that exceed the Warning Level or Impact Limit thresholds for any parameter established in Part II.F. of this General Permit, Warning and Impact Thresholds. When benthic infauna testing is determined to be the most appropriate Department response to an exceedence, the permittee shall coordinate with the Department to*

## 16. RESPONSE TO COMMENTS (cont'd)

*ensure monitoring is performed as soon as possible after such a determination is made.*

### Permit Section II.F – Warning level and impact thresholds

**Comment #23:** MER stated,

*We once again caution the Department on the dangers of reliance on single metrics, particularly single biological metrics, for determination of attainment, whether at the Warning or Impact level. In the current General Permit the threshold levels for redox (Eh) and sulfide are independent metrics, that is, each metric having its own independent threshold limits for Warning and Impact. In practice, these two parameters are now considered in light of the other, effectively linking the two metrics with the preposition “AND”, e.g. if the measured redox level exceeds the redox Warning level but sulfide remains below the sulfide Warning level, the measure condition is determined to be acceptable.*

*In light of the lessons learned from 5 years of experience with the current General Permit, we would recommend that biological and geochemical metric thresholds be link when determining Warning or Impact level conditions. For example, if *Capitella capitata* exceeds 70% population dominance but the geochemical measurements indicate that the sediments remain oxic, the biological condition described is the normal organic matter metabolism process that occurs ubiquitously in the marine environment, one that should therefore be considered acceptable.*

*A condition where there is a “statistically significant decrease in mean number of individuals minus number of *Capitella capitata*” (Impact level) where organic matter deposition is occurring is normal and not by obligation indicative of severely degraded environmental conditions, i.e. Impact level. Since *C. capitata* is opportunistic in organically enriched conditions and adapted to thrive under such conditions while other species may be less adapted, it is only natural that the numbers of the latter may temporarily decline as those of *C. capitata* rise, perhaps exponentially. Despite even dramatic shifts in population structure, from a functional perspective, *C. capitata* is performing precisely its intended function: metabolism of organic material under aerobic (albeit perhaps hypoxic) conditions. If, however, *C. capitata* abundance declines in response to anaerobic conditions, the function provided by *C. capitata* will be compromised, likely leading to a severely degraded environmental condition.*

## 16. RESPONSE TO COMMENTS (cont'd)

*Therefore, again, a “statistically significant decrease in mean number of individuals minus number of *Capitella capitata*” should be linked to geochemical metrics (sulfide and/or TOC) as well as evaluated in light of baseline and reference conditions.*

**Comment #24:** MeDMR requested, “While the draft language provides for professional judgment to be applied in the interpretation, it is unclear what factors are to be considered. Please add footnote 5 to all metrics so that reference site, baseline, and historical information are incorporated into that professional judgment.”

**Comment #25:** TNS requested that the sediment mixing zone warning level for sulfide be changed from 1,300  $\mu\text{M}$  – 6000  $\mu\text{M}$  to 2500  $\mu\text{M}$  – 6000  $\mu\text{M}$ . TNS stated,

*This revision (revising the bottom of the range for the Warning Level for Sulfides from 1300 to 2500) is in accord with several conceptual and practical discussions with the Department where aquaculture site operators and consultants have demonstrated how an unduly low value for warning level for sulfide results in issuance of warnings where either natural conditions or an aberrant bottom condition yield a false positive. The rationale for the 2500  $\mu\text{M}$  threshold is derived from a careful review of data extracted from a redox/sulfide report to MAIC that favors increasing the sulfide warning level threshold. From this data, it becomes clear that, at the 3,000  $\mu\text{M}$  level, the range of taxa is still wide, after which the taxa appear to decline somewhat sharply; thus, up to the 3,000, conditions are still acceptable. We acknowledge that one may not want to establish a Warning Level just before you drop off the edge, but rather at some point where conditions first begin to deteriorate, as evidenced by a decline in taxa, which appears to be somewhere below 3,000  $\mu\text{M}$  and well above 2,000  $\mu\text{M}$ . The data might support extending the Warning Level to around 2,500  $\mu\text{M}$ , but based on these data, it would be hard to argue against “setting the warning just before the precipice” i.e. at 3,000 $\mu\text{M}$ . Twenty species is still fairly diverse.*

**Comment #26:** TNS requested that the warning level for *Beggiatoa* bacteria be changed from 25% coverage to 50% coverage and the impact limit changed from 50% coverage to 75% coverage. TNS stated,

*Beggiatoa has long been recognized as a naturally occurring phenomenon. To the knowledge of the Permittee, there is no known scientific evidence that correlates percent beggiatoa with any other benthic parameter, or with any “unreasonable degradation in functionality.” Furthermore, the determination of percent coverage is based on a subjective review of the videotapes and vast variations in interpretation. There is no consistency in*

## 16. RESPONSE TO COMMENTS (cont'd)

*approach by the reviewers. The relative presence of beggiatoa is, of course, only a snapshot in time in the biological cycle; for that and other reasons, the weight to be given to % cover of beggiatoa needs to be understood well. As noted, the methodology used by those applying % cover of beggiatoa has also varied widely in practice. For these reasons, we request that there be a clear statement of the scientific and technical reasons for the use of % cover of beggiatoa in the Fact Sheet and that, as with other parameters in Table F, a footnote be dropped as to the methodology for how % cover of beggiatoa is to be applied.*

**Comment #27:** MeDMR asserts, “*The biological metrics are inappropriate, especially within the mixing zone but also outside. For example, we have seen places, especially in soft bottoms, with virtually no infauna prior to occupation by a salmon farm and now C. capitata flourishes. What is the ecological harm? One might even consider this an improvement though that too is a value judgement.*” MeDMR continued, “*We recommend that the biological metrics of Table F-1 be left unchanged until DEP and DMR jointly review its contents. Table F-2 needs to have all biological language replaced with a single biological metric this is the narrative language of Water Classification and not try to develop criteria to apply the narratives as proposed in this draft. We do not have the scientific basis to do so, yet.*”

**Response to Comments #23-27:** Related to Comment #23, the Department will continue to take all relevant information into consideration when evaluating new data and determining compliance with the permit and applicable water quality criteria. The Department has not in the past and does not intend to make determinations as to whether a discharge from a facility is causing or contributing to impairment of the State’s water quality standards based on a single metric or test result. This is precisely the purpose of requiring monitoring for multiple biological and geochemical metrics.

During the development of the 4/28/08 draft permit, the Department consulted with the MeDMR specifically in the area of warning levels and impact limits. However, additional consideration and reflection on this area of the permit by the MeDMR and Department’s Division of Environmental Assessment (DEA) during and following the close of the draft review period resulted in significant changes in what the two agencies consider to be the most appropriate standards for Class SB and SC waters, respectively. Based on the comments received on the draft permit, new information, and the collective best professional judgment of the Department and MeDMR, the Department is making the following changes to Part II.F, Tables F.1 (sediment mixing zone impact thresholds) and F.2 (sediment impact thresholds beyond the mixing zone) of the 4/28/08 draft permit:

➤ *Sulfide*

- Sediment Mixing Zone (Table F.1): Revising the low-end of the warning level range from 1,300 uM to 2,500 uM.
- Beyond the Mixing Zone (Table F.2): Establishing a numeric limit of >3,000 uM for both Class SB and SC waters.

## 16. RESPONSE TO COMMENTS (cont'd)

- *Beggiatoa* coverage
  - Tables F.1 and F.2: Establishing a numeric limit of “>5% photo coverage” which replaces the 4/28/08 draft permit standard of “compelling evidence.” This change is intended to provide for more consistency in compliance evaluations.
  
- *Benthic infauna* – The Department is restructuring this component of the permit by combining abundance and richness measures and dominance of *Capitella capitata*.
  - Sediment Mixing Zone (Table F.1):
    - Establishing numeric benthic infauna warning level standards of >50% reduction in Shannon-Wiener diversity index; >50% reduction of total abundance minus *Capitella capitata*; >25% reduction in total taxa richness; and >50% total abundance composed of *Capitella capitata*
    - Revising the benthic infauna impact limit from a “statistically significant decrease in the number of specified species” to “report information”
  
  - Beyond the Mixing Zone (Table F.2):
    - Establishing separate narrative habitat standards for Class SB and SC waters based on the Water Classification Program
    - Establishing numeric benthic infauna impact limits of >25% reduction in Shannon-Wiener diversity index; >25% reduction of total abundance minus *Capitella capitata*; >25% reduction in total taxa richness; and >25% total abundance composed of *Capitella capitata* for Class SB waters
    - Establishing numeric benthic infauna impact limits of >50% reduction in Shannon-Wiener diversity index; >50% reduction of total abundance minus *Capitella capitata*; >50% reduction in total taxa richness; and >50% total >25% total abundance composed of *Capitella capitata*

With regard to Comment #26 above, *Beggiatoa* are filamentous proteobacteria that may be found as mats on enriched marine sediments. As such, they are good indicators of environmental impacts from net pen systems. The numeric limits for *Beggiatoa* coverage and anoxic sediments are a subjective estimate of the degree of impact within the mixing zone. The Department believes that the continued use of the 25% coverage warning level and 50% coverage impact limits is necessary within the sediment mixing zone to ensure impacts are not unreasonable. It should be noted that all metrics will be taken into consideration when evaluating a facility’s impact on receiving water and sediments. Although evaluation of *Beggiatoa* coverage is subjective in that it is not a laboratory analytical procedure, the Department has developed a standardized methodology for evaluating percent coverage in *Standard Operating Procedure (SOP) for quantitative analysis of benthic videos for benthic impact*, Document #LW-0805. Requests for this SOP may be sent to the facility’s DEP-assigned compliance inspector listed on the cover sheet of this fact sheet.

## 16. RESPONSE TO COMMENTS (cont'd)

**Comment #28:** TNS requested that the Department make the following revision to Permit Section II.F:

*“Physical disturbance such as harrowing, dragging, or other mechanical means ~~shall not~~ may be used to mitigate bottom conditions ~~unless if approved in writing~~ by the Department.”*

**Response #28:** The proposed revision does not change the intent of this statement in the permit and TNS has not provided a compelling reason to change the language that has been carried forward from the 6/19/03 permit. Further, this prohibition is consistent with the language used in the *Natural Resources Protection Act*, 38 M.R.S.A. § 480-C. Thus, no changes are being made to this section.

### Permit Section II.I – Protection of Atlantic salmon

**Comment #29:** TNS stated, “*The narrative in the issued draft as to use of the microsatellite protocol does not align with current practice by either permittees or agencies, and should be addressed before the final permit issues.*”

**Response #29:** The Department received written comments from the Services during development of the 4/28/08 draft permit which included a requirement to append the permit with the *Atlantic Salmon Microsatellite Analysis Protocol*. This renewal permit contains conditions for Atlantic salmon aquaculture operations to be consistent with the minimum requirements of the Services and to satisfy requirements in Maine’s NPDES authorization. The Services have not indicated to the Department that the protocol is outdated or needs revision. Therefore, no changes have been made to the 4/28/08 draft permit with regard to this matter.

**Comment #30:** With regard to Permit Section II.I.8.d requiring a new facility to submit to the Department, for review and approval, a Containment Management System (CMS) plan, TNS stated, “*These plans are recognized confidential documents. For example, Food and Drug Administration personnel conduct reviews of such documents on site without requiring formal submission of such plans.*”

**Response #30:** The Services required the Department to include this provision, which was contained in the 6/19/03 permit, in this renewal permit. The Department has considered the request and is revising the 4/28/08 draft permit at Section II.I.8.d to require new facilities to prepare and make available for inspection CMS plans. Following consultation with the Office of the Maine Attorney General, any information that is deemed confidential under applicable Maine law shall be treated in accordance with the applicable law(s).



## 16. RESPONSE TO COMMENTS (cont'd)

### Permit Section II.J – Best management practices for operation of the facility

**Comment #31:** With regard to authorized net cleaning procedures specified as Permit Section II.J.5, TNS requested authorization to use pressure washing to reduce the use of anti-foulants.

**Response #31:** The Department concurs that the use of pressure washing rather than chemical anti-foulants is advisable when practical. Therefore, the third sentence of Permit Section II.J.5 in the 4/28/08 draft permit has been revised allow pressure washing of nets in accordance with a management plan.

**Comment #32:** With regard to the 3-meter minimum separation of horizontal predator nets from the sea floor specified in Permit Section II.J.7 of the 4/28/08 draft permit, TNS requested the Department *“revise this provision to require that the nets be maintained at least one (1) meter above the sea floor at all times. The 3 meter requirement is a vestige of the prior general permit. Practices have been refined over the years and it has been implemented in individual permits issued after 2003.”*

**Response #32:** The Department has considered this request and finds no compelling reason to require a minimum 3-meter separation standard in the general permit. This criterion is unnecessarily excluding several facilities from coverage under the general permit. The Department retains the right to require a facility to apply for an individual MEPDES permit based on site-specific conditions. The Department does not believe revising the minimum separation from 3 meters to 1 meter will result in adverse environmental impacts or affect diver safety. Therefore, the Department is revising the 4/28/08 draft permit at Permit Section II.J.7 to maintain horizontal predator nets at least 1 meter above the sea floor at all times.

**Comment #33:** With regard to the requirement to notify the Department with written descriptions within 30 days following termination, addition to or significant reorientation of, existing mooring systems specified at Permit Section II.J.8, TNS requested the Department *“remove this provision, since equipment changes are addressed under U.S. Army Corps of Engineers and USDA requirements that are or may be coordinated with the Department; this provision will result in adding a duplicative filing obligation.”*

**Response #33:** Condition A.4, *Duty to provide information*, of *Maine Pollutant Discharge Elimination System Permit Standard Conditions Applicable To All Permits*, revised July 1, 2002, states, in pertinent part, *“The permittee shall furnish to the Department, within a reasonable time, any information which the Department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit.”* The Department has considered TNS’ request to eliminate the specific provision for notification of termination, addition to or significant reorientations of, existing mooring systems and finds that the requirements contained in the MEPDES Standard Conditions and General Condition I.D.8 of the General Permit are adequate to address this issue. Therefore, the Department is revising the 4/28/08 draft permit by eliminating Special Condition II.J.8. The Department reserves the right to require submission of information pertaining to mooring system configuration to determine whether cause exists for modifying,

## 16. RESPONSE TO COMMENTS (cont'd)

revoking and reissuing, or terminating coverage under the general permit or to determine compliance with the General Permit.

**Comment #34:** With regard to the requirement to report to the Department within 24 hours (or next business day), any unusual events at the facility that might cause a significant environmental impact specified at Permit Section II.J.9, TNS stated,

*We request that this entire provision be removed or rewritten. It should be recognized that much of this information is already provided to the Department and/or other agencies such that those Department staff who administer the MEG permit for salmon aquaculture could coordinate with others as to this information.*

*More specifically, reporting weekly mortality rates is burdensome, presents a requirement that is more detailed than what is currently required (monthly mortality is presented now), and would impose a regulatory requirement that would require extensive information collection, analysis, and reporting. "Unusual events" related to equipment and the net pen system[s] are addressed under CMS requirements. Reporting on "interactions with marine mammals" and other phenomena that are outside the permittee's control is neither practical nor scoped to yield information that is relevant to protection from aquaculture activities; more narrowly, specific predation events adversely impacting aquaculture operations are reported monthly at the present time.*

**Response #34:** Condition D.1.(f) of *Maine Pollutant Discharge Elimination System Permit Standard Conditions Applicable To All Permits*, revised July 1, 2002, specifies the mandatory 24-hour reporting requirements for facilities subject to these conditions. Although these conditions are applicable to facilities covered under this General Permit, they were developed for typical discharges from a physical outfall pipe rather than for the type of discharge that occurs from net pen facilities. Thus, the general permit contains certain provisions, such as Permit Section II.J.9 in the 4/28/08 draft permit, that build upon the intent of MEPDES Standard Conditions. In consideration of this comment, the Department acknowledges that the reporting requirement established in the 4/28/08 draft permit may result in duplicative reporting (unusual event management is a requirement of the CMS Plan) and reporting of information that is not substantive to compliance evaluations or significant in terms of potential to adversely affect water quality. Therefore, the Department is revising the 4/28/08 draft permit at Section II.J.9 to be consistent with the requirements of the 24-hour reporting requirements contained in MEPDES Standard Conditions and to report to the Department any unusual events that pose a threat to the environment and that are not required to be reported to the MeDMR.

## 16. RESPONSE TO COMMENTS (cont'd)

### General Comments

**Comment #35:** MER stated,

*The FAMP is no longer funded and is therefore essentially non-existent and the elimination of the requirement for participation in the program is reasonable and appropriate. However, over the course of the 10 years between 1992 and 2002 during which it administered the FAMP, the MeDMR gained valuable insight and understanding regarding the impacts associated with salmon aquaculture, the mechanisms driving those impacts, the true magnitude of the impacts, and the consequences of those impacts on the marine environment and its resources. In view of this knowledge base and the limited experience the Department has had with the issue, it is hoped that the elimination of the requirement for industry participation in the FAMP will not diminish, much less eliminate, the participation of MeDMR as a sister agency from working with the Department in consultation on the evaluation of impacts and their projected consequences; to do so would negate 10 years of intensive study into the question. This revision to the General Permit of 2003 makes repeated reference to determinations made “by the Department based on best professional judgment”; based on the limited experience of the Department on this issue, we question whether the Department currently has the expertise to independently render “professional judgment” on submitted data.*

**Response #35:** The Department will continue, as it has since inception of the Atlantic salmon aquaculture general permit, to work closely with the MeDMR in evaluating data and in holistically reviewing not only the general permit but also the state of the industry to ensure the respective agency’s regulatory programs are meaningful, protective and appropriate.

**Comment #36:** The Sierra Club stated, “*It is not at all clear from the document just what the results are from the required monitoring that has been conducted. These could well indicate a need for changes but without either a record or a summary it is difficult to assess the adequacy of monitoring requirements and the actions these findings should trigger.*”

**Response #36:** The Department has recently completed two compliance related reports: “report cards” for individual facilities and a “white paper” discussing compliance since issuance of the 6/19/03 permit. Copies are available upon request by contacting the compliance inspector listed on the cover page of this fact sheet. Copies of these documents will be sent to the Sierra Club as the Department considers the above comment to constitute a request for this information.

## 16. RESPONSE TO COMMENTS (cont'd)

**Comment #37:** The Sierra Club asked if feeds are tested for contamination.

**Response #37:** The NOI requirements specified at Permit Section I.D.3.i requires an applicant to provide information regarding the amount, rate of use and composition of feed, including trace ingredients.

**Comment #38:** The Sierra Club stated, *“With growing evidence of climate change it is becoming more imperative to monitor and respond to warming and acidification of coastal waters as these affect aquaculture. For examples of specific concerns related to water quality, see <http://www.sierraclub.org/committees/marine/fisheries/symposium02/> “We urge that this new permit factor these in and provide for adaptive management accordingly.”*

**Response #38:** The Department reviewed the webpage provided. The Sierra Club has not made any specific or implied recommendations as to modifications of the 4/28/08 draft permit.

During the period of August 12, 2008 through August 26, 2008, the Department solicited comments on a revised proposed draft Atlantic Salmon Aquaculture General Permit renewal. The Department received written comments from True North Salmon US, Inc. (TNS) and from MER Assessment Corporation (MER) via electronic mail dated August 26, 2008. The significant comments from these interested groups and Department responses are summarized below.

**Comment #39:** TNS restated its previous comment as summarized in “Comment #1” above regarding removal of the word “immediately” in the definition of “Atlantic salmon aquaculture facility” as provided in General Condition I.B of this permit. TNS stated, *“Removal of the word ‘immediately’ will permit True North Salmon to combine leaseholds with appropriate determinations as to “adjacency” to be made in individual cases, testing for purposes of regulation, whether the given combination(s) are consistent with the requirements of Army Corps of Engineers and the objectives of the Services.*

**Response #39:** In their comments of May 30, 2008, the Services stated, *“The ultimate application of such a definition to multiple leaseholds (or multiple “sites”) has yet to be tested, given that site-specific marking plans have not been proposed by the aquaculture industry and critically reviewed by the Services, MEDEP, and the ACOE. Furthermore, to address industry concerns for flexibility, we have had discussions about the possibility of combining more than one site under a single site mark where the sites are located close together, are managed by the same work crew, and have other characteristics that lend themselves to a single mark. To date, however, we have not identified any particular circumstances where such site consolidation would benefit individual growers and, for purposes of site-specific marking, is acceptable to the Services.”*

The Department believes that a group of net pens located adjacent to each other and operated under a common management plan, whether within a single leasehold or within multiple

## 16. RESPONSE TO COMMENTS (cont'd)

leaseholds, could be considered a single facility for purposes of this permit and genetic marking requirements. However, the Services have objected this proposal. The Department disagrees with the Services that it is premature to revise the definition to allow multiple leaseholds located adjacent to each other and operated as a single facility to be considered a single facility for purposes of this permit and genetic marking requirements. As previously stated in Response # 1 above, the General Permit's definition of a facility allows only those net pens within a single leasehold to be consistent with the minimum requirements of the Services and to satisfy requirements in Maine's NPDES authorization.

**Comment #40:** TNS stated it *"maintains that for the dynamic marine environment, a 60 meter mixing zone is necessary to ensure 'a reasonable opportunity for dilution, diffusion or mixture of pollutants with the receiving waters before the receiving waters below or surrounding a discharge will be tested for classification violations'."*

**Response #40:** The Department's position on the size of the mixing zone has not changed since it was established in the 6/19/03 General Permit. In the Response to Comments section of the 6/19/03 Fact Sheet, the Department stated, *"In consideration of what is reasonable, several factors are to be considered: the nature and rate of the discharge, the nature and rate of mixing, the size of the waterway, seasonal or climatic changes and uses of the water way."*

*The Department believes that the mixing zone as described in the [6/19/03] general permit is reasonable. While some lowering of normal standards is allowed within that area, they do not permit unchecked degradation, nor are the waters rendered unsuitable to support any uses."*

The General Permit allows for the 30-meter mixing zone to be offset to reflect the effect of currents unique to a specific site; however, the Department has no new compelling information to expand the mixing zone beyond 30 meters.

**Comment #41:** With regard to the sediment and benthic monitoring requirements prescribed by Special Condition II.E. Table E.5. Footnote 1.b., TNS stated that it *"does not support the additional provision placed within this section that permits the Department to request additional sampling 'at other specific locations based on reviews of video records or other site-specific considerations.' This process could become costly, time-consuming, and may result in biasing results toward violations."*

**Response #41:** The Department acknowledges that the provision to conduct additional sampling based on reviews of video records or other site-specific considerations represents additional costs to the industry. However, this provision is necessary to ensure representative sampling at the permitted facilities when, based on the collective best professional judgment of the Department and MeDMR, video records or other information indicate areas of concern were not satisfactorily sampled or evaluated. The Department considers this provision to be a compromise to the previous requirement to collect samples from where benthic impact is observed to be the greatest.

## 16. RESPONSE TO COMMENTS (cont'd)

**Comment #42:** With regard to Special Condition II.F. and the warning level and impact limits specified for “any station,” TNS stated, *“It is important that the resulting average of any testing completed at a site be based on a site average and not a station average to preserve the integrity of the purpose of the samples. The purpose of the sampling is to acquire a sample representative of the conditions at the site. If a sampler relied upon the average sample of an individual station, the sampler runs the risk of relying solely on a sample that could be taken at a ‘hot spot’ location caused by factors other than the marine operation. Taking the average of all samples at a site ensures that the sample is representative of conditions at the site.”*

MER stated, *“We would therefore recommend that data and compliance with the ‘>25% reduction/composition rule’ be provided for all stations, but that determination of attainment by the site be based on a mean of all stations.”*

**Response #42:** The reason for establishing separate stations along a transect is to determine where the greatest impact occurs since the Department’s expectation is that effects are patchy depending on currents, bottom type, etc. Having one transect with 4 stations is an admittedly minimal effort to assess impairment, but due to cost and logistics, a practical compromise. If impairment is indicated on one end of the transect then the inference is that up to 50% of the habitat may be unacceptably impacted. By blending the data, we would expect to determine an impaired condition only when both ends of the transect are impaired (i.e. only if impairment is not patchy, not the expected condition when you have effects of currents, bottom type, etc. influencing the outcomes). Although this sampling scheme may occasionally lend itself to a “false-negative” result if one station lands right in a small patch of impaired habitat, the Department will take into consideration all sample results reported when assessing compliance with the permit. A proposal to merge all data for an entire site would only be considered in conjunction with an increase in sampling effort to ensure a more comprehensive evaluation of the entire site. TNS has not proposed to increase the number of samples along with reporting data as site averages; thus, the Department and MeDMR are comfortable that the sampling approach outlined in the permit is the most effective in terms of cost to the industry and ability to evaluate compliance with the numeric and narrative standards set forth in the permit and Maine law.

**Comment #43:** With regard to the numeric and narrative limitations established for benthic infauna as specified at Special Condition F, TNS *“requests that the permit provision be revised to require ‘Report Information.’ Alternatively, if the Department requires permit limits for impact to benthic infauna, TNS requests that the language be stated as it was in the original permit.*

*TNS has very significant concerns that the application of numeric limits will result in probable Letters of Warning and possible Notices of Violation. Given the lack of scientific basis for the methodology, the Applicant requests a careful discussion of how this standard is to be applied before it is inserted into the Final Draft of the General Permit.*

## 16. RESPONSE TO COMMENTS (cont'd)

*In addition, under the new draft permit Sediment Mixing Zone within 30 m of a net pen, by removing the word AND as found in the original permit, the thresholds for sulfide and Beggiatoa are no longer tied to Benthic Infauna.”*

Additionally, with regard to the sediment mixing zone warning levels and impact limits as specified in Special Condition F, Table F.1., TNS stated, “TNS continues to request the limits be changed as stated [in Comment #26 above]. By its own admission, the Department admits the established limits are arbitrary and not based upon scientific evidence. The Department does not even state that the limits are based on ‘best professional judgment.’ Further in the Department’s response, they also state ‘evaluation of Beggiatoa coverage is subjective in that it is not a laboratory analytical procedure...’ Based on Department statements Beggiatoa coverage limits are subjective and the evaluation process of that coverage is subjective.

*TNS has very significant concerns that the application of this 25% coverage numeric limit will, due to testing this standard against historic data for many sites result in probable Letters of Warning and possible Notices of Violation. Given the lack of scientific basis for the methodology, the Applicant requests a careful discussion of how this standard is to be applied before it is inserted into the Final Draft of the General Permit. Again, TNS requests that the warning level for Beggiatoa bacteria be changed from 25% coverage to 50% coverage and the impact limit changed from 50% coverage to 75% coverage.*

TNS further stated, “Tables F.1 and F.2 establish a numeric limit of ‘>5% photo coverage’ which replaces the 4/28/08 draft permit standard of ‘compelling evidence.’ This change is intended to provide for more consistency in compliance evaluations.

*TNS request this language be eliminated from the permit requirements. Presence of Beggiatoa is subjective as an indicator of environmental degradation. In addition, the statement is not clear how that 5% threshold outside the mixing zone will be determined. For example, will a 5% coverage within a single 1m square frame determine an impact?”*

**Response #43:** The standards established in the General Permit for Warning Level and Impact Limits represent the best professional judgment of both the Department and MeDMR. Both agencies took into consideration all monitoring data submitted for compliance with the 6/19/03 permit and have determined that the limits established in this renewal are appropriate, justified and defensible. Further, the Department, working in conjunction with the MeDMR, will exercise professional judgment when determining whether monitoring results indicate non-compliance.

## 16. RESPONSE TO COMMENTS (cont'd)

**Comment #44:** TNS stated, “*On August 25, 2008, TNS received a draft of the revised microsatellite protocol from DEP. As such, TNS needs additional time to review and comment on the protocol.*”

**Response #44:** The revised microsatellite protocol incorporates edits made by the Services. As genetic testing, including the microsatellite protocol, is a requirement the Services have imposed in this and the previous permit, the Department will not revise the most current protocol without instruction from the Services.