

**FINAL
RESTORATION PLAN AND ENVIRONMENTAL
ASSESSMENT
FOR THE LIBERTY INDUSTRIAL FINISHING
SUPERFUND SITE,
FARMINGDALE, NASSAU COUNTY, NEW YORK**

August 30, 2005

Prepared by:

National Oceanic and Atmospheric Administration

and

United States Fish and Wildlife Service

on behalf of the

U.S. Department of the Interior

TABLE OF CONTENTS

1 INTRODUCTION	4
1.1 AUTHORITY	4
1.2 NEPA COMPLIANCE	4
1.3 PUBLIC PARTICIPATION	5
1.4 ADMINISTRATIVE RECORD	6
2 INJURY AND ECOLOGICAL SERVICE LOSS EVALUATION	6
2.1 OVERVIEW OF THE SITE	6
2.1.1 Human Use Characteristics	7
2.1.2 Surface Water Characteristics	7
2.1.3 Habitat Characteristics	7
2.2 SUMMARY OF THE REMEDIAL INVESTIGATION	8
2.3 ASSESSMENT OF RESOURCE INJURIES AND COMPENSATION REQUIREMENTS	8
2.3.1 Injury Determination and Quantification	9
2.3.2 Injury Assessment Approach	9
2.3.3 Preliminary Restoration Approach	10
2.3.4 Restoration Scaling Approach	10
3 THE AFFECTED ENVIRONMENT	11
3.1 THE PHYSICAL ENVIRONMENT	11
3.2 THE BIOLOGICAL ENVIRONMENT	13
3.3 THE CULTURAL AND HUMAN ENVIRONMENT	13
4 INJURY AND SERVICE LOSS EVALUATION	13
4.1 PATHWAYS OF CONTAMINATION TO TRUST RESOURCES	13
4.2 CONTAMINANTS OF CONCERN (COCS)	14
4.3 INJURY ASSESSMENT & FINDINGS	14
5 THE RESTORATION PLANNING PROCESS	14
5.1 RESTORATION OBJECTIVE	14
5.2 RESTORATION SELECTION CRITERIA	15
5.3 RESTORATION ALTERNATIVES	16
5.3.1 Alternative 1: No Action	16
5.3.2 Alternative 2: Fish Ladder at the Massapequa Lake Spillway	16
6 EVALUATION OF ALTERNATIVES AND ENVIRONMENTAL CONSEQUENCES	17
7 ENVIRONMENTAL CONSEQUENCES	18
7.1 NATURE OF LIKELY IMPACTS	18
7.2 EFFECTS ON PUBLIC HEALTH AND SAFETY	19
7.3 UNIQUE CHARACTERISTICS OF THE GEOGRAPHIC AREA	19
7.4 CONTROVERSIAL ASPECTS OF THE PROJECT OR ITS EFFECTS	19
7.5 UNCERTAIN EFFECTS OR UNKNOWN RISKS	19
7.6 PRECEDENTIAL EFFECTS OF IMPLEMENTING THE PROJECT	19
7.7 POSSIBLE, SIGNIFICANT CUMULATIVE IMPACTS	20

7.8 EFFECTS ON NATIONAL HISTORIC SITES OR NATIONALLY SIGNIFICANT CULTURAL, SCIENTIFIC OR HISTORIC RESOURCES..... 20

7.9 EFFECTS ON ENDANGERED OR THREATENED SPECIES 20

7.10 VIOLATION OF ENVIRONMENTAL PROTECTION LAWS..... 20

8 CONCLUSION & FINDING OF NO SIGNIFICANT IMPACT ON THE QUALITY OF THE HUMAN ENVIRONMENT 21

9 REFERENCES 22

10 LIST OF PERSONS/AGENCIES CONSULTED..... 22

11 LIST OF PREPARERS 22

Appendix A - COMPLIANCE WITH KEY STATUTES, REGULATIONS AND POLICIES 23

1 INTRODUCTION

This Final Restoration Plan and Environmental Assessment (RP/EA) has been developed by the National Oceanic and Atmospheric Administration (NOAA) of the U. S. Department of Commerce and the United States Fish and Wildlife Service (USFWS) on behalf of the U.S. Department of the Interior (DOI), and in consultation with the New York State Department of Environmental Conservation (NYSDEC) (collectively, "the Trustees") to address natural resources, including ecological services, injured, lost or destroyed due to releases of hazardous substances in areas at or adjacent to the Liberty Industrial Finishing Superfund Site (the "Site") in Farmingdale, Nassau County, New York.

The RP/EA identifies the restoration action(s) that the Settling Defendants and the Trustees plan to implement as part of a natural resource settlement for natural resource injury in areas at or adjacent to the Site. The Settling Defendants are Coltec Industries, Inc; 55 Motor Avenue LLC; Cubbies Properties, Inc.; Goodrich Corporation; Beazer East, Inc.; Koch-Glitsch LP; Liberty Associates; William Heller; Jan Burman; Jerome Lazarus; Jefry Rosmarin; and J. Jay Tanenbaum. The federal potentially responsible parties (PRPs) are U.S. Department of Defense and General Services Administration. The Trustees and the Settling Defendants reached a settlement agreement in principle concerning natural resource injuries at or adjacent to the Site in an effort to avoid costly litigation and because of a mutual desire to find an acceptable resolution to the Trustees' natural resource injury claims. In this RP/EA, the Trustees' natural resource injury claim would be compensated by the restoration of diadromous fish passage from the Massapequa Tidal Channel to Massapequa Lake, resulting in access to approximately 40 acres of freshwater habitat. In this case, the damages associated with natural resource injuries in areas at or adjacent to the Site will be compensated in terms of habitat and ecological services restored under Trustee supervision.

1.1 AUTHORITY

This RP/EA was prepared jointly by the Trustees pursuant to their respective authority and responsibilities as natural resource Trustees under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 U.S.C. § 9601, et seq.; the Federal Water Pollution Control Act, 33 U.S.C. § 1251, et seq. (also known as the Clean Water Act [CWA]), and other applicable federal or state laws, including Subpart G of the National Oil and Hazardous Substances Contingency Plan (NCP), at 40 C.F.R. §§ 300.600 through 300.615, and DOI's CERCLA natural resource damage assessment regulations at 43 C.F.R. Part 11 (NRDA regulations) which provide guidance for this restoration planning process under CERCLA.

1.2 NEPA COMPLIANCE

Actions undertaken by the Trustees to restore natural resources or services under CERCLA and other federal laws are subject to the National Environmental Policy Act

(NEPA), 42 U.S.C. § 4321 *et seq.*, and the regulations guiding its implementation at 40 C.F.R. Parts 1500 through 1517. NEPA and its implementing regulations outline the responsibilities of federal agencies under NEPA, including for preparing environmental documentation. In general, federal agencies contemplating implementation of a major federal action must produce an environmental impact statement (EIS) if the action is expected to have significant impacts on the quality of the human environment. When it is uncertain whether a contemplated action is likely to have significant impacts, federal agencies prepare an environmental assessment (EA) to evaluate the need for an EIS. If the EA demonstrates that the proposed action will not significantly impact the quality of the human environment, the agency issues a Finding of No Significant Impact (FONSI), which satisfies the requirements of NEPA, and no EIS is required. For a proposed restoration plan, if a FONSI determination is made, the Trustees may then issue a final restoration plan describing the selected restoration action(s).

In accordance with NEPA and its implementing regulations, this RP/EA summarizes the current environmental setting, describes the purpose and need for restoration actions, identifies alternative actions, assesses their applicability and potential impact on the quality of the physical, biological and cultural environment, and summarizes the opportunity the Trustees provided for public participation in the decision-making process. This information was used to make a threshold determination as to whether preparation of an EIS was required prior to selection of the final restoration actions. Based on the Environmental Assessment integrated in this document, the Trustees determined that the proposed restoration action does not meet the threshold that requires an EIS. Therefore, the federal agencies participating in this restoration planning process have issued a Finding of No Significant Impact (FONSI).

1.3 PUBLIC PARTICIPATION

The Trustees prepared this RP/EA to provide the public with information on the natural resource injuries and service losses assessed in connection with the Site, the restoration objectives that have guided the Trustees in developing this plan, the restoration alternatives that were considered, the process used by the Trustees to identify preferred restoration alternatives and the rationale for their selection. Public review of the restoration plan proposed in this RP/EA is an integral and important part of the restoration planning process and is consistent with all applicable state and federal laws and regulations, including NEPA and its implementing regulations, and the guidance for restoration planning found within 43 C.F.R. Part 11.

The Trustees made a draft of this RP/EA (Draft RP/EA) available for review and comment by the public for a period of 45 days, beginning on June 10, 2005, and ending on July 25, 2005. A notice announcing the availability of the Draft RP/EA and the public comment period was published in the *Farmingdale Observer* and *Massapequan Observer* on June 10, 2005. The Trustees received no comments on the Draft RP/EA.

1.4 ADMINISTRATIVE RECORD

The Trustees have maintained records documenting the information considered and actions taken by the Trustees during this restoration planning process, and these records collectively comprise the Trustees' administrative record (AR) supporting this RP/EA. Information and documents are included in this AR as received or completed. These records are available for review by interested members of the public. Interested persons can access or view these records at the offices of:

NOAA Coastal Protection and Restoration Division
290 Broadway
New York, NY 10007
Phone: 212-637-3257
Fax: 212-637-4207

Arrangements must be made in advance to review or to obtain copies of these records by contacting the office listed above. Access to and copying of these records are subject to all applicable laws and policies including, but not limited to, laws and policies relating to copying fees and the reproduction or use of any material that is copyrighted.

2 INJURY AND ECOLOGICAL SERVICE LOSS EVALUATION

This section generally describes the Site, summarizes the response actions which were undertaken, summarizes the Trustees' assessment of natural resource injuries in areas at or adjacent to the Site and compensation requirements related to this assessment.

2.1 OVERVIEW OF THE SITE

The Site includes a 30-acre property in Farmingdale, New York, that was used for the manufacturing of aircraft parts and trailers from the late 1930s until 1948 and by the Liberty Industrial Finishing Corporation as a metal plating and finishing facility from 1948 until 1978. The property is located 0.5 km north of Massapequa Creek which flows 8 km to South Oyster Bay, an estuary on the south shore of Long Island, New York. The plating and finishing operations at the facility included anodizing, electroplating, dyeing, and painting. Numerous industrial and light industrial businesses have leased and continue to lease space at the Site. Plating waste effluent containing cadmium and chromium was released to the groundwater through two on-site disposal basins. Unknown quantities of sludge were also deposited in a sludge drying bed.

For most of its length, Massapequa Creek is a non-tidal, freshwater stream and terminates in the Massapequa Tidal Channel which flows into South Oyster Bay. Massapequa Lake is the largest impoundment along the creek. Formed by a dam 3 feet high and 50 feet wide, Massapequa Lake is located 1 mile upstream of South Oyster Bay. The dam represents the upstream limit of tidal influence and estuarine water and prevents fish

passage farther upstream. Sediment and surface water of the freshwater portion of Massapequa Creek are contaminated with metals. The major contaminant pathway to Massapequa Creek is via groundwater.

2.1.1 Human Use Characteristics

The property is bordered by the Long Island Railroad to the north, Motor Avenue to the south, Main Street to the east and a small county park, Ellsworth Allen Park, to the west. The northwest corner of the Site abuts property owned by the South Farmingdale Water District which operates two deep public water supply wells at this location which is sidegradient of the Site. The surrounding area is primarily residential with several commercial establishments on the major roads. Approximately ten schools, both primary and secondary, are located within 1.5 miles of the Site. Groundwater from the Site flows through the Massapequa Preserve which serves as a public swimming and fishing area.

2.1.2 Surface Water Characteristics

Aside from standing water during heavy rainfall, the Site contains no streams, ponds or drainage ditches. Contaminants from the Site reach adjacent surface waters through storm drains and groundwater. Surface water affected by contaminants from the Site includes Massapequa Creek, and South Oyster Bay and Long Island Sound. Massapequa Creek is a non-tidal low flow freshwater stream supplied by an approximate 38 square mile watershed. Massapequa Preserve, 423 undeveloped acres of woodlands, ponds, lakes and freshwater wetlands, borders Massapequa Creek for almost 4 miles, from South Farmingdale to Merrick Road. The Creek empties into Massapequa Lake, a man-made impoundment, before discharging into South Oyster Bay. South Oyster Bay is an approximate 7700-acre area, which includes extensive areas of undeveloped salt marsh, tidal flats, dredge spoil islands, and open water. Water depths in South Oyster Bay are generally less than 6 feet below mean low water. Tidal fluctuations in the bay average approximately 3.6 - 4.2 feet.

2.1.3 Habitat Characteristics

Currently, approximately half the Site property (the western portion) consists of primarily vacant land that abuts the Preserve. The other half of the Site (the eastern portion) contains approximately ten buildings which are leased to a variety of tenants engaged in light industrial activities, such as trucking, warehousing, automobile parts salvaging operations, and product distribution. Little natural habitat remains on-site.

Off-site habitat is diverse from Massapequa Creek to South Oyster Bay. Habitats in the area include woodlands, wetlands, ponds, lakes, eelgrass beds, and tidal flats. These habitats support a wide variety of plant and animal species.

2.2 SUMMARY OF THE REMEDIAL INVESTIGATION

Surface water and sediment samples were collected in Massapequa Creek and the six associated ponds in 1992 for the U.S. Environmental Protection Agency's (EPA) Remedial Investigation and in 1998 and 1999 for the Site's ecological risk assessment. Areas downstream of the facility were studied, including the East Branch of Massapequa Creek, Massapequa Creek below the confluence of the East and West Branches, and six ponded areas on Massapequa Creek (Pond A and Ponds 1 through 5). The West Branch of Massapequa Creek was sampled as a reference area. Surface water samples exceeded EPA's Ambient Water Quality Criteria (AWQC) for chronic and acute effects for numerous metals, including aluminum (417 parts per billion [ppb]), cadmium (19.8 ppb), chromium⁺⁶ (49.4 ppb), copper (13 ppb) and lead (12 ppb). Criteria comparable to AWQC have not been established for sediment. Sediment concentrations were compared to published sediment benchmarks derived from paired laboratory bioassay and sediment chemistry studies relating toxicity to contaminant concentrations. Effects to benthic organisms are predicted to be rare below Threshold Effects Levels (TELs) and Effects Range-Low (ER-L) concentrations. The incidence of adverse effects increases above these concentrations and has a much higher probability of adverse effects to benthic biota at concentrations above the Probable Effects Level (PEL) and Effects Range-Median (ER-M). Sediment concentrations exceeded TEL, ER-L, PEL, and ER-M concentrations for metals, including arsenic (13.5 parts per million [ppm]), cadmium (248 ppm), chromium (839 ppm), copper (162 ppm), lead (1160 ppm), manganese (2930 ppm), mercury (1.2 ppm), nickel (43.7 ppm), silver (2.2 ppm) and zinc (801 ppm).

On-site groundwater sampling has identified two distinct plumes. Plume A, which originates on the western portion of the Site, is characterized by trichloroethylene (TCE) (1,500 ppb), cis-1,2-dichloroethylene (810 ppb), perchloroethylene (PCE) (2 ppb), chromium (156 ppb), and cadmium (262 ppb) contamination. Plume B, originating upgradient of the Site, is primarily contaminated with PCE (1,100 ppb). Plume B is not the result of releases at the Site and is currently being investigated by EPA and NYSDEC. Primary contaminants in soil were TCE (5.09 ppm), cadmium and chromium. Sediment samples collected in Massapequa Lake (also known as "Pond 5"), the most downstream pond sampled, had concentrations of cadmium and lead exceeding the ER-Ms and chromium and copper exceeding the ER-Ls.

2.3 ASSESSMENT OF RESOURCE INJURIES AND COMPENSATION REQUIREMENTS

This section begins with an overview that describes the Trustees' assessment strategy, including the approaches used to determine potential injuries to specific resources affected by hazardous substance releases from the Site. The remainder of the section describes the approach used to estimate the ecological service losses and presents the results of these assessments. The term ecological services means the "physical and biological functions performed by the resource including the human uses of those

functions. These services are the result of the physical, chemical, or biological quality of the resource.” (43 C.F.R. § 11.14[nn]).

2.3.1 Injury Determination and Quantification

The Trustees’ assessment of natural resource injuries focused on identifying the injury or losses of natural resources which were likely or known to have resulted from contamination at or adjacent to the Site, including injuries due to the remedies undertaken. Cadmium and chromium were the primary Contaminants of Concern (COCs) for natural resource damage assessment purposes. These hazardous substances were also found in surface waters and sediments adjacent to the Site.

Using data and other information developed as part of the remedial investigation process, as well as information on these contaminants in the existing scientific literature, the Trustees assessed impacts to natural resources. Bioassays measured reduced growth and survival of test species exposed to sediment from the Site, the benthic macroinvertebrate community was low in diversity and abundance except for pollution-tolerant species, and cadmium, chromium, and lead were elevated in fish tissue.

The Trustees found that resources or resource services were lost due to the release of hazardous substances in certain areas adjacent to the Site, were injured due to the migration of hazardous substances into Massapequa Creek, and were harmed by exposure to surface waters and sediments contaminated by releases from the Site.

2.3.2 Injury Assessment Approach

The goal of this assessment was to determine the nature and extent of injuries to natural resources and to quantify the resulting resource and service losses, thus providing a technical basis for evaluating the need for, type of, and scale of restoration actions.

The injury assessment process occurred in two stages: 1) injury evaluation and 2) resource and service loss quantification. To evaluate potential injury to resources, the Trustees reviewed existing information, including remedial investigation data, ecological risk assessments, and scientific literature. Based on information from all of these sources and with an understanding of the function of the terrestrial and aquatic ecosystems at and near the Site, the Trustees evaluated injury to natural resources. The Trustees considered several factors when making this evaluation, including, but not limited to:

- the specific natural resource and ecological services of concern;
- evidence indicating exposure, pathway and injury;
- the mechanism by which injury occurred;
- the type, degree, spatial and temporal extent of injury; and
- types of restoration actions that are appropriate and feasible.

For each resource category (either a group of organisms or a habitat type) that was potentially affected, the Trustees identified a pathway linking the injury to releases at or adjacent to the Site, determined whether an injury is likely to occur or has occurred, and identified the nature of the injury. To undertake this effort, an understanding of the important contaminants was necessary. The evaluation of the COCs and their pathways to ecological receptors is described in the next two sections. Following the identification of the contaminants, the Trustees then were able to evaluate those resources that have been adversely affected by releases from the Site.

2.3.3 Preliminary Restoration Approach

This assessment was designed for injury assessment and restoration planning to occur simultaneously, utilizing a restoration-based approach. Under a restoration-based approach, the focus of the assessment is on quantifying the injuries and/or losses in natural resources and ecological services in ways that facilitate the identification of restoration projects that will compensate the public with the same level, type and quality of resources and ecological services that were lost. This restoration-based assessment approach is consistent with the CERCLA NRDA regulations, which allow restoration planning to be included as part of the Assessment Plan Phase where available data are sufficient to support their concurrent development (43 C.F.R. § 11.31).

2.3.4 Restoration Scaling Approach

Habitat Equivalency Analysis (HEA), scientific literature, and knowledge of the affected ecosystem were used to determine how much credit could be realized from a restoration project, such as enhancing a degraded environment or preserving an existing environment. Various inputs were considered, such as the level of ecological services currently provided at the proposed location, the threat of destruction of the habitat by human encroachment and the potential for inundation. The analysis calculation determined how many discounted service-acre-years (DSAYs) could be credited for a given restoration project. The DSAYs were then converted to the amount of acreage that would be necessary for compensation for a specific type of injured habitat.

A HEA was conducted for the freshwater portion of the Massapequa Creek system upstream of Merrick Road which includes approximately 63 acres of aquatic habitat. The amount of injured habitat was defined as the areas containing sediment concentrations exceeding the risk-based remediation goals, or approximately 17.9 acres of the total 75-acre habitat. Percent service losses were assigned to subareas that were grouped by habitat type and degree of injury. Assigned service losses of 10-15 %, were based on injury to habitats supporting trust resources, including catadromous eel in the upstream habitats and forage fish supporting piscivorous migratory birds. Passage for four species of anadromous fish (alewife, blueback herring, striped bass, and white perch) is currently restricted by the dam at Massapequa Lake, but historically these species had upstream access. Service losses were calculated for 56 years to include both past injury as well as future loss until the proposed restoration project is fully functional in terms of ecological

services provided. This analysis resulted in a total of 100 DSA Ys which was converted into 10 acres of in-kind, in-place habitat. Thus, the purpose and the need of this restoration action is creation of 10 acres of in-kind, in-place habitat or the equivalent to compensate the Trustees' natural resource damages claim under CERCLA.

3 THE AFFECTED ENVIRONMENT

This section describes the physical, biological and cultural environment in the project area that forms the basis for evaluation of the potential environmental impacts of the selected restoration actions. Resource areas described in this section correspond to the range of resource areas addressed in Section 5, "The Restoration Planning Process," of this Draft RP/EA.

3.1 THE PHYSICAL ENVIRONMENT

Massapequa Creek is the closest surface water body to the Site and flows south to South Oyster Bay through a series of ponds in the Massapequa Preserve, a state park. (Figure 1) For most of its length, Massapequa Creek is a nontidal, freshwater stream. Massapequa Lake is the largest impoundment along the creek. Formed by a dam 3 feet high and 50 feet wide, Massapequa Lake is located 1 mile upstream of South Oyster Bay. The dam represents the upstream limit of tidal influence and estuarine water and prevents fish passage further upstream. South Oyster Bay is an estuary on the south shore of Long Island, New York. Average depth is relatively shallow (2 to 7 feet). Salinities in South Oyster Bay range from 20 to 30 parts per thousand. Tidal amplitude in the bay averages approximately 1.5 feet. Bottom substrates are composed primarily of sand, silts, and mud, with beds of eelgrass interspersed throughout. Numerous small islands comprised largely of estuarine intertidal wetlands are located within South Oyster Bay. Sediment and surface water of the freshwater portion of Massapequa Creek are contaminated with metals. The major contaminant pathway to Massapequa Creek is via groundwater. Surface runoff may also impact the Creek. Contaminated sediment from the ponds is a potential source of contamination to the tidal channel of Massapequa Creek downstream of Massapequa Lake.

MASSAPEQUA CREEK AND ASSOCIATED PONDS

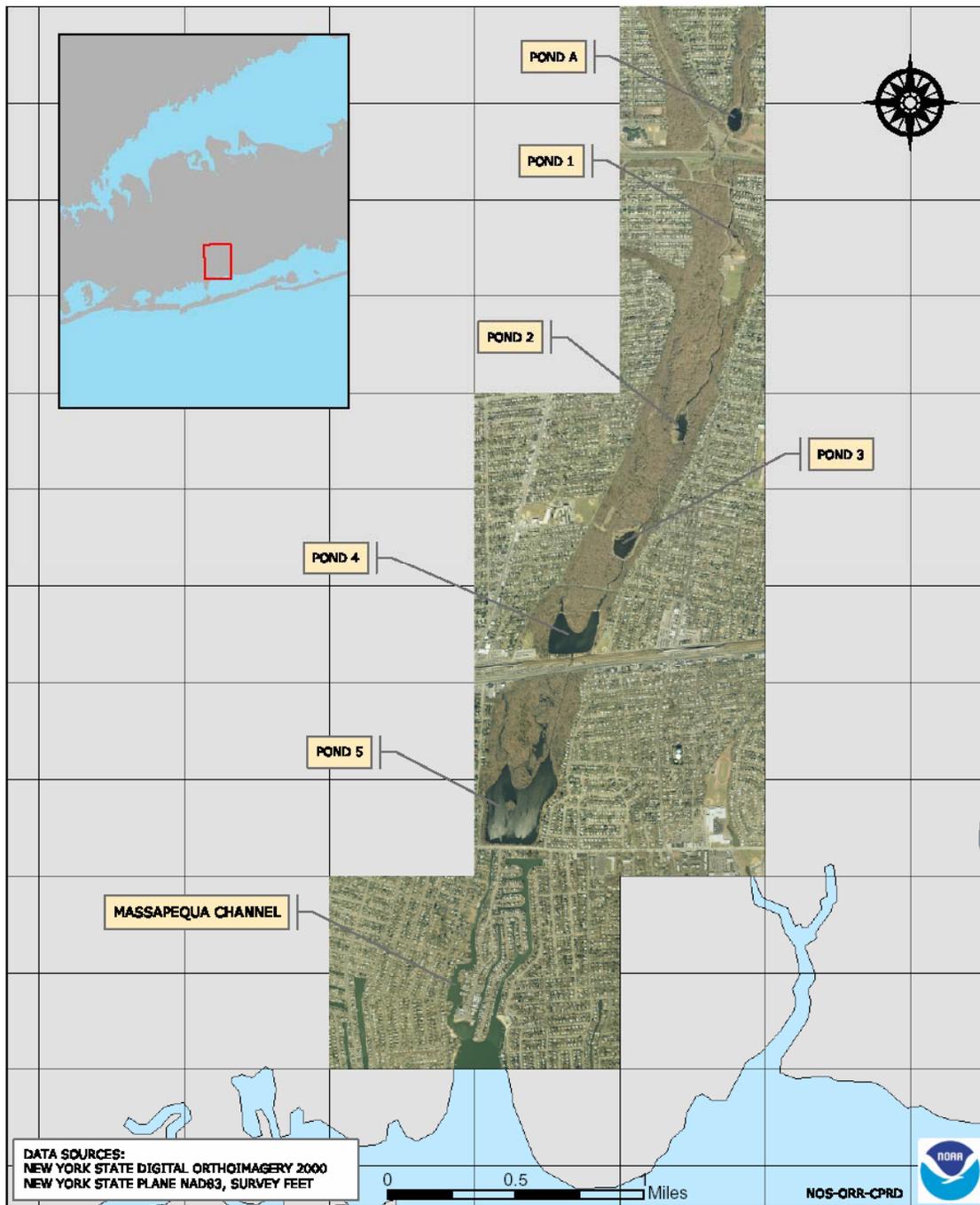


Figure 1: Massapequa Creek System, Nassau County, New York.

3.2 THE BIOLOGICAL ENVIRONMENT

Off-site habitat is diverse from Massapequa Creek to South Oyster Bay. Habitats in the area include woodlands, wetlands, ponds, lakes, eelgrass beds, and tidal flats. These habitats support a wide variety of plant and animal species. Aquatic organisms most affected by contamination of surface water and sediments include benthic macroinvertebrates, fish, and shellfish.

South Oyster Bay comprises one of the largest, undeveloped, coastal wetland ecosystems in New York State. This highly diverse area is important to fish and wildlife throughout the year. The salt marshes, tidal flats, and shallows in this area provide valuable feeding areas for birds nesting here and for many other species during migration (shorebirds in particular). South Oyster Bay is one of the most important waterfowl wintering areas (November - March) on Long Island. Mid-winter aerial surveys of waterfowl abundance for the ten year period 1975-1984 indicate average concentrations of nearly 3,300 birds in the bay each year.

In addition to having significant bird concentrations, South Oyster Bay is a productive area for marine finfish, shellfish, and other wildlife. The bay serves as a nursery and feeding area (April - November, generally) for bluefish, winter flounder, summer flounder, kingfish, weakfish, blackfish, snapper, scup, blue claw crab, and forage fish species such as Atlantic silverside, menhaden, pipefish, and sticklebacks. Shellfish in the bay include soft clam, hard clam, scallop, ribbed mussel and blue claw crab.

3.3 THE CULTURAL AND HUMAN ENVIRONMENT

All of South Oyster Bay is open to the public for waterfowl hunting, and the area supports a regionally significant hunting population. As a result of the abundant fisheries resources in the bay, and its proximity to the New York metropolitan area, South Oyster Bay receives heavy recreational fishing and shellfishing pressure of regional significance. There is also considerable potential for harvesting young clams from the area for transplanting into commercial aquaculture areas.

4 INJURY AND SERVICE LOSS EVALUATION

4.1 PATHWAYS OF CONTAMINATION TO TRUST RESOURCES

A pathway is defined as the route or medium (for example, water or soil) through which hazardous substances are transported from the source of contamination to the natural resource of concern (43 C.F.R. § 11.14). The Trustees concluded that the primary transport pathway to habitats of concern was groundwater.

4.2 CONTAMINANTS OF CONCERN (COCS)

One of the early steps of the damage assessment was to identify which contaminants should be included on the list of COCs. The Trustees participated in this evaluation during the remedial investigation process by determining which contaminants released in the assessment areas at or adjacent to the Site could pose a risk to ecological receptors.

The Trustees determined that the contaminants threatening trust natural resources at and adjacent to the Site were metals, primarily cadmium, chromium, copper, lead, and zinc. These hazardous substances were found in the surface waters, sediments, groundwater, and biota at or near the Site.

4.3 INJURY ASSESSMENT & FINDINGS

Assessment of the present condition of the injured resources and evaluation of the reduction in ecological services from the injured resources provided the measure of injuries to natural resources and loss of services as a result of releases of hazardous substances from the Site. This quantification included accounting for the time required for the injured resources to recover through natural or enhanced means to their pre-release (“baseline”) condition.

HEAs were conducted for two areas along the Massapequa Creek system: Pond A (3 acres) and Ponds 1 through 5 (60 acres). The percent of each of the areas used in the HEA was equivalent to the percent of samples that exceeded one or both of the risk-based preliminary remediation goals presented in the EPA Baseline Ecological Risk Assessment (50 ppm cadmium and 260 ppm chromium) that identifies the threshold for adverse effects in ecological receptors. Using this assumption, 2.6 acres was the value used for the calculation of injury within Pond A and 15 acres collectively was used as the value for the calculation of injury for Ponds 1 through 5. Using these values in the HEA, 1 acre of in-kind restoration would be required for impacts to Pond A and 9 acres of in-kind restoration would be required for impacts to Ponds 1 through 5, collectively.

5 THE RESTORATION PLANNING PROCESS

5.1 RESTORATION OBJECTIVE

The overall objective of the restoration planning process is to identify restoration alternatives that are appropriate to restore, rehabilitate, replace or acquire natural resources and their services equivalent to natural resources injured or lost as a result of releases of hazardous substances. The restoration planning process may involve two components: primary restoration and compensatory restoration. Primary restoration actions are actions designed to assist or accelerate the return of resources and services to their pre-injury or baseline levels. In contrast, compensatory restoration actions are

actions taken to compensate for interim losses of natural resources and services, pending return of the resources and their services to baseline levels.

In this instance, remedial actions undertaken at the Site were expected to protect natural resources in the vicinity of the Site from further or future harm and allow natural resources to return to pre-injury or baseline conditions within a reasonable period of time. Under these circumstances, it was unnecessary for the Trustees to consider or plan for primary restoration actions. Accordingly, this Draft RP/EA only addresses the need for compensatory restoration action.

Projects near the Site boundaries were limited due to the dense human population of this area. However, priority was given to nearby projects that could enhance or restore habitat for trust species. Therefore, the best location for a restoration project was determined to be within the Massapequa Preserve. Nassau County and New York State have proposed a series of restoration activities for the Massapequa Preserve as part of a "Massapequa Preserve Streamflow Augmentation and Pond Restoration" plan. This plan has been approved by the County and the State, but many of the projects have not received funding. Of the unfunded projects proposed in the plan, the restoration of diadromous fish runs within the Preserve would provide the most benefit to trust species. Establishing fish runs in this system would compensate for the injuries to habitat supporting trust resources by increasing the diversity of resource use that was reduced by contamination. As selected by this RP/EA, the Trustees' natural resource injury claim is to be compensated by the restoration of diadromous fish passage from the Massapequa Tidal Channel to Massapequa Lake, resulting in access to approximately 40 acres of freshwater habitat.

In accordance with NRDA regulations, the Trustees identified and evaluated reasonable project alternatives that could be used to create and enhance fish passage in the Massapequa Creek watershed. The Trustees reviewed available projects and consulted with individuals with knowledge of specific projects or of the benefits and feasibility of the alternatives, based on project design. In identifying and evaluating these alternatives, the Trustees also sought to ensure the restoration action selected would be capable of providing multiple benefits or services to ensure the action(s) undertaken provide the greatest overall benefit to the public. The restoration project alternatives identified were considered carefully by the Trustees based on the criteria outlined below. The preferred restoration project alternative is identified in Section 6, "Evaluation of Alternatives and Environmental Consequences," of this RP/EA.

5.2 RESTORATION SELECTION CRITERIA

In accordance with the NRDA regulations, the following criteria were used to evaluate restoration project alternatives and identify the project(s) selected for implementation under this plan:

- Effectiveness: The extent to which each alternative can return the injured natural resources to baseline (primary restoration) or make the environment

whole for the interim lost services provided by the resources (compensatory restoration);

- Protectiveness: The extent to which implementation of the alternative avoids additional injury to the environment;
- Technical feasibility: The level of uncertainty in the success of each alternative;
- Cross-benefits: The extent to which each alternative benefits more than one resource and/or service;
- Collateral effects: Concurrent effects of each alternative on the environment;
- Consistency: Consistency with policies and compliance with federal, state, and local law; and
- Cost considerations.

5.3 RESTORATION ALTERNATIVES

The Trustees are required to assess all possible restoration alternatives. In their initial review of restoration alternatives, the Trustees identified desired characteristics for potential projects: 1) the restored habitat must be similar in type to the habitat impacted and provide similar services; 2) the project must be in the same watershed as the impacted habitat; and 3) the project must provide long-term or perpetual benefits to those resources that were known to have been or were potentially impacted, including fish and wildlife.

The Trustees evaluated the following two potential restoration alternatives:

5.3.1 Alternative 1: No Action

Under the No Action Alternative, no restoration, rehabilitation, replacement, or acquisition actions would occur. This alternative costs the least because no action would be taken, but such savings must be weighed against the potential for recovering loss.

In this case, if no action were taken, the goals and obligations of the restoration projects to restore diadromous fish passage would not be realized. If the No Action Alternative were selected, which would not replace the lost resources at all, the public and environment would not be made whole for past injuries from Site releases.

The No Action Alternative cannot be selected as the preferred alternative since compensatory restoration is already required by the Consent Decree but is retained for comparative purposes.

5.3.2 Alternative 2: Fish Ladder at the Massapequa Lake Spillway

Alternative 2 addresses restoration of fish passage at the spillway downstream of Massapequa Lake. Massapequa Lake is a 40-acre water body located near the southern end of the Massapequa Preserve in the Township of Oyster Bay, Nassau County, New York. Two architectural stone and concrete spillways, located at the dam at the southern end of Massapequa Lake, prevent diadromous fish passage from the estuarine habitat of the Lower Massapequa Creek to the freshwater habitat of Massapequa Lake and Creek. The spillways restrict the ability of anadromous fish to reach potential spawning areas in the lake. The most feasible option for restoring fish passage to this habitat is through construction of a fish ladder. Fish ladders were proposed and evaluated for the spillways at Massapequa Lake in Nassau County's Environmental Impact Statement (EIS) for the Massapequa Preserve Streamflow Augmentation and Pond Restoration. This project received the support of the local community, the County, and the State. Dam removal was not considered in the EIS prepared under the New York State Environmental Quality Review Act (SEQRA). A fish ladder would provide a passageway for diadromous fish to return to the lake. As a result of the HEA, the Trustees needed a restoration alternative that provided 10 acres of in-kind habitat creation or the equivalent. The Trustees presumed that a habitat access project of installation of a fish ladder (providing access to 40 acres of in-kind habitat) along with initial stocking of the lake with alewife and blueback herring will be equivalent to or exceed the HEA credit requirements and will therefore compensate for injury to trust resources.

6 EVALUATION OF ALTERNATIVES AND ENVIRONMENTAL CONSEQUENCES

The Trustees are required to evaluate each of the possible restoration projects based on all relevant considerations, including the following factors: technical feasibility; the relationship of the expected costs of the proposed actions to the expected benefits; the results of any actual or planned response actions; the potential for additional injury resulting from the proposed actions, including long-term and indirect impacts; the natural recovery period of the injured resources; the ability of the resources to recover with or without alternative actions; the potential effects of the action on human health and safety; consistency with relevant federal, state, and tribal policies; and compliance with applicable federal, state, and tribal laws. The Trustees must also give consideration to their ability to secure protection of the restoration site.

Given the restricted opportunities to accomplish the restoration goal of restoring diadromous fish passage in the Massapequa Creek watershed, the Trustees did not have many alternatives to consider. The Trustees retained both of the proposed restoration projects (Alternatives 1 and 2) described above for further evaluation. The No Action Alternative (Alternative 1) is the basis for comparison for Alternative 2. The No Action Alternative would cost the least of the two alternatives, but would not accomplish the restoration goal because it would not allow anadromous fish to access spawning ground above the spillway. Alternative 2 would cost more than the No Action Alternative, but offer more recovery of lost resources and services. The judicial Consent Decree settling this natural resource damages claim mandates implementation of this restoration project, and this RP/EA selects Alternative 2 as the restoration alternative.

The HEA resulted in a need for a minimum of 10 acres of in-kind habitat restoration to compensate for the injury to the freshwater portion of Massapequa Creek. Alternative 2, restoration of fish passage to Massapequa Lake coupled with initial stocking of alewife and blueback herring, would provide access to approximately 40 acres of freshwater habitat which would be equivalent to or exceed the ecological service levels provided by creation of 10-acres of in-kind restoration.

7 ENVIRONMENTAL CONSEQUENCES

Section 1508.27 of the NEPA regulations describes the minimum criteria that federal agencies should consider in evaluating the potential significance of proposed actions. The regulations explain that significance embodies considerations of both context and intensity. In the case of site-specific actions such as those proposed in this RP/EA, the appropriate context for considering significance of action was local, as opposed to national or worldwide.

With respect to intensity of the impacts of the proposed restoration action, the NEPA regulations (40 C.F.R. § 1508.27) suggest consideration of ten factors:

- likely impacts of the proposed project;
- likely effects of the project on public health and safety;
- unique characteristics of the geographic area in which the project is to be implemented;
- controversial aspects of the project or its likely effects;
- degree to which possible effects of implementing the project are highly uncertain or involve unknown risks;
- precedential effect of the project on future actions that may significantly affect the human environment;
- possible significance of cumulative impacts from implementing this and other similar projects;
- effects of the project on National Historic Places, or likely impacts to significant cultural, scientific or historic resources;
- degree to which the project may adversely affect endangered or threatened species or their critical habitat; and
- likely violations of environmental protection laws.

These factors, along with the federal Trustees' conclusions concerning the likely significance of impacts of the selected restoration action, are discussed in detail below.

7.1 NATURE OF LIKELY IMPACTS

The selected restoration action for injuries to natural resources at the Site consists of construction of a fish ladder and initial stocking of alewife and blueback herring. A fish ladder would benefit the Massapequa Creek system by providing passageway that may allow these species to return to their historical habitat. Construction of the fishladder adjacent to the dam will not have any impacts on the local physical, biological, and cultural/human environments. Native species will be stocked in Massapequa Creek. The Nassau County Department of Public Works has previously evaluated this fish ladder construction project along with a series of other projects in the EIS for the Massapequa Preserve Streamflow Augmentation and Pond Restoration finalized April 2004 under the New York SEQRA, New York Env'tl. Conserv. Law §§ 3-0301(1)(b), 3-0301(2)(m) and 8-0113, that determined the construction of this fish ladder would have no significant environmental impact.

7.2 EFFECTS ON PUBLIC HEALTH AND SAFETY

The Trustees do not expect the fish ladder construction and stocking to have any impacts on public health and safety. The fish ladder would not present any unique physical hazards to humans. No pollution or toxic discharges would be associated with the fish ladder construction.

7.3 UNIQUE CHARACTERISTICS OF THE GEOGRAPHIC AREA

No unique or rare habitat would be destroyed due to the fish ladder construction and stocking.

7.4 CONTROVERSIAL ASPECTS OF THE PROJECT OR ITS EFFECTS

The Trustees do not expect any controversy to arise in connection with the fish ladder construction and stocking. The County of Nassau supports the project. The Trustees anticipate that the citizens of New York would support this project.

7.5 UNCERTAIN EFFECTS OR UNKNOWN RISKS

The Trustees do not believe there are uncertain effects or unknown risks to the environment associated with implementing the proposed restoration. The Trustees would conduct a thorough site survey and engineering analysis to address any significant uncertainties before implementing the proposed restoration.

7.6 PRECEDENTIAL EFFECTS OF IMPLEMENTING THE PROJECT

Fish ladder construction occurs all over the northeastern United States in order for diadromous fish species to return to historical habitat that would otherwise be prevented by man-made obstructions. The selected restoration, therefore, sets no precedents for future actions of a type that would significantly affect the quality of the human environment.

7.7 POSSIBLE, SIGNIFICANT CUMULATIVE IMPACTS

Project effects will be cumulative in the sense that the fish ladder will allow fish species to return to an area of historical habitat that has been prevented by a man-made obstruction. The Trustees, however, know of no impacts to the environment to which the proposed restoration would contribute that, cumulatively, would constitute a significant impact on the quality of the human environment. The selected project would only restore a historical fish passageway that originally existed and naturally occurred in the area. Earlier construction of the dam disrupted diadromous fish passage beyond the dam. The proposed fish ladder will be placed adjacent to this pre-existing dam. Further, the action selected in this RP/EA is intended to restore habitat services to offset the natural resource loss of equivalent habitat services resulting from releases of hazardous substances at or adjacent to the Site. The restoration of these services is designed to make the public whole (i.e., to compensate for injuries to natural resources).

7.8 EFFECTS ON NATIONAL HISTORIC SITES OR NATIONALLY SIGNIFICANT CULTURAL, SCIENTIFIC OR HISTORIC RESOURCES

The Trustees are aware of no previously recorded archeological sites located in the area of the selected project. Further, as part of an industrialized area, the topographical setting of the area has a low potential for resources of cultural or historic significance. The Trustees believe the selected restoration action will not affect any designated National Historic Site or any nationally significant cultural, scientific, or historic resources.

7.9 EFFECTS ON ENDANGERED OR THREATENED SPECIES

The Trustees know of no direct or indirect impacts of the selected restoration action on threatened or endangered species, or their designated critical habitats. The general locale where the restoration actions would be sited is not critical habitat for any listed species.

7.10 VIOLATION OF ENVIRONMENTAL PROTECTION LAWS

The selected restoration action does not require, nor do the Trustees anticipate, any violation of federal, state or local laws, designed to protect the environment incident to or as a consequence of the implementation of the proposed action. The selected restoration action will be implemented in compliance with all applicable environmental laws.

8 CONCLUSION & FINDING OF NO SIGNIFICANT IMPACT ON THE QUALITY OF THE HUMAN ENVIRONMENT

Under 40 C.F.R. §§ 1501.5 and 1501.6 for the purposes of this NEPA analysis, NOAA is the lead agency and USFWS is a cooperating agency. Based on the analysis in this Section and the other information and analyses included throughout the Draft RP/EA as part of the environmental review process for the proposed restoration actions, the federal Trustees conclude that the construction of the fish ladder and stocking of alewife and blueback herring at Massapequa Preserve (“Selected Restoration Alternative”) will not, if implemented, result in any significant impacts on the quality of the human environment. The Selected Restoration Alternative would provide access to historical habitat which would be beneficial to the physical and biological environment found within the proposed project area. The Selected Restoration Alternative will not impact the cultural and human environment except for providing for providing fish passageway to historical habitat of native fish species.

Based upon the analyses in this section and throughout this Plan, the federal Trustees concluded that implementation of the selected restoration projects will not have any significant impacts on the quality of the human environment. Significant impacts were not revealed through the public review and comment process. Thus, no environmental impact statement will be prepared for these restoration projects.

A Finding of No Significant Impact (FONSI) based upon this Environmental Assessment, following the opportunity that the federal Trustees provided for public input on their analyses prior to project section and implementation, was issued and concludes all requirements for compliance with NEPA by the federal Trustees.

9 REFERENCES

- Long, E.R., D.D. MacDonald, S.L. Smith and F.D. Calder. 1995. Incidence of adverse biological effects within ranges of chemical concentrations in Marine estuarine sediments. *Environmental Management* 19: 81-97
- Long, E.R., L.J. Field, and D.D. MacDonald. 1998. Predicting toxicity in marine sediments with numerical sediment quality guidelines. *Environmental Toxicology and Chemistry*, 17(4): 714-727
- Lee, BG, JS Lee, SN Luoma, HJ Choi and CH Koh. 2000. Influence of Acid Volatile Sulfide and Metal Concentrations on Metal Bioavailability to Marine Invertebrates in Contaminated Sediments. *Environ. Sci. Technol.* 34: 4517-4523
- MacDonald, D.D., C.G. Ingersoll, and T.A. Berger. 2000. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems. *Archives of Environmental Contamination and Toxicology* 39: 20-31
- NOAA. 1999. Discounting and the treatment of uncertainty in natural resource damage assessment. Technical Paper 99-1. National Oceanic and Atmospheric Administration, Damage Assessment and Restoration Program. <http://www.darp.noaa.gov/publicat.htm>
- NOAA. 2000. Habitat Equivalency Analysis: An Overview, Damage Assessment and Restoration Program, National Oceanic and Atmospheric Administration, Department of Commerce, 23 pp. <http://www.darp.noaa.gov/pdf/heaoverv.pdf>

10 LIST OF PERSONS/AGENCIES CONSULTED

National Oceanic and Atmospheric Administration
Fish and Wildlife Service, United States Department of the Interior
New York State Department of Environmental Conservation
Nassau County Department of Public Works

11 LIST OF PREPARERS

National Oceanic and Atmospheric Administration
Kate Clark
Reyhan Mehran
Jason Forman
Fish and Wildlife Service, United States Department of the Interior
Ken Karwowski

Appendix A - COMPLIANCE WITH KEY STATUTES, REGULATIONS AND POLICIES

Archeological Resources Protection Act (16 U.S.C. § 470 et seq.)

The Trustees know of no known cultural resources and no known locations or properties listed on or eligible for listing on the National Registers of Historic Places in the area of the restoration actions. The Trustees consulted with the New York's State Historic Preservation Office (SHPO) as required by the Act. The SHPO concluded that the preferred alternative will have No Effect upon cultural resources in or eligible for inclusion in the National Registers of Historic Places.

Anadromous Fish Conservation Act

The Anadromous Fish Conservation Act (16 U.S.C. § 757a, *et seq.*) provides authority to conserve, develop, and enhance anadromous fishery resources. The preferred alternative will directly conserve, develop, and enhance anadromous fishery resources.

Clean Air Act

The Clean Air Act (42 U.S.C. § 7401, *et seq.*) directs EPA to set limits on air emissions to ensure basic protection of health and the environment. All construction activity will be done with conventional equipment in compliance with all local ordinances.

Clean Water Act

The Clean Water Act (33 U.S.C. § 1251, *et seq.*) is the principal law governing pollution control and water quality of the Nation's waterways. The U.S. Army Corps of Engineers (USACE) administers the program. All construction activity will be done in compliance with Section 404 of the law, which authorizes permits for the disposal of dredged or fill material into navigable waters, if necessary.

Coastal Zone Management Act

The goal of the federal Coastal Zone Management Act (CZMA) (16 U.S.C. § 1451, *et seq.*, 15 C.F.R. Part 923) is to preserve, protect, develop and, where possible, restore and enhance the Nation's coastal resources. The federal government provides grants to states with federally approved coastal management programs. The State of New York has a federally approved program. Section 1456 of the CZMA requires any federal action inside or outside of the coastal zone that affects any land or water use or natural resources of the coastal zone to be consistent, to the maximum extent practicable, with the enforceable policies of approved state management programs. It states that no federal license or permit may be granted without giving the State the opportunity to concur that the project is consistent with the State's coastal policies. NOAA and the USFWS found the restoration actions identified in this RP/EA to be consistent with the New York Coastal Zone Management Program and complied with the consistency procedures.

Endangered Species Act

The federal Endangered Species Act (16 U.S.C. § 1531, *et seq.*, 50 C.F.R. Parts 17, 222, 224) directs all federal agencies to conserve endangered and threatened species and their

habitats and encourages such agencies to utilize their authority to further these purposes. Under the Act, NOAA National Marine Fisheries Service (NMFS) and USFWS publish lists of endangered and threatened species. Section 7 of the Act requires that federal agencies consult with these two agencies to minimize the effects of federal actions on endangered and threatened species. The Trustees completed ESA consultations regarding the selected restoration actions with NMFS and USFWS and determined that the restoration actions will have no impacts on threatened or endangered species.

Estuaries Protection Act

The Estuary Protection Act (16 U.S.C. § 1221-1226) highlights the values of estuaries and the need to conserve natural resources. It authorizes the Secretary of the Interior, in cooperation with other federal agencies and the states, to study and inventory estuaries of the United States, to determine whether such areas should be acquired by the federal government for protection, to assess impacts of commercial and industrial developments on estuaries, to enter into cost-sharing agreements with states and subdivisions for permanent management of estuarine areas in their possession, and to encourage state and local governments to consider the importance of estuaries in their planning activities related to federal natural resource grants. The restoration activities will enhance diadromous fish populations and thus benefit estuarine resources.

Fish and Wildlife Conservation Act

The Fish and Wildlife Conservation Act of 1980 (16 U.S.C. § 2901 and 50 C.F.R. § 83) provides for the consideration of impacts on wetlands, protected habitats and fisheries. The restoration project will enhance fish passage and survivorship, thereby benefiting natural resources.

Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (16 U.S.C. § 661, *et seq.*) states that wildlife conservation shall receive equal consideration with other features of water-resource development. The Act requires federal permitting and licensing agencies to consult with NOAA/NMFS, USFWS, and state wildlife agencies before permitting any activity that in any way modifies any body of water to minimize the adverse impacts of such actions on fish and wildlife resources and habitat.

NOAA and USFWS are joint federal natural resource trustees who have worked cooperatively on evaluating various restoration projects and in selecting the preferred alternative.

Information Quality Guidelines issued pursuant to Public Law 106-554

Information disseminated by federal agencies to the public after October 1, 2002, is subject to information quality guidelines developed by each agency pursuant to Section 515 of Public Law 106-554 that are intended to ensure and maximize the quality of such information (i.e., the objectivity, utility and integrity of such information). The information contained herein complies with applicable information quality guidelines.

Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. § 1801, *et seq.*) as amended and reauthorized by the Sustainable Fisheries Act (Public Law 104-297), established a program to promote the protection of essential fish habitat (EFH) in the review of projects conducted under federal permits, licenses, or other authorities that affect or have the potential to affect such habitat. After EFH has been described and identified in fishery management plans by the regional fishery management councils, federal agencies are obligated to consult with the Secretary of the U.S. Department of Commerce with respect to any action authorized, funded, or undertaken or proposed to be authorized, funded, or undertaken, by such agency that may adversely affect any EFH.

The Trustees evaluated and coordinated their plans with the NMFS Northeast Region to ensure no adverse impacts to EFH. If the proposed project plans are substantially revised or if new information becomes available that affects this analysis, then consultation with the NMFS Northeast Region will be undertaken prior to project implementation.

Marine Mammal Protection Act

The Marine Mammal Protection Act (16 U.S.C. § 1361, *et seq.*) establishes a moratorium on the taking and importation of marine mammals and marine mammal products, with exceptions for scientific research, allowable incidental taking, subsistence activities by Alaskan natives, and hardship. The Act provides authority to manage and protect marine mammals, including maintenance of the ecosystem. No interaction with marine mammals in the area of the proposed restoration is expected.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (16 U.S.C. § 715, *et seq.*) provides for the protection of migratory birds. The Act does not specifically protect the habitat of these birds but may be used to consider time of year restrictions for remedial activities on sites where it is likely migratory birds may be nesting and/or to stipulate maintenance schedules that would avoid the nesting seasons of migratory birds.

National Environmental Policy Act

Congress enacted the National Environmental Policy Act (NEPA; 42 U.S.C. § 4321 *et seq.*) in 1969 to establish a national policy for the protection of the environment. NEPA applies to federal agency actions that affect the human environment. Federal agencies are obligated to comply with NEPA regulations adopted by the Council on Environmental Quality (CEQ). NEPA requires that an Environmental Assessment be prepared in order to determine whether the proposed restoration actions will have a significant effect on the quality of the human environment. If an impact is considered significant, then an Environmental Impact Statement (EIS) is prepared. If the impact is considered not significant, then a Finding of No Significant Impact (FONSI) is issued.

The Trustees have integrated this Restoration Plan with the NEPA and CEQ processes to comply, in part, with those requirements. This integrated process allows the Trustees to meet the public involvement requirements of NEPA and CEQ concurrently.

Rivers and Harbors Act

The federal Rivers and Harbors Act (RHA; 33 U.S.C. § 401, *et seq.*) regulates development and use of the Nation's navigable waterways. Section 10 of the Act prohibits unauthorized obstruction or alteration of navigable waters and vests the USACE with authority to regulate discharges of fill and other materials into such waters. Restoration actions that require Section 404 Clean Water Act permits are likely also to require permits under Section 10 of the RHA. However, a single permit usually serves for both. Therefore, the Trustees can ensure compliance with the RHA through the same mechanism. These restoration activities will be addressed under the USACE nationwide permit.

Executive Order 11514 Protection and Enhancement of Environmental Quality, as amended by Executive Order 11911 Relating to Protection and Enhancement of Environmental Quality

Executive Orders 11514 and 11991 require that federal agencies monitor, evaluate and control their activities to protect and enhance the quality of the Nation's environment to sustain and enrich human life; inform the public about these activities; share data gathered on existing or potential environmental problems or control methods; and cooperate with other governmental agencies. The preferred alternatives fully address the intent of the Executive Order.

Executive Order 11990 Protection of Wetlands

Executive Order 11990 (40 C.F.R. § 6392 (a) and Appendix A) requires federal agencies to avoid the adverse impacts associated with the destruction or loss of wetlands, to avoid new construction in wetlands if alternatives exist, and to develop mitigative measures if adverse impacts are unavoidable. The preferred restoration actions are in compliance with, and fully address, the intent of the Executive Order.

Executive Order 12898 Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations and Executive Order 12948 Amendment to Executive Order No. 12898

Executive Orders 12898 and 12948 require each federal agency to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies and activities on minority and low-income populations. The Trustees have concluded that no low income or ethnic minority communities would be adversely affected by the proposed restoration activities.

Executive Order 12962 Recreational Fisheries

Executive Order 12962 requires that federal agencies, to the extent permitted by law and where practicable, and in cooperation with states and tribes, improve the quantity, function, sustainable productivity, and distribution of the Nation's aquatic resources for increased recreational fishing opportunities. The compensatory restoration activities undertaken will improve diadromous fish populations, and thus improve the recreational fishery.