STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION

July 29, 2003

Mr. Gene H. Muhlherr, Jr.
Islander East Pipeline Company, LLC
454 East Main Street, Route 1
Branford, CT 06405

RE: Islander East Pipeline Company, LLC, Federal Consistency Remand
FERC Docket No. CP01-384-000, et al.
ACOE Application No. 200103091

Dear Mr. Muhlherr:

I am writing in response to the June 2, 2003 letter from James R. Walpole of the National Oceanic and Atmospheric Administration ("NOAA") Office of the General Counsel. By means of Mr. Walpole's letter and pursuant to 15 CFR §930.129(d), the United States Department of Commerce ("Commerce") remanded the above-referenced proceeding to the State of Connecticut Department of Environmental Protection ("Department") for reevaluation of the project's consistency with the enforceable policies of Connecticut's federally-approved Coastal Zone Management Program ("CZMP"). The Department has considered the project revisions formally proposed by Islander East Pipeline Company, LLC ("Islander East") in two letters dated March 13, 2003 from Gene Muhlherr to Charles Evans and March 27, 2003 from Joseph Reinneman to Susan Jacobson.

A. HISTORY

In 2001, Islander East Pipeline Company, LLC ("Islander East") submitted applications to the Federal Energy Regulatory Commission ("FERC") and the U.S. Army Corps of Engineers ("ACOE") to authorize construction of a natural gas transmission pipeline system through the Connecticut municipalities of Cheshire, North Haven, East Haven, North Branford and Branford and across Long Island Sound from Branford, CT to Long Island, NY.

Islander East submitted a request to FERC for a Certificate of Public Convenience and Necessity (Docket No. CP01-384-000, et al.) under section 7(c) of the Natural Gas Act and submitted a permit application to the ACOE pursuant to Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act (Application No. 200103091). In response to these applications and pursuant to Section 307 of the Coastal Zone Management Act of 1972, as amended, Subpart D of 15 CFR §930, the Department in 2002 conducted a review of the proposed activities which require federal licenses or permits to be reviewed for consistency with the enforceable policies of the State's federally-approved CZMP. On October 15, 2002, the Department issued an objection to Islander East's consistency certification statement regarding both the FERC certificate and the ACOE permits pursuant to 15 CFR §930.63.

On November 14, 2002, Islander East appealed to the Secretary of Commerce ("Secretary") pursuant to 15 CFR §930, subpart H, to override this objection. While the appeal was pending with the Secretary, the Department met on numerous occasions[1] with Islander East along with federal and state resource agencies. The goal of these meetings was to discuss alternatives which could reduce the environmental impacts of the proposed work. While Islander East mainly focused on construction methodology modifications, the Department continued to express a desire for Islander East to evaluate alternative pipeline locations. To allow these discussions to continue, the Department and Islander East agreed to a

[1] Meeting dates: January 7, 2003, February 3, 2003, February 27, 2003, March 4, 2003, and April 15, 2003.

stay of the appeal with the Secretary until July 31, 2003, pursuant to 15 CFR §930.129(c). By letters dated March 13, 2003 and March 27, 2003, Islander East submitted a revised proposal which is discussed below. As indicated above in the Secretary's June 2, 2003 letter, the matter was remanded to the Department for reconsideration of its federal consistency determination in light of these proposed project modifications.

B. FEDERAL CONSISTENCY DETERMINATION

Islander East modified the proposed scope of work by making the following changes to the work proposal: (1) reducing the total number of passes of the lay barge; (2) changing the manner in which the sediment excavated from the dredged section would be disposed of – from sidecasting to offshore disposal; (3) changing the material which would be used in backfilling the dredged trench – from native material to stone. See Appendix A for a list of the most recent application modifications. Since Commerce has characterized these changes as "significant new information" introduced by Islander East[2], the Department has agreed to formally review these modifications. The new information, as referenced by Commerce, includes information that was developed and submitted subsequent to the Department's federal consistency objection dated October 15, 2002. The June 2, 2003 letter also indicated that Commerce had denied Islander East's request to include within the purview of the remand, information not yet received by the Department at the time of Islander East's May 15, 2003 letter requesting the remand. While the modifications which constitute the "significant new information" were provided to the Department in letters dated March 13, 2003 and March 27, 2003, the Department has received additional correspondence from Islander East in support of its application. Despite the short time frames imposed, the Department has chosen to review all pertinent information and modifications received to date[3], including the information received on May 28, 2003 in response to a Department request to Islander East for additional information regarding the pending 401 Water Quality Certificate and state permit applications.

The Islander East federal consistency file including all supporting information submitted to the Department was evaluated in light of the enforceable policies of the State of Connecticut's federally-approved coastal zone management program. **Based on this review, the Department has determined that the activities as proposed by Islander East in the proposed location would cause significant adverse impacts to coastal resources and water-dependent uses and would, therefore, be inconsistent with the enforceable policies of the Connecticut CZMP. Accordingly, the Department hereby objects to Islander East's consistency certification in accordance with 15 CFR §930.63(b).**

The following discussion provides the basis for the Department's finding that the proposed activity is inconsistent with the specific enforceable policies despite the project revisions and additional supporting information. While Islander East has made some effort to reduce adverse environmental impacts subsequent to the October 15, 2002 determination by the Department, the incorporation of the revised construction methodologies in an alternative location which has less significant resource and use conflicts would substantially increase the feasibility of developing an acceptable proposal for a pipeline crossing of Long Island Sound. To this end, as allowed under 15 CFR §930.63(b), the Department has provided guidance which would enable Islander East to develop a feasible and prudent alternative which, if adopted by the applicant, would permit the proposed activity to be conducted in a manner consistent with the state's enforceable policies. These are discussed in the "Alternatives" section, below.

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[2] James R. Walpole letter dated June 2, 2003.

[3] See Appendix B for dates of modifications to the Islander East proposal and additional supporting information submitted by Islander East since Connecticut's Federal Consistency objection of October 15, 2002.

C. NATURAL FEATURES

In order to understand the potential adverse impacts of this project as currently designed and proposed to be sited, it is imperative to consider the diversity of geological and biological features in close proximity to the proposed work corridor. The Thimble Islands are situated within the nearshore waters of the Town of Branford. Many of the larger islands are east of the work corridor but several exposed rock outcroppings are located to the west, so this work corridor extends through the center of the Thimble Islands complex. The Thimble Islands consist of a total of 141 islands and exposed rock outcroppings creating a total of 15 miles of coastline[4] within 6.2 linear miles. This hummocky topography formed of bedrock is found nowhere else in Long Island Sound.

The geological uniqueness of this island and rocky outcrop complex is only rivaled by the natural diversity it provides. The Thimble Islands typically emerge from relatively shallow waters, approximately 30' deep. In addition to this significant area of shallow water-land interface where biological diversity is the most rich and productive, this area hosts unique subtidal conditions including submerged rock reefs and a diversity of benthic habitats which range from soft mud to compacted sand and gravel. Each of these habitat types supports a complex community of sessile organisms, epifauna and infauna, each in their own way critical to the overall health and rich diversity of the surrounding marine ecosystem. These benthic features also include varying types of substrates, each of which creates robust shellfishing grounds suitable for hard clams, soft clams and oysters. This area is generally recognized as important colonial waterbird nesting habitat[5], a waterfowl wintering area[6], and one of only four primary seal haul-out areas in the State[7]. This productive region currently supports 3 full-time commercial lobstermen and 14 licensed shellfishermen as well as numerous recreational fishermen[8]. Historically, the area supported as many as 5 commercial lobstermen with 15 other part-time lobstermen also fishing the area at one time or another.

The Thimble Islands region has been recognized by the U.S. Fish and Wildlife Service as a significant habitat complex in need of protection and has been incorporated into a larger New Haven Harbor Complex in the Northeast Coastal Areas Study: Significant Coastal Habitats of Southern New England and Portions of Long Island, New York. This 1991 report, the relevant portion of which is submitted in Appendix C, was prepared for the U.S. House of Representatives and U.S. Senate Committees on Appropriations to identify those areas in southern New England and Long Island in need of protection for fish and wildlife habitat and the preservation of natural diversity.

D. DISCUSSION OF ENFORCEABLE POLICIES AND ADVERSE IMPACTS

Due to the extensive and geographically wide-ranging scope of the proposed work, a number of the enforceable policies of the State's CZMP are applicable. The coastal resources which are in close proximity to the proposed work include: coastal waters, nearshore waters, offshore waters, islands, rocky shorefront, shellfish concentration areas, tidal wetlands, and general resources, as defined in Connecticut General Statutes (CGS) section 22a-93(7). Each of these resources is associated with a set of corresponding resource policies that are enforceable policies of Connecticut's CZMP, CGS section 22a-92. In addition, specific coastal resource use policies (CGS section 22a-92) and adverse impacts (CGS section 22a-93(15)) are identified in the Connecticut CZMP and must be used in conjunction with the

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[4] Total coastline was measured through use of Geographic Information System by measuring total perimeter of all island features within the town boundary.
[5] Information provided by CTDEP Colonial Waterbird Database.
[6] Information provided by Min Huang, CTDEP Wildlife Division and Jack Barclay, University of Connecticut.
[7] Information provided by Amy Ferlund, The Maritime Aquarium at Norwalk.
[8] Information provided by Mark Johnson, CTDEP Fisheries and David Carey, CT Dept. of Ag, Bureau of Aquaculture.

applicable resource policies. Appendix D provides a summary of the major policies applicable to the proposal and is appended hereto.

Based on a review of the application for consistency with the enforceable policies of Connecticut's CZMP, the Department has determined that the proposed work would cause significant adverse environmental impacts on coastal resources and would be inconsistent with the enforceable policies of the Connecticut CZMP. The proposed project will degrade water quality through the significant introduction of suspended solids; and degrade, irrevocably alter and permanently destroy essential shellfish habitat through alteration of the benthic environment. The siting of the non-water dependent pipeline through prime shellfish habitat would cause a permanent adverse impact to a water-dependent use by displacing a water-dependent use, shellfishing, with a non-water dependent use, natural gas transmission. Also, the proposed project will adversely impact tidal wetlands. In addition, the siting of this energy facility, while a national interest facility and resource as defined in the Connecticut CZMP, is inconsistent with the Connecticut CZMP because of the environmental impacts associated with the installation of the pipeline in this location. These significant adverse impacts and inconsistencies with the Connecticut CZMP are further expanded upon below.

1. PROTECTION OF WATER QUALITY

As discussed above, the Thimble Islands are located in Long Island Sound's Central Basin. In general, this area meets the Long Island Sound Study[9] interim management goal for bottom water dissolved oxygen, usually with dissolved oxygen concentrations that are excellent and fully supportive of marine life. The water quality supports "Shellfish Growing Areas" as designated by the Department of Agriculture in accordance with the National Shellfish Sanitation Program to meet the requirements of the U.S. Food and Drug Administration. The majority of the area around the Thimbles[10] is classified as "Approved" for direct harvest. This designation, which is the most difficult to achieve, recognizes that the water is of sufficiently high quality to allow for direct consumption of shellfish from these beds without the requirement for relocation and depuration of shellfish harvest prior to human consumption.

Suspended Sediment

As a result of the most recent proposed construction methodology modifications, Islander East has made substantial improvements in reducing a significant source of potential sedimentation associated with pipeline installation. Sedimentation associated with the mounding of sediments in shallow water would be particularly devastating to the Thimble Islands region. Yet, despite the reduction of sediment mounding in a one mile section of the installation route, there will still be significant adverse impacts on water quality through sediment suspension and on benthic organisms and their habitat as a result of plowing for approximately 8.9 miles with the subsequent mounding of backfill material and the dredging of approximately 24,000 to 30,000 cubic yards of sediment and placement of backfill. As previously discussed in our October 15, 2002 objection, a severe storm on March 23, 1991 partially filled an open trench and dispersed sediment up to 3280' during the installation of the Iroquois Gas Transmission System ("Iroquois") pipeline off the Milford shoreline. Suspended sediment in the water column remained elevated during the four days including and just after the storm event with a mass approximately 65% higher than that suspended during normal dredging operations[11]. The longer-term impacts of a similar event in the Thimbles Islands region would be particularly devastating to its overall natural

[9] Initiated in 1985, the Long Island Sound Study (LISS) is a partnership of federal, state, and local governments agencies, private organizations and citizens formed to develop and implement a comprehensive conservation and management plan for Long Island Sound. Funding support for the LISS is provided by the Environmental Protection Agency through the National Estuary Program and by the states of Connecticut and New York.

[10] See Appendix E for a Shellfish Area Classification map of the Thimbles region.

[11] An Investigation of Sedimentation Induced by Gas Pipeline Laying Operations in the Vicinity of the Oyster Bed Lease Areas, Milford, Connecticut. Final Report. March 17, 1992. Frank Bohlen, D. Cohen, K.H. Strobel.

diversity discussed above and degrade the overall health and productivity of the shellfish beds in this high quality area.

Bentonite Releases

The DEP's experience with the horizontal directional drilling (HDD) methodology for marine and coastal projects undertaken in Connecticut is that bentonite (drilling fluid) releases occur in at least 50 percent of the projects. It should be noted that this statistic is based on *reported* releases. These releases typically occur as "frac-outs", the industry's term to describe an incident when the drilling fluid is released from the drill path under high pressure causing the drilling fluid to be discharged from the drill path. Frac-outs are most common when the drilling operation moves from one geological substrate type and enters another (e.g. from rock to sand). When bentonite is released into the water column, it forms a thick gel-like layer on the benthic surface smothering non-motile benthic organisms such as shellfish. Approximately one half, or 2000 linear feet, of the proposed HDD corridor will occur under locally-managed shellfish lease beds, making them directly susceptible to damage from frac-outs and associated benthic mortality.

Of particular concern regarding the use of HDD in the Thimble Islands region is the occurrence of bedrock outcroppings and unique geological features which further increase the potential for frac-outs. As mentioned above, the Thimble Islands are composed of 141 islands and rock outcroppings and it is anticipated that the subsurface area is composed of the same variable geological features. Though the applicant has yet to provide the Department with a detailed subsurface data analysis of the HDD corridor, we can anticipate numerous construction-related problems utilizing the HDD methodology which could result in significant adverse impacts on water quality, marine organisms, and shellfish resources in this generally high-quality marine environment.

In light of the significant coastal resources in the vicinity of the proposed work, the anticipated levels of suspended sediments are unacceptable and the likely possibility for a bentonite release would be catastrophic to those beds potentially affected. As such, the Department finds that this activity would likely create a significant adverse impact to water quality inconsistent with the enforceable policies of the CZMP under the following definition:

> *"Degrading water quality through the significant introduction into either coastal waters or groundwater supplies of suspended solids, nutrients, toxics, heavy metals or pathogens, or through the significant alteration of temperature, pH, dissolved oxygen or salinity"* CGS §22a-93(15)(A).

Policy References: CGS section 22a-1 as referenced by CGS section 22a-92(a)(2); CGS section 22a(c)(2)(A); CGS section 22a-92(c)(1)(I); CGS section 22a-92(a)(1); CGS section 22a-359(a) as referenced by CGS section 22a-92(a)(2); CGS section 22a-92(a)(2); CGS section 22a-93(15)(A); and CGS section 22a-93(15)(G).

2. IMPACTS TO SHELLFISH AND SHELLFISH HABITAT

The diverse bottom habitats of the Thimble Islands support eastern oyster (*Crassostrea virginica*), hard clams (*Mercenaria mercenaria*), soft clams (*Mya arenaria*), blue mussels (*Mytilus edulis*), and channel whelk (*Busycon canaliculatum*). Oysters prefer oyster shell cultch/hash or a similar hard substrate; clams, a sand and/or silt soft bottom; mussels, hard substrate such as rocks; and whelks, sand. Pipeline installation would permanently alter the substrate. Once the habitat has been replaced, the naturally-occurring shellfish communities will be eliminated and will not likely reestablish in these areas. For

example, Connecticut experienced the loss of oyster habitat due to the installation of the Iroquois pipeline in 1991. This disturbed habitat has not recovered to date[12].

In the section of pipeline to be installed through trenching, existing clam habitat will be eliminated. The applicant's modified construction methodology includes a 130' x 310' HDD exit-pit and a 37' x 5520' trench which is proposed to be backfilled, at least in part, with bank-run gravel. It is anticipated that due to exposure, tidal action, and current velocity, any fine particles proposed to be placed in concert with the gravel will be scoured out of these areas leaving the larger 2" cobble. According to Islander East's own evaluation, it will not be possible to restore the original fine-grained cohesive sediments. Clams will no longer be able to move through the substrate. While the cobble may theoretically support oysters in this location, there will be a limited source of spat (oyster larvae) from the adjacent clam habitat, likely resulting in this area being of little actual value for oysters.

Pipeline installation, in both the trench and plow sections, would result in the direct disturbance of approximately 161,172,000 square feet (approximately 3,700 acres) of bottom habitat in Connecticut waters. This number includes the pipeline installation area as well as the corridor of anchor strike and cable sweep disturbance. This area of direct impact ranges from 2,400' to 4,000' wide from approximately Milepost 12 to the New York state border. The most recently proposed installation modifications for the one-mile section do not require the wide anchor corridor. However, in its currently proposed location, the actual pipeline installation would temporarily and in some locations, permanently and irreparably disturb reefs, rocky subtidal habitat of bedrock or glacial till composed of coarse sands, gravel and/or cobbles and a variety of substrate including soft mud of silt/clay and sandy/silt, hard sand, and deposits of shell hash[13]. A June 4, 2003 memo from William Hogarth to Brandon Blum[14] cites a recently conducted benthic profiling study for 1974 water line installation in the Hudson River which has yet to recover to its preconstruction condition. With such an anticipated long-term disturbance, shellfish resources which rely on the existing substrate would be severely degraded for an unknown period of time or completely destroyed.

In addition to direct disturbance of the bottom substrate, shellfish and shellfish habitat will also be impacted by elevated levels of suspended sediments resulting from benthic disturbance. Also, a potential frac-out in the drilling route directly under the shellfish resources could be catastrophic. As such, the Department finds that this activity would likely create a significant adverse impact to shellfish habitat inconsistent with the enforceable policies of the CZMP under the following definition:

> *"Degrading or destroying essential wildlife, finfish, or shellfish habitat through significant alteration of the composition, migration patterns, distribution, breeding or other population characteristics of the natural species or significant alterations of the natural components of the habitat"* CGS § 22a-93(15)(A).

Policy References: CGS section 22a-92(c)(2)(A); CGS section 22a-92(c)(1)(I); CGS section 22a-33 as referenced by CGS section 22a-92(a)(2); CGS section 22a-92(a)(1); CGS section 22a-359(a) as referenced by CGS section 22a-92(a)(2); CGS section 22a-383 as referenced by CGS section 22a-92(a)(2); CGS section 22a-1, as referenced by CGS section 22a-92(a)(2); CGS section 22a-93(17); CGS section 22a-93(15)(A); and CGS section 22a-93(15)(G).

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[12] Information provided by David Carey, CT Dept. of Ag, Bureau of Aquaculture

[13] Bottom Characterization Surveys of Selected Subtidal and Nearshore Environments Off Juniper Point. Final Report. January 2002. Peter Pellegrino, Ph.D.

[14] Appendix F. Memo is on file with the Secretary or Commerce

3. IMPACTS TO WATER-DEPENDENT USE

The pipeline, as proposed, is sited within and adjacent to extensive shellfish grants, leased shellfish grounds and public shellfish lands. Much of the submerged lands through the proposed route that are not currently leased are productive shellfish habitat and constitute a significant area for potential future expansion of the shellfish industry, an economically significant water-dependent use in Connecticut that is nationally recognized. Connecticut's shellfish industry produces the highest quality oysters in the United States. Despite a devastating blow to oyster production from MSX[15] in 1997, Connecticut was still ranked #2 on the East Coast for oyster market harvest in 2001. Also, in 2001, Connecticut was ranked #1 for hard clam production on the East Coast.

The most recent installation modifications using bank-run gravel as backfill would result in 5½ acres of nearshore bottom habitat being permanently altered and rendered unsuitable for commercial shellfishing because the cobble would interfere with harvesting techniques. Approximately 5 of these acres are in Town of Branford commercial lease beds. The area of impact to shellfish harvesting would extend, however, well beyond the 5 acres of direct disturbance. While the cobble-filled trench would be 37' wide, the area that the commercial harvesting equipment would need to avoid would be much wider because of the required turning radius.

Additionally, the resulting topographic irregularities over the entire 3,700-acre Islander East corridor caused by backfill with gravel, plow utilization, anchor strikes and cable sweeps may adversely affect the efficiency and safety of the operation and handling of harvesting equipment. The application materials indicate that it is the goal of the applicant to achieve a finished substrate equivalent to the adjacent benthic surface with a proposed acceptable tolerance of +2' to –1'. While the Department finds encouraging Islander East's desire to achieve a minimal post-construction impact, the agency remains skeptical that this minimal impact can, in fact, be achieved. Such a range in tolerance level would be insignificant in an area where shellfish resources were scarce or where traditional harvest shellfishing techniques were not employed. However, this area fits neither of those categories. Even in the unlikely event that the bottom could eventually reestablish its former grade and habitat value, shellfishermen would most likely avoid the area for fear of damaging or losing gear thereby exacerbating the adverse impacts on use of this area for water-dependent shellfishing activities resulting from Islander East's proposed alignment at this location.

The existing and future use of this area for recreational and commercial shellfish aquaculture, transplant, and harvest operations is, by definition, a water-dependent use. A water-dependent use is defined by statute as *"those uses and facilities which require direct access to, or location in, marine or tidal waters and which therefore cannot be located inland"*, CGS §22a-93(16). This Office is required to *"give high priority and preference to uses and facilities which are dependent upon proximity to the water or on the shorelands immediately adjacent to marine and tidal waters."* CGS §22a-92(a)(3). Natural gas transmission via pipeline is not a water dependant use because it can be located inland and does not require direct access to, or location in, marine or tidal waters. Therefore, the displacement or loss of shellfishing grounds and the opportunities that such grounds provide would constitute an adverse impact to water-dependent uses.

In light of the demonstrated use of the shellfishing areas within the zones of direct impact, indirect impact, and potential impact, the adverse impacts are unacceptable. As such, the Department finds that this activity would likely create a significant adverse impact inconsistent with the enforceable policies of the CZMP under the following definition:

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[15] MSX (multinucleated sphere unknown) is a single-cell parasite that invades the oyster's soft body, grows and divides within the tissue, and eventually overwhelms the normal metabolic processes in the shellfish resulting in death.

> *"'Adverse impacts on future water-dependent development opportunities' and 'adverse impacts on future water-dependent development activities' include but are not limited to (A) locating a non-water dependent use at a site that (i) is physically suited for a water-dependent use for which there is a reasonable demand or (ii) has been identified for a water-dependent use in the plan of development in the municipality or the zoning regulations; (B) replacement of a water-dependent use with a non-water-dependent use; and (C) siting of a non-water-dependent use which would substantially reduce or inhibit existing public access to marine or tidal waters"* - CGS §22a-93(17).

Policy References: CGS section 22a-359(a) as referenced by CGS section 22a-92(a)(2); CGS section 22a-92(c)(2)(A); CGS section 22a-92(c)(1)(I); CGS section 22a-92(a)(1); CGS section 22a-383 as referenced by CGS section 22a-92(a)(2); CGS section 22a-92(a)(3); CGS section 22a-92(b)(1)(A); CGS section 22a-93(17), and CGS section 22a-93(15)(G).

4. TIDAL WETLANDS

Pipeline installation will cause an impact to two tidal wetland areas. These areas are more specifically identified by the applicant as wetland CT-A37 and pond CT-A21. The wetland is approximately 0.68 acres and the pond, 0.25 acres. The applicant has submitted additional information[16] indicating that mitigation is possible for wetland CT-A37 by maintaining an existing, deteriorated pipe which will reintroduce tidal flow into the area.

The proposed draining of the pond and subsequent installation of the pipeline may, however, permanently degrade this wetland habitat and minimize its value as wildlife habitat. As such, the Department finds that this activity would likely create a significant adverse impact to tidal wetlands inconsistent with the enforceable policies of the CZMP under the following definition:

> "Degrading tidal wetlands, beaches and dunes, rocky shorefronts, and bluffs and escarpments through significant alteration of their natural characteristics or function" CGS §22a-93(15)(H).

Policy References: CGS section 22a-93(15)(H); CGS section 22a-92(b)(2)(E); CGS section 22a-33 as referenced by CGS section 22a-92(a)(2); CGS section 22a-92(a)(1); CGS section 22a-1, as referenced by CGS section 22a-92(a)(2); and CGS section 22a-93(15)(G).

5. NATIONAL INTEREST FACILITIES AND RESOURCES

Energy facilities are, by definition in CGS section 22a-93(14), facilities and resources which are in the national interest. However, each energy facility must still conform to all appropriate statutory standards. Given the significant adverse impacts to coastal resources discussed above, the proposed pipeline in this location has not been properly planned and controlled and, if installed, will adversely affect the quality of the environment in a manner inconsistent with the provisions of CGS section 16-50g. *Further, the Connecticut CZMP also defines facilities and resources which are in the national interest to include the protection of tidal wetlands and the restoration or enhancement of Connecticut's shellfish industry on an equal footing with energy facilities.* This particular pipeline proposal by Islander East is inconsistent with the Connecticut CZMP because it does not meet applicable state environmental standards as discussed above. (See CGS section 16-50g, and CGS section 22a-92(a)(10).)

In addition, we have also been advised that the "need" for natural gas on Long Island is questionable.[17] Although project need is not an issue before the Department in the current proceeding, this issue is

[16] Appendix G. Additional information was submitted with cover letter dated May 27, 2003.
[17] Appendix H. Letter dated July 9, 2003 from Attorney General Richard Blumenthal to Charles Evans.

relevant and germane to any determination made by the Secretary of Commerce regarding a request to override a state's Federal Consistency Certification.

E. ALTERNATIVES

In light of the significant adverse impacts of the proposed route and the inconsistencies with the enforceable policies of the CZMP, the Department has considered project alternatives and siting criteria which may avoid or minimize such adverse impacts. The proposal to install the pipeline in this location is unacceptable due to the adverse impacts to coastal resources as discussed above. The applicant should seek alternative designs and sites which could qualitatively and quantitatively reduce such impacts.

One such alternative, the ELI System Alternative, was previously noted in the Department's October 15, 2002 letter to Islander East. Staff have reviewed FERC's Final Environmental Impact Statement (FEIS), FERC/EIS-0143F dated August 2002. While the FEIS is problematic for a number of reasons, some of which are enumerated in the U.S. Environmental Protection Agency letter dated September 30, 2002 from Robert Varney to Magalie Salas, it does provide an alternative analysis. The FEIS describes in section 4.2.1 an option entitled "ELI System Alternative" which appears feasible, as it would meet essentially the same energy needs while eliminating some of the anticipated adverse impacts altogether and reducing others.

Specifically, the ELI System Alternative consists of an extension stemming from the Iroquois pipeline which is currently in place from Milford, CT to Northport, NY. By tapping into an existing pipeline at an offshore location, all nearshore impacts are eliminated. The FEIS indicates that this alternative, while providing a similar level of gas availability to Long Island, would minimize installation impacts by reducing the overall length of new pipe by 5.5 miles, and cross approximately 5205 fewer feet of shellfish leases. In short, concurring with our finding, the FEIS reads:

> "Based on our environmental analysis, the ELI System Alternative is environmentally preferable to the proposed route because it reduces onshore and offshore impacts, except for emissions."

Islander East has repeatedly chosen to dismiss this option by saying, most recently, that the proposal was withdrawn by the applicant. At first glance, this withdrawal would appear to render this alternative infeasible, yet, closer scrutiny reveals just the opposite. Since the original applicant has withdrawn their proposal to construct a pipeline in this manner, it becomes an *available* option for Islander East, and a more favorable one with respect to consistency with Connecticut's federally approved CZMP.

Even if, as Islander East now argues, the above-referenced ELI option does not meet the project purpose for an additional separate gas line to Long Island, there are a host of viable alternative locations, that, if fully explored, would likely reveal a site that both meets the project purpose and is acceptable with respect to Connecticut CZMP consistency. The proposed pipeline's siting through one of the most unique, productive and diverse habitat complexes along the Connecticut shore would have significant adverse impacts that are inconsistent with the enforceable policies of the CZMP. While pipeline construction is not inherently inconsistent with the CZMP, the siting of it in this location is. In sum, the Department is charged with ensuring that only that alternative with the least environmental impact is utilized. In the interest of protecting sensitive coastal resources and finding any project consistent with the CZMP, the only acceptable alternative must combine *both* the least invasive construction techniques with the most appropriate siting of the facility.

The Department has asked the applicant for alternatives analysis information on numerous occasions, most recently in a letter dated May 5, 2003[18]. One of the most significant informational gaps which

[18] Appendix I

remain outstanding is an analysis of such project location alternatives. Islander East, however, has declined to provide this information to the Department beyond the more limited analysis developed for the FERC Environmental Impact Statement. Please see Islander East's response letter dated May 27, 2003 submitted as Appendix G.

While the applicant has developed and proposed alternative construction methodologies for the proposed alignment which would somewhat reduce the potential adverse environmental impacts at any chosen location, Islander East contends that FERC has certified the proposed route and it is not the Department's responsibility to conduct an alternatives analysis to determine which route has the least environmental impact or is most consistent with Connecticut's CZMP. The Department recognizes that the proposed route is the one for which FERC has, in our opinion provided its Certificate inappropriately and contrary to Federal law[19]. An alternative route with less impact may also be found acceptable by FERC if so reapplied for by Islander East Pipeline Company, LLC. It is the responsibility of the applicant to fully evaluate alternatives as a part of the Federal Consistency Review process and demonstrate that there are no feasible alternate alignments that could further minimize adverse impacts on Connecticut's coastal resources and water-dependent uses. The Department can only find the alternative with the least impact consistent with the CZMP.

The Department advises that the applicant consider alternative alignments across Long Island Sound that would take maximum advantage of existing subtidal conditions. These include corridor locations and alignments:

> which are in or adjacent to existing gas, electric or telecommunication lines in areas which have been previously disturbed;
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> which make use of dredged or maintained channels in the nearshore area;
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> which are devoid of concentrated shellfish habitat, populations or harvesting operations;
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> in which benthic diversity is low such as the commonly occurring open expanses of homogenous fine/sandy substrate that is low in species abundance and diversity and which, if conducted in a dynamic area, could quickly reestablish itself; and
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> which pass through areas of degraded water-quality where impacts of temporary suspended sediments may be less of a deviation from the ambient water-quality conditions.

Areas which meet such characteristics and criteria do exist across and along Long Island Sound.

F. OUTSTANDING APPLICATION MATERIAL

The Department has made a good faith effort to work with Islander East to complete the application package. However, due in part to the wide scope of work, the frequent revisions to the proposal, and the unwillingness of Islander East to allow the various state regulatory processes applicable to this project to be conducted concurrently as one process, the following necessary information has yet to be provided to the Department or, to our knowledge, the federal licensing agencies. This missing information together with the insufficient alternative analysis necessarily render the various pending applications including this request for Federal Consistency Certification incomplete.

[19] State of Connecticut ex rel. Blumenthal v. FERC, No. 03-1066; Arthur J. Rocque v. FERC, No. 03-1075 (United States Court of Appeals for the District of Columbia Circuit).

HDD monitoring and operations plan – In Islander East's May 28, 2003 submission[20], it was indicated that the Department would receive a draft plan entitled *Directional Drilling Monitoring and Operations Program* by May 30, 2003. No such plan has been received by the Department to date. Such a plan would provide protocols for response and mitigation in the event that a frac-out occurred during drilling operations.

HDD failure contingency plan – The Department has yet to receive a contingency plan or alternate methodology in the event that the use of the HDD methodology became impractical due to site conditions. The Department must presume that Islander East has considered this prospect and has developed a contingency plan to connect the offshore portion of the work with the upland pipeline in the event that HDD is not employed. Being a newer technology, the Department is aware that unusual or unanticipated subsurface circumstances could very possibly reduce the length of, or altogether preclude, HDD use in the nearshore area. Any alternative methodology being contemplated as a back-up approach would need to be fully evaluated as a part of the Federal Consistency Review of this project.

The most probable contingency plan for this event would likely entail an excavated or dredged channel between shore and the 4000' mark offshore. Employment of this methodology would be catastrophic to the nearshore shellfishery since these are existing, worked shellfish beds, through which the trench would have to be cut. This work would go directly through four beds under the jurisdiction of the Town of Branford Shellfish Commission. Trenching through this area would be particularly devastating since additional dredging in the shallow waters would have to occur just to allow shallow water access for the deeper-draft work barges.

Additionally, a pipeline installed in this location through trenching would temporarily impede navigation into a commercial quarry operation (Tilcon) and permanently become a safety concern. Obviously, no discussions have occurred regarding the burial depth or type of pipeline cover for this alternative. A shallow burial depth would expose the pipeline to damage from anchors belonging to heavy rock-laden barges which regularly access the Tilcon site and other catastrophes such as the January 2003 overturned barge described in Appendix J.

ACOE application modifications pursuant to the Ocean Dumping Act - The most recent modifications call for dredging and the open water disposal of 24,000 to 30,000 cubic yards of sediment. The Marine Protection, Research and Sanctuaries Act (MPRSA 33U.S.C. Sec. 1401 et seq.), as amended, specifically requires that all projects disposing of 25,000 cubic yards or greater must be evaluated to determine the potential environmental impact of such activities and must be authorized by the ACOE, an action also subject to prior Federal Consistency Review under this proceeding. This authorization is subject to U.S. Environmental Protection Agency review and concurrence. Environmental evaluations must be conducted in accordance with the requirements and criteria promulgated in Title 40, Code of Federal Regulations, Parts 220-228 (40 CFR 220-228). The Department is not aware of any detailed revisions to the pending ACOE application for such authorization. Further, no consideration of dredging or disposal has been made in regard to the potential contingency plan in the event that HDD fails.

G. NOTIFICATION

In accordance with 15 CFR §930.63(e), the Department's objection includes the following statement:

> Pursuant to 15 CFR §930, subpart H, and within 30 days from receipt of this letter, you may request that the Secretary of Commerce override this objection. In order to grant an override request, the Secretary must find that the activity is consistent with the objectives or purposes of the Coastal Zone Management Act, or is necessary in the interest of

[20] Appendix G.

national security. A copy of the request and supporting information must be sent to the Connecticut management program and the federal permitting or licensing agencies. The Secretary may collect fees from you for administering and processing your request.

Should the applicant wish to discuss other less environmentally damaging alternatives to the proposed pipeline alignment, I will make appropriate staff available for such discussions at the earliest mutually agreeable opportunity. If you have any questions regarding the information provided herein, please contact Mr. Charles Evans, Director of the Office of Long Island Sound Programs, at (860) 424-3034

Sincerely,

Arthur J. Rocque, Jr
Commissioner

AJR/PBF/slj/che

cc: Colonel Thomas L. Koning, US Army Corps of Engineers
Magalie Salas, Federal Energy Regulatory Commission
Douglas Brown, NOAA/Office of Ocean and Coastal Resource Management
David Kaiser, NOAA/Office of Ocean and Coastal Resource Management
Bill O'Beirne, NOAA/Office of Ocean and Coastal Resource Management
Richard Blumenthal, Connecticut Attorney General
Joseph C. Reinemann, Islander East, LLC
Robert Varney, EPA Regional Administrator, Region 1

APPENDIX A

Application Modifications

APPENDIX A

Application Modifications

ORIGINAL PROPOSAL ↓	REVISED PROPOSAL ↓
Wetlands	
placement of an at-grade 24" diameter pipeline within a number of small wetland areas, both inland and tidal	no changes
Pipeline Installation: Horizontal Directional Drill Methodology	
installation of a sub-grade 24" diameter pipeline at Juniper Point utilizing the horizontal directional drilling (HDD) method to a point approximately 3500 feet offshore in Long Island Sound	no changes
Exit Pit Details	
excavation by clamshell bucket of a an HDD exit-pit: • 20' deep x 250' wide x 300' long • sidecasting/stockpiling of such sediment within a 65' area on three sides of such pit	excavation by clamshell bucket of an HDD exit pit: • 18' deep x 130' wide x 310' long • removal of 6,000 cubic yards of sediment to be disposed of at an open water disposal site • backfill a portion of the HDD exit hole with approximately 3,000 cubic yards of material from the dredge trench and approximately 3,000 cubic yards of material to be determined (probably bank-run gravel)
Spoil Mound Warning Signage	
installation of illuminated navigation warning signage placed atop temporary timber piles along the route where sediment is stockpiled below the waterline	eliminated

Pipeline Installation: Trench Methodology	
installation of a sub-grade 24" diameter pipeline by excavating with a clamshell bucket from the HDD exit-pit to a location at approximately milepost 12 to create a trench: • 5' deep x 50' wide x 5808' long • sidecast and stockpile sediments in mounds which extend over 60' in both directions from the trench • pipe burial depth 3' • backfill by plowing sidecast material back into the trench	installation of a sub-grade 24" diameter pipeline by excavating with a clamshell bucket from the HDD exit-pit to a location at approximately milepost 12 to create a trench: • 5' deep x 37' wide x 5520' long • removal of approximately 18,000 cubic yards of sediment to be disposed of at an open water disposal site • pipe burial depth 18" • backfill with new material consisting of bank run gravel
Pipeline Installation: Plow Methodology	
installation of a sub-grade 24" diameter pipeline by utilizing a sub-sea plow for approximately 9 miles from milepost 12 to the state line between Connecticut and New York to create a trench: • 5' deep trench x 25' wide at the top of slope • sidecasts sediment mounds approximately 25' wide on either side • four subsea plow passes • anchor strike and cable sweep impact area in CT water is 1,331 acres	installation of a sub-grade 24" diameter pipeline by utilizing a sub-sea plow for approximately 9 miles from milepost 12 to the state line between Connecticut and New York to create a trench: • 5' deep trench x 25' wide at the top of slope • sidecasts sediment mounds approximately 25' wide on either side • three subsea plow passes • anchor strike and cable sweep impact area in CT water is 1,107 acres
Temporary Mooring Structures	
none identified	installation of four temporary mooring piles at the HDD exit hole

APPENDIX B

Correspondence Receipt Dates

APPENDIX B

Correspondence Receipt Dates

February 3, 2003 – At a technical working meeting (requested by Islander for all agencies), Islander introduced conceptual material for reduced lay barge passes, depth cover reduction from 3' to 18" and disposal of spoils rather than mounding.

February 20, 2003 – Islander formally submits revisions to WQC application for reduced lay barge passes, depth cover reduction from 3' to 18" and disposal of spoils rather than mounding.

March 14, 2003 – Department receives letter dated March 13, 2003. Islander withdraws WQC application and submits new one, including project modifications. In a separate submission, Islander submits the same project modifications to TW/SDF application for reduced lay barge passes, depth cover reduction from 3' to 18" and disposal of spoils rather than mounding.

March 18, 2003 – Islander submits lobster stakeholder data requested by Mark Johnson.

March 20, 2003 – DEP meets with Islander to discuss application revisions and review timeframes. Submit revised WQC application pages.

March 28, 2003 – Department receives letter dated March 27, 2003. Islander submits Engineered Backfill Plan

April 30, 2003 – Islander submits revised offshore maps

May 1, 2003 – Islander submits additional technical info requested at March 4 meeting regarding alternative technologies to reduce anchor impacts.

May 28, 2003 – Islander submits additional info (without alternatives analysis information) requested in May 5, 2003 letter from DEP.

June 20, 2003 – Islander submits dredging information requested by DEP in May 30, 2003 e-mail.

APPENDIX C

Northeast Coastal Areas Study:
Significant Coastal Habitats
Of Southern New England
And Portions of Long Island, New York

Press image to start

FINAL REPORT

NORTHEAST COASTAL AREAS STUDY

SIGNIFICANT COASTAL HABITATS

OF SOUTHERN NEW ENGLAND

AND PORTIONS OF LONG ISLAND, NEW YORK

Submitted to

U.S. HOUSE OF REPRESENTATIVES

COMMITTEE ON APPROPRIATIONS

AND

U.S. SENATE

COMMITTEE ON APPROPRIATIONS

August 1991

PREPARED BY:

U.S. FISH AND WILDLIFE SERVICE
Southern New England - Long Island Sound Coastal and Estuary Office
Box 307
Charlestown, Rhode Island 02813

TABLE OF CONTENTS

12. Noyack Bay Beaches
13. Cow Neck Complex
14. Flanders Bay Wetlands Complex
15. Moriches Bay
16. Great South Bay
17. South Oyster Bay
18. Hempstead Bay (East, Middle, West Bays)
19. Harbor Herons Rookery Complex
20. Norwalk Islands and Tidal Wetlands Complex
21. Lower Housatonic River - Great Meadows Marsh Complex
22. New Haven Harbor Complex
23. Falkner and Goose Islands
24. Greater Hammonasset Complex
25. Connecticut River and Tidal Wetlands Complex
26. Lower Thames River System
27. Fishers Island Sound Complex
28. Block Island
29. Chapman Swamp/Pawcatuck River
30. Maschaug Pond and Beach
31. Areas North and East of Trustom Pond and Green Hill Swamp
32. Hundred Acre Cove - Palmer River Complex
33. Rhode Island Sound - Buzzards Bay Beach Complex
34. Buzzards Bay Colonial Bird Nesting and Feeding Areas
35. Sippewisset Marshes
36. Nantucket Sound Barrier Beach and Bay Complex

I. INTRODUCTION AND MAP

The coastal and estuarine area of southern New England and northern and eastern Long Island is characterized as an extensive and diverse interconnected system of sounds, bays, lagoons, coves, harbors, coastal streams, tidal rivers and shorelands extending from the western Narrows of Long Island Sound to the islands of Monomoy and Nantucket south of Cape Cod, Massachusetts and south to Montauk Point, New York. (See Map, Appendix A). This broad mixing zone of seawater and freshwater lying between the Atlantic Ocean and the coastal shorelands of Connecticut, Rhode Island, Massachusetts and New York, has been historically renowned for its rich fisheries, abundance of waterfowl, diverse wildlife, productive marshes, scenic beaches, and outstanding recreational opportunities. It has also been an area of unprecedented human population growth and massive urban coastline development that in recent decades has resulted in dramatic declines in its living resources and the large-scale loss and degradation of essential estuarine and coastal habitats. The extinction and extirpation of several species of plants and animals in this area and population declines of others, and consequent biological diminution of the region, can be attributed to many factors, but most prominent are the destruction of natural habitats through dredging, filling, ditching, and draining of wetlands, highway and building construction, and pollution of sediments and waters by environmental contaminants such as chlorinated hydrocarbons, heavy metals, nutrients associated with various human activities and oil. Other factors include overharvesting, intensive recreational use of shoreline beaches and expanding populations of certain nuisance species and their competitive displacement of other species.

Congress, in recognizing the biological and economic importance of the living resources and natural values of the Northeast coastal area both to the region and the Nation as a whole, appropriated $150,000 in FY 1990 for the Fish and Wildlife Service (Service) to conduct a study that would identify those areas in southern New England and Long Island in need of protection for fish and wildlife habitat and the preservation of natural diversity. Specifically, the House Appropriations Committee directed that:

The $150,000 provided for a study of the coastal areas of Southern New England and Long Island, New York, includes, but is not limited to, Long Island Sound, Great Peconic Bay, Rhode Island Sound, Narragansett Bay, Buzzards Bay, Nantucket Sound, and the Lower Connecticut River. The study shall include an inventory of the natural values of these areas and subsequent identification of areas in most need of protection for fish and wildlife habitat, endangered species habitat, migratory waterfowl values, and the preservation of biological diversity. The Committee expects the Service to report its findings by March 1, 1990.

This final report, prepared in response to the above Congressional directive, outlines the geographic scope of the project as well as the methodologies used to delineate the study area boundary and to identify coastal species and habitat types included in the inventory. The major focus of this document is a compendium and individual description of regionally significant habitats and habitat complexes in need of protection. The list of habitat areas was developed after extensive consultation with regional biologists in the Federal and State governments and numerous conservation organizations and universities. Nevertheless, differences in interpretation may exist among regional biologists and land managers as to what constitutes "significance" or "importance" and to what extent an area may be viewed as needing protection. As used in this report, "significance" of a site or resource refers to its relative regional importance to one or more life history stages or seasonal use periods of Federal trust species, defined in Section III-B and listed in Appendix B, and is not meant to infer any statistical level of significance or quantitative ranking system. For example, the presence of a population, regardless of size, of a U.S. Endangered or Threatened species, the occurrence of an exemplary and undisturbed stand of a regionally scarce community type, a large wintering concentration of waterfowl in numbers or densities considerably greater that what is generally encountered in the region, areas with a high

diversity of trust species, a highly vulnerable breeding or spawning area of a fish or bird species that has been substantially reduced or qualitatively degraded from historical times, may all be considered "regionally significant" sites or resources in this report. Periodic re-evaluation of the data and criteria presented will be valuable in maintaining the usefulness of this document.

It is important to note that recommendations for protection that are provided in this report are for planning purposes and do not represent a budgetary commitment, particularly for acquisition, by the Department of the Interior to this project. Any increase above the President's Budget request will need to be offset by corresponding reductions in other projects or programs so that deficit reduction targets can be met. In addition, these areas have not yet been nationally evaluated by the Service in accordance with its Land Acquisition Priority System. Many of the areas identified in this report are already being managed to one degree or another for conservation purposes and are acknowledged here not only for their individual value to fish and wildlife resources but as being part of more extensive habitat complexes requiring a consistent management approach at the ecosystem level.

Return to table of contents

II. SCOPE OF PROJECT

The study area includes three priority estuaries under the EPA's National Estuary Program: Narragansett Bay, Buzzards Bay and Long Island Sound. Each of these Estuaries of National Significance is currently being assessed by a cooperative effort involving Federal, State, interstate and local agencies, as well as research institutions, educational organizations and citizens' groups. Peconic Bay, at the eastern end of Long Island (NY) in the study area, is in the process of being added to this list of priority estuaries by the EPA. This area is also of considerable interest to the State of New York and The Nature Conservancy as a potential bioreserve. (Briefly, The Nature Conservancy defines a bioreserve as an area having an integrated landscape with naturally functioning ecological processes, and containing outstanding examples of ecosystems, natural communities, and species which are endangered or inadequately protected.)

The Fish and Wildlife Service temporarily established the Northeast Estuary Office in Charlestown, Rhode Island, in January 1990, to conduct and direct the study. Collocated with the Ninigret National Wildlife Refuge, this office is part of the Service's Northeast Coastal and Estuary Program in Region 5. The Service is proposing to establish the office as a permanent station in FY 1992 to implement the study and to participate in the ongoing EPA National Estuary Programs.

The project has worked closely with The Nature Conservancy's Northeast Regional Office and State chapters, and Natural Heritage Programs for the States of Massachusetts, Rhode Island, Connecticut and New York. Other essential cooperators have included the various State natural resource agencies and universities in the four-state area and the following Federal agencies: Environmental Protection Agency (EPA), National Marine Fisheries Service, National Ocean Service, National Park Service and various divisions, research centers and programs within the Fish and Wildlife Service. The National Audubon Society provided substantial technical assistance regarding certain geographical areas.

The FY 90 House Appropriations Committee language originally directed the Service to complete the present study and submit a final report by March 1990. At the request of the Service the Committee agreed to extend the due date for the final report to March 1991. An interim report was prepared and submitted to the Congress on July 25, 1990, that provided summary information on the status of the project to date as well as a preliminary identification and description of regionally significant fish, wildlife and plant habitats in need of protection. Subsequent to that, the Service requested and received from Congress an additional three-month extension of the report's due date.

Return to table of contents

III. METHODOLOGY

A. Delineation of Study Area Boundary:

The House Appropriations Committee described the study area as "...to include, but not be limited to: Long Island Sound, Great Peconic Bay, Rhode Island Sound, Narragansett Bay, Buzzards Bay, Nantucket Sound and the lower Connecticut River." Following this general guidance, the Service determined the study area as encompassing the sounds, bays, estuaries, tidal rivers and adjacent shorelands from Nantucket Sound, including the islands of Monomoy, Nantucket and Martha's Vineyard, to the western terminus of Long Island Sound. (See map, Appendix A.) This area also includes Gardiners and Peconic Bays between the two forks of eastern Long Island, but the Service concluded that it did not include the inner lagoons and bays along the south shore of Long Island that were part of the New York Bight system, even though considerable interest was expressed by several Congressmen from Long Island for this area to be included as part of the study. Because of both lack of funding and time to include these areas, the Service felt it would be more appropriate to conduct a separate study at some later date of significant habitats in the New York Bight area (Montauk Point, NY, to Cape May, NJ). It should be noted here that four significant fish and wildlife complexes along the south shore of Long Island have been included in this report, primarily because of the interest and assistance by the National Audubon Society, who largely prepared these specific write-ups. In addition, because of the connection of the New York-New Jersey Harbor to Long Island Sound as well as the excellent report recently prepared by the Trust for Public Land and New York City Audubon Society identifying the value of and threats to this area, a significant heron rookery complex on Staten Island was also included. Other than these sites, no other areas on the south shore have been included and no analysis has been done in this area to determine other areas of significance, of which doubtlessly there are many.

In addition to the immediate coastline, the study area included coastal rivers and streams from their confluence with the estuary up to the limit of tidal influence or fall line. In the specific case of the Connecticut River, the project boundary was determined to extend to the dam at Holyoke, Massachusetts. Due to the resource limitations of this study, however, and the current interest and consideration by Congress of legislation establishing a Connecticut River National Fish and Wildlife Refuge that calls for further study of the river, this study did not focus as much attention on the upper portion of the Connecticut River as it did on the lower tidal reaches. Should the proposed legislation be enacted, the northern, upstream reaches of the river should be carefully explored and evaluated for significant fish, wildlife and plant habitats in a manner similar to the present study.

For the most part, the landward or inland extent of the project's coastal boundary approximates that delineated by the State Coastal Zone Management Programs for New York, Connecticut, Rhode Island and Massachusetts, although in some cases the width of this zone has been broadened to include the estimated inland limit of influence of maritime climate and coastal processes. On the average, the width of this landward coastal zone is about five miles. The seaward extent of the study area is presently delineated by a line drawn from just offshore the southeastern tip of Cape Cod to southeastern Nantucket Island, and from the nearshore waters of Nantucket Island to Montauk Point, Long Island, NY.

B. Coastal Species of Special Emphasis:

The Service's principal approach in identifying significant habitats to be included in the project study area inventory was to focus on those sites of particular regional or national importance to critical life history stages of select coastal species. As an additional part of this process, the Service identified and evaluated areas of significant regional biological diversity and outstanding representatives of regional coastal community types in this same region.

In conjunction with the various project cooperators, the Service developed a list of southern New England and Long Island Coastal Species of Special Emphasis which it used in directing its efforts to identify habitat areas in need of protection. (See Appendix B.) These are primarily species of national or regional significance for which there is a clear Federal trust responsibility under one or more legislative authorities or mandates (e.g., Endangered Species Act, Marine Mammal Protection Act, Anadromous Fish Conservation Act, Migratory Bird Treaty Act, Fish and Wildlife Coordination Act) or which are considered in various regional planning documents (e.g., Regional Resource Plans, Fishery Management Plans, North American Waterfowl Management Plan) or are ecologically, commercially or recreationally important within the project study area. Many are species whose populations have seriously declined or are presently declining from historical levels of abundance in the region and/or are especially vulnerable to habitat loss and degradation, human disturbance, competition with exotic or nuisance species, overexploitation or environmental contaminants.

The list of Coastal Species of Special Emphasis contains 153 plant and animal species on which the Service concentrated its data collection efforts in this project. It includes 19 species of finfish, 9 shellfish, 5 reptiles, 2 amphibians, 61 bird species, 6 marine mammals, 7 terrestrial mammals, 12 invertebrates, and 32 plant species. This list is not an exhaustive accounting of all coastal species occurring in the study area, but, rather, represents those species of particular management concern on which the Service focused its inventory efforts.

C. Identification of Significant Habitats of Special Emphasis Species:

In this report, each of the significant, high-priority habitat sites and complexes of habitats is described individually and its approximate boundary delineated on a topographic map. These brief descriptions include the general physical and biological characteristics of each area, the significance, uniqueness or value of each area to Coastal Species of Special Emphasis and/or the biological diversity of the region, general ownership patterns, and threats to the ecological integrity of the site and/or species occurring there during critical life history stages. Also included for each site are conservation considerations developed by the Service on how to best protect these areas and the species which depend upon them. More detailed information on each of these sites is available through the Northeast Estuary Office in Charlestown, Rhode Island.

In identifying specific significant coastal habitats in need of protection, the Service focused on: 1) individual populations or occurrences of coastal species of special emphasis; 2) regionally or nationally significant habitat sites of special emphasis species and/or areas of exceptional biological diversity or community uniqueness; and 3) habitat complexes consisting of two or more and often several important and ecologically-linked habitats within a given geographic area. A knowledge of the distinctions between each of these approaches is necessary to understanding the rationale behind the identification and delineation of the sites presented in this report. They are as follows:

1) Individual Species Occurrences: Individual occurrences of coastal species of special emphasis were analyzed to identify areas important to one or more critical life history stages of these species, such as spawning, wintering and juvenile growth areas. Data were sought and collected on individual site occurrences, both current and historical, of 153 selected species ranging from small and local resident breeding populations and seasonal clusterings to larger metapopulations, overwintering concentrations, migrating groups and anadromous fish runs. These data were analyzed for the entire four-state coastal and estuary study region. Distribution and locality information was collected and compiled at the most detailed scale and format available, generally on 1:24000 standard USGS topographic quadrangle maps. The bulk of this information was obtained from state Natural Heritage Programs and natural resource agencies, Federal agencies (Fish & Wildlife Service, National Marine Fisheries Service) and private conservation organizations, in particular The Nature Conservancy and the National Audubon Society.

Individual occurrences and locations were pinpointed on base maps as precisely as the data would allow, either as point occurrences or larger areal delineations, often to the nearest second of latitude and longitude. This information is currently being entered into a computer-mapping program (MapInfo) to facilitate storage, retrieval and graphic presentation of data. Whenever possible or practical, all occurrences of a species in the study area were recorded, including historical locations, regardless of number of individuals at a site, population size, resident or breeding status or regional or national significance. In some instances, however, particularly in the case of widespread species showing considerable movement over the general area, such as certain waterfowl and fish, only the more stable and regularly-occurring concentrations were mapped.

2) **Significant Habitats:** Using these species occurrence data, important or potentially important, habitat sites were identified. Subsequent discussions with knowledgeable field biologists and field verification were undertaken to confirm the importance of these sites. In addition to obviously significant and exceptional sites, i.e., those supporting disproportionately large numbers or densities of a species or where breeding success and productivity are particularly high or above average, the data also served to identify important intermediate sites between major areas that function as migration or recruitment "stepping stones".

Prior to this project, many important habitat areas were already recognized for their value to fish and wildlife by various resource agencies and conservation organizations, at least from a statewide perspective, and were recommended to the study project for inclusion in the final report to Congress as significant habitats in need of protection. Because the Northeast Coastal Areas Study focused its data compilation and analysis efforts primarily on habitats of ecoregional, regional or national significance, differences were obviously to be expected between the two perspectives, although these were surprisingly few. In some instances, habitats viewed as significant or important to biologists or natural resource managers in a particular state may not have been felt to have the same significance when viewed in a broader regional context. Conversely, some areas thought to be of lesser value by a state because of their small size were, in fact, determined to be of regional importance as stepping stone areas between major population sites. In other words, candidate sites recommended by the states still needed to be evaluated and analyzed as part of the present study to determine their overall regional or national significance to fish, wildlife and plants in the southern New England - Long Island, NY, study area.

3) **Habitat Complexes:** The Service also identified significant habitat complexes through analysis of species occurrence data and consultation with others. These larger units generally consist of from two to several individual habitat or landform units that are each of importance to a single species or multiple species and which are either contiguous or in relatively close proximity to each other so as to allow their being recognized as a single, interrelated ecological unit, particularly from a natural resource management perspective. Each of the habitat units will, in many instances, have been individually recognized as being important to either a single species or a group of species, often by an agency or group that is focused on a particular group of species. What the current study attempted to do is identify obvious linkages between significant sites that allow them to be viewed in a much larger and ecologically relevant context. It will be noted that the majority of significant coastal habitat sites identified in this report are primarily habitat complexes comprised of individual, smaller habitat units.

Habitat complexes generally belong to one of three categories:

A. Contiguous, similar habitats, e.g., linear stretches of beaches or dune systems running parallel to the coast, ridgetops or riparian corridors.

B. Contiguous dissimilar habitats, though geomorphologically, and often ecologically, related, e.g., barrier beach/lagoon/salt marsh/upland complexes or local watersheds.

C. Discontinuous, though not necessarily remote, similar habitats that form an essential part, if not the entirety, of a species' population or metapopulation.

To a large extent, habitat complexes as viewed here are very close to the bioreserve concept, as defined earlier, currently being explored by The Nature Conservancy and efforts are being made to consider linking the two concepts closer in the future.

Return to table of contents

IV. PROTECTION STRATEGIES

A variety of approaches and strategies exists for the protection of valuable wildlife habitats; each provides different degrees of protection and requires different levels of commitment by regulatory agencies, conservation organizations and landowners. These techniques range from the establishment of conservation easements, cooperative management agreements, zoning and land-use regulations, comprehensive planning, enforcement of existing local, state and Federal regulations, tax incentives, mutual covenants and land exchanges to fee simple acquisition. All four states in the study region have enacted special laws to protect coastal wetlands; these laws vary considerably in their degree of protection. Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act of 1977 mandate a strong Federal role for protecting the Nation's coastal wetlands and have proved to be very effective regulatory mechanisms for protecting wetland habitats in general. Federal permits are required for most types of construction in estuarine wetlands. While the regulatory tools to protect coastal wetlands are in place, continued enforcement of existing laws is required to maintain the integrity of the remaining wetlands. The Endangered Species Act and Migratory Bird Treaty Act are also used extensively by the Fish and Wildlife Service and National Marine Fisheries Service to provide protection to species listed under them. In addition to regulation, the Coastal Barrier Resources Act of 1982 removes Federal subsidies and discourages development of designated coastal barriers and adjacent wetlands. Executive Order 11990 - "Protection of Wetlands" - requires Federal agencies to develop guidelines to minimize destruction and degradation of wetlands and to preserve and enhance wetland values.

Successful application of these protection mechanisms can be enhanced through their use in concert with each other and in partnership with all parties involved. Selection of the most appropriate and effective combination of protection techniques and strategies should be determined only through careful consideration of the unique conditions and circumstances that apply to each individual site or complex.

Return to table of contents

ACKNOWLEDGEMENTS

This report was prepared primarily by Joseph J. Dowhan, Project Leader of the Northeast Estuary Office, in Charlestown, Rhode Island, with the assistance of Hope D. Malcom, Geographic Information Specialist with the same office. The Northeast Coastal Areas Study was originally conceived and initiated by William C. Ashe, former Deputy Regional Director of the Fish and Wildlife Service's Northeast Region, and now with the National Fish and Wildlife Foundation. It is to Bill Ashe that this report is dedicated.

There have been numerous contributors to this study and report, of which the majority have come from a solid core of knowledgeable, experienced and devoted professional biologists in the various Federal and State natural resource agencies and private conservation organizations in this region. Particular gratitude is expressed to the State Natural Heritage Programs and Fish and Game/Wildlife agencies in Connecticut, Massachusetts, New York and Rhode Island, the State Chapters and Field Offices of the Nature Conservancy in each of these same states, the Eastern Regional Office of The Nature Conservancy, especially Dennis Wolkoff, the National Audubon Society, and the many outstanding Fish and Wildlife Service biologists in the field offices, cooperative units, research stations and regional office in the Northeast Region (Region 5).

The following individuals are specifically acknowledged for their contributions to this report and to whom the Service owes a great debt of gratitude and appreciation. Deepest apologies are offered in advance for any inadvertent omissions or misspelled names of those who have given so much of their time, knowledge and experiences in support of this project.

Fish & Wildlife Service: Tom Stewart, William Kolodnicki and Bob Parris, Long Island National Wildlife Refuge Complex; Jim Kurth, Connecticut-Rhode Island NWR Complex; Walt Quist, George Haas, Curt Laffin, William Zinni, Ralph Andrews, Dan Kimble, Paul Nickerson, Anne Hecht, Libby Herland, Dick Dyer, Paul Graves and Diane Brajta of the Regional Office, Newton Corner, MA; Jan "Mickey" Hayden, Glenn Kinser, Ray Fritz, Kathi Bangert and Steve Funderburk of the Chesapeake Bay Estuary Program; Mike Amaral, Susi van Oettingen and Gordon Beckett of the New England Field Office; Lenny Corin, Carl Schwartz and Mark Clough of the New York Field Office; Cliff Day and Robin Burr of the New Jersey Field Office; and Jeff Spendelow, Mike Erwin and Dick Jachowski of the Patuxent National Wildlife Research Center.

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National Marine Fisheries Service: Tom Bigford, Colleen Coogan and Doug Beach, Northeast Regional Office, Gloucester, Massachusetts; Mike Ludwig, Milford Laboratory, Milford, CT.

National Oceanographic and Atmospheric Administration: Reed Bohne and Susan Durden, Marine and Estuarine Management Division, Washington, D.C.

National Park Service: John Tanacredi, Gateway National Recreation Area, Brooklyn, NY.

Connecticut: Leslie J. Mehrhoff, Jr., Kenneth Metzler, Nancy Murray and Dawn McKay, Connecticut Natural Diversity Database, Department of Environmental Protection (DEP); Ron Rozsa, Coastal Resources Management Division, DEP; Paul Merola, Greg Chasko and Julie Victoria, Wildlife Bureau,

DEP; Eric Smith, Penny Howell, Steve Gebhardt, Peter Minta and Dave Simpson, Division of Marine Fisheries, DEP; Jack Barclay and Don Squires, University of Connecticut; Milan Bull, Connecticut Audubon Society; Christopher Percy, The Sounds Conservancy, Inc.; and Tom Siccama, Yale University.

Massachusetts: Henry Woolsey, Bruce Sorrie, Pat Swain and Meg Goodwin, Massachusetts Natural Heritage and Endangered Species Program, Division of Fisheries and Wildlife, Department of Fisheries, Wildlife and Environmental Law Enforcement; Kathy Sferra, Cape Cod Commission; Simon Perkins, Massachusetts Audubon Society; Steven Reinhart, Lloyd Center for Environmental Studies; Joseph Costa; Buzzards Bay Project; Tundi Agardy, Woods Hole Oceanographic Institution; Susan Ayvazian, University of Massachusetts; Alan Poole, Manomet Bird Observatory; and Christine Gault, Waquoit Bay National Estuarine Research Reserve.

New York: Kathryn Schneider, Rachel Pleuthner, Candie Leunig, Carol Reschke and Peter Zika of the New York Natural Heritage Program, Department of Environmental Conservation (DEC); John Ozard, Significant Habitat Unit, Wildlife Resources Center, DEC; Harry Knoch and Mike Scheibel of the Long Island Wildlife Division, DEC; Steven Sanford, Bureau of Environmental Protection, DEC; Gordon Colvin, Kenneth Koetzner, Kim McKown, Victor Vecchio and Karen Chytalo, Division of Marine Resources, DEC; Tom Hart, Division of Coastal Resources and Waterfront Revitalization, Department of State; David Kunstler, City of New York Parks and Recreation, Bronx, NY; Phyllis Wittner, Coastal Zone Management Commission, Town of Mamaroneck; David Burg, Bronx, NY; David Duffy, Rich Lent and Randy Downer, Seatuck Foundation, Inc.; Paul Stoutenburg, Town of Southold, Cutchogue, NY; and Steve Morreale, OKEANOS, Ocean Research Foundation.

Rhode Island: Rick Enser and Joanne Michaud, Rhode Island Heritage Program, Department of Environmental Management (DEM); Chris Raithel, Division of Fish and Wildlife, DEM; Caroline Karp, Narragansett Bay Project; Al Beck, Narragansett Bay National Estuarine Research Reserve; Charlotte Sornborger and Doug Rayner, The Barrington Land Conservation Trust, Inc.; and Keith Lewis, The Conservation Fund-Block Island Trust.

National Audubon Society: Carl Safina, Western Hemisphere Shorebird Program, and Marilyn England, Scully Sanctuary, Islip, NY. We are especially appreciative of Ms. England's contributions to the compilation and preparation of the individual reports on the four major bay areas along the south shore of Long Island.

The Nature Conservancy: Dennis Wolkoff, Larry Master, Steve Buttrick, Eve Endicott and Laura Rosenzweig of the Eastern Regional Office; Les Corey, Julianna Barrett and Beth Lapin of the Connecticut Chapter; Andy Walker, Christina Hamm and Susan Antenen of the North Fork Chapter; Sara Davison of the South Fork-Shelter Island Chapter; Keith Lang and Randy Tate of the Rhode Island Field Office; Laura Johnson and Tim Simmons of the Massachusetts Field Office; and Mike Laspia, Mashomack Preserve, Shelter Island.

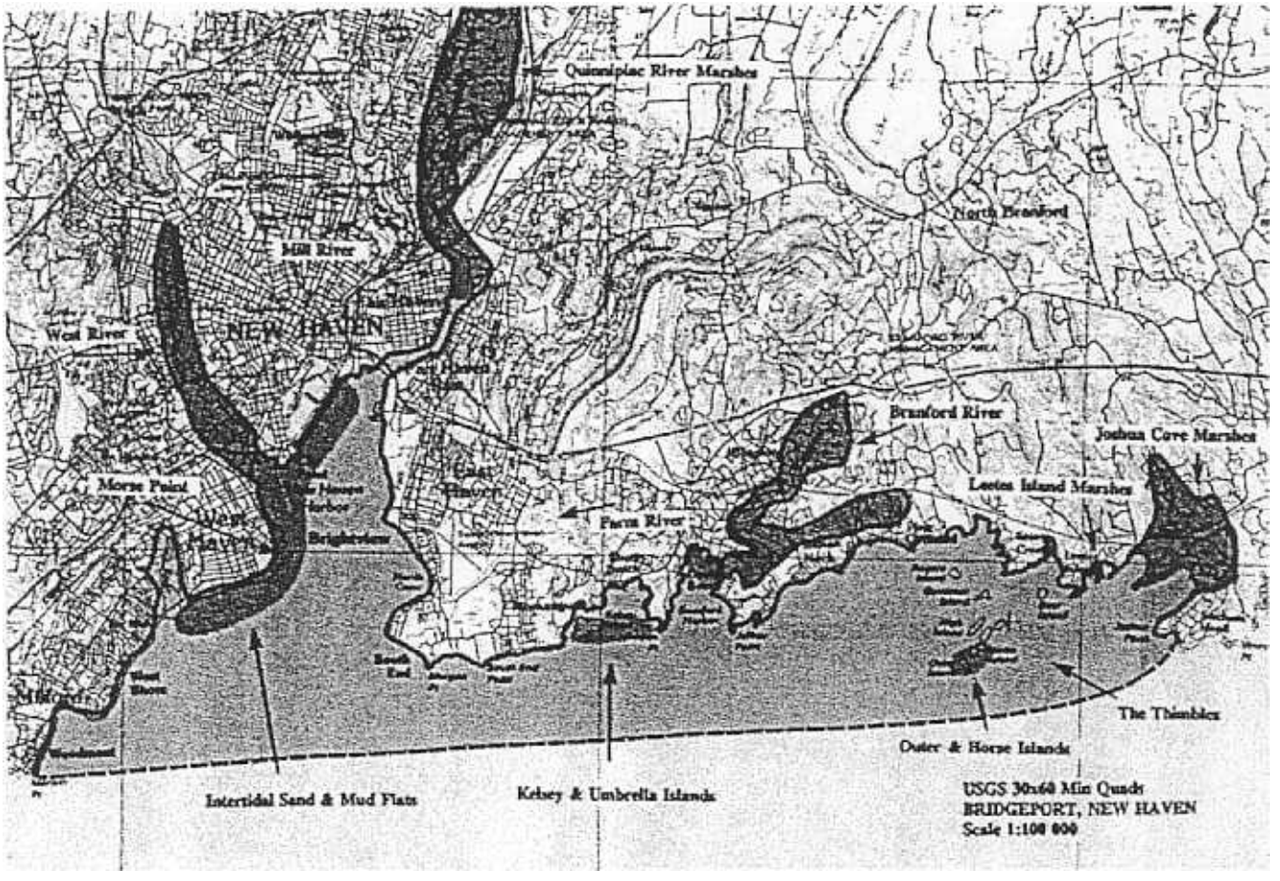
Return to table of contents

Site 22

Return to New Haven Harbor Complex narrative

Connect north to adjacent map

Northeast Coastal Areas Study
Significant Coastal Habitats
New Haven Harbor Complex, Part 1



Northeast Coastal Areas Study
Significant Coastal Habitats

Site 22 (CT)

Maps

I. SITE NAME: New Haven Harbor Complex

II. LOCATION: This complex is centered primarily along the central coast of Connecticut on Long Island Sound in the New Haven Harbor area and areas to the east.

TOWNS: Branford, East Haven, Guilford, Hamden, Madison, New Haven, North Haven, Wallingford, West Haven
COUNTY: New Haven
STATE: Connecticut
USGS 7.5 MIN QUADS: Woodmont, Conn 41072-28; Branford, Conn 41072-37; Clinton, Conn 41072-35; Guilford, Conn 41072-36; New Haven, Conn 41072-38; Wallingford, Conn 41072-47; Mount Carmel, Conn 41072-48
USGS 30x60 MIN QUADS: Bridgeport 41073-A1; New Haven 41072-A1

III. GENERAL BOUNDARY: The outer, shoreward boundary of this largely nearshore water and tidal flat-dominated complex extends from Merwin Point, just south of Woodmont (Milford) east to Sachem Head (Guilford), a distance of approximately 14.5 miles (23 km). Enclosed within this boundary are the east and west shoreline areas around New Haven Harbor to the limit of anadromous fish passage on the West and Quinnipiac Rivers, including the Quinnipiac Meadows wetlands area and the North Haven and Wallingford sand plains north of New Haven Harbor. To the east of New Haven Harbor, the boundary incorporates the Branford River, Leetes Island and Joshua Cove marshes and tidal flats and nearshore waters of Long Island Sound for a distance averaging 1-2 miles (2-3 km) south of the shoreline. A number of important wildlife islands in the Branford-Guilford vicinity are included within this nearshore water boundary, most notably The Thimbles and Kelsey Island. The general boundary is outlined on the accompanying maps of this complex.

Specific habitat areas of particular regional significance to fish and wildlife resources that are in need of protection and/or management are: 1) Morse Point/Sandy Point, West Haven, including areas of intertidal mud and sand flats to the north and south of Sandy Point; 2) intertidal sand and mud flats along the west shore of New Haven Harbor in the vicinity of Long Wharf and City Point; 3) open waters of New Haven Harbor north of the outer breakwaters; 4) Quinnipiac River marshes; 5) Quinnipiac River sand plains; 6) anadromous fish runs of the West, Mill, Quinnipiac, Farm and Branford Rivers; 7) Leetes Island and Joshua Cove marshes (including Lost Lake) and tidal flats; 8) marshes and islands in Branford Harbor and River; and 9) The Thimbles. These individual areas are outlined within the accompanying general boundary map of the complex.

IV. OWNERSHIP/PROTECTED STATUS: A significant portion of this complex includes public coastal and river waters and wetlands, while the rest represents various mixtures of publicly and privately owned lands. Several of the islands are privately held as is most of the sand plains area along the Quinnipiac River.

V. GENERAL HABITAT DESCRIPTION: The major habitat types of fish, wildlife and plant significance in this complex are: 1) **sand spits and beaches**; 2) **intertidal mud and sand flats**; 3) **tidal**

marshes; 4) **sand plains**; 5) **anadromous fish streams and rivers**; 6) **undeveloped coastal islands**; and 7) **nearcoastal waters** of importance to migrating and wintering waterfowl. The Quinnipiac River marshes contain a diversity of habitat types, including: salt marsh dominated by cordgrasses (*Spartina alterniflora* and *S. patens*); extensive brackish marshes of dense stands of cattail (*Typha angustifolia*) and common reed (*Phragmites australis*); freshwater tidal marsh with a high diversity of species including sweet flag (*Acorus calamus*), broad-leaved cattail (*T. latifolia*), reed canary grass (*Phalaris arundinacea*) and wild rice (*Zizania aquatica*); and narrow fringes of floodplain forest dominated by green ash (*Fraxinus pennsylvanica*), red maple (*Acer rubrum*), black willow (*Salix nigra*) and silver maple (*A. saccharinum*). Salt marshes elsewhere in this complex are similar to those in the lower section of the Quinnipiac Marshes. The sand plains of the Quinnipiac occur on glacial terraces and are only a small remnant of their former extent. In many places wind-formed dunes and hummocks are prominent surface features. The plains vary from almost totally bare, desert-like, sandy areas with sparse vegetation to open grasslands of little bluestem (*Schizachyrium scoparium*) and lichens to low scrubby woodlands and forests of black oak (*Quercus velutina*) and pitch pine (*Pinus rigida*). Most of the sand plains area is heavily industrialized with only a few open or remnant natural areas remaining, such as in Wallingford. The Thimbles and other small rocky islands in the Branford-Guilford vicinity are a mixture of bedrock and glacial materials with cobble beaches and various vegetation types, from beach grass (*Ammophila breviligulata*) dunes to mature coastal woodlands and thickets with abundant poison ivy (*Toxicodendron radicans*) and oriental bittersweet (*Celastrus orbiculatus*). Tidal amplitude at the entrance to New Haven Harbor is 6.2 feet (1.89 m).

VI. SIGNIFICANCE/UNIQUENESS OF AREA: The sand and mud flats at Long Wharf, City Point and Morse Point/Sandy Point in New Haven Harbor are regionally significant staging areas for large concentrations of migrating sandpipers, terns, plovers, turnstones and other shorebirds and waterfowl that feed on these flats to sustain them on their long journeys southward or northward. Shorebird species of special note include semipalmated sandpiper (*Calidris pusilla*), dunlin (*Calidris alpina*), ruddy turnstone (*Arenaria interpres*), least sandpiper (*Calidris minutilla*) and sanderling (*Calidris alba*). The New Haven tidal flats are reported by State biologists to be the most important wintering area for American black duck (*Anas rubripes*) in Connecticut. Morse Point currently supports nesting populations of piping plover (*Charadrius melodus*), a U.S. Threatened species, and least tern (*Sterna antillarum*). Elsewhere in the complex, common terns (*Sterna hirundo*) nest on a few of the islands to the east of New Haven Harbor.

The open water areas and tidal flats in New Haven Harbor and the nearshore area south of Guilford, Branford and East Haven contain some of the largest and most important concentrations of wintering and migrating waterfowl along the Connecticut coast, especially American black duck, canvasback (*Aythya valisineria*), American wigeon (*Anas americana*), greater and lesser scaup (*Aythya marila* and *Aythya affinis*, respectively), common goldeneye (*Bucephala clangula*) and three species of scoter (*Melanitta* spp.). Wading bird rookeries are established on a few of the outer Thimbles, mostly snowy egret (*Egretta thula*), great egret (*Casmerodius albus*) and black-crowned night-heron (*Nycticorax nycticorax*). The nearshore areas also contain abundant shellfish beds, particularly for American oyster (*Crassostrea virginica*) and hard-shelled clams (*Mercenaria mercenaria*). The river systems in this complex all have anadromous fish runs in those reaches without barriers to fish passage. Anadromous fish using these rivers include American shad (*Alosa sapidissima*), sea-run brown trout (*Salmo trutta*), alewife (*Alosa pseudoharengus*), blueback herring (*Alosa aestivalis*), striped bass (*Morone saxatilis*) and white perch (*Morone americana*). New Haven Harbor is an important spawning and nursery area for winter flounder (*Pseudopleuronectes americanus*) and is heavily used by fishermen. Finfish common to this area include blackfish (*Tautoga onitis*), bluefish (*Pomatomus saltatrix*), weakfish (*Cynoscion regalis*), summer flounder (*Paralichthys dentatus*), and striped bass (*Morone saxatilis*).

Both the Quinnipiac River marshes and the upstream sand plains are important areas of regional

biological diversity. The sand plains are a regionally rare and unique habitat, similar to the Hempstead Plains of Long Island, which is also only a small remnant of its former extent. The Quinnipiac Marshes are extremely productive biologically, in spite of the heavy industrialization that lines its banks and its chemically polluted waters and soils, especially with heavy metals. Migratory waterfowl using these marshes for nesting include American black duck, mallard (*Anas platyrhynchos*) and gadwall (*Anas strepera*), while northern harrier (*Circus cyaneus*), snowy egret and pied-billed grebe (*Podilymbus podiceps*) are suspected breeders. The marshes are also prime overwintering habitat for rough-legged hawk (*Buteo lagopus*) and snowy owl (*Nyctea scandiaca*).

VII. THREATS: The large seasonal concentrations of wildlife utilizing the extensive tidal mud and sand flats and open waters of this complex are extremely vulnerable to an oil spill or hazardous chemical discharge, particularly in New Haven Harbor. Numerous other activities potentially threaten natural ecosystems and fish and wildlife populations in this industrialized zone, including waste and sewage disposal, stormwater discharge, shoreline development, erosion control projects, channel dredging and wetland alterations. Heavy metal and PCB pollution of soils and waters is of special concern, as are contaminated sediments in portions of New Haven Harbor and Mill River due to stormwater, sewage treatment plant and industrial discharges. In spite of it all, however, significant wildlife populations continue to persist in this area, albeit at much reduced levels from former levels of abundance. Human-related disturbances to colonial beach-nesting terns and piping plovers, whether unintentionally or the result of purposeful intrusions into nesting areas and acts of vandalism, or from stray animals and unleashed cats and dogs, are of major concern at all known nesting localities in this area. There are several historical, but presently unoccupied, localities for breeding birds in this area, particularly for roseate tern (*Sterna dougallii*), a U.S. Endangered species. Such areas were likely abandoned due to disturbance.

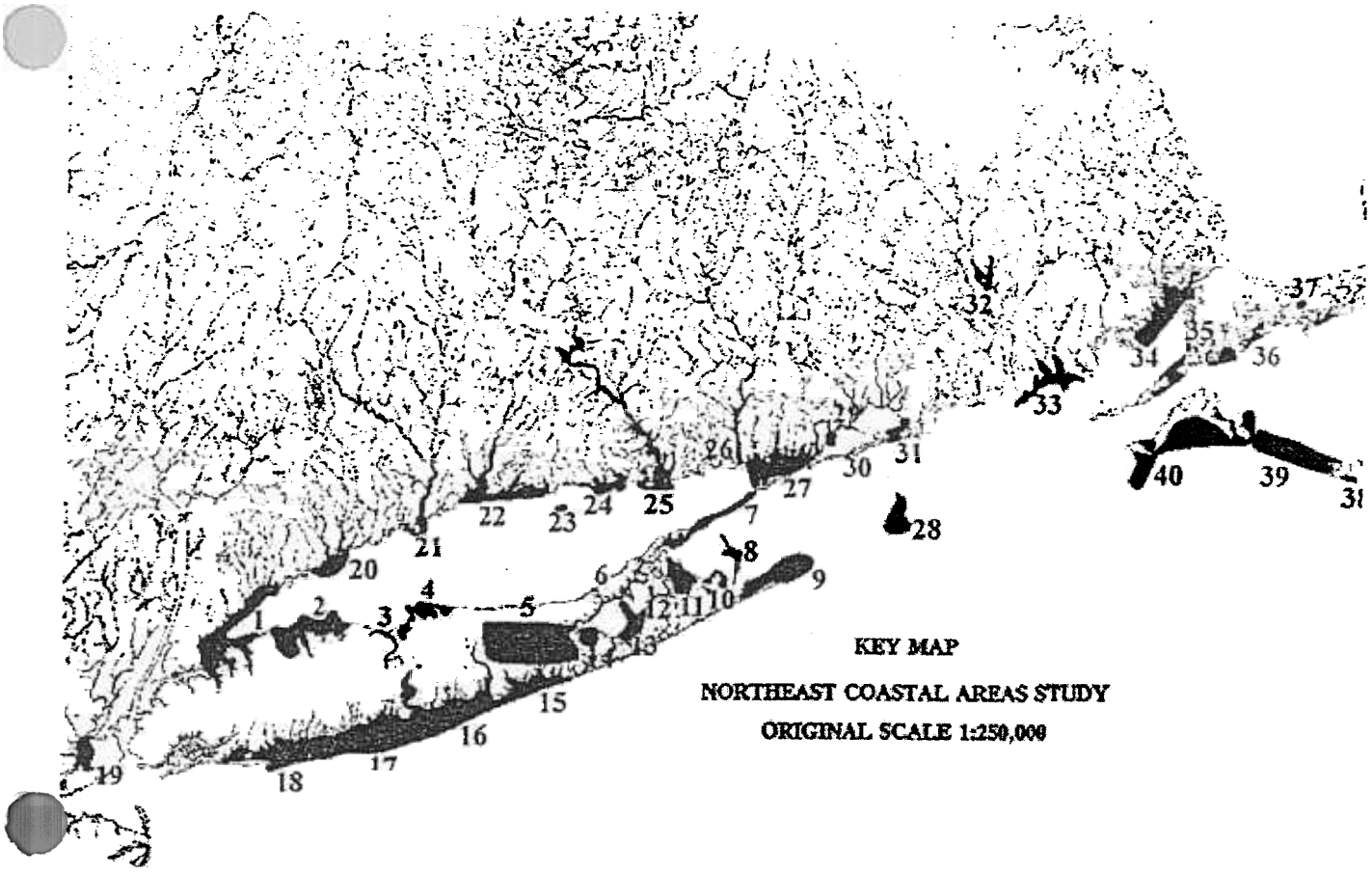
VIII. CONSERVATION CONSIDERATIONS: Protection of the nearshore waters and intertidal flats from catastrophic events such as an oil spill or hazardous chemical discharge needs to be given the highest priority among resource concerns in this area. Attention needs to be focused not only on formulating oil spill contingency plans, but developing the highest degree of readiness to respond to such an event, particularly during critical times of the year when wildlife populations are at their peak and most vulnerable, such as spring and fall migrations and winter. Measures should also be sought and instituted, whether by regulation, zoning, planning, cooperative agreements or full-scale restoration programs such as the National Estuary Program, to restore, maintain, enhance and protect aquatic and terrestrial resources in this complex. Opportunities should be identified to restore or enhance degraded wetlands, including control of common reed, and other coastal habitats in this complex to increase their value to fish and wildlife. In addition to wetland habitats, the New Haven sand plains should be given high priority by the State in identifying and implementing restoration opportunities for this unique ecosystem.

Disturbances to colonial nesting birds, whether sand beaches or island rookeries, need to be minimized or eliminated entirely. Human and stray animal intrusions into nesting areas during the critical nesting season (mid-April to August) should be prevented using a variety of methods, including fenced exclosures, posting, beach warden patrols, trapping of animals and public education. Pertinent tasks and objectives of the piping plover recovery plan should be identified and implemented on area beaches, especially those aimed at habitat restoration, enhancement and protection. A regional or basinwide conservation and management plan should be developed and implemented for protecting and enhancing wintering waterfowl populations in central and western Long Island Sound, in partnership with governmental agencies, private conservation groups and landowners.

Maps

Return to table of contents

Appendix A



Return to table of contents

APPENDIX B

NORTHEAST COASTAL AREAS STUDY
U.S. FISH AND WILDLIFE SERVICE

SOUTHERN NEW ENGLAND-NEW YORK
COASTAL SPECIES OF SPECIAL EMPHASIS

The following species have been identified by the U.S. Fish and Wildlife Service's Northeast Estuary Program as being of national or regional significance and of special management concern in the coastal region of southern New England (MA, RI and CT) and New York. Many are species whose populations have declined or are presently declining from historical levels of abundance in the region and/or are especially vulnerable to habitat loss and degradation, disturbance, competition with exotic or nuisance species, overexploitation or environmental contaminants. Some groups, e.g. shellfish and certain finfish, while not especially rare or declining, are of considerable ecological, commercial or recreational importance in the region. The primary purposes of these species lists are to establish a base for identifying habitats in need of protection in the project area and to develop ecoregional strategies for the long-term protection, conservation, and monitoring of both species and habitats.

I. FINFISH: (Spawning areas, nursery and feeding grounds, migration pathways)

Shortnose sturgeon (*Acipenser brevirostrum*) **E**
Atlantic sturgeon (*Acipenser oxyrhynchus*)
American shad (*Alosa sapidissima*)
Striped bass (*Morone saxatilis*)
Atlantic salmon (*Salmo salar*)
Bluefish (*Pomatomus saltatrix*)
Winter flounder (*Pseudopleuronectes americanus*)
Summer flounder, fluke (*Paralichthys dentatus*)
Weakfish (*Cynoscion regalis*)
Blackfish, Tautog (*Tautoga onitis*)
Scup or Porgy (*Stenotomus chrysops*)
Alewife (*Alosa pseudoharengus*)
Blueback herring (*Alosa aestivalis*)
Rainbow smelt (*Osmerus mordax*)
Menhaden (*Brevoortia tyrannus*)
American sandlance (*Ammodytes americanus*)
American eel (*Anguilla rostrata*)
Bay anchovy (*Anchoa mitchilli*)
Atlantic silverside (*Menidia menidia*)

E = U.S. Endangered Species
T = U.S. Threatened Species
1, 2 = Category 1 or 2 Candidate Species

II. MARINE/ESTUARINE SHELLFISH: (Major shellfish beds; horseshoe crab spawning areas)

American lobster (*Homarus americanus*)
Blue crab (*Callinectes sapidus*)
Horseshoe crab (*Limulus polyphemus*)

American oyster (*Crassostrea virginica*)
Hard-shelled clam or Quahog (*Mercenaria mercenaria*)
Soft-shelled clam (*Mya arenaria*)
Ocean quahog (*Arctica islandica*)
Surf clam (*Spisula solidissima*)
Bay scallop (*Aequipecten irradians*)

III. REPTILES AND AMPHIBIANS: (Nesting, breeding, nursery and feeding areas)

Northern diamondback terrapin (*Malaclemys t. terrapin*) **2**

Sea Turtles: (Juvenile concentration areas)
Loggerhead (*Caretta caretta*) **T**
Green (*Chelonia mydas*) **T**
Atlantic or Kemp's Ridley (*Lepidochelys kempii*) **E**
Leatherback (*Dermochelys coriacea*) **E**

Tiger salamander (*Ambystoma tigrinum*)
Blue-spotted salamander (*Ambystoma laterale*)

IV. BIRDS:

A. Federally Listed/proposed/candidate species and Fish and Wildlife Service species of special management concern:
Roseate tern (*Sterna dougallii*) **E**
Gull-billed tern (*Sterna nilotica*)
Piping plover (*Charadrius melodus*) **T**
Northern harrier (*Circus cyaneus*)
Bald eagle (*Haliaeetus leucocephalus*) **E**
Osprey (*Pandion haliaetus*)
Peregrine falcon (*Falco peregrinus*) **E,T**
Short-eared owl (*Asio flammeus*)
American bittern (*Botaurus lentiginosus*)
Least bittern (*Ixobrychus exilis*)
Black rail (*Laterallus jamaicensis*)
Seaside sparrow (*Ammodramus maritimus*)
Common barn owl (*Tyto alba*)

B. Migrants: (Wintering concentrations and staging areas; resident breeding populations)
Common loon (*Gavia immer*)
Red-throated loon (*Gavia stellata*)
Horned grebe (*Podiceps auritus*)
Red-necked grebe (*Podiceps grisegena*)
Pied-billed grebe (*Podilymbus podiceps*)
Canada goose (*Branta canadensis*)
Atlantic brant (*Branta bernicla*)
Northern pintail (*Anas acuta*)
American wigeon (*Anas americana*)
Mallard (*Anas platyrhynchos*)
American black duck (*Anas rubripes*)

Gadwall (*Anas strepera*)
Canvasback (*Aythya valisineria*)
Greater scaup (*Aythya marila*)
Lesser scaup (*Aythya affinis*)
Harlequin duck (*Histrionicus histrionicus*)
Common eider (*Somateria mollissima*)
Oldsquaw (*Clangula hyemalis*)
Bufflehead (*Bucephala albeola*)
Common goldeneye (*Bucephala clangula*)
Scoters (*Melanitta fusca, M. nigra* and *M. perspicillata*)
Hooded merganser (*Lophodytes cucullatus*)
Red-breasted merganser (*Mergus serrator*)
Clapper rail (*Rallus longirostris*)
Sanderling (*Calidris alba*)
Short-billed dowitcher (*Limnodromus griseus*)
Whimbrel (*Numenius phaeopus*)
Grasshopper sparrow (*Ammodramus savannarum*)

C. Nesting Colonial Waterbirds:
Double-crested cormorant (*Phalacrocorax auritus*)
Little blue heron (*Egretta caerulea*)
Tricolored heron (*Egretta tricolor*)
Great egret (*Casmerodius albus*)
Snowy egret (*Egretta thula*)
Cattle egret (*Bubulcus ibis*)
Black-crowned night-heron (*Nycticorax nycticorax*)
Yellow-crowned night-heron (*Nyctanassa violacea*)
Green-backed heron (*Butorides striatus*)
Glossy ibis (*Plegadis falcinellus*)
American oystercatcher (*Haematopus palliatus*)
Laughing gull (*Larus atricilla*)
Least tern (*Sterna antillarum*)
Common tern (*Sterna hirundo*)
Black skimmer (*Rynchops niger*)

D. Nuisance Species: (Species of particular management concern because of impacts on other species)
Mute swan (*Cygnus olor*)
Herring gull (*Larus argentatus*)
Great black-backed gull (*Larus marinus*)

V. MAMMALS

A. Marine Mammals: (Whale concentration and migration areas; seal pupping and hauling out sites)
Whales:
Minke (*Balaenoptera acutorostrata*)
Fin (*Balaenoptera physalus*) **E**
Humpback (*Megaptera novaeangliae*) **E**
Northern right whale (*Eubalaena glacialis*) **E**

Gray seal (*Halichoerus grypus*)
Harbor seal (*Phoca vitulina*)

B. Terrestrial Mammals: (Island endemics-Some of dubious taxonomic status)
Martha's Vineyard short-tailed shrew (*Blarina brevicauda alonga*) **2**
Nantucket short-tailed shrew (*Blarina brevicauda compacta*) **2**
Small-footed myotis (*Myotis leibii*) **2**
Monomoy white-footed mouse (*Peromyscus leucopus ammodytes*) **2**
Martha's Vineyard white-footed mouse (*Peromyscus leucopus fuscus*) **2**
Block Island meadow vole (*Microtus pennsylvanicus provectus*) **2**
Beach or Muskeget Island vole (*Microtus breweri*) **2**

VI. INVERTEBRATES:

American burying beetle (*Nicrophorus americanus*) **E**
Northeastern beach tiger beetle (*Cincindela d. dorsalis*) **T**
Puritan tiger beetle (*Cincindela puritana*) **T**
Decodon borer moth (*Papaipema sulphurata*) **2**
Banded bog skimmer dragonfly (*Williamsonia lintneri*) **2**
Lemmer's noctuid moth (*Lithophane lemmeri*) **2**
Regal fritillary butterfly (*Speyeria idalia*) **2**
Barrens bluet damselfly (*Enallagma recurvatum*)
Lateral bluet damselfly (*Enallagma laterale*)
Hessel's hairstreak (*Mitouri hesseli*)
Barrens buckmoth (*Hemileuca maia*)
Dwarf wedge mussel (*Alasmidonta heterodon*) **E**

VII. PLANTS:

A. Federally Listed:
Sandplain gerardia (*Agalinis acuta*) **E**

B. Federal Candidates:
Sea-beach pigweed (*Amaranthus pumilis*) **2**
Nantucket serviceberry (*Amelanchier nantucketensis*) **2**
Variable sedge (*Carex polymorpha*) **2**
Spreading Tick-trefoil (*Desmodium humifusum*) **2**
New England boneset (*Eupatorium leucolepis* var. *novae-angliae*) **2**
Pine Barrens boneset (*Eupatorium resinosum*) **2**
New England blazing-star (*Liatris borealis*) **2**
Graves' beach plum (*Prunus maritima* var. *gravesii*) **2**
Chaffseed (*Schwalbea americana*) **1**
Long's bulrush (*Scirpus longii*) **2**

C. Regional Species of Special Concern:
Annual peanut-grass (*Amphicarpum purshii*)
Eastern silvery aster (*Aster concolor*)
Bicknell's hawthorn (*Crataegus bicknellii*)
Sessile-leaved tick-trefoil (*Desmodium sessilifolium*)
Saltpond grass (*Diplachne maritima*)
Three-angled spike-sedge (*Eleocharis tricostata*)
Parker's pipewort (*Eriocaulon parkeri*)
Bushy rockrose (*Helianthemum dumosum*)
Creeping St. John's-wort (*Hypericum adpressum*)

Round-fruited false-loosestrife (*Ludwigia sphaerocarpa*)
Climbing fern (*Lygodium palmatum*)
Sea-beach knotweed (*Polygonum glaucum*)
Pondshore knotweed (*Polygonum puritanorum*)
Bald rush (*Psilocarya scirpoides*)
Torrey's mountain-mint (*Pycnanthemum torrei*)
Inundated horned-rush (*Rhynchospora inundata*)
Torrey's beak-rush (*Rhynchospora torreyana*)
Plymouth gentian (*Sabatia kennedyana*)
Quill-leaved arrowhead (*Sagittaria teres*)
Untubercled bulrush (*Scirpus etuberculatus*)
Coast violet (*Viola brittoniana*)

Return to table of contents

APPENDIX C

SHORELAND AND AQUATIC COASTAL HABITATS OF SPECIAL EMPHASIS SPECIES IN SOUTHERN NEW ENGLAND AND NEW YORK

A. Primary focus of the Northeast Coastal Areas Study is on those breeding/spawning areas, nursery areas, feeding/staging areas, wintering areas and migration pathways of importance to Federal trust species of regional or national significance, particularly those in the following groups:

- Migratory birds
- Anadromous fish
- Endangered species of fish, wildlife and plants (Federally listed, proposed and candidates)
- Marine mammals
- Native species populations on Federal lands
- Recreationally and commercially important species
- Ecologically significant species
- Depredating, nuisance, exotic and potentially invasive species

In addition, other habitats and areas of special emphasis are:

- Areas of significant biological diversity

Outstanding representatives of Regional Coastal Community types

B. Significant Coastal Habitat Types* in Southern New England and Long Island

- Maritime grasslands
- Vegetated tidal wetlands (freshwater and brackish) with contiguous upland buffers
- Sandplain grasslands and heathlands
- Coastal Plain freshwater and brackish ponds
- Pitch Pine/Scrub Oak barrens
- Atlantic White Cedar swamps
- Colonial bird rookeries

- Relatively undisturbed sand beaches and contiguous dunelands
- Intertidal mud and sand flats
- Submerged aquatic vegetation beds
- Relatively undisturbed and free-flowing freshwater coastal streams
- Shellfish beds
- Floodplain forests
- Productive subtidal shoal areas
- Open peatlands
- Marine mammal pupping and hauling out islands (seal islands and rocks)

* Preferred or Important Habitats of Federal Trust Species/Species of Special Emphasis.

Return to table of contents

APPENDIX D

Summary of Relevant Applicable Enforceable Policies

APPENDIX D

Summary of Relevant Applicable Enforceable Policies

General Resources

1. *"The general assembly hereby declares that the policy of the state of Connecticut is to conserve, improve and protect its natural resources and environment and to control air, land and water pollution in order to enhance the health, safety and welfare of the people of the state"* C.G.S. section 22a-1 as referenced by C.G.S. section 22a-92(a)(2)

Coastal Waters and Estuarine Embayments

2. *"To manage estuarine embayments so as to insure that coastal uses proceed in a manner that assures sustained biological productivity, the maintenance of healthy marine populations and the maintenance of essential patterns of circulation, drainage and basin configuration"* CGS section 22a-92(c)(2)(A)

Islands

3. *"To manage undeveloped islands in order to promote their use as critical habitats for those bird, plant and animal species which are indigenous to such islands or which are increasingly rare on the mainland"* CGS section 22a-92(b)(2)(H)

4. *"To maintain the value of undeveloped islands as a major source of recreational open space"* CGS section 22a-92(b)(2)(H)

5. *"To disallow uses which will have significant adverse impacts on islands or their resource components"* CGS section 22a-92(b)(2)(H)

Rocky Shorefront

6. *"To manage rocky shorefronts so as to insure that the development proceeds in a manner which does not irreparably reduce the capability of the system to support a healthy*

intertidal biological community; to provide feeding grounds and refuge for shorebirds and finfish and to dissipate and absorb storm and wave energies"

Shellfish Concentration Area

7. *"To manage the state's fisheries in order to promote the economic benefits of commercial and recreational fishing, enhance recreational fishing opportunities, optimize the yield of all species, prevent the depletion or extinction of indigenous species, maintain and enhance the productivity of natural estuarine resources and preserve healthy fisheries resources for future generations"* CGS section 22a-92(c)(1)(I)

Tidal Wetlands

8. *"To preserve tidal wetlands and to prevent the despoliation and destruction thereof in order to maintain their vital natural functions"* CGS section 22a-92(b)(2)(E)

9. *"To encourage the rehabilitation and restoration of degraded tidal wetlands"* CGS section 22a-92(b)(2)(E)

10. *"In granting, denying or limiting any permit the commissioner or his duly designated hearing officer shall consider the effect of the proposed work with reference to the public health and welfare, marine fisheries, shellfisheries, wildlife, the protection of life and property from flood, hurricane and other natural disasters, and the public policy set forth in Sections 22a-28 to 22a-35, inclusive"* CGS section 22a-33 as referenced by CGS section 22a-92(a)(2)

General Development

11. *"To insure that the development, preservation or use of the land and water resources of the coastal area proceeds in a manner consistent with the capability of the land and water resources to support development, preservation or use without significantly disrupting either the natural environment or sound economic growth"* CGS section 22a-92(a)(1)

Coastal Structures & Filling

12. *"The commissioner of environmental protection shall regulate dredging and the erection of structures and the placement of fill, and work incidental thereto, in the tidal, coastal, and navigable waters of the state waterward of the high tide line. Any decisions made by the commissioner pursuant to this section shall be made with due regard for indigenous aquatic life, fish and wildlife, the prevention or alleviation of shore erosion and coastal flooding, the use and development of adjoining uplands, the improvement of coastal and inland navigation for all vessels, including small craft for recreational purposes, the use and development of adjacent lands and properties and the interests of the state, including pollution control, water quality, recreational use of public water and management of coastal resources, with proper regard for the rights and interests of all persons concerned"* CGS section 22a-359(a) as referenced by CGS section 22a-92(a)(2)

Dredging

13. *"The commissioner of environmental protection shall regulate the taking and removal of sand, gravel and other materials from lands under tidal and coastal waters with due regard for the prevention and alleviation of shore erosion, the protection of necessary shellfish grounds and finfish habitats, the preservation of necessary wildlife habitats, the development of adjoining uplands, the rights of riparian property owners, the creation and improvement of channels and boat basins, the improvement of coastal and inland navigation for all vessels, including small craft for recreational purposes and the improvement, protection or development of uplands bordering upon tidal and coastal waters, with due regard for the rights and interests of all persons concerned"* CGS section 22a-383 as referenced by CGS section 22a-92(a)(2)

Energy Facilities

14. *"The legislature finds that power generating plants and transmission lines for electricity and fuels have had a significant impact on the ecology of the state of Connecticut; and that continued operation and development of such power plants, lines and towers, if not properly planned and controlled, could adversely affect the quality of the environment, the ecological, scenic, historic and recreational values of the state. The purposes of this*

chapter are: to provide for the balancing of the need for adequate and reliable public services at the lowest reasonable cost to consumers with the need to protect the environment and ecology of the state and to minimize damage to scenic, historic and recreational values; to provide environmental quality standards and criteria for the location, design, construction and operation of facilities for the furnishing of public utility services at least as stringent as the federal environmental quality standards and criteria, and technically sufficient to assure the welfare and protection of the people of the state" CGS section 16-50g

Water-dependent Uses

15. *"To give high priority and preference to uses and facilities which are dependent upon proximity to the water or on the shorelands immediately adjacent to marine and tidal waters."* CGS section 22a-92(a)(3)

16. *"To manage uses in the coastal boundary through existing municipal planning, zoning and other local regulatory authorities and through existing state structures, dredging, wetlands, and other state siting and regulatory authorities, giving highest priority and preference to water-dependent uses and facilities in shorefront areas."* CGS section 22a-92(b)(1)(A).

National Interest Facilities and Resources

17. *To insure that the state and the coastal municipalities provide adequate planning for facilities and resources which are in the national interest as defined in section 3 of this act and to insure that any restrictions or exclusions of such facilities or uses are reasonable. Reasonable grounds for the restriction or exclusion of a facility or use in the national interest shall include a finding that such a facility or use: (A) may reasonably be sited outside the coastal boundary; (B) fails to meet any applicable federal and state environmental, health or safety standard or (C) unreasonably restricts physical or visual access to coastal waters. This policy does not exempt any nonfederal facility in use from any applicable state or local regulatory or permit program nor does it exempt any federal facility or use from the federal consistency requirements of section 307 of the federal Coastal Zone Management Act.* CGS Sec. 22a-92(a)(10)

Coordination and Consistency

18. *"The general assembly finds that the growing population and expanding economy of the state have had a profound impact on the life-sustaining natural environment. The air, water, land and other natural resources, taken for granted since the settlement of the state, are now recognized as finite and precious. It is now understood that human activity must be guided by and in harmony with the system of relationships among the elements of nature. Therefore the general assembly hereby declares that the policy of the state of Connecticut is to conserve, improve and protect its natural resources and environment and to control air, land and water pollution in order to enhance the health, safety and welfare of the people of the state."* CGS section 22a-1, as referenced by CGS section 22a-92(a)(2)

Important Adverse Impact Definitions

19. *Characteristics & Functions of Resources: Degrading tidal wetlands, beaches and dunes, rocky shorefronts, and bluffs and escarpments through significant alteration of their natural characteristics or function.* CGS section 22a-93(15)(H)

20. *Water-Dependency: Adverse impacts on future water-dependent development opportunities" and "adverse impacts on future water-dependent development activities" include but are not limited to (A) locating a non-water-dependent use at a site that (i) is physically suited for a water-dependent use for which there is a reasonable demand or (ii) has been identified for a water-dependent use in the plan of development of the municipality or the zoning regulations; (B) replacement of a water dependent use with a non-water-dependent use; and (C) siting of a non-water-dependent use which would substantially reduce or inhibit existing public access to marine or tidal waters.* CGS section 22a-93(17)

21. *Water Quality: Degrading water quality through the significant introduction into either coastal waters or groundwater supplies of suspended solids, nutrients, toxics, heavy metals or pathogens, or through the significant alteration of temperature, pH, dissolved oxygen or salinity.* CGS section 22a-93(15)(A)

22. *Wildlife, Finfish, Shellfish Habitat: Degrading or destroying essential wildlife, finfish or shellfish habitat through significant alteration of the composition, migration patterns, distribution, breeding or other population characteristics of the natural species or significant alteration of the natural components of the habitat.* CGS section 22a-93 (15)(G)

APPENDIX E

Shellfishing Area Classifications

This document involves pipeline location information and is not available at this Internet site due to homeland security-related considerations. This portion of the Islander East consistency appeal administrative record may be reviewed at NOAA's Office of General Counsel for Ocean Services, 1305 East-West Highway, Silver Spring, Maryland.