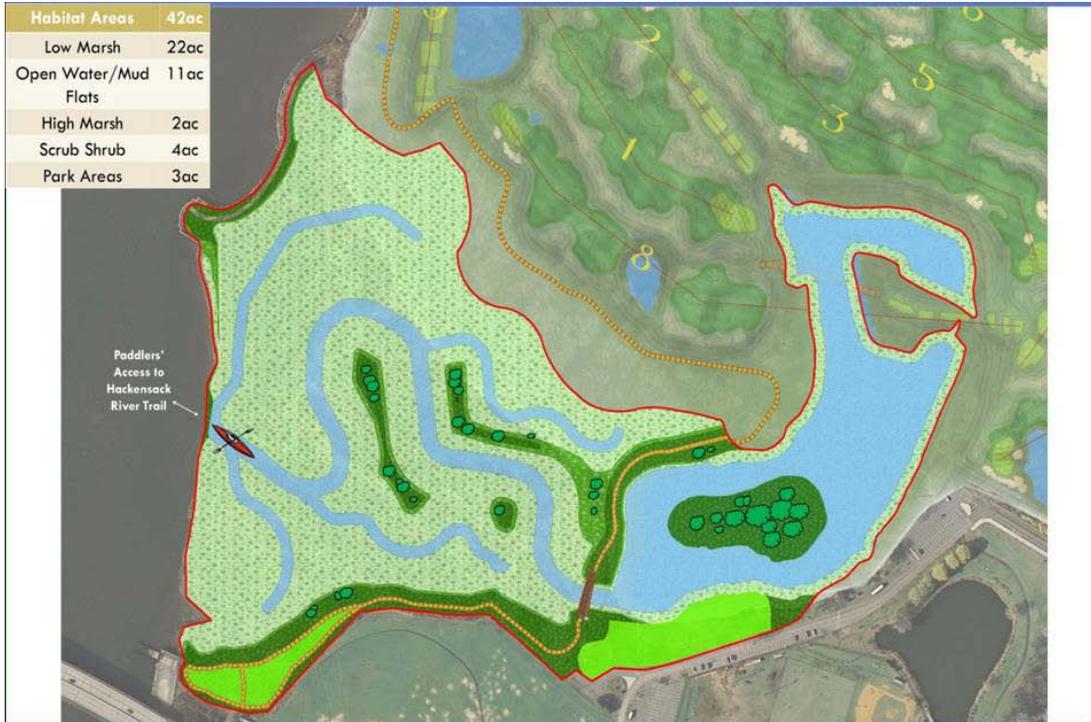


# Lincoln Park Wetland Restoration Project

## Photos



Lincoln Park Wetland Restoration Site Plan – The restoration project included the excavation of landfill material and re-contouring of the site to create tidal creeks and intertidal habitat.

DEC. 1, 2009	Construction of Confined Disposal Facility (CDF).
DEC. 18, 2009	Bid Opening (open to public) for wetland construction contract.
DEC. 30, 2009	CDF construction complete.
JAN. 27, 2010	Qualified wetland construction contractor is officially selected.
FEB. 5, 2010	Bid Award Contractor Meeting.
FEB. 22, 2010	Bid Award.
FEB. 23, 2010	Notice to proceed.
MAR. 8, 2010	Construction mobilization and staging starts. Equipment arrives and a secure construction site is created. Clean sand begins to arrive from dredging project.
APR. 22, 2010	Excavation starts & material is moved to landfill. Sand (beneficial reuse material) placement begins.
JUN. 14, 2010	Lake weir construction starts.
JUL. 10, 2010	Herbivory fence installation & marsh planting begins.
AUG. 11, 2010	Pedestrian Bridge construction starts.
SEP. 5, 2010	Pedestrian Bridge is complete.
OCT. 15, 2010	Lake weir construction is complete.
NOV. 30, 2010	Sand delivery is complete.
DEC. 7, 2010	Restoration excavation and rough grading is complete. Sand placement is complete.
DEC. 15, 2010	Planting and herbivory fence is complete. As-built survey complete.
APR. 15, 2011	Additional planting around pond. Vegetation, sediment monitoring will begin. Anadromous fish and bird sampling begin.
AUG. 15, 2011	Annual young of the year fish sampling and monitoring starts.
OCT. 10, 2011	Vegetation and sediment monitoring is conducted.
APR. 10, 2012	Bird and anadromous fish monitoring and sampling starts.
MAY 31, 2012	Contracts period is complete. Final reports are made & contracts are officially closed.

Project Timeline – From the start, the restoration project was on a tight time schedule and included close coordination with multiple entities including federal, state, and local agencies, consultants and contractors.

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The site prior to restoration – The site was originally a landfill covered in refuse and debris. These conditions allowed nuisance exotic and non-native plant species to survive, as shown in the photograph.



A confined disposal facility (CDF) was constructed to receive beneficial reuse material that was pumped from a barge in the Hackensack River to the CDF, de-watered, and placed as clean-fill material on the site.

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Landfill refuse and debris was excavated to sub-grade elevations and hauled to the adjacent landfill site for disposal.



The beneficial reuse material de-watered at the CDF is placed on the site and re-contoured to achieve final grades necessary to create tidal creeks and intertidal habitat.

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The restoration site was then planted and seeded with a diversity of herbaceous and woody species vegetation, creating intertidal marsh, scrub-shrub, and upland herbaceous habitat. Herbivory control fencing was installed across the marsh plain to exclude geese.



Connecting the Hackensack River tidal flow to the on-site pond through the construction of a series of intertidal channels, resulted in the creation of additional spawning and foraging habitat for anadromous fish species.

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A major part of the project was providing public access to the Hackensack River waterfront and the restored marsh through installation of a pedestrian walkway and bridge over the main intertidal channel.



Aerial view of the wetland restoration project site from April 2010, prior to the start of excavation.

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Aerial view of the wetland restoration project site from August 2010, during excavation, clean-fill placement and planting. The dredge disposal spud barge can be seen in the Hackensack River.



Aerial view of the wetland restoration project site from October 2010, showing the site construction nearing completion. The site is now hydrologically connected to the tidal flows of the Hackensack River.

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Aerial view of the wetland restoration project site from June 2011, following completion of supplemental planting.

## THE HISTORY OF LINCOLN PARK WEST

1926

1938

1990

1964

2010

**THE JOURNEY**...The journey to the construction of the Lincoln Park Wetland Restoration Project has been long and varied throughout the past century. Many different concepts, visions, and plans have been developed for Lincoln Park West, although none were ever implemented. Between 1926 and 1990, various plans were proposed to develop Lincoln Park West into a park featuring diverse forms of recreation, including fields, pavilions, picnic groves, riverboat promenade, archery and driving ranges, a golf course, ponds, and a concession stand. By 1990, the proposed plan begins to include glimpses of what the area has been returned to today, with plans for an interpretive nature center, gardens, and wetlands.

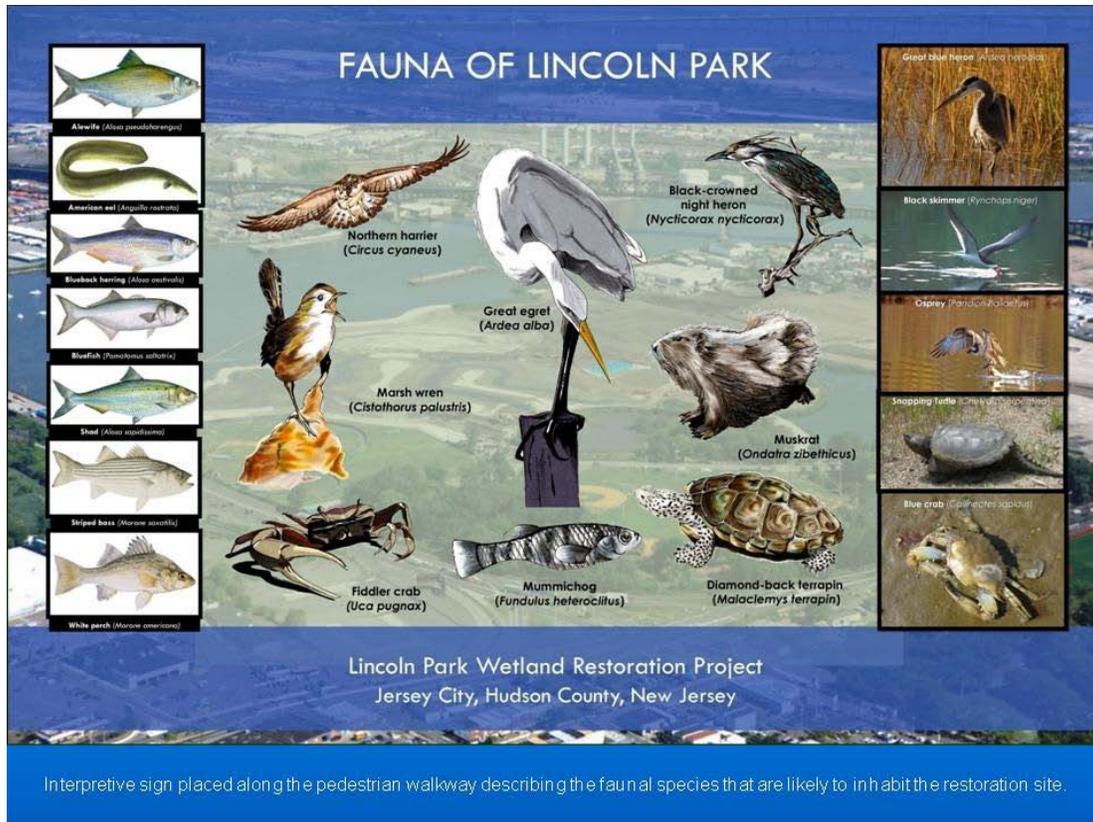
In 2005, in association with began coordination to restore tidal channels and tidal wetlands, in addition to closing and developing the abandoned landfill at the Lincoln Park West site. The project received \$2.3 million in oil spill settlement funds from the Harbor Spill Restoration Committee, as well as \$10.6 million in Coastal and Marine Habitat Restoration funds under the American Recovery and Reinvestment Act (ARRA) of 2009. Landfill details were excavated, tidal channels and tidal wetland habitat was created, and the marsh plots was planted with native salt marsh vegetation. The tidal wetland complex is hydrologically connected to the Hackensack River and creates additional fish spawning habitat. The Hackensack River is part of the New York-New Jersey Harbor Estuary, a complex ecosystem in the middle of one of the largest metropolitan areas in the country. The Lincoln Park Wetland Restoration Project has created a diverse mosaic of habitats where people can interact with the environment and nature has a place to thrive. We believe the journey has been rewarding and fulfilling. We hope you agree.

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Jersey City, Hudson County, New Jersey

Interpretive sign placed along the pedestrian walkway describing the varied history of the restoration site.



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Interpretive sign placed along the pedestrian walkway describing the faunal species that are likely to inhabit the restoration site.

PLANTING ZONE	AREA	PLANTED SPECIES		HEIGHT	ROOT	SPACING	UNITS	QUANTITY
	(ACRES)	SCIENTIFIC NAME	COMMON NAME					
Upland Scrub-Shrub	2.39	<i>Juniperus virginiana</i>	eastern red cedar	15"-3' Min	Container No. 1	15 FT. O.C.	Unit	231
		<i>Quercus prinus</i>	chestnut oak	12" - 3' Min	Container No. 2		Unit	231
		<i>Rhus glabra</i>	smooth sumac				Unit	163
		<i>Rhus copallinum</i>	winged sumac				Unit	163
		<i>Comptonia peregrina</i>	sweet fern				Unit	163
		<i>Fraxinus maritima</i>	beach plum	2' to 3' high	CANS		Unit	163
		<i>Baccharis halimifolia</i>	groundsel tree				Unit	244
		<i>Cornus amomum</i>	silky dogwood				Unit	244
		<i>Ilex opaca</i>	American holly				Unit	244
		<i>Myrica pensylvanica</i>	bayberry				Unit	244
Wetland Scrub-Shrub	0.92	<i>Baccharis halimifolia</i>	groundsel tree	2' to 3' high	CANS	8 FT. O.C.	Unit	315
		<i>Myrica pensylvanica</i>	bayberry			Unit	315	
Emergent Marsh - High Marsh	1.33	<i>Distichlis spicata</i>	spike grass				Unit	3,620
		<i>Spartina cynosuroides</i>	big cordgrass				Unit	3,620
		<i>Spartina patens</i>	salt meadow hay	6" Min	2" x 2" Minimum Peat Plug	2 FT. O.C.	Unit	3,620
		<i>Juncus gerardi</i>	salt meadow rush			Unit	3,620	
Emergent Marsh - Low Marsh	21.44	<i>Iva frutescens</i>	marsh elder	2' to 3' high	CANS	8 FT. O.C.	Unit	905
		<i>Spartina alterniflora</i>	smooth cordgrass	12" Min	2" x 2" Minimum Peat Plug	3 FT. O.C.	Unit	103,775
SEED MIX:								
PLANTING ZONE	AREA	SPECIES		PLS SEEDING RATE	RATE			
		SCIENTIFIC NAME	COMMON NAME			(POUNDS)	(PLS/ACRE)	
Herbaceous Seed Mix (for Upland Herbaceous, Upland Scrub-Shrub, and Wetland Scrub-Shrub)	3.89	<i>Puccinellia distans</i>	Alkaligrass, fults	5	45			
		<i>Andropogon gerardii</i>	big bluestem	10				
		<i>Elymus elymoides</i>	Bottlebrush squirrel tail	10				
		<i>Lolium multiflorum</i>	ryegrass	10				
		<i>Fanicum virgatum</i>	switchgrass	10				

NOTE: PLS is Pure Live Seed

Summary of herbaceous and woody species planted within the restoration site.

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View of the low marsh community (*Spartina alterniflora*) following one full growing season.

Three years of Quantitative and Qualitative monitoring is being undertaken within the restored marsh. Sampling is being conducted on vegetation, hydrology, avian use, macroinvertebrates, nekton, and soils pursuant to the schedule below.

Parameter	Monitoring Schedule
Vegetation Monitoring	Late Summer, 2011-2013
Hydrology Monitoring	Year-round, 2011
Avian Monitoring	Spring, Fall, and Winter, 2011-2013
Macroinvertebrate Monitoring	Late Summer, 2011-2013
Nekton Monitoring	Spring, Summer, and Fall, 2011-2013
Soil Sampling	Late Summer, 2011-2013
Qualitative Monitoring	Early Spring, 2011-2013

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Spring 2011 nekton throw-trapping and fyke netting was conducted on May 20, 23, and 25. The catch included *Callinectes sapidus*, *Fundulus heteroclitus*, *Menidia menidia*, *Morone americana*, *Alosa pseudoharengus*, *Lepomis macrochirus*, *Gasterosteus aculeatus*, and *Palaemonetes* sp. Summer 2011 nekton throw-trapping and fyke netting was conducted on July 15, 18, and 22. The catch included *Callinectes sapidus*, *Fundulus heteroclitus*, *Fundulus majalis*, *Menidia menidia*, *Morone americana*, and *Brevoortia tyrannus*. Striped Bass (*Morone saxatilis*) have also been caught from the bridge over the primary tidal channel. Diamondback terrapins (*Malaclemys terrapin terrapin*) have also been observed.

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The Lincoln Park Wetland Restoration Project has been completed and is open to the public. Please feel free to come explore this site and all it has to offer in Jersey City, New Jersey.