



DEPARTMENT OF THE ARMY
CHIEF OF ENGINEERS
2600 ARMY PENTAGON
WASHINGTON, DC 20310-2600

NOV 19 2020

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SUBJECT: Hudson River Habitat Restoration, New York

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on Hudson River Habitat Restoration, New York. It is accompanied by the report of the New York District Commander. This report is an interim response to Section 551 of the Water Resources Development Act of 1996 (P.L. 104-303). The authorization requested that the Secretary of the Army expedite the feasibility study of the Hudson River and may carry out not fewer than 4 projects for habitat restoration in the Hudson River Basin, to the extent the Secretary determines such work to be advisable and technically feasible. Projects shall be designed to a) assess and improve habitat value and environmental outputs of recommended projects; 2) evaluate various restoration techniques for effectiveness and costs; 3) fill an important local habitat need within a specific portion of the study area; and 4) take advantage of ongoing or planned actions by other agencies, local municipalities or environmental groups that would increase the effectiveness or decrease the overall cost of implementing one of the project sites. Pre-construction Engineering and Design (PED) and additional feasibility studies, if funded, will continue under the authority cited above.

2. The study area includes approximately 125 miles of the Hudson River, from the federal lock and dam at Troy, New York, to the Governor Mario M. Cuomo (formerly Tappan Zee) Bridge. Tributaries in this reach, from the river up to the first natural barrier to migratory fish, have also been included. For more than 200 years, anthropogenic activities, including federal, state, local, and private development, have degraded the integrity of the Hudson River ecosystem. The U.S. Army Corps of Engineers (USACE) became involved in modifying the channel for navigation between 1790 to 1954 and continues to maintain the federal navigation channel in the study area. In creating the navigation channel, USACE constructed longitudinal dikes and dams along the Hudson River, dredged the river bottom, and placed dredged material in between islands in the river as well as in shallow, marshy side channels. Meanwhile, in the greater Hudson River watershed, approximately 1,600 dams and thousands of culverts were built. Cumulatively, these human activities changed the morphology and hydrology of the river.

3. The Hudson River is designated as an estuary of national significance under the Environmental Protection Agency's National Estuary Program, contains special aquatic sites such as wetlands and vegetated shallows recognized as nationally significant by the Clean Water Act (33 USC 1344) and includes exceptionally scarce and declining freshwater tidal marsh as determined by U.S. Fish and Wildlife Service (USFWS)/

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National Oceanic and Atmospheric Administration (NOAA) status and trends report. The river is also located within the North American Atlantic Flyway, a critical corridor for migrating birds and is part of NOAA's National Estuarine Research Reserve System. There are currently six federally threatened or endangered species that utilize the Hudson River for habitat. As a result of years of collaborative planning amongst the stakeholders and estuarine scientists to revitalize the region, the "Partners Restoring the Hudson" prepared the Hudson River Comprehensive Restoration Plan (CRP). The Hudson River CRP provides a regional consensus on ecosystem goals, objectives, targets, restoration opportunities and implementation strategies for ecosystem restoration in the Hudson River Estuary. The proposed actions from the Hudson River Habitat Restoration Study are integral to this wide-ranging effort. Implementing the restoration actions proposed by the study has also been identified in the State of New York's Hudson River Estuary Program's Action Agenda.

4. The reporting officers recommend authorization of a National Ecosystem Restoration (NER) Plan that includes three individual projects to restore approximately 22.8 acres of tidal wetlands, 8.5 acres of side channel and tidal wetland complex, and 1,760 linear feet of living shoreline with 0.6 acres of tidal wetland, and would reconnect 7.8 miles of tributary habitat to the Hudson River. Monitoring and adaptive management at each restoration site will occur for a period of up to five years after construction.

5. The three individual projects represent three restoration categories and include:

a. Shoreline Restoration, Henry Hudson Park. The plan addresses the impacts of hard-armoring the shoreline and placing dredged material from the navigation channel in wetland areas. The restoration of tidal wetlands along Vloman Kill and tidal wetlands at the confluence of Vloman Kill and the Hudson River (3.7 acres), and the establishment of a living shoreline (1,760 linear feet) and tidal wetland habitat (0.6 acres) along the Hudson River will increase the area and quality of intertidal and shoreline habitat available to fish, amphibians, invertebrates, and birds.

b. Mosaic of Habitat, Schodack Island State Park. The plan will address the impacts of placing dredged material from the navigation channel in tidal wetlands, side channels, and between river islands. Restoring tidal wetlands (19.1 acres) and reestablishing a side channel/wetland complex (8.5 acres) connecting the Hudson River with Schodack Creek will restore a mosaic of large river habitats. Side channels provide moderate velocity, high-biodiversity refuges, which serve as nursery, resting and feeding habitat for federally endangered species (shortnose sturgeon and Atlantic sturgeon), American shad, striped bass, and a variety birds, mammals and reptiles.

c. Tributary Connections, Moodna Creek. The plan reconnects optimal tributary habitat to the Hudson River, benefiting a fishery resource degraded as a result of the USACE's navigation program. The plan will address the impacts of small dams and other barriers placed at multiple locations on many of the tributaries to the Hudson River. Removing the sewer utility line and Firth Cliff Dam from Moodna Creek, and partially removing Orr's Mill Dam will reconnect an additional 7.8 miles of Moodna Creek

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with the Hudson River. This will provide spawning, foraging, and resting habitat for migratory fish including anadromous (e.g., American shad, hickory shad, striped bass, alewife, and blueback herring), catadromous (e.g., American eel), and potamodromous (e.g., white sucker, smallmouth bass, white and yellow perch, apottail and golden shiner, carp, northern pike, walleye, shorthead redhorse, and gizzard shad) species. The barrier removals are also expected to improve the quality of in-stream and downstream habitat by reestablishing sediment, nutrient, and other material transport processes, increasing dissolved oxygen levels, and reducing maximum water temperatures, which would benefit resident fish and other aquatic organisms.

6. The NER plan includes post-construction monitoring and adaptive management at each site for a period of five years to ensure project performance. Since the project purpose is aquatic ecosystem restoration, there is no need for habitat mitigation.

7. The non-federal sponsor is the New York State Department of Environmental Conservation (NYSDEC). At October 2020 (FY 2021) prices, the total project first cost of the NER Plan is estimated to be \$44,638,000. The non-federal responsibility for operation and maintenance of the non-structural and non-mechanical elements of each restoration site shall cease ten years after ecological success has been determined in accordance with Section 2039 of the Water Resources Development Act of 2007, P.L. 110-114, as amended (33 U.S.C. 2330a). The non-federal costs include the value of lands, easements, rights-of-way, relocations and dredged or excavated material disposal areas estimated at \$1,347,100 for the recommended plan.

8. Based on a 2.5-percent interest rate and a 50-year period of analysis, the total equivalent average annual costs of the project are estimated to be \$1,604,000. Average annual OMRR&R costs are estimated to be approximately \$9,600. The total OMRR&R costs are estimated to be \$428,000. Ecosystem restoration benefits for the recommended plan include generating an estimated 59.2 average annual habitat units.

9. The goals and objectives included in USACE's Environmental Operating Principles and Campaign Plan have been integrated into the Hudson River Habitat Restoration Feasibility Study process. The recommended plan has been designed to avoid or minimize environmental impacts while maximizing the ecosystem benefits relative to costs. The recommended plan was developed in coordination and consultation with federal, state, and local agencies.

10. In accordance with ER 1100-2-8126, *Incorporating Sea Level Change in Civil Works Programs*, the study evaluated potential impacts of sea level change in formulating and engineering the recommended plans. The risk reduction system and ecosystem restoration features being proposed are based on the intermediate Relative Sea Level Rise (RSLR) projection. However, USACE will continue to monitor local conditions and determine if the intermediate scenario of RSLR is occurring. If observed conditions deviate from intermediate to high sea level forecasts during design or construction, reevaluation of the NER Plan will be required.

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11. In accordance with USACE policy on the review of decision documents, all technical, engineering and scientific work underwent an open, dynamic and rigorous review process to ensure technical quality. This included district quality control, agency technical review, and a headquarters policy and legal review.

12. Washington level review indicates that the project recommended by the reporting officers is technically sound, environmentally and socially acceptable, and cost effective. The plan complies with all essential elements of the U.S. Water Resources Council's Economic and Environmental Principles and Guidelines for Water and Land related resources implementation studies and complies with other administrative and legislative policies and guidelines. Also, the views of interested parties, including federal, state and local agencies have been considered.

13. I concur with the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend that the interim plan for ecosystem restoration for the Hudson River be authorized at an estimated project first cost of \$44,638,000 with such modifications as in the discretion of the Chief of Engineers may be advisable. My recommendation is subject to cost sharing, financing, and other applicable requirements of federal and state laws and policies. The cost of the plan recommended in this report will be shared consistent with Section 551 of the Water Resources Development Act of 1996 (P.L. 104-303), with a non-federal share of 25 percent of the total NER costs. Applying these requirements, the federal portion (75%) is estimated at \$33,479,000 and the non-federal portion (25%) is estimated at \$11,159,000. In making this recommendation, I have carefully considered the unique aspects of the project. This recommendation is subject to the non-federal sponsor(s) agreeing to comply with all applicable federal laws and policies, including that it will:

a. Provide a minimum of 25 percent of initial project costs assigned to ecosystem restoration as further specified below:

(1) Provide, during design, 25 percent of design costs allocated to ecosystem restoration in accordance with the terms of a design agreement entered into prior to commencement of design work for the project;

(2) Provide all lands, easements, rights-of-way, and perform or assure performance of all relocations, including utility relocations, as determined by the Federal Government to be necessary for the initial construction, operation, and maintenance of the project(s), all in compliance with applicable provisions of the Uniform Relocation and Assistance and Real Property Acquisition Policies Act of 1970, as amended (42 U.S.C. 4601-4655) and the regulations contained in 49 C.F.R. Part 24;

(3) Provide, during construction, any additional amounts necessary to make its total contribution equal to 25 percent of initial project costs assigned to ecosystem restoration;

b. Hold and save the United States free from all damages arising from the construction, operation, maintenance, repair, rehabilitation, and replacement of the project and any betterments, except for damages due to the fault or negligence of the United States or its contractors;

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c. Shall not use the ecosystem restoration features or lands, easements, and rights-of-way required for such features as a wetlands bank or mitigation credit for any other project.

d. Prevent obstructions or encroachments on the project (including prescribing and enforcing regulations to prevent such obstructions or encroachments) such as any new developments on project lands, easements, and rights-of-way or the addition of facilities which might reduce the outputs produced by the ecosystem restoration features, hinder operation and maintenance of the project, or interfere with the project's proper function;

e. For so long as the project remains authorized, operate, maintain, repair, rehabilitate, and replace the project, or functional portions of the project, including any mitigation features, at no cost to the Federal Government, in a manner compatible with the project's authorized purposes and in accordance with applicable federal and state laws and regulations and any specific directions prescribed by the Federal Government.

f. Perform, or ensure performance of, any investigations for hazardous substances that are determined necessary to identify the existence and extent of any hazardous substances regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Public Law 96-510, as amended (42 U.S.C. 9601-9675), that may exist in, on, or under lands, easements, or rights-of-way that the Federal Government determines to be required for construction, operation, and maintenance of the project. However, for lands that the Federal Government determines to be subject to the navigation servitude, only the Federal Government shall perform such investigations unless the Federal Government provides the non-federal sponsor with prior specific written direction, in which case the non-federal sponsor shall perform such investigations in accordance with such written direction;

g. Assume, as between the Federal Government and the non-federal sponsor, complete financial responsibility for all necessary cleanup and response costs of any hazardous substances regulated under CERCLA that are located in, on, or under lands, easements, or rights-of-way that the Federal Government determines to be required for construction, operation, and maintenance of the project;

h. Agree, as between the Federal Government and the non-federal sponsor, that the non-federal sponsor shall be considered the operator of the project for the purpose of CERCLA liability, and to the maximum extent practicable, operate, maintain, repair, rehabilitate, and replace the project in a manner that will not cause liability to arise under CERCLA.

14. The recommendation contained herein reflects the information available at this time and current departmental policies governing the formulation of individual projects. It does not reflect program and budgeting priorities inherent in the formulation of a national civil works construction program or the perspective of higher review levels within the Executive Branch. Consequently, the recommendation may be modified before it is transmitted to Congress as a proposal for authorization and implementation

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funding. However, prior to transmittal to Congress, the sponsor, the state, interested federal agencies, and other parties will be advised of any significant modifications and will be afforded an opportunity to comment further.

A handwritten signature in black ink, appearing to read "Scott A. Spellmon". The signature is fluid and cursive, with a large initial "S" and "A" and a distinct "Spellmon" ending.

SCOTT A. SPELLMON
Lieutenant General, USA
Chief of Engineers