



Inggrid Haeckel



Nate Nardi-Cyrus



Rebecca Houser

Presented to the Hudson River Estuary Management Advisory Committee and the NYS Legislature December 2019
in accordance with the provisions of the Hudson River Estuary Management Act, NYS Environmental Conservation Law Section 11-0306



Department of
Environmental
Conservation

2019 ANNUAL HUDSON RIVER ESTUARY PROGRAM COORDINATOR'S REPORT

Andrew M. Cuomo, Governor | Basil Seggos, Commissioner



Suzy Altman



We're pleased to present the 2019 Hudson River Estuary Coordinator's Report to highlight our successes this year and the steps we are taking to ensure a clean, accessible, and inviting river for those who live and work in Hudson waterfront communities and throughout the river's watershed. As of this year, New York's Department of Environmental Conservation (DEC) and our partners have assessed 9,500 publicly owned culverts and bridges across more than half of the Hudson River estuary watershed. This fieldwork identifies sites where insufficient capacity creates flood risks to communities and blocks the upstream movement of migratory and resident fish. We have helped more than 97 Hudson River watershed municipalities to become Climate Smart Communities and more than 67 to implement an adaptation strategy to conserve their floodplains, shorelines, and free-flowing streams. Aiding this effort, New York's DEC and Department of State have created new model local laws that communities can use to become more resilient to sea-level rise, storm surge, and flooding.

Our investments in clean water, land conservation, and habitat restoration continue to benefit communities. Our educators remain deeply engaged with local schools. We continue to support Governor Andrew M. Cuomo's goal to provide recreational access for people of all abilities. An Estuary Program grant helped fund universally accessible docks and an adaptive canoe and kayak launch at Haverstraw Bay County Park on the Hudson River. These features are used by community members and patients from the Helen Hayes Hospital Adapted Sports & Recreation Program.

With strong support from Governor Cuomo and the State Legislature, we continue to focus on projects to increase community resilience and conserve the Hudson Valley's valuable natural resources. For the fourth year in a row, the Governor provided a record \$300 million for the Environmental Protection Fund (EPF) and sustained an aggressive effort to protect state waters through the landmark \$2.5 billion Clean Water Infrastructure Act, which are funding important projects for the estuary. The Governor also signed the most ambitious, comprehensive climate and clean energy legislation in the country, the Climate Leadership and Community Protection Act. These major investments continue New York's national environmental leadership, and advance essential projects to protect the state's natural assets, helping communities capitalize on the economic benefits of environmental funding. Stretching nearly 153 miles from New York City to Troy and spanning major portions of 12 New York counties, the Hudson and its watershed benefit from this leadership.

We are proud of what we have accomplished with our partners, but we know there is more to be done to address current challenges. We will continue working closely with scientific experts, elected officials, environmental organizations, local communities, outdoor enthusiasts, and local citizens for a healthy, vibrant river that will benefit local communities, our environment, and future generations.

Basil Seggos, Commissioner, DEC

Fran Dunwell, Hudson River Estuary Coordinator, DEC

OUR MISSION

The Estuary Program's staff and partners work tirelessly to achieve these benefits for the public:

- **Clean Water**
- **Resilient Communities**
- **Vital Estuary Ecosystem**
- **Estuary Fish, Wildlife, and Habitats**
- **Natural Scenery**
- **Education, River Access, Recreation, and Inspiration**

Estuary Program Advisory Committee

- Stuart Findlay, Cary Institute of Ecosystem Studies, Committee Chairman
- Dennis Suszkowski, Hudson River Foundation, Committee Chairman*
- Allan Beers, Rockland County
- Andy Bicking, Scenic Hudson
- Peter Brandt, U.S. Environmental Protection Agency
- Janet Burnet, Ramapo River Watershed Council
- Diana Carter, NYS Office of Parks, Recreation and Historic Preservation
- David Church, Orange County
- Scott Croft, Hudson River Boat and Yacht Club Association
- Chris DeRoberts, Central Hudson Gas and Electric Corporation
- Noreen Doyle, Hudson River Park Trust
- Todd Erling, Hudson Valley Agri-Business Development Corporation
- Jamie Ethier, NYS Department of State
- Jerry Faiella, Historic Hudson River Towns
- Erik Fyfe, Hudson River Sloop Clearwater, Inc.
- Paul Gallay, Riverkeeper, Inc.
- Charles Gruetzner, Hudson Valley Marine Trades Association
- Lucille Johnson, Vassar College and Environmental Consortium of Colleges and Universities
- Scott Keller, Hudson River Valley Greenway
- Tom Lake, Commercial fisherman/educator
- Roland Lewis, Metropolitan Waterfront Alliance
- Suzette Lopane, Westchester County
- Bernard Molloy, Hudson River Watertrail Association
- John Mylod, commercial fisherman
- Steve Noble, City of Kingston
- Rob Pirani, NY-NJ Harbor and Estuary Program
- George Schuler, The Nature Conservancy
- Shino Tanikawa, NYC Soil and Water Conservation District
- Audrey Van Genechten, NYS Department of Health
- Rene VanSchaack, Greene IDA
- Peter Wepler, U.S. Army Corps of Engineers
- Russell Yess, Trout Unlimited

*To our great sorrow, Dr. Suszkowski passed away in 2019. The Hudson River community is incalculably diminished by this loss, but we are all immeasurably enriched by Dennis's contributions to the knowledge and understanding of our river and by the joy of his friendship.

DEC's Hudson River Estuary Program helps people enjoy, protect, and revitalize the Hudson River. The program provides assistance, grants, and scientific research to empower citizens, communities, and agencies to make informed choices.



LOCAL PROJECTS FUNDED IN 2019

River Access & Education

- Access grants: Saugerties (Arm of the Sea Theater); Lighthouse & Freer Parks (Esopus); MacEachron Park (Hastings-on-Hudson)
- Education grants: Rockland County (Columbia University LDEO); NY Harbor Foundation—Billion Oyster Project; Orange County Water Authority; Staten Island & Manhattan (Waterfront Alliance); Clearwater; Children’s Museum of Science and Technology; Beacon Institute—Clarkson; Learning Lab (The River Project); Brooklyn Bridge Park Conservancy; Sarah Lawrence CURB
- Access resiliency handbook (WSP)

Land Use Plans and Natural Resource Inventories (NRIs)

- NRIs: Poestenkill; Town of Poughkeepsie; East Highlands Corridor (Hudson Highlands Land Trust); Riverside Park, New York City (Natural Areas Conservancy); Town & Village of New Paltz (Town of New Paltz)
- Hudson Valley forest analysis—regionwide
- Scenic vista management handbook and demonstration projects – regionwide (Saratoga Associates/NEIWPC)

Watershed Planning

- Watershed planning: Sparkill Creek (Riverkeeper); Taghkanic headwaters (Columbia Land Conservancy); Indian Brook/Croton Gorge (Cortlandt); Tackawasick Creek & Kinderhook Creek—Nassau (Trout Unlimited)
- Culvert management plans: Klinekill, Green River, North Creek, Hannacrois Creek & Vlockie Kill in Ghent, Austerlitz, New Baltimore (Trout Unlimited/NEIWPC); Lower Esopus Creek in Woodstock, Saugerties, and Kingston (Ulster County/NEIWPC)
- Stream habitat assessments: Wappinger Creek—Clinton Corners; Cedar Pond Brook—Stony Point; Saw Kill—Red Hook; Furnace Brook—Croton-on-Hudson (Cornell)
- Dam removal: Furnace Brook—Cortlandt & Quassaick Creek—Newburgh (Riverkeeper); Saw Kill Creek—Red Hook (Bard College), Black Creek (Scenic Hudson);
- Plans for dam/culvert removal & culvert rightsizing: Otter Kill Creek—Hamptonburgh (Hudson Valley Regional Council); Cedar Pond Brook—Stony Point
- Watershed planning support: regionwide (HRWA/NEIWPC)

This year, the Estuary Program awarded more than \$4.1 million for 87 projects in 143 locations. Our work also leveraged investments from local, state, and federal agencies and nonprofit groups, valued at more than \$14 million.

River Habitat

- Habitat restoration at Stockport Creek NERR (NEIWPC)
- Regionwide habitat restoration training (SERR/NEIWPC)
- Restoration feasibility studies: Henry Hudson Park—Bethlehem; Moodna Creek—New Windsor & Cornwall; Schodack/Houghtaling Island—Schodack (USACE)
- Restoration plans: Piermont Marsh—Piermont (HRNERR)

Climate Resiliency

- Climate Adaptive Designs, Planning & Resilience Task Forces/Networks: Catskill, Hudson, Kingston, Stony Point, Piermont
- Climate Smart Communities support: Beacon, Kingston, LaGrange, Red Hook, Wappinger, Wappinger Falls, Catskill (Town and Village), Saugerties (Village), Marbletown, Dutchess & Ulster Counties
- Climate adaptive engineering design: Piermont (HDR/NEIWPC); Kingston (Supermass Studio/NEIWPC)
- Resiliency: RoeJan, Wappinger & Sawkill watersheds—Dutchess and Columbia Counties (Pace University); Towns of Hyde Park, Esopus, Lloyd, City of Poughkeepsie (The Nature Conservancy)

Research & Monitoring Projects

- HRECOS stations at Hudson River Park Pier 84, Marist College, Piermont Pier, Schodack Island, Tivoli Bays, West Point, Yonkers CURB (NEIWPC);
- Haverstraw Bay oysters; Troy & Kingston climate perceptions; regionwide-hydrology; Sparkill Creek, Poughkeepsie urban streams (Cornell)
- Natural resources research & data projects—regionwide (Cornell University DNR/NYNHP)
- Water resources research projects (Cornell WRI)
- Science Collaborative—climate adaptation (HRNERR)

Specific grant and contract recipients are shown in parentheses where different from the location.

2019 BY THE NUMBERS

6 Hudson riverfront communities

are now taking action to adapt their vulnerable waterfronts to sea-level rise.

LEARN MORE: www.dec.ny.gov/lands/39786.html



Since 1987, DEC

and our partners at State Parks have

conserved 10,195 acres

along or in sight of the Hudson, including 590 acres purchased this year in Stockport to protect habitat for birds, rare plants, and coastal and migratory fish.

With partners at the NYS Department of State and the U.S. Army Corps of Engineers, we are completing a three-year study of **3 potential aquatic habitat restoration sites.**

Our partners at the state Department of Health now provide advice about eating Hudson River fish in

7 languages

that reflect the diversity of Hudson Valley residents.

LEARN MORE: www.health.ny.gov

As of 2019, **more than 19,000** students, educators, and members of the public experienced the Hudson through our hands-on field programs, school programs, and distance-learning programs.

PARTICIPATE: www.dec.ny.gov/lands/5102.html

We are now **helping 50** Hudson Valley communities conserve natural resources and wildlife habitats, and **16**

are actively implementing local land use projects and programs.

LEARN MORE: www.dec.ny.gov/lands/5094.html

50,000 people annually subscribe to our online newsletter, Hudson RiverNet, and **20,000** read the weekly nature journal, Hudson River Almanac.

SUBSCRIBE: www.dec.ny.gov/lands/76018.html

This year, we added species **#230** to the list of fishes observed in the Hudson River Estuary.

LEARN MORE: www.dec.ny.gov/lands/74069.html

To date, DEC and volunteers have counted and released nearly **1 million eels.**

LEARN MORE: www.dec.ny.gov/lands/49580.html

ECOSYSTEM SNAPSHOT

This year, New York's temperatures and precipitation were above average according to data provided by the National Oceanic and Atmospheric Administration (NOAA). Globally, July 2019 was the hottest month ever recorded

Marine Mammals

The numbers of whales observed in New York Harbor has doubled compared to last year. As of August, there were 166 whale sightings, including one of a humpback whale off the coast of Staten Island. This is likely the result of improved water quality and the resurgence of the mammal's feeder-fish, menhaden. Menhaden are a key part of the food chain in New York's coastal waters and the Hudson River estuary. This year, Governor Cuomo signed legislation to protect this fish, whose recovery has been instrumental in restoring striped bass, whales, dolphins, seals, and seabirds, among many other species.

Fisheries

Fisheries biologists captured, measured, weighed, and tagged 337 Atlantic sturgeon in 2019. The overall trend for the 14-year population survey is positive.

However, American shad in the Hudson River do not progress in recovery since the stock collapsed and the fishery was closed in 2010. Bycatch in ocean commercial fisheries may be a factor in the lack of recovery of this fish. This year, DEC's Hudson River fisheries biologists, along with biologists throughout the East Coast and Canada, began to collect samples of shad fins and scales for DNA testing to quantify the magnitude of bycatch loss.



FASCINATING STRAYS

This year, New York State added species number 230 to the list of fishes observed in the Hudson River Estuary. A gray triggerfish (*Balistes capriscus*) was captured in a licensed commercial fish pot inside the Verrazzano-Narrows, the demarcation line between the Upper and Lower Bays of New York Harbor. This gray triggerfish was about 14 inches long, the maximum size for the species.



LEGACY CONTAMINANTS

The U.S. Environmental Protection Agency (EPA) issued a Certificate of Completion to General Electric Company for its removal of polychlorinated biphenyls (PCBs) from the Hudson River. However, despite 7 years of sediment dredging to remove the chemical in the upper Hudson River, 54 tons of PCBs remain, and levels of this contaminant are still unacceptably high in the river and in fish. New York State has filed a lawsuit against the EPA to ask the District Court to vacate (cancel) the EPA's Certificate of Completion.



RESILIENT COMMUNITIES

HELPING COMMUNITIES WITH CLIMATE ADAPTATION

This year DEC is helping 13 municipal and county partners complete adaptation actions, including culvert management plans, water infrastructure inventories, community vulnerability assessments, and residential flood preparedness guides. Each action counts toward the NYS Climate Smart Communities certification program. This work is part of the Hudson Estuary Watershed Resilience Project, a combination of research, demonstration, and educational outreach projects to address the challenges of flooding, stream and watershed management, and climate change. The project is led by the NYS Water Resources Institute at Cornell University and the Cornell Cooperative Extensions of Columbia-Greene, Dutchess, and Ulster counties.



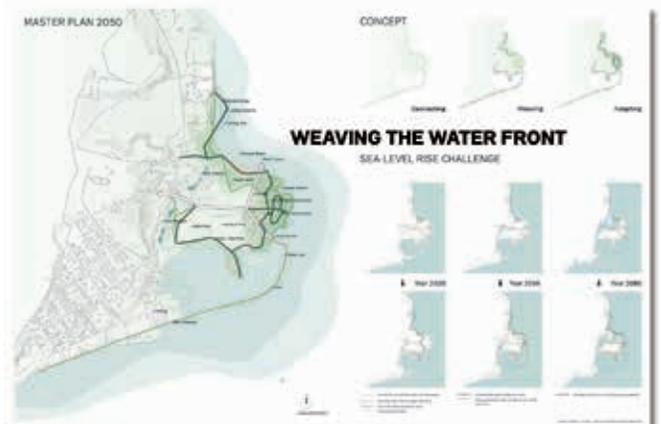
CLIMATE-ADAPTIVE DESIGN

The Estuary Program awarded the City of Kingston and Village of Piermont funding to create implementable designs for climate-resilient and connected waterfronts. Kingston will develop design and engineering plans for Kingston Point that will sustain and enhance native tidal wetlands while integrating public access corridors and recreational opportunities. Piermont will develop a living shoreline project that incorporates vegetation and other natural elements, such as oyster or mussel beds, with harder shoreline structures to stabilize and protect Piermont's waterfront. Both communities participated in the Climate-adaptive Design (CaD) studio, a program which links Cornell University graduate students in landscape architecture with flood-prone Hudson Riverfront communities to create waterfront design concepts that incorporate projections for sea-level rise and extreme weather.



MODEL LOCAL LAWS TO INCREASE RESILIENCY

The NYS Department of State and DEC have created new model local laws to help communities plan for a more resilient future. In addition to coastal measures, this guidance includes wetland and waterway protection, stormwater control, and management of floodplain development. The guidance was developed under the Community Risk and Resiliency Act (CRRA), which requires applicants for some state permits, state funding, and certain facility-siting regulations to consider future physical climate risk due to sea-level rise, storm surge, and flooding. The Estuary Program helped coordinate portions of statewide guidance.



CLEAN WATER



Susan L. Shafer

The Estuary Program and its partners have assessed 9,500 publicly owned culverts and bridges throughout the Hudson River estuary watershed. Assisted by the Student Conservation Association, Cornell Cooperative Extension, Soil and Water Conservation Districts, and others, this fieldwork identifies where structural failure and insufficient capacity create flood risks to communities and form barriers to fish movement. More than half the acreage of the watershed has been assessed.

A CLEAN WATER PLAN FOR THE WALLKILL RIVER

This year, DEC's Estuary Program and Division of Water completed an intensive, three-year water-quality monitoring project focused on the Wallkill watershed. The water samples that staff collected in 2017 and 2018 led DEC to begin developing a TMDL, or Total Maximum Daily Load, (a type of clean water plan) to address the water quality impairments that were identified. In 2019, staff collected 5 water samples during wet and dry conditions throughout the summer and fall from 11 sites on the Wallkill and its tributary streams. Data collected in 2019 will help DEC to better understand sources of pollution in order to implement the clean water plan.

FLOOD MITIGATION AND RECONNECTING STREAM HABITATS

During heavy rainstorms, rushing water can cause culverts to overtop or fail, threatening not only property and wildlife habitats, but also public safety. This year, the Estuary Program provided \$216,310 to help communities develop municipal management plans to prioritize road-stream crossing replacement projects in the towns of Austerlitz, Ghent, New Baltimore, Woodstock, and Saugerties, and the City of Kingston. Trout Unlimited and the Ulster County Department of the Environment will be assisting the communities in developing their plans. The management plans will help reduce future localized flooding and improve the ability for American eel, a coastal migratory fish, and resident fish, such as trout, to move more freely in streams and stream corridors.



Emily Veit



Megan Lung



POESTEN KILL FLOOD STUDY

Communities throughout the Poesten Kill watershed have experienced significant flood damage during recent storms. The Estuary Program and the New England Interstate Water Pollution Control Commission (NEIWPCC) supported a study to develop innovative, nature-based approaches to manage stormwater and reduce flood hazards from future storms, to increase community resilience to a changing climate. The final report contains more than 25 traditional and nature-based flood mitigation projects and strategies, including restoring stream channels and corridor vegetation, replacing culverts, and creating temporary impoundments for floodwater.



MAPPING DAMS

There are more than 1,600 known dams throughout the Hudson River watershed. While many of these dams are intact and still in use, hundreds no longer serve a purpose and are in poor condition. Many also pose hazards to communities and block essential habitat for fish and wildlife. In addition, there are many dams that have not yet been inventoried. The Estuary Program used Light Detection and Ranging (LiDAR) and other technology to look for and identify dams in the Hudson River estuary watershed that have not been mapped. The project is part of an ongoing effort to develop an accurate inventory of all dams to help prioritize those that are obsolete, where removal could help important fish such as American eel, river herring, and trout to move freely upstream, while also improving water quality. Preliminary results of this analysis indicate that existing inventories likely underestimate the true number of dams by at least half—suggesting tributary habitat is far more fragmented than previously thought.

DID YOU KNOW?



A network of sensors installed on stations at 15 locations along the Hudson and Mohawk Rivers continuously records data on weather and river conditions. Each station is part of the Hudson River Environmental Conditions Observing System (HRECOS). The stations transmit real-time data to the HRECOS website, www.hrecos.org, for use by scientists, anglers, boaters, river pilots, teachers, and the public.



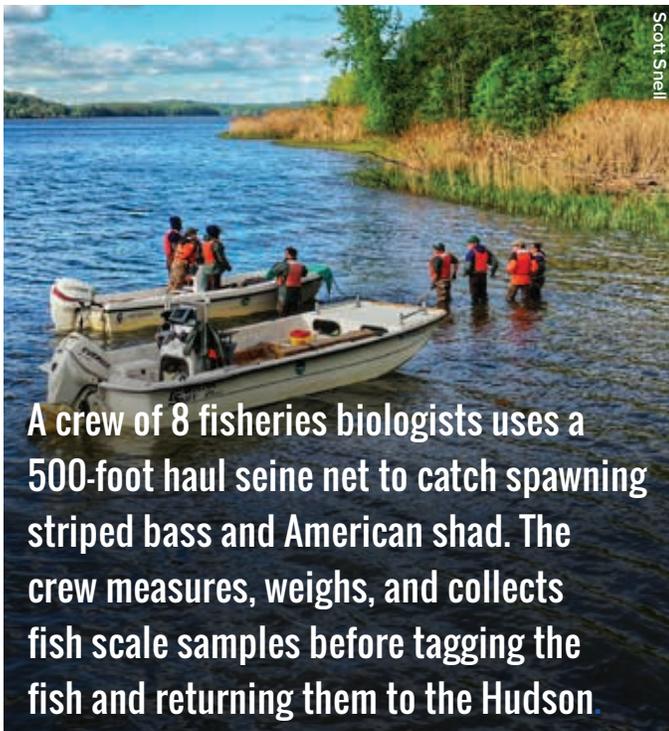
MIGRATORY FISH



AMERICAN SHAD

Shad spawn during the spring in tributaries of the tidal Hudson but spend most of their lives along the coast of the Atlantic, moving from Virginia to Maine. When mature (between ages three and seven), they first return to the Hudson to spawn, then return annually. The stock remains at very low levels despite DEC's conservation efforts.

Young Hudson River shad often end up as bycatch in ocean commercial fisheries. The magnitude of loss is unknown and may be a factor in the lack of recovery of this fish. In 2019, we began to quantify this bycatch. Fish, fish scale, and fin samples were collected from East Coast rivers, including two in Canada, to develop a genetic baseline using DNA. Shad captured in the ocean will be sampled to help better understand the potential mortality of Hudson River stock.



A crew of 8 fisheries biologists uses a 500-foot haul seine net to catch spawning striped bass and American shad. The crew measures, weighs, and collects fish scale samples before tagging the fish and returning them to the Hudson.



ATLANTIC STURGEON

With a grant from the Hudson River Foundation, researchers from the University of Delaware and Delaware State University continue to help us learn about the river habitats and the locations where adult Atlantic sturgeon spawn. Egg mats were positioned on the river bottom near Hyde Park to collect eggs during spawning (shown above). An array of sonar receivers pinpoints tagged sturgeon locations every 15 minutes. By comparing the sonar data with egg collections, fisheries biologists are developing a better picture of habitat use. In 2019, over 60 eggs were collected and will be stored for future analysis.



STRIPED BASS

The ASMFC's 2018 coast-wide assessment of the striped bass population, used for interstate fisheries management, indicated the stock is overfished. As a result, ASMFC is directing coast-wide changes to commercial and recreational fishing regulations to reduce harvest, including in the Hudson River. DEC is considering a range of management options to meet the harvest reduction. New striped bass fishing regulations will be in place by the spring of 2020.

RIVER HABITATS



Ben Gannon

TIDAL MARSH RESILIENCY

As sea level rises, tidal marshes will be flooded by deepening waters. HRNERR research staff began collecting data from the Surface Elevation Tables (SETs) installed last year in Piermont Marsh. This instrument monitors the annual buildup of sediment to assess how the marsh is affected by sea-level rise. SET data are also collected at Iona Island and Tivoli Bays. Sediment accretion rates are greater than the current measure of sea-level rise at the NOAA Tide Gauge at the Battery in New York Harbor (2.85 mm/year), indicating that these marsh surfaces are currently increasing in elevation at a faster rate than the water elevation.



Chris Bowser

TIDAL MARSHES AND TRIBUTARIES STATUS REPORTS

Research Reserve have completed an analysis of long-term data collected at tidal wetland sites and associated tributaries. Status reports were compiled from water quality, nutrient, and weather data collected through 2018, and show that precipitation has been lower than average, and chlorides from road salts and other sources have been accumulating in tributaries. Ocean acidification has not impacted the Hudson River estuary. The reports can be found at <https://bit.ly/2ur6O33>



Suzy Allman

The Hudson River National Estuarine Research Reserve (HRNERR) spans the middle 100 miles of the Hudson River estuary and is comprised of 4 freshwater and brackish tidal wetlands and upland sites: Stockport Flats, Tivoli Bays, Iona Island, and Piermont Marsh.

SUSTAINABLE SHORELINES IN WATERVLIET: The City of Watervliet recently was awarded a \$511,700 grant from the NYS Department of State for shoreline stabilization and amenities upgrades at the Hudson Shores Park. The grant will be used to implement a design and engineering plan that was developed with funding from the Estuary Program and NEIWPC. The project will stabilize an eroding shoreline by sloping the existing bank, installing a mix of native vegetation, controlling invasive species, and where necessary, shoring up the bank with a mix of soil and rock. The plan also includes improving a path from the park to the river to provide safe access for fishing, and enhancing an ADA-accessible dock and kayak access on the south end of the park. Construction will begin in 2020.

“As a riverfront community with very limited waterfront, stabilization and amenities at Hudson Shores Park are extremely important to our residents and visitors. This project will provide much-needed shoreline stabilization and accessibility for years to come, as well as amenity upgrades that will continue to increase the quality of life for our residents.”

—Jeremy Smith, Watervliet General Manager

CONSERVATION AND LAND USE



More than 680 municipal officials, professionals, and volunteers attended training in 2019 to learn land use and conservation planning approaches.

Ingrid Haeckel

SCIENCE-BASED DATA

The Estuary Program develops and updates biological data sets for use by conservation and land use planners. This year, DEC partnered with the New York Natural Heritage Program to update their Natural Heritage Important Areas for the estuary watershed. Important Areas are lands and waters, identified by Geographic Information Systems (GIS) models, that support the continued presence of rare plants and rare animals, such as swamp cottonwood and Indiana bat, and rare or high-quality ecological communities, like floodplain forest. The data are available for download on the New York State GIS Clearinghouse: www.gis.ny.gov.



NATURAL RESOURCE INVENTORIES COMPLETED

Eight Hudson Valley towns and cities and both Columbia and Greene Counties completed Natural Resource Inventories (NRIs) this year with Estuary grant funding, staff assistance, and the hard work and dedication of municipal and conservation partners. In addition, the City of Kingston used its NRI to develop an open space plan, which was completed in July.

DID YOU KNOW?



Laura Heady

During the first warm, rainy nights in early spring, a group of forest amphibians migrates to vernal pools to breed. On their overland journeys—up to a quarter-mile long—these amphibians often cross roads, where mortality can be high. During this year’s migration, 127 volunteers of our Amphibian Migrations & Road Crossings Project observed 16 species, counted 3,046 living and 1,451 dead amphibians, and assisted 2,603 across the road. Partners like Columbia Land Conservancy and Wallkill Valley Land Trust are helping to organize and educate volunteers about the importance of forest and wetland habitat in the watershed.

“ The Town Board’s approval of the 2018 Open Space Plan and its recommendation to designate critical environmental areas supports our Comprehensive Plan vision ‘to protect important environmental resources that can contribute to Wawarsing’s quality of life and economic vitality.’ ”

—Jack Grifo, Town of Wawarsing Environmental Conservation Commission Co-Chair

FROM PLANNING TO IMPLEMENTATION

Natural resource inventories and open space plans are foundational planning tools that enable communities to assess and identify the lands and waters that are important to them for wildlife, clean water, climate adaptation, and recreation. The towns of Wawarsing and Rochester, with technical assistance and grant funding from the Estuary Program, worked together to develop open space plans with strategies to conserve natural assets. In June, Wawarsing implemented one of its plan’s recommendations by adopting two Critical Environmental Areas (CEA). The Cedar Swamp CEA and Catskill-Shawangunk Greenway Corridor CEA will bring added consideration to these ecologically valuable places, which were also listed as priorities in the 2016 New York State Open Space Conservation Plan.

NATURAL SCENERY

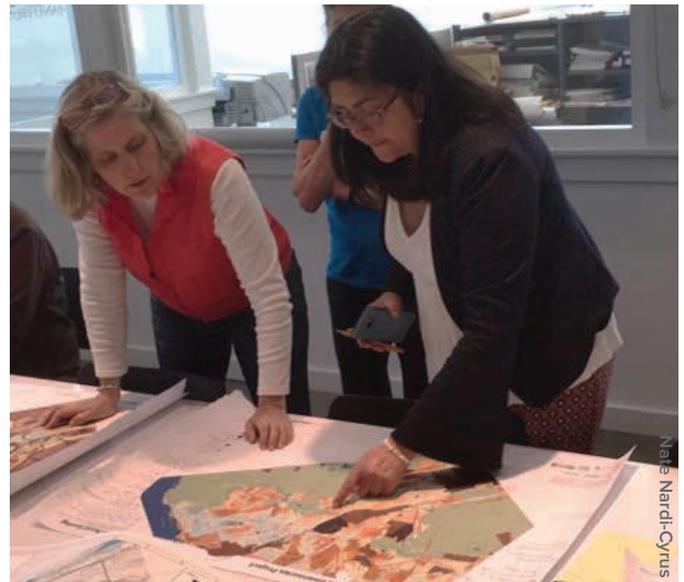
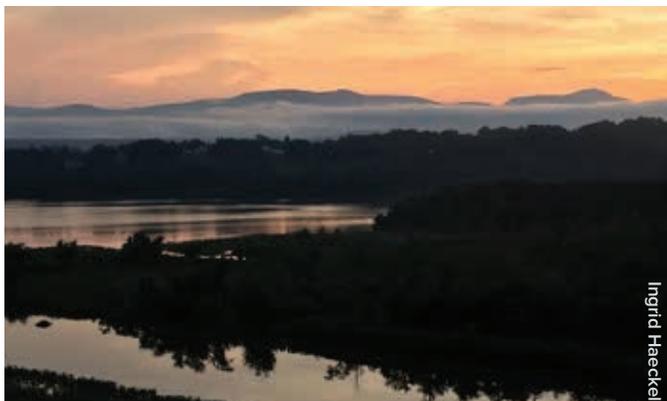


PROTECTING RIVER SCENERY

This spring, DEC purchased a spectacular 590-acre property on the Hudson River in Stockport. With more than two miles of shoreline, this purchase will forever ensure that people can enjoy the natural beauty of Columbia County's rural and largely forested riverfront areas. The site also provides habitat for birds, rare plants, and coastal and migratory fish, including the state and federally endangered shortnose sturgeon. The newly designated Charles Flood Wildlife Management Area at the Empire Brickyard is within two Scenic Areas of Statewide Significance. Part of the parcel is in the Stockport Creek and Flats Significant Coastal Fish and Wildlife Habitat, designated by the NYS Department of State. The property was previously acquired for DEC by Scenic Hudson Land Trust.

MAINTAINING SCENIC VISTAS

This year, we funded a project to develop guidance and training on how to create and maintain scenic vistas on Hudson River shoreline properties. Saratoga Associates will produce a guidebook that explains best practices for managing world-class Hudson River views while protecting wildlife and water quality. Publicly accessible demonstration projects will bring these concepts to life and serve as models for land managers across the region.



LOCAL SCENIC RESOURCES

The Town of Cornwall and Village of Cornwall-On-Hudson completed an Open Space Index to prioritize conservation of ecological, historic, and scenic resources. By incorporating locally identified scenic areas into their conservation planning, the town and village can better protect the visual character that maintains their communities' cultural and economic vitality. The scenic resources were identified with help from students and faculty from Cornell University's Department of City and Regional Planning as well as the Estuary Program and local partners.

DID YOU KNOW?



The Hudson River Skywalk opened in 2019 as a pedestrian trail on the Rip Van Winkle Bridge, connecting the homes of two iconic American painters: Frederic Church and Thomas Cole. This effort was made possible through years of collaboration between New York State, the Thomas Cole National Historic Site, and the Olana Partnership, and is part of the newly designated Empire State Trail. After enjoying the expansive views from Church's home at the Olana State Historic Site in Columbia County, visitors can now safely cross the Hudson River on the walkway while taking in the landscape immortalized in his paintings. On the west side of the Hudson in Greene County, visitors can enjoy views of the Catskills from his mentor's residence, the Thomas Cole House

RIVER ACCESS

This year, DEC is providing \$130,750 in funding for three local projects to provide new or improved access to the Hudson for people of all abilities. Since 1999, DEC's Hudson River Estuary Grant Program has awarded more than \$10 million for 120 local projects in shoreline communities from Troy to Manhattan.



RIVER ACCESS FOR ALL ABILITIES

Rockland County installed universally accessible docks and an adaptive canoe and kayak launch at Haverstraw Bay County Park in early July. The staff of the nearby Helen Hayes Hospital Adapted Sports & Recreation Program assisted in the design of the accessible features. The marine-grade floating docks replace aging wooden docks alongside the trailer-access boat launch. With the installation of these accessible features, local residents and visitors, including people with disabilities, can enjoy the natural beauty and recreational opportunities of the Hudson River. The new docks and launch were funded by a grant from DEC's Hudson River Estuary Program with additional support from the county.

FREE KAYAKING FOR CITY RESIDENTS

The Downtown Boathouse and the Manhattan Community Boathouse along Manhattan's west side have been increasing public recreational access to the Hudson River by offering free kayaking. These volunteer-staffed programs provide instruction for people of all ages, fitness levels, and physical abilities. The two boathouses serve 30,000 people annually. An Estuary Program grant for river access funded the purchase of new kayaks, paddles, lifejackets, maintenance equipment, and adaptive equipment.



ESOPUS RIVERFRONT ACCESS AND CONNECTIONS STUDY

The Town of Esopus, in collaboration with Ulster County and Scenic Hudson, is conducting a study to evaluate opportunities for new and enhanced access to the Hudson River and Rondout Creek. A key focus is to improve shoreline connections to regional water-based trail networks, including the Hudson River Valley Greenway Water Trail and the John Burroughs Black Creek Trail, as well as connections to other parks and trails in the Town of Esopus. The plan also will examine long-term resiliency to sea-level rise and flooding at existing and proposed public access sites. The study is funded by an Estuary Program grant.

“ Access to recreational activities is so important for individuals like me who have suffered a disabling injury or illness. Oftentimes, these individuals feel isolated or limited, and having the opportunity to participate in adaptive sports and recreation is not only important physically, but socially and mentally. ”

—Helen Hayes Hospital Community Relations Specialist, Matthew Castelluccio

EDUCATION

BIG YEAR FOR YOUNG EELS

More than 1,000 citizen scientists counted more than 240,000 juvenile American eels migrating into Hudson River tributaries at 14 sites this year. In the 12 years since the eel project began, volunteers have caught, counted, and released more than 900,000 eels into upstream habitat. The project uses the protocols of multi-state management plans for eel conservation.



A RISING TIDE OF YOUNG RESEARCHERS

Eleven high school and college students from underserved communities in Poughkeepsie, Kingston, Wappingers, and Albany spent a week this summer with education staff and scientists at the Norrie Point Environmental Center, conducting environmental research projects along the banks of the Hudson River and in freshwater tidal wetlands. The students learned to formulate scientific questions, gather field data, and conduct scientific analysis. During one project, students compared water-quality conditions and fish diversity in two estuarine habitats, one with invasive water chestnut and the second with native water celery. They quickly discovered that water celery provides better water quality and habitat for fish.



Students participating in The Institute Discovering Environmental Scientists (TIDES) spent an afternoon removing water chestnut and planting water celery to improve water quality and fish habitat.

DID YOU KNOW?

Students and teachers in 90% of the school districts that border the tidal Hudson have participated in hands-on field research, river science curriculum training, and classroom and community education programs that bring to life the estuary and its diverse ecosystem. We support educators through the national Teachers on the Estuary (TOTE) field workshops and provide grants to river education centers to increase their outreach capacity in waterfront communities.

UNDERWATER GRASSES IN CLASSES

Students from five school districts helped DEC education staff replant submerged vegetation (SAV) at two river sites this year. Students grew water celery in classroom tanks, charting their growth and learning about underwater food webs, before reestablishing their green shoots in the river.



CONNECTING PEOPLE TO THE RIVER

The best way to be inspired to protect the Hudson is to enjoy it firsthand during events such as the World Science Festival and the Great Hudson River Fish Count. This year was the 17th annual Day in the Life of the Hudson and Harbor, which brought 5,000 students and teachers to more than 90 waterfront sites from Troy to New York Harbor to collect river ecology data using hands-on techniques.





More than 821 community leaders attended DEC's training, and 68 communities worked with DEC on local conservation projects.



Help us protect the Hudson and learn more about DEC's Hudson River Estuary Program. Find out how you can become a partner in conservation.

Phone: (845) 256-3016 | Email: hrep@dec.ny.gov | Web: www.dec.ny.gov/lands/4920.html