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"), and the Massachusetts Clean Waters Act, as amended, (M.G.L. Chap. 21, §§26-53),

Aquacultural Research Corporation

is authorized to discharge from the facility located at:

Chapin Beach Road
Dennis, Massachusetts 02638

to receiving waters named

Chase Garden Creek

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

This permit shall become effective on the date of signature if no comments are received. If comments are received during public notice, this permit will become effective on the first day of the calendar month following sixty (60) days after the date of signature. This permit and the authorization to discharge expire at midnight, five (5) years from the last day of the month preceding the effective date.

This permit supersedes the permit issued on May 1, 1975.

This permit consists of: 7 pages in Part I, including effluent limitations, monitoring requirements, and state permit conditions; and 25 pages in Part II, including Standard Conditions.

Signed this day of , 2009

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

Glenn Haas, Director
Division of Watershed Management
Massachusetts Department of Environmental Protection
Commonwealth of Massachusetts
Boston, MA

PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date and lasting through expiration, the permittee is authorized to discharge **culture water** from **outfall serial number 001**. Discharges shall be limited and monitored by the permittee as specified below.

Effluent Characteristic		Discharge Limitation		Monitoring Requirements	
Parameter	Units	Average Monthly	Maximum Daily	Measurement Frequency	Sample Type[a]
Flow Rate	MGD	--	Report	Monthly	Estimate
Temperature, Effluent[b]	˚F	--	Report	1/Week	Grab
Temperature, Influent[b]	˚F	--	Report	1/Week	Grab
Temperature, In-stream[b]	˚F	--	Report	1/Week	Grab
Rise in Temperature (Delta T)	˚F	--	Report	1/Week	Estimate
Dissolved Oxygen	mg/l	--	Report	Quarterly	Grab
BOD_5	mg/l	--	30	Quarterly	Grab
TSS	mg/l	--	30	Quarterly	Grab
pH	Std. units	--	Within range of 6.5 to 8.5	1x/event[c]	Grab
Total Residual Chlorine	µg/l	--	13	1x/event[c]	Grab
Fecal Coliform[d]	cfu	14	28	1/Week[e]	Grab
Enterococci[d]	cfu	35	104	1/Week[e]	Grab

Footnotes:

a. Samples taken in compliance with the monitoring requirements specified below,

with the exception of in-stream temperature, shall be taken at a location representative of the effluent prior to mixing with the receiving water.

b. Temperature shall be monitored and recorded as a maximum daily temperature. Effluent temperature shall be monitored weekly at the end-of-pipe prior to mixing with the receiving water. Influent temperature shall be monitored weekly at the intake prior to heating. In-stream temperature shall be monitored once per week during slack low tide at the mouth of the boat slip during operating hours except during those periods when the influent is not heated.

c. Sampling for pH and total residual chlorine are required once during each event, defined as batch discharge following sanitization of culture tanks, and shall be conducted immediately following the cleaning event when pollutant concentrations are expected to be at a maximum.

d. State certification requirement.

e. Weekly fecal coliform and enterococci sampling shall be conducted seasonally from May 1 to September 30. Fecal coliform discharges shall not exceed a monthly geometric mean of 14 colony forming units (cfu) per 100 ml, nor shall any sample exceed 28 cfu per 100 ml as a daily maximum. Enterococci discharges shall not exceed a monthly geometric mean of 35 cfu per 100 ml, nor shall any sample exceed 104 cfu as a daily maximum. The units may be expressed as most probable number (MPN) for samples tested using the Most Probable Number method, or colony forming units (cfu) when using the Membrane Filter method. To demonstrate that bacteria values in the effluent outside these limits are not a result of facility operation, the permittee must show that fecal coliform and/or enterococci levels in the source water and the effluent are similar. Documentation of such conditions must be submitted by the permittee with the discharge monitoring reports.

Part I. A. (continued)

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

3. The pH of the effluent shall not be less than 6.5 nor greater than 8.5 standard units (SU) at any time, unless caused by natural causes such as low pH of the source water. To demonstrate that pH values of the effluent are outside this pH range due to natural causes, the permittee must show that pH measurements of the source water and the effluent are similar. Documentation of such conditions must be submitted by the permittee with the discharge monitoring reports.

4. The rise in temperature (delta T) due to the discharge at slack low tide shall be reported as the in-stream temperature measured at the mouth of the facility's boat slip minus the influent temperature. Delta T reporting is not required during periods when the influent is not heated.

5. The discharge shall not cause objectionable discoloration of the receiving water.

6. The discharge shall not contain visible oil sheen, foam, floating solids, or settleable solids at any time.

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

8. In accordance with 40 Code of Federal Regulations (CFR) § 122.42, all existing manufacturing, commercial, mining, and silvicultural discharges must notify the Director as soon as they know or have reason to believe:

   a. That any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":

      (1) One hundred micrograms per liter (100 µg/L);

      (2) Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile, five hundred micrograms per liter (500 µg/L) for 2,4,-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;

      (3) Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR § 122.21(g)(7); or

      (4) Any other notification level established by the Director in accordance with 40 CFR § 122.44(f) and Massachusetts regulations.

   b. That any activity has occurred or will occur which would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following :notification levels":

      (1) One hundred micrograms per liter (100 µg/L);

      (2) One milligram per liter (1 mg/L) for antimony;

      (3) Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR § 122.21(g)(7); or

(4) Any other notification level established by the Director in accordance with 40 CFR § 122.44(f) and Massachusetts regulations.

c. That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant which was not reported in the permit application.

9. 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.

10. 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 Clean Water Act, 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 pollutant not limited in the permit.

11. Any change in the species to be raised at this facility or, the development stage to be attained at this facility, will require written notification to EPA and the State and possible permit modification.

B. UNAUTHORIZED DISCHARGES

The permittee is authorized to discharge only in accordance with the terms and conditions of this permit and only from the outfall listed in Part I A.1. of this permit. Discharges of wastewater from any other point sources are not authorized by this permit and shall be reported in accordance with Section D.1.e.(1) of the Part II Standard Conditions of this permit (Twenty-four hour reporting).

C. MONITORING AND REPORTING

Monitoring results obtained during the previous month shall be summarized for each month and reported on separate discharge monitoring report (DMR) forms postmarked no later than the 15th day of the month following the effective date of the permit. The permittee shall provide written explanations of all violations in DMR cover letters.

Signed and dated originals of the DMRs, and all other reports required herein, shall be submitted to each Permit Issuing Authority at the following addresses:

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

Massachusetts Department of Environmental Protection
Bureau of Waste Prevention,
Southeast Regional Office
20 Riverside Drive
Lakeville, MA 02347

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

Massachusetts Department of Environmental Protection
Division of Watershed Management
Surface Water Discharge Permit Program
627 Main Street, 2nd Floor
Worcester, MA 01608

Additional monitoring and recordkeeping requirements are contained in Section C of the Part II Standard Conditions of this permit. Section C includes, but is not limited to, the requirements to record: the date, exact place, and time of sampling, measurements, and analyses; the individual(s) who performed the sampling, measurements, and analyses; the analytical techniques or methods used; and the results of such analyses. Section C of Part II also includes the requirements to retain records of all monitoring information, including all data, for a period of at least 3 years from the date of the sample, measurement, report or application.

Additional reporting requirements are contained in Section D of the Part II Standard Conditions of this permit. Section D requires reporting of monitoring results on a Discharge Monitoring Report (DMR), as well as reporting within 24 hours of any noncompliance which may endanger health or the environment. Section D also requires reporting to EPA if a variety of conditions exist, including planned changes to the facility and anticipated or unanticipated noncompliance. This section also sets the signatory and public availability requirements of reports sent to EPA.

D. STATE PERMIT CONDITIONS

1. This NPDES discharge permit is issued jointly by the U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) under Federal and State law, respectively. As such, all the terms and conditions of this permit are hereby incorporated into and constitute a discharge permit issued by the Commissioner of the MassDEP pursuant to M.G.L. Chapter 21, § 43.

2. 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 this permit as issued by the other Agency, unless and until each Agency has concurred in

writing with such modification, suspension, or revocation. In the event any portion of this permit is declared invalid, illegal, or otherwise issued in violation of State law such permit shall remain in full force and effect under Federal law a NPDES permit issued by EPA. In the event this permit is declared invalid, illegal, or otherwise issued in violation of Federal law, this permit shall remain in full force and effect under State law as a Permit issued by the Commonwealth of Massachusetts.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND - REGION I
ONE CONGRESS STREET, SUITE 1100
BOSTON, MASSACHUSETTS 02114-2023

FACT SHEET

DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE TO WATERS OF THE UNITED STATES PURSUANT TO THE CLEAN WATER ACT (CWA)

NPDES PERMIT NUMBER: MA0005576

PUBLIC NOTICE START AND END DATES:

April 14, 2009 through May 13, 2009

NAME AND MAILING ADDRESS OF APPLICANT:

Aquacultural Research Corporation
P.O. Box 2028
Chapin Beach Road
Dennis, MA 02638

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Aquacultural Research Corporation
Chapin Beach Road
Dennis, MA 02638

RECEIVING WATER(S): Chase Garden Creek

RECEIVING WATER CLASSIFICATION(S): Class SA

SIC CODE: 0921

1. Proposed Action

Aquaculture Research Corporation (ARC) has applied to the U. S. Environmental Protection Agency (EPA) for re-issuance of a National Pollutant Discharge Elimination System Permit to discharge effluent into the designated receiving water. The previous permit was issued on June 30, 1975, and expired on May 1, 1980. EPA received the application for permit re-issuance on April 6, 2001.

2. Facility Information

The facility is a marine shellfish hatchery that raises shellfish seed, including hard clams (*Mercenaria mercenaria*) and American oysters (*Crassostrea viginica*), in indoor culture tanks for transplanting to local bays and estuaries. The facility cultures phytoplankton on-site for feed and also temporarily stores market sized shellfish prior to distribution. Annual seed production is less than 1,000 pounds per year.

The facility uses multiple indoor tanks ranging in size from 100 gallons (gal) to 6,600 gal. Tanks are fed by seawater pumped from the holding pond east of the warehouse and filtered at 3 microns (System 1) or 50 to 100 microns (Systems 2 through 5). Debris from the filters is discharged to the on-site septic system. Seawater is heated to temperatures between 64˚F to 80˚F depending on the purpose and time of year. The facility is divided into five separate systems, each with a different capacity and purpose:

System 1: Larval and post-set shellfish production; 31 tanks ranging from 100 gal to 1,450 gal for a total capacity of approximately 7,080 gal.

System 2: Wet-Lab (growth of larvae from System 1); 7 tanks ranging from 200 gal to 1,056 gal for a total capacity of approximately 3,500 gal.

System 3: Upweller Storage (hold and store seed for transport); 4 tanks ranging from 1,080 gal to 2,350 gal for a total capacity of approximately 6,870 gal.

System 4: Phytoplankton Production; 30 tanks ranging from 200 gal to 6,600 gal for a total capacity of approximately 44,698 gal.

System 5: Wet Storage (mature shellfish storage); 4 tanks ranging from 1,160 gal to 2,350 gal for a total capacity of approximately 6,630 gal.

Systems 2 and 3 are manually scrubbed to avoid harming shellfish seed. Systems 1, 4, and 5 are periodically sanitized with either chlorine bleach or acid. In System 1, a wash of 150 parts per million (ppm) hypochlorite solution is used to sanitize the tank approximately once every 20 days during production season (January through August). After manual scrubbing, tanks are rinsed with seawater from Chase Garden Creek and the entire volume is released as a batch discharge. In Systems 4 and 5, a wash of 5 percent hydrochloric acid solution is used to clean scale build-up or blue-green algae when needed, approximately once every month or once every two months. Following cleaning, the tanks are rinsed with additional seawater from Chase Garden Creek and released as a batch discharge. The facility also uses an algal growth medium (Guillard's medium) in System 4 for phytoplankton production.

3. Discharge Location and Description

The discharge consists of shellfish culture wastewater containing shellfish waste and phytoplankton with an approximate maximum daily flow 28,800 gallons per day. Excessive discharge of algae to the receiving water is minimized by the efficient feeding rates in the production tanks, which are typically greater than 88 percent. The effluent may potentially contain chlorine or have low pH due to the sanitization of tanks in Systems 1, 4, and 5. The effluent discharges directly to the facility's boat slip off of Chase Garden Creek. A map of the facility and discharge location is shown in **Figure 1**. Existing effluent quality cannot be determined because the last discharge monitoring report submitted to EPA was in June of 1980.

4. Receiving Water Description

Chase Garden Creek (MA Segment 96-35), a tidal creek surrounded by salt marsh, is a Class SA water body under the Massachusetts Surface Water Quality Standards (314 CMR 4.06). Class SA waters are designated as an excellent habitat for fish, other aquatic life, and wildlife, and for primary and secondary contact recreation. In approved areas they shall be suitable for shellfish harvesting without depuration (Open Shellfish Areas). These waters shall have excellent aesthetic value. [314 CMR 4.05(4)(a)]

Section 303(d) of the Federal Clean Water Act (CWA) requires states to identify those waterbodies that are not expected to meet surface water quality standards after the implementation of technology-based controls and, as such, require the development of total maximum daily loads (TMDLs). Chase Garden Creek is listed as impaired for pathogens in the current 303(d) list (Massachusetts Year 2006 Integrated List of Waters).

5. 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 effluent limitations and other requirements, including monitoring and reporting, in accordance with various statutory and regulatory requirements established pursuant to the CWA and applicable State statutes and regulations. The regulations governing the EPA NPDES permit program are generally found at 40 CFR Parts 122, 124, 125, and 136.

When establishing NPDES permit requirements, EPA is required to consider, and include limitations in the permit, based on the most stringent of the following concepts: (a) technology-based requirements, (b) water quality-based requirements, (c) anti-backsliding from the limitations and requirements in the current/existing permit, and (d) antidegradation requirements.

Technology-based requirements represent the minimum level of control that must be imposed under Sections 402 and 301 (b) of the CWA and implementing regulations at 40 CFR 125, 133, and 405 through 471. In situations where promulgated technology-based

requirements are not applicable, Section 402(a)(1)(B) of the CWA provides that such limits be based on EPA's judgment. Such limits are referred to as "best professional judgment" (BPJ) limits, and are referenced in 40 CFR 125.3.

Water quality-based requirements are necessary where effluent limits more stringent than technology-based limits are necessary to maintain or achieve federal or state water quality standards. Under Section 301(b)(1)(C) of the CWA, discharges are subject to effluent limitations based on federal or state water quality standards. The Massachusetts Surface Water Quality Standards (314 CMR 4.00) contain requirements for conventional and toxic pollutants in order to provide protection for designated uses in the receiving waters. Included in these Standards are provisions that EPA criteria for toxic pollutants, established pursuant to Section 304 (a) of the CWA, shall be used unless site-specific criteria are established. The state will limit or prohibit discharges of pollutants to surface waters to assure that surface water quality standards of the receiving waters are protected and maintained, or attained.

Anti-backsliding as defined in Section 402(o) of the CWA and implementing regulations at 40 CFR §122.44(l) require reissued permits to contain limitations as stringent or more stringent than those of the previous permit unless the circumstances allow application of one of the defined exceptions to this regulation.

In accordance with regulations found at 40 CFR Section 131.12, each state must adopt a statewide antidegradation policy to maintain and protect existing in-stream water quality. The Massachusetts Antidegradation Policy is found at Title 314 CMR 4.04. No lowering of water quality is allowed, except in accordance with the antidegradation policy. This applies in situations where a lowering of water quality is being proposed, such as a new discharge or an increased discharge of pollutants at a facility with an existing permit.

6. Effluent Limitations and Monitoring Requirements in the Permit

EPA has promulgated standards for technology-based effluent limits at "concentrated aquatic animal production facilities" producing 100,000 pounds or more of aquatic animals per year (40 CFR 451). The technology-based narrative requirements of 40 CFR 451 do not apply in this case because (1) ARC's annual production of shellfish seed is less than 1,000 pounds per year, below the production rate which requires application of those standards, and (2) the facility does not use animal drugs or feed in its production. Therefore, effluent limits are based on EPA's best professional judgment (BPJ) of appropriate technology, state water quality standards, and/or anti-backsliding from the previous permit. No dilution is assumed in applying these standards. The rationale for the permit limits is as follows:

Flow -- The facility is required to report estimated maximum daily flow on a monthly basis.

Temperature – The facility heats seawater to temperatures between 64˚F and 80˚F for shellfish and phytoplankton culture, except during summer when ambient seawater

temperatures are suitable for production. Massachusetts water quality standards for Class SA waters require that the in-stream temperature not exceed an average daily temperature of 80˚F or an instantaneous maximum temperature of 85˚F, and the rise in temperature (delta T) cannot exceed 1.5˚F due to a discharge. At this time, EPA does not have enough information to determine if the effluent has a reasonable potential to exceed water quality standards. Based on the existing operations, the discharge (at a maximum of 80˚F) is unlikely to exceed water quality standards for average daily temperature (80˚F) or instantaneous maximum temperature (85˚F). However, there may be potential to exceed a delta T of 1.5˚F given that heated water is discharged when ambient temperatures are much lower than 80˚F. The Draft Permit requires the facility to monitor and report the temperature of the influent (at the intake prior to heating) and the effluent (at Outfall 001 prior to mixing with the receiving water) weekly. In addition, the facility must monitor the in-stream temperature of the receiving water at the end of the facility's boat slip weekly during slack low tide. This location, approximately 90 feet from Outfall 001, is consistent with the requirements of the Massachusetts Mixing Zone Policy at 314 CMR 4.03(2). In-stream temperature monitoring is not required during those periods when the facility does not heat the seawater influent.

BOD_5 and TSS – The facility has not reported effluent concentrations of conventional pollutants since 1980. The last DMRs that were submitted indicate that the facility exceeded the limit for total suspended solids on 2 of 6 occasions. The existing permit from 1975 included daily average concentration limits of 30 mg/l for BOD_5 and TSS, and a daily maximum concentration limit of 30 mg/l for TSS. The Draft Permit limits BOD_5 and TSS to a daily maximum of 30 mg/l based on the current permit consistent with antibacksliding requirements.

pH -- ARC uses a 5 % hydrochloric acid solution to clean tanks used for phytoplankton production and storage of market sized shellfish. This effluent must be monitored to ensure that the water quality standard for pH is met. The Draft Permit requires a maximum pH within the range of 6.5 through 8.5 based on Massachusetts water quality standards for Class SA waters. The pH of the effluent must be collected immediately following cleaning and prior to batch discharge.

Dissolved Oxygen (DO) -- A minimum concentration of DO is needed for fish and other aquatic life. State water quality standards for Class SA waters require a minimum DO concentration of 6.0 mg/l. The Draft Permit requires a report only requirement for DO because the current concentration of DO in the discharge in not known. If monitoring identifies DO concentrations below 6.0 mg/l in the receiving water, the permit may be modified to include a numerical limit.

Bacteria -- The existing permit contains limits for total coliform bacteria. The Draft Permit carries forward a bacterial requirement consistent with antibacksliding. However, the permit limit has been changed to fecal coliform and enterococci bacteria in accordance with the Massachusetts Surface Water Quality Standards 314 CMR 4.05(1)(d)(4) for approved shellfish harvesting areas. For fecal coliform, the monthly geometric mean must not exceed 14 colony forming units (cfu) per 100 ml and no sample

can exceed 28 colony forming units (cfu)/100 ml. For enterococci, the monthly geometric mean must not exceed 35 colonies per 100 ml, nor may any sample contain more than 104 colonies per 100 ml. The Draft Permit requires the permittee to report levels of fecal coliform and enterococci in weekly samples from May 1 to September 30.
Chase Garden Creek, the source water for the facility, is impaired for pathogens according to the Massachusetts Year 2006 Integrated List of Waters 303(d) list. As a result, pathogens in the source water may cause violations of water quality standards for which the facility is not responsible. In this case, the permittee must demonstrate that fecal coliform and/or enterococci levels in the source water and the effluent are similar by reporting the intake bacteria levels.

Total Residual Chlorine -- Chlorine can be toxic to aquatic life. ARC cleans the culture tanks used for larval and post-set shellfish production with a 150 parts per million hypochlorite solution. Because the facility has the potential to discharge chlorinated water, the permit must include an effluent limitation for this pollutant. The Draft Permit contains a maximum daily total residual chlorine limit of 13 µg/l based on saltwater acute criteria listed in the National Recommended Water Quality Criteria: 2006. This limit must be met at the end-of-pipe prior to mixing with the receiving water. Because the discharge of chlorine is intermittent and occurs as a batch discharge, the Draft Permit does not include a monthly limit. Sampling for total chlorine must occur immediately following any cleaning event in which chlorine is used as the sanitizing agent and prior to batch discharge.

7. 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 Services (NMFS) if EPA's action or proposed actions that it funds, permits, or undertakes, may adversely impact any essential fish habitat 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.

Essential fish habitat is only designated for 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.
ARC discharges into Chase Garden Creek, which is designated by NMFS as EFH for the following species and applicable life stages:

Species	Eggs	Larvae	Juveniles	Adults
Atlantic cod *(Gadus morhua)*	X	X	X	X

haddock *(Melanogrammus aeglefinus)*	X	X		
pollock *(Pollachius virens)*		X	X	X
whiting *(Merluccius bilinearis)*	X	X	X	X
red hake *(Urophycis chuss)*	X	X	X	X
white hake *(Urophycis tenuis)*	X	X	X	X
winter flounder *(Pleuronectes americanus)*	X	X	X	X
yellowtail flounder *(Pleuronectes ferruginea)*	X	X	X	X
windowpane flounder *(Scopthalmus aquosus)*	X	X	X	X
American plaice *(Hippoglossoides platessoides)*	X	X	X	X
ocean pout *(Macrozoarces americanus)*	X	X	X	X
Atlantic halibut *(Hippoglossus hippoglossus)*	X	X	X	X
Atlantic sea scallop *(Placopecten magellanicus)*	X	X	X	X
Atlantic sea herring *(Clupea harengus)*	X	X	X	X
bluefish *(Pomatomus saltatrix)*			X	X
long finned squid *(Loligo pealei)*	n/a	n/a	X	X
short finned squid *(Illex illecebrosus)*	n/a	n/a	X	X
Atlantic butterfish *(Peprilus triacanthus)*	X	X	X	X
Atlantic mackerel *(Scomber scombrus)*	X	X	X	X
summer flounder *(Paralicthys dentatus)*				X
scup *(Stenotomus chrysops)*	n/a	n/a	X	X
black sea bass *(Centropristus striata)*	n/a		X	X
spiny dogfish *(Squalus acanthias)*	n/a	n/a	X	X
bluefin tuna *(Thunnus thynnus)*			X	X

EPA has concluded that the limits and conditions in the Draft Permit minimize adverse effects to EFH for the following reasons:

- The proposed discharge flow is 28,800 gallons per day and the permittee must meet the requirements of the Draft Permit without dilution prior to mixing with the receiving water, except for in-stream temperature, for which a mixing zone applies.
- The discharge effluent is primarily culture water that supports the production and growth of shellfish seed and other aquatic organisms.
- When chlorine and hydrochloric acid are used to clean tanks, the effluent must meet stringent water quality-based limits for pH and total residual chlorine to ensure that the discharge does not contribute pollutants to the receiving water.
- The permit prohibits violations of the state water quality standards.

EPA believes that the Draft Permit limits and requirements adequately protect EFH for the managed species, and therefore additional mitigation is not warranted. NMFS has been notified of this assessment and the agency has been provided with a copy of the Draft Permit and fact sheet for review and comment.

8. Endangered Species Act

Section 7(a) of the Endangered Species Act of 1973, as amended (ESA) grants authority to and imposes requirements upon Federal agencies regarding endangered or threatened species of fish, wildlife, or plants ("listed species") and habitat of such species that has been designated as critical (a "critical habitat"). The ESA requires every Federal agency, in consultation with and with the assistance of the Secretary of Interior, to insure that any action it authorizes, funds, or carries out, in the United States or upon the high seas, is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical habitat. The United States Fish and Wildlife Service (USFWS) administers Section 7 consultations for freshwater species, where as the National Marine Fisheries Service (NMFS) administers Section 7 consultations for marine species and anadromous fish.

As the federal agency charged with authorizing the discharge from this facility, EPA has reviewed available habitat information developed by the Services to see if one or more of the federal endangered or threatened species of fish, wildlife, or plants may be present within the influence of the discharge. The piping plover (*Charadrius melodus*), a federally threatened species, occurs in the vicinity of the facility. Piping plovers breed on coastal beaches from Newfoundland and southern Quebec to North Carolina. They nest above the high tide line on coastal beaches, sandflats at the ends of sandspits and barrier islands, gently sloping foredunes, blowout areas behind primary dunes, and washover areas cut into or between dunes. Piping plovers feed on small invertebrates on ocean beaches, mudflats, sandflats, and the shoreline of salt marshes. Populations of piping plovers have been declining due to loss and degradation of breeding habitat, human disturbance (including motorized and non-motorized recreation), and predation. [1]

[1] U.S. Fish and Wildlife Service. 1996. Piping Plover *(Charadrius melodus)*, Atlantic Coast Population, Revised Recovery Plan. Hadley, Massachusetts. 258 pp.

According to *2007 Final Atlantic Coast Piping Plover Abundance and Productivity Estimates*, Massachusetts currently has the highest number of breeding pairs on the Atlantic coast, though not the highest productivity (number of fledged chicks per pair). In the vicinity of the facility, Sandy Neck, adjacent to Barnstable Harbor, is among the sites with the most breeding pairs in Massachusetts.[2] Given the significance of Massachusetts nesting sites to the continued recovery of the population, coupled with the proximity of an important breeding area near the facility, it is imperative that the Draft Permit ensure that any potential impacts on piping plovers from the discharge are minimized.

EPA has concluded that discharge from the facility will not result in adverse effects on piping plovers, nesting habitat, or intertidal feeding habitat. Discharge from the tanks is low (approximately 28,800 gallons per day) and supports the production and growth of a number of marine species, including cultured shellfish. The Draft Permit also requires that the discharge meet Massachusetts Surface Water Quality Standards for Class SA waters, including pH levels following a cleaning event. In addition, the total residual chlorine limit in the Draft Permit ensures that the discharge will not exceed chronic or acute chlorine concentrations recommended for protection of aquatic life. EPA is seeking concurrence with this opinion from the Services. A copy of the Draft Permit and Fact Sheet has been provided to both USFWS and NMFS for review and comment.

9. Coastal Zone Management

Section 307(c) of the Coastal Zone Management Act, 16 U.S.C. 1451 et seq. and implementing regulations (15 CFR part 930) prohibit EPA from issuing a permit for an activity affecting land or water use in the coastal zone until the applicant certifies that the proposed activity complies with the State Coastal Zone Management (CZM) program, and the State or its designated agency concurs with the certification (or the Secretary of Commerce overrides the State's nonconcurrence).

The discharge is within the defined coastal zone. The permittee must submit a letter to the Massachusetts Coastal Zone Management Program stating its intention to abide by the CZM water quality and habitat policies prior to issuance of the Final Permit. The CZM Program shall review the Draft Permit, and it will only be issued after CZM concurrence with the applicant's certification.

10. State Certification Requirements

EPA may not issue a permit unless the State Water Pollution Control Agency with jurisdiction over the receiving waters certifies that the effluent limitations contained in the permit are stringent enough to assure that the discharge will not cause the receiving water to violate State Water Quality Standards. The staff of the Massachusetts Department of Environmental Protection (MassDEP) has reviewed the Draft Permit. EPA has requested permit certification by the State pursuant to 40 CFR 124.53 and expects that the Draft Permit will be certified.

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[2] Mostello, C.S. and M.S. Melvin. 2002. Summary of 2001 MA Piping Plover Census Data. Massachusetts Division of Fisheries and Wildlife. Natural Heritage and Endangered Species Program.

11. 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 Danielle Gaito, U.S. EPA, Office of Ecosystem Protection**,** 1 Congress Street, Suite 1100, Boston, Massachusetts 02114- 2023. 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.

12. EPA and State Contacts

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:

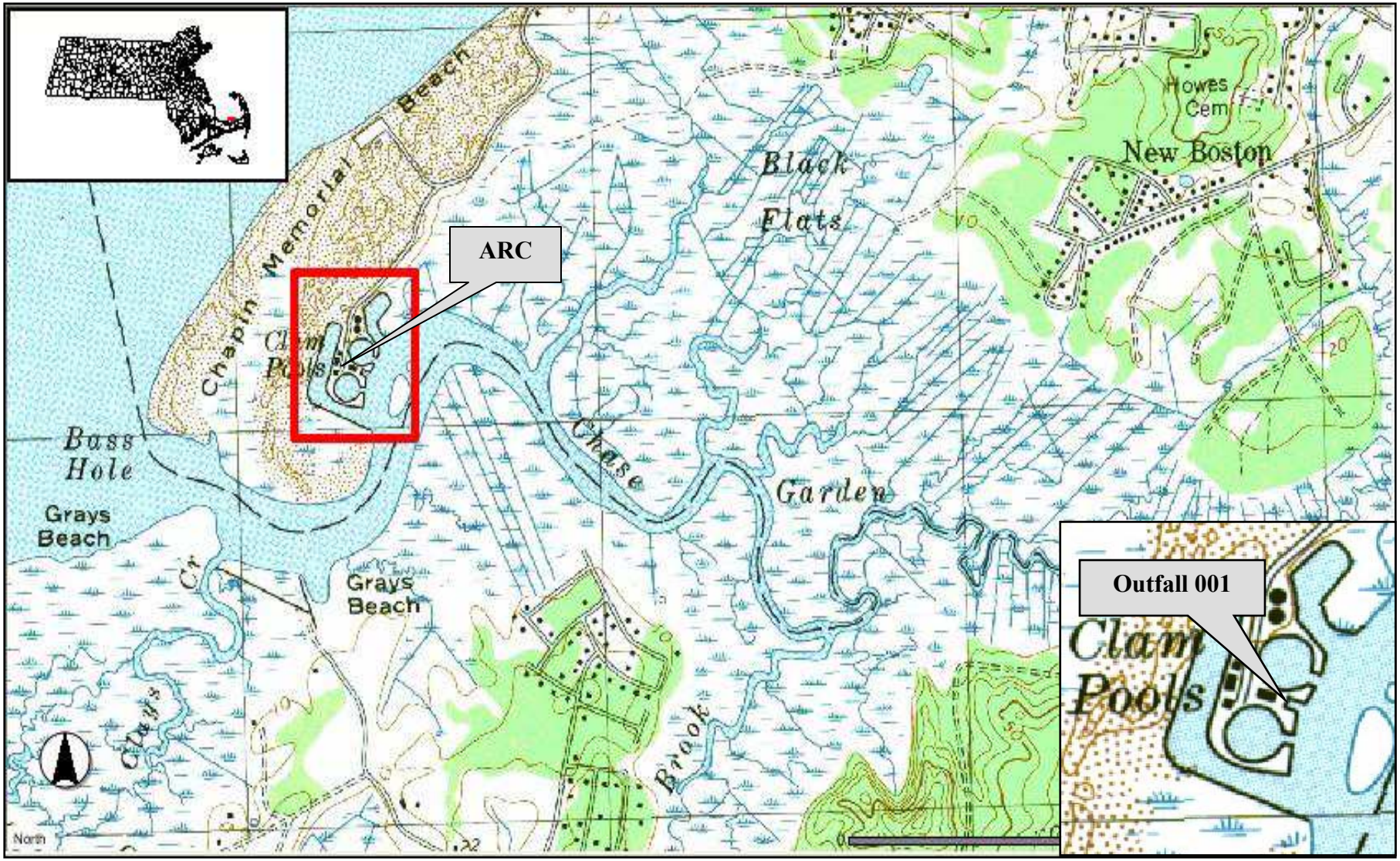
Danielle Gaito
Office of Ecosystem Protection
U.S.E.P.A. - Region 1
One Congress Street, Suite 1100 (CIP)
Boston, MA 02114-2023
Tel: (617) 918-1297
email: gaito.danielle@epa.gov

Paul M. Hogan
MassDEP
Division of Watershed Management
627 Main Street
Worcester, MA 01608
Tel: (508) 767-2796
email: paul.hogan@state.ma.us

Date: _____

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

Figure 1. Location of Aquacultural Research Corporation. Inset shows outfall location at ARC boat slip. Source: MassGIS USGS Topographic Maps.



MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
COMMONWEALTH OF MASSACHUSETTS
1 WINTER STREET
BOSTON, MASSACHUSETTS 02108

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF ECOSYSTEM PROTECTION
REGION I
BOSTON, MASSACHUSETTS 02114

JOINT PUBLIC NOTICE OF A DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE INTO THE WATERS OF THE UNITED STATES UNDER SECTION 301 AND 402 OF THE CLEAN WATER ACT (THE "ACT"), AS AMENDED, AND REQUEST FOR STATE CERTIFICATION UNDER SECTION 401 OF THE ACT.

DATE OF NOTICE: April 14, 2009

PERMIT NUMBER: MA0005576

PUBLIC NOTICE NUMBER: MA-022-09

NAME AND MAILING ADDRESS OF APPLICANT:

Mr. Richard Kraus
Aquacultural Research Corporation
P.O. Box 2028
Chapin Beach Road
Dennis, MA 02638

NAME AND ADDRESS OF THE FACILITY WHERE DISCHARGE OCCURS:

Aquacultural Research Corporation
Chapin Beach Road
Dennis, MA 02638

RECEIVING WATER: Chase Garden Creek

RECEIVING WATER CLASSIFICATION: Class SA

PREPARATION OF THE DRAFT PERMIT:

The U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) have cooperated in the development of a permit for the above identified facility. The effluent limits and permit conditions imposed have been drafted to assure that State Water Quality Standards and provisions of the Clean Water Act will be met. EPA has formally requested that the State certify this draft permit pursuant to Section 401 of the Clean Water Act and expects that the draft permit will be certified.

INFORMATION ABOUT THE DRAFT PERMIT:

A fact sheet (describing the type of facility; type and quantities of wastes; a brief summary of the basis for the draft permit conditions; and significant factual, legal and policy questions considered in preparing this draft permit) and the draft permit may be obtained at no cost at http://www.epa.gov/region1/npdes/draft_permits_listing_ma.html or by writing or calling EPA's contact person named below:

Danielle Gaito
U.S. EPA
1 Congress Street, Suite 1100 (CIP)
Boston, MA 02114-2023
Telephone: (617) 918-1297

The administrative record containing all documents relating to this draft permit is on file and may be inspected at the EPA Boston office mentioned above between 9:00 a.m. and 5:00 p.m., Monday through Friday, except holidays.

PUBLIC COMMENT AND REQUEST FOR PUBLIC HEARING:

All persons, including applicants, who believe any condition of this draft permit is inappropriate, must raise all issues and submit all available arguments and all supporting material for their arguments in full by **May 13, 2009,** to the U.S. EPA, 1 Congress Street, Suite 1100, Boston, Massachusetts 02114-2023. Any person, prior to such date, may submit a request in writing to EPA and the State Agency for a public hearing to consider this draft permit. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public hearing may be held after at least thirty days public notice whenever the Regional Administrator finds that response to this notice indicates significant public interest. In reaching a final decision on this draft permit the Regional Administrator will respond to all significant comments and make the responses available to the public at EPA's Boston office.

FINAL PERMIT DECISION:

Following the close of the comment period, and after a public hearing, if such hearing is held, the Regional Administrator 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.

GLENN HAAS, DIRECTOR
DIVISION OF WATERSHED MANAGEMENT
MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

STEPHEN S. PERKINS, DIRECTOR
OFFICE OF ECOSYSTEM PROTECTION
ENVIRONMENTAL PROTECTION AGENCY – REGION 1