

ENVIRONMENTAL ASSESSMENT AND STATEMENT OF FINDINGS

1. **Applicant:** Mohegan Aquaculture LLC

Application Number: 200002677

2. This permit action is being taken under authority delegated to the District Engineer from the Secretary of the Army and the Chief of Engineers by Title 33, Code of Federal Regulations, Part 325.8, pursuant to:

 X **Section 10 of the Rivers and Harbors Act of 1899**
 Section 404 of the Clean Water Act
 Section 103 of the Marine Protection, Research, and Sanctuaries Act

3. **Description, Location, and Purpose of Work:** The installation and maintenance of various subsurface long lines, on bottom cages and submersible surface bags for the rearing of shellfish (*Eastern oyster, bay scallop and hard clam*) in Waters of the U.S., specifically Niantic Bay, Fishers Island Sound, Pine Island Bay, Stonington Harbor, Long Island Sound and the Pawcatuck River. Locations and Geographic Coordinates are attached as Attachment 1 a-f. The purpose of the proposed project is for the establishment of a commercial shellfish aquaculture operation for market resale and human consumption.

Submerged long lines will consist of a main line, two terminal primary helix anchors, two secondary helix anchors, and shellfish rearing trays installed parallel to the prevailing current direction. Each long line will be approximately 400 feet in length, and contain 50 stacks of trays, secured with tensioned anchors at a depth of no less than 10' below the water surface at mean low water. 165 such long lines will be placed in a total of 50.78 acres (year five) in a staggered configuration, end to end, with approximately 25' clearance between anchor lines and 50' clearance between gear in the waters of Fishers Island Sound, Niantic Bay and Long Island Sound. Specialized gear is depicted in Attachment 2 a-r.

On-bottom shellfish rearing cage trot lines, totaling 45.29 acres (year five) in Long Island Sound, Fishers Island Sound and Niantic Bay will consist of 1,166 5-cage unit trawls, set directly on the sea floor. Each cage will be 5' wide and 2' high, will be connected to a line 1.5 times the water depth (ranging from 17 to 30'), and will weigh approximately 500 pounds when full. Each variable length trawl or trot line (5 cages) will be placed in rows approximately 10 to 20 feet apart, parallel to the prevailing currents.

Installation of 425 partially submersed shellfish rearing bag units, totaling 28.52 acres (year 5) in Long Island Sound and the Pawcatuck River. The system will consist of a grid harness with individual bags attached to the harness in pairs of five (10 harnesses), each separated by a recycled plastic spreader bar. One floating ADPI unit will consist of 100 bags and the entire unit will have a typical dimension of 164' long and 8' wide and 1.5' deep. The floating units will be anchored at each end with helix screw anchors. System flotation is provided by a buoyed centerline.

The project also consists of the installation and maintenance of two 76' long by 32' wide floating

upweller circulation units, 6 new 10-pile dolphin clusters, and 40 new battered brace piles (within the footprint of an existing 184' long fixed dock) at 70/72 Water Street in Stonington Harbor, at Stonington Borough, Connecticut. The purpose of the upweller is to provide a secure location for rearing of small shellfish seed (2-3 mm in size) until they are of adequate size and maturity (18 to 20 mm size) to be placed in open water areas. In some cases, the upwellers will be used to provide a working environment during the transport of shellfish seed to the individual lease sites. Also, install and maintain 3 nearshore upweller mooring systems consisting of three 3-pile timber dolphins (northeast, southwest and northwest corners) in the Pawcatuck River, and eight helix anchors (4 on each side) on the nearshore waters (eastern shore) of Ram Island.

4. Description of General Environmental Setting: The area of the proposed aquaculture activities originally included 9 individual sites within 6 local or state leased shellfish beds within the major estuarine complex known as Long Island Sound, including the sub-complexes identified as Fishers Island Sound and Little Narragansett Bay. The Geographic boundary of the currently proposed aquaculture activities extends from the western shoreline of Waterford (Niantic Bay) to the southeastern border of Stonington, Connecticut (Pawcatuck River). Three of the six aquaculture lease sites (Sullivan Niantic Bay, L525 Ram Island Reef, and I589 Stonington) have exposures to the southeast, and three have exposures to the southwest (L528 Pine Island East, Ragsdale Ram Island Shoal, Davis Pawcatuck River). Currents at all of the sites are influenced, primarily, by tidal fluctuations. Information pertaining to local wave climate/energies; current velocities and direction of net tidal drift; wave characteristics and seasonal patterns, and local tidal amplitudes (average and extremes) can be found in the document entitled, "*Mohegan Aquaculture LLC Equipment Evaluation Report*," dated "December 14, 2001" (Attachment 3)

Both the Sullivan Niantic Bay and Pine Island East leases have minimal currents (0.5 – 0.8 knots) and net tidal drift with water depths from 6 to 19 feet. The Niantic Bay culture site consists almost exclusively of homogeneous soft-bottom habitat with patches of sea lettuce and filamentous algae. Lease 528 consists of a sand-silt bottom with a rocky area in the Northwest corner of the site. Both Lease 525 and Lease 589 have more significant currents (2.0 knots), net tidal drift to the Northeast and water depths from 14 to 30 feet. The Ram Island Reef culture site, located in the lee of the several rock outcrops that form the reef, has a bottom of coarse to medium sand with notable measure of mussels and seaweed. The Stonington culture area consists predominantly of fine sand with topographic features of ridges and visible scour from previous commercial trawl activities. Both the Ragsdale Ram Island Shoal and Davis Pawcatuck River sites have notable currents (0.8 to 2.0 knots), net tidal drift to the southwest and water depths from 2 to 8 feet. The Ragsdale Lease is located along the western shoreline of Ram Island in a shallow area scattered with hazardous rocks and a mixed bottom of coarse sand and cobble. The Davis Lease is located adjacent to the west shore of Pawcatuck Point, approximately 150 feet from the federal navigation channel, and consists predominantly of a homogenous soft mud bottom with an abundance of sea lettuce and filamentous algae. The entire area is interspersed with shallowly submerged rocks. For detailed benthic characterization of the lease sites, see documents entitled, "*Macrobenthic Community Structure of the Mohegan Tribe Aquaculture Sites*," and "*Bottom Classification Survey of Aquaculture Lease Sites in Long Island Sound*," dated "November 2001" (Attachments 4 and 5, respectively).

Many of the proposed culture sites, identified above, are located in close proximity (500 to 2000

feet) to navigable thoroughfares and most of the areas are extensively used for both commercial and recreational purposes, including, but not limited to, marine trade, in-shore commercial fishing, permanent and temporary anchorage, motor sports, recreational drift and bait fishing, organized sailboat racing, small boat instruction, and windsurfing.

Functions and Values Assessment of Resources Impacted: The installation of culture gear, as outlined within this document, will directly displace approximately 20 acres of water and bottom habitat, as described above, within a total project perimeter of 124.59 acres scattered over 6 of the originally-proposed sites (Table 1). The proposed aquaculture activity will impact essential fish habitat for the individual fish species and life stages discussed within the attached Mohegan Aquaculture LLC Essential Fish Habitat Assessment (Attachment 6). There will be no impact to special aquatic resources including intertidal mudflats, tidal wetlands, beaches, islands or vegetated shallows (Habitat Area of Particular Concern). The project will not affect any areas of cultural interest (Attachment 7a and 7b). The project will not affect U.S. Coast Guard mission-essential tasks including search and rescue, boating safety and aids to navigation (Attachment 8). The on-bottom cages will impact colonial benthic organisms, but the impact to these organisms is expected to be minimal because the cages themselves will only cover a small total area of the substrate within the authorized aquaculture perimeter (0.67 acres/29,150 sf). Surveys of the site revealed that benthic flora and fauna include, but are not limited to, rock and spider crab, blue mussel, cunner, summer flounder, horseshoe crab, hermit crab, winter flounder, sponges, tunicates and hydroids.

6. Relationship to Existing Uses: Four of the six proposed culture sites are located on existing, or historically differentiated, leased shellfish grounds (L-528, L-525, L-589 and Davis Lease). One is located in an area historically charted, and permanently demarcated, as a “fish trap area” (Sullivan). The proposed Ragsdale Lease site is in nearshore waters of a privately owned island in Mystic Harbor. Proposed modifications to the existing pier and shore-side facilities for the land-based operation are located along a developed shoreline at the Garbo Lobster Company, a former commercial seafood facility, in the “waterfront development zone” of Stonington Borough. Consequently, the use of all but one (Ragsdale Ram Island Shoal) of the subject sites for a commercial shellfish enterprise is consistent with historical uses, regardless of the deployment/use of non-traditional rearing devices. Also, state and federal coastal policy specifically encourages and promotes use of such areas for commercial shellfishing activities, including aquaculture.

As indicated above, many of the proposed culture sites are located in close proximity (500 to 2000 feet) to navigable thoroughfares and most of the areas are extensively used for both commercial and recreational purposes. In addition, the waters of eastern Long Island Sound and Fishers Island Sound are well known for their abundance of obstructions to navigation including reefs, jetties, breakwaters and rock hazards, both marked and unmarked. Many of the boating and cruising guides published and the coast pilot identify the area as such and recommend very specific routes or navigable fairways to all but those who are intimately familiar with the area.

The issuance of permits by the State of Connecticut, and the use of shellfish leases within Long Island Sound for the development of commercial aquaculture, particularly in the eastern portion of Long Island Sound, is controversial. However, the purpose of the State of Connecticut Department of Agriculture’s coastal shellfish ground lease program in Long Island Sound and

Fishers Island Sound is to provide for the development of a shellfish culture industry in the State of Connecticut. The allocation of space for shellfish aquaculture, a water dependent activity, is consistent with the goal to balance the many competing water-dependent uses of Long Island Sound.

7. Alternatives:

- a.** Full Build –Aquaculture gear described above in a configuration that allows for the installation of a total of 67 acres of gear consisting of 30 acres of long line, 25 acres of bottom cages, and 12 acres of floating ADPI in year 1, and a total of 241.2 acres of gear consisting of 114.1 acres long line, 71.8 acre bottom cages, and 55.3 acres floating ADPI in year 5.

- b.** Partial Build – The proffered proposal described in §3 above, allows for the installation of a total of 66.77 acres of gear consisting of 27.99 acres of long line, 30.36 acres of bottom cages and 8.42 acres of floating ADPI in year 1, and a total of 124.59 acres of gear consisting of 50.78 acres long line, 45.29 acres bottom cages, and 28.52 acres floating ADPI in year 5. This proposal is the result of modification and reconfiguration of the original proposal to minimize and avoid conflicts with, or impacts to, valuable recreational fishery areas, mooring fields, navigation and recreational boat use, other recreational uses including swimming and public access, fish habitat, submerged aquatic vegetation and commercial fishery areas. Specifically, this option includes:
 - i.** Lease 528 Pine Island North – Elimination of gear from this proposed area.
 - ii.** Lease 528 Pine Island South – Elimination of the proposed long line gear from this area.
 - iii.** Lease 525 – Reduction in the scope of long line gear to 4 acres in year 1 and 13.3 acres in year 5, a shift in the location of the year 1 configuration to the north and east, into the far northeastern corner of the lease area, and modification to maintenance depth of the long line gear from 10’ below the water surface to 11’ below the water surface.
 - iv.** Davis Pawcatuck River – Modification of the proposed floating ADPI area to provide a minimum of 300’ between the gear and the western limit of the federal navigation project (reduction of 0.9 acre).
 - v.** Davis Colonial Creek – Elimination of gear from this proposed area.
 - vi.** Ragsdale Ram Island East – Elimination of gear from this proposed area.
 - vii.** Ragsdale Ram Island West – Reduction in scope of floating ADPI gear from 3 acres in year 1 and 9 acres in year 5, to 5.42 acres in year 1 and 0 acres in year five, contingent upon completion of SAV survey and verification of absence of such vegetation.

8. Impacts to Public Interest Factors:

+ Beneficial	- Adverse	0 Negligible Effect
0 Water Supply and Conservation	0 Land Use Classification	
0 Historical	0 Water Quality	
0 Aesthetics	0 Safety	
0 Mineral Needs	0 Property Ownership	
0 Parks/Refuges	- Recreation	
0 Drainage	- Navigation	
0 Circulation Patterns	0 General Environmental Concerns	
0 Erosion/Accretion	+ Needs and Welfare of the People	
0 Energy Needs	0 Benthic Flora and Fauna	
0 Air Quality	0 Noise	
0 Floodplain Values	0 Wetlands	
+ Food and Fiber Production	0 Flooding	
0 Wildlife	+ Finfish/Plankton	
+ Economics	+ Shellfish	
0 Commercial Use		

The evaluation of affected public interest factors includes assessment of foreseeable short term, long term and cumulative impacts of the proposed activity

<u>FACTOR</u>	<u>ANTICIPATED EFFECT (+/-)</u>		<u>COMMENTS</u>
	Short Term	Long Term	
Water Quality	-	0	Increased turbidity and resuspension of sediments are expected during installation of the anchorage system. This effect will rapidly diminish upon initial completion and is expected to be well below background levels currently attributed to natural occurrences in these waters. There is no addition of food, so the attendant impacts to water quality associated with other aquaculture operations do not apply. The proposed sites appear to have sufficient tidal currents and flushing to facilitate dispersal of digestive products. Filter feeding bivalves remove nitrogenous materials from the water column resulting in long-term improvement to water quality/clarity. No pesticides or bioactive compounds will be used.
Erosion/Accretion			
Benthic Flora and Fauna	-	0	Disturbance to fauna associated with installation of the anchorage system and seasonal maintenance will be minor, temporary and localized in nature. Installation of bottom cages will result in the effective displacement of benthic species, however the actual footprint of gear in contact with the substrate is negligible and this impact is likely to be mitigated by the addition of benthic structure and access to additional sources of forage. Submerged aquatic vegetation will not be adversely impacted by the proposed project. Specialized gear will avoid repeated disturbance to the benthic environment commonly associated with traditional methods of harvest (bottom manipulation and dredging).
Finfish Plankton	-	+	There may displacement of fish associated with installation of culture gear, but this impact is likely to be mitigated by the addition of benthic structure and access to additional sources of forage. It is anticipated that habitat diversity will be increased by installation of the gear, as the structures will function as fish attraction devices. Short term impacts to winter flounder eggs/larvae will be minimized with implementation of a seasonal restriction at key sites.

Shellfish	0	+	Turbidity during installation of anchors is expected to be short term in nature and minor in scope. As these sites currently support limited shellfish populations impacts to such will be negligible. The culture of oysters will provide a source of seed to enhance natural beds.
Food Production	0	+	The culture of shellfish will enhance aquaculture opportunities in Connecticut and may help to reduce U.S. trade deficit in fisheries products, augment traditional commercial harvests and produce a renewable fishery resource.
Navigation Safety	-	-	Many sites were selected due to their shallow nature and/or their proximity to shoals and rock hazards; consequently they are not ideal for navigation. The sites that are used regularly for navigation purposes have adequate space around them in which to be able to safely maneuver around the proposed gear, if necessary. Gear will be adequately marked and maintained. Cages will be placed directly on the bottom and therefore should not interfere with boat traffic in any measure. Longlines, although located within the water column, will be counter-sunk to a minimum depth of 10' below the water surface (11' at Lease 525), and therefore will allow the greater percentage of transiting vessels to move through the gear field if they so choose. Submerged long lines will only obstruct the largest of vessels, which make up a small percentage (estimated 1 to 2 percent) of total vessels in these in-shore areas.
Recreation	-	-	There will be no impact to areas used for swimming or waterfront public access. Initial installation of gear may result in limited recreational use of the area. The floating ADPI gear may result in the displacement of some water related recreational activities such as use of personal watercraft, but this is anticipated to be negligible because siting of the ADPI is such that they are located in very shallow, rocky areas. Surface and subsurface gear will make trolling or casting in close proximity to the gear difficult or impossible. However, this may be offset slightly by the fish attraction characteristics of the proposed gear.
Economics	0	+	The operation will provide work for associated local and regional support and distribution industries and provide economic benefit to the Town of Stonington and the state economy.
Needs and Welfare of the People	0	+	Both state and local government has determined that development of aquaculture is in the national interest to offset over-harvest and to implement sustainable fishery practices.
Aesthetics	-	0	Visual impact of the proposed structures has been reduced to the minimum number of buoys necessary to safely demarcate the gear, and other facilities associated with the operation have been designed to blend-in to what is currently a "working waterfront" community. Initial installation will result in a change to the view that people are accustomed to, but acclimation should occur fairly quickly.
Commercial Use	-	0	There is the potential to be an impact to commercial fishermen and lobstermen who fish the waters in the vicinity of the proposed gear. This impact is expected to be short term since a requirement to allow joint use is a condition of the coastal zone consistency and fishermen who are displaced will likely find suitable replacement areas in the vicinity of the current location. In the long term commercial use may benefit as a result of the habitat value of the proposed gear to recreationally and commercially important fish species.

9. Findings:

a. CT State Coastal Zone Management Concurrence was issued on February 19, 2002 (Attachment 9).

b. A Public Notice describing the proposed work was issued on March 20, 2001 (Attachment 10) and sent to all known interested parties. In response to the Notice we received more than 350 written comments (Attachment 11a). Over half of these were versions of a form letter objecting to issuance of the proposed activity. The Public Notice did generate detailed responses from many individuals. These letters were forwarded to the applicant on September 12, 2001 and April 2, 2002, to assist them in development of requested additional information (Attachment 11b). Additional information was submitted in the form of Additional response letters dated November 1, 2001 (Attachment 3b), December 3, 2001 (Attachment 3c), and December 14, 2001 (Attachment 3d). The Corps reviewed and fully considered all comments received in response to the Public Notice. A summary of the comments is included below, and the all comment letters have been made part of our administrative record of this action.

i. The Corps of Engineers has consulted with the National Marine Fisheries Service (NMFS) regarding the effects of this project on Essential Fish Habitat (EFH) designated under the Magnuson-Stevens Fishery Conservation and Management Act, and federally listed species under the Endangered Species Act. In a letter dated July 6, 2001 (Attachment 12a), the NMFS requested additional information, and stated that in the absence of the information the project may have substantial and unacceptable impact on aquatic resources of national importance.

Additional information was obtained and forwarded to the NMFS for review and comment on December 31, 2001, additional coordination with the NMFS was undertaken, and an EFH assessment was provided to NMFS on May 23, 2002. In a letter dated August 9, 2002 (Attachment 12b), the NMFS provided a determination that the project “will not likely jeopardize the continued existence of any federally listed, threatened or endangered species under our purview.” In the same letter the NMFS stated that “the proposed activities are unlikely to have minimal adverse impacts, and may in some instances, enhance the essential fish habitat for 13 federally managed species,” and provided the following EFH conservation recommendations, which we have included as special conditions to this permit. The incorporation of these conditions will prevent potential negative impacts to the species listed in the attached Essential Fish Habitat Assessment.

(1) Within 60 days of permit issuance, the permittee shall develop and submit for Corps review and approval, a plan outlining an environmental monitoring program to ensure that there is no irreversible or unacceptable adverse impact to water quality or benthic habitat as a result of the installation and operation of the aquaculture operation. The environmental monitoring program shall be developed in coordination with the Corps, the CT Department of Environmental Protection (CT DEP) the National Marine Fisheries Service, and the Environmental Protection Agency (EPA) and be directed at: a) the assessment of the physical habitat in the vicinity of, and down-drift from, the shellfish retention systems, and b) monitoring of water quality parameters such as temperature, dissolved oxygen, conductivity, chlorophyll a, total organic carbon, and total suspended solids. The monitoring plan shall also include provisions for mitigating action should episodes of water quality violations benthic habitat alteration occur. The schedule for the monitoring shall be developed in coordination with all of

the agencies identified above, shall commence with the first installation of the culture gear identified above and continue for at least three years after installation of the “full build” configuration, after which the need for continued monitoring shall be determined based on the results of subject monitoring, to date. The permittee shall generate an annual monitoring report and submit 2 copies to the Corps, Regulatory Division Inspection Section no later than December 15 of the year being monitored. Failure to submit monitoring reports constitutes permit non-compliance. Installation of long line gear at Leases 525 and 589 shall not occur until the Corps approves the monitoring plan, in writing.

(2) *No activity, including the laying of gear and mooring tackle, shall occur within a distance of 25 feet from beds of submerged aquatic vegetation (eelgrass or turtlegrass), nor shall such vegetation, under any circumstances, be damaged or removed. Installation and/or continued operation of the culturing facilities must avoid existing beds of submerged aquatic vegetation, or areas where colonization of submerged aquatic vegetation is seen to be occurring.*

(3) *Initial installation and subsequent deployment activities will be prohibited at Lease 525, Lease 528, Ragsdale Ram Island West, and Davis Pawcatuck River culture sites from February 1 through May 31 of any given year.*

ii. The Corps received a letter from the U. S. Environmental Protection Agency (EPA) dated May 18, 2001 (Attachment 13a). The letter stated that the proposal raises a number of concerns regarding potential impact to the aquatic ecosystem, and, as proposed may result in substantial and unacceptable impact to aquatic resources of national importance. The EPA did not provide specific comments on the proposal, but reserved its right to review and comment on the Environmental Assessment for compliance with the National Environmental Policy Act (NEPA). The EPA also requested a copy of the complete application and supporting documentation.

The Corps provided EPA with the requested additional information on February 13, 2001. No written comments were received in response to the additional information. EPA received a copy of the draft environmental assessment/statement of findings on August 9, 2002, modified plans on August 12, 2002 and Attachments 3,4, and 5 on August 16, 2002. EPA provided comments and recommendations in a letter dated August 16, 2002 (Attachment 13b). Modifications to the permit conditions were made in coordination with the EPA and the agency has no unresolved concerns (Attachment 13c).

iii. **Historic and Cultural Resources:** The Public Notice was sent to the Connecticut State Historic Preservation Officer (CT SHPO). The Corps received a letter dated July 6, 2001, requesting additional information, and recommending further consultation regarding the project’s potential impact to archaeological structures (shipwrecks). Supplemental information was forwarded to the CT SHPO on December 31, 2001.

A determination of no effect to historical or archaeological resources was received on February 26, 2002. SHPO coordination documents are available as Attachment 7.

iv. The U.S. Coast Guard (USCG) requested a copy of the complete application and supporting documentation on February 11, 2002. The requested documentation was forwarded to the USCG c/o Lt. Pamela Garcia on February 13, 2002.

The Corps has coordinated the proposed project with the USCG (Attachment 8) and they have no unresolved concerns with the project proposal described in § 7(b) above.

v. A Notice of Public Hearing was published on May 22, 2001 (Attachment 14). The Public Hearing was held on June 25, 2001 in Groton, Connecticut. An estimated 400 people attended the hearing. Approximately 90 individuals presented oral comment.

We reviewed and fully considered all comments received at the Public Hearing. A summary of the comments is included below, and the hearing transcripts have been made part of our administrative record of this action (Attachment 15).

vi. Many letters and oral comments from concerned citizens, local governments, Congressional interests, and special interest groups were received in response to the Public Notice and the Public Hearing. These concerns are addressed below (no particular order of preference):

(1) Navigation – Many commenters raised concerns that the originally proposed depth of submerged long lines at Leases 525, 528 and 589, to –8’ below the water surface would obstruct navigation and/or significantly restrict vessel access and result in unsafe boating conditions in the vicinity of the culture operation. Subsequent concerns were raised that the modified depth of submerged long lines, -10’ below the water surface would preclude or hinder deep keel vessels such as sail boats, schooners, and work vessels from entering the Mystic River (Lease 525).

During initial review of the application, the Corps considered the types of recreational and commercial vessels that traditionally transit the lease sites, in particular, the length and draft of recreational sailboats and powerboats which make up the greatest percentage of vessels in Long Island Sound. Based upon an analysis of recreational boat design specifications the Corps determined that installation of the proposed submerged long lines to the originally proposed depth of –8’ could result in probable obstruction and have a reasonably foreseeable adverse impact to inshore navigation in Fishers Island Sound. Powerboats and sailboats are the most abundant recreational vessels found in the inshore waters of Fishers Island and Long Island Sound, so submerged aquaculture gear located within the range of operating depth of the majority of commercial and recreational vessel types in the Sound would render some portion of the waterway unavailable for the greater public use and create a possible hazard to navigation.

Most recreational vessels (powerboats and sailboats) in Long Island Sound are likely to range between 8’ and 65’ in length. The draft of these vessels will depend on hull type (powerboats) or keel type (sailboats). A review of recreational vessel design standards indicate that the majority of vessel types in this size range (approximately 98%) have drafts significantly less than 10 feet. Those likely to exceed a draft of 10’ include offshore racing yachts and chartered sailing vessels. Most modern cruising sailboats are less than 45 feet and are of shoal draft design (less than 6 feet of draft). Vessels with drafts deeper than 8 feet would normally avoid the areas selected for

placement of the aquaculture gear due to the number of unmarked hazardous rocks and variable water depths throughout. In a conference call the USCG concurred with this approach and the result of the analysis.

To minimize the foreseeable adverse impact to navigation, the original design was modified, per our request, to counter-sink the submerged long lines to a depth of –10’ below the water surface at Lease 589, and –11’ below the water surface at Lease 525. This modification will allow the greater percentage of transiting vessels to move freely through the submerged gear fields, if they so choose, and will only physically obstruct the largest of vessels, which make up a very small percentage (estimated 1 to 2 percent) of total vessels in these shallow in-shore areas.

Also, it was determined that a reduction in the overall scope of the submerged long lines, in combination with a shift in their configuration to the far northeastern corner of Lease 525 (see 7[b][iii] above,) would help moderate the probability of interference with navigation of deeper draft vessels. This is because the revised configuration minimizes the encroachment of the proposed gear into the USCG demarcated navigation area and situates the submerged long lines in-between several charted hazards to navigation (Ram Island Reef, Whaleback Rock, Swimming Rock, and Planet Rock). Because of the number and scattered nature of these natural obstructions, knowledgeable captains of deep draft vessels will steer well clear of this area.

Several commenters asserted that the depth (-3’ MLW) and scope of the proposed long lines in Niantic Bay, at full build-out, could create an unsafe boating condition.

The Corps determined that the shallow nature of the proposed long lines, in conjunction with the fact that this area is regularly used as a local “short cut” to approach the Niantic River entrance channel, would create a reasonably foreseeable hazard to navigation and public safety. Water depths at this site are not available to mitigate gear location within the water column. Consequently, the submerged long lines at this location have been reduced from the originally proposed 22 acres to 5 acres and the proposed bottom cage and long line areas have been “swapped” to ensure that the long lines will be maintained as close as physically possible to the existing, adequately demarcated, fish trap operation (Attachment 1a).

Several commenters indicated that there is insufficient room to accommodate the originally proposed culture gear on the north side of Ram Island (Ragsdale East) without impacting the existing navigation channel or mooring field. Many concerns were raised that Lease 528 (Pine Island South) would interfere with the traffic pattern of recreational boats transiting Fishers Island Sound, north of Seaflower Reef en route to New London Ledge Lighthouse. Several commenters expressed concern that expansion of Lease 528, Pine Island North, to the proposed 10-acre build-out will block all navigation access to the Poquonnock River. One commenter stated that there are portions of Lease 525 where the placement of bottom cages would reduce the effective depth of the approaches to the Mystic River to less than the controlling depth of the federal navigation project.

Although the concerns identified above appear to have merit, there is no need to address them in this document as the proposed locations have been eliminated from consideration due to reasonably foreseeable adverse impact to multiple public interest factors including recreation, navigation and general environmental concerns (Attachment 1b).

Several commenters objected to authorization of the gear because the visibility of the culture gear at night, or in foggy or hazy conditions would be questionable, and may pose a significant hazard to navigation and public safety.

The proposed gear will be properly marked in accordance with state (CT DEP Boating Safety Division) and federal (U.S. Coast Guard) requirements. In particular, aids will make use of reflective materials and “rough water” can design, the perimeter of the approved culture areas will be included on future navigational charts, and the areas will be published in the U.S. Coast Guard Local Notice to Mariners. The recommended precautions will ensure that the subject aquaculture gear shall pose no greater risk to navigation and public safety than the other natural hazards that abound in the waters of Fishers Island Sound.

(2) Structural Stability of Aquaculture Gear – Numerous commenters objected to issuance of a permit for the proposed project based on the lack of information pertaining to the ability of the proposed gear to withstand high local wind, wave and current conditions, on a recurring basis, at the subject sites.

A professional marine engineer has certified that the proposed project design, including equipment and installation methodology is capable of withstanding reasonably foreseeable environmental conditions, based on local knowledge and meteorological records. This certification is provided as Attachment s and design information is available at Attachment 3a in the document entitled, “Mohegan Aquaculture LLC Equipment Evaluation Report,” dated “December 14, 2001.” Additional information in response to questions and comments on the equipment evaluation report were submitted to the Corps as enclosure of letters dated April 29, 2002 letter (Attachment3e) and an August 16, 2002 letter (Attachment 3f).

Many commenters raised concerns with the ability of the proposed long line equipment to hold fast under large quantities of fouling material, such as seaweed, when at full capacity. Also, some commenters stated that field-testing of the equipment should be undertaken.

To reduce environmental load, prevent arcing and limit distortion of the long line, the gear is proposed to be installed parallel to the prevailing current direction, if one is detectable. Also, the engineering report states that the long line equipment has been designed, both laterally and vertically, to be a flexible system that can undergo deflection equal to the design waves without generating large forces on the primary anchors. Finally, the design of the long line holding system has been modified to include 2 additional, redundant helix anchors located at each end of the long line to act as a fail-safe in the event of failure.

Pre-construction field tests on location in Long Island Sound indicated that the holding capacity of the helical anchors appear to be directly related to the pressure of the torque motor on the anchor at the time of installation. Consequently, this permit includes a special condition that each helical anchor shall be installed to meet a minimum installation pressure of

725 pounds per square inch to help ensure a minimum holding power of a 20,000 pound load.

Numerous commenters objected to authorization of the proposed gear on the grounds that the application did not contain enough information to ensure that the submerged gear would be maintained at the stated depths within the water column.

Special conditions have been incorporated into the permit to address this issue. Specifically, it is required that the submerged gear at Lease 589, including underwater buoys, be maintained at a minimum depth of 10 feet below the water surface at all times. The submerged gear installed at Lease 525 will be maintained at a minimum depth of 11 feet below the water surface at all times. Also, the permittee shall be required to monitor the location of the submerged gear within the water column.

(3) Public Access – Several entities commented that installation of the aquaculture gear at Lease 528 Pine Island North and Davis Colonial Creek East would result in the limitation of public access boat ramps and/or portage areas.

As identified above, in § 7 (b)(ii) and § 7 (b)(v), the installation of shellfish gear at these sites has been eliminated from consideration. In addition, it is the determination of the Corps that the proposed activities will not unreasonably interfere with the ingress and egress of any riparian owner nor public use or enjoyment of municipally, state or federally owned or managed beaches, parks or docking facilities.

(4) Liability – Many commenters raised concern that in the event of a storm the aquaculture gear could result in damage to moored boats, waterfront structures and other residential property in or around Stonington Borough, and because the applicant is a sovereign entity, individuals or the community would not be able to seek reparation for such damages.

The State of Connecticut Department of Environmental Protection granted a conditional concurrence of the project's consistency with the federally approved Coastal Zone Management Program on February 19, 2002. Condition No. 4 of the consistency determination requires the applicant to submit a waiver of its sovereign immunity as pertains to the proposed aquaculture project. The waiver is provided as Attachment 16. The Corps has made compliance with all of the conditions of the February 19, 2002 conditional coastal zone consistency determination a special condition of the Department of Army permit.

Several commenters objected to the location of the floating upwellers in Stonington Harbor, since they would be sited in a part of the harbor that is exposed to ocean storm surges and extreme high tide events.

To minimize the potential for damage to personal property in the event of a natural disaster, the permit contains a special condition that requires the permittee to develop and implement a contingency plan for the emergency handling of the retention devices, and the floating upwellers, in Fisher Island Sound.

(5) Public Anchorage Areas and Mooring Fields – Many commenters objected to the installation of the aquaculture gear in Pine Island Bay, stating that the gear would substantially reduce the number of safe harbor mooring spaces and adversely affect navigable access to Pine Island and Bluff Point.

As originally proposed, installation of culture gear north of Pine Island would result in the elimination of a minimum of 9 publicly accessible recreational moorings and encroach into a federally designated USCG anchorage area. Our evaluation indicates that placement of aquaculture gear in this location would result in unreasonable obstruction to navigation, recreational use and public access. Placement of aquaculture gear at this location has been eliminated from consideration 7 (b)(i)

(6) Essential Fish Habitat/Eelgrass – Many commenters asserted that the installation of the proposed culture gear would have adverse impact on essential fish habitat (EFH) and habitat areas of particular concern (eelgrass beds). Specifically, installation of the proposed structures may change the character of productive pelagic and benthic communities by altering hydrodynamics and creating an additional source of nutrient enrichment.

As indicated in Section 9 (b)(i) above, coordination with the NMFS was undertaken, regarding the project's foreseeable impact to EFH (Attachments 6 and 12). In a letter dated August 9, 2002, NMFS concurred with the May 21, 2002 EFH Assessment and stated that "the proposed activities are likely to have minimal adverse impact, and may, in some instances, enhance essential fish habitat for 13 federally managed species..." Also, NMFS provided EFH conservation recommendations, which we have included as special conditions to this permit (conditions 3, 4 and 5). As noted above, these conditions will help ensure that there are no unacceptable adverse impacts to EFH.

The applicant was required to conduct an exploratory survey to verify the presence or absence of submerged aquatic vegetation at the proposed gear sites. The design of the survey was coordinated with the Corps, CT DEP OLISP, and the NMFS. The result has been made part of the administrative record in the document entitled "*Bottom Classification Survey of Aquaculture Lease Sites in Long Island Sound*," dated "November 2001." The survey identified the presence of dense eelgrass beds on the southwestern side of the Ragsdale Ram Island East, culture site (between Ram Island and Gates Island).

As proposed, installation of the aquaculture gear at this site would result in a foreseeable adverse impact to this habitat of particular concern. To avoid adverse impact to this sensitive habitat, the placement of culture gear in this area has been eliminated from the proposal (see § 7 [b][vi]).

The survey also identified the presence of eelgrass at Lease 589. The beds appear to be limited to the shallow waters of Noyes Shoal, south and west of the proposed aquaculture gear.

Installation of the proposed gear at this site is not likely to directly adversely affect aquatic vegetation. However, special conditions have been incorporated into the permit that require the applicant to develop and implement an environmental monitoring program to ensure that there is no irreversible or unacceptable adverse impact to benthic habitat as a result of the installation and operation of the aquaculture gear. Provision is incorporated into the permit for mitigation of adverse impacts, should they be identified in the course of the environmental monitoring program.

A survey of Ragsdale Ram Island West proposed culture area was not completed during the evaluation phase of this application.

Installation of aquaculture gear at this site is contingent upon the completion of an exploratory survey to verify the absence of eelgrass Submerged Aquatic at the site. A special condition to this permit requires that design and implementation of the survey be coordinated with the Corps, the National Marine Fisheries Service and the CT DEP, and be conducted in accordance with established seagrass survey guidelines.

Because many species of submerged aquatic vegetation reproduce both sexually (seed) and asexually (roots and rhizomes), eelgrass bed locations are known to migrate from year to year.

To ensure that installation of the culture gear will have no foreseeable future adverse impact to submerged aquatic vegetation, the permit has been conditioned to prohibit the placement of culture gear within 25 feet of submerged aquatic vegetation, and continued operation of the culturing facilities must avoid existing beds of submerged aquatic vegetation, or areas where colonization of submerged aquatic vegetation is seen to be occurring.

(7) Water Quality/Benthic Habitat – Many commenters objected to the use of off-bottom culture, stating that the production of waste products from the number of animals necessary to support an economically viable operation will lead to eutrophication and accumulation of fine sediment on the bottom beneath the structures.

Shellfish are filter feeders, ingesting fine particulate matter (both organic and inorganic) from the water column. There will be no addition of an artificial food source, so the attendant impact of excess feed accumulation normally associated with many off-bottom aquaculture operations does not apply.

In a depositional environment, there is the possibility of the accumulation of pseudofeces (rejected food) and feces (digestive products) under a bivalve culture operation. Deposition of excessive amounts of this material as a result of concentrated rearing practices could result in physical and chemical changes to the benthic environment, including the bio-deposition of inorganic and organic nutrients, such as organic carbon and nitrogen, and reduction in mean sediment particle size. However, review of the application indicates that the recommended sites have sufficient tidal currents and flushing characteristics to facilitate dispersal and ecological assimilation of both digestive products and rejected particulate matter, thereby greatly minimizing the likelihood of a reasonably foreseeable impact to water quality. In addition, proper spacing between long lines and floating ADPI arrays has been incorporated

into the project design to offset density dependent related impact.

As identified above, a special condition has been incorporated into the permit that requires the applicant to develop and implement an environmental monitoring program to ensure that there is no irreversible or unacceptable adverse impact to benthic habitat as a result of the installation and operation of the aquaculture gear. Also, provision is incorporated into the permit for mitigation of adverse impacts, should they be identified in the course of the environmental monitoring program.

Finally, if review of the environmental monitoring data or other information comes to light that identifies a likelihood that the aquaculture project will result in a reasonably foreseeable adverse impact to a factor of public interest, such as navigation, public safety, water quality, or fish habitat, the Corps of Engineers New England District may suspend, revoke or modify the permit

Comments were received that detrimental impact to water quality would result from the introduction of pesticides to control predatory crustaceans, as well as from cleaning chemicals, and solvents used in the maintenance of the culture gear.

No pesticides or bioactive compounds will be used to combat infectious diseases. No cleaning compounds will be used in the maintenance of the gear. Bio-fouling organisms will be removed from the equipment and returned to the aquatic environment, on site, with high-pressure salt water washing equipment. This is a permissible activity under regulation and unlikely to pose a risk to water quality. In addition, the State of Connecticut's aquaculture industry is required to comply with all applicable requirements of the Federal Food, Drug and Cosmetic Act, the National Shellfish Sanitation Program, and Connecticut General Statutes.

Two commenters suggested that the use of the upweller diesel generator to power the upwellers, 24 hours 7 days a week, will contribute to degradation of water quality through the release of exhaust (carbon monoxide and hydrocarbons) into the water column and by elevating localized water temperatures.

Many marine engines are designed to vent exhaust gases directly into the water. Some, such as two-stroke engines also vent unburned oil and fuel. Those designed to vent gases into the air may also affect water quality, given their proximity to the water source, but the EPA regulates their emissions, based on product specifications, at the federal level. In addition, an EPA summary of water-cooled emissions indicates that a significant portion of exhaust products is removed from the water surface through evaporation, and that the concentration of both soluble and dispersible exhaust products are not discharged in concentrations high enough to cause significant environmental damage. We conclude that water quality degradation as a result of generator use is not a reasonably foreseeable event. In addition, it is unlikely that water temperature will be modified from ambient level.

Concerns were raised that the upwellers would provide a potential focal point for spill of hazardous chemicals or wastes.

No hazardous wastes or chemicals are to be stored on the upwellers. When at sea, the upwellers meet U.S. Coast Guard standards for fuel containment.

(8) Native Shellfish Population - Several commenters asserted that the additional placement of shellfish in Long Island Sound would contribute to a depletion of the food source (phytoplankton) for native shellfish populations.

There is no data available on phytoplankton production in Long Island Sound. Nitrogen is normally the major factor limiting the abundance of phytoplankton in a water body. Since tidal exchange and flushing is adequately documented and the availability of nitrogen is not an issue, it is unlikely that measurable effects will result.

Several commenters raised the concern that use of shellfish genetically bred within a laboratory environment or imported into Connecticut waters will result in the introduction of new pathogenic bacteria, and contribute to a lowered disease resistance in natural shellfish populations as a result of frequent application of antibiotics.

Shellfish diseases such as MSX and Dermo are the result of infection by single-celled protozoa and they are a natural component of biological systems. The importation of shellfish species and the measures for prevention of introduction of harmful shellfish parasites, diseases and pests is regulated by the Commissioner of Agriculture under Connecticut General Statute Sec 26-224a. In particular, state regulation prohibits the placement of oysters other than Crassostrea virginica in state waters and requires that only seed stock meeting state criteria be used.

There will be no laboratory modification of shellfish seed stock, and the sole food source will be natural phytoplankton populations circulated in ambient seawater. Stock will be obtained from approved sources.

No pesticides, chemical therapeutics, antibiotics or antifoulants will be used to combat infectious diseases, parasites or other organisms in connection with the proposed aquaculture project.

(9) Wildlife – Several commenters expressed the concern that seabirds and other wildlife will become entangled in the gear and that the aquaculture operation will unnecessarily disrupt nesting and feeding areas.

Coordination with the state and federal resource agencies identified no areas of significant concern to wading birds or shore-dependent wildlife. We conclude that probability of disruption from the proposed activities is low since the subject areas already support moderate to high levels of anthropogenic activities; the probability of entanglement is also low since the gear uses a taut-wire mooring system design (minimizes lines and maximizes tension), and predator netting will not be necessary.

It has been made a condition of this permit that the permittee shall develop and implement, in coordination with the Mystic Marine Life Aquarium Stranding Network, a contingency plan and protocol for the handling of stranded or entangled wildlife and marine mammals.

(10) Quality of Life – May commenters objected to the use of the diesel generators, stating that they will result in noise that will be disturbing to residents and beachgoers and degrade the peaceful nature of the waterfront.

Specifications of the proposed generator indicates that sound from the machinery will be within acceptable levels (55 – 65 dBA). In addition, the upweller units will be insulated to further reduce noise levels.

Concerns were raised that noxious odors will occur as a result of decaying foul organisms and dead animals within the rearing systems.

Bio-fouling organisms will be removed from the equipment, in-situ, and returned to the aquatic environment for re-assimilation and use as a supplemental food source, and most of the equipment will be maintained beneath the water surface, thereby eliminating the possibility of offensive odors. Although the floating ADPI bags will be maintained on the water surface, location in non-residential areas will help to mitigate the reasonably foreseeable effect of odor produced from the equipment's exposure to air and sunlight. It is anticipated that the resultant odor will be comparable to that produced by natural processes at the nearby intertidal mud flats.

One commenter indicated that lighting of the upweller would disturb the peaceful and natural setting of the residential waterfront community.

Other than required aids to navigation, all lighting will be contained within the work area. Exterior lighting will not be used, except where necessary.

Several commenters expressed concern with the production of waste from the proposed culture operation, specifically citing the potential for production of processing waste (shell and meat products), sanitary waste and trash.

There will be no processing of wastes on the lease beds, and the operation is specifically designed to rear a high-quality product for the half-shell market. If processing is undertaken, it will occur at an approved upland facility and shell will be reused as "cultch" to enhance existing shellfish lease bottom (a traditional practice in Connecticut).

(11) Recreational and Commercial Fishing – Many commenters objected to the project on the grounds that the aquaculture gear will impede safe operation and use of equipment by commercial lobstermen and fishermen who presently operate at the lease sites. In particular a major recreational and small inshore otter trawl fluke fishing area between Ram and Gates Island; angling for striped bass off of Ram Island; angling and drifting for fluke and scup near the 30-foot contour areas of Vixen Ledge, in the nearshore waters of Pine Island and Bluff Point, and at White Rock, Noyes Rock and Noyes Shoal; recreational little tunny (false albacore) along the ledge running from Pine Island to Mumford Point; a commercial lobster pot fishery at lease

sites 525 and 589; and a commercial scup fishery at lease 589 (seasonal).

The proposed project has undergone considerable coordination with the CT DEP Bureau of Fisheries, and the NMFS. As such, the project has been reconfigured and reduced to avoid and mitigate for potential interaction with recreational fisheries. Aquaculture gear has been eliminated, reduced and/or reconfigured at Lease 525, Ragsdale Ram Island West, Ragsdale Ram Island East, Davis Pawcatuck River, Davis Colonial Creek, Lease 528 Pine Island North, and Lease 528 Pine Island South. This coordination has also resulted in reconfiguration and reduction to avoid and mitigate for potential interaction with commercial fisheries at lease sites 525 and 589.

It is a condition of the CZM consistency determination that the applicant must provide for continuation of existing multiple-use practices of the area by commercial fishermen and lobstermen. Authorization of the aquaculture gear, described herein, is contingent upon compliance with all of the terms and conditions of February 19, 2002, State of Connecticut Coastal Zone Consistency Determination.

Finally, it has been made a condition of this permit that the right of the public to traverse or utilize the waters not physically occupied by authorized structures and moored vessels, within the areal limits of this authorization, shall not be impeded.

(12) Aesthetics/Property Values – Many comments objected to the proposal stating that it will consist of a heavily concentrated series of marking buoys and vertical lines, presumably of a high visibility color, that will detract from the natural vista of the waterfront.

The aquaculture project design has been modified from that originally proposed to reduce the necessary number of marking buoys at the water's surface. All buoys, other than required aids to navigation, shall consist of low-key coloration to minimize aesthetic impact, allowing them to blend into the marine landscape without compromising safety standards.

Floating ADPI equipment will extend no more than 4" above the water's surface and is located in non-residential areas to minimize impact to riparian vistas.

Numerous comments expressed concern with the berthing of the upwellers, especially in Stonington Borough, on the basis that they would be unsightly, out of character with the existing waterfront community, and significantly decrease property values of residents.

The upwellers have been designed with aesthetics in mind, including attention to architectural detail to ensure that their profile is the minimum necessary to allow work-related operations without minimizing safety. They have been enclosed to mitigate, through containment, the impact of noise and lighting from normal daily operation.

(13) Economic Impact – Several comments objected to issuance of the proposal because the scope of the proposed development would have significant socioeconomic impact to small owner-operated aquaculture businesses in the region, equating to an unfair economic - advantage.

Review of the shellfish aquaculture industry in the United States, and elsewhere, indicates that the size of the individual gear areas of the partial build option identified above, is

not unprecedented, nor unreasonable. In addition, review of the aquaculture industry in the State of Connecticut indicates that there is more than a handful of owner-operated shellfish aquaculture businesses with approved gear perimeter areas in the range of the partial build option identified above.

(14) Public Need and Public Benefit – Many commenters objected to issuance of a permit for the proposed aquaculture project on the basis that the applicant has not presented sufficient need for aquaculture in Long Island Sound.

As indicated above, the purpose of the State of Connecticut Department of Agriculture’s coastal shellfish ground lease program in Long Island Sound and Fishers Island Sound is to provide for the development of a shellfish culture industry in the State of Connecticut. Approximately 52,000 acres of bottom is currently being leased and actively farmed through the use of bottom enhancement and depuration equipment in Long Island Sound. The public need of the project is exemplified by the increase in per capita consumption of seafood. Cultured seafood, and in particular shellfish, is preferred by the food service industry, as well as, the retail consumer due to its yearly availability and promise of a product with a consistent taste and size, at a reasonable price.

The beneficial economic impact of Connecticut’s oyster farming industry is significant. The Department of Agriculture estimates that the industry is worth at least \$60 million annually in farmgate sales, provides an estimated \$200 million to the State of Connecticut’s economy on an annual basis, and provides over 600 jobs.

Specifically, the aquaculture project is estimated to provide, on an annual basis, \$1 million in salaries and add over \$0.5 million in tax revenue as a result of property, service and infrastructure improvements directly associated with the proposed operation.

(15) Public Trust/Impact to Existing Uses – Numerous commenters objected to the proposed project on the basis that issuing a lease for aquaculture is, fundamentally, “privatization of 1,484 acres of a natural public resource for private economic gain.”

This is fundamentally a state issue. The State holds title to, and governs over, tidal lands under navigable waters out to outer continental shelf. These lands are held in trust for the public and this title, as is necessary, carries with it stewardship of waters within the State boundary. The public trust doctrine allows for state management of such waters and lands, such that they may be used to the benefit of all, and that grant or lease of such lands is only limited by the caveat that such leases must ultimately provide for a benefit to a significant portion of the public.

The State of Connecticut Department of Agriculture has been leasing shellfish grounds for over 100 years. Oysters are farmed, through the use of the bottom culture method, by at least 32 firms in Long Island Sound. The largest shellfish leaseholder in the State of Connecticut holds approximately 20,000 water acres. The shellfish, as they move through the wholesale and retail markets, generate considerable revenue, provide jobs, and benefit both recreation and tourism. One particular benefit from private leases is the encouragement to private interests to plant and cultivate oysters, thereby, making them more abundant in state waters. In addition, almost all of the town-managed recreational shellfish programs in

Connecticut have been assisted by the oyster industry through shellfish restocking programs and recreational harvest opportunities.

(16) Cumulative impacts – Several commenters asserted that issuance of a permit for the proposed aquaculture activity would effectively, over time, reduce the measure of waters held in public trust for traditional maritime uses such as navigation, fisheries, recreation, and passive enjoyment.

As discussed above, it is the state's responsibility to determine whether submerged lands and waters provide greater benefit to the public as a freely or privately managed unit. In consideration of the proposed aquaculture activity, it is the Corps' determination that issuance of a permit for the partial build option, identified above, would not be precedent setting and is not likely to result in reasonably foreseeable adverse cumulative and additive impact on the aquatic environment or use of navigable waters. Corps project evaluation ensures that each application we receive is reviewed on its own merits and circumstances.

It is a special condition of the permit that the applicant shall develop and implement an environmental monitoring program to ensure that there is no irreversible or unacceptable adverse impact to benthic habitat as a result of the installation and operation of the aquaculture gear. Provision is also incorporated into the permit for mitigation of adverse impacts, should they be identified in the course of the environmental monitoring program.

Finally, if review of the environmental monitoring data or other information comes to light that identifies a likelihood that the aquaculture project will result in a reasonably foreseeable adverse impact, either individually or cumulatively, to a factor of public interest, such as navigation, public safety, water quality, or fish habitat, the Corps of Engineers New England District may suspend, revoke or modify the permit.

c. Summary of Evaluation:

The permitted project is the result of modification and reconfiguration of the original proposal to minimize and avoid conflicts with, or impacts to, valuable recreational fishery areas, mooring fields, navigation and recreational boat use, other recreational uses including swimming and public access, fish habitat, submerged aquatic vegetation and commercial fishery areas.

Except in the surface area actually occupied by the long line equipment (approximately 50.78 acres of 124.59 acres), these activities may continue unimpeded. Also, design modification incorporated into the proposed project, and inclusion of permit conditions will reduce the impediment potential of the equipment. Specifically, the requirement for maintenance of the equipment a minimum of 10' below the water surface (MLW) helps ensure that vessels drawing less than 8 feet of water are not likely to be physically obstructed. Only larger deep draft vessels, which actually make up a very small percentage of vessels transiting the area, are likely to be physically impeded. The proposed marking arrangement, alternating long line configuration and spacing of the proposed gear also provides additional clearance for small motor craft to effectively traverse through the area.

There will be no impact to special aquatic resources including intertidal mudflats, tidal wetlands, beaches, islands or vegetated shallows. The project will not affect any areas of cultural interest,

and will not affect U.S. Coast Guard mission-essential tasks including search and rescue, boating safety and aids to navigation. Although the on-bottom cages will impact colonial benthic organisms, the impact to these organisms is expected to be minimal because the cages themselves will only cover a small total area of the substrate within the authorized aquaculture perimeter (0.67 acres/29,150 sf). The project is “not likely to adversely affect” federally listed, threatened or endangered species. Essential Fish Habitat conservation recommendations have been included as special conditions to this permit to prevent potential negative impacts to listed fish species.

The use of all but one (Ragsdale Ram Island Shoal) of the subject sites for a commercial shellfish enterprise is consistent with historical uses, regardless of the deployment/use of non-traditional rearing devices. State and federal coastal policy specifically encourages and promotes use of such areas for commercial shellfishing activities, including aquaculture. The purpose of the State of Connecticut Department of Agriculture’s coastal shellfish ground lease program in Long Island Sound and Fishers Island Sound is to provide for the development of a shellfish culture industry in the State of Connecticut. The allocation of space for shellfish aquaculture, a water dependent activity, is consistent with the goal to balance the many competing water-dependent uses of Long Island Sound.

Finally, the project will provide substantial benefits including:

- The addition of benthic structure and access to additional sources of forage for fishery resources.
- A source of shellfish seed to enhance natural beds.
- Work for associated local and regional support and distribution industries.
- Economic benefit to the Town of Stonington and the state economy.
- Help meet National goals to offset over-harvest and implement sustainable fishery.

f. Public Hearing Request: All requests for a public hearing, as stated in 9 (b)(v) above have been reviewed and evaluated. A public hearing was convened on June 25, 2001. A transcript was produced and is included the Corps administrative record as Attachment 15. All comments have been fully considered.

g. The EPA regulations published as "General Conformity Rule" (58 FR 63214, November 30, 1993) to implement section 176(c) of the Clean Air Act for non-attainment areas and maintenance areas require that Federal actions, unless exempt, conform with the Federally approved state implementation plan. The impacts on air quality associated with the regulated activity described in this EA/SOF, work in or affecting navigable waters of the U.S. (Section 10 of the Rivers and Harbors Act) have been considered and will not exceed de minimus levels of direct emissions of a criteria pollutant or its precursor, and are exempted by 40 CFR Part 93.153. Any later indirect emissions are generally not within the Corps continuing program responsibilities, and generally cannot be practicably controlled by the Corps. Therefore, a conformity determination is not required.

h. I find that based on the evaluation of environmental effects discussed in this document, the decision on this application is not a major federal action significantly affecting the quality of the human environment. Hence, an environmental impact statement is not required.

i. I have considered all factors relevant to this proposal including cumulative effects. Potential factors included conservation, economics, esthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, consideration of property ownership and, in general, the needs and welfare of the people. After weighing favorable and unfavorable effects as discussed in this document, I find that this project is not contrary to the public interest and that a Department of the Army permit should be issued.

DISTRICT ENGINEER

DATE