AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

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

GreatBay Aquaculture, LLC

is authorized to discharge from its facility located at

153 Gosling Road
Newington, New Hampshire

to receiving waters named

Piscataqua River by way of Pipe and Canal (Outfall 001)
(Hydrologic Unit Code: 01060003)

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

This Permit shall become effective on the first day of the calendar month following 60 days after signature.

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

This permit supersedes the permit issued on September 24, 1998.

This permit consists of 13 pages in Part I including effluent limitations, monitoring requirements, etc., and 27 pages in Part II including General Conditions and Definitions.

Signed this 30th day of September, 2008

/s/ SIGNATURE ON FILE

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Stephen S. Perkins, Director
Office of Ecosystem Protection
U.S. Environmental Protection Agency (EPA)
EPA-New England
Boston, Massachusetts

Part I.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date and lasting through expiration date, the permittee is authorized to discharge from outfall serial number 001 to the tidal Piscataqua River. Such discharges shall be limited and monitored by the permittee as specified below. Samples taken in compliance with the monitoring requirements specified below shall be taken from the effluent sample port in the wastewater treatment room in Building No. 3.

Effluent Characteristic	Discharge Limitations		Monitoring Requirements	
	Average Monthly	Maximum Daily	Measurement Frequency	Sample Type
Flow; mgd	0.25	0.36	Continuous	Recorder [1]
BOD_5; mg/l	Report	50	1/Week [2]	Grab
TSS; mg/l	Report	50	1/Week [2]	Grab
pH Range; Standard Units	6.5 to 8.0 [3] (See I.E.1.a.)		Daily	Grab
Fecal Coliform [4]; Number per 100 ml	14 [5]	Report [5]	1/Week[6]	Grab
Enterococci, Number per 100 ml[7]	Report	Report	1/Month	Grab
Dissolved Oxygen; mg/l	> 5.0 mg/l at all times		1/Week (formalin absent) [8]	Grab
Dissolved Oxygen Saturation; Percent	---	Report	1/Week (formalin absent) [8]	Calculation
Temperature, °F	---	Report	1/Week(formalin absent) [8]	Grab
Formaldehyde, mg/l	34	73	1/Week (formalin Present) [9]	Grab
Dissolved Oxygen; mg/l	> 5.0 mg/l at all times		1/Week (formalin Present) [9]	Grab
Dissolved Oxygen Saturation; Percent	---	Report	1/Week (formalin Present) [9]	Calculation
Temperature, °F	---	Report	1/Week (formalin Present) [9]	Grab
Ammonia Nitrogen as N; mg/l	---	Report	2/Month	Grab
Total Nitrogen as N, mg/l	---	Report	2/Month	Grab
Total Phosphorous as P; mg/l	---	Report	1/Quarter	Grab
Total Chlorine[10], mg/l	0.16	0.19	1/Discharge (chlorine in use)	Grab

See page 3 for explanation of superscripts

EXPLANATION OF SUPERSCRIPTS TO **PART I.A.**1. on page 2:

(1) The effluent flow shall be continuously measured and recorded using a flow meter and totalizer.

(2) Sampling shall be conducted immediately following a culture tank cleaning event when pollutant concentrations in the discharge are likely to be at a maximum, rather than at a random operating time during the week. If there is no tank cleaning during the week, then a grab sample must be collected at a time that is representative of the discharge for the week.

(3) State certification requirement.

(4) Fecal coliform shall be tested using an approved method as specified in 40 C.F.R. Part 136, List of Approved Biological Methods for Wastewater and Sewage Sludge.

(5) The average monthly value for fecal coliform bacteria shall be calculated and reported as the geometric mean. Additionally, over a monthly period, not more than 10 percent of the collected samples shall exceed a most probable number (MPN) of 43 per 100 ml for a 5-tube decimal dilution test. All fecal coliform data collected must be submitted with the appropriate monthly Discharge Monitoring Report (DMRs).

The permittee is required to report two (2) statistics each month. One is the geometric mean fecal coliform value expressed in terms of "MPN per 100 ml" (reported as average monthly), and the other is the "percentage" of collected samples that exceeds a MPN of 43 per 100 milliliters for the 5-tube decimal dilution test referenced immediately above (reported as maximum daily). The latter statistic will be used to judge compliance with that part of the limit that reads "Not more than 10 percent of the collected samples shall exceed a MPN of 43 per 100 milliliters for a 5-tube decimal dilution test." referenced above.

(6) The frequency of monitoring may be increased up to 5 days per week (5/week) should the maximum daily value reported in any DMR exceed the permitted level. Until written notice is received by certified mail from EPA indicating that the Fecal Coliform testing requirement has been changed, the permittee is required to continue testing at the frequency specified in Part I.A.1.

(7) Enterococci shall be tested using an EPA approved test method (see 40 C.F.R. Part 136, Table 1A) and a geometric mean and maximum daily value reported monthly. All enterococci data collected must be submitted with the appropriate monthly DMRs.

(8) Weekly samples for dissolved oxygen (DO) collected on a discharge that is Formalin free shall be conducted immediately following a culture tank cleaning event when pollutant concentrations in the discharge are likely to be at a maximum, rather than at a random operating time during the week. If there is no tank cleaning during the week, then a grab sample must be collected at a time that is representative of the discharge for the week. For each DO sample collected, the water temperature shall also be measured and the percent saturation of DO determined.

(9) Weekly samples for formaldehyde shall occur after any discharge of Formalin to the hatchery's culture water, and sample collection shall be timed to capture the maximum formaldehyde concentration in the effluent after accounting for detention time through the raceways, tanks and piping networks to the outfall. The detention time calculation shall take into account dosage, injection point, facility flow (both velocity and volume), etc. where possible [See Part I.B.4.e.iv.]. Samples for DO and temperature with Formalin present shall be collected concurrently with that for formaldehyde and reported under the appropriate DO and temperature columns on the monthly DMR. Percent saturation of DO shall be calculated using these values and recorded under the appropriate column. Sampling is not required if formalin is not used during the month. In such cases, the appropriate No Data Indicator Code (NODI) shall be reported on the Discharge Monitoring Report.

Formaldehyde shall be tested using Method 1667, Revision A, which has a ML of 50 µg/l. Alternate analytical method(s) shall be approved by EPA at the permittee's written request as long as the permittee utilizes method(s) that obtain MLs that are equal to or less than those referenced for Method 1667, Revision A, above. Such a request will be considered a minor permit modification.

(10) Any hypochlorite solution, such as that used to disinfect tanks or hatchery equipment, shall be neutralized and discharged only if the test results comply with the limits specified in this permit. The total residual chlorine testing method used shall be in accordance with 40 CFR Part 136. The permittee shall maintain records documenting the date, time and volume of each discharge, and the corresponding total residual chlorine test results following dechlorination.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (Continued)

2. The permittee shall notify EPA and the New Hampshire Department of Environmental Services, Water Division (NHDES-WD) within 24 hours upon the occurrence of any water quality induced mortality of greater than 25 percent in any aquatic species under culture at the facility (excluding larval fish) during a single mortality event. Reporting shall be in accordance with reporting requirements in **General Conditions Part II.D.1.e.**

3. The discharges shall not cause a violation of the water quality standards of the receiving

water.

4. Toxic Controls

   a. No components of the effluent shall result in any demonstrable harm to aquatic life or violate any water quality standard which has been or may be promulgated. Upon promulgation of any such standard, this permit may be revised or amended in accordance with such standards, with the permittee being so notified.

   b. The permittee shall not discharge into the receiving water any pollutant or combination of pollutants in toxic amounts.

5. The discharge shall be adequately treated to ensure that the surface water remains free from pollutants in concentrations or combinations that settle to form harmful deposits, float as foam, debris, scum or other visible pollutants. It shall be adequately treated to ensure that the surface waters remain free from pollutants which produce odor, color, taste or turbidity in the receiving water which is not naturally occurring and would render it unsuitable for its designated uses.

6. This permit shall be modified, or alternatively, revoked and reissued, to comply with any applicable standard or limitation promulgated or approved under sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a)(2) of the "CWA", if the effluent standard or limitation so issued or approved:

   a. Contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or

   b. Controls any pollutants not limited in the permit.

7. The permittee shall notify EPA and the NHDES-WD in writing before any change of the fish species to be raised or development stage to be attained at the facility. These changes may require a permit modification.

8. There shall be no discharge of untreated wastewater resulting from cleaning accumulated solids from culture tanks, screens and associated equipment.

9. The permittee shall use only those aquaculture drugs and chemicals approved by the U.S. Food and Drug Administration (FDA) and in accordance with labeling instructions or as allowed in **Part B.1.** ***Drug Usage*** immediately below. EPA will defer to the expertise of the FDA regarding whether or not a particular drug and/or chemical is used in accordance with appropriate FDA requirements.

   In addition, each year with the December Discharge Monitoring Report (to be

postmarked by January 15th) the permittee shall certify in writing that all aquaculture drugs and chemicals used at this facility during the calendar year (specify the calendar year) were ones approved by the FDA and were used in accordance with FDA labeling or as allowed under **Part B.1.** ***Drug Usage*** below.

B. NARRATIVE EFFLUENT LIMITATION REQUIREMENTS FROM 40 CODE OF FEDERAL REGULATIONS (CFR) PART 451 WITH MODIFICATIONS

Pertinent definitions from 40 CFR Part 451 for specific terms used in this section are listed under **Item 5.** ***General Definitions*** at the end of this section.

1. *Drug Usage*

Except as noted below, the permittee must notify EPA and the NHDES-WD in accordance with the following procedures of any investigational new animal drug (INAD) or any extralabel drug use where such a use may lead to a discharge of the drug to waters of the United States as stipulated below. However, reporting is not required for any INAD or extralabel drug use that has been previously approved by the FDA for a different species or disease if the INAD or extralabel use is at or below the approved dosage and involves similar conditions of use.

a. The permittee must provide to EPA a written report 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.

b. For INADs and extralabel drug uses, the permittee must provide an oral report to EPA 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 EPA 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.

2. *Structural Failure and/or Damage to Culture Units*

The permittee must notify EPA and the NHDES-WD in accordance with the following procedures when there is a **"reportable failure"** (as defined immediately below) in, or damage to, the structure of an aquatic animal containment system or its wastewater treatment system that results in an unanticipated material discharge of pollutants to waters of the United States.

a. For this facility, a **"reportable failure"** is a failure in, or damage to, culture or

rearing units, wastewater treatment systems, solids storage systems, pipes, valves, and other plumbing fixtures, and screens or physical barriers in the system, which prevent the discharge of suspended or settled solids, or the release of the aquatic animals being reared.

b. The permittee must provide an oral report to EPA within 24 hours of discovery of any **"reportable failure"** as defined in item "a." immediately above or damage that results in a material discharge of pollutants, describing the cause of the failure or damage in the containment system and identifying materials that have been released to the environment as a result of this failure.

c. The permittee must provide a written report to EPA within 7 days of discovery of the failure or damage documenting the cause, the estimated time elapsed until the failure or damage was repaired, an estimate of the material released as a result of the failure or damage, and steps being taken to prevent a recurrence.

3. *Spills*

In the event a spill of drugs, pesticides or feed occurs that results in a discharge to waters of the United States, the permittee must provide an oral report of the spill to EPA and the NHDES-WD within 24 hours of its occurrence and a written report within 7 days to the above Agencies. The oral and written reports shall identify the material spilled and quantity.

4. *Best Management Practices (BMP) Plan*

The permittee must develop, implement and maintain a BMP Plan on site, hereinafter referred to as the "Plan", describing how the permittee will achieve the requirements listed under this section below. The permittee must make the current version of the Plan available to EPA and/or the NHDES-WD upon request. The permittee shall implement the intent of the BMP requirements described below upon the permit's effective date; however, the permittee has **180 days following the permit's effective date** to certify in writing to EPA and the NHDES-WD that a written Plan has been developed in accordance with requirements listed in this part and must submit that certification with the appropriate DMR.

Also, the permittee shall amend the Plan within 30 days following any change in facility design, construction, operation, or maintenance which affects the potential for the discharge of pollutants into surface waters or after the EPA and/or the NHDES-WD determine certain changes are required following a permit limit/Plan exceedance, facility inspection, or review of the Plan. The permittee shall place in the Plan written documentation of each amended change along with a brief description stating the reason for said amendment including the date the change triggering said amendment occurred. In that documentation, the permittee shall also state the specific date the amended Plan was implemented.

Below is a list of requirements that must be addressed in the Plan, at a minimum.

a. *Solids control*

i. 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 in order to minimize potential discharges of uneaten feed and waste products to waters of the United States.

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ii. Identify and implement procedures for routine cleaning of rearing units and off-line settling basins, and procedures to minimize any discharge of accumulated solids during the inventorying, grading and harvesting aquatic animals in the production system. Part I.A.8. above prohibits the direct discharge of untreated cleaning water.

iii. Describe solids treatment, storage and disposal procedures, including techniques to enhance solids removal and to prevent solids from re-entering surface waters from any on-site storage. If the material is removed from the site, describe who received the material and its method of disposal and/or reuse.

iv. Remove and dispose of aquatic animal mortalities properly on a regular basis to prevent discharge to waters of the United States, except in cases where EPA authorizes such discharges in order to benefit the aquatic environment.

b. *Biological control*

i. Describe in detail the precautions that will be exercised by the facility to prevent aquatic organisms that are not indigenous or naturalized to New Hampshire waters from becoming established in the local surface waters.

ii. Provide a description for the storage and treatment of discharges during normal operations with particular emphasis during plant upsets (e.g., culture tanks, biofilter, drum filter, mechanical dewatering, etc.) to prevent biological pollution (non-indigenous organisms including fish parasites and fish pathogens and dead or dying fish) from entering the receiving water when the cultured fish population or a portion thereof are showing signs of stress.

c. *Materials storage*

i. Ensure proper storage of drugs, pesticides, and feed in a manner designed to prevent spills that may result in the discharge of drugs, pesticides or feed to water of the United States.

ii. Implement procedures for properly containing, cleaning, and disposing of any spilled material.

d. *Structural maintenance*

i. Inspect the production system and the wastewater treatment system on a routine basis in order to identify and promptly repair any damage.

ii. Conduct regular maintenance of the production system and the wastewater treatment system in order to ensure that they are properly functioning.

e. *Recordkeeping*

i. In order to show how representative feed conversion ratios were calculated, maintain records for aquatic animal rearing units documenting the feed amounts and estimates of the number and weight of aquatic animals.

ii. Keep records documenting the frequency of cleaning, inspections, maintenance, and repairs. In addition, records of all medicinal and chemical usage (i.e., for each occurrence) at the facility shall be recorded and filed in the Plan including the dosage concentration, frequency of application (hourly, daily, etc.) and the duration (hours, days) of treatment, and the method of application.

iii. Keep records documenting all dechlorinated water discharges in accordance with Part I.A.1(10).

iv. In order to show how the maximum concentration of formaldehyde in the discharge was derived, maintain records by outfall of the approach/analyses used to determine the elapsed time from its dosage to its maximum (peak) effluent concentration.

f. *Training*

i. Describe the training to be provided for employees to assure they understand the goals and objectives of the BMPs, the requirements of the NPDES Permit and their individual responsibilities for complying with the goals and objectives of the Plan and the NPDES permit.

ii. In order to ensure the proper clean-up and disposal of spilled material adequately train all relevant facility personnel in spill prevention and how to respond in the event of a spill.

iii. Train staff on the proper operation and cleaning of production and wastewater treatment systems including training in feeding procedures and proper use of equipment.

g. *Aquaculture drugs and chemicals*

List in the Plan all aquaculture drugs and chemicals, including all INAD and extralabel drugs, and for each, identify:

i. Product name and manufacturer.

ii. Chemical formulation.

iii. Purpose/reason for its use.

iv. Dosage concentration, frequency of application (hourly, daily, etc.) and the duration (hours, days) of application.

v. The method of application.

vi. Material Safety Data Sheets (MSDS), Chemical Abstracts Service Registry number for each active therapeutic ingredient.

vii. The method or methods, if any, used to detoxify the wastewater prior to its discharge.

viii. Information on the persistence and toxicity in the environment.

ix. Information on the FDA approval for the use of said medication or chemical on fish or fish related products used for human consumption.

x. Available aquatic toxicity data (vendor data, literature data, etc.); Lethal Concentration to 50 percent test organisms (LC_{50}) at 48 and/or 96 hours and No Effect Level (NOEL) concentrations for typical aquatic organisms (salmon, trout, daphnia, fathead minnow, etc.).

5. *General definitions*

a. **Approved dosage** means the dose of a drug that has been found to be safe and effective under the conditions of a new animal drug application.

b. **Aquatic animal containment system** means a culture or rearing unit such as a raceway, pond, tank, net or other structure used to contain, hold or produce aquatic animals. The containment system includes structures designed to hold sediments and other materials that are part of a wastewater treatment system.

c. **Drug** means any substance defined as a drug in section 201(g)(2) of the Federal Food, Drug and Cosmetic Act (21 U.S.C. 321).

d. **Extralabel drug use** means a drug approved under the Federal Food, Drug and Cosmetic Act that is not used in accordance with the approved label direction, see 21 CFR Part 530.

e. **Investigational new animal drug (INAD)** means a drug for which there is a valid exemption in effect under section 512(j) of the Federal Food, Drug, and Cosmetic Act, 21 U.S.C. 360b(j), to conduct experiments.

f. **New animal drug application** is defined in 512(b)(1) of the Federal Food, Drug, and Cosmetic Act [21 U.S.C. 360(b)(1)].

g. **Pesticide** means any substance defined as a "pesticide" in section 2(u) of the Federal Insecticide, Fungicide, and Rodenticide Act [7 U.S.C. 136(u)].

C. SPECIAL CONDITIONS

pH Limit Adjustment

The permittee may submit a written request to the EPA requesting a change in the permitted pH limit range to be not less restrictive than 6.0 to 9.0 Standard Units. The permittee's written request must include the State's approval letter containing an original signature (no copies). The State's letter shall state that the permittee has demonstrated to the State's satisfaction that as long as discharges to the receiving water from a specific outfall are within a specific numeric pH range the naturally occurring receiving water pH will be unaltered. That letter must specify for each outfall the associated numeric pH limit range. Until written notice is received by certified mail from the EPA indicating the pH limit range has been changed, the permittee is required to meet the permitted pH limit range in the respective permit.

D. MONITORING AND REPORTING CONDITIONS

Monitoring results shall be summarized for each calendar month and reported on separate Discharge Monitoring Report Form(s) (DMRs) postmarked no later than the 15th day of the

month following the completed reporting period.

1. Signed and dated original DMRs and all other reports or notifications required herein or in **Part II**, shall be submitted to the Director at the following address:

U.S. Environmental Protection Agency
Water Technical Unit (SEW)
P.O. Box 8127
Boston, Massachusetts 02114-8127

2. Duplicate signed copies of all reports required in Section 1. immediately above shall be submitted to the State at:

New Hampshire Department of Environmental Services
Water Division
Wastewater Engineering Bureau
29 Hazen Drive, P.O. Box 95
Concord, New Hampshire 03302-0095

All verbal reports required in **Parts I** and **II** of this permit shall be made to both EPA and to NHDES-WD.

E. STATE PERMIT CONDITIONS

1. The permittee shall comply with the following conditions which are included as State Certification requirements.

   a. The pH range of 6.5-8.0 standard units (S.U.) must be achieved in the final effluent unless the permittee can demonstrate to the NHDES-WD: (1) that the range should be widened due to naturally occurring conditions in the receiving water or (2) that the naturally occurring receiving water pH is not significantly altered by the permittee's discharge. The scope of any demonstration project must receive prior approval from NHDES-WD. In no case, shall the above procedure result in pH limits outside of the range of 6.0 to 9.0 S.U., which is the pH range consistently applied in National Effluent Limitation Guidelines.

   b. The permittee shall not at any time, either alone or in conjunction with any person or persons, cause directly or indirectly the discharge of waste into the said receiving water unless it has been treated in such a manner as will not lower the legislated water quality classification or interfere with the uses assigned to said water by the New Hampshire Legislature (RSA 485-A:12).

2. This NPDES Discharge Permit is issued by the EPA under Federal and State law. Upon

final issuance by the EPA, the NHDES-WD may adopt this permit, including all terms and conditions, as a State permit pursuant to RSA 485-A:13.

Each Agency shall have the independent right to enforce the terms and conditions of this Permit. Any modification, suspension or revocation of this Permit shall be effective only with respect to the Agency taking such action, and shall not affect the validity or status of the Permit as issued by the other Agency, unless and until each Agency has concurred in writing with such modification, suspension or revocation.