

NRDAR Settlement Funds from Combe Fill South Landfill Used to Remove Dams and Restore Recreational Use and Habitat in New Jersey; Creates 85 Job-Years and \$14.3M in Economic Output

The Combe Fill South Landfill is located in the New Jersey Highlands Region, an area known to support an exceptionally diverse array of natural resources including unique biotic communities and critical habitats. Natural Resource Trustees, including the USFWS NJ Field Office (NJFO) for Interior, determined that the release of hazardous substances from the landfill resulted in a 230-acre plume of contaminated groundwater beneath and around the Site. Site leachate additionally impaired or degraded 11.7 acres of forested wetland habitat; injured the surface water, benthic macroinvertebrates, and fish of approximately 1.9 river miles of Trout Brook; and injured the surface water and biota of approximately 1.5 river miles of an unnamed tributary. A 2009 settlement provided Trustees with compensation for non-groundwater natural resource injuries.

Ecological and Economic Impacts of Columbia and Remnant Dam Removals and Restoration

Using NRDAR settlement funds, the NJFO initiated a cooperative agreement with The Nature Conservancy to remove the Columbia and Remnant Dams, located on the Paulins Kill River, NJ. At a price tag of over \$7 million for planning and implementation from 2015 to 2020, the project represents the largest dam removal project to date in NJ. Removal of the Columbia Dam (18 feet tall, 330 feet long) and the partially breached Remnant Dam located just downstream (20 feet tall, 210 feet long) occurred in 2018, reconnecting 11 miles of the Paulins Kill mainstem and 22 miles of tributary streams to the Delaware River for the first time in 109 years. The project also included: (1) installation of six fish passage weirs in a high gradient reach; (2) restoration of 47 acres of forested wetland and floodplain habitat (e.g., plantings and stream bank stabilization); (3) scour protection countermeasures for Interstate-80 and two historic stone bridges; (4) construction of at least one public boat launch; and (5) construction/restoration of around three miles of recreational trails.

In April 2019, American shad were documented 9.5 miles upstream of the former Columbia Dam; an early demonstration of the project's ecological value. Long-term monitoring of fish assemblages, benthic macroinvertebrates, water quality, aquatic habitat, and recreational use will continue for 3-4 years post removal to strengthen scientific understanding of the ecological values associated with the dam removal. This project is part of a larger effort to restore water quality and aquatic habitat in the Paulins Kill River. Two additional upstream dams will be removed within the next 5 years, providing 22 mainstem river miles of unimpeded fish passage.

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Economic Contributions of Ecosystem Restoration. Since 2012, Interior economists have been quantifying the economic contributions of a wide variety of restoration projects. Federal investment in ecosystem restoration and monitoring protect Federal trusts, ensure public health and safety, and preserve and enhance essential ecosystem services. These investments also provide jobs. Economic

Economic Impacts of New Jersey Dam Removals

Restoration Types	Dam removal, fish passage, habitat restoration, public use
Project Location	New Jersey
Impact Area	Unified Region 1
Total Expenditure (\$2019)	\$6.83 million
Project Duration	2015-2020
Job-Years	85
Labor Income (\$2019)	\$6.1 million
Value Added (\$2019)	\$8.3 million
Total Economic Output (\$2019)	\$14.3 million
Plus In-kind Spending by USFWS (nominal \$)	\$0.44 million

impact analyses measure the jobs and economic activity generated through new expenditures in an economy, including the ripple effects resulting from businesses and consumers purchasing goods and services from one another. Economic input-output models capture the interactions between producers and consumers in an economy and describe the secondary impacts of project spending using regional economic multipliers.

Restoration expenditures for the Columbia and Remnant Dam removals have so far totaled \$6.8 million (\$2019) over the combined projects' 6-year duration. These expenditures supported approximately 85 job-years (total number of annualized full and part-time jobs) in Unified Region 1 (<https://www.doi.gov/employees/reorg/unified-regional-boundaries>), as well as approximately \$6.1 million in labor income (salaries, wages, and benefits) and \$8.3 million in value added (contribution of the restoration projects to gross domestic product (GDP)). The total value of the production of goods and services supported by the expenditures (economic output) was approximately \$14.3 million. An additional \$442,800 of in-kind labor was provided by USFWS. These results also do not include additional future jobs and non-market benefits from increased opportunities for recreation, and improving and sustaining fisheries and wildlife habitat, among other resources.

The Primary project partners included: The Nature Conservancy; New Jersey Department of Environmental Protection; American Rivers; Natural Resources Conservation Service; National Fish and Wildlife Foundation—Delaware River Program; Princeton Hydro; Sumco Eco Contracting; and RiverLogic Solutions. Photo credit: © Jeff Burian, The Nature Conservancy.



For more information:

https://www.fws.gov/northeast/njfieldoffice/NRDAR/NRDAR_Sites2016/CombeFill_Website2016/CombeFill_Website2016.html ; https://www.cerc.usgs.gov/orda_docs/CaseDetails?ID=1171