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"),

New Hampshire Fish and Game Department

is authorized to discharge from a facility located at

Warren State Fish Hatchery
Route 25
Warren, New Hampshire

to receiving water named

Patch Brook
(Hydrologic Basin Code: 01070001)

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

This permit shall become effective on March 1, 2011.

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

This permit supersedes the permit issued on April 25, 2005.

This permit consists of 13 pages in Part I including effluent limitations, monitoring requirements, etc. and 35 pages in Part II including General Conditions and Definitions.

Signed this 7th day of January, 2011

/s/ Signature on File

Stephen S. Perkins, Director
Office of Ecosystem Protection
U.S. Environmental Protection Agency
Boston, Massachusetts

Part I.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date and lasting through the expiration date, the permittee is authorized to discharge culture water and treated hatchery effluent from outfall Serial Number 001 into Patch Brook. 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 at a location that provides a representative analysis of the effluent.

Effluent Characteristic	Discharge Limitations		Monitoring Requirements	
	Maximum Daily	Average Monthly	Measurement Frequency	Sample Type
Flow; mgd	---	Report	Continuous	Flow Meter[1]
BOD_5	Report lbs/day Report mg/l	---	1/Quarter[2]	24 Hour Composite
TSS	Report lbs/day Report mg/l	---	1/Quarter[2]	24 Hour Composite
Total Nitrogen as N	Report lbs/day Report mg/l	---	1/Quarter[2]	24 Hour Composite
Total Phosphorus as P[3]	Report lbs/day Report mg/l	---	1/Quarter[2]	24 Hour Composite
Total Residual Chlorine[4]; mg/l (When Chloramine-T is in use)	0.019	0.011	1/Day	Grab
Hydrogen Peroxide; mg/l (When in use)	0.7	---	1/Day	Grab

Effluent Characteristic	Discharge Limitations		Monitoring Requirements	
	Maximum Daily	Average Monthly	Measurement Frequency	Sample Type
Fish Biomass on Hand; lbs	Report	---	Monthly	Calculation[5]
Fish Feed Used; lbs	Report	---	Monthly	Calculation
Efficiency of Fish Feed Used; Percent	Report	---	Monthly	Calculation[6]
pH[7]; S.U.	6.5 to 8.0 (See PART I.D.1.a.)		1/Week	Grab
Formaldehyde Absent				
Dissolved Oxygen; mg/L	Report[8]	---	1/Month	Grab
Dissolved Oxygen Saturation; Percent	Report[8]	---	1/Month	Calculation
Water Temperature; °F	Report[8]	---	1/Month	Grab
Formaldehyde Present				
Formaldehyde; mg/L	4.6	1.6	1/Week[9]	Grab
Dissolved Oxygen; mg/L	Report	---	1/Week[9]	Grab

NOTE: See pages 4-5 for explanation of the various footnotes.

EXPLANATION OF FOOTNOTES APPLICABLE TO Parts I.A.1. on pages 2 - 3

(1) The effluent flow shall be continuously measured and recorded using a flow meter and totalizer. Effluent flow from the Warren Hatchery may be accomplished by weir calculations and/or direct measurement only if the flow meter is temporarily inoperative. The permittee shall note on the monthly Discharge Monitoring Report (DMR) when effluent flows are by weir calculations and/or direct method and the projected repair date of Outfall 001's flow meter.

(2) Once per quarter is defined as a sample collected once during each calendar quarter ending March 31st, June 30th, September 30th and December 31st each year. A sample is required each calendar quarter that a discharge lasts one day or longer. Analytical results shall be submitted with that month's DMR.

(3) The minimum level (ML) for phosphorus is defined as 10 micrograms per liter (µg/l). EPA defines the minimum level as the level at which the entire analytical system shall give recognizable signal and calibration points. This value is the minimum level for phosphorus using EPA approved methods found in the most currently approved version of Standard Methods for the Examination of Water and Wastewater. One of these methods must be used to determine total phosphorus. Sample results less than 10 µg/l shall be reported as zero on the DMR.

(4) The minimum level (ML) for total residual chlorine is defined as 20 µg/l. For total residual chlorine, this is the minimum level for chlorine using EPA-approved methods found in Standard Methods for the Examination of Water and Wastewater, 20th Edition, Method 4500-CL Methods E and G. One of these methods must be used to determine total residual chlorine. Sample results of 20 µg/l or less shall be reported as zero on the DMR, since compliance/non-compliance is determined based on the ML.

(5) In addition to reporting fish biomass on hand, the permittee shall submit a written report with its monthly DMR of any significant import and/or export of fingerling or greater size fish which occurred during the reporting month. The report shall include the dates and quantities of each import and/or export. In lieu of a written report, the permittee is allowed to submit a copy of the permittee's appropriate in house "monthly reports form" as long as that form contains information relevant to any significant import and/or export of fingerling or greater size fish which occurred during the reporting month. This report excludes any fish mortality data as that is covered separately under Part I.A.6.

(6) Efficiency of Fish Feed Used = [Fish Weight Gain (lbs)/Fish Food Fed (lbs)] x 100

(7) Limit is a State Certification Requirement.

(8) Dissolved oxygen samples shall be collected from a discharge that is Formalin free. Report the MINIMUM DAILY Dissolved Oxygen (DO) concentration for the month, and the corresponding DO percent saturation and effluent temperature associated with the minimum monthly DO sampling result.

(9) In order to capture the maximum concentration of Formaldehyde, sampling for Formaldehyde shall occur as soon as possible after any application of Formalin to the hatchery's culture

water, after accounting for its 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.ii.]. A sample for DO shall be collected concurrently with that for Formaldehyde and reported under the appropriate DO column on the monthly DMR. Report the MINIMUM DAILY DO concentration sampling result for the month.

Formaldehyde shall be tested using Method 1667, Revision A, or 8315A. The ML for Formaldehyde is 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 50 µg/l. Such a request will be considered a minor modification to the permit.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (Continued)

2. The discharge shall not cause a violation of the water quality standards of the receiving water.

3. The discharge shall be adequately treated to insure 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 insure that the surface waters remain free from pollutants which produce odor, color, taste or turbidity in the receiving waters which is not naturally occurring and would render it unsuitable for its designated uses.

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. 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. If the permit is modified or reissued, it shall be revised to reflect all currently applicable requirements of the "CWA".

6. 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 mortality of greater than 25 percent in any aquatic species under culture at the facility (excluding larval fish and eggs) during a single mortality event in accordance with reporting requirements in General Conditions Part II.D.1.e.

7. The permittee shall inform the EPA and NHDES-WD in writing at least ninety (90) days before any change in the fish species to be raised or development stage to be attained at this facility.

8. There shall be no direct discharge of "cleaning water." Cleaning water is defined as any water from the facility's hatchery house, raceway, pond, canal, circular tank, etc. which contains settled solids that have accumulated on the bottom of such structures that is discharged, absent some form of solids removal, directly to the receiving water during periodic cleaning operations. The discharge of water from the hatchery house, raceway, pond, canal, circular tank, etc. to a settling tank, empty raceway and/or clarifier for the purposes of settling solids, including the temporary storage, of those solids is allowed. The discharges of any decant water that accumulates above those solids and/or any water that flows slowly over those solids is allowed.

9. Any hypochlorite solution applied to the surface of any rearing equipment exposed to culture water must be neutralized prior to that equipment being exposed to culture water.

10. There shall be no discharge of iodine and/or phosphoric acid solution(s) to the receiving water.

11. The permittee shall use only those Aquaculture Drugs and Chemicals approved by the U.S. Food and Drug Administration (USFDA) and in accordance with labeling instructions or as allowed in Part B.1 "Drug Usage" immediately below. EPA will defer to the USFDA regarding whether or not a particular drug and/or chemical is used in accordance with appropriate USFDA requirements.

    In addition, each year as an attachment to the December Discharge Monitoring Report the permittee shall certify in writing that all Aquaculture Drugs and Chemicals used at the hatchery during that calendar year were drugs approved by the USFDA and were used in accordance with USFDA labeling or as allowed under Part B.1 "Drug Use."

B. NARRATIVE EFFLUENT LIMITATION REQUIREMENTS

1. Drug Use

    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 extra-label drug use which 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 extra-label drug use that has been previously approved by the USFDA for a different species or disease if the INAD or extra-label use is at or below the approved dosage and involves similar conditions of use.

    a. The permittee must provide to EPA and NHDES-WD a written report of INAD 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 INAD and extra-label drug uses, the permittee must provide an oral report to EPA and NHDES-WD 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 INAD and extra-label drug uses, the permittee must provide a written report to EPA and NHDES-WD 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 NHDES-WD in accordance with the following procedures when there is a "reportable failure" in, or damage to, the structure of an aquatic animal containment system (i.e, culture unit) 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" applies only to active culture units (ones that contain fish and flowing water) and their ancillary components and refers to the collapse or damage of a rearing unit or its wastewater treatment system; damage to pipes, valves, and other plumbing fixtures; and damage or malfunction to screens or physical barriers in the system, which would prevent the rearing unit from containing water, sediment (i.e. settled solids), and the aquatic animals being reared. Wastewater treatment systems include ponds or settling tanks to which cleaning water is directly discharged and culture units which are used for the temporary storage of settled solids removed from active culture units.

b. The permittee must provide an oral report to EPA and NHDES-WD within 24-hours of discovery of any reportable failure as defined in item 2.a. or damage that results in a material discharge of pollutants. The report shall describe the cause of the failure or damage in the containment system and identify materials that have been released to the environment as a result of that failure.

c. The permittee must provide a written report to EPA and NHDES-WD within 7 days of discovery of the failure or damage documenting the cause, 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 water of the United States, the permittee must provide an oral report of the spill to EPA and NHDES-WD within 24 hours of its occurrence and a written report within 7 days to the above Agencies. The report shall include the identity and quantity of the material spilled.

4. Best Management Practices (BMP) Plan

The permittee must develop, implement and maintain a BMP Plan (PLAN) on site that describes how the following requirements will be achieved. The permittee will make the current version of that PLAN available to EPA and/or the NHDES-WD upon request. The permittee shall implement the following PLAN requirements upon the permit's effective date. The permittee, however, has 90 days following the permit's effective date to certify in writing to EPA and

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.

Further, 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 NHDES-WD determine certain changes are required following an event that results in non-compliance, a facility inspection, or review of the PLAN. The permittee shall place in the PLAN a written documentation of each amended change along with a brief description stating the reason for the amendment; include the date the change triggering the amendment occurred. The permittee shall also document the date the amended PLAN was implemented.

The PLAN must address, at a minimum, the following requirements:

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.

   ii. In order to minimize the discharge of accumulated solids from settling tanks, basins and production systems, identify and implement procedures for routine cleaning of rearing units and settling tanks, and procedures to minimize any discharge of accumulated solids during the inventorying, grading and harvesting of aquatic animals in the production system. Part I.A.8. prohibits the direct discharge of cleaning water absent some form of solids removal prior to discharge.

   iii. If any material is removed from the rearing units and/or settling tanks, describe where it is to be placed and the techniques used to prevent it from re-entering the 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 animals mortalities properly on a regular basis to prevent discharge to waters of the United States, except in cases where EPA and NHDES-WD 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 neither indigenous nor naturalized to New Hampshire waters from becoming established in the local surface waters.

   ii. Provide a description for the storage and treatment of discharges 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. 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.

iii. Keep records that document the frequency of cleaning, inspections, repairs and maintenance. 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 to include the dosage concentration, frequency of application (hourly, daily, etc.) and the duration (hours, days) of treatment, and the method of application.

f. Training

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

ii. 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 Used for Disease Control and/or Prevention

List in the PLAN all aquaculture drugs and chemicals including all INAD and extra-label 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 USFDA 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 - 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 - 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 - 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. Extra-label Drug Use - 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) - 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 - defined in 512(b)(1) of the Federal Food, Drug, and

Cosmetic Act [21 U.S.C. 360(b)(1)].

g. Pesticide - 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. MONITORING AND REPORTING

1. For a period of one year from the effective date of the permit, the permittee may either submit monitoring data and other reports to EPA in hard copy form or report electronically using NetDMR, a web-based tool that allows a permittee to electronically submit discharge monitoring reports (DMRs) and other required reports via a secure internet connection. Beginning no later than one year after the effective date of the permit, the permittee shall begin reporting using NetDMR, unless the facility is able to demonstrate a reasonable basis that precludes the use of NetDMR for submitting DMRs and reports. Specific requirements regarding submittal of data and reports in hard copy form and for submittal using NetDMR are described below:

a. Submittal of Reports Using NetDMR

NetDMR is accessed from: http://www.epa.gov/netdmr. Within one year of the effective date of this permit, the permittee shall begin submitting DMRs and reports required under this permit electronically to EPA using NetDMR, unless the facility is able to demonstrate a reasonable basis, such as technical or administrative infeasibility, that precludes the use of NetDMR for submitting DMRs and reports ("opt-out request").

DMRs shall be submitted electronically to EPA no later than the 15th day of the month following the completed reporting period. All reports required under the permit shall be submitted to EPA as an electronic attachment to the DMR. Once a permittee begins submitting reports using NetDMR, it will no longer be required to submit hard copies of DMRs or other reports to EPA or to NHDES.

Notification required herein or in Part II shall be submitted to EPA and NHDES at the address listed in Part I.C.1.c below.

b. Submittal of NetDMR Opt-Out Requests

Opt-out requests must be submitted in writing to EPA for written approval at least sixty (60) days prior to the date a facility would be required under this permit to begin using NetDMR. This demonstration shall be valid for twelve (12) months from the date of EPA approval and shall thereupon expire. At such time, DMRs and reports shall be submitted electronically to EPA unless the permittee submits a renewed opt-out request and such request is approved by EPA. All opt-out requests should be sent to the following addresses:

U.S. Environmental Protection Agency
Water Technical Unit
Attn: NetDMR Coordinator
5 Post Office Square, Suite 100 (OES04-4)
Boston, MA 02109-3912

and

New Hampshire Department of Environmental Services
Water Division; Wastewater Engineering Bureau
Attn: Tracy L. Wood, P.E.
29 Hazen Drive
P.O. Box 95
Concord, New Hampshire 03302-0095

c. Submittal of Reports in Hard Copy Form

Monitoring results shall be summarized for each calendar month and reported on separate hard copy DMRs postmarked no later than the 15th day of the month following the completed reporting period. All reports required under the permit shall be submitted as an attachment to the DMRs. 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 (OES04-SMR)
5 Post Office Square - Suite 100
Boston, MA 02109-3912

Duplicate signed copies of all reports or notifications required above shall be submitted to the State at the following address:

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

2. Any verbal reports, if required in Parts I and/or II of this permit, shall be made to both EPA and to NHDES-WD.

D. STATE PERMIT CONDITIONS

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

   a. The pH of the discharge shall be in the range of 6.5 to 8.0 standards units (s.u.) unless the upstream ambient pH in the receiving water is outside of this range, and is not altered by the facility's discharge or activities. If the permittee's discharge pH is lower than 6.5 S.U., the permittee may demonstrate compliance by showing that the discharge pH is either higher than, or no more than 0.5 S.U. lower than, the ambient upstream river water pH. For this demonstration, the upstream river water sample must be collected on the same day as the discharge pH is measured. The location where the upstream ambient pH sample is collected

must be representative of the upstream conditions unaffected by the facility's discharge(s) or activities. Results of the ambient upstream river water pH sampling that are obtained to determine compliance with this limit shall be submitted as an attachment with the DMR.

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.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
EPA NEW ENGLAND
OFFICE OF ECOSYSTEM PROTECTION
5 POST OFFICE SQUARE
SUITE 100 (MAIL CODE: CIP)
BOSTON, MASSACHUSETTS 02109-3912

FACT SHEET

DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE TO WATERS OF THE UNITED STATES

PUBLIC NOTICE START AND END DATES: October 29, 2010 - November 27, 2010

CONTENTS: Forty-nine pages including three Attachments (A through C).

NPDES PERMIT NO.: NH0000736

NAME AND MAILING ADDRESS OF APPLICANT:

New Hampshire Fish and Game Department
11 Hazen Drive
Concord, New Hampshire 03301-6500

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Facility Location:

Warren State Fish Hatchery
Route 25
Warren, New Hampshire

Mailing Address:

New Hampshire Fish and Game Department Warren State Fish Hatchery
c/o Superintendent
P.O. Box 75
Warren, New Hampshire 03279

RECEIVING WATER: Patch Brook (Hydrologic Basin Code: 01070001)

CLASSIFICATION: Class B

Table of Contents

I. Proposed Action, Type of Facility and Discharge Location.

The applicant, the New Hampshire Fish and Game Department (NHF&GD), has applied to the U.S. Environmental Protection Agency, New England Office (EPA) for reissuance of its NPDES permit for the discharge of culture water from its Warren State Fish Hatchery. This state owned and operated facility is engaged in rearing various species of trout (eastern brook, rainbow and brown) hatched from eggs at other NHF&GD hatcheries. The hatched trout are transferred as fingerlings (3 inches) to Warren State Fish Hatchery for rearing. Additionally, Atlantic salmon eggs are hatched and reared for stocking, and adult Atlantic salmon (three years or older) from the Nashua National Fish Hatchery are reconditioned. The salmon arrive generally in late

November after spawning. They are stocked in April and May at a weight averaging five pounds. All fish from this facility are used for fisheries management (i.e., stocking) in selected rivers, streams and lakes through out New Hampshire. The focus of the salmon stocking, specifically, is the Atlantic salmon restoration program in the Merrimack River watershed.

The Warren State Fish Hatchery's current permit was issued on April 25, 2005 and expired on April 24, 2010. The applicant has requested renewal of its NPDES permit to discharge hatchery wastewater into the designated receiving water and has submitted the proper application materials. Their current permit has been continued in force (administratively extended) as per 40 Code of Federal Regulations (C.F.R.) § 122.6 until a new permit can be issued.

II. Description of Facility and Discharge

The Warren State Fish Hatchery is located just off Route 25 on Fish Hatchery Road in the Town of Warren on a 13.6 acre parcel of land that is in close proximity to the White Mountain National Forest. The location of the Warren State Fish Hatchery, Outfall 001 and the receiving water (Patch Brook) are shown in Attachment A. This hatchery was first established by the NHF&GD in 1915. The hatchery complex consists of one Hatchery House with Annex, thirteen Rectangular Raceways, one Public Relations Pond and two Show Pools, all of which are shown in Attachment B. The culture units are used to rear three species of trout to yearling size (9 inches long), the size at stocking, at an average age of 15 to 18 months. A portion of the eastern brook trout population is reared to two year old size for stocking (14 inches long) in June. In the Show Pools, a variety of trout and salmon are kept for public viewing and feeding, but not for stocking purposes.

The culture units are usually at their yearly maximum fish biomass (fish of stocking size) from February through April just prior to annual stocking in May and June. Fish production targets are set by the NHF&GD for each of its six fish hatcheries as part of its species management plan for stocking New Hampshire's waterways. Warren's annual production targets by species are: eastern brook trout, 13,950 pounds (lbs); rainbow trout, 5,389 lbs; brown trout, 1,780 lbs; and Atlantic salmon 3+ years old, 3,750 lbs for a total of 24,869 lbs. The Warren State Fish Hatchery generally incubates around 850,000 Atlantic salmon eggs, although the facility has the capacity to incubate 5.0 million eggs. Presently, Atlantic salmon eggs are the only ones incubated. In any given year, actual (net or harvestable weight) fish production can vary 10 percent (%) from these targets because of variability in growth from year to year.

The Warren State Fish Hatchery is designated as a concentrated aquatic animal production (CAAP) facility based on criteria found in 40 C.F.R. § 122.24(b) and 40 C.F.R. Part 122 Appendix C (a facility that contains, grows, or holds "cold water fish species or other cold water aquatic animals in ponds, raceways, or other similar structures which discharge at least 30 days per year but does not include facilities that produce less than 9,090 harvest weight kilograms (approximately 20,000 pounds) of aquatic animals per year"). The facility does not use more than 5,000 lbs of food during the calendar month of maximum feeding. NHF&GD reported yearly estimated total of 32,670 lbs of harvestable fish and 2,735 lbs of food during the calendar month of maximum feeding in their permit application, dated October 10, 2009. Based on their application and monthly Discharge Monitoring Reports (DMRs), the facility will continue to

discharge more than 30 days in a given year and produce more than 20,000 lbs harvest weight of fish per year during the next permit cycle.

Discharges from CAAP operations, such as the Warren State Fish Hatchery, typically contain organic and inorganic solids, nutrients, and chemicals used in the prevention and treatment of various diseases. Any of these constituents could impair the water quality in the receiving water. Dissolved and particulate solids in the discharge result from fish feces and uneaten food particles. Nutrients, such as phosphorus and nitrogen, are associated with these solids. The presence of nutrients can result in excessive growth of any or all of the three main algae types: phytoplankton (floating freely in water column), periphyton (attached to aquatic vegetation or other structures) and benthic (attached to bottom sediments). The decay of organic solids resulting from excessive concentrations of solids and nutrients can cause low levels of dissolved oxygen in the receiving water.

EPA will continue to authorize a year-round discharge to the waters of the United States with limits, monitoring requirements and Best Management Practices as described in this Fact Sheet and shown in the accompanying draft permit. All domestic wastewater discharges to an on-site septic tank with multiple leach field systems and all floor drains in the various working buildings have been plugged with concrete.

Chemicals, Drugs, and Disinfectants Currently Used in the State's Fish Hatchery System

Normally, fish hatched from eggs in the State's hatchery system take between 15 to 18 months to grow out to the proper size of length/weight for stocking. According to hatchery officials, the key to maintaining good fish health is to prevent pathogens from entering the hatchery and to maintain clean, healthy rearing units. However, when needed, U.S. Food and Drug Administration (FDA)-approved chemicals/drugs are used as therapeutants to maintain fish health. Below is a list of all the chemicals/drugs currently used in the New Hampshire State Fish Hatchery system along with their intended use, followed by a subset of that list for those recently used at the Warren State Fish Hatchery. A review of the first ten chemicals/drugs in New Hampshire's overall list indicates they are all FDA approved therapeutants and/or low regulatory priority aquaculture drugs, except for Chloramine-T, which is an investigational new animal drug (INAD). For the last four chemicals (hypochlorite solutions, oxygen gas and a solution of iodine and phosphoric acid), EPA will not regulate (limit their use) these chemicals as long as any applied hypochlorite solution is neutralized with sodium thiosulfate prior to it being exposed to culture water, and the facility continues to not discharge any of the iodine and phosphoric acid solution to the hatchery's culture water. Adding oxygen gas to the culture water to increase its dissolved oxygen concentration is always appropriate and can only lead to increased dissolved oxygen concentrations in the discharged effluent, always a positive environmental outcome.

- Calcium Chloride (Crystalline Form): Added to culture water to increase total hardness of the water.

- Formalin - 37 % Formaldehyde Gas in Water with 16 % Methanol: Added as needed to culture water to control external parasites on fish and eggs. Used primarily to kill swimming zoospores and filamentous hyphae of common mold (fungus) that attach to eggs, gills and/or

skin as well as other active parasitic infections. The FDA restricts the use of formalin solution to three products with the following trade names: Formalin-F, Paracide-F and Parasite-S.

- Oxytetracycline Hydrochloride --Also called Terramycin (Crystalline Form): Used as an antibiotic and added as needed to culture water to control pathogenic gill bacteria on fish.

- Polyvinylpyrrolidone (Iodine in 10 % aqueous solution) --Also called Povidone Iodine: Used as needed to disinfect fish eggs and hatchery equipment. Solution is not discharged to the culture water.

- Potassium Permanganate (Crystalline Form): Added as needed to the culture water to provide temporary increase in the concentration of dissolved oxygen.

- Romet 30 (Contains 25 % Sulfadimethoxine and 5 % Oremetoprim): Used as an antibiotic and, on an as need basis, mixed with fish food to control systemic bacterial pathogens.

- Sodium Chloride (Crystalline Form): Added as needed to culture water to reduce osmotic pressure gradient between fish and water for the absorption of dissolved oxygen by the gills.

- Tricaine Methanesulfonate B Also called MS-222 (Crystalline Form): Used as a fish anesthesia, but only in separate containers of culture water and is not added to any of the rearing units. Used as needed and solution is not discharged in the culture water.

- Chloramine-T (N-chloro tosylamide sodium salt): Chloramine-T is an investigational new animal drug used to treat bacterial gill disease (caused by *Flavobacterium branchiophilium*) in salmonid fish species.

- 35% PEROX-AID® (hydrogen peroxide solution): Used as an external microbicide for the control of mortality in freshwater-reared finfish eggs due to *saprolegniasis*, in freshwater-reared salmonoids due to bacterial gill disease (*Flavobacterium branchiophilum*), and in freshwater-reared cool water finfish due to external columnaris disease (*Flavobacterium columnae*).

- Calcium Hypochlorite (Crystalline Form): See Sodium Hypochlorite.

- Sodium Hypochlorite at 5.25 % (Ordinary Household Bleach in Liquid Form): Both hypochlorite chemicals are used to disinfect hatchery equipment and the individual rearing units, as needed. Hypochlorite solutions used to disinfect hatchery equipment (nets, boots, brushes, foot baths, rakes, transport tanks, etc.) are not discharged to the hatchery water and any hypochlorite solution remaining on that equipment is neutralized with sodium thiosulfate prior to its re-introduction into the culture water. If the hatchery needs to disinfect any rearing units, the fish and culture water would first be removed followed by brushing down all surfaces in contact with the culture water with a hypochlorite solution. In turn, that would be followed by a brushing down with sodium thiosulfate to neutralize the chlorite ion followed by an on the spot test using phenolphthalein indicator solution to determine if

neutralization has been completed. It is standard practice to use sodium thiosulfate to neutralize chlorine (i.e., a dechlorination agent) in NPDES permits.

- Oxygen Gas: Added to culture water to enhance fish respiration for life support as needed.
- Solution of Iodine and Phosphoric Acid: Used to disinfect hatchery equipment only at the New Hampton hatchery. Used as needed and solution is not discharged to the culture water.

Chemicals, Drugs and Disinfectants Routinely Used at the Warren State Fish Hatchery

- Sodium Chloride (Crystalline Form)
- Formalin - 37 % Formaldehyde Gas in Water with 16 % Methanol
- Chloramine-T (N-chloro tosylamide sodium salt)
- 35% PEROX-AID®
- Polyvinylpyrrolidone (Iodine in 10 % aqueous solution) --Also called Povidone Iodine
- Sodium Chloride (Crystalline Form)
- Sodium Hypochlorite at 5.25 % (Ordinary Household Bleach in Liquid Form)

Review of drug and chemical usage practices at the hatcheries, and the material safety data sheets for the above listed materials indicates that Formalin - 37 % Formaldehyde Gas in Water with 16 % Methanol, Chloramine-T, and PEROX-AID require effluent limitation because they have a reasonable potential to exceed the New Hampshire's Surface Water Quality Regulations. The draft permit contains effluent limitations for total residual chlorine (when Chloramine-T is in use), hydrogen peroxide (when 35% PEROX-AID is in use), and formaldehyde (when formalin is in use). See sections entitled "Total Residual Chlorine," "Hydrogen Peroxide" and "Formalin" later in this Fact Sheet.

A quantitative description of significant effluent parameters from the current permit's effluent-monitoring data collected for this facility during the 59-month period May 2005 through December 2009 show: average monthly flow ranged from 0.08 to 1.84 MGD average monthly Total Suspended Solids (TSS) ranged from 0.0 to 14.0 milliliters per liter (mg/l); 5-Day Biological Demand (BOD_5) ranged from 0.0 to 5 (mg/l); Total Phosphorous ranged from 0.0 to 0.11 (mg/l); Total Nitrogen ranged from 0.0 to 0.8 mg/l; Dissolved Oxygen (DO) ranged from 2.5 to 14.8 mg/l; DO Saturation ranged from 21.7 to 135.2%; pH ranged from 5.4 to 8.7; Formaldehyde was never detected; Fish Food Feed ranged from 0.0 to 497 lbs/day; and the resident fish biomass population ranged from a low of 0 lbs/day to a high of 933 lbs/day.

III. Description of Receiving Water

Patch Brook is designated as Class B waterbody pursuant to RSA 485-A:8 of the New Hampshire Statutes. Class B waterbodies are considered suitable for fishing, swimming and other recreational purposes, and for use as a water supply after adequate treatment.

Patch Brook (Assessment unit NHRIV700010302-09) is not listed as impaired on NHDES's *Final 2010 Section 303(d) Surface Water Quality List Submitted to EPA for Approval.* Fish consumption in this waterbody is listed as marginal non-support due to atmospheric deposition of mercury (a state-wide listing). The NHDES's 2010 Watershed Report Card indicates that a total maximum daily load (TMDL) has been completed.

IV. Limitations and Conditions.

Effluent limitations, monitoring requirements, and any implementation schedule (if required) are found in Part I of the draft NPDES permit. The basis for each limit and condition is discussed in Section VI of this Fact Sheet.

V. Permit Basis: Statutory and Regulatory Authority.

The Clean Water Act (CWA) prohibits the discharge of pollutants to waters of the United States without a National Pollutant Discharge Elimination System (NPDES) permit unless such a discharge is otherwise authorized by the CWA. The NPDES permit is the mechanism used to implement technology and water-quality based effluent limitations and other requirements including monitoring and reporting. During development, EPA considered the most recent technology-based treatment requirements, water quality-based requirements, and all limitations and requirements in the current/existing permit. The regulations governing the EPA NPDES permit program are generally found at 40 C.F.R. Parts 122, 124, 125, and 136. The general conditions of the draft permit are based on 40 C.F.R. § 122.41 and consist primarily of management requirements common to all permits. The effluent monitoring requirements have been established to yield data representative of the discharge under authority of Section 308(a) of the CWA in accordance with 40 C.F.R. § 122.41(j), § 122.44(i), and § 122.48.

1. Technology-based Requirements

Technology-based treatment requirements represent the minimum level of control that must be imposed under Sections 301(b) and 402 of the CWA (See 40 C.F.R. Part 125, Subpart A). Subpart
A of 40 C.F.R. Part 125 establishes criteria and standards for the imposition of technology-based treatment requirements in permits under Section 301(b) of the CWA, including the application of EPA promulgated effluent limitations and, in the absence of promulgated technology-based effluent guidelines, Best Professional Judgment (BPJ) for case-by-case determinations of effluent limitations under Section 402(a)(1)(B) of the CWA.

In general, statutory deadlines for meeting technology-based guidelines (effluent limitations) established pursuant to the CWA have expired. For instance, compliance with the newly promulgated effluent limitations guidelines for fish hatcheries is, effectively, from date of permit

issuance [See 69 Federal Register 162, August 23, 2004 Part I.E]. Compliance schedules and deadlines not in accordance with the statutory provisions of the CWA cannot be authorized by a NPDES permit. On August 23, 2004, the EPA promulgated new Effluent Limitations Guidelines and New Source Performance Standards (hereinafter referred to as ELGs) for CAAP facilities [See 40 C.F.R. Part 451].

Typically, ELGs express effluent limitations in the form of numeric standards for specific pollutants, but this ELG expresses effluent limitations in the form of narrative standards in order to achieve reduced discharges of total suspended solids (TSS) and other materials that are generated during the process of culturing fish. These new ELGs apply to the discharge of pollutants from facilities that produce 100,000 pounds or more of aquatic animals per year using flow-through, recirculating, net pen or submerged cage systems and became effective on September 22, 2004 [See Federal Register (FR) on August 23, 2004 (69 FR 51892-51930)]. Additional information relating to development of the ELGs can be found in "*Technical Development Document for the Final Effluent Limitations Guidelines and New Source Performance Standards for the Concentrated Aquatic Animal Production Point Source Category (Revised August 2004)*", EPA 821-R-04-01.

The Warren State Fish Hatchery meets the definition of a CAAP at 40 C.F.R. § 122.24(b) and operates recirculating systems. However, this facility is not expected to produce more than 100,000 pounds of aquatic animals per year, and the ELGs found at 40 C.F.R. Part 451 do not apply. Even though the Warren State Fish Hatchery historically produces less than 100,000 lbs of aquatic animals per year, EPA, during development of the current permit, made a best professional judgment (BPJ) determination to apply the recently promulgated ELG's for CAAPs to the Warren State Fish Hatchery. This determination was because the hatchery: (1) met the definition of a CAAP at 40 C.F.R. § 122.24(b); (2) operates flow-through type rearing units; and (3) has no allowable dilution from Patch Brook (applicable dilution factor is 1.0, see Section VI.2 of this Fact Sheet).

This determination resulted in the Warren State Fish Hatchery developing and implementing operational measures in the form of Best Management Practices (BMPs) to reduce the discharge of solids, the majority of which are uneaten fish food and feces, to Patch Brook. The BMPs specifically protect Patch Brook's minimal assimilative capacity particularly during low-flow periods. This determination is carried over to the draft permit in accordance to antibacksliding regulations found in 40 C.F.R. § 122.44(l).

Accordingly, the general reporting requirements detailed in 40 C.F.R. § 451.3 have been incorporated into the draft permit. They require the permittee to report INAD or extralabel drug usage, spills, structural failure and/or damage to rearing units as well as to develop, implement and maintain a BMP plan for the facility. The BMPs must address solids control, materials storage, structural maintenance of culture units and related equipment, recordkeeping and training at the hatchery. BMP plan requirements must represent best practicable control technology currently available, best available technology economically achievable, and best conventional technology as applicable and the permitting authority can modify BMP requirements based on its exercise of best professional judgment (BPJ) [See 40 C.F.R. §§ 451.11, 451.12, and 451.13].

2. Water Quality-based Requirements

Water-quality based limitations are required in NPDES permits when EPA and the State determine that effluent limits more stringent than technology-based limits are necessary to maintain or achieve state or federal water quality standards. See Section 301(b)(1)(C) of the CWA. A water quality standard consists of three elements: (1) beneficial designated use or uses for a waterbody or a segment of a waterbody; (2) a numeric or narrative water quality criteria sufficient to protect the assigned designated use(s); and (3) an antidegradation requirement to ensure that once a use is attained it will not be eroded.

Receiving water requirements are established according to numerical and narrative standards in the state's water quality standards adopted under state law for each stream classification. When using chemical-specific numeric criteria to develop permit limits, both the aquatic-life acute and chronic criteria, expressed in terms of maximum allowable in-stream pollutant concentration, are used. Aquatic-life acute criteria are considered applicable to daily time periods (maximum daily limit) and aquatic-life chronic criteria are considered applicable to monthly time periods (average monthly limit). Chemical-specific limits are allowed under 40 C.F.R. § 122.44(d)(1) and are implemented under 40 C.F.R. §§ 122.45(d) and (f). Therefore, the Region establishes maximum daily and average monthly limits for chemical-specific toxic pollutants based, in part, on a reasonable measure of the facility's actual or projected flow rates on an average monthly and a maximum daily basis for all production-based facilities that have a continuous discharge. Also, the dilution provided by the receiving water is factored into this process. Furthermore, narrative criteria from the state's water quality standards are often used to limit toxicity in discharges where: (1) a specific pollutant can be identified as causing or contributing to the toxicity but the state has no numeric standard; or (2) toxicity cannot be traced to a specific pollutant.

The NPDES permit must limit any pollutant or pollutant parameter (conventional, nonconventional, toxic and whole effluent toxicity) that is or may be discharged at a level that causes or has "reasonable potential" to cause or contribute to an excursion above any water quality criterion. See C.F.R. § 122.44(d)(1). An excursion occurs if the projected or actual in-stream concentration exceeds the applicable criterion. In determining reasonable potential, EPA considers: (1) existing and planned controls on point and non-point sources of pollution; (2) pollutant concentration and variability in the effluent and receiving water as determined from permit's reissuance application, Monthly Discharge Monitoring Reports (DMRs), and State and Federal Water Quality Reports; (3) sensitivity of the species to toxicity testing; (4) statistical approach outlined in Section 3 of the *Technical Support Document for Water Quality-based Toxics Control*, March 1991, EPA/505/2-90-001; and, where appropriate, (5) dilution of the effluent in the receiving water. In accordance with New Hampshire statutes and administrative rules (50 RSA 485-A:8, Env-Ws 1705.02), available dilution for discharges to freshwater receiving waters is based on a known or estimated value of the annual seven consecutive-day mean low flow at the 10-year recurrence interval (7Q10) for aquatic life or the long-term harmonic mean flow for human health (carcinogens only) in the receiving water at the point just upstream of the discharge. Furthermore, 10 % of the receiving water's assimilative capacity is held in reserve for future needs in accordance with New Hampshire's Surface Water Quality Regulations Env-Wq 1705.01. The New Hampshire Code of Administrative Rules Chapter Env-

Wq 1700 Surface Water Quality Regulations were readopted and became effective on May 21, 2008. Hereinafter, these Regulations are referred to as the NH Standards.

3. Antibacksliding

EPA's anti-backsliding provision as identified in Section 402(o) of the Clean Water Act and at 40 C.F.R. § 122.44(l) prohibits the relaxation of permit limits, standards, and conditions unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued. Anti-backsliding provisions apply to effluent limits based on technology, water quality, BPJ and State Certification requirements. Relief from anti-backsliding provisions can only be granted under one of the defined exceptions [See 40 C.F.R. § 122.44(l)(2)(i)].
All limits included in the Draft Permit are at least as stringent as those in the previous permit, issued April 25, 2005.

4. Antidegradation

The New Hampshire Antidegradation Policy, found at Env-Ws 1708, applies to any new or increased activity that would lower water quality or affect existing or designated uses, including increased loadings to a waterbody from an existing activity. The antidegradation regulations focus on protecting high quality waters and protecting and maintaining water quality necessary to protect existing uses. The CWA requires that EPA obtain State Certification which states that all water quality standards will be satisfied. The permit must conform to the conditions established pursuant to a State Certification under Section 401 of the CWA (40 C.F.R. §124.53 and §124.55). EPA regulations pertaining to permit limits based upon water quality standards and state requirements are contained in 40 C.F.R. §122.44(d).

This draft permit is being reissued with permit conditions and effluent limitations as stringent as or more stringent than the current permit; with the addition of effluent limits for chlorine (acute and chronic) and peroxide (acute). As discussed previously, the extensive rebuilding of the hatchery's outfall network has reduced the number of permitted outfalls from seven to one (Outfall 001). See the Section VI.1 "Changes to the Facility Since the Last Permit Issuance" of this Fact Sheet below. Because the draft permit continues to authorize the discharge of culture water with the same limitations as the present permit; coupled with the addition of effluent monitoring for chlorine and peroxide, EPA expects the State of New Hampshire to indicate that there will be no lowering of water quality and no loss of existing uses as a result of this proposed reissuance. Accordingly, no additional antidegradation review is warranted at this time.

VI. Explanation of Effluent Limitations Derivation

1. Changes to Facility since Last Permit Issuance

In September 2010, an extensive rebuilding project was initiated at the Warren State Fish Hatchery. Warren's current permit imposes effluent limitations on seven separate outfalls. The hatchery's original water flow plan allowed for rearing units to be individually drained directly

to Patch Brook. Prior to 2005, when a rearing unit required cleaning, the unit was isolated from the cascading water flow, cleaned, and the cleaning water was discharged to Patch Brook. This process, however, constituted discharging an untreated effluent to the surface waters of the U.S. In 2005, when the current permit was issued, the direct discharge of cleaning water, absent treatment, to Patch Brook was prohibited.

In addition to prohibiting the discharge of untreated cleaning water, the present permit also required increased sampling for several additional effluent parameters at each outfall, which required more funds and man hours to accomplish. After the reissuing of the six State Fish Hatchery NPDES permits, the NHF&GD decided to initiate a program to consolidate outfalls at the State Hatcheries. This program will result in the elimination of six of the seven permitted outfalls at the Warren State Fish Hatchery. The new drainage system currently being installed at the hatchery will direct the discharge from all the rearing units, pools and ponds to one common drain pipe. The common pipe discharges at Outfall 001 to Patch Brook. The NHF&GD has begun revising the hatchery's Best Management Practices (BMPs) to reflect this outfall consolidation. Refer to Attachment B for a generalized water-flow diagram that includes water sources, rearing units, and piping networks, including Outfall 001.

Water for all the rearing units is obtained from either gravel-packed wells or a series of free-flowing spring points that were driven into natural seepage areas (springs). Water pumped from the wells discharges into the Feed Reservoir located just upstream of the Upper Reservoir Pond rearing unit. An impoundment area created around the springs holds their discharge. Table 1 lists the water sources and their associated flow rates.

Water Sources for the Fish Rearing Units

Water Source	Flows, in gallons per minute (gpm)
Well No. 1; Gravel-Packed	Capacity 90 to 100 gpm
Well No. 2; Gravel-Packed	Capacity up to 240 gpm
Well No. 3; Gravel-Packed	Capacity rated at 500 gpm
Free Flowing Spring Points	Capacity 200 to 350 gpm, (Flows can cease during drought periods)

The water from either the spring impoundment or the Feed Reservoir flows by gravity to the rearing units, with the water cascading serially from one rearing unit to the next. There are two groupings of rearing units: the first group, beginning with the Upper Reservoir rearing unit, is fed with water from Wells No. 1, 2, and 3 via the Feed Reservoir; the second group, beginning with the Spring Raceway, is fed from the springs' impoundment. Low-pressure aeration has been installed in the Feed Reservoir just upstream of the Upper Reservoir rearing unit and in the

Spring, Round and Long rearing units. This aerated water flows into all remaining rearing units. The cascading flow from these two rearing unit groups merges at the No. 8 rearing unit. The last rearing unit (Rainbow Raceway) discharges into the hatchery's common drain pipe. The hatchery building, Public Relations Pool, and the two Show Pools are supplied water from the Feed Reservoir, and their discharges are also directed to the common drain downstream of the Rainbow Raceway. The hatchery's common drain then discharges to Patch Brook through the new Outfall 001. The design flow for the new water system at the Warren State Fish Hatchery is 945 gallons per minute (gpm) (1.36 million gallons per day (MGD)).

Fish are fed during daylight hours by hand-broadcasting fish food onto the surface of each active rearing unit at a frequency and size (granule/pellet) that depends on the age/size of the fish being reared. Generally feeding ranges from 7 to 8 times per day for hatched eggs through the fingerling stage (3 inches), 3 times per day for the fingerling plus stage, and once (1) per day for yearling (9 inches) and older life stages. The composition of this fish food varies from around 55 to 57 % protein and 1.2 % phosphate for the youngest fish up through fingerling size, to 43 % protein and 1.0% phosphate for fish 6 to 8 inches and larger in size. Feed size ranges from 0.25 to 0.56 millimeters (mm) for fish less than 1-inch in length to 3 to 6 mm for fish 6 to 8 inches and larger.

Solids in the culture water are generated from two sources: fish feces and uneaten food particles. The bulk of the solids (fish feces and uneaten food) settle to the bottom of each rearing unit for later removal at regular intervals during the cleaning process. However, a portion of the solids can be entrained in overflow water. The overflow water, the water that cascades from one rearing unit to the next, is discharged through Outfall 001. This overflow water contains low concentrations of solids when compared to the concentration of solids which settle to the bottom of the rearing units.

When in use, rearing units are individually cleaned once a week during the spring, summer and fall, and or once every two weeks in winter. In each of the rectangular shaped raceways, all of which have concrete sides and bottom, the water level is controlled by stop logs at the downstream end. Just upstream of the stop logs are fish retaining racks (screens), which keep fish in the raceway. Between the stop logs and the fish racks is a quiescent zone into which solids (fish feces and uneaten food particles) settle from the overflow water just before it discharges from the raceway. During the current permit's cycle, quiescent zones were vacuumed during the cleaning process to remove settled solids, fish waste and uneaten feed. These solids were then collected in a tank on a trailer. The tank contents were then transported for direct land application as fish manure for agricultural purpose on local farmers' land.

Two new settling tanks will be installed as part of the rebuilding project at the Warren State Fish Hatchery. These settling tanks are for the winter storage of the settled solids vacuumed from the rearing units during cleaning. The settling tanks are isolated from the water supply system and dewatered. Fish waste and uneaten food included in the "cleaning water" vacuumed from raceways and quiescent zones are emptied from the vacuuming equipment/trailer into the settling tanks. After the solids contained in the cleaning water have settled, water flow to the tanks is turned back on at a rate of 3-5 gallons per minute (gpm). The low flow rate is to prevent the tank's water from freezing and to keep odors down. When the ground has thawed and dried

(allowing it to absorb the settled solids) in the spring, the settling tanks are vacuumed and the solids spread on a local farmer's agricultural field. After seasonal fish stocking, raceways not in use are generally dewatered after vacuum cleaning.

As part of the piping system rebuilding project at the Warren State Fish Hatchery, two new settling tanks will be installed. These settling tanks are for the winter storage of the settled solids vacuumed from the rearing units during cleaning. Prior to a winter cleaning event, the settling tanks are isolated from the water supply system and decanted. The decanted storage tanks allow the tanks to have the capacity to receive the "cleaning water" from the vacuum tanks. The solids are allowed to settle before the water supply is returned to use, allowing the maximum amount of solids to settle without discharge. Fish waste and uneaten food included in the "cleaning water" vacuumed from raceways and quiescent zones are emptied from the vacuuming equipment/trailer into the settling tanks. After the solids contained in the cleaning water have settled, water flow to the tanks is turned back on at a rate of 3-5 gallons per minute (gpm). The low flow rate is to prevent the tank's water from freezing and to keep odors down. When the ground has thawed and dried (allowing it to absorb the settled solids) in the spring, the settling tanks are vacuumed and the solids spread on a local farmer's agricultural field. After seasonal fish stocking, raceways not in use are generally dewatered after vacuum cleaning.

2. Available Dilution

Available dilution (also referred to as dilution factor) provided by the receiving water is determined using the hatchery's average daily discharge along with the annual 7Q10 low flow of the receiving water; Patch Brook, just above the hatchery's outfall. The available dilution is reduced by 10 % to account for the State's reserve capacity rule. The State's requirement to reserve 10 % of the Assimilative Capacity of the receiving water for future needs is pursuant to New Hampshire's Surface Water Quality Regulations Env-Wq 1705.01.

Since there is no gaged value for Patch Brook's stream annual to determine the brook's 7Q10 low flow, that value was calculated using the Dingman Equation. This equation uses drainage area, mean basin elevation, and ratio of stratified drift to total drainage area. The 7Q10 was reviewed for the draft permit and was determined to be, and remains, 0.078 cubic feet per second (cfs). Historically during the summer, Patch Brook flow primarily consists of the effluent discharge from the hatchery. This, coupled with the very low value calculated for the brook's 7Q10, provides no dilution for the hatchery's effluent discharge. Therefore the dilution factor applicable to the facility's discharge is 1.0.

3. Total Suspended Solids (TSS) and Biochemical Oxygen Demand (BOD_5)

The current permit requirement to monitor Total Suspended Solids (TSS) and 5-Day Biochemical Oxygen Demand (BOD_5) is retained in the draft permit in accordance with antibacksliding regulation found in 40 C.F.R. § 122.44(l). Over the period of the current permit, maximum Total Suspended Solids (TSS) ranged from 0.0 to 14.0 milliliters per liter (mg/l); 5-Day Biological Demand (BOD_5) ranged from 0.0 to 5 (mg/l) for each of the six outfalls. EPA and NHDES anticipate that the BMP prohibiting the direct discharge of cleaning water, coupled with the installation and operation of the new settling tanks, will ensure the range of pollutant

concentrations discharged to the receiving water do not exceed the NH Water Quality Standards. The draft permit's requirement to continue monitoring TSS and BOD_5 will enable EPA and NHDES monitor the effectiveness of the BMPs for solids control.

4. pH

The pH range limits in the draft permit are based on Section Env-Wq 1703.18 of the New Hampshire Standards, which specifies that the pH of Class B waters shall be 6.5 to 8.0 standard units (S.U.), unless due to natural causes. The draft permit requires the hatchery effluent to be within the range of 6.5 - 8.0 S.U., unless the upstream ambient pH in the receiving water is outside of this range and is not altered by the facility's discharge or activities. In these cases, the permittee may perform sampling of the upstream receiving water to determine whether or not the effluent discharge will significantly alter the pH of the receiving water. If the permittee's discharge is less than 6.5 S.U., compliance may be shown when the discharge pH either exceeds the upstream receiving water pH or is a maximum of 0.5 S.U. lower than the upstream water pH. All receiving water pH monitoring data must be submitted with the facility's monthly Discharge Monitoring Report.

5. Total Residual Chlorine

The facility uses hypochlorite solutions to clean/disinfect rearing units and hatchery equipment, but EPA and NHDES do not believe the use of hypochlorite solutions lead to the presence of residual chlorine in the hatchery effluent. This is because hypochlorite solutions are not discharged directly into the culture water and any hypochlorite solution remaining on the equipment is neutralized with sodium thiosulfate prior to its exposure to that culture water.

The facility uses Chloramine-T, an investigational new animal drug (INAD), to treat bacterial gill disease caused by *Flavobacterium branchiophilium* (FDA INAD #9321 Objective B). Its use must follow the INAD study protocol, and the facility is required to notify EPA as described in Part I.B.1 of the draft permit. The facility has indicated that the use of Chloramine-T will allow it to reduce its use of formalin.

Treatment of diseased fish consists of three consecutive daily static bath treatments of one hour duration with 20 mg/L of Chloramine-T. Following each one hour treatment, the facility neutralizes the treatment solution using sodium thiosulfate, and measures the chlorine residual in the rearing unit to ensure that the chlorine has been neutralized before restarting flow through the system.

The draft permit includes total residual chlorine (TRC) limits to ensure that Chloramine-T use at the facility does not cause chlorine criteria violations in Patch Brook. The dilution factor at the hatchery outfall is 1.0, and therefore the maximum daily and average monthly TRC limits are equal to the acute and chronic aquatic life criteria in the NH Standards (19 ug/l and 11 ug/l respectively). The chlorine residual effluent limits and daily monitoring requirement apply whenever Chloramine-T is in use at the facility.

6. Hydrogen Peroxide

The facility uses 35% PEROX-AID® (hydrogen peroxide solution) as an external microbiocide for the control of mortality in freshwater-reared finfish eggs due to saprolegniasis, in freshwater-reared salmonoids due to bacterial gill disease (*Flavobacterium branchiophilum*), and in freshwater-reared cool water finfish due to external columnaris disease (*Flavobacterium columnae*). 35% PEROX-AID® is an FDA-approved drug for freshwater-reared finfish, and its use must adhere to FDA label instructions. The facility has indicated that the use of 35% PEROX-AID® will allow it to reduce its use of formalin.

The facility uses three consecutive daily static bath treatments of one hour each with 100 mg/l of 35% PEROX-AID®. Treatments are done one rearing unit at a time, and the tank water level is lowered to minimize the amount of chemical needed to achieve the desired dosage, and to minimize peroxide levels in the hatchery effluent.

The NH Standards do not include aquatic toxicity criteria for hydrogen peroxide, but the FDA has derived hydrogen peroxide water quality benchmarks for use by NPDES permitting authorities (*See "Environmental Assessment for the Use of Hydrogen Peroxide in Aquaculture for Treating External Fungal and Bacterial Diseases of Culture Fish and Fish Eggs", United State Geological Survey, 2006, p.72*). For freshwater aquatic life, the acute benchmark (criteria maximum concentration) is 0.7 mg/l. This acute water quality "benchmark" was determined using EPA guidance for deriving water quality critertia. The FDA determined that a corresponding chronic benchmark was unnecessary.

The draft permit includes a maximum daily effluent limit of 0.7 mg/l, and requires daily monitoring of hydrogen peroxide when PEROX-AID is in use at the facility. The facility monitors residual peroxide using Hach test kit HYP-T #2291700, which has a detection limit of 0.2 mg/l.

7. Nutrients (Nitrogen and Phosphorous)

The NH Standards at ENV-Wq 1703.14 require that "Class B waters shall contain no phosphorus or nitrogen in such concentrations that would impair any existing or designated uses, unless naturally occurring". Further, "existing discharges containing either phosphorus or nitrogen which encourages cultural eutrophication shall be treated to remove phosphorus or nitrogen to ensure attainment and maintenance of water quality standards." There are presently no numeric nutrient criteria for nitrogen and phosphorous in the NH Standards, but these criteria are currently under development by NHDES.

Nutrients are a pollutant of concern in fish hatchery wastewater, and the current permit requires quarterly monitoring of total nitrogen and total phosphorus to provide data to evaluate the impact of these pollutants on the quality of the receiving water. Over the period of the current permit, maximum Total Phosphorous as P effluent values have ranged from 0.00 to 0.11 mg/l; averaging from 0.02 mg/l to 0.045 mg/l for each of the six outfalls. Maximum Total Nitrogen as N effluent values has ranged from 0.0 to 0.8 mg/l for each of the outfalls. Based on these results, EPA and

NHDES do not believe these effluent levels have reasonable potential to reduce water clarity, promote algal growth, or lower dissolved oxygen levels in Patch Brook or the Baker River. The EPA and NHDES continue to expect that the ban on direct discharge of cleaning waters coupled with efficient feed management and feeding strategies (fish food has a phosphorus content that varies from 1.0 to 1.2 %) will minimize nutrient discharges from these sources. Accordingly, the draft permit continues the quarterly monitoring requirement for Total Nitrogen as N and Total Phosphorus as P.

8. Dissolved Oxygen

The NH Standards require that the in-stream dissolved oxygen content be at least 75 % of saturation, based on a daily average, and that the instantaneous minimum dissolved-oxygen concentration be at least 5 mg/l for Class B waters. See Env-Wq 1703.07(b).

There are several factors which make dissolved oxygen in the effluent a special concern at Warren. These are the: (1) demonstrated need to aerate the source water to the hatchery's raceways; (2) effluent flows from the hatchery make up all the receiving stream's flow during the summer low-flow periods, meaning that low effluent dissolved oxygen concentrations could exceed NH Standards for in-stream concentrations; (3) lack of reaeration potential in the stretch of receiving water adjacent to and just downstream of the hatchery, meaning that dissolved oxygen concentrations in Patch Brook could be significantly affected by the discharges from the hatchery, particularly if oxygen demand from effluent BOD_5 is significant; and (4) the oxidation of formalin in water (estimated half-life of 36 hours) consumes oxygen from the water column in the rearing and receiving waters.

Dissolved oxygen levels of the Warren State Fish Hatchery's effluent during the present permit have ranged from a daily maximum of 2.5 to 14.8 mg/l; averaging 7.5 to11.3 mg/l at each of the seven outfalls. Dissolved oxygen saturation has ranged from a daily maximum of 21.7 to 135.2 percent (%) saturation; with an average of 89.2 percent saturation. Most of the low dissolved oxygen concentration results were reported for Outfall 005, the Public Relations Pond, and Outfall 008, the Show Pools, both of which are relatively low volume discharges. EPA and NHDES believe that the combined discharge from the new consolidated Outfall 001 will meet dissolved oxygen standards.

The draft permit continues to require monthly monitoring of the effluent for dissolved oxygen concentration and also requires special monitoring at all times when formalin is being used. The draft permit further requires that the percent saturation be calculated from the dissolved oxygen concentration to determine if the discharge causes or contributes to exceeding that part of the NH Standards.

9. Formalin

CAAP facilities commonly use biocides, the most common of which are formalin products such as Paracide-F, Formalin-F or Parasite-S, which contain approximately 37 % by weight of formaldehyde gas. Formalin is used for the therapeutic treatment of fungal infections on the eggs of finfish and to control certain external protozoa and monogenetic trematodes on all finfish

species. Because it is formulated to selectively kill or remove certain attached organisms, but not the finfish themselves when properly applied, formalin is more toxic to invertebrate species than to vertebrates. When setting the necessary permit limits to protect the receiving water's aquatic environment from the effects of formalin in a discharge, it is more important to develop limits to protect invertebrate species because they are more sensitive to the effects of formaldehyde. In the receiving waters, these invertebrates are an integral part of the food chain for finfish.

Formalin use must be consistent with U.S. Food and Drug Administration (FDA) labeling instructions as per 21 C.F.R. § 529.1030. While the prophylactic use of formalin (i.e., drugs and chemicals used to prevent specific disease(s) in the absence of their symptoms) is not mentioned in those FDA regulations, EPA will only allow its use under the extra-label or INAD provisions of the Federal Food, Drug and Cosmetic Act as a Best Management Practice (BMP) to control the excessive use of drugs.

Existing toxicity data indicates that formalin is toxic to aquatic organisms at concentrations below FDA labeling guidelines. Currently there are no acute and chronic aquatic-life criteria for either formalin or formaldehyde in the NH Standards. However, New Hampshire law states that, "all surface waters shall be free from toxic substances or chemical constituents in concentrations or
combination that injure or are inimical to plants, animals, humans, or aquatic life" (N.H. RSA 485-A:8, VI and Env-Wq 1703.21(a)(1)). EPA, therefore, will continue to apply the acute, 4.6 mg/l, and chronic, 1.6 mg/l, aquatic-life criteria taken from the Derivation of Ambient Water Quality Criteria for Formaldehyde, Hohreiter, David W. and Rigg, David K., *Journal of Science for Environmental Technology in Chemosphere*, Vol. 45, Issues 4-5, November 2001, pgs. 471-486. EPA believes that because these criteria were developed in accordance with EPA's *Guidance for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses*, they are appropriate for the purpose of setting effluent limitations.

Additionally, the maximum daily (acute) limit, 4.6 mg/l, and average monthly (chronic) limit, 1.6 mg/l, aquatic-life criteria for formaldehyde are carried forward from the present permit to the draft permit in accordance with the antibacksliding requirements found in 40 C.F.R. § 122.44(1) since the permittee has been able to achieve consistent compliance with these limits. These limits apply at all times, but the monitoring requirements in the draft permit are "when-in-use," since formalin is only used sparingly throughout the year. During the course of the present permit, formaldehyde has never been detected in the hatchery's effluent discharge.

10. Best Management Practices (BMPs)

The ELGs contained in 40 C.F.R. § 451.11 are narrative limitations that describe BMPs to which the facility must adhere. These practices require the permittee to develop and employ methods for feed management, removal of accumulated solids, storage of drugs and pesticides, spill prevention, management of the wastewater treatment system, maintaining accurate records, and ensuring that all personnel receive proper training.

Three additional BMP Plan categories added to the current permit based on EPA's BPJ authority have been carried over to the draft permit consistent with the antibacksliding regulations found in 40 C.F.R. § 122.44(l). The categories are: (1) detailing precautions taken to prevent aquatic organisms that are neither indigenous nor naturalized to New Hampshire waters from becoming established in local surface waters; (2) identifying and quantifying all aquaculture drugs and chemicals used at this facility; and (3) describing where settled solids are placed after removal from culture units. The EPA has retained these three additional categories requirements because they will continue to protect the receiving waters from release of non-indigenous species and characterize the use of aquaculture drugs and chemicals in the treatment of pathogens and their potential for discharge to the environment.

Further, based on antibacksliding regulations found in 40 C.F.R. § 122.44(l), EPA has retained the current permit's BPJ determination to prohibit the direct discharge of settled solids from active rearing units to receiving water absent any form of off-line settling or equivalent solids removal. This requirement is based on the BMP plan requirement, stipulated in 40 C.F.R. § 451.11(a)(2), that requires the permittee to implement procedures for the routine cleaning of rearing units and off-line settling basins to minimize the discharge of accumulated solids from settling ponds and basins and production systems.

D. Additional Requirements and Conditions

The effluent monitoring requirements in the draft permit, as shown in the following table, have been established to yield data representative of the discharge under the authority of Section 308(a) of the CWA in accordance with 40 C.F.R. §§§ 122.41(j), 122.44(i) and 122.48. It is the intent of EPA and NHDES-WD to establish minimum monitoring frequencies in all NPDES permits at permit modification and/or reissuances that sufficiently monitor an effluent discharge so both the environmental and human health are protected. Compliance monitoring frequency and sample type have been set after considering the intended purpose and use of the data, configuration of the physical plant including its flow, and feeding regimes at the hatchery. Monitoring frequencies for NPDES permits issued in New Hampshire are usually set according to an EPA/NHDES-WD's Effluent Monitoring Guidance last revised on July 19, 1999. However, because that guidance was developed for use in permitting Publicly Owned Treatment Works (POTWs) and industrial facilities, it is not applicable to hatcheries; therefore, it has not been used to set monitoring frequencies in this draft permit.

The remaining conditions of the permit are based on the NPDES regulations 40 C.F.R., Parts 122 through 125, and consist primarily of management requirements common to all permits.

Current and Draft Permit Comparison

M- Monitor Only, L-Limited

Parameter	CURRENT PERMIT	DRAFT PERMIT

	Sampling Frequency	Sample Type	Sampling Frequency	Sample Type
Flow (M)	1/Week	Weir/ Calculation	1/Week	Flow Meter
pH (L)	1/Week	Grab	1/Week	Grab
BOD_5 (M)	1/Quarter	24-Hour Composite	1/Quarter	24-Hour Composite
TSS (M)	1/Quarter	24-Hour Composite	1/Quarter	24-Hour Composite
Total Nitrogen as N (M)	1/Quarter	24-Hour Composite	1/Quarter	24-Hour Composite
Total Phosphorous as P (M)	1/Quarter	24-Hour Composite	1/Quarter	24-Hour Composite
Chlorine (L) (When in Use)	**Not Required**	**Not Required**	**1/Day**	**Grab**
Peroxide (L) (When in Use)	**Not Required**	**Not Required**	**1/Day**	**Grab**
Dissolved Oxygen (M) (Formalin Absent)	1/Month	Grab	1/Month	Grab
Dissolved Oxygen Saturation (M)	1/Month	Calculation	1/Month	Calculation
Water Temperature (M) (Formalin Absent)	1/Month	Grab	1/Month	Grab
Formaldehyde (L) (Formalin Present)	1/Week	Grab	1/Week	Grab
Dissolved Oxygen (M) (Formalin Present)	1/Week	Grab	1/Week	Grab
Fish Biomass on Hand (M)	Monthly	Calculation	Monthly	Calculation
Fish Feed Used (M)	Monthly	Calculation	Monthly	Calculation
Efficiency of Fish Feed Used (M)	Monthly	Calculation	Monthly	Calculation

VII. Endangered Species Act

The Endangered Species Act (16 USC 1451 et seq) requires the EPA ensure that any action authorized by the EPA is not likely to jeopardize the continue existence of any endangered or threaten species or adversely affect its critical habitat. Further, 40 CFR 122.49(c) requires the EPA to consult with the U.S. Fish and Wildlife Service (USFWS) to determine particular permit conditions when the regulations of the Endangered Species Act may apply.

There are no endangered species resident in the Salmon Falls River. The EPA, therefore, does not have to consult with the USFWS.

VIII. Essential Fish Habitat.

Under the 1996 Amendments (PL 104-267) to the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. § 1801 et seq.(1998)), EPA is required to consult with the National Marine Fisheries Service (NMFS) if EPA's action or proposed actions that it funds, permits, or undertakes, "may adversely impact any essential fish habitat." 16 U.S.C. § 1855(b). The Amendments broadly define essential fish habitat (EFH) as: "waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." 16 U.S.C. § 1802(10). Adversely impact means any impact which reduces the quality and/or quantity of EFH. 50 C.F.R. § 600.910(a). Adverse effects may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey, reduction in species' fecundity), site-specific or habitat-wide impacts, including individual,
cumulative, or synergistic consequences of actions. 50 C.F.R. § 600.910(a).

EFH is only designated for fish species for which federal Fisheries Management Plans exist. 16 U.S.C. § 1855(b)(1)(A). EFH designations for New England were approved by the U.S. Department of Commerce on March 3, 1999.

Patch Brook is a tributary of the Baker River, which is a tributary of the Pemigewasset River which, in turn, is a tributary of the Merrimack River, and, as such, these streams are designated EFH for Atlantic salmon (*Salmo salar*) because the Merrimack River has been designated EFH status for Atlantic salmon ".....including all tributaries to the extent they are currently or were historically accessible for salmon migration." There is no stocking of Atlantic salmon in Patch Brook because the brook commonly dries up above the hatchery during summer and below the hatchery, the brook only has a short run before emptying into Baker River. However, according to the NHF&GD, the Baker River and its tributaries are heavily stocked each year with Atlantic salmon sac fry. Specifically, 16.1 river miles along the Baker River's main stem plus 11 of its tributaries for a total of 37.2 river miles are stocked at a target level of around 140,500 sac fry. This stocking effort has been an ongoing activity of this Agency with the cooperative efforts of the U.S. Fish and Wildlife Service for many years.

The permit limitations and requirements in the draft permit as discussed in the Fact Sheet are designed to protect aquatic species; therefore, this authorized discharge is not likely to adversely affect the federally managed species, their forage, or their habitat in the receiving water. This is particularly true given that the direct discharge of settled solids from active rearing units to

receiving waters absent any form of off-line settling or equivalent solids removal has been prohibited and the discharge of formalin, total residual chlorine, and peroxide are being regulated to assure that no toxics in toxic amounts are being released to any receiving water.

EPA considers the conditions in the draft permit to be sufficient to protect the EFH species of concern, namely Atlantic salmon; therefore, further mitigation is not warranted at this time. If adverse effects do occur in the receiving water as a result of this permit action, or if new information becomes available that changes the basis for this conclusion, then NMFS will be notified and consultation will be promptly initiated.

IX. Monitoring and Reporting

The effluent monitoring requirements have been established to yield data representative of the discharge under authority of Section 308 (a) of the CWA in accordance with 40 C.F.R. §§ 122.41 (j), 122.44 (l), and 122.48.

The draft permit includes new provisions related to Discharge Monitoring Report (DMR) submittals to EPA and the State. The draft permit requires that, no later than one year after the effective date of the permit, the permittee submit all monitoring data and other reports required by the permit to EPA using NetDMR, unless the permittee is able to demonstrate a reasonable basis, such as technical or administrative infeasibility, that precludes the use of NetDMR for submitting DMRs and reports ("opt-out request").

In the interim (until one year from the effective date of the permit), the permittee may either submit monitoring data and other reports to EPA in hard copy form, or report electronically using NetDMR.

NetDMR is a national web-based tool for regulated Clean Water Act permittees to submit DMRs electronically via a secure Internet application to U.S. EPA through the Environmental Information Exchange Network. NetDMR allows participants to discontinue mailing in hard copy forms under 40 C.F.R. § 122.41 and § 403.12. NetDMR is accessed from the following url: http://www.epa.gov/netdmr. Further information about NetDMR, including contacts for EPA Region 1, is provided on this website.

EPA currently conducts free training on the use of NetDMR, and anticipates that the availability of this training will continue to assist permittees with the transition to use of NetDMR. To participate in upcoming trainings, visit http://www.epa.gov/netdmr for contact information for New Hampshire.

The draft permit requires the permittee to report monitoring results obtained during each calendar month using NetDMR, no later than the 15th day of the month following the completed reporting period. All reports required under the permit shall be submitted to EPA and NHDES as an electronic attachment to the DMR. Once a permittee begins submitting reports using NetDMR, it will no longer be required to submit hard copies of DMRs or other reports to EPA or to NHDES.

The draft permit also includes an "opt-out" request process. Permittees who believe they can not use NetDMR due to technical or administrative infeasibilities, or other logical reasons, must demonstrate the reasonable basis that precludes the use of NetDMR. These permittees must submit the justification, in writing, to EPA at least sixty (60) days prior to the date the facility would otherwise be required to begin using NetDMR. Opt-outs become effective upon the date of written approval by EPA and are valid for twelve (12) months from the date of EPA approval. The opt-outs expire at the end of this twelve (12) month period. Upon expiration, the permittee must submit DMRs and reports to EPA using NetDMR, unless the permittee submits a renewed opt-out request sixty (60) days prior to expiration of its opt-out, and such a request is approved by EPA.

Until electronic reporting using NetDMR begins, or for those permittees that receive written approval from EPA to continue to submit hard copies of DMRs, the draft permit requires that submittal of DMRs and other reports required by the permit continue in hard copy format. Hard copies of DMRs

must be postmarked no later than the 15th day of the month following the completed reporting period.

X. State Certification Requirements.

EPA may not issue a permit unless the State Water Pollution Control Agency with jurisdiction over the receiving water(s) either certifies that the effluent limitations and/or conditions contained in the permit are stringent enough to assure, among other things, that the discharge will not cause the receiving water to violate State Water Quality Standards or the Agency waives its right to certify as set forth in 40 C.F.R. § 124.53. The NHDES is the certifying authority within the State of New Hampshire. EPA has discussed this draft permit with staff at the NHDES and anticipates that the draft permit will be certified by the State.

Upon public noticing of this draft permit, EPA is formally requesting that the NHDES make a written determination concerning certification. The State will be deemed to have waived its right to certify unless certification is received within 60 days of receipt of this request.

XI. Comment Period, Hearing Requests, and Procedures for Final Decisions.

All persons, including applicants, who believe any condition of the draft permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period, to John Paul King; U.S. EPA; Office of Ecosystem Protection; Industrial Permits Branch (OEP 06-1), 5 Post Office Square, Suite 1100; Boston, Massachusetts 02109-3912. Any person, prior to such date, may submit a request in writing for a public hearing to consider the draft permit to EPA and the State Agency. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public meeting may be held if the criteria stated in 40 C.F.R. § 124.12 are satisfied. In reaching a final decision on the draft permit, the EPA will respond to all significant comments and make these responses available to the public at EPA's Boston office.

Following the close of the comment period, and after any public hearings, if such hearings are held, the EPA will issue a final permit decision and forward a copy of the final decision to the applicant and each person who has submitted written comments or requested notice. Within 30 days following the notice of the final permit decision, any interested person may submit a petition for review of the permit to EPA's Environmental Appeals Board consistent with 40 C.F.R. § 124.19.

XII. EPA Contact

Additional information concerning the draft permit may be obtained between the hours of 9:00 a.m. and 5:00 p.m., Monday through Friday, excluding holidays from:

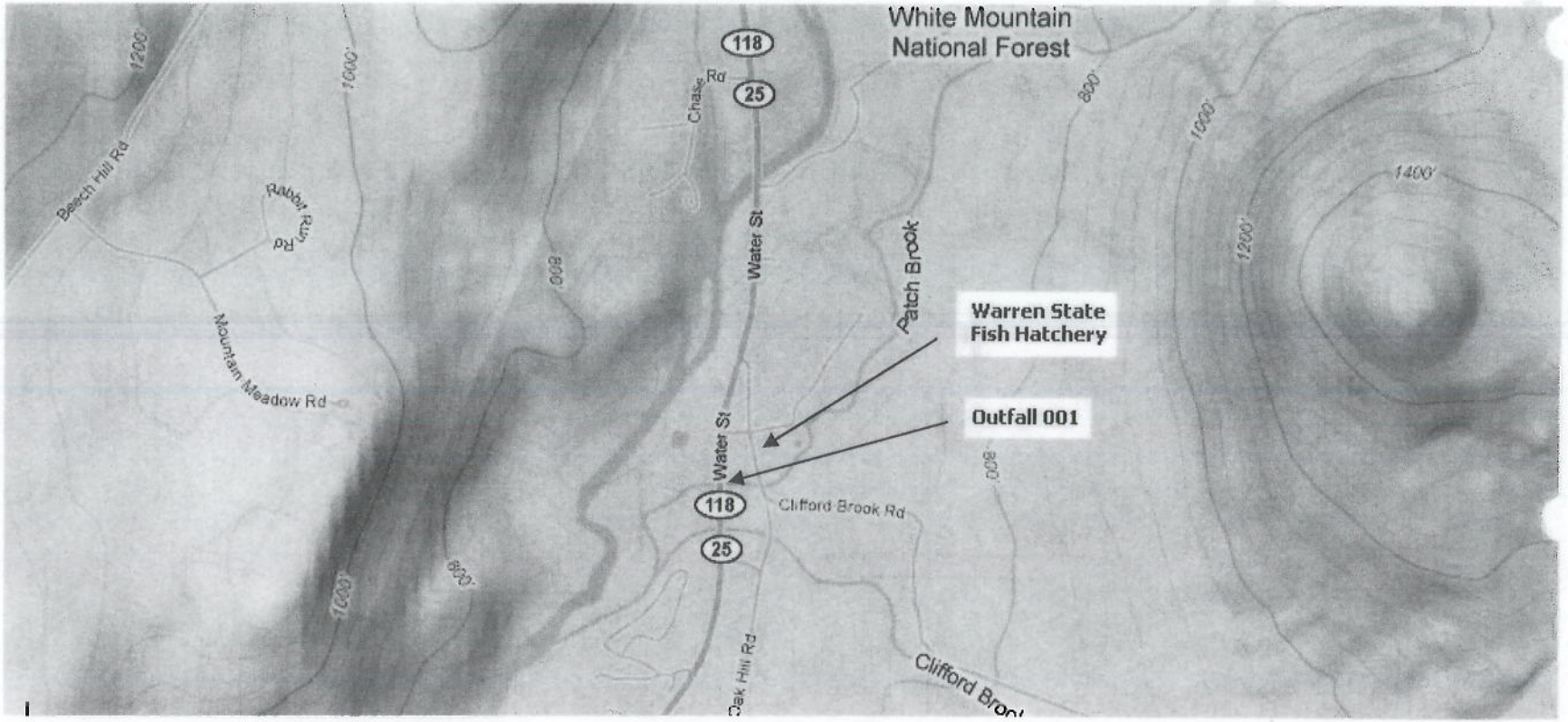
John Paul King
U.S. Environmental Protection Agency
Office of Ecosystem Protection
Industrial Permits Branch (OEP 6-1)
5 Post Office Square, Suite 1100 (CIP)
Boston, MA 02109-3912
Telephone: (617) 918-1295

Date:

Stephen S. Perkins, Director
Office of Ecosystem Protection
U.S. Environmental Protection Agency

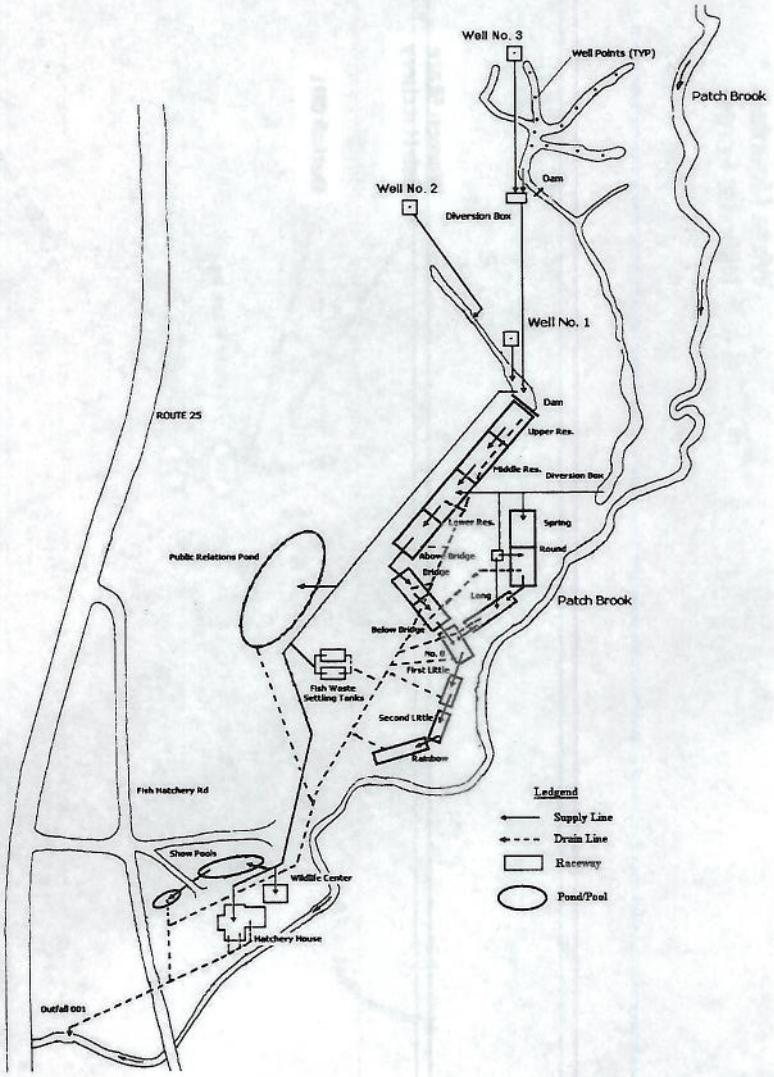
Attachment A

Map Location of Warren Fish Hatchery and Outfall 001



Attachment B

Warren Fish Hatchery Water Supply and Drain Diagram



Attachment C
Discharge Monitoring Report Summary
May 2005 – March 2010

Discharge monitoring summaries are presented for Outfalls 002 through 008. Outfall 001 had no discharge during the permit cycle and no summary is reported. For each outfall, the first table (A) presents monitoring data collected on a weekly or monthly basis, and the second table (B) presents data collected on a quarterly basis.

Abbreviations: ND = no discharge; ANC = analysis not conducted; CL = conditional limit (applied when Formalin in use)

OUTFALL 002 (A)								
MONITORING PERIOD END DATE	Flow, in conduit (Mgal/d)	Oxygen, dissolved (DO) (mg/L)	Oxygen, dissolved percent saturation (%)	Formaldehyde (mg/L)		pH (s.u.)		Temperature, water deg. Fahrenheit
	Monthly Average	Daily Maximum	Daily Maximum	Monthly Average	Daily Maximum	Minimum	Maximum	Daily Maximum
5/31/2005	-	-	-	ND	ND	-	-	-
6/30/2005	0.97	-	-	ANC	ANC	-	-	49
7/31/2005	0.86	8.52	93	CL	CL	6.63	6.76	58
8/31/2005	1	9.33	84	CL	CL	6.27	6.72	60.3
9/30/2005	0.9	7.38	81.2	CL	CL	6.23	6.36	58.6
10/31/2005	ND	ND	ND	ND	ND	ND	ND	ND
11/30/2005	ND	ND	ND	ND	ND	ND	ND	ND
12/31/2005	ND	ND	ND	ND	ND	ND	ND	ND
1/31/2006	-	-	-	-	-	-	-	-
2/28/2006	ND	ND	ND	ND	ND	ND	ND	ND
3/31/2006	ND	ND	ND	ND	ND	ND	ND	ND
4/30/2006	ND	ND	ND	ND	ND	ND	ND	ND
5/31/2006	ND	ND	ND	ND	ND	ND	ND	ND
6/30/2006	ND	ND	ND	ND	ND	ND	ND	ND
7/31/2006	ND	ND	ND	ND	ND	ND	ND	ND
8/31/2006	ND	ND	ND	ND	ND	ND	ND	ND
9/30/2006	ND	ND	ND	ND	ND	ND	ND	ND
10/31/2006	ND	ND	ND	ND	ND	ND	ND	ND
11/30/2006	ND	ND	ND	ND	ND	ND	ND	ND

12/31/2006	ND	ND	ND	ND	ND	ND	ND	ND
1/31/2007	ND	ND	ND	ND	ND	ND	ND	ND
2/28/2007	ND	ND	ND	ND	ND	ND	ND	ND
3/31/2007	ND	ND	ND	ND	ND	ND	ND	ND
4/30/2007	ND	ND	ND	ND	ND	ND	ND	ND
5/31/2007	ND	ND	ND	ND	ND	ND	ND	ND
6/30/2007	0.83	5.96	56.9	CL	CL	6.5	6.52	55.94
7/31/2007	0.83	5.76	51.5	CL	CL	6.38	6.72	57.74
8/31/2007	0.83	4.73	44.7	CL	CL	6.61	6.71	55.94
9/30/2007	0.83	4.96	52.2	CL	CL	6.48	7.22	56.6
10/31/2007	ND	ND	ND	ND	ND	ND	ND	ND
11/30/2007	0.83	10.22	86.4	CL	CL	**5.91**	6.88	46.7
12/31/2007	0.83	11.01	88.5	CL	CL	**5.86**	6.2	44.8
1/31/2008	ND	ND	ND	ND	ND	ND	ND	ND
2/29/2008	ND	ND	ND	ND	ND	ND	ND	ND
3/31/2008	ND	ND	ND	ND	ND	ND	ND	ND
4/30/2008	ND	ND	ND	ND	ND	ND	ND	ND
5/31/2008	-	-	-	-	-	-	-	-
6/30/2008	ND	ND	ND	ND	ND	ND	ND	ND
7/31/2008	ND	ND	ND	ND	ND	ND	ND	ND
8/31/2008	ND	ND	ND	ND	ND	ND	ND	ND
9/30/2008	ND	ND	ND	ND	ND	ND	ND	ND
10/31/2008	ND	ND	ND	ND	ND	ND	ND	ND
11/30/2008	ND	ND	ND	ND	ND	ND	ND	ND
12/31/2008	ND	ND	ND	ND	ND	ND	ND	ND
1/31/2009	ND	ND	ND	ND	ND	ND	ND	ND
2/28/2009	ND	ND	ND	ND	ND	ND	ND	ND
3/31/2009	ND	ND	ND	ND	ND	ND	ND	ND
4/30/2009	ND	ND	ND	ND	ND	ND	ND	ND
5/31/2009	ND	ND	ND	ND	ND	ND	ND	ND
6/30/2009	ND	ND	ND	ND	ND	ND	ND	ND
7/31/2009	ND	ND	ND	ND	ND	ND	ND	ND
8/31/2009	ND	ND	ND	ND	ND	ND	ND	ND
9/30/2009	ND	ND	ND	ND	ND	ND	ND	ND
10/31/2009	ND	ND	ND	ND	ND	ND	ND	ND
11/30/2009	ND	ND	ND	ND	ND	ND	ND	ND
12/31/2009	ND	ND	ND	ND	ND	ND	ND	ND

	Flow, in conduit (Mgal/d)	Oxygen, dissolved (DO) (mg/L)	Oxygen, dissolved percent saturation (%)	Formaldehyde (mg/L)		pH (s.u.)		Temperature, water deg. Fahrenheit
	Monthly Average	Daily Maximum	Daily Maximum	Monthly Average	Daily Maximum	Minimum	Maximum	Daily Maximum
	Report	**Report**	**Report**	**1.6**	**4.6**	**6**	**8**	**Report**
Minimum	0.83	4.73	44.7	N/A	N/A	5.86	6.2	44.8
Maximum	1	11.01	93	N/A	N/A	6.63	7.22	60.3
Average	0.87	7.54	70.9	N/A	N/A	6.32	6.68	54.36
Standard Deviation	0.06	2.34	19.1	N/A	N/A	0.28	0.30	5.44
# Measurements	10	9	9	N/A	N/A	9	9	10
# Exceeds Limits	N/A	N/A	N/A	N/A	N/A	2	0	N/A

OUTFALL 002 (B)								
MONITORING PERIOD END DATE	BOD, 5-day, 20 deg. C (lb/d)	BOD, 5-day, 20 deg. C (mg/L)	Phosphorus, total (as P) (lb/d)	Phosphorus, total (as P) (mg/L)	Solids, total suspended (lb/d)	Solids, total suspended (mg/L)	Nitrogen, ammonia total (as N) (lb/d)	Nitrogen, ammonia total (as N) (mg/L)
	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum
9/30/2005	22.5	3	0.3	0.04	15	2	3.75	0.5
12/31/2005	ND	ND	ND	ND	ND	ND	ND	ND
3/31/2006	ND	ND	ND	ND	ND	ND	ND	ND
6/30/2006	ND	ND	ND	ND	ND	ND	ND	ND
9/30/2006	ND	ND	ND	ND	ND	ND	ND	ND
12/31/2006	ND	ND	ND	ND	ND	ND	ND	ND
3/31/2007	ND	ND	ND	ND	ND	ND	ND	ND
6/30/2007	-	-	-	-	-	-	-	-
9/30/2007	34.53	5	0.14	0.02	96.68	14	5.52	0.8
12/31/2007	-	-	-	-	-	-	-	-
3/31/2008	ND	ND	ND	ND	ND	ND	ND	ND
6/30/2008	ND	ND	ND	ND	ND	ND	ND	ND
9/30/2008	ND	ND	ND	ND	ND	ND	ND	ND
12/31/2008	27.62	4	0.41	0.06	13.81	0	5.52	0.8
3/31/2009	ND	ND	ND	ND	ND	ND	ND	ND
6/30/2009	ND	ND	ND	ND	ND	ND	ND	ND
9/30/2009	ND	ND	ND	ND	ND	ND	ND	ND
12/31/2009	ND	ND	ND	ND	ND	ND	ND	ND
Minimum	22.5	3	0.14	0.02	13.81	0	3.75	0.5
Maximum	34.53	5	0.41	0.06	96.68	14	5.52	0.8
Average	28.22	4	0.28	0.04	41.83	5	4.93	0.7
Standard Deviation	6.04	1	0.14	0.02	47.51	8	1.02	0.2
# Measurements	3	3	3	3	3	3	3	3
# Exceeds Limits	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

OUTFALL 003 (A)										
MONITORING PERIOD END DATE	Fish food fed per day (lb/d)	Fish on hand (lb/d)	Flow, in conduit (Mgal/d)	Oxygen, dissolved (DO) (mg/L)	Oxygen, dissolved percent saturation (%)	Formaldehyde (mg/L)		pH (s.u.)		Temperature, water deg. Fahrenheit
	Monthly Average	Monthly Average	Monthly Average	Daily Maximum	Daily Maximum	Monthly Average	Daily Maximum	Minimum	Maximum	Daily Maximum
5/31/2005	63	531	1	ANC	ANC	CL	CL	ANC	ANC	43
6/30/2005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
7/31/2005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
8/31/2005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9/30/2005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
10/31/2005	80	451	1	8.52	76	CL	CL	**5.99**	6.51	56
11/30/2005	58.3	523.5	1.08	11.24	95.2	CL	CL	**5.95**	6.65	52.5
12/31/2005	62.4	677.3	0.88	11.26	88.9	CL	CL	6.03	6.57	43
1/31/2006	-	-	-	-	-	-	-	-	-	-
2/28/2006	43.75	894.7	0.76	11.4	86.6	CL	CL	6.17	6.59	42
3/31/2006	57.8	760.9	0.79	12.44	96.2	CL	CL	6.28	6.88	40.1
4/30/2006	57.4	766.7	0.83	9.86	86.6	CL	CL	6.25	6.59	43.8
5/31/2006	50.06	593.5	0.83	8.12	71.2	CL	CL	6.58	6.77	51.6
6/30/2006	76.7	347.3	0.83	9.16	80.1	CL	CL	6.66	7.02	55.2
7/31/2006	85.3	320.3	0.83	8.71	78.6	CL	CL	7.01	**8.24**	55.9
8/31/2006	95.1	565.8	0.83	7.92	79.4	CL	CL	6.56	7.93	60.6
9/30/2006	87.2	543.2	0.83	7.72	74.5	CL	CL	6.34	6.69	59
10/31/2006	68.8	432.7	0.83	9.18	86.6	CL	CL	6.06	6.36	54.8
11/30/2006	82.6	517.6	0.83	10.3	88.6	CL	CL	**5.98**	6.68	51.2
12/31/2006	54.9	518	0.83	10.37	85	CL	CL	6.06	6.24	44.4
1/31/2007	74	618.84	0.83	11.37	89.8	CL	CL	**5.82**	6.33	43
2/28/2007	58.2	723.03	0.83	10.06	74.2	CL	CL	6.37	6.46	39.02
3/31/2007	59.48	691.84	0.83	11.8	90.4	CL	CL	6.14	6.34	41.2
4/30/2007	77.9	703.4	0.83	11.31	85.5	CL	CL	**5.92**	6.51	41.27
5/31/2007	84.2	506.9	0.83	9.24	76.4	CL	CL	6.25	6.56	51.44
6/30/2007	67.2	337.1	0.83	5.25	51.2	CL	CL	6.48	6.84	52.07
7/31/2007	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
8/31/2007	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9/30/2007	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

10/31/2007	79.3	324.3	0.83	8.9	79.8	CL	CL	**5.84**	7.11	52.7
11/30/2007	77.97	442.83	0.83	10.23	89.2	CL	CL	6.46	6.81	51.3
12/31/2007	74.58	487.35	0.83	10.78	87.8	CL	CL	**5.91**	5.91	43.7
1/31/2008	43.8	459.45	0.83	13.35	94.2	CL	CL	**5.85**	6.23	39.4
2/29/2008	84.6	505.7	0.83	12.43	96	CL	CL	6	6.14	38.6
3/31/2008	60.4	564.2	0.83	12.99	94.4	CL	CL	**5.63**	6.14	38.4
4/30/2008	59.96	563.6	0.83	11.61	91.1	CL	CL	**5.85**	6.03	42.4
5/31/2008	49.41	373.9	0.83	12.6	112.4	CL	CL	6	6.19	47.12
6/30/2008	10.09	ANC	0.83	10.07	89.5	CL	CL	6	7.01	50.5
7/31/2008	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
8/31/2008	11.4	87.5	0.83	6.22	57.7	CL	CL	6.1	6.6	56.5
9/30/2008	62.6	332.73	0.83	5.68	52.7	CL	CL	6.01	6.82	52.9
10/31/2008	88.2	440.8	0.83	7.96	68.9	CL	CL	**5.62**	7.6	53.6
11/30/2008	72.9	521.3	0.83	9.64	79.9	CL	CL	**5.5**	6.14	48.1
12/31/2008	46.7	545.6	0.83	11.77	89.9	CL	CL	6.53	6.64	40.5
1/31/2009	36.2	590.4	0.83	11.57	83.6	CL	CL	**5.94**	6.4	37.3
2/28/2009	39.9	585.6	0.83	11.98	86.1	CL	CL	6.26	6.44	37.6
3/31/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4/30/2009	60.43	655.23	0.83	12.21	96.1	CL	CL	6.95	7.44	41.5
5/31/2009	23.46	432	0.83	13.46	109.9	CL	CL	7.3	7.55	44
6/30/2009	8.18	ANC	0.83	11.23	99	CL	CL	7.17	7.56	49.8
7/31/2009	ANC	ANC	ND	8.95	81.5	CL	CL	6.96	7.05	50.4
8/31/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9/30/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
10/31/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
11/30/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
12/31/2009	36.9	609.9	0.83	10.57	82.2	CL	CL	6.03	6.33	46.5
2003 Permit Limits	Fish food fed per day (lb/d)	Fish on hand (lb/d)	Flow, in conduit (Mgal/d)	Oxygen, dissolved (DO) (mg/L)	Oxygen, dissolved percent saturation (%)	Formaldehyde (mg/L)		pH (s.u.)		Temperature, water deg. Fahrenheit
	Monthly Average	Monthly Average	Monthly Average	Daily Maximum	Daily Maximum	Monthly Average	Daily Maximum	Minimum	Maximum	Daily Maximum
	Report	**Report**	**Report**	**Report**	**Report**	**1.6**	**4.6**	**6**	**8**	**Report**
Minimum	8.18	87.5	0.76	5.25	51.2	N/A	N/A	5.5	5.91	37.3
Maximum	95.1	894.7	1.08	13.46	112.4	N/A	N/A	7.3	8.24	60.6
Average	60.27	526.85	0.84	10.23	84.46	N/A	N/A	6.21	6.70	47.24

Standard Deviation	21.72	151.06	0.06	2.01	12.58	N/A	N/A	0.42	0.52	6.53
# Measurements	41	39	41	41	41	N/A	N/A	41	41	42
# Exceeds Limits	N/A	N/A	N/A	N/A	N/A	N/A	N/A	13	1	N/A

OUTFALL 003 (B)								
MONITORING PERIOD END DATE	BOD, 5-day, 20 deg. C (lb/d)	BOD, 5-day, 20 deg. C (mg/L)	Phosphorus, total (as P) (lb/d)	Phosphorus, total (as P) (mg/L)	Solids, total suspended (lb/d)	Solids, total suspended (mg/L)	Nitrogen, ammonia total (as N) (lb/d)	Nitrogen, ammonia total (as N) (mg/L)
	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum
12/31/2005	27	3	0.18	0.02	18	2	4.5	0.5
3/31/2006	19.8	3	0.2	0.03	13.2	2	3.3	0.5
6/30/2006	ANC	ANC	ANC	ANC	ANC	ANC	ANC	ANC
9/30/2006	20.7	3	0.41	0.06	13.8	3	3.4	0.6
12/31/2006	20.7	3	0.06	0.01	13.8	2	3.4	0.5
3/31/2007	20.72	3	0.35	0.05	13.81	2	3.45	0.5
6/30/2007	-	-	-	-	-	-	-	-
9/30/2007	ND	ND	ND	ND	ND	ND	ND	ND
12/31/2007	ND	ND	ND	ND	ND	ND	ND	ND
3/31/2008	ANC	ANC	ANC	ANC	ANC	ANC	ANC	ANC
6/30/2008	20.71	3	0.07	0.06	13.81	2	3.45	0.5
9/30/2008	20.71	3	0.55	0.08	13.81	2	3.45	0.5
12/31/2008	ANC	ANC	ANC	ANC	ANC	ANC	ANC	ANC
3/31/2009	20.71	3	0.27	0.04	13.81	2	3.45	0.5
6/30/2009	20.7	3	0.34	0.05	13.8	2	3.4	0.5
9/30/2009	ND	ND	ND	ND	ND	ND	ND	ND
12/31/2009	0	0	0	0.01	0	0	0	0
2005 Permit Limits	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum
	Report	Report	Report	Report	Report	Report	Report	Report
Minimum	0	0	0	0.01	0	0	0	0
Maximum	27	3	0.55	0.08	18	3	4.5	0.6
Average	19.18	2.70	0.24	0.04	12.78	1.90	3.18	0.46
Standard Deviation	7.04	0.95	0.17	0.02	4.69	0.74	1.17	0.16
# Measurements	10	10	10	10	10	10	10	10
# Exceeds Limits	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

OUTFALL 005 (A)								
MONITORING PERIOD END DATE	Fish food fed per day (lb/d)	Fish on hand (lb/d)	Flow, in conduit (Mgal/d)	Oxygen, dissolved (DO) (mg/L)	Oxygen, dissolved percent saturation (%)	pH (s.u.)		Temperature, water deg. Fahrenheit
	Monthly Average	Monthly Average	Monthly Average	Daily Maximum	Daily Maximum	Minimum	Maximum	Daily Maximum
8/31/2005	0.9	ANC	0.05	9.75	96.2	6.08	6.69	68
9/30/2005	0.46	ANC	0.05	9.22	95.4	6.13	6.39	63
10/31/2005	0.32	ANC	0.05	10.99	95.7	6.14	6.56	62
11/30/2005	0.67	ANC	0.04	-	-	6.03	6.41	48.7
12/31/2005	0	ANC	0.04	13.7	103.5	**5.88**	6.43	38
1/31/2006	-	22.7	0.08	-	-	-	-	-
2/28/2006	0	ANC	0.04	13.9	105	**5.97**	6.6	40.1
3/31/2006	0.6	ANC	0.04	12.57	96.7	6.4	7	42.8
4/30/2006	0.6	ANC	0.04	10.75	88.6	6.59	6.89	52.3
5/31/2006	0.6	ANC	0.04	8.67	85.1	6.93	7.27	59
6/30/2006	0.6	ANC	0.04	8.51	95.5	7.28	7.63	69.9
7/31/2006	0.6	ANC	0.04	5.79	63.6	7.25	**8.74**	68.7
8/31/2006	0.6	ANC	0.04	7.92	89.1	6.69	7	68
9/30/2006	0.6	ANC	0.04	8.64	90.1	6.37	6.69	66.2
10/31/2006	0.6	ANC	0.04	9.35	80.5	6.23	6.54	58
11/30/2006	0.6	ANC	0.04	12.3	96.4	6	7.04	51.8
12/31/2006	0.6	ANC	0.04	12.5	95	6.19	6.4	39
1/31/2007	0.6	ANC	0.04	12.27	90.9	6.15	6.39	39.6
2/28/2007	0.6	ANC	0.04	11.85	89.4	6.35	6.48	38.4

3/31/2007	0.6	ANC	0.04	13.25	100.8	6.18	6.36	39.2
4/30/2007	0.6	ANC	0.04	12.59	95.1	6.1	6.43	46.5
5/31/2007	0.6	ANC	0.04	8.21	79.6	6.22	6.53	66.9
6/30/2007	0.6	ANC	0.04	3.61	40	6.29	6.8	74.48
7/31/2007	0.6	ANC	0.04	3.74	40.5	6.33	6.7	78.08
8/31/2007	0.6	ANC	0.04	2.9	34.7	6.42	6.79	68.14
9/30/2007	0.6	ANC	0.04	8.85	91.1	6.32	7.22	64.64
10/31/2007	0.6	ANC	0.04	9.75	99.8	**5.79**	7.11	56.57
11/30/2007	0.6	ANC	0.04	10.01	80.7	**5.87**	6.94	48.92
12/31/2007	0.6	ANC	0.04	9.75	71.3	**5.81**	6.19	38.12
1/31/2008	0.6	ANC	0.04	12.8	94.2	**5.87**	6.34	37.14
2/29/2008	0.6	ANC	0.04	13.35	98.4	**5.4**	6.29	36.1
3/31/2008	0.6	ANC	0.04	14.77	109.7	**5.79**	6.22	38.4
4/30/2008	0.6	CL	0.04	11.58	95.5	6.02	6.2	50.8
5/31/2008	0.6	ANC	0.04	10.97	96.5	6.07	6.42	55.4
6/30/2008	0.6	ANC	0.04	6.37	67.2	**5.82**	6.9	61.7
7/31/2008	0.6	ANC	0.04	7.17	72.4	6.3	6.79	60.7
8/31/2008	0.6	ANC	0.04	6.55	68.2	6.43	6.88	62.7
9/30/2008	0.6	ANC	0.04	3.37	36.4	6.26	6.74	57.3
10/31/2008	0.6	ANC	0.04	7.34	68.7	**5.6**	7.63	50.6
11/30/2008	0.6	CL	0.04	9.71	73.2	**5.55**	6.21	43.6
12/31/2008	0.6	ANC	0.04	9.3	70	6.57	6.77	27.8
1/31/2009	0.6	ANC	0.04	9.36	68.1	**5.98**	6.31	35.9
2/28/2009	0.6	ANC	0.04	12.87	92.6	6.23	6.28	36
3/31/2009	0.6	-	-	14.07	104.8	6.68	7.24	39.5
4/30/2009	0.6	ANC	0.04	12.21	104.6	6.91	7.41	46.4
5/31/2009	0.6	ANC	0.04	8.83	82.9	7.31	7.53	53.5

6/30/2009	0.6	ANC	0.04	7.49	81	7.02	7.53	60.8
7/31/2009	0.6	ANC	0.04	8.11	78.5	6.94	7.14	56.9
8/31/2009	0.6	ANC	0.04	10.55	100.9	7.03	7.2	60.98
9/30/2009	0.6	ANC	0.04	9.86	100.3	6.23	6.23	57.6
10/31/2009	0.6	ANC	0.04	10.19	91	6.35	6.62	51.4
11/30/2009	0.6	ANC	0.04	9.25	73.8	6.38	6.49	45.8
12/31/2009	0.6	ANC	0.04	10.65	79.2	6.24	6.47	44.9
2003 Permit Limits	Fish food fed per day (lb/d)	Fish on hand (lb/d)	Flow, in conduit (Mgal/d)	Oxygen, dissolved (DO) (mg/L)	Oxygen, dissolved percent saturation (%)	pH (s.u.)		Temperature, water deg. Fahrenheit
	Monthly Average	Monthly Average	Monthly Average	Daily Maximum	Daily Maximum	Minimum	Maximum	Daily Maximum
	Report	**Report**	**Report**	**Report**	**Report**	**Report**	**Report**	**Report**
Minimum	0	N/A	0.04	2.9	34.7	5.4	6.19	27.8
Maximum	0.9	N/A	0.08	14.77	109.7	7.31	8.74	78.08
Average	0.58	N/A	0.04	9.77	84.28	6.29	6.77	52.44
Standard Deviation	0.13	N/A	0.01	2.86	18.02	0.44	0.49	12.08
# Measurements	52	1	52	51	51	52	52	52
# Exceeds Limits	N/A	N/A	N/A	N/A	N/A	12	1	N/A

OUTFALL 005 (B)								
MONITORING PERIOD END DATE	BOD 5-day 20 deg. C (lb/d)	BOD 5-day 20 deg. C (mg/L)	Phosphorus total (as P) (lb/d)	Phosphorus total (as P) (mg/L)	Solids total suspended (lb/d)	Solids total suspended (mg/L)	Nitrogen ammonia total (as N) (lb/d)	Nitrogen ammonia total (as N) (mg/L)
	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum
9/30/2005	1.25	3	0	0.01	0.83	2	0.2	0.5
12/31/2005	1	3	0	0.01	0.67	2	0.17	0.5
3/31/2006	0.9	3	0	0.01	0.6	2	0.15	0.5
6/30/2006	0.9	3	0.01	0.02	0.6	2	0.15	0.5
9/30/2006	ANC	ANC	ANC	ANC	ANC	ANC	ANC	ANC
12/31/2006	0.9	2	0	0.01	0.15	2	0.5	0.5
3/31/2007	0.9	3	0	0.01	0.6	2	0.15	0.5
6/30/2007	-	-	0	0.01	-	-	-	-
9/30/2007	0.9	3	0	0.01	0.6	2	0.15	0.5
12/31/2007	0.9	0	-	-	0.6	0	0.15	0
3/31/2008	ANC	ANC	ANC	ANC	ANC	ANC	ANC	ANC
6/30/2008	0.9	0	0	0.01	0.6	0	0.15	0
9/30/2008	1.2	4	0.02	0.07	0.9	3	0.15	0.5
12/31/2008	ANC	ANC	ANC	ANC	ANC	ANC	ANC	ANC
3/31/2009	1.2	4	0.03	0.11	3.3	11	0.15	0.5
6/30/2009	0.9	3	0.02	0.05	0.6	2	0.15	0.5
9/30/2009	0.9	3	0.01	0.02	0.6	2	0.15	0.5
12/31/2009	0	0	0	0.02	1.2	4	0	0
2003 Permit Limits	BOD, 5-day, 20 deg. C (lb/d)	BOD, 5-day, 20 deg. C (mg/L)	Phosphorus, total (as P) (lb/d)	Phosphorus, total (as P) (mg/L)	Solids, total suspended (lb/d)	Solids, total suspended (mg/L)	Nitrogen, total (as N) (lb/d)	Nitrogen, total (as N) (mg/L)
	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum
	Report	Report	Report	Report	Report	Report	Report	Report
Minimum	0	0	0	0.01	0.15	0	0	0
Maximum	1.25	4	0.03	0.11	3.3	11	0.5	0.5
Average	0.91	2.43	0.01	0.03	0.85	2.57	0.17	0.39
Standard Deviation	0.29	1.40	0.01	0.03	0.74	2.62	0.10	0.21
# Measurements	14	14	14	14	14	14	14	14
# Exceeds Limits	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

OUTFALL 006 (A)										
MONITORING PERIOD END DATE	Fish food fed per day (lb/d)	Fish on hand (lb/d)	Flow, in conduit (Mgal/d)	Formaldehyde (mg/L)		Oxygen, dissolved (DO) (mg/L)	Oxygen, dissolved percent saturation (%)	pH (s.u.)		Temperature, water deg. Fahrenheit
	Monthly Average	Monthly Average	Monthly Average	Monthly Average	Daily Maximum	Daily Maximum	Daily Maximum	Minimum	Maximum	Daily Maximum
11/30/2005	2	20.2	0.08	CL	CL	11.24	92.5	6.19	6.32	48.2
12/31/2005	4.8	22.7	0.08	CL	CL	11.98	93.7	**5.73**	6.34	46.5
1/31/2006	-	-	-	-	-	-	-	-	-	-
2/28/2006	8.4	32	0.08	CL	CL	10.9	87.2	**5.9**	6.46	44
3/31/2006	434.5	45.9	0.09	CL	CL	10.57	84.3	6.13	6.43	42.9
4/30/2006	9.3	25.5	0.09	CL	-	98.3	79	6.3	6.58	47.4
5/31/2006	ND	ND	ND	-	-	ND	ND	ND	ND	ND
6/30/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
7/31/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
8/31/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9/30/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
10/31/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
11/30/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
12/31/2006	5.45	11.5	0.08	ND	ND	11.95	95.2	**5.98**	6.26	48
1/31/2007	2.61	17.55	0.08	CL	CL	11.24	90.4	**5.56**	6.25	45.3
2/28/2007	4.25	17.5	0.08	CL	CL	9.09	72	**5.89**	6.29	43.1
3/31/2007	5.42	21.13	0.08	CL	CL	12.48	93.3	6.11	7.63	42.98
4/30/2007	ND	ND	ND	CL	CL	ND	ND	ND	ND	ND
5/31/2007	ANC	ANC	0.01	ND	ND	7.87	79	**5.98**	6.45	45.6
6/30/2007	ND	ND	ND	CL	CL	ND	ND	ND	ND	ND
7/31/2007	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
8/31/2007	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9/30/2007	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
10/31/2007	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
11/30/2007	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
12/31/2007	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1/31/2008	2.58	10.8	0.09	ND	ND	11.42	91.5	**5.94**	6.2	44
2/29/2008	4.48	14.7	0.09	CL	CL	12.66	105.1	**5.83**	6.07	42.8
3/31/2008	4.1	17.03	0.09	CL	CL	12.76	101.9	6.02	6.1	38.3
4/30/2008	7.8	CL	0.09	CL	CL	12.04	92.3	6	6.11	40
5/31/2008	ND	ND	ND	CL	CL	ND	ND	ND	ND	ND

6/30/2008	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
7/31/2008	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
8/31/2008	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9/30/2008	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
10/31/2008	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
11/30/2008	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
12/31/2008	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1/31/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2/28/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3/31/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4/30/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
5/31/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
6/30/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
7/31/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
8/31/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9/30/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
10/31/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
11/30/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
12/31/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2003 Permit Limits	Fish food fed per day (lb/d)	Fish on hand (lb/d)	Flow, in conduit (Mgal/d)	Formaldehyde (mg/L)		Oxygen, dissolved (DO) (mg/L)	Oxygen, dissolved percent saturation (%)	pH (s.u.)		Temperature, water deg. Fahrenheit
	Monthly Average	Monthly Average	Monthly Average	Monthly Average	Daily Maximum	Daily Maximum	Daily Maximum	Minimum	Maximum	Daily Maximum
	Report	**Report**	**Report**	**1.6**	**4.6**	**Report**	**Report**	**Report**	**Report**	**Report**
Minimum	2	10.8	0.01	N/A	N/A	7.87	72	5.56	6.07	38.3
Maximum	434.5	45.9	0.09	N/A	N/A	98.3	105.1	6.3	7.63	48.2
Average	38.13	21.38	0.08	N/A	N/A	17.46	89.81	5.97	6.39	44.22
Standard Deviation	119.12	9.71	0.02	N/A	N/A	23.31	8.95	0.19	0.39	2.88
# Measurements	13	12	14	N/A	N/A	14	14	14	14	14
# Exceeds Limits	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8	0	N/A

OUTFALL 006 (B)								
MONITORING PERIOD END DATE	BOD 5-day 20 deg. C (lb/d)	BOD 5-day 20 deg. C (mg/L)	Phosphorus total (as P) (lb/d)	Phosphorus total (as P) (mg/L)	Solids total suspended (lb/d)	Solids total suspended (mg/L)	Nitrogen ammonia total (as N) (lb/d)	Nitrogen ammonia total (as N) (mg/L)
	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum
3/31/2006	2.1	3	0.02	0.03	1.4	2	0.35	0.5
6/30/2006	ANC	ANC	ANC	ANC	ANC	ANC	ANC	ANC
9/30/2006	ND	ND	ND	ND	ND	ND	ND	ND
12/31/2006	2	3	0.01	0.01	1.3	2	0.33	0.5
3/31/2007	2	3	0.05	0.07	1.33	2	0.03	0.5
6/30/2007	-	-	-	-	-	-	-	-
9/30/2007	ND	ND	ND	ND	ND	ND	ND	ND
12/31/2007	ND	ND	ND	ND	ND	ND	ND	ND
3/31/2008	ANC	ANC	ANC	ANC	ANC	ANC	ANC	ANC
6/30/2008	ND	ND	ND	ND	ND	ND	ND	ND
9/30/2008	ND	ND	ND	ND	ND	ND	ND	ND
12/31/2008	ANC	ANC	ANC	ANC	ANC	ANC	ANC	ANC
3/31/2009	ND	ND	ND	ND	ND	ND	ND	ND
6/30/2009	ND	ND	ND	ND	ND	ND	ND	ND
9/30/2009	ND	ND	ND	ND	ND	ND	ND	ND
12/31/2009	ND	ND	ND	ND	ND	ND	ND	ND
2005 Permit Limits	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum
	Report	Report	Report	Report	Report	Report	Report	Report
Minimum	2	3	0.01	0.01	1.3	2	0.03	0.5
Maximum	2.1	3	0.05	0.07	1.4	2	0.35	0.5
Average	2.03	3.00	0.03	0.04	1.34	2.00	0.24	0.50
Standard Deviation	0.06	0.00	0.02	0.03	0.05	0.00	0.18	0.00
# Measurements	3	3	3	3	3	3	3	3
# Exceeds Limits	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

OUTFALL 007 (A)

MONITORING PERIOD END DATE	Fish food fed per day (lb/d)	Fish on hand (lb/d)	Flow, in conduit (Mgal/d)	Formaldehyde (mg/L)		Oxygen, dissolved (DO) (mg/L)	Oxygen, dissolved percent saturation (%)	pH (s.u.)		T
	Monthly Average	Monthly Average	Monthly Average	Monthly Average	Daily Maximum	Daily Maximum	Daily Maximum	Minimum	Maximum	
5/31/2005	0	0	0.05	CL	CL	ANC	ANC	ANC	ANC	
6/30/2005	ND	ND	ND	ND	ND	ND	ND	ND	ND	
7/31/2005	ND	ND	ND	ND	ND	ND	ND	ND	ND	
8/31/2005	ND	ND	ND	ND	ND	ND	ND	ND	ND	
9/30/2005	ND	ND	ND	ND	ND	ND	ND	ND	ND	
10/31/2005	ND	ND	ND	ND	ND	ND	ND	ND	ND	
11/30/2005	ND	ND	ND	ND	ND	ND	ND	ND	ND	
12/31/2005	3.3	11.5	0.04	CL	CL	9.24	78	6	6.36	
1/31/2006	-	-	-	-	-	-	-	-	-	
2/28/2006	3	6.6	0.02	CL	CL	10.35	86	6.18	6.44	
3/31/2006	2.2	13.3	0.09	CL	CL	10.3	86	6.17	6.43	
4/30/2006	0.8	9.2	0.09	-	-	10.72	87.7	6.12	6.64	
5/31/2006	0.87	5	0.04	CL	CL	9.86	85.1	6.64	6.74	
6/30/2006	3.76	6.6	0.04	CL	CL	8.19	73	6.81	6.87	
7/31/2006	3.38	8.4	0.04	CL	CL	7.04	64	6.87	7.45	
8/31/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND	
9/30/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND	
10/31/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND	
11/30/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND	
12/31/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND	
1/31/2007	ND	ND	ND	ND	ND	ND	ND	ND	ND	
2/28/2007	1.07	7.14	0.01	CL	CL	9.36	74.9	6.08	6.12	
3/31/2007	2	8.87	0.01	CL	CL	8.89	71.5	**5.96**	6.37	
4/30/2007	ANC	ANC	0.01	CL	CL	12.01	93.9	**5.99**	6.2	
5/31/2007	-	-	-	-	-	-	-	-	-	
6/30/2007	ND	ND	ND	ND	ND	ND	ND	ND	ND	
7/31/2007	ND	ND	ND	ND	ND	ND	ND	ND	ND	
8/31/2007	ND	ND	ND	ND	ND	ND	ND	ND	ND	
9/30/2007	ND	ND	ND	ND	ND	ND	ND	ND	ND	
10/31/2007	ND	ND	ND	ND	ND	ND	ND	ND	ND	
11/30/2007	ND	ND	ND	ND	ND	ND	ND	ND	ND	
12/31/2007	ND	ND	ND	ND	ND	ND	ND	ND	ND	
1/31/2008	ND	ND	ND	ND	ND	ND	ND	ND	ND	
2/29/2008	ND	ND	ND	ND	ND	ND	ND	ND	ND	
3/31/2008	ANC	ANC	0.14	CL	CL	13.77	107.7	**5.96**	6.14	
4/30/2008	CL	CL	0.14	CL	CL	12.99	101.4	**5.89**	6.27	
5/31/2008	ND	ND	ND	ND	ND	ND	ND	ND	ND	
6/30/2008	ND	ND	ND	ND	ND	ND	ND	ND	ND	
7/31/2008	ND	ND	ND	ND	ND	ND	ND	ND	ND	
8/31/2008	ND	ND	ND	ND	ND	ND	ND	ND	ND	
9/30/2008	ND	ND	ND	ND	ND	ND	ND	ND	ND	
10/31/2008	ND	ND	ND	ND	ND	ND	ND	ND	ND	

11/30/2008	ND	ND	ND	ND	ND	ND	ND	ND	ND
12/31/2008	ND	ND	ND	ND	ND	ND	ND	ND	ND
1/31/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND
2/28/2009	ANC	ANC	0.02	CL	CL	12.4	98.4	6.23	6.47
3/31/2009	ANC	-	-	-	-	13.32	100.5	6.42	6.86
4/30/2009	ANC	ANC	0.02	CL	CL	12.6	98.7	6.88	7.31
5/31/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND
6/30/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND
7/31/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND
8/31/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND
9/30/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND
10/31/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND
11/30/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND
12/31/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND
2003 Permit Limits	Fish food fed per day (lb/d)	Fish on hand (lb/d)	Flow, in conduit (Mgal/d)	Formaldehyde (mg/L)		Oxygen, dissolved (DO) (mg/L)	Oxygen, dissolved percent saturation (%)	pH (s.u.)	
	Monthly Average	Monthly Average	Monthly Average	Monthly Average	Daily Maximum	Daily Maximum	Daily Maximum	Minimum	Maximum
	Report	**Report**	**Report**	**1.6**	**4.6**	**Report**	**Report**	**Report**	**Report**
Minimum	0	0	0.01	N/A	N/A	7.04	64	5.89	6.12
Maximum	3.76	13.3	0.14	N/A	N/A	13.77	107.7	6.88	7.45
Average	2.04	7.66	0.05	N/A	N/A	10.74	87.12	6.28	6.58
Standard Deviation	1.30	3.64	0.04	N/A	N/A	2.03	12.90	0.35	0.40
# Measurements	10	10	15	N/A	N/A	15	15	15	15
# Exceeds Limits	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4	0

OUTFALL 007 (B)								
MONITORING PERIOD END DATE	BOD 5-day 20 deg. C (lb/d)	BOD 5-day 20 deg. C (mg/L)	Phosphorus total (as P) (lb/d)	Phosphorus total (as P) (mg/L)	Solids total suspended (lb/d)	Solids total suspended (mg/L)	Nitrogen ammonia total (as N) (lb/d)	Nitrogen ammonia total (as N) (mg/L)
	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum
3/31/2006	2.1	3	0.02	0.05	1.4	2	0.35	0.5
6/30/2006	ANC	ANC	ANC	ANC	ANC	ANC	ANC	ANC
9/30/2006	ND	ND	ND	ND	ND	ND	ND	ND
12/31/2006	ND	ND	ND	ND	ND	ND	ND	ND
3/31/2007	0.36	3	0	0.03	0.36	3	0.06	0.5
6/30/2007	-	-	-	-	-	-	-	-
9/30/2007	ND	ND	ND	ND	ND	ND	ND	ND
12/31/2007	ND	ND	ND	ND	ND	ND	ND	ND
3/31/2008	ANC	ANC	ANC	ANC	ANC	ANC	ANC	ANC
6/30/2008	ND	ND	ND	ND	ND	ND	ND	ND
9/30/2008	ND	ND	ND	ND	ND	ND	ND	ND
12/31/2008	ANC	ANC	ANC	ANC	ANC	ANC	ANC	ANC
3/31/2009	0.55	3	0	0.01	0.37	2	0.09	0.5
6/30/2009	ND	ND	ND	ND	ND	ND	ND	ND
9/30/2009	ND	ND	ND	ND	ND	ND	ND	ND
12/31/2009	ND	ND	ND	ND	ND	ND	ND	ND
2003 Permit Limits	BOD 5-day 20 deg. C (lb/d)	BOD 5-day 20 deg. C (mg/L)	Phosphorus total (as P) (lb/d)	Phosphorus total (as P) (mg/L)	Solids total suspended (lb/d)	Solids total suspended (mg/L)	Nitrogen ammonia total (as N) (lb/d)	Nitrogen ammonia total (as N) (mg/L)
	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum
	Report	Report	Report	Report	Report	Report	Report	Report
Minimum	0.36	3	0	0.01	0.36	2	0.06	0.5
Maximum	2.1	3	0.02	0.05	1.4	3	0.35	0.5
Average	1.00	3.00	0.01	0.03	0.71	2.33	0.17	0.50
Standard Deviation	0.95	0.00	0.01	0.02	0.60	0.58	0.16	0.00
# Measurements	3	3	3	3	3	3	3	3
# Exceeds Limits	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

OUTFALL 008 (A)								
MONITORING PERIOD END DATE	Fish food fed per day (lb/d)	Fish on hand (lb/d)	Flow, in conduit (Mgal/d)	Oxygen, dissolved (DO) (mg/L)	Oxygen, dissolved percent saturation (%)	pH (s.u.)		Temperature, water deg. Fahrenheit
	Monthly Average	Monthly Average	Monthly Average	Daily Maximum	Daily Maximum	Minimum	Maximum	Daily Maximum
5/31/2005	0.97	ANC	0.14	ANC	ANC	ANC	ANC	49
6/30/2005	1.7	ANC	0.14	ANC	ANC	ANC	ANC	49
7/31/2005	2	ANC	0.14	8.49	96.4	6.87	6.88	60
8/31/2005	3.22	ANC	0.14	9.27	93.1	**5.87**	6.47	61
9/30/2005	1.13	ANC	0.14	8.43	82.3	6	6.29	59
10/31/2005	1.2	ANC	0.14	8.2	76.5	**5.77**	6.58	57
11/30/2005	1	ANC	0.14	12.09	100.2	**5.97**	6.43	52
12/31/2005	1	ANC	0.14	12.52	91.5	**5.66**	6.47	41.9
1/31/2006	-	-	-	-	-	-	-	-
2/28/2006	0.35	ANC	0.14	12.4	100.4	**5.85**	6.44	42.6
3/31/2006	2.25	ANC	0.14	11.95	95.5	6.16	6.46	40.3
4/30/2006	2.1	ANC	0.14	11.01	93.3	**5.83**	6.39	47.1
5/31/2006	2.1	ANC	0.14	9.82	86	6.41	6.6	52.7
6/30/2006	2.1	ANC	0.14	10.87	104.2	6.8	7.35	56.48
7/31/2006	2.1	ANC	0.14	6.88	63.1	6.79	7.45	56.6
8/31/2006	2.1	ANC	0.14	11.24	119.1	6.79	7.25	63.3
9/30/2006	2.1	ANC	0.14	11.01	108.5	6.13	6.63	59.54
10/31/2006	2.1	ANC	0.14	9.38	88.5	**5.83**	6.23	55
11/30/2006	2.1	ANC	0.14	10.6	90.1	**5.77**	7.18	53.4
12/31/2006	2.1	ANC	0.14	11.08	90.6	**5.95**	6.26	45.1
1/31/2007	2.1	ANC	0.14	12.13	94.2	6	6.25	43.7
2/28/2007	2.1	ANC	0.14	10.65	81.5	6.01	6.34	41.7
3/31/2007	2.1	ANC	0.14	12.3	95.1	**5.7**	6.37	41.9
4/30/2007	2.1	ANC	0.14	12.12	100.7	**5.71**	6.45	41.5
5/31/2007	2.1	ANC	0.14	9.8	85.7	6.15	6.35	52.5
6/30/2007	2.1	ANC	0.14	3.85	36.5	6.13	6.79	56.3
7/31/2007	2.1	ANC	0.14	3.62	31.7	6.09	6.38	15.8
8/31/2007	2.1	ANC	0.14	2.69	27	6.19	6.68	57.1
9/30/2007	2.1	ANC	0.14	13.84	135.2	6.21	7.39	57.26
10/31/2007	2.1	ANC	0.14	13.19	120.5	**5.73**	7.25	53.15
11/30/2007	2.1	ANC	0.14	12.42	106.4	**5.58**	6.75	51.6
12/31/2007	2.1	ANC	0.14	13.3	106.4	**5.79**	6.14	44.4
1/31/2008	2.1	ANC	0.14	13.35	99.6	**5.78**	6.33	38.4
2/29/2008	2.1	ANC	0.14	13.7	105.5	**5.6**	6.3	38.3

3/31/2008	2.1	ANC	0.14	14.4	105.2	**5.73**	6.39	38.3
4/30/2008	2.1	CL	0.14	12.23	106.7	**5.85**	6.01	45.6
5/31/2008	2.1	CL	0.14	12.07	102.4	**5.64**	6.05	48.6
6/30/2008	2.1	ANC	0.14	11.4	108	6.02	7.59	52.4
7/31/2008	2.1	ANC	0.14	6.14	53.2	6.39	7.05	52.4
8/31/2008	2.1	ANC	0.14	6.18	54	6.23	6.73	55.3
9/30/2008	2.1	ANC	0.14	2.46	21.7	6.15	6.49	53.4
10/31/2008	2.1	ANC	0.14	10.24	95	**5.57**	7.65	51.4
11/30/2008	2.1	CL	0.14	11.28	100	**5.47**	6.02	49.6
12/31/2008	2.1	CL	0.14	10.69	82.5	6.41	6.88	41.7
1/31/2009	2.1	ANC	0.14	11.13	86.5	**5.91**	6.34	40.3
2/28/2009	2.1	ANC	0.14	11.49	89.3	6.21	6.33	39.4
3/31/2009	2.1	ANC	0.14	12.39	99.3	6.53	7.08	39.5
4/30/2009	2.1	ANC	0.14	14.43	114.5	6.77	7.39	42.6
5/31/2009	2.1	ANC	0.14	10.93	89.9	7.15	7.53	44.9
6/30/2009	2.1	ANC	0.14	10.4	97.4	7.09	7.55	52.2
7/31/2009	2.1	ANC	0.14	11.11	96.5	6.91	7.15	55
8/31/2009	2.1	ANC	0.14	11.33	109	6.98	7.2	58.05
9/30/2009	2.1	ANC	0.14	10.33	102.4	6.22	6.22	54.7
10/31/2009	2.1	ANC	0.14	10.77	98.6	6	6.4	53.42
11/30/2009	2.1	ANC	0.14	9.72	85.3	6.21	6.33	50
12/31/2009	2.1	ANC	0.14	11.22	94.1	6.08	6.54	47.4
MONITORING PERIOD END DATE	Fish food fed per day (lb/d)	Fish on hand (lb/d)	Flow, in conduit (Mgal/d)	Oxygen, dissolved (DO) (mg/L)	Oxygen, dissolved percent saturation (%)	pH (s.u.)		Temperature, water deg. Fahrenheit
	Monthly Average	Monthly Average	Monthly Average	Daily Maximum	Daily Maximum	Minimum	Maximum	Daily Maximum
Minimum	0.35	N/A	0.14	2.46	21.7	5.47	6.01	15.8
Maximum	3.22	N/A	0.14	14.43	135.2	7.15	7.65	63.3
Average	1.99	N/A	0.14	10.46	90.51	6.13	6.68	49.11
Standard Deviation	0.41	N/A	0.00	2.78	22.74	0.43	0.47	8.22
# Measurements	55	N/A	55	53	53	53	53	55
# Exceeds Limits	N/A	N/A	N/A	N/A	N/A	22	0	N/A

OUTFALL 008 (B)								
MONITORING PERIOD END DATE	BOD, 5-day, 20 deg. C (lb/d)	BOD, 5-day, 20 deg. C (mg/L)	Phosphorus total (as P) (lb/d)	Phosphorus total (as P) (mg/L)	Solids, total suspended (lb/d)	Solids, total suspended (mg/L)	Nitrogen, ammonia total (as N) (lb/d)	Nitrogen, ammonia total (as N) (mg/L)
	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum
9/30/2005	3.6	3	0.02	0.02	2.4	2	0.06	0.5
12/31/2005	3.6	3	0.01	0.01	2.4	2	0.6	0.05
3/31/2006	3.6	3	0.01	0.01	2.4	2.4	0.6	0.5
6/30/2006	ANC	ANC	ANC	ANC	ANC	ANC	ANC	ANC
9/30/2006	3.6	3	0.03	0.03	2.4	2	0.6	0.5
12/31/2006	3.6	3	0.01	0.01	3.6	3	0.6	0.5
3/31/2007	3.6	3	0.02	0.02	2.4	2	0.6	0.5
6/30/2007	-	-	-	-	-	-	-	-
9/30/2007	3.6	3	0.01	0.01	2.4	2	0.6	0.5
12/31/2007	3.6	0	0.02	0.02	2.4	0	0.6	0
3/31/2008	ANC	ANC	ANC	ANC	ANC	ANC	ANC	ANC
6/30/2008	3.6	0	0.24	0.02	2.4	0	0.6	0
9/30/2008	3.6	0	0.07	0.06	2.4	0	0.6	0
12/31/2008	ANC	ANC	ANC	ANC	ANC	ANC	ANC	ANC
3/31/2009	3.6	3	0.02	0.02	2.4	2	0.6	0.5
6/30/2009	3.6	2	0.07	3	2.4	0.5	0.6	0.5
9/30/2009	3.6	3	0.6	0.5	2.4	2	0.6	0.5
12/31/2009	0	0	0	0	0	0	0	0
2003 Permit Limits	BOD, 5-day, 20 deg. C (lb/d)	BOD, 5-day, 20 deg. C (mg/L)	Phosphorus total (as P) (lb/d)	Phosphorus total (as P) (mg/L)	Solids, total suspended (lb/d)	Solids, total suspended (mg/L)	Nitrogen, total (as N) (lb/d)	Nitrogen, total (as N) (mg/L)
	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum	Daily Maximum
	Report	Report	Report	Report	Report	Report	Report	Report
Minimum	0	0	0	0	0	0	0	0
Maximum	3.6	3	0.6	3	3.6	3	0.6	0.5
Average	3.34	2.07	0.08	0.27	2.31	1.42	0.52	0.33
Standard Deviation	0.96	1.38	0.16	0.80	0.74	1.06	0.21	0.24
# Measurements	14	14	14	14	14	14	14	14
# Exceeds Limits	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

MONITORING LOCATION P						
	Outfall 003A		Outfall 005A		Outfall 005A	
MONITORING PERIOD END DATE	Fish food fed per day (%)	Oxygen, dissolved (DO) (mg/L)	Fish food fed per day (%)	Oxygen, dissolved (DO) (mg/L)	Fish food fed per day (%)	Oxygen, dissolved (DO) (mg/L)
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum
5/31/2005	49	ANC			0	ANC
6/30/2005	ND	ND			ND	ND
7/31/2005	ND	ND			ND	ND
8/31/2005	ND	ND			ND	ND
9/30/2005	ND	ND			ND	ND
10/31/2005	613	CL			ND	ND
11/30/2005	0.98	CL	1.45	CL	ND	ND
12/31/2005	0.8	CL	ANC	CL	ANC	CL
1/31/2006	-	-	-	-	-	-
2/28/2006	0.89	CL	ANC	CL	0.36	CL
3/31/2006	0.81	CL	4.3	CL	2.1	CL
4/30/2006	0.91	CL	0	9	1.13	CL
5/31/2006	1.25	CL	ND	ND	0.7	CL
6/30/2006	1.7	CL	ND	ND	0.54	CL
7/31/2006	2.8	CL	ND	ND	1.1	CL
8/31/2006	1.7	CL	ND	ND	ND	ND
9/30/2006	0.73	CL	ND	ND	ND	ND
10/31/2006	1.14	CL	ND	ND	ND	ND
11/30/2006	1.77	CL	ND	ND	ND	ND
12/31/2006	0.37	CL	1.14	CL	ND	ND
1/31/2007	1.36	CL	2.31	CL	ND	ND
2/28/2007	0.65	CL	1.06	CL	0.7	CL
3/31/2007	0.65	CL	0.97	CL	1.21	CL
4/30/2007	0.44	CL	ND	ND	CL	CL
5/31/2007	0.36	CL	CL	CL	-	-
6/30/2007	0.49	CL	ND	ND	ND	ND
7/31/2007	ND	ND	ND	ND	ND	ND
8/31/2007	ND	ND	ND	ND	ND	ND
9/30/2007	ND	ND	ND	ND	ND	ND
10/31/2007	0.2	CL	ND	ND	ND	ND
11/30/2007	0.29	CL	ND	ND	ND	ND
12/31/2007	0.79	CL	ND	ND	ND	ND
1/31/2008	0.41	CL	0.73	CL	ND	ND
2/29/2008	0.28	CL	0.71	CL	ND	ND
3/31/2008	1.28	CL	0.68	CL	CL	CL
4/30/2008	1.33	CL	1.31	CL	CL	CL
5/31/2008	1.55	CL	ND	ND	ND	ND
6/30/2008	ANC	CL	ND	ND	ND	ND
7/31/2008	ND	ND	ND	ND	ND	ND
8/31/2008	2.54	CL	ND	ND	ND	ND
9/30/2008	0.99	CL	ND	ND	ND	ND
10/31/2008	1.34	CL	ND	ND	ND	ND
11/30/2008	0.9	CL	ND	ND	ND	ND

12/31/2008	0.52	CL	ND	ND	ND	ND
1/31/2009	2.37	CL	ND	ND	ND	ND
2/28/2009	1.61	CL	ND	ND	CL	CL
3/31/2009	ND	ND	ND	ND	CL	CL
4/30/2009	3.28	CL	ND	ND	CL	CL
5/31/2009	ANC	CL	ND	ND	ND	ND
6/30/2009	ANC	CL	ND	ND	ND	ND
7/31/2009	ANC	CL	ND	ND	ND	ND
8/31/2009	ND	ND	ND	ND	ND	ND
9/30/2009	ND	ND	ND	ND	ND	ND
10/31/2009	ND	ND	ND	ND	ND	ND
11/30/2009	ND	ND	ND	ND	ND	ND
12/31/2009	1.4	CL	ND	ND	ND	ND
2003 Permit Limits	Fish food fed per day (%)	Oxygen, dissolved (DO) (mg/L)	Fish food fed per day (%)	Oxygen, dissolved (DO) (mg/L)	Fish food fed per day (%)	Oxygen, dissolved (DO) (mg/L)
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum
	Report	**Report**	**Report**	**Report**	**Report**	**Report**
Minimum	0.2	N/A	0	N/A	0	N/A
Maximum	613	N/A	4.3	N/A	2.1	N/A
Average	18	N/A	1	N/A	1	N/A
Standard Deviation	99	N/A	1	N/A	1	N/A
# Measurements	38	N/A	11	1	9	N/A
# Exceeds Limits	N/A	N/A	N/A	N/A	N/A	N/A

January 5, 2011

RESPONSE TO COMMENTS

REISSUANCE OF NPDES PERMIT NO. NH0000736
NEW HAMPSHIRE FISH and GAME DEPARTMENT
WARREN STATE FISH HATCHERY
WARREN, NEW HAMPSHIRE

The U.S. Environmental Protection Agency (EPA) and the New Hampshire Department of Environmental Services, Water Division (NHDES-WD) solicited public comments from October 29, 2010, through November 29, 2010, on the draft National Pollutant Discharge Elimination System (NPDES) permit for Warren State Fish Hatchery located in Warren, New Hampshire. This permit is for the discharge of treated wastewater to Patch Brook from the hatchery. In accordance with the provisions of 40 C.F.R. §124.17, this document presents EPA's responses to comments (RTC) received on the draft NPDES permit (NH0000736) during the Public Comment period. The response to comments explains and supports EPA's determinations that form the basis of the final NPDES Permit issued to Warren State Fish Hatchery. For the reader to understand EPA's determinations, he or she should be familiar with the Draft Permit, the associated Fact Sheet, applicable federal National Pollutant Discharge Elimination System (NPDES) permit regulations and the State of New Hampshire's Water Quality Statutes and Administrative Rules.

Revisions

EPA has made several revisions for clarification reasons to the Warren State Fish Hatchery final issue NPDES permit.

Page 3 of 13;

- Footnote 6 was added to explicitly define the parameter "Efficiency of Fish Food Used."
- Addition of footnote 6 required changing footnote 6 to 7, 7 to 8, and 8 to 9 on pages 3 and 4 of 13.
- In section "Formaldehyde Absent," the footnote associated with "1/Month" (previously footnote 6) was removed for clarity.
- In section "Formaldehyde Present," the footnote associated with "Report" (previously footnote 7) was removed for clarity.

Page 4 of 13;

- The "a" was removed from "Part I.A.1., since no "a" subsection exists.
- In footnote 1, the word "are" was added to the sentence, The permittee shall note … Outfall 001's flow meter," between the words "flows" and "by."

- In footnote 3, the sentence "EPA defines the minimum level as the level at which the entire analytical system shall give recognizable signal and calibration points" was inserted. This sentence was previously in footnote 4. Since minimum levels were first discussed in footnote 3, it was more appropriate to use this definition in footnote 3, instead of footnote 4.
- In footnote 3, the words "discharge monitoring report" were eliminated. The acronym for discharge monitoring report, i.e., DMR had already been defined in footnote 1.
- In footnote 4 the sentence, "EPA defines the minimum level as the level at which the entire analytical system shall give recognizable signal and calibration points" was moved to footnote 3.
- For clarity, the phrase, "compliance/non-compliance shall be determined based on ML" in footnote 4 was replaced with the phrase, "since compliance/non-compliance is determined based on ML."
- The definition of "Efficiency of Fish Feed Used," was added as footnote 6 for clarity.

Page 6 of 13;

- Each year, the Warren State Fish Hatchery must certify in writing that all Aquaculture Drugs and Chemicals used at the hatchery during that calendar year were drugs approved by the USFDA. This certification previously had to be physically mailed with the December DMR. All DMR's will soon be electronically submitted. Accordingly, the requirement to post mark the certification by January 15th was eliminated. The certification is now to be digital "…as an attachment to the December Discharge Monitoring Report…."

Comments from Tracie Siles, Water Resources Manager, and Shea Jameel, Water Resources Project Assistant, Merrimack River Watershed Council, Inc. (MRWC)

Editorial Note: All the comments contained in the Comment sections are quoted in full.

Comment No. 1: <u>Consolidating the Hatchery's Outfall and Addition of Settling Tanks</u>

MRWC strongly supports New Hampshire Fish and Game's decision to consolidate the hatchery's seven outfalls to one and the increased sampling of the remaining outfall. We also support the addition of settling tanks and the discontinuation of the discharge of untreated cleaning water. These are all commendable steps to lower the concentration of nutrients and chlorine entering Patch Brook and also lower the Biological Oxygen Demand from solid waste entering the Brook.

Response No. 1

EPA notes the comment and agrees that these steps represent improvements to the facility.

Comment No. 2: <u>Effluent Limitations on Formalin, Chloramine-T and PEROX-AID</u>

MRWC strongly supports the effluent limitations on the above mentioned drugs of 4.6 mg/L formaldehyde, 0.019 mg/L chlorine and 0.7 mg/L hydrogen peroxide. Hydrogen peroxide and formaldehyde are known to be toxic to aquatic life and measures used to prevent high concentrations of these compounds in Patch Brook and Baker River are necessary to promote natural fish populations in the area.

Response No. 2

EPA acknowledges the comment.

Comment No. 3: <u>Clarify Dissolved Oxygen Limits</u>

In the past the Hatchery has discharged effluent containing low levels of dissolved oxygen. MRWC applauds the updates to the facility designed in-part to rectify this problem and increase the dissolved oxygen content in Patch Brook and the Baker River. However, the draft permit does not contain a discharge limitation for the minimum level of dissolved oxygen in the effluent. MRWC assumes, based on the requirement that the effluent meet state water quality standards, that effluent from Outfall 1 contain at least 75% dissolved oxygen. This is the state water quality standard for dissolved oxygen in Class B waters, and since the dilution ratio for the facility is 1, the effluent must meet this level in order for Patch Brook to meet state minimum standards. The permit should explicitly list this discharge limitation on page three.

In addition, MRWC requests that if the facility changes described in this draft permit and accompanying fact sheet fail to ensure that the hatchery discharge water meets state water quality standards for dissolved oxygen at all times during the first year of the permit, that additional facility or operational modifications be made to ensure that the state standards are met during the subsequent four years of the permit.

Response No. 3

New Hampshire Surface Water Quality regulations (at Env-Wq 1703.07(b)) require that Class B waters such as Patch Brook maintain a daily average dissolved oxygen (DO) saturation of 75% and an instantaneous minimum DO concentration of 5.0 mg/l. EPA recognizes that, in the past, the hatchery's discharge has, on occasion, exceeded these dissolved oxygen standards under the original outfall configuration with multiple low volume discharges. These exceedances tended to occur during summer months when water temperatures are highest, DO saturation is lowest, and DO requirements of fish increase. Since these exceedances were reported, the facility has constructed a new consolidated outfall configuration with a single, high volume outfall. Given that the new outfall configuration has not been operated to date, there is no data available to determine if, under the new system, the facility has a reasonable potential to cause exceedances of the state water quality standards for DO. EPA and NHDES expect that the DO and Efficiency of Fish Feed Used reporting requirements; the prohibition of direct discharge of cleaning water from any tank, raceway, pond, canal, circular tank, hatchery house, etc. to Patch Brook; and the implementation of Best Management Practices to reduce the discharge of suspended solids will likely result in oxygen levels

in the Warren State Fish Hatchery's effluent such that the dissolved oxygen levels in Patch Brook attain water quality standards. Additionally, EPA and NHDES believe that the higher flow rate of the consolidated discharge combined with the stone rip rap present at the reconstructed outfall will provide additional aeration of the hatchery effluent prior to its discharge to Patch Brook. (Note: A more lengthy and detained explanation of the DO monitoring requirements can be found in Section 8 of the Warren State Fish Hatchery draft permit's Fact Sheet. A similar explanation of the hatchery's Best Management Practices required by 40 C.F.R. § 451.11 are found in Section 10 of the Fact Sheet.)

Furthermore, the Final Permit requires monitoring of DO concentration and percent saturation, which will provide data to confirm that there is no reasonable potential to cause or contribute to an exceedance of the DO water quality standards. In addition, both the draft permit and Final Permit address the permittee's responsibility to adhere to New Hampshire's Surface Water Quality Standards; Env-Ws 1700 et. al, including a narrative permit condition at Part I.A.2 specifying that *"The discharge shall not cause a violation of the water quality standards of the receiving water."* If, based on monitoring required under the Final Permit, EPA determines that the facility does have a reasonable potential to cause or contribute to exceedances of the DO standards in the receiving water, the permit may be modified to include a numeric DO limitation under 40 C.F.R. § 122.62(a)(2).

Finally, the Warren State Fish Hatchery's objective is to produce healthy trout for stocking in the waters of New Hampshire. Trout normally require high concentrations of DO. For example, optimum oxygen levels for brook and rainbow trout are not well documented, but appear to be ≥7 mg/l at temperatures ≤15ºC and ≥9 mg/l at temperatures ≥15ºC."[1,2] Brown trout may have optimum oxygen levels as high as 12 mg/l at temperatures > 10ºC. Low DO levels can reduce growth rate, fecundity, prevent spawning, and cause loss of appetite in trout.[3] All the New Hampshire State fish hatcheries strive to keep each hatchery's DO levels at 6.0 mg/l or above. The hatchery could experience high mortality losses at DO levels less than 5.0 mg/l, providing direct incentive to maintain high DO concentrations in the flow-through system. The reconstruction work recently accomplished at the Warren State Fish Hatchery has directly contributed to maintaining DO levels above the State's minimum level. All the raceways bottoms are now concrete, which allows more thorough cleaning of the raceway and reduces the amount of detritus that will get entrained. Further, the smoother raceway bottoms have allowed an increase of water flow velocity through the hatchery. Higher water flow velocity foster aeration, resulting in higher DO levels. Clearly, it is in the Warren State Fish Hatchery's best interest to protect the various trout species population that the hatchery is raising.

---

[1] Raleigh, R.F., 1982, *Habit Suitability Index Model: Brook Trout,* U.S. Fish and Wildlife Service, FWS/OBS-82/10.24, p.6.

[2] Raleigh, R.F., T. Hickman, R.C. Soloman, P.C. Nelson. 1984. Habitat Suitability Information: Rainbow Trout. U.S. Fish and Wildlife Service. FWS/OBS-82/10.60.

[3] Raleigh, R.F., L.D. Zuckerman, P.C. Nelson. 1986. Habitat Suitability Index Model and Instream Flow Suitability Curves: Brown Trout, Revised. U.S. Fish and Wildlife Service Biol. Rep. 82(10.124). First printed as FWS/OBS-82/10.71.

EPA and NHDES, therefore, expect that the improvements to the hatchery's flow-through system and the need to provide adequate DO levels for trout rearing will ensure that the hatchery's effluent will meet NH State Water Quality Standards for DO. EPA and NHDES believe that a numeric effluent limit for DO is not warranted at this time. Should the required monitoring data indicate that the water quality standards for DO are not being met in the receiving water, EPA and/or NHDES may modify the permit to include a numeric limit and/or, enforce the permit condition at Part I.A.2, which prohibits the discharge from causing a violation of water quality standards of the receiving water.

MRWC's comment also requests that the Warren State Fish Hatchery NPDES permit contain a requirement that ".... additional facility or operational modifications be made ..." if the recent modifications at Warren State Fish ultimately lead to a degradation of DO levels in the hatchery's effluent. It is the facility's responsibility to implement the appropriate treatment system to meet their NPDES permit's effluent limits. In some cases where a facility failed to meet the conditions of their NPDES permit, the specific modifications and schedule to comply with the permit are often handled outside of the scope of the permit (e.g., in an Administrative Order). Accordingly, EPA and NHDES will not include specific requirements in the Warren State Fish Hatchery NPDES permit to explicitly require facility or operational modifications if DO levels are not met in the hatchery's effluent discharge.

Comment No. 4: <u>Set Enforcement Procedures for Lack of Compliance</u>

Draft permit No. NH0000736 does not outline any procedures or enforcement actions in the event that the permittee does not meet the terms of this permit. Without trigger points for enforcement, EPA is not required to enforce the permit and the permittee has little incentive to comply. MRWC would like to see these trigger points and the accompanying enforcement actions explicitly defined in the permit. For example, we feel that a minor infraction (i.e. a monitoring result that is 20% or less outside of the acceptable range or limit) that occurs more than once in a six month period or any major infraction should be investigated by EPA and the permittee required to submit written documentation of how this non-complying discharge has been brought into compliance with the terms of the permit.

Response No. 4
Each NPDES permit issued in the State of New Hampshire contains both Part I: Effluent Limitations, Monitoring Requirements, etc, and Part II: Standard Conditions. Part II.A.1, Duty to Comply, specifically states "The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act (CWA) and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application." Enforcement procedures are not specified in NPDES permits; however, Parts II.A.1.a through c specifies that violation of the CWA may result in monetary fines and/or imprisonment. EPA believes that the potential for civil penalties and/or imprisonment upon violation of the CWA provides adequate incentive to comply with the conditions of the Final Permit. NHDES also has the authority to enforce the conditions of the permit. Federal regulations at 40 CFR §123.45 define procedures that must be followed to categorize instances of

noncompliance, and these regulations apply to all NPDES permits (and permits issued by delegated states), and provide a uniform way to assess noncompliance and prioritize Clean Water Act enforcement. Including "trigger points" in the Warren Hatchery NPDES permit would conflict with this nationwide enforcement approach. Therefore, the Final Permit does not include effluent limit "trigger points" for enforcement of the Warren State Fish Hatchery NPDES permit.

Comment No. 5

Finally, we would like to point out the typographical error in Section VII Endangered Species Act of the fact sheet. This section refers to the Salmon Falls River, not Patch Brook or the Baker River.

Response No. 5

EPA acknowledges the typographical error and concludes that it does not alter the Final Permit conditions. Once a Draft Permit has been placed on Public Notice, EPA considers the permit's Fact Sheet a final document, and it cannot be revised.