



Post restoration activities

Prior to restoration

Enclosure structures

Overview

The Kenilworth Marsh tidal wetland restoration project is located in Washington, District of Columbia, United States. The goal of the project was to restore areas degraded from a suite of long-term impacts including river sedimentation, contamination, and channelization. Besides the impacts of altered hydrology on the wetlands, original site substrates and vegetation were buried under dredge spoils and covered with a landfill. Work began with a review of historical changes to the site, assessment of reference conditions, and identification of key factors that restricted the recovery of the wetland. Managers then initiated a pilot study to understand optimal substrate elevations, plant species, and tidal hydrology for facilitating the restoration of the marsh. In the fall of 1992, 130,000 cubic yards of dredged material were used to fill areas in accordance with restoration design elevations. For nearly five months the newly formed marsh substrate was left fallow to allow for dewatering and settlement. At the same time, hydraulically designed tidal channels were cut into the substrate to restore tidal flow back to the system. The following spring, more than 350,000 native plants were installed.

Project Details

Lead Entity:

U.S. National Park Service

Lead entity types:

- Governmental Body

Partner Organizations:

Metropolitan Washington Council of Governments, U.S. Environmental Protection Agency, The District of Columbia, the U.S. Army Corps of Engineers, Washington D.C. Department of Public Works

Adaptive management

Describe adaptive management processes and mid-course corrections taken to address unforeseen challenges and improve outcomes in each of the following categories:

Other:

Monitoring has not shown a significant improvement in water quality. This is likely due to the overwhelming tidal influence of the adjacent Anacostia River, which remains contaminated with pollutants. To increase the effectiveness of the freshwater tidal marsh in improving water quality throughout the Anacostia watershed, more acres of wetland restoration are necessary.

State of Progress:

- Closed/completed, no further follow-up

Project Start:

1989-01-01

Project End:

1993-01-01

Total budgeted expenses:

- USD 1-2 million

Main source of funds:

- National government and public institution

Global Regions:

- Americas
- Northern America
- World

Countries:

- United States of America

Ecosystem Functional Groups / Biomes:

- Brackish tidal biome

Ecosystems:

- Coastal saltmarshes and reedbeds

Extent of project:

- Other

Extent of restoration:

- Other

Degradations:

- Contamination (biological, chemical, physical or radiological)
- Drainage and hydrologic changes
- Fragmentation
- Invasive species
- Urbanization, Transportation & Industry
- Other

Description:

Kenilworth Marsh was dredged to create a tidal lagoon connected to the Anacostia River between the 1930's-1940's. Around the same time spoils from the dredging of the Anacostia River were placed in Kenilworth Marsh, filling in open water and covering native vegetation. A solid waste landfill also operated in the vicinity of the marsh until 1970. Due to the above-listed disturbances, invasive plant species colonized the marsh leading to further loss of native vegetation and wildlife habitat.

Planning and Review**Goals and Objectives****Was a baseline assessment conducted:**

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Was a reference model used:

OTHER

Other reference models used::

The reference ecosystem is primarily based on <u>historical information</u> about ecological attributes at the site prior to degradation.

were_goals_identified:

YES

Goals and objectives:

- Other

Goals Description::

Main ecological goals: Alter species composition (plant, animal, and undesired species) Increase structural diversity (vegetation, trophic levels, spatial mosaic) Improve ecosystem function (productivity, habitat, resilience) Increase external exchanges (habitat links, gene flow, landscape flows) Remove threats (contamination, invasive species, over-utilization) Improve physical conditions (substrate physical, substrate chemical, water chemo-physical) Main social goals: Enhance community wellbeing Increase stakeholder awareness and engagement Knowledge enrichment Restore natural capital

Stakeholder Engagement



Were Stakeholders engaged?:

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Description of Stakeholder Involvement:

Stakeholders that were engaged included: local community and project neighbours, nonprofit citizen groups, citizen scientists, land managers, government, and youth. They were engaged to help prioritize distribution of restoration actions on the landscape, help set project goals, objectives, targets, and vision, contribute knowledge on methods and implementation, contribute knowledge about ecological conditions and successional patterns, and engage in participatory monitoring. The Metropolitan Washington Council of Governments: brought together multitude of agencies to plan restoration priorities, the U.S. Environmental Protection Agency: provided funding & scientific guidance, the U.S. Army Corps of Engineers: provided funding & scientific guidance, and the United States Geological Survey: conducted monitoring & scientific guidance.

Ecosystem Activities and Approaches



1) eliminate existing threats to the ecosystem: Installation of goose exclusion fencing to protect plantings from forage. 2) reinstate appropriate physical conditions (e.g. hydrology, substrate): Placement of dredged material to recontour the site to allow for the restoration of the marsh's hydraulic function 3) achieve a desirable species composition : Installation of containment structures to hold dredged material in place for planting. Installation of native riparian/wetland species across the disturbed areas to restore biodiversity and improve habitat. 4) reinstate structural diversity (e.g. strata, faunal food webs, spatial habitat diversity): Installation of containment structures to hold dredged material in place for planting. Installation of native riparian/wetland species across the disturbed areas to restore biodiversity and improve habitat. 5) recover ecosystem functionality (e.g. nutrient cycling, plant-animal interactions, normal stressors): Placement of dredged material to recontour the site to allow for the restoration of the marsh's hydraulic function

Project Outcomes



Reinstate appropriate physical conditions: The dredging and recontouring of the site reconnected the natural hydrology of the site. Achieve a desirable species composition: Overall, Kenilworth Marsh revegetated extensively and vigorously. During the first year, at least 90% of revegetation areas were covered with dense plant growth averaging several feet in height. Recover ecosystem functionality: The restoration also has led to the recolonization of the site with wildlife (particularly bird) species that had not been seen in the area since dredging and landfill activities began.

Monitoring and Data Sharing



Does the project have a defined monitoring plan?:

NO

Open Access URL:

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Long Term Management



Long-term resourcing and support:

- Other (please provide details)

Other Long Term Resources:

One objective of monitoring was to determine if reconstruction of the wetlands had a detectable effect or impact on the water quality of the marsh system and possibly even the nearby Anacostia during the five-year post-reconstruction period. Water quality at Kenilworth Marsh was measured and analyzed for differences and trends within the marsh for five years after the marsh was reconstructed (1993-97), for changes in relation to the adjacent Anacostia mainstem (as a control) for this same five-year period, and for changes in relation to the mainstem and pre-marsh (then consisting of open water tidal flats) for the five-year pre-reconstruction period (1988-92). This data set was intended to serve as a reference for the study sites and study time frame. In addition to water quality monitoring following the reconstruction, a 5-year monitoring program (begun in 1993) was established to look at the effectiveness of wetland vegetation reestablishment, plant biodiversity, wildlife (including plankton, aquatic macro-invertebrates, mammals, birds, and fish) productivity and utilization, the stability of sediment and development of soil and hydrologic patterns, and nutrient reduction. Management activities since the reconstruction have mainly consisted of removal of invasive plants, particularly purple loosestrife and phragmites.

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