



**US Army Corps
of Engineers®**

Pittsburgh District

December 2007

FINAL
Detailed Project Report
And
Integrated Environmental Assessment

APPENDIX 11

SECTION 404 (B) (1)
EVALUATION

North Park Lake
Allegheny County, PA
Section 206 Aquatic Ecosystem
Restoration Project

**CLEAN WATER ACT
SECTION 404(b)(1) EVALUATION**

**SECTION 206 AQUATIC ECOSYSTEM RESTORATION PROJECT
NORTH PARK LAKE
ALLEGHENY COUNTY, PENNSYLVANIA
Evaluation Prepared December 2007**

I. PROJECT DESCRIPTION

a. Location – The project area is located about 10 miles north of the City of Pittsburgh, Pennsylvania within north central Allegheny County in McCandless, Pine and Hampton Townships. (See Map, Section I.e.)

b. General Description – A Detailed Project Report has been prepared to confirm Federal interest in restoring the degraded aquatic ecosystem of North Park Lake. This water body is a eutrophic, warm water lake that has lost over half its depth to sedimentation since originally constructed in the 1930's. In addition, the sediments contain high nutrient levels that exacerbate the habitat degradation. The scope of the project measures the extent of degradation and its negative effect upon the aquatic ecosystem, explores various means to effectively restore the habitat and analyzes anticipated environmental impacts of the recommended and alternative plans. The study was conducted and the report prepared in accordance with the established Corps of Engineers regulations and procedures for water resources planning. Alternatives were examined for their feasibility, considering engineering, economic, environmental, and other criteria.

c. Authority and Purpose - The North Park Lake aquatic ecosystem restoration project was conducted under the authority of Section 206 of the Water Resources Development Act of 1996 (WRDA '96), Public Law 104-303. The proposed project will remove sediment by dredging from 33 acres of the North Fork Pine Creek arm of the lake. The removal of the sediment along with actions to restore near-shore wetlands and placement of fish attracting cover within the lake will restore aquatic habitat diversity and productivity and will ensure the maintenance of a self-sustaining warm water fishery.

Section 404 regulated fill activities associated with the project include the use of stone to construct rock piles for aquatic cover; the construction of a rock filter downstream of Pine Creek Dam within Pine Creek to trap sediment during dredging; the placement of wooden porcupine cribs on the lake bottom to serve as cover for fish; the placement of COIR logs to create near-shore wetlands; and the potential temporary relocation of sediment on the exposed lake bottom during dredging prior to its removal from the lake.

d. General Description of Dredged or Fill Material

(1) General Characteristics of Material (grain size, soil type) – All rock used for aquatic cover, and for the rock filter will be obtained from a clean upland source. Rock for the rock filter will be R4 (4-12 inches) in size. Rock used for the aquatic habitat will be R6 (6-24 inches) in size. The porcupine cribs will be constructed of new lumber. The COIR logs will

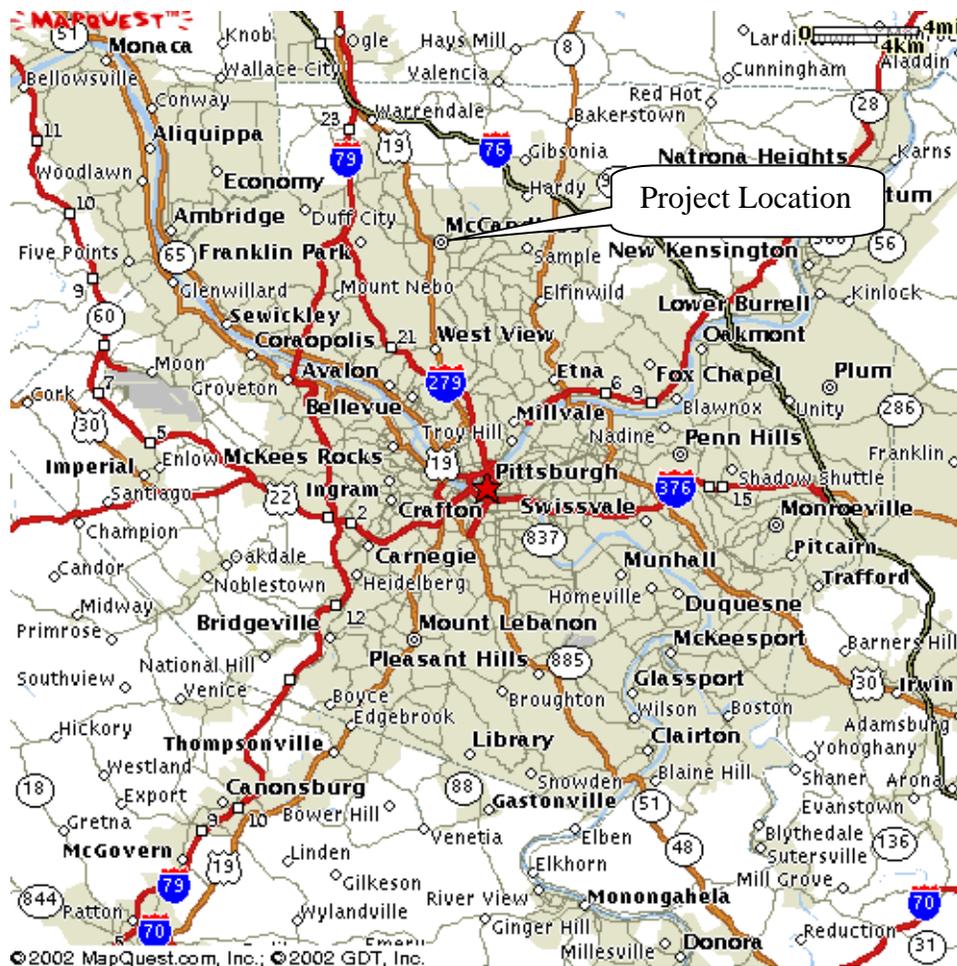
be constructed from interwoven coconut fibers bound into a 12 inch roll with biodegradable netting to hold it together.

(2) Quantity of Material –Approximately 5,000 linear feet of COIR logs will be installed along the shoreline. About 460 individual porcupine cribs will be installed along with 1300 rock piles. In addition, rock will be used for the rock filter downstream. The exact size and placement of the rock will be specified during the next phase of study, Plans and Specifications.

(3) Source of Material – All rock used for the project will be obtained from a clean upland source, and in the case of COIR logs, the material will be natural coconut fiber. The lumber for the porcupine cribs will be pine or spruce or hardwoods such as oak, poplar or maple. No used lumber or lumber containing any wood preservatives will be used for the fish habitat structures.

e. Description of the Proposed Discharge Site(s)

(1) Location (map) -The project area is within North Park Lake and Pine Creek downstream of Pine Creek Dam all within the boundary of North Park in northern Allegheny County, Pennsylvania.



(2) Size (acres) – The habitat structures described above will be placed within 33 acres of the North Fork arm of Pine Creek within North Park Lake. The rock filter will be located just downstream of Pine Creek Dam within Pine Creek. The exact size and placement of the structures will be determined during Plans and Specifications.

(3) Type of Site – The sites to be affected by the discharges extend vertically from the normal water elevation to the lake bottom or in the case of the rock filter to the stream bottom.

(4) Types of Habitat – The aquatic habitat where the rock piles, porcupine cribs and COIR logs will be placed is shallow, lentic, warm water habitat that extends from the shoreline to the lake bottom that varies from 0 to approximately 20 feet deep. The habitat for the rock filter is Pine Creek a shallow, warm water stream varying from 2 to 4 feet deep.

(5) Duration of Discharge – The discharges will be accomplished in short discrete time periods of several hours to several days depending upon the number of individual structures to be placed.

f. Description of Disposal Method – Most of the rock will be placed by dump truck, backhoe, front end loader or other land based equipment. The placement of the COIR logs and porcupine cribs may also be accomplished by machinery or by hand where necessary.

II. FACTUAL DETERMINATIONS

a. Physical Substrate Determinations

(1) Substrate Elevation and Slope - The substrate elevation and slope conditions in the areas of the discharges will not be affected.

(2) Sediment type - The rock used for habitat and for the temporary sediment filter is radically different than the present substrate which is a mixture of silts and clay with some sands, and gravels. The placement of the rock will significantly improve the current aquatic habitat.

(3) Dredged/Fill Material Movement - The discharge material (rock, porcupine cribs and COIR logs) are designed to specifically to remain in place. No movement of this material is anticipated. Dredged sediment may also be temporarily stored on the lake bottom for permanent removal. This will be done in the dry after the lake is drained.

(4) Physical Effects on Benthos – The interstitial areas provide by the rock will provide habitat for many species of benthic organisms. The COIR logs once planted with wetland vegetation will also be beneficial for numerous types of benthic organisms.

(5) Actions Taken to Minimize Impacts – The entire purpose of the discharges is to improve aquatic habitat or as in the case of the rock filter, to remove excess sediment from adversely affecting Pine Creek downstream from North Park Lake during construction.

b. Water Circulation, Fluctuation and Salinity Determinations

(1) Water

- a. Salinity – Not Applicable. North Park Lake is freshwater.
- b. Water Chemistry –The discharges will not influence water chemistry.
- c. Clarity – Placement of the aquatic habitat will occur when the lake is drawn down. Some minor increases in turbidity levels may occur temporarily as rock is placed in the stream below Pine Creek to create the in-stream sediment trap. Turbidity levels will return to pre-project levels immediately after the rock filter is placed.
- d. Color – The discharges will not affect water color.
- e. Odor – The discharges will not cause any odor problems.
- f. Taste – North Park Lake is not a source of potable water.
- g. Dissolved Gas Levels – Placement of the stone will not increase dissolved gas levels.
- h. Nutrients – The fill material is not a source of nutrients.
- i. Eutrophication – Not applicable to the discharges.

(2) Current Patterns and Circulation

- a. Current Patterns and Flow – The placement of the rock and other structures will not affect flow or current patterns.
- b. Velocity – Not applicable.
- c. Stratification – Stratification is inherent to North Park Lake during the summer. The discharges will not affect stratification.
- d. Hydrologic Regime – The proposed discharges will not affect the hydrologic regime of the lake or Pine Creek downstream.

(3) Normal Water Level Fluctuations – The discharges as described herein will not affect normal water level fluctuations that are generated by seasonal rainfall conditions over the Pine Creek basin.

(4) Salinity Gradients – Not applicable.

(5) Actions That Will Be Taken to Minimize Impacts – Except for the rock filter to be placed in Pine Creek, the discharges will be accomplished in the dry and will not cause any adverse impacts either in the lake or downstream. The placement of the rock for the rock filter will not cause any significant adverse impacts downstream within Pine Creek.

c. Suspended Particulate/Turbidity Determinations

(1) Expected Changes in Suspended Particulates and Turbidity Levels in the Vicinity of Disposal Site – The placement of the rock filter downstream of Pine Creek Dam will trap sediment during dredging so that it does not adversely affect Pine Creek.

(2) Effects (degree and duration) of Chemical Physical Properties of the Water Column

- a. Light Penetration – Not applicable
- b. Dissolve Oxygen – No effect
- c. Toxic Metals Organics – Not applicable.
- d. Pathogens – Not applicable – All discharge materials will be obtained from clean from unpolluted sources.
- e. Aesthetics – The COIR logs will increase aesthetic value as wetland vegetation establishes on them.

(3) Effects on Biota

- a. Primary Production, Photosynthesis – No adverse impact.
- b. Suspension/Filter Feeders – No adverse impact
- c. Sight Feeders – No adverse impact.

(4) Actions taken to Minimize Impacts – The discharges in the lake will occur in the dry. The rock filter placed in Pine Creek downstream of the dam will minimize downstream sedimentation during sediment removal from the lake.

d. Contaminant Determinations – The material proposed for discharge will not introduce, relocate or increase contaminants in the lake. The discharge materials will be obtained from clean sources and will be chemically inert containing no toxic elements.

e. Aquatic Ecosystem and Organism Determinations

- (1) Effects on Plankton** – No effect
- (2) Effects on Benthos** – Positive effect by increasing habitat available for colonization.
- (3) Effects on Nekton** – Positive effect by increasing cover.
- (4) Effects on Aquatic Food Web** –The material to be discharged would be obtained from a clean source free from toxic substances that could impact organisms in the aquatic food web, such as fish, crustaceans, mollusks, insects, annelids, planktonic organisms or the plants and animals on which they feed.
- (5) Effects on Special Aquatic Sites**
 - a. Sanctuaries and Refuges – Not Applicable
 - b. Wetlands – The proposed discharges will increase wetland acreage in the project area.
 - c. Mud Flats – Not Applicable
 - d. Vegetated Shallows – (See b. Wetlands)
 - e. Coral Reefs – Not Applicable
 - f. Riffle and Pool Complexes – No effect
- (6) Threatened and Endangered Species** – No effect
- (7) Other Wildlife** – No effect
- (8) Actions taken to Minimize Impacts** – The rock filter to be constructed in Pine Creek below Pine Creek Dam will effectively minimize downstream sedimentation during project construction. The downstream rock filter will be periodically cleaned out to maximize its effectiveness.

f. Proposed Disposal Site Determinations

(1) Mixing Zone Determinations – The discharges (i.e., placement of stone and other aquatic habitat structures will not disperse. Extreme high water events may possibly dislodge some individual units; however, these limited displacements would cause no adverse aquatic effects.

(2) Determination of Compliance with Applicable Water Quality Standards. Prior to the initiation of construction, the District will apply for Section 401 water quality certification from the Commonwealth of Pennsylvania.

(3) Potential Effects on Human Use Characteristic

- a. Municipal and Private Water Supply – Not Applicable
- b. Recreational and Commercial Fisheries – The recreational fishery will vastly benefit from the proposed discharges. There is no commercial fishing either in Pine Creek or North Park Lake.
- c. Water Related Recreation – The limited recreational boating on the Lake will not be affected by the discharges. Sight seeing and fishing will improve after the project is completed. (See d. below)
- d. Aesthetics – The discharges will go largely un-noticed except for the COIR logs which will increase near-shore wetland vegetation and improve aesthetics.
- e. Parks, National and Historic Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves – North Park Lake is located within North Park a County-owned facility. The discharges will improve the aquatic conditions of the Lake.

g. Determination of Cumulative Effects on the Aquatic Ecosystem – The potential for discharges by other Federal, state, local or private interests within the project area is exceedingly low. Future discharges of materials below the elevation of Ordinary High Water that may occur could include a boat ramp or wooden piers for raised walkways or fishing platforms. These would be limited in scope and insignificant from a cumulative perspective.

h. Determination of Secondary Effects on the Aquatic Ecosystem – The proposed discharges will cause no significant adverse secondary effects.

III. Findings of Compliance or Non-Compliance with the Restrictions on Discharge

1. The discharges associated with the North Park Lake Aquatic Ecosystem Restoration project represent the least environmentally damaging practicable alternative. The activity will not violate any state water quality standards or toxic effluent standards of Section 307 of the Clean Water Act and, will not jeopardize the existence of any Federally listed endangered or threatened species or their habitat. The project will not cause or contribute to the significant degradation of a water of the United States including significant adverse effects upon human health, life stages of organisms dependent upon the aquatic ecosystem, aquatic ecosystem diversity, productivity, stability, and recreational and aesthetic values.

2. Appropriate and practicable steps have been taken to minimize downstream impacts to Pine Creek by installing a temporary rock filter below the Pine Creek Dam and by conducting all discharges within the lake in the dry.

3. On the basis of the guidelines, the proposed discharge sites for the placement of the aquatic habitat comply with the Section 404(b) (1) guidelines.

12-21-07
Date


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