

CASE STUDY: FOUNDRY DOCK PARK

OVERVIEW

An eroding shoreline, impacted by human use, currents, waves and ice, was reconstructed to include vegetation, varied slopes and sinuous soft shoreline features. This engineered shoreline protects and enhances shoreline habitat and accommodates a boat launch and other recreational activities.

LOCATION & ACCESS

Foundry Dock Park is located in the Village of Cold Spring in Putnam County, NY on the east side of the Hudson River at river mile 53.9. This site is open to the public and is a part of the Greenway Water Trail.

PARTICIPANTS

- Owner:** The Scenic Hudson Land Trust, Inc.
- Manager:** Scenic Hudson
- Design:** Hudson and Pacific Designs, Saugerties, NY
- Contractor:** Maple Leaf Associates of Mahopac, NY
- Construction Cost:** \$285,000
- Grants Awarded:** Hudson River Estuary Program Grant (\$100,000)
- Project Timeframe:** 2000-2006



The Hudson River Sustainable Shorelines Project is a multi-year effort lead by the New York State Department of Environmental Conservation Hudson River National Estuarine Research Reserve, in cooperation with the Greenway Conservancy for the Hudson River Valley.

The Project is supported by NOAA through the National Estuarine Research Reserve System Science Collaborative.

Hudson River Sustainable Shorelines Project
Norrie Point Environmental Center
P O Box 315
Staatsburg, NY 12580
<http://www.hrnr.org>
(845) 889-4745
hrnr@gw.dec.state.ny.us.



BACKGROUND AND STORY

In the 19th century, Foundry Dock Park was a terminus for a pier and rail line which extended 600 feet out into the Hudson River. Raw materials and manufactured goods were shipped by water and transported by rail to and from the adjacent West Point Foundry, an iron manufacturing site.

In the 1950's, the Marathon Battery Company, located nearby, began operation. The factory contaminated the surrounding area, including East Foundry Cove, with cadmium and other toxins and closed in 1982. The area was declared a federal Superfund site. Between 1994 and 1996 East Foundry Cove and Marsh underwent extensive remediation and dredging in order to clean-up the site and restore valuable marsh habitats. East Foundry Cove was delisted from EPA's National Priority List in November 1996. At that time, two parcels totaling 87 acres were purchased by Scenic Hudson. The 0.6 acre riverfront parcel was named Foundry Dock Park and the larger parcel was named the West Point Foundry Preserve.

At the time of purchase, the park shoreline showed signs of erosion from waves, currents, boat wakes and car parking, boat launching and general misuse. Foundry Dock Park was designed to preserve the site's ecological, historical and archaeological resources. Visitors can now enjoy wildlife, scenic stretches of the Hudson River, and recreational paddling within a confined launch area. In addition, visitors can learn about the site's history at the informational kiosk and view a simulation of the foundry's historic rail line.

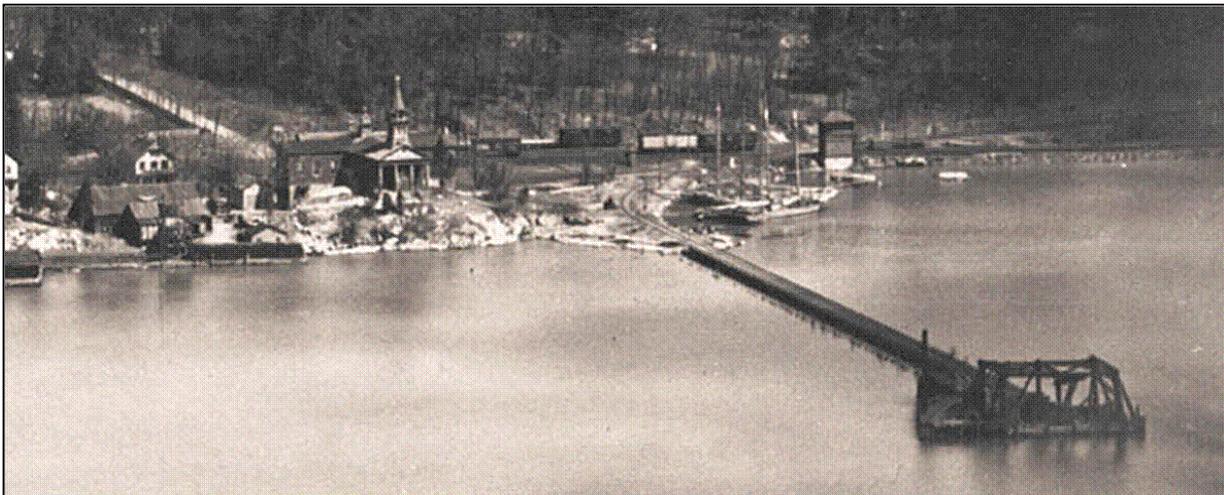


Figure 1: Historic photo of the West Point Foundry's rail way and pier located on the site of Foundry Dock Park. Today the park is listed on the National Register of Historic Places as part of the West Point Foundry Archaeological Site.

ASSESSMENT, PLANNING & DESIGN

As the site's new owner and manager, Scenic Hudson was interested in mitigating erosion of the shoreline and making the area more accessible to the public. Initially, efforts to clean up the park were organized by Scenic Hudson with volunteers. Putnam County received funding through the NYSDEC Hudson River Estuary Grants Program in 1999 for shoreline restoration and park improvements. Scenic Hudson managed the project and paid the required match.

Hudson & Pacific Designs was hired as the landscape architect. A plan was developed to address the erosion issue by utilizing vegetation and biodegradable materials to stabilize the shoreline.

While this site was not subject of the contamination or the Superfund Cleanup, the Village of Cold Spring required soil testing as part of the Site Plan approval process. A few remnant pockets of cadmium were identified and 53 tons of non-hazardous contaminated soil was excavated, replaced with two feet of new soil, and vegetated with lawn and native plants, see site plan.

Scenic Hudson intended to create a park that would be used by the general public and promote non-motorized recreational activities such as canoeing and kayaking at the 35-foot gravel boat launch. The protection of nearby submerged aquatic vegetation beds was of concern so only limited recreational motorboat use was envisioned.

PLAN IMPLEMENTATION & DESIGN

The construction process began in 2005. The shoreline protection portion of the project included replacing 350 feet of eroding shoreline with new rip-rap, coir rolls, and native vegetation. Coir rolls (BioD-Rolls from Rolanka International) are densely packed nets made from the husks of coconuts which are formed into long tubes or rolls. Coir rolls provide shoreline stability by resisting wave action, and offer an excellent medium for plant growth. Native vegetation, including dogwood, sweetspire, summersweet, and blazingstar, was planted around the coir rolls. The plant root systems help stabilize the shoreline.



Figure 2: Newly constructed coir rolls at the edge of the shoreline.



Figure 3: A highly exposed area of the site where rip-rap was used below the coir rolls for added protection.

Eventually the coir biodegrades and the established plantings continue to stabilize the soil. In more exposed areas, rip-rap was placed both above and below the coir rolls to help protect them from direct exposure to water and ice. The coir rolls have shown to be incredibly durable thus far. Shortly after installation, a flood covered half of the park's inland, and the coir rolls remained intact and in place. Only minimal replanting was required.

Storm water management was also an important issue addressed in this project. The park's small parking lot was paved with permeable pavers and the paths were constructed of gravel to help decrease storm water runoff and prevent shoreline erosion caused by run-off.

Completed in June 2006, the park features easily accessible trails, shady spaces with overlook decks and benches, a pervious parking lot, interpretive signs, gravel boat launch, and a resilient soft shoreline. The boat launch allows for excursions into Foundry Cove and Audubon New York's Constitution Marsh Sanctuary. There is little use by motorcraft because a special permit is required with restrictions on motor size, noise limits, and boat length, with rules posted on-site. Scenic Hudson provides regular upkeep and maintenance.

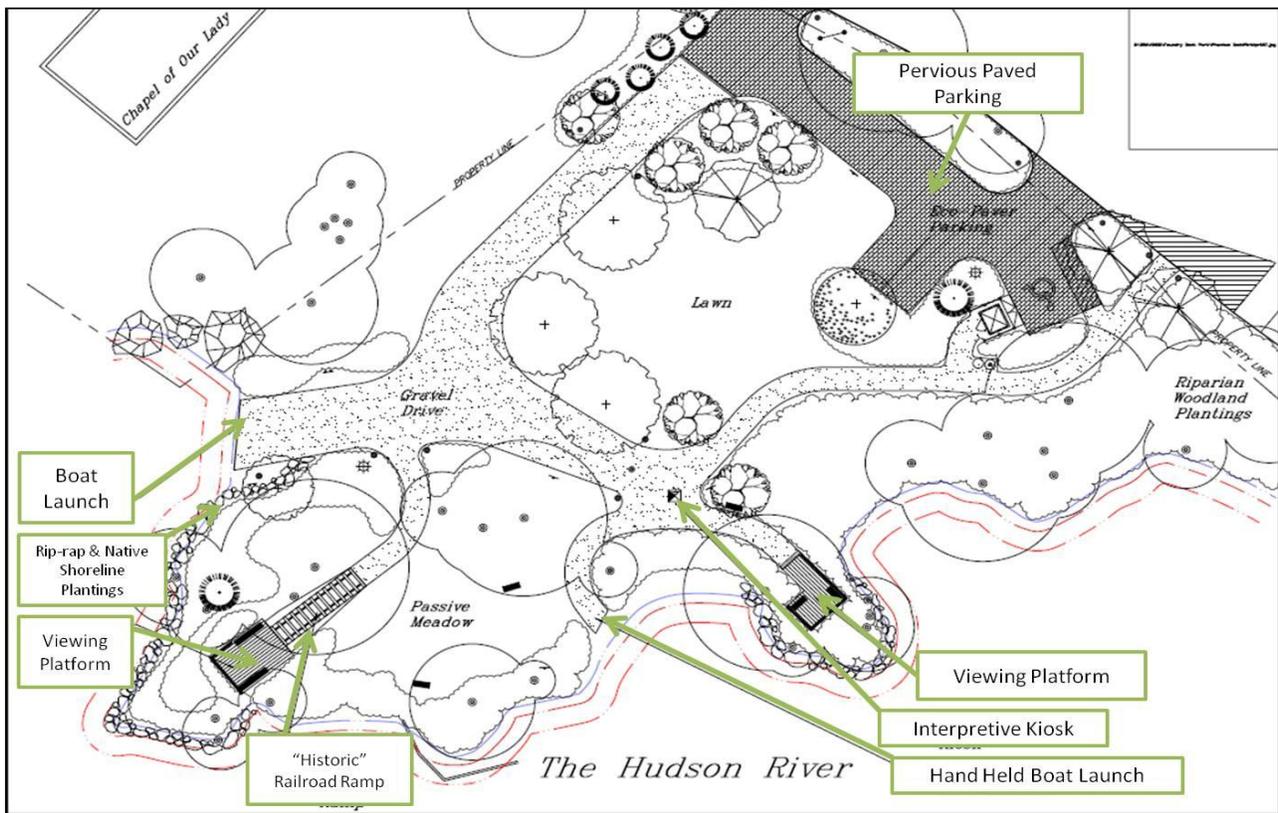


Figure 4: Site plan of the park, courtesy of Hudson & Pacific Designs.

LESSONS LEARNED

- In relatively sheltered areas, coir rolls are a soft shoreline option that is sturdy enough to stay in place even after years of heavy ice shear and wave action.
- Permitting agencies were willing to grant permits for a soft shoreline approach, but shorelines with a substantial industrial history and/or close proximity to a brownfield site may be required to undergo additional review and approval.

Photos, drawings, and information in this case study courtesy of Scenic Hudson and Hudson & Pacific Designs.