



Penobscot River Restoration Trust

Great Works Dam Removal

History of the Great Works Dam

The Great Works Dam obstructed the migration of sea-run fish to the Penobscot River for well over 100 years due to an approximately 1,000 foot dam. Removal of the dam began on June 11, 2012. As the impoundment was drawn down, a cascading stretch of historic rapids were revealed for the first time in multiple generations. The first major dam to be built in the area of the current dam was in 1830 – it was built on a diagonal more or less parallel to the shore, forming a “wing” shape. It was partially demolished in approximately 1887, which is when the current Great Works Dam was constructed by the Penobscot Chemical Fibre Company at the site of the first pulp mill on the river. The dam and powerhouse facilities were sold several times over the next few decades, and purchased by PPL Corp. in 2000. The Penobscot River Restoration Trust purchased the Great Works, Veazie, and Howland Dams in 2010 for approximately \$24 million as called for in the Lower Penobscot River Settlement Accord, a landmark river restoration agreement approved by the Federal Energy Regulatory Commission in 2004.

The Project

The Penobscot River Restoration Project is an innovative public-private partnership to restore self-sustaining runs of Atlantic salmon, American shad, river herring, and seven other species of native sea-run fish while rebalancing hydropower generation on Maine's largest river system. In May 2012, the Secretary of the Interior identified the Penobscot Project as one of two priorities in the region for the America's Great Outdoors Initiative, highlighting the Project as a model of collaboration for multi-partner, landscape-scale conservation and restoration efforts. The unprecedented agreement between the Penobscot Indian Nation, seven conservation groups, hydropower companies, and state and federal agencies resolves longstanding disputes over management of river resources. Successful completion of the Penobscot River Restoration Project will significantly improve access to nearly 1000 miles of habitat for sea-run fish in the Penobscot River watershed, and hydropower increases at six dams, now owned by Black Bear Hydro, LLC, means hydropower will be maintained or possibly increase within the Project area. When complete, the Penobscot Trust will have removed the two dams closest to the sea - Veazie and Great Works – and decommissioned and constructed a fish bypass at a third at Howland. The Great Works Dam, in Old Town and Bradley, Maine was the first to be removed, in the summer of 2012.

The Project involves restoring the river through three major construction projects, changes in energy operations and re-licensing requirements, a variety of permit obligations, outreach to communities within the project area and to the public at large, planning for economic and community development activities related to the river's restoration, and significant private and public fundraising. Primary funding for the Great Works Dam removal and related activities was made possible by the National Oceanic and Atmospheric Administration (NOAA) Restoration Center through the American Recovery and Reinvestment Act of 2009. Additional support was provided by the U.S. Fish and Wildlife Service National Fish Passage Program among other funders.



Photo by Linwood Riggs



Photo by Margaret Pizer/The Nature Conservancy

Cumulative Impact of Dams on Sea-run Fisheries

In the Penobscot River, populations of native sea-run fish are at or near all-time lows. Causes of these declines include construction of dams, water quality degradation, log drives and overfishing. In the 21st century, the log drives have ended, the Clean Water Act has dramatically restored water quality, and fish harvesting has been controlled by state and federal laws. Yet salmon and eel populations remain near all-time lows, and other sea-run fish are all but completely nonexistent upstream of the Veazie Dam. Multiple dams are the one significant impact that has yet to be addressed on the Penobscot. The cumulative impacts of multiple dams on upstream and downstream fish passage have prevented recovery of the river's native sea-run fish species. The dams interfere with historic upstream and downstream fish migrations, inundate spawning and juvenile nursery habitat, and reduce water quality.

The lower Penobscot dams are widely recognized as the most significant remaining impediment to the recovery of Atlantic salmon and other sea-run fish (National Academy of Sciences, 2004). Wild Atlantic salmon populations have hovered around 1,000 in recent years, a mere shadow of the annual runs of 70,000-100,000 salmon that once migrated up the river into the North Woods. Atlantic salmon are now protected as a federally endangered species in the Penobscot. Sixty to seventy percent (60-70%) of all United States Atlantic salmon spawn in the Penobscot, but only three percent of the river's spawning habitat lies below the lowermost dam. Although Atlantic salmon use existing fishways to ascend the mainstem Penobscot River and access tributaries, there is very little use of these fishways by alewives, shad, or blueback herring. Species that do not use fishways such as endangered shortnose sturgeon, Atlantic sturgeon, striped bass, rainbow smelt, and tomcod are now limited to tidal habitat below the Veazie Dam. Fish that do manage to get above one or more dams, are also subjected to possible injury or mortality at each dam they must pass during outmigration on their way to the ocean.

Current Project Status

The Great Works Dam was removed during the summer of 2012. The Veazie Dam is scheduled to be removed beginning in 2013 and to be completed over two years. The Penobscot Trust also hopes to begin work on the Howland Bypass in 2013. The Trust has been collaborating with the town of Howland on the cleanup and preparation of the site of the future bypass, along with adjacent areas impacted by a former tannery on the site; shared community visioning for redevelopment of the site is ongoing. Black Bear Hydro is constructing a fish lift at the Milford Dam, which will become the first dam on the river, and will improve fish passage at three other dams, while moving forward with additional energy increases at the Stillwater and Orono dams.



Contractor R.F.Jordan & Sons builds the road out to the dam where removal began June 11, 2012

Project Partnership

The Penobscot River Restoration Trust is the non-profit organization charged with implementing the core aspects of the restoration effort. Members of the Trust are the Penobscot Indian Nation, American Rivers, Atlantic Salmon Federation, Maine Audubon, Natural Resources Council of Maine, Trout Unlimited, and The Nature Conservancy. Project partners include the U.S. Department of Interior (Bureau of Indian Affairs, National Park Service, and U.S. Fish & Wildlife Service), National Oceanic and Atmospheric Administration (NOAA), the State of Maine, PPL Corporation, the former dam owners, and more recently, Black Bear Hydro Partners, LLC.

Partners in the Penobscot River Restoration Project



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