US Army Corps
of Engineers®

New York District
26 Federal Plaza
New York, N.Y. 10278
ATTN: CENAN-OP-ST

Public Notice

In replying refer to:
Public Notice: BAY RIDGE AND RED HOOK CHANNELS, NY
Published: 11-Mar-2021 Expires: 10-Apr-2021

BAY RIDGE AND RED HOOK CHANNELS, NY
FEDERAL NAVIGATION PROJECT
MAINTENANCE DREDGING

TO WHOM IT MAY CONCERN:

The New York District, U.S. Army Corps of Engineers, pursuant to Section 10 of the Rivers and Harbors Act of 1899 and Section 404 (33 U.S.C. 1344) of the Federal Water Pollution Control Act (amended in 1977 and commonly referred to as the Clean Water Act), and Section 103 (U.S.C. 1463, 86 Statute 1052) or Marine Protection, Research and Sanctuaries Act (MPRSA) of 1972 (commonly referred to as the Ocean Dumping Act), proposes to perform maintenance dredging of the Bay Ridge and Red Hook Federal Navigation Channels, New York (see Figure 1) with subsequent placement of the dredged material at a Historic Area Remediation Site (HARS, See Figure 2A and 2B).

ACTIVITY: Maintenance dredging of Bay Ridge and Red Hook Federal Navigation Channels, NY, with placement of dredged material at the HARS for the purpose of remediation

WATERWAY: Bay Ridge and Red Hook Channels, NY

LOCATION: West Brooklyn, New York.

The Bay Ridge and Red Hook Federal Navigation Channels project was authorized by the River and Harbors act of 1899, House Document No. 337, 54th Congress, 2nd session and modified by the Rivers and Harbors Act of 1909 and 1913.

The proposed activity is the dredging of critical shoal areas located immediately offshore of the South Brooklyn Marine Terminal (SBMT) and the approach to the Gowanus Creek Federal Navigation Channel (Figure 1). Approximately 850,000 cubic yards of material will be removed from a project depth of 35 feet plus 2 feet over-depth below Mean Lower Low Water (MLLW).

A detailed description of the proposed activities is enclosed to assist in your review. This activity is being evaluated to determine that the proposed placement of dredged material

will not unreasonably degrade or endanger human health, welfare or amenities, or the marine environment, ecological systems or economic potentialities. On September 26, 2000, the United States Environmental Protection Agency (USEPA) and Corps of Engineers signed a Memorandum of Agreement (MOA) outlining the steps to be taken to ensure that remediation of the HARS continues in a manner appropriately protective of human health and the aquatic environment. In making the determination, the criteria established by the Environmental Protection Agency (EPA) will be applied, including the interim change to one matrix value for PCB's as described in the MOA. In addition, based upon an evaluation of the potential effect which the failure to utilize this ocean site will have on navigation, economic and industrial development, and foreign and domestic commerce of the United States, an independent determination will be made of the need to place the dredged material in ocean waters, other possible methods of disposal, and other appropriate locations.

The Corps of Engineers is soliciting comments from the public; federal, state and local agencies and officials; Indian tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Comments are used to assess impacts on navigation, water quality, endangered species, historic resources, wetlands, scenic and recreational values, and other public interest factors. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act and to determine the need for a public hearing.

DUE TO CURRENT LOCAL CONDITIONS, AND TO ENSURE ALL COMMENTS REGARDING THIS ACTIVITY ARE RECEIVED, ALL COMMENTS SHOULD BE EMAILED TO EDWARD.WROCENSKI@USACE.ARMY.MIL BEFORE THE EXPIRATION DATE OF THIS NOTICE, otherwise, it will be presumed that there are no objections to the activity.

Any person who has an interest which may be affected by the dredging and/or placement of this dredged material may request a public hearing. The request must be submitted in writing to the District Engineer within the comment period of this notice and must clearly set forth the interest which may be affected and the manner in which the interest may be affected by the activity. It should be noted that information submitted by mail is considered just as carefully in the process and bears the same weight as that furnished at a public hearing.

Pursuant to Section 307 of the Coastal Zone Management Act of 1972 as amended [16 USC 1456(c)], for activities conducted or supported by a federal agency in a state which has a federally approved Coastal Zone Management (CZM) program, the Corps must submit a determination that the proposed project is consistent with the State CZM program to the maximum extent practicable. This activity is subject to review by the New York State Department of State for its consistency with the enforceable policies of the New York State Coastal Management Program. The New York District of the U.S. Army Corps of Engineers has determined that the proposed activities are consistent to the maximum extent practicable within the applicable policies of the New York State CZM program. A copy of

this determination will be provided to the New York State Department of State, Office of Coastal, Local Government and Community Sustainability. Additional information regarding the Corps of Engineers' consistency determination may be obtained by contacting the New York State Department of State, Office of Coastal, Local Government and Community Sustainability, Attn: Consistency Review Unit, One Commerce Plaza, 99 Washington Avenue – Suite 1010, Albany, New York 12231.

The proposed project was reviewed based upon the "Biological Assessment for the Closure of the Mud Dump Site and Designation of the Historic Area Remediation Site (HARS) in the New York Bight and Apex", (USEPA, 1997). Based upon this review, and a review of the latest public listing of threatened and endangered species, it has been preliminarily determined that the proposed activity for which authorization is sought herein, is not likely to adversely affect any federally threatened or endangered species (humpback whales, finback whales, right whales, loggerhead turtles, leatherback turtles, green turtles, and Kemp's Ridley turtles) or their critical habitat pursuant to Section 7 of the Endangered Species Act (16 USC 1531).

The proposed HARS placements will not result in Remediation Material being placed within 0.27 nautical miles of any identified wrecks, as indicated in the National Register of Historic Places. Other than wrecks, there are no known sites eligible for or included in the Register within the project area. No known archaeological, scientific, prehistorical or historical data are expected to be lost by work accomplished under the required dredging.

Reviews of the activity pursuant to Section 404 of the Clean Water Act will include application of the guidelines announced by the Administrator, U.S. Environmental Protection Agency, under authority of Section 404(b) of the Clean Water Act. The Corps will obtain a water quality certificate or waiver from the appropriate state agency in accordance with Section 401 of the Clean Water Act prior to commencement of any work.

In compliance with Section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act (1996 amendments), an Essential Fish Habitat Assessment will be prepared and submitted to the National Marine Fisheries Service for review and comment.

The proposed work is being coordinated with the following Federal, State and local agencies:

- U.S. Environmental Protection Agency
- U.S. Department of Commerce, National Marine Fisheries Service
- U.S. Coast Guard, First District
- New York State Department of Environmental Conservation
- New York State Department of State
- New York City Department of City Planning

If you have any questions concerning this notice, you may contact Mr. Edward Wrocenski by phone at (917) 790-8636 or email at Edward.Wrocenski@usace.army.mil.

Questions about the HARS can be addressed to Mr. Mark Reiss, Chief, Dredging, Sediments and Oceans Section, US Environmental Protection Agency, Region 2, at (212) 637-3799, or email at Reiss.Mark@epa.gov.

DESCRIPTION OF PLANNED ACTION:

The New York District, U.S. Army Corps of Engineers proposes to perform maintenance dredging of the Bay Ridge and Red Hook Channels Federal Navigation Project. The Bay Ridge and Red Hook Channels were last dredged 2014, with the removal of approximately 120,185 CY of material, in an area immediately bayward of the South Brooklyn Marine Terminal (SBMT), to a depth of 34-feet below MLLW plus 2-feet of over-depth. The dredged material was placed at the Historic Area Remediation Site (HARS).

The proposed maintenance dredging would involve the removal of approximately 850,000 CY of material, to a project depth of -35 feet plus two (2) feet over-depth below Mean Lower Low Water (MLLW) with placement at the HARS. Maintenance dredging of the Bay Ridge and Red Hook Channels will be accomplished by a mechanical dredge with an environmental clamshell bucket and is anticipated to occur in the summer/fall of 2021. The entire channel will not require maintenance dredging; only the area, as shown on the attached Figure 1, will require dredging.

The purpose of the proposed work is to alleviate the effects of shoaling, thereby assuring safe navigation and facilitating economical use of the Bay Ridge and Red Hook Channels by commercial interests. The material has been tested and meets the criteria for remediation material at the HARS. The dredged material would be used as such by placing it over degraded sediments within the HARS. The proposed dredged material would be transported by bottom dumping vessels to the placement site.

This public notice serves to announce the government's intent and identifies the proposed location for placement of approximately 850,000 CY of material. The dredging and placement at the HARS for this project is anticipated to occur in the summer/fall of 2021.

ENVIRONMENTAL IMPACT STATEMENT:

The material to be placed at the HARS is dredged material that will be removed from Bay Ridge and Red Hook Channels Federal Navigation Project. The material has been evaluated and found to meet the regulatory testing criteria of 40 CFR Sections 227.6 and 227.27, and the requirements of the rule establishing the HARS in Section 228.15 (d)(6). It has been determined that maintenance dredging of the project-area within the Bay Ridge and Red Hook Federal Navigation Channel, with placement of the dredged material at the HARS is not likely to have significant adverse environmental impact on water quality, marine resources, fish, wildlife, endangered species, recreation, aesthetics or flood protection of the area.
An update of the EA and a Section 404(b) evaluation, as required by the Clean Water Act 40 CFR 230, will be prepared prior to implementation of the proposed work.

PLACEMENT SITE:

The dredged material from this project is proposed to be placed at the HARS (see next section: Introduction to the HARS) using bottom dumping barges. As noted in the designation of the HARS, Remediation Material would not be allowed to be placed within 0.27 nautical miles of any wrecks identified in the National Register of Historic Places, or other wrecks that might be found.

INTRODUCTION TO THE HARS:

In 1972, the Congress of the United States enacted the Marine Protection Research and Sanctuaries Act (MPRSA) to address and control the dumping of materials into the ocean waters. Title I of the Act authorizes the US Environmental Protection Agency (USEPA) and the US Army Corps of Engineers (USACE) to regulate dumping in ocean waters. USEPA and USACE share responsibility for MPRSA permitting and ocean disposal site management. USEPA regulations implementing MPRSA can be found in 40 CFR Sections 220 through 229. With few exceptions, MPRSA prohibits the transportation of material from the United States for the purpose of ocean dumping except as may be authorized by a permit issued under MPRSA. The MPRSA divides permitting responsibility between USEPS and USACE. Under Section 102 of the MPRSA, USEPA has responsibility for issuing permits for all materials other than dredged material. Under Section 103 of MPRSA, the secretary of the Army has the responsibility for issuing permits for dredged material. Determination to issue MPRSA permits for dredged material are subject to USEPA concurrence.

In the fall of 1997, the USEPA de-designated and terminated the use of the New York Bight Dredged Material Disposal Site (commonly known as the Mud Dump Site or MDS). The MDS had been designated in 1984 for the disposal of up to 100 million cubic yards of dredged material from navigation channels and other port facilities within the Port of New York and New Jersey. Simultaneous with the closure of the MDS, the site and surrounding areas that had been used historically as disposal sites for dredged material were redesigned as the HARS in 40 CFR Sections 228.15 (d)(6), (see 62 Fed. Reg. 46142 (August 29, 1997); 62 Fed. Reg. 26267 (May 13 1997)). The HARS will be managed to reduce impacts of historical disposal activities at the site to acceptable levels in accordance with 40 CFR Sections 228.11 (c). The need to remediate the HARS is supported by the presence of toxic effects, dioxin bioaccumulation exceeding Category 1 levels (a definition of which appears in an evaluation memorandum reviewing the results of the testing) in worm tissue, as well as TCDD/PCB contamination in area lobster stocks. Individual elements of those data do not establish sediments within the study area as imminent hazards to the New York Bight Apex Ecosystem, living resources, or human health; however, the collective evidence presents cause for concern, and justifies the need to remediation. Further information on the condition in the study area and surveys performed may be found in the Supplemental Environmental Impact Assessment (SEIS) [USEPA, 1997].

The designation of the HARS identifies an area in and around the former Mud Dump Site (MDS) that has exhibited the potential for adverse ecological impacts (see Figure No. 2A: HARS Location Map 1 and 2B: HARS Location Map 2). The HARS will be remediated with dredged material that meets current Category 1 Standards and will not cause significant undesirable effects including through bioaccumulation or acceptable toxicity, in accordance with 40 CFR 227.6. This dredged material is referred to as "Material for Historic Area Remediation Site (HARS)" or "Remediation Material."

As of the end of January 2021, dredged materials from one hundred thirty-five (135) different completed and ongoing Department of the Army (DA) permitted and federal dredging projects in the Port of New York and New Jersey have been dredged and placed as Remediation Material in the ocean at the Historic Area Remediation Site (HARS) since the closure of the Mud Dump Site and designation of the HARS in September 1997. This represents approximately 78,239,000 cubic yards of Remediation Material.

The HARS, which includes the 2.2 square nautical mile area of the MDS, is approximately 15.7 nautical square mile area located approximately 3.5 nautical miles east of Highlands, New Jersey and 7.7 nautical miles south of Rockaway, New York. The MDS is located approximately 5.3 nautical miles east of Highlands, New Jersey and 9.6 nautical miles south of Rockaway, New York. When determined by bathymetry that capping is complete, the USEPA will take any necessary rulemaking to de-designate the HARS. The HARS includes the following three areas:

Priority Remediation Area (PRA): A 9.0 square nautical mile area to be remediated with at least 1 meter of Remediation Material. Then PRA encompasses the area of degraded sediments as described in greater detail in the SEIS.

Buffer Zone: An approximately 5.7 square nautical mile area (0.27 nautical mile wide band around the PRA) in which no placement of the Material for Remediation will be allowed, but which may receive Material for Remediation that incidentally spreads out of the PRA.

No Discharge Zone: An approximately 1.0 square nautical mile area in which no placement or incidental spread of Material for Remediation is allowed.

To improve management and monitoring of placement activities at the HARS, electronic monitoring equipment will be onboard any barges carrying Remediation Material to the HARS. This equipment records vessel positions throughout the duration of each trip to the HARS and during remediation operations. To improve communication reliability between tugs and scows, a prescribed formal communication procedure has been put in place (copies of the procedure are available upon request).

Additional information concerning the HARS can be obtained from Mr. Mark Reiss, Chief, Dredging, Sediments and Oceans Section, US Environmental Protection Agency, Region 2, at (212) 637-3799.

HARS SUITABILITY TESTING

A testing evaluation process was developed, which established a basic framework for assessing results of tissue analysis from bioaccumulation testing of dredged material proposed for ocean placement. The framework defines a standard approach for assessing each analyte (an item to be analyzed for as part of the testing), in relation to regulatory standards and human health and environmental factors, to facilitate decisions in accordance with Marine Protection, Research, and Sanctuaries Act of 1972. USEPA and USACE utilize this testing evaluation process for identifying Category 1 dredged material in determining suitability of dredged sediments as remediation material at the HARS. The Testing Evaluation Memorandum for this project may be obtained by contacting Mr. Mark Reiss, Chief, Dredging, Sediments and Oceans Section, US Environmental Protection Agency, Region 2, at (212) 637-3799.

Sediment Grain Size Analysis

As depicted on the attached drawings, the proposed maintenance dredging area has been characterized by ten (10) sediment core samples taken down to -35 feet MLLW plus 2 feet allowable over-depth. The 10 samples were then combined into one composite sample, which was subjected to chemical and biological testing. Based on the analysis of the sediment samples from the Bay Ridge and Red Hook project area, the grain size characteristics of the proposed dredged material are:

0.0% GRAVEL, 17.4% SAND, 52.0% SILT, 30.6% CLAY

Results of the chemical and biological testing are summarized below.

Evaluation of the Liquid Phase: Chemistry

Under the requirements of 40 CFR Sections 227.6 (c) (1) and 227.27 (a), chemical analyses were conducted on project area site water and elutriate. Results of this evaluation are summarized in Table 1. Please note in reading Table 1 that detection limits have been listed for only those constituents which the laboratory reported as not-detected (ND) (this reporting convention was similarly applied in reporting the results of bioaccumulation potential testing discussed below). If the constituents were detected above the detection limit, the measured value would appear.

Expected concentrations of chemical constituents in the water column following ocean placement, after allowing for initial mixing, were calculated using the Automated Dredging and Disposal Alternatives Management System (ADDAMS). ADDAMS is a mixing model developed by the Corps Waterways Experiment Station (WES) and described in the joint USEPA/Corps implementation manual entitled "Ecological Evaluation of Proposed Discharge of Dredged Material Into Ocean Water" (commonly referred to as the National “Green Book”). The material can be considered suitable for ocean disposal only if the concentration of the Suspended Particulate Phase (SPP) of the dredged material, after allowance for initial mixing, will not exceed the Limiting Permissible Concentration (LPC)

beyond the boundaries of the disposal site within the first four hours following HARS placement or at any point in the marine environment after the first four hours. The ADDAMS Model predicted that applicable marine water quality criteria for listed constituents were not exceeded after allowance for initial mixing (40 CFR 227.29(a)). Results of this analysis indicate that the LPC will be met for the proposed dredged material from the project area.

BIOASSAYS

In accordance with 40 CFR Part 227 of the Ocean Dumping Regulations, bioassays were performed to assess the toxicities of the suspended particulate, liquid, and solid phases of the proposed dredged material from the project area.

Evaluation of the Liquid Phase

Liquid phase bioassays, run as part of the suspended particulate phase on three appropriate sensitive marine organisms: a crustacean (mysid shrimp, *Americamysis bahia*), a finfish (*Menidia beryllina*), and the planktonic larvae of a bivalve (the Mediterranean mussel, *Mytilus galloprovincialis*), show that after initial mixing (as determined under 40 CFR Sections 227.29(a)(2)) the liquid phase of the material would not exceed a toxicity threshold of 0.01 of a concentration shown to be acutely toxic to appropriate sensitive marine organisms. Accordingly, it is concluded that the liquid phase of the material would be in compliance with 40 CFR Sections 227.6(c)(1) and 227.27(a). The specific test results and technical analysis of the data underlying this conclusion are described and evaluated in a joint USACE New York District / U.S. Environmental Protection Agency Region 2 memorandum (copies available upon request).

Evaluation of the Suspended Particulate Phase

The suspended particulate phase of the material was evaluated for compliance with 40 CFR Sections 227.6(c)(2) and 227.27(b). Bioassay testing of the suspended particulate phase of the material has been conducted using three appropriate sensitive marine organisms: mysid shrimp (*Americamysis bahia*), inland silversides (*Menidia beryllina*), and the planktonic larvae of a bivalve (the Mediterranean mussel, *Mytilus galloprovincialis*). Median lethal concentrations (LC_{50}), which are concentrations of suspended particulate phase resulting in 50% mortality, were determined for all three test species. In addition, the median effective concentration (EC_{50}), based on normal larval development to the D-cell stage, was determined for the bivalve larvae. The Limiting Permissible Concentration (LPC) was then calculated as 0.01 of the LC_{50} or EC_{50} of the most sensitive organism. The LPC was calculated as 0.221 based on the EC_{50} of *Mytilus galloprovincialis.*

The information shows that when placed at the HARS and after initial mixing (as determined under 40 CFR Sections 227.29(a)(2)), the suspended particulate phase of this material would not exceed a toxicity threshold of 0.01 of a concentration shown to be acutely toxic in the laboratory bioassays and, thus, would not result in significant mortality.

Moreover, the fact that after placement, the suspended particulate phase would only exist in the environment for a short time, which indicates the suspended particulate phase of the project material would not cause significant undesirable effects, including the possibility of danger associated with bioaccumulation, since these impacts require long duration exposures (see USEPA, 1994). Accordingly, it is concluded that the suspended phase of the material from Bay Ridge and Red Hook, NY would be in compliance with 40 CFR Sections 227.6(c)(2) and 227.27(b). The results of bioassay tests conducted on proposed dredged sediments from the project area are presented in Table 2 of this public notice.

Evaluation of the Solid Phase

The solid phase tests the whole test sediment before it has undergone processing that might alter its chemical or toxicological properties. The solid phase was evaluated for compliance with 40 CFR Sections 227.6(c)(3) and 227.27(b). This evaluation was made using the results of two specific types of evaluations on the solid phase of the material – one focusing on the acute (10-day) toxicity of the material, and the other focusing on the potential for the material to cause significant adverse effects due to bioaccumulation. Both types of tests used appropriate sensitive benthic marine organisms according to procedures approved by USEPA and the USACE. The following sections address the results of those tests and further analyze compliance with the regulatory criteria of 40 CFR Sections 227.6(c)(3) and 227.27(b) and 228.15 and with USEPA Region 2/USACE New York District guidance.

1. <u>Toxicity:</u>

Ten-day toxicity tests were conducted on proposed project dredged material using a filler feeding mysid shrimp (*Americamysis bahia*) and a deposit feeding, burrowing amphipod (*Ampelisca abdita*), which are appropriate sensitive benthic marine organisms. The results from the proposed project material are then compared to results for the same organisms that are exposed to reference sediments. The reference sediment represents existing background conditions in the vicinity of the HARS, removed from the influence of any placement operations. These organisms are good predictors of adverse effects to benthic marine communities (see USEPA, 1996). The toxicity of project sediments was not statistically greater than reference sediments for either mysids or for amphipods, and the difference between percent survivals in test and reference sediments was less than 10% for mysid shrimp and less than 20% for amphipods.

These results show that the solid phase of the material would not cause significant mortality and meets the solid phase toxicity criteria of Sections 227.6 and 227.27. The results of the 10-day toxicity test are summarized in Table 2.

2. <u>Bioaccumulation:</u>

Bioaccumulation tests for sediments from the project area were conducted on the solid phase of the project material for contaminants of concern using two appropriate sensitive

benthic marine organisms: a burrowing, deposit-feeding polychaete, *Nereis virens,* and a filter-feeding bivalve, *Macoma nasuta.* These species are considered to be good representatives of the phylogenetically diverse base of the marine food chain. Contaminants of concern were identified for the regional testing manual from the NY/NJ Harbor Estuary Program Toxics Characterization report (Squibb, *et al.* 1991).

Table 3 of this notice addresses the bioaccumulation of contaminants of concern. Additional information on more rigorous evaluations conducted on individual contaminants may be found in the Testing Evaluation Memo for this project. Table 3 indicates that some contaminants bioaccumulated above reference in the clam and/or worm. All constituents identified in worm and clam tissue were compared to existing Food and Drug Administration (FDA) actions levels for poisonous or deleterious substance in fish and shellfish for human food, regional disposal criteria, background concentrations and risk-based criteria provided by USEPA Region 2. The testing memo further evaluates these contaminants and concludes that any contaminant that exceeded reference did not exceed any existing regional matrix or dioxin values. Several contaminants which did not have matrix values did exceed background levels, but in no case did any contaminant accumulate to toxicologically important concentrations even when very conservative assumptions were used in the analysis. Any contaminants that exhibited bioaccumulation test results above referenced were all below the acceptable human health risk range and acceptable aquatic effects range, again using conservative approaches and analyses. A discussion of this determination is available in the Testing Evaluation Memo for this project. The bioaccumulation tests results were used in evaluating the potential impacts of the material. The determination is that the combined results of the toxicity and bioaccumulation tests indicate that the material meets the criteria of 40 CFR Sections 227.6(c)(3) and 227.27(b) and 228.15(d)(6)(v)(A) of the Regulations, and that the material is suitable for placement at the HARS.

Conclusions

Based upon the results of testing of the sediments proposed for dredging in the Bay Ridge and Red Hook Channels Federal Navigation Project, New York, USACE and USEPA have determined that the material is Category 1, meeting the criteria for ocean placement as described in 40 CFR parts 227.6, 227.27, and 228.15, and is Remediation Material as defined under the USEPA Region 2/USACE, New York District guidance. The specific test results and technical analysis of the data underlying this conclusion are described in the joint USACE, New York District/USEPA, Region 2 memorandum as previously mentioned.

Placement of this material at the HARS will serve to reduce impacts at the HARS to acceptable levels and improve benthic conditions. Sediments in the HARS have been found to be acutely toxic to sensitive benthic marine organisms in laboratory tests, whereas project sediments used in laboratory acute toxicity tests with the same species were determined not to be toxic. Placement of project material over existing toxic sediments would serve to remediate those areas for toxicity. In addition, by covering the existing sediments in the site with this project material, surface dwelling organisms will be

exposed to sediments exhibiting Category 1 qualities, whereas the existing sediments exceed these levels.

ALTERNATIVES TO HARS PLACEMENT

Regarding ocean placement of dredged material, the Ocean Dumping Regulations [Title 40 CFR Sections 227.16 (b)] states that "…alternative methods of disposal are practicable when they are available at reasonable incremental cost and energy expenditures which need not to be competitive with the costs of ocean dumping, taking into account the environmental impacts associated with the use of alternatives to ocean dumping…". The Corps has investigated the use of alternative placement sites for the dredged material that include beach placement, upland placement, and open water placement. Beneficial uses such as beach nourishment were found not to be practicable, as the dredged material is silty, fine-grained material that is not suitable for beach nourishment. Processing the dredged material for use in brownfields restoration projects has been considered, but the costs for handling and amending the material would be excessive. The Corps has also investigated the use of upland placement of the dredged material. However, based on historical bid prices of similar projects in the area, there is a significant increase in cost for upland placement as compared to placement at the HARS, thereby making upland placement not a practicable alternative. Other options are not available at reasonable incremental costs, which leave the HARS placement as the preferred alternative.

For more information on the New York District Corps of Engineers programs, visit our website at http://www.nan.usace.army.mil

It is requested that you communicate the foregoing information concerning the proposed work to any persons known by you to be interested and who did not receive a copy of this notice.

Randall G Hintz
Chief, Operations Support Branch

Figure 1: Proposed Dredging Area in Bay Ridge and Red Hook Channels, NY

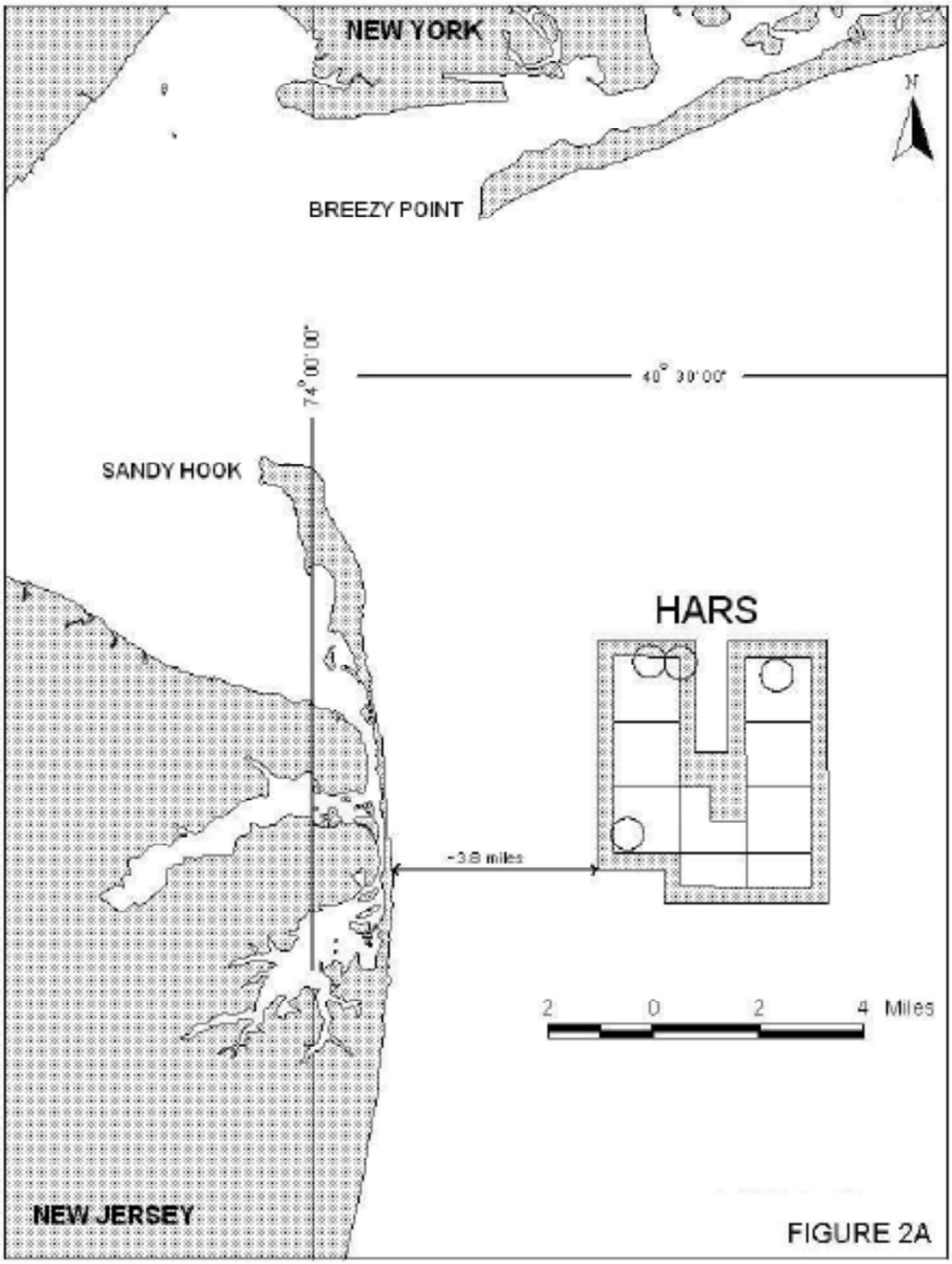

Figure 2A: HARS Location Map 1

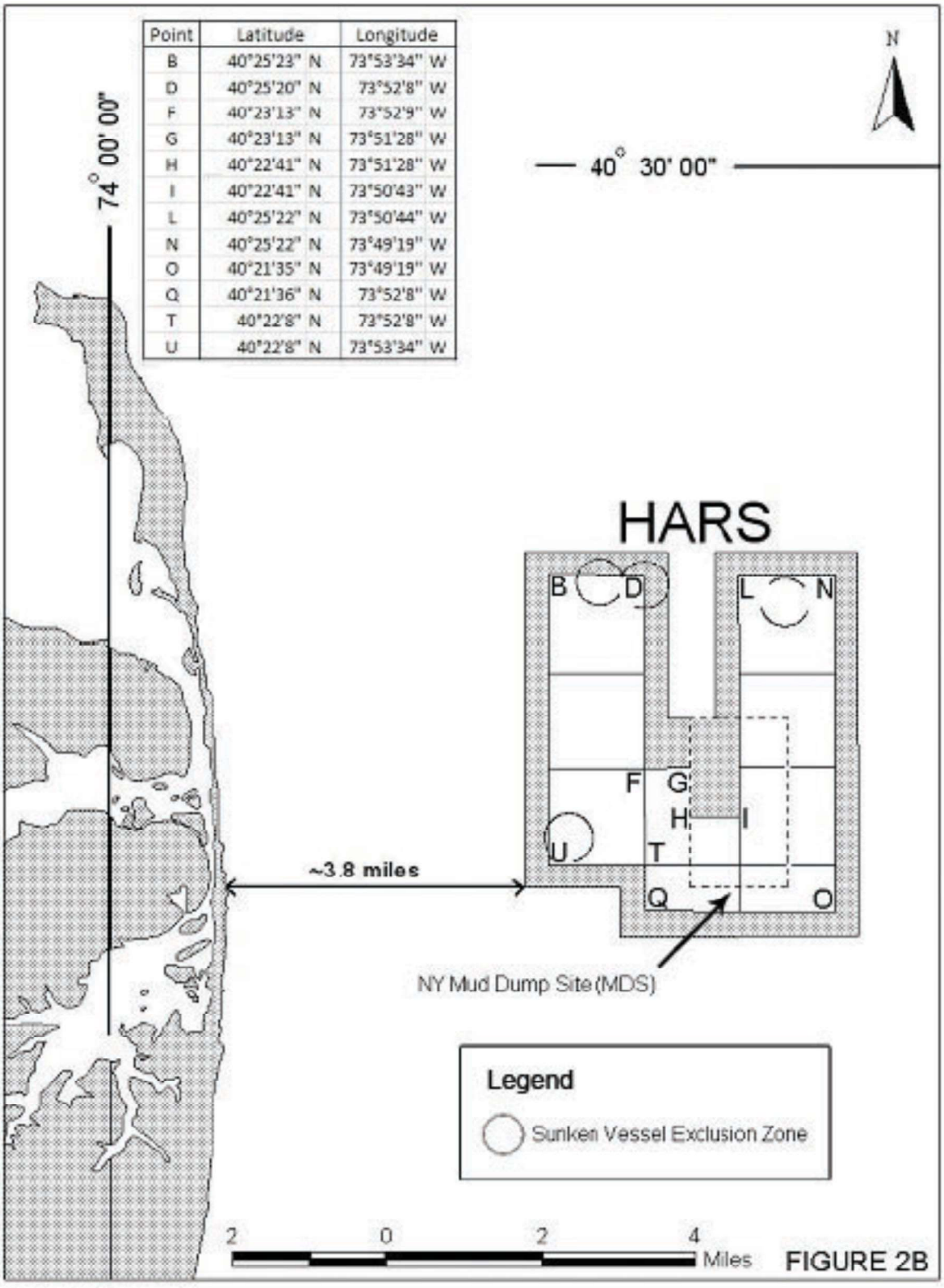

Figure 2B: HARS Location Map 2

TABLE 1. RESULTS OF CHEMICAL ANALYSIS OF SITE WATER AND ELUTRIATE

Bay Ridge & Red Hook Channels

	SITE WATER		ELUTRIATE	
CONSTITUENTS	**DETECTION LIMITS**	**CONCENTRATION**	**DETECTION LIMITS**	**CONCENTRATION**
Metals	**ppb (ug/L)**	**ppb (ug/L)**	**ppb (ug/L)**	**ppb (ug/L)**
Ag	0.010	ND	0.200	ND
Cd		0.087	0.200	ND
Cr		0.250		5.60
Cu		1.57		6.30
Hg		0.040		0.089
Ni		0.730		2.90
Pb		0.440		7.20
Zn		3.20		11.5
Pesticides	**pptr (ng/L)**	**pptr (ng/L)**	**pptr (ng/L)**	**pptr (ng/L)**
Aldrin	0.531	ND	0.531	ND
a-Chlordane	0.442	ND	0.442	ND
trans Nonachlor	0.436	ND	0.436	ND
Dieldrin	0.544	ND	0.544	ND
4,4'-DDT	0.633	ND	0.633	ND
2,4'-DDT	0.795	ND	0.795	ND
4,4'-DDD	0.531	ND	0.531	ND
2,4'-DDD	0.582	ND	0.582	ND
4,4'-DDE	0.445	ND		2.28
2,4'-DDE	0.557	ND	0.557	ND
Total DDT		**ND**		**2.28**
Endosulfan I	0.531	ND	0.531	ND
Endosulfan II	0.525	ND	0.525	ND
Endosulfan sulfate	0.439	ND	0.439	ND
Heptachlor	0.534	ND	0.534	ND
Heptachlor epoxide	0.442	ND	0.442	ND
Industrial Chemicals	**pptr (ng/L)**	**pptr (ng/L)**	**pptr (ng/L)**	**pptr (ng/L)**
PCB 8	0.572	ND	0.572	ND
PCB 18	0.366	ND	0.366	ND
PCB 28	0.423	ND	0.423	ND
PCB 44	0.534	ND	0.534	ND
PCB 49	0.391	ND	0.391	ND
PCB 52	0.499	ND	0.499	ND
PCB 66	0.601	ND	0.601	ND
PCB 87	0.461	ND	0.461	ND
PCB 101	0.388	ND	0.388	ND
PCB 105	0.598	ND	0.598	ND
PCB 118	0.576	ND		1.56
PCB 128	0.417	ND	0.417	ND
PCB 138	0.493	ND		3.63
PCB 153	0.493	ND		0.407
PCB 170	0.452	ND		0.891
PCB 180	0.458	ND		0.739
PCB 183	0.410	ND		0.932
PCB 184	0.576	ND	0.576	ND
PCB 187	0.423	ND		1.04
PCB 195	0.429	ND		0.080
PCB 206	0.464	ND		0.270
PCB 209	0.445	ND		0.150
Total PCB		**ND**		**19.4**

ND = Not detected
Total DDT = sum of 2,4'- and 4,4'-DDD, DDE, and DDT
Total PCB = sum of congeners reported x 2

TABLE 2 **TOXICITY TEST RESULTS**
Bay Ridge & Red Hook Channels

Suspended Particulate Phase

Test Species	Test Duration	LC_{50}/EC_{50}	LPC (a)
Menidia beryllina	96 hours	**(b)** 36.1%	0.361
Americamysis bahia	96 hours	**(b)** 59.5%	0.595
Mytilus galloprovincialis **(larval survival)**	48 hours	**(b)** >100%	1.000
Mytilus galloprovincialis **(larval normal develop.)**	48 hours	**(c)** 22.1%	0.221

(a) Limiting Permissible Concentration (LPC) is the LC_{50} or EC_{50} multiplied by 0.01

(b) Median Lethal Concentration (LC_{50}) resulting in 50% mortatlity at test termination

(c) Median Effective Concentration (EC_{50}) based on normal development to the D-cell, prodissoconch 1 stage

Whole Sediment (10 days)

Test Species	% Survival Reference	% Survival Test	% Difference Reference - Test	Is difference statistically significant? (a=0.05)
Ampelisca abdita	100%	96%	4%	No
Americamysis bahia	98%	96%	2%	No

TABLE 3. 28 DAY BIOACCUMULATION TEST RESULTS: CHEMICAL ANALYSIS OF TISSUE
Wet weight concentrations
Bay Ridge & Red Hook Channels

CONSTITUENTS	*Macoma nasuta*				*Nereis virens*			
	REFERENCE		TEST		REFERENCE		TEST	
	DETECTION LIMITS	CONCEN TRATION	DETECTION LIMITS	CONCEN TRATION	DETECTION LIMITS	CONCEN TRATION	DETECTION LIMITS	CONCEN TRATION
Metals	ppm (mg/kg)	ppm (mg/kg)	ppm (mg/kg)	ppm (mg/kg)	ppm (mg/kg)	ppm (mg/kg)	ppm (mg/kg)	ppm (mg/kg)
Ag		0.051		* 0.061		0.027		* 0.030
As		4.44		4.00		2.36		2.14
Cd		0.052		0.051		0.045		0.045
Cr		0.178		* 0.40		0.651		0.202
Cu		1.80		* 2.45		1.25		1.25
Hg		0.008		* 0.011		0.020		0.016
Ni		0.311		* 0.422		0.491		0.244
Pb		0.195		* 0.605		0.157		0.157
Zn		17.3		15.6		18.5		18.3
Pesticides	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)
Aldrin	0.027	ND		0.283	0.027	ND	0.027	ND
a-Chlordane		0.052		* 0.154		0.041		* 0.118
trans Nonachlor		0.01		* 0.041		0.162		0.159
Dieldrin		0.056		* 0.227		0.101		* 0.232
4,4'-DDT		0.023	0.023	ND		0.015	0.022	ND
2,4'-DDT	0.033	ND	0.032	ND		0.023		0.039
4,4'-DDD		0.158		* 0.560		0.116		* 0.383
2,4'-DDD		0.072		* 0.348		0.106		* 0.249
4,4'-DDE		0.284		* 2.58		0.069		* 0.692
2,4'-DDE	0.018	ND	0.018	ND	0.018	ND	0.018	ND
Total DDT		**0.562**		* **3.52**		**0.338**		* **1.38**
Endosulfan I	0.030	ND	0.030	ND	0.030	ND	0.030	ND
Endosulfan II	0.033	ND	0.032	ND	0.033	ND	0.033	ND
Endosulfan sulfate	0.024	ND		* 0.411		0.116		* 0.295
Heptachlor	0.021	ND	0.021	ND	0.021	ND	0.021	ND
Heptachlor epoxide	0.033	ND	0.033	ND	0.033	ND	0.033	ND
Industrial Chemicals	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)
PCB 8	0.060	ND		* 0.644	0.060	ND		* 0.09
PCB 18	0.027	ND		* 1.09		0.041		* 1.29
PCB 28		0.112		* 2.66		0.117		* 1.27
PCB 44		0.144		* 1.07		0.059		* 0.928
PCB 49		0.111		* 3.10		0.116		* 1.698
PCB 52		0.245		* 3.27		0.275		* 2.44
PCB 66		0.167		* 2.14		0.151		* 1.01
PCB 87		0.050		* 0.493		0.040		* 0.213
PCB 101		0.191		* 2.71		0.405		* 1.60
PCB 105		0.028		* 0.423		0.114		* 0.296
PCB 118		0.170		* 1.48		0.210		* 0.833
PCB 128		0.045		* 0.261		0.139		* 0.272
PCB 138		0.230		* 1.72		0.915		* 1.61
PCB 153		0.305		* 2.62		1.42		* 2.49
PCB 170		0.066		* 0.560		0.232		* 0.384
PCB 180		0.079		* 0.639		0.479		* 0.767
PCB 183		0.059		* 0.271		0.264		* 0.380
PCB 184	0.048	ND	0.048	ND	0.048	ND	0.048	ND
PCB 187		0.113		* 0.741		0.606		* 0.987
PCB 195		0.021		* 0.183		0.136		* 0.219
PCB 206		0.022		* 0.161		0.222		* 0.333
PCB 209		0.022		* 0.130		0.242		* 0.342
Total PCB		**4.50**		* **52.8**		**12.5**		* **39.0**
1,4-Dichlorobenzene		0.093		* 0.257		0.150		0.097

TABLE 3. (Continued)

Bay Ridge & Red Hook Channels

CONSTITUENTS	*Macoma nasuta*				*Nereis virens*			
	REFERENCE		TEST		REFERENCE		TEST	
	DETECTION LIMITS	CONCEN TRATION	DETECTION LIMITS	CONCEN TRATION	DETECTION LIMITS	CONCEN TRATION	DETECTION LIMITS	CONCEN TRATION
PAH's	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)
Naphthalene		0.355		* 1.10		0.425		* 0.552
Acenaphthylene		0.097		* 1.42		0.074		* 0.329
Acenaphthene		0.101		* 1.92		0.090		* 0.896
Fluorene		0.176		* 1.86		0.068		* 0.220
Phenanthrene		1.12		* 12.5		0.280		* 0.879
Anthracene		0.184		* 6.53		0.045		* 0.280
Fluoranthene		2.46		* 53.6		0.305		* 12.5
Pyrene		2.83		* 72.2		0.289		* 19.5
Benzo(a)anthracene		0.597		* 24.8		0.102		* 0.976
Chrysene		1.24		* 33.1		0.074		* 1.36
Benzo(b)fluoranthene		0.708		* 16.2		0.061		* 0.984
Benzo(k)fluoranthene		0.978		* 16.7	0.096	ND		* 1.22
Benzo(a)pyrene		0.632		* 15.6		0.106		* 1.03
Indeno(1,2,3-cd)pyrene		0.250		* 4.67	0.105	ND		* 0.147
Dibenzo(a,h)antracene		0.049		* 1.25	0.093	ND	0.093	ND
Benzo(g,h,i)perylene		0.308		* 5.99		0.058		* 0.373
Total PAH's		**12.1**		* **269**		**2.12**		* **41.3**
Dioxins	pptr(ng/kg)	pptr(ng/kg)	pptr(ng/kg)	pptr(ng/kg)	pptr(ng/kg)	pptr(ng/kg)	pptr(ng/kg)	pptr(ng/kg)
2378 TCDD	0.042	ND	0.060	ND	0.016	ND	0.016	ND
12378 PeCDD	0.048	ND		0.153		0.067		0.035
123478 HxCDD	0.035	ND	0.042	ND		0.106		0.066
123678 HxCDD	0.035	ND		0.238		0.140		* 0.170
123789 HxCDD	0.033	ND		0.189		0.093	0.014	ND
1234678 HpCDD	0.055	ND		* 1.14		1.12		* 1.29
1234789 OCDD		2.72		* 15.2		6.69		* 7.25
2378 TCDF	0.030	ND		* 0.293		0.656		* 0.746
12378 PeCDF	0.033	ND	0.038	ND		0.100		* 0.156
23478 PeCDF	0.032	ND		0.163		0.114		* 0.212
123478 HxCDF		0.053	0.034	ND		0.086		* 0.087
123678 HxCDF	0.033	ND		0.055		0.070		* 0.078
234678 HxCDF	0.035	ND		0.149		0.110		0.085
123789 HxCDF	0.039	ND	0.042	ND		0.139		0.101
1234678 HpCDF	0.050	ND		0.266		0.570		0.394
1234789 HpCDF	0.067	ND	0.039	ND		0.152		0.037
12346789 OCDF		0.534		1.16		0.762		0.451

ND = Not detected
Total PAH = Sum of all PAH's.
Total DDT = sum of 2,4'- and 4,4'-DDD, DDE, and DDT
Total PCB = 2(x), where x = sum of PCB congeners
Concentrations shown are the mean of 5 replicate analyses in wet weight.
Means were determined using conservative estimates of concentrations of constituents that were at concentrations below the detection limit.
* = Statistically significant at the 95% confidence level.