ESTUARINE SANCTUARY MANAGEMENT PLAN
FOR HUDSON RIVER PARK
PROGRESS REPORT & ACTION AGENDA 2021–2030
ADOPTED SEPTEMBER 2021
LETTER FROM HUDSON RIVER PARK TRUST & NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

The lower Hudson River Estuary within and beyond Hudson River Park in Manhattan is a remarkable natural resource and one of the most significant estuarine habitats in the United States. Its waters support a diverse ecosystem of regional ecological importance. Hudson River Park would not exist were it not for the determination of New York State, New York City and scores of advocates and partners to protect this critical environment.

In 1998, a visionary State law was enacted to ensure that the people of New York would forever be able to access and enjoy this magnificent resource. This law, the Hudson River Park Act, created the Hudson River Park Estuarine Sanctuary and charged the Hudson River Park Trust and the New York State Department of Environmental Conservation with creating an Estuarine Sanctuary Management Plan (ESMP) to guide decision-making affecting the approximately 400 water acres included within the Park’s boundaries.

When the first ESMP was finalized in 2002, the public could only safely access small portions of the riverfront due its overall deteriorated condition. Today, tens of thousands of visitors connect with the River directly on boats and through a wide range of environmental programming provided by the Trust and its partners each year. Millions more visit the Park to experience nature while walking, exercising or sunning along the River’s edge. Meanwhile, within the water, scientists are monitoring oyster growth and researching the extent of pollutants contaminating our water system. At every turn, there are countless examples of how Hudson River Park is protecting the Sanctuary and reconnecting New Yorkers to its waters.

In addition to providing an overview of ESMP progress to date, this document sets forth the 2021—2030 Action Agenda for the ESMP. Developing the Action Agenda has provided an opportunity to reflect on prior successes, while also pointing out places where growth and improvement are warranted. Now that it is possible to access and enjoy the Hudson River safely, the Action Agenda for the next decade envisions significantly more investment in habitat restoration and enhancement, supported by additional research on the aquatic organisms and conditions that make the Sanctuary an invaluable natural resource.

As it has throughout its history, the Trust will need many partners in order to achieve the goals outlined herein. The entire history of Hudson River Park and the Sanctuary is evidence that such partners exist and are eager to contribute.

Sincerely,

Noreen Doyle
President & CEO
Hudson River Park Trust

Basil Seggos
Commissioner
New York State Department of Environmental Conservation
Hudson River Park is a beloved public space where people connect with the Sanctuary.

Monarch butterfly in the Chelsea Habitat Garden, which is also a Certified Monarch Waystation.

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The Hudson River is the heart, soul and defining framework of Hudson River Park. The approximately 400 water acres within the Park’s boundaries provide critical habitat to 85 species of fish, and Manhattan’s history has been indelibly shaped by the events and activities that have taken place in the River and along its shoreline.

In 1998, a New York State law known as the Hudson River Park Act (Act) designated the Park’s open water areas as the Hudson River Park Estuarine Sanctuary (Sanctuary) and charged the Hudson River Park Trust (Trust) with developing an Estuarine Sanctuary Management Plan (ESMP) to guide Park development and operations in and along the Hudson River within the Park’s boundaries.

Since its creation in 2002, the ESMP has served as a foundational management document that guides the Trust and its partners in protecting and conserving critical aquatic habitat while also facilitating public access to the River and fostering awareness and public education about this vital natural resource.

The Trust is a public benefit corporation that reflects a partnership between New York State and New York City. The mission of the Trust is to encourage, promote and expand public access to the Hudson River, promote water-based recreation and enhance the natural, cultural and historic aspects of the River in New York City for residents and visitors to the area.

The Trust is governed by a thirteen-member Board of Directors comprised of five members appointed by the Governor, five appointed by the Mayor and five appointed by the Manhattan Borough President. The Commissioners of New York State Department of Environmental Conservation (NYSDEC), the New York State Office of Parks, Recreation & Historic Preservation (OPRHP) and the New York City...
Hudson River Park is located in Manhattan from just north of Chambers Street to 59 Street, an expanse of approximately four miles. The Act defines the Sanctuary as “the water section” of the Park. The “water section” is in turn defined as “all the area of the park west of the bulkhead line, including the water, but not including the piers and float bridge as they exist on the effective date of this act.”

Pursuant to the Act, NYSDEC owns the lands underwater within the Park and has additional authority with respect to the ESMP.

# ORGANIZATION AND PURPOSE

The ESMP is organized into two sections. The first section provides an overview of ESMP progress and accomplishments under the original 2002 ESMP Action Agenda. The second section sets forth a new 2021–2030 Action Agenda intended to guide the Trust and its partners in managing the Sanctuary through the current decade.

The 2002 ESMP was prepared prior to the completion of any of the Park’s public piers and also before almost all of its open spaces. Its goals and objectives were heavily shaped by the guidance provided by the Act, various planning and policy documents, environmental review documents and regulatory permit conditions. The 2002 ESMP Action Agenda was organized into four management areas: Public Access & Recreation, Education, Resource Protection and Environmental Research. NYSDEC formally approved the ESMP in July 2004 following public review and comment.

Because most public park areas did not exist in 2002, the goals and objectives set forth in the 2002 ESMP Action Agenda did not benefit from the significant operational experiences that the Trust now has. Nevertheless, that plan proved to be a successful tool for advancing both action and planning related to the Sanctuary.

The 2021–2030 Action Agenda has been prepared in partnership with a Technical Advisory Committee (TAC) comprised of experts in three separate but overlapping topical areas: Public Access & Recreation, Environmental Education and Research and Habitat Enhancement. TAC members have worked side by side with the Trust and NYSDEC to establish goals and priorities in each of these areas that are ambitious and aspirational while also reflecting operational and managerial realities and experiences. A list of current TAC members can be found in Appendix A.

Twenty-one years ago, topics like climate change, coastal resiliency and plastics contamination were not household words. Now, each is a daily and ever more urgent concern for the environment. Over the next ten years, new priorities will again likely emerge: current research may lead to a compelling need for follow-up research; an ecological enhancement project may do the same. For all these reasons, the Action Agenda should be viewed as a living document and the Trust, NYSDEC and the members of the TAC who helped draft this document will need to revisit Action Agenda goals periodically to ensure it, and the Park’s work, remains relevant.

As with the 2002 ESMP Action Agenda, the current Action Agenda is grounded by the principles and requirements of the Act. Accordingly, this document builds upon the original goals established in 2002 rather than substantially altering...
The overarching purpose is to set forth a plan that preserves and refines current best management practices, and to provide a blueprint for expanding environmental priorities in ways that weren’t possible twenty years ago. The 2021–2030 Action Agenda will serve as both a management tool for the Park’s Board and staff and as a reliable resource for research, education and community partners who are collectively working toward advancing shared goals for the Sanctuary.

One of the goals for the current ESMP update is to solicit broad community feedback regarding awareness of the Sanctuary, perceptions on progress and goals for the future. On May 27, 2021, the Trust issued the draft ESMP and Action Agenda for public review and comment. Feedback was considered before the document was approved by the Trust’s Board of Directors. Additionally, in 2017, the Trust conducted three surveys targeted to specific groups of stakeholders focused on Resource Protection and Environmental Research, Education and Public Access and Recreation. Each of the three surveys was unique in both content and distribution. The Education and Resource Protection and Environmental Research surveys were both sent to practitioners in those fields while the Public Access and Recreation survey was aimed at general Park users and boating groups. Overwhelmingly, survey respondents reported great satisfaction with the progress made to date. Many respondents expressed a great appreciation for the fact that the Park has allowed them unparalleled visual and physical access to the River itself. Survey respondents also provided helpful feedback on goals and priorities for the future. These community responses were helpful in shaping the Goals and Actions of the 2021-2030 Action Agenda. Survey documents are attached as Appendix B.

Finally, it is important to recognize that the Trust is but one of many governmental entities at the federal, state and local levels making decisions that affect the Sanctuary. While the Trust—with support from teachers, universities, scientists, citizen scientists and a wide range of community advocates and partners—can, and should, take the lead on most initiatives proposed herein, other government agencies with broader purviews will need to take the lead on certain major issues, such as addressing water contamination from New York’s existing combined sewer overflow system. Nevertheless, the Trust intends to use the 2021–2030 Action Agenda as a platform for continuing to encourage action and change even in such areas given their impact on the Sanctuary.
To a very large extent, the goals and objectives identified in the 2002 ESMP have been accomplished. Most of the public recreational areas envisioned for Hudson River Park are now complete, enabling millions of people each year to access the Hudson River physically and visually.

In 2019 alone, the Park delivered environmental education programming to nearly 30,000 children and adults. Meanwhile, the Trust and its partners are researching and monitoring oysters, microplastics, water quality and biodiversity. Contracts for the first of several large estuary habitat enhancement projects were approved and installation began in 2021. Overall, progress toward accomplishing the 2002 ESMP Action Agenda has created a strong foundation for the next ten years of Sanctuary planning and management.

Given the COVID pandemic’s restrictions on in-person activities, this report uses data from 2019 to share participation in Park programs.
It seems hard to believe now, but when the Act was passed in 1998, the piers and adjacent inland areas intended for public access along Manhattan’s Hudson River waterfront south of West 59 Street were almost universally in a deteriorated condition. Most piers were closed, and many had even been removed to protect public safety.

PUBLIC PIERS & ESPLANADE
The Hudson River Park Act called for at least 13 public piers to be connected by a continuous esplanade and a chain of landscaped upland areas bordering the adjacent New York State Department of Transportation (NYSDOT) Bikeway. At that time, the existing piers varied in condition and use, and most of the slated public access piers needing to be reconstructed entirely because of their poor condition. The plan called for public piers to be distributed throughout the Park’s length, with the Act calling for a mix of passive and active public open space uses, public recreation and entertainment, including the arts and performing arts; small scale boating; environmental education and research; historic and cultural preservation; wildlife habitat and protection; and park concessions and amenities for visitors.

To date, Piers 25, 26, 34, 44, 51, 55 (Little Island), 62, 63, 64, 66, 66a, 76, 84, 95 and 96 have been rebuilt and are open to the public for public recreation, educational opportunities, relaxation and contemplation. The Trust also rebuilt Pier 86 home to the Intrepid Sea, Air and Space Museum; that pier provides free public access during the museum’s operating hours.

Construction in Greenwich Village, the first Park area to undergo design, began in 1999 on the upland area and in 2000 on Piers 45, 46 and 51 following receipt of regulatory permits. A portion of Clinton Cove (Piers 95 and 96) followed in 2005, and then Piers 66 and 84 in 2006. During this period, the Trust also completed the upland area from West 26 Street to West 29 Street plus the Courtyard Ballfields in Pier 40. In 2010, the Trust opened four more piers and major new upland sections in Chelsea (Piers 62, 63 and 64) and Tribeca (Pier 25). A

PUBLIC ACCESS & RECREATION

The Pier 84 Boathouse is one of four purpose-built non-motorized boathouses in the Park. Here, Park visitors are participating in a stand-up paddle boarding class offered by partner boating group, Manhattan Kayak.

PROGRESS REPORT

Previous Page: Native plants such as Eastern red cedar trees and seaside grasses line the Park’s Tribeca Boardwalk.
wider pedestrian esplanade opened between Gansevoort Peninsula and Pier 57 in 2019, and Pier 26 opened in September 2020. Appendix C identifies each Park pier, its construction status and a brief description of its use program for reference.

There is more to come. Gansevoort Peninsula’s design process is complete and the Trust commenced construction on this large expanse in 2021. Pier 97 was previously rebuilt structurally along with its adjacent upland area; this pier is slated to commence its landscaping construction phase in 2021. Consistent with its historic practices, the Trust sought community input during the design processes for both of these areas and the resulting plans enjoy wide community support.

5. The Trust recognizes that the continuing economic effects of the COVID pandemic on New York State and New York City budgets may result in changes to these schedules.

Completed in 2020, Pier 26 in Tribeca was completed in 2010 and has become one of the busiest public piers in the Park.

Since opening in September 2020, Park visitors have enjoyed the swings on Pier 26 overlooking the Tide Deck and Sanctuary waters.
PROGRESS REPORT

Pier 66, an area once condemned as unsafe, is now a public pier featuring a non-motorized boathouse and Long Time by Paul Ramires-Jonas—a water wheel sculpture that captures the beauty of the Hudson River while harking back to its shipping and milling history.

Rebuilt in 2006, Pier 84 stretches almost 1000 feet into the river and measures nearly 100,000 square feet, making it one of the largest piers on the Manhattan waterfront.

The former building once located on Pier 63 was removed, creating a magnificent river view and an expansive lawn bowl for outdoor relaxation.

An area once filled with deteriorating steel beams is now lined with tall trees and shaded lawns. Pier 64 in Chelsea is part of the largest contiguous green area in the Park.
PROGRESS REPORT

In selecting operators for the various boathouses, the Trust has endeavored to provide for a variety of operating and programming models as well as boat types. Currently, Piers 26 and 96 focus on free, volunteer-led experiences for kayakers, while Pier 84 operates as a for-profit business and offers expert lessons and excursions for kayakers and paddle boarders as well as boat storage. The boathouse at Pier 66 uniquely combines a community sailing program, outrigger canoeing and kayak polo, each operated by a different partner. In 2019, these four permanent Park boathouses served a combined 65,000 people. In addition, the Trust has long provided free space at Pier 40 for the Village Community Boathouse’s Whitehall rowing and boat-building program.

Beyond non-motorized boating, Hudson River Park also includes 3 mooring fields (Piers 25, 40 and near Pier 66 for the sailing program) and vessels for commercial dining, excursion and sightseeing at multiple piers. The Park waters are also used for maritime transportation at Pier 79, a major ferry terminal operated by New York City and several water taxi locations.

WATER ACCESS: VISUAL & PHYSICAL
The 2002 ESMP called for many design features to increase visitors’ connections to the water. Aside from the piers themselves, which enable visitors to get close to and enjoy the River visually, other design features were intentionally developed to enhance people’s relationship with the River. Examples include grates between the bulkhead and piers in certain areas to emphasize the transition between land and water, overlooks for fishing and enjoying River scenery, an open railing system and designated visual corridors to preserve views, a lighting system designed to minimize glare on the water and “get-downs” — places where the public can step below the level of the esplanade to get closer to the water’s edge.

In rebuilding many of the piers, the Trust focused on creating opportunities for direct physical access to the Sanctuary. This has entailed building and/or securing the approvals for the boathouses, docks and other infrastructure required to accommodate the wide range of boating uses now located within the Sanctuary: kayaks, outrigger canoes, kayak polo, Whitehall boats, sailboats, historic vessels, recreational boating moorings, water taxis and berths for larger vessels.

State procurement rules require the Trust to provide for competition periodically, even when the occupant is a non-profit, and even when a program is highly successful. Nevertheless, today the Sanctuary is awash in boating activity, with much of it free or low cost to the public. A survey by the Waterfront Alliance in 2017 indicated that more than 100,000 people went boating in human-powered boats on New York Harbor in 2017, with most of the trips originating in Hudson River Park. Since inception, the Trust has relied on partners to operate the various boating uses within Park waters, with the Trust providing a dock master to provide certain on-water support and boathouse maintenance. Thanks to these partners, there has been a significant increase in public participation in non-motorized boating programs over the years.

PIER 26 TIDE DECK
The Park’s most recent public park pier—Pier 26—opened in September 2020 and includes a Tide Deck on its western edge. The Tide Deck is an ecological get-down, created to provide an immersive and educational River ecology experience for Park patrons and a salt marsh-like environment for wildlife. Pier 26’s ecological theme also features a habitat walk that leads visitors through five native ecological zones: woodland forest, coastal grassland, maritime scrub, rocky intertidal zone and finally the Hudson River itself.

BOATING PARTNERS OFFER A WIDE RANGE OF IN-WATER RECREATION FOR ALL
Hudson River Park is home to five non-motorized boating locations: Pier 26, Pier 40, Pier 66, Pier 84 and Pier 96, each operated by a different boating organization. Collectively, these partners offer a wide range of boating experiences for all ages and abilities such as kayaking, sailing, outrigger canoeing, paddling, rowing and stand-up paddle boarding.

The Downtown Boathouse, an all-volunteer nonprofit organization, pioneered kayaking in the Sanctuary in 1987 and launched its signature free public programming for 100 members of the public in 1995 on Pier 26. When the Trust began redeveloping Pier 26, the Downtown Boathouse continued operations from Piers 40 and 96, growing its program all the while. In 2014, the Downtown Boathouse was able to return to Pier 26, into the newly built boathouse where the program continues to expand and introduce incredible numbers of recreational boaters to the Sanctuary each year.

In selecting operators for the various boathouses, the Trust has endeavored to provide for a variety of operating and programming models as well as boat types. Currently, Piers 26 and 96 focus on free, volunteer-led experiences for kayakers, while Pier 84 operates as a for-profit business and offers expert lessons and excursions for kayakers and paddle boarders as well as boat storage. The boathouse at Pier 66 uniquely combines a community sailing program, outrigger canoeing and kayak polo, each operated by a different partner. In 2019, these four permanent Park boathouses served a combined 65,000 people. In addition, the Trust has long provided free space at Pier 40 for the Village Community Boathouse’s Whitehall rowing and boat-building program.

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HISTORIC HUDSON RIVER PARK BULKHEAD

After two centuries of unrestricted filling in the river, the decision to construct a bulkhead was made in the 1870s by the City's newly created Department of Docks. With the goal of demonstrating New York's newfound status as the premier American port, the result was a massive granite bulkhead (seawall) spanning miles of the west side waterfront from the Battery north. The actual construction of the bulkhead was one of the largest public works projects ever undertaken at that time. It was also an extremely difficult process, requiring tremendous time, money and effort.

Although certain portions have been reconstructed over the years in response to changing needs (including damage by ships and changes in ownership), the bulkhead continues to perform its essential function remarkably well. While not obvious when walking or boating alongside it, the bulkhead is a very complicated structure, and the six-foot granite capstones you may see are only a small part of it—most of the structure is actually buried. In addition to its importance in the history of urban planning and international commerce, the varied bulkhead masonry sections reflect evolving marine substructure design. For these reasons, the bulkhead has been listed as eligible for the State and National Registers of Historic Places, and the Hudson River Park Trust has worked closely with the New York State Historic Preservation Office to coordinate its repair and incorporation into the Park.

MARITIME HISTORY

New York State and New York City have a long and rich maritime history. For centuries, areas along the Hudson River that now comprise the Park were used primarily to transport people and goods. The design intent for the Park has always included celebrating its working waterfront and industrial past.

The 2002 ESMP called for the Park's design and operations to include ways for maritime heritage to be incorporated and even showcased through the preservation of existing historic elements, the inclusion of historic interpretive elements in designs and historic vessels at certain piers. Highlights of some completed activities are described in the following section.

HISTORIC PRESERVATION

By the time the Trust assumed management responsibility for Hudson River Park’s four-miles of waterfront in 1998, most of the original pier buildings and other infrastructure had already been demolished or were unsalvageable. Fortunately, there are some notable exceptions. The Trust sought historic designation for the entire length of the Park’s bulkhead, which was then determined to be eligible for listing on the State and National Registers of Historic Places. While much of the bulkhead is in very good condition, the Trust has had to make significant repairs to portions of it and has worked closely with the State Office of Historic Preservation since Park inception to ensure that plans for repairs and treatments respect this important resource. Most recently, the Trust undertook an urgent repair program for an approximately 350 foot length of bulkhead near Morton Street at a cost of approximately $17 million.

Similarly, the Trust recently restored the Baltimore and Ohio Railroad Float Bridge, now known as Pier 66a, which once enabled railroad cars carrying goods and freight to move between barges and an inland warehouse on West 26 Street. Today, the float bridge helps provide public access to the area known as “Pier 66 Maritime” which includes a concession that also provides free public access to a barge, the historic Lightship Frying Pan, an authentic 1900s Lackawanna caboose and the retired New York City fireboat, John J Harvey.

Pier 57, which is listed on the State and National Registers of Historic Places, is presently undergoing a high-quality restoration adhering to the Secretary of Interior’s Standards as part of an ongoing redevelopment as a mixed-use facility. Finally, the Trust recently restored a remnant of Pier 54—a steel archway that supported the original pier’s headhouse.
These remnants memorialize the waterfront's history as a location for numerous slaughterhouses. These unique historical artifacts were incorporated into the recently renovated Chelsea Waterside Park playground. In addition, the Park has commissioned custom historical interpretive elements such as Private Passage, located in Clinton Cove, an artistic interpretive of a stateroom from the era of the grand passenger ships that berthed in the Park during the early twentieth century. Between the Gansevoort Peninsula and Pier 57, the rich transatlantic cruise liner history of the early twentieth century is newly being commemorated through interpretive signage.

In 2018, the Trust was able to preserve a unique piece of west side waterfront history by salvaging and restoring 100-year-old limestone cow heads that once served as part of the ornamental façade for the New York Butchers’ Dressed Meat Company building on nearby 11 Avenue.

A bow notch located on the esplanade between Piers 45 and 46 in the West Village highlights an era of maritime history when, during the early twentieth century, port operators cut out notches from the existing seawall to accommodate larger and longer vessels.

The steel archway from the former Pier 54 headhouse was left in place when the building was removed prior to the Park’s construction and was recently preserved as an icon of the bygone oceanliner era.
Lighthouse Tender Lilac, Tug Pegasus, Lightship Nantucket and Sherman Zwicker for long-term docking. This pier has also hosted visiting historic vessels such as the Liberty Clipper, Lehigh Valley Barge, SSV Corwith Cramer and Sloop Clearwater.

Hudson River Park has encountered some unanticipated challenges and opportunities with respect to historic vessels as compared to what was anticipated during the earlier days of Park planning. These include shallow water depths at many piers, the height of pier elevations and the desire by many historic vessel operators to include commercial uses as a means of supporting the vessels’ high maintenance costs. Public procurement and regulatory requirements are other limiting factors, as is the need to balance uses on piers so that public piers do not become overwhelmed by commercialized uses.

The Trust has been able to address some of these challenges. For example, when Pier 54 was approved to be rebuilt in a different configuration and location as Little Island, the opportunity to berth a historic vessel there was eliminated. The Trust committed to designate one of the two vessel berths planned for Pier 26 for a historic vessel instead, with the other reserved for a science or educational use. Because water depth at Pier 26 is deeper than it is at the original Pier 54 location, there is a broader range of vessels that could potentially berth at Pier 26. Pier 26 opened in September 2020 and a historic vessel is under consideration for the berth as part of a still-active public procurement process.

The restoration of Pier 66a provided an opportunity for the Park to host the complex known as “Pier 66 Maritime” which was not anticipated during the Park’s early planning process.

Pier 66 Maritime encompasses an original Lackawanna Railroad Barge plus two additional historic vessels, Lightship Frying Pan and fireboat John J. Harvey. Primarily through a federal grant, the Trust was able to rebuild Pier 86 so that the naval aircraft carrier U.S.S. Intrepid and various visiting vessels could remain or be hosted at the pier. Pier 84 has also served as a site for occasional visiting vessels including the Sloop Clearwater and the El Galeon.

A current unresolved challenge is at Pier 97. While the Act authorizes dredging for navigation purposes only, dredging was neither anticipated in the Park’s Final Environmental Impact Statement nor in any foundational permitting documents. It is thus not permitted at this time. As such, while Pier 97 design documents include a berth location at this site, the especially shallow depths at this location make this site a very challenging location for historic vessels. In short, the Trust expects that discussion of historic vessels will continue as the Park progresses.

The Trust’s Board of Directors long ago established a design standard that called for new park areas to be built to achieve at least a 50-year design life wherever feasible. In practice, this means that materials and design techniques were selected to be durable and maintainable. Tropical Storm Irene in 2011 and Superstorm Sandy in 2012 put these standards to the test. During Superstorm Sandy, over 35 inches of storm surge flooded certain areas of the Park, inundating buildings and underground utilities. Fortunately, most structures and landscapes proved to be resilient, with reconstructed piers, bulkheads, esplanade and plant materials remaining mostly intact following the
adopted Park plan, landscape features range from traditional open lawns with shade trees to habitat areas for native plants. Certain areas are planted with species intended to attract distinct wildlife such as butterflies. Virtually all are designed to tolerate and thrive in a relatively harsh environment featuring wind, salt and salt spray, as well as proximity to the adjacent State highway. Collectively, the Park’s plants are reducing water runoff, abating pollutants from entering the Sanctuary and providing other health benefits for Park users.

Throughout the Park, the Trust uses an Integrated Pest Management (IPM) approach to control pests and weeds found within the Park. IPM is a pest control strategy that uses biological and physical procedures to remove pests to minimize risks to health and the environment.

The 2002 ESMP specifically promoted using native plants for landscaping and to attract wildlife. Presently, the majority of plants and trees found throughout the Park are classified as native to this region of New York. In particular, the two-acre Chelsea Habitat Garden and the Tribeca Boardwalk both feature a broad variety of native plants and host extensive environmental programming.

Newly constructed Pier 26 also showcases native plants. Its design was inspired by the Manhattan shoreline that existed prior to Henry Hudson’s 1609 expedition; it includes a series of ecological communities representing this native landscape, including a woodland forest, coastal grassland, maritime scrub and rocky intertidal zone.

Hudson River Park continues to make strides in reducing its consumption of energy and water. The Park’s fleet of vehicles is 70% electric and in 2016, the Trust eliminated 354 metal halide light fixtures and switched to energy efficient LED bulbs. That change alone results in a reduction of approximately 350,000 pounds of CO$_2$ emissions per year, the equivalent of nearly 230 barrels of gasoline burned. Because each LED light can last up to 50,000 hours, 5 times longer than traditional bulbs, they save the Park nearly $20,000 per year in traditional bulb replacements as an additional benefit. The Trust is currently looking to change to LED bulbs at other locations including through the upcoming Chelsea Waterside Park ballfield reconstruction project.
COMPOSTING

In 2015, the Trust initiated a compost program to process horticulture waste and organic waste generated in the Park’s offices. In June 2017, with support from New York City’s Department of Sanitation, Council Member Corey Johnson and Hudson River Park Friends, the program grew to include community composting as well. Today, the Community Compost Program incorporates 10 food scrap drop-off bins dispersed throughout the Park’s footprint, each open daily from 7:00 AM–7:00 PM.

In 2019, Park staff collected 81,000 pounds of organic waste from these and other Park locations and processed it with another 350,000 pounds of horticultural waste generated through plant maintenance. In total, the Trust turned nearly 430,000 pounds of organic waste into compost—an increase of 10,000 pounds from 2018. Moving forward, the Park expects to compost at least 400,000 pounds of organic waste annually, thereby diverting thousands of pounds of waste from New York City’s waste stream.

Hudson River Park has also used its staff and resources to encourage best practices in composting at community workshops, volunteer events and through public programs. One of these events, HRPK’s Pumpkin Smash, invites local residents to turn their pumpkins into compost. In 2019, 1,200 local residents smashed 380 pumpkins weighing more than 2,000 pounds. Participants left with a free bag of fresh compost and tips on how they can support composting efforts in New York City.
PROGRESS REPORT

To accommodate the transition away from single-use plastics to green products, the Trust installed additional recycling bins throughout the Park, as well as water fountains/bottle fillers and portable hydration stations in key areas to encourage Park-goers to make use of reusable water bottles. A comprehensive communications strategy has also been paired with these new plastics reduction features to help promote awareness of the negative effects some plastics have on the environment. Most recently, the Park worked successfully with Coca-Cola to trial selling only canned products, including canned water, in the Park’s vending machines.

PARK & WATER SAFETY

As the Park has grown, it has become a beloved “backyard” for nearby residents and a go-to destination for tourists and regional visitors. Each year, millions of Park patrons use the Park’s piers and esplanade, and tens of thousands of these visitors find their way onto and even into Sanctuary waters for recreation. To ensure everyone can enjoy Hudson River Park safely, the Trust has developed rules and policies that provide for public safety, including boating safety, and protection of the environment, park landscapes and infrastructure. In addition to enforceable regulations outlining prohibited uses, the Trust has also developed a policy related to Kayaking and Canoeing in the Park.

The Trust contracts with the New York City Parks Enforcement Patrol (PEP) to help keep the Park and its patrons safe through education and enforcement of rules. As an added security measure, sections of the Park and Sanctuary are now also being monitored remotely through video surveillance cameras. The Trust’s full-time dockmaster helps oversee water/boating rules, helps maintain some marine infrastructure, operates the Pier 40 mooring field and supports the boating community. The Trust and PEP also work closely with the United States Coast Guard, the Army Corps of Engineers, New York City Police Department’s Harbor Unit, NYSDEC and other agencies on issues affecting safe uses of the waters in and around the Park.

The Park’s Water Use Map is another key safety and protection measure. The Act provides that the Trust may designate “water surface use zones including the

Witnessing the prolific single-use plastics washing up within Hudson River Park was a major factor in the Park’s decision to launch the Park Over Plastic initiative.

PARK OVER PLASTIC

While managing the Park, the Trust sees first-hand the harm that plastics create on the River and its wildlife. Over the last four years, the Park helped to propel macro- and microplastics research in the region by developing an ongoing monitoring program tracking concentrations of plastic pollution within the Estuarine Sanctuary. This research inspired the 2019 launch of the “Park Over Plastic” program, which aims to reduce single-use plastics in the Park through a replicable model for parks across the country working toward plastic-free goals as well.

Since 2019, Hudson River Park has ceased purchasing and using nearly all single-use plastics at its offices and in its operational areas. In addition, the Trust also asked all its tenants and occupants to do the same. Thus far, fourteen tenants and occupants have signed Green Partnership Agreements that discontinue the use of single-use plastic bottles, straws, stirrers and flatware in favor of green products. Other tenants and occupants are making efforts to reduce their plastic use as well. As new tenants, occupants and permittees join the Park community, they are now asked to join the Park Over Plastic initiative by becoming Green Partners in their lease and permit agreements. Trust staff has created a Green Resource Guide available on its website to help interested parties access resources and pricing information for plastic alternatives.

To accommodate the transition away from single-use plastics to green products, the Trust installed additional recycling bins throughout the Park, as well as water fountains/bottle fillers and portable hydration stations in key areas to encourage Park-goers to make use of reusable water bottles. A comprehensive communications strategy has also been paired with these new plastics reduction features to help promote awareness of the negative effects some plastics have on the environment. Most recently, the Park worked successfully with Coca-Cola to trial selling only canned products, including canned water, in the Park’s vending machines.

As a safety measure, life ring cabinets, like the one pictured here, were installed throughout the Park in 2018.

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establishment of sanctuary/preserve areas and areas where motorized and non-motorized craft are or are not permitted. The 2002 ESMP included a Water Use Map for Hudson River Park that divided the water area into five zones, each of which performs a different function. For example, “Water Play” areas surround most of the boathouses and have been successful in creating safe, accessible areas for non-motorized boating. “Reserves” were identified as the best places for habitat restoration and research. “Motorized Boat” areas include Park piers with historic ships, mooring fields, water taxis and the Chelsea Piers marina. The original Water Use Map also designated areas with large recreational, commercial and sightseeing vessels and ferries separately, as well as certain properties excluded from Park boundaries.

Because the 2002 Water Use zones were identified based on the proposed or preexisting uses for the adjacent piers, the need to update them has not often arisen over the years. The Action Agenda section of this report makes a few select changes based on TAC feedback and the Trust’s own observations, experiences and current Park plans for locations like the Gansevoort Peninsula to reflect current Park use and to clarify certain terminology from the 2002 plan. The currently proposed Water Use Map is included in Appendix D.

With the Park upland nearing completion and so many ways to access the water, there are more people than ever using the Sanctuary waters in many different ways. For this reason, the 2021–2030 Action Agenda reflects a vision for strengthening boater safety in the coming decade. The Trust will work with its boating partners to ensure that divergent water uses can operate compatibly and safely while still enabling other Sanctuary and Park goals.
In 2019 alone, the Trust directly engaged over 30,000 program participants and increased the size of its science and education staff by 2 full-time members. The popularity and impact of Sanctuary programs has also influenced Park design. For example, the newly completed Pier 26 and design for the Gansevoort Peninsula both include multiple areas for outdoor education.

In 2019, the breadth and depth of marine science education and research in the Park leapt forward as The River Project, a community-supported marine field station, laboratory and native aquarium that preceded the Park’s creation, became a formally integrated component of Hudson River Park. Through a formal partnership, certain River Project staff joined the Trust as full-time staff members.

In Summer 2020, the Trust officially renamed its environment and education department to reflect its heritage, and is now known as “Hudson River Park’s River Project.” The original River Project legacy will live on as its research initiatives, programs and even staff members are now fully embedded within the Trust.

FIELD TRIP PROGRAMS
The Trust staff educates and empowers students through a range of environmental field trip programs offered to schools and other organized academic and community groups, including summer camps. Topics covered in these programs include fish biology, water quality, plankton ecology, human impacts and maritime history. Program themes have evolved over time to support New York City’s adopted curriculum requirements. A chart outlining current programming themes and audiences is attached as Appendix E. In 2005, a total of 890 students attended field trip programs in Hudson River Park; by 2019, that number had increased tenfold, with over 10,000 students attending comparable programs provided directly by the Park’s River Project. These programs aim to empower students as scientists and stewards of the Hudson River.

The Park’s model for environmental education prioritizes access for all by offering free and low-cost environmental education programming to schools and summer camp participants.
Another way the Trust educates is through drop-in and other more casual programming tailored for regular Park visitors. As with organized field trip programs, the number and range of such public programs has continued to expand since the 2002 ESMP was implemented. In 2019, Park staff hosted 16,000 individuals ranging from toddlers to older adults interested in wildlife, waterfront history, oyster restoration and sustainability.

Over the last five years, the Trust has created and expanded opportunities for the public to engage in community science projects related to habitat monitoring and restoration. Programs like Community Ecopaddle and Shell-ebrate Oysters invite the public to take part in oyster research. Marine debris research occurs through regularly conducted macroplastic surveys performed by volunteers on Gansevoort Peninsula.
At Pier 84, an indoor classroom was incorporated into the Park’s design so that the Trust could offer year-round environmental programming at that location. The Trust makes the classroom available to outside academic and community groups such as the Coast Guard Auxiliary and NYSDEC upon request.

In 2022, the Park expects to open a new indoor classroom at Pier 57 through a partnership with Google, the pier’s anchor tenant. The classroom and related exhibits will focus on integrating technology into STEM and estuary education.

Big City Fishing (BCF), the Park’s oldest and most popular public environmental education program, began in 2001 and helped establish the case for offering hands-on science programming that is both educational and fun. BCF is a free, guided, all-ages catch-and-release fishing program offered at multiple locations throughout the Park every summer and fall. Aside from attracting over 5,000 participants annually, BCF fosters stewardship of local waterways while encouraging recreation in the Sanctuary. BCF serves the supplemental purpose of providing real-time insight into River health and biodiversity through logs maintained by Trust staff. As a community-assisted research initiative, BCF is an opportunity for program participants to engage with Park educators and learn more about River research and restoration projects affecting the Sanctuary.

These and other programs engage community members with diverse backgrounds, interests and abilities in authentic research, and teach STEM skills through use of scientific instruments and methods.

PUBLIC EDUCATION PROGRAM STATISTICS

- 130 public programs offered to over 21,000 participants including:
  - 7,500 participants at SUBMERGE Marine Science Festival
  - 5,000 participants practicing catch and release fishing at Big City Fishing

LEARNING SPACES

The Trust leverages both the Sanctuary and the Park’s adjacent green spaces as exciting outdoor classrooms. Pier 25 in Tribeca, Pier 46 in Greenwich Village, Pier 66 in Chelsea and Pier 84 in Hell’s Kitchen are historically most frequently used for this purpose, though staff expects Pier 26 to be equally popular now that it is open. In addition, the Habitat Garden in Chelsea provides a unique, terrestrial outdoor classroom.

The public can engage with the Sanctuary and learn more about Hudson River fishes at the River Project Wetlab at Pier 40. The Park’s Shell-ebrate Oysters program invites community members to measure and monitor oysters.

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The Park is very fortunate that multiple tenants and permittees prioritize public education either as their primary or secondary mission. The Lilac Preservation Project, Village Community Boat House, Hudson River Community Sailing and Intrepid Sea, Air and Space Museum all regularly host school classes and environmental groups for Sanctuary-focused programming. Other partners like NYSDEC, Lamont-Doherty Earth Observatory of Columbia University, New York City Soil and Water Conservation District and many more also make frequent use of the Park’s piers and open spaces for outdoor education programming and teacher training workshops. The Trust provides permitting, support, space and resources to facilitate such organizations’ use of Hudson River Park as an inspiring outdoor education classroom and environment.

STEM INTERNSHIPS

Hudson River Park provides meaningful hands-on internships and trainings to raise awareness about the Hudson River Estuary and to cultivate the next generation of environmental stewards. Paid internships are provided for both high school and college students to support job-readiness training and career pathways in the environmental field. Over the last decade, the Trust has worked closely with organizations like the Student Conservation Association and several New York City high schools to create career stepping stones for students historically underrepresented in STEM. Since 2011, Hudson River Park has provided these opportunities to over 125 high school and college-aged students, many of whom are now pursuing careers in science and STEM education.

STEM learning at Hudson River Park’s Pier 84 classroom.

FOLLOWING PAGE: The Park’s River Project staff offers regular guided public tours of the Pier 26 Tide Deck.
The original River Project pioneered the “Wetlab”—a native aquarium and marine biology field station on Pier 40 now operated by the Trust. The Wetlab features a 3,500-gallon flow-through aquarium system of over a dozen tanks that seasonally host such Hudson River fishes as striped bass, black sea bass, oyster toadfish and lined seahorses. The flow-through system ensures that River water is constantly pumped directly from the Hudson River, enabling fish and other animal residents in the Wetlab to experience the same water quality conditions as those in the Hudson River.

The Wetlab is one of the Park’s most valuable educational venues, providing opportunities for students and members of the public alike to meet Hudson River wildlife face-to-face during field trips and open public park hours. The Wetlab is also an important place for research and monitoring, and is helping inform plans for the future Estuarium in Tribeca.

Since 2012, Hudson River Park has created and offered SUBMERGE, New York City’s only Marine Science Festival. SUBMERGE is an annual celebration of New York City’s coastal waters that brings marine science to life for visitors of all ages. This event offers hands-on experiments, kid-approved science entertainment, catch & release fishing, kayaking and more, for free. In 2019, SUBMERGE attracted over 7,000 visitors and over 40 exhibitors from across the country. Exhibitor organizations include local non-profits like Gotham Whale, government agencies like the National Oceanic and Atmospheric Administration (NOAA) and NYSDEC, academic partners like Borough of Manhattan Community College and many more. Thanks to collaborations with these organizations, SUBMERGE offers a huge variety of interactive learning opportunities about sustainability, ocean exploration, wildlife and other STEM topics.

Hudson River Park is committed to bringing together science education and research organizations to share marine science, increase awareness and inspire tomorrow’s stewards. The Park’s prominent Manhattan location and the inspiring pier setting within the Hudson River make the Park uniquely suited to offering programs like this.
The Sanctuary’s waters have long been defined by human impacts. Over a period of several centuries, Manhattan’s coastline was widened with fill, eliminating most native shorelines, including the original shores along the entirety of the Park’s present-day location. In addition to expanding and hardening the shorelines, for over a century, the city’s waters were used as a dumping ground for every sort of waste and refuse, further degrading aquatic habitat and polluting water.

In recent decades, major improvements in Hudson River health have occurred thanks to a combination of regulatory action and increased citizen stewardship. Nevertheless, contaminants from sewer outflows and other sources, which release pathogen-contaminated waste water and debris into local waterways, continue to affect water quality today.

Climate change effects, including warming waters, increased precipitation, sea level rise, extreme heat and more frequent and extreme storms also threaten habitat, water quality and wildlife. Emerging issues like the proliferation of invasive species, pharmaceutical waste and microplastics pose additional concerns.

Despite such human disturbance, Park waters support remarkably diverse and abundant biological communities. Over 200 species of fish have been observed in the greater Hudson River watershed, with 85 species of fish represented within the Park’s Sanctuary waters. Understanding how the Sanctuary can better support this wildlife community and the larger estuarine environment through research, adaptive enhancements and advocacy has been, and must remain, an important Sanctuary goal.

Sanctuary Research

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The Park's River Project staff measures a pipefish collected from fish surveying equipment.

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Hudson River Park conducts research (see Appendix F) and supports partner efforts to advance water quality and

The cited research statistics reflect the 2019 season due to the COVID pandemic.
The Trust purchased and installed the Pier 84 station in The Park currently manages two HRECOS stations. The HRECOS network is the most comprehensive set of instruments in the Hudson River collectively managed by United States Geological Survey, NYSDEC and other governmental agencies and academic institutions. The HRECOS network is the most comprehensive set of continuous hydrological and meteorological weather stations in the Hudson River. The Park currently manages two HRECOS stations. The Trust purchased and installed the Pier 84 station in 2012 and the Pier 26 station in 2016. In 2019, the Pier 26 station was relocated to nearby Pier 25 to accommodate the construction of Pier 26.

HRECOS stations have sensors that measure dissolved oxygen, pH, salinity, turbidity, depth, rainfall, wind, and water and air temperature. Data are recorded and transmitted every 15 minutes to the HRECOS / United States Geological Survey database, providing open access to all interested parties. The Park also shares collected data publicly on monitors mounted to the Pier 84 boathouse’s exterior and in the Pier 40 lobby to help communicate near real-time river conditions to Park users. Cantina, a human-centered design firm, awarded the Park with pro bono design support in 2021 to create a water quality dashboard that is integrated on the Park’s website, making HRECOS data even more accessible. Aside from supporting science and education, HRECOS data helps inform Park management policies, habitat enhancement efforts and extreme event preparedness.

While HRECOS data proves that the Hudson River water quality within the Sanctuary usually meets healthy standards, one ongoing water quality challenge is the continuing impacts of CSOs. Within the Park’s boundaries there are 32 CSOs that contribute untreated sewage into the Hudson River during certain wet weather events. These CSOs are part of a much larger network of CSOs throughout New York City that predates the Park, and the Trust does not control that infrastructure. The environmental community has long recognized CSOs as one of the most pressing issues to address as New York continues its progress toward achieving cleaner waters, yet it also happens to be one of the costliest and most difficult to fix.

In 2018, the Park partnered with the EPA and Interstate Environmental Commission to conduct high density water sampling at several inter-pier locations within the Sanctuary. This pilot project sampled at both surface and bottom locations along multiple transects running from the bulkhead to the channel to study the distribution of pathogens in the tidal estuary. The study showed variation between the sites as well as between top and bottom samples in near shore areas, suggesting that additional high density pathogen research is needed. As part of the 2021-2030 Action Agenda, the Trust aspires to build from this pilot project to further understand pathogenic bacteria distribution in the Sanctuary to inform mitigation strategies and public decision-making by involved agencies.

Beginning in 2015, volunteers from the New York City Water Trail Association established a Citizen’s Water Quality Testing Program, with support from The River Project. A coalition of small boaters concerned about CSO discharges collected water samples and The River Project analyzed the samples for the presence of harmful bacteria levels. By 2019, the program had grown to include over 70 locations around New York City where community scientists collect water samples for analysis. Within the Sanctuary, sampling by Park staff, boathouse tenants and community volunteers occurs at six unique water access points: Pier 26, Pier 40, Gansevoort Peninsula, Pier 66, Pier 84 and Pier 96. In 2020, the Park’s River Project began directly processing and analyzing collected samples as part of its commitment to sustain the original River Project’s research efforts. Moving forward, the Park will continue to develop monitoring projects to track pathogens within the Sanctuary, leverage community scientists and partner with governmental agencies to mitigate CSO and municipal separate storm sewer system (MS4) impacts, and advocate for the Sanctuary to be a priority location for trailing solutions that can mitigate CSOs’ harmful effects.
PLASTIC POLLUTION

Scientists around the world are seeking to better understand the scale and impacts of plastics in global waters. In 2016, Hudson River Park began collaborating with Brooklyn College to survey the concentration of microplastics, plastics smaller than 5mm, within the Sanctuary to provide a baseline understanding of the presence, distribution, and significance of microplastics locally. Park staff collects samples at two channel and two near-shore locations, and then processes the samples to remove non-plastic materials. Samples are then counted and sorted based on plastic type (fragments, foam, line, pellet, film and nurdles) using microscopes, with the data from 2016-2019 published in the Marine Pollution Bulletin scientific journal.

As expected, this study has demonstrated that microplastics are present in the Hudson River in high abundance, with the majority of samples containing hundreds of pieces of microplastics, and some with as many as 6,000 microplastic pieces. In 2018, the study found an average concentration of 630,762 microplastics per km² within the Sanctuary, which is three times greater than the 2016 amount and six times greater than in 2017. Additional research is needed to understand how hydrological conditions impact microplastic distribution and the impact it has on wildlife in the estuarine environment.

Hudson River Park also conducts surveys on macroplastics, plastics larger than one inch, in tandem with shoreline cleanups at the Gansevoort Peninsula and Pier 76. Since 2013, community scientists and other Park volunteers have partnered to collect and categorize macroplastics at those areas. In 2019, the Park removed 4,121 pieces of macroplastics weighing 555 pounds from Gansevoort Peninsula and Pier 76 combined and engaged 100 volunteers in river stewardship in the process. The Trust reports data from this litter removal and plastics research project to NOAA’s Marine Debris Program.

OYSTER RESEARCH & RESTORATION

In recognition of oysters’ astonishing ability to filter water, create habitat and support resiliency goals, former Governor Cuomo made oyster restoration a signature component of his statewide Restore Mother Nature initiative, an aggressive effort to restock and restore aquatic habitats throughout the State, while also promoting research, education and resiliency.

Restore Mother Nature was announced in September 2019 when former Governor Cuomo deployed a gabion filled with thousands of juvenile shellfish, provided by the Billion Oyster Project (BOP), in the Sanctuary and announced $1.5 million in capital funding to enhance habitat in the area between Pier 26 and Pier 34. Subsequently, the Trust worked with
The Trust strives to be nimble so that it can learn more about Sanctuary habitat and take advantage of opportunities as they emerge to advance Sanctuary science. For example, in 2018, during the repair process for floating docks at Pier 25, staff discovered an abundance of wild oysters of impressive size living beneath the docks. A few weeks later, a diver maintaining Pier 40’s piles found and collected an oyster that measured 22 centimeters (more than 8 inches). This oyster became an instant New York City celebrity because it was the largest wild oyster seen in the New York City Harbor in over a century. Its presence was all the more remarkable because at 15 acres, Pier 40 is both the largest Park pier and is supported by steel piles, which were previously assumed to support little to no biodiversity.

The discovery prompted the Trust to initiate a biological survey of five distinct piers distributed throughout the Park’s length using a methodology designed by scientific partners at New Jersey City University with Trust staff. The Trust asked its contracted divers to use a Clearwater box—a videography tool that increases visibility in turbid systems—to video selected piles at piers and pile fields constructed of different substrate materials and with varying ages. The videos were analyzed for species composition and richness to understand settlement patterns on varying forms of Park pile infrastructure.
In addition, in 2017, the Trust began piloting a new restoration technique in the Pier 32 pile field to study oyster growth and recruitment. This project suspends oysters from wooden piles in marine-grade aquaculture mesh bags and then monitors oyster mortality, growth and recruitment of juvenile oysters and other marine organisms. Students and members of the public support the monitoring effort through programs like Community Eco-Paddle. In 2018 and 2019, oysters at Pier 32 significantly increased in both weight and length on average. Beyond demonstrating that the oyster wraps provide good, affordable habitat for juvenile oysters, fish and invertebrates, participant surveys show that the Pier 32 Community Oyster Project has had a positive impact on River knowledge and attitudes. Oyster wraps have been folded into the overall Tribeca Habitat Enhancement Project now that the pilot phase has concluded.

FISH SURVEYS
Many fish species use Sanctuary waters for food, protection and as breeding grounds. Historically, fishes in the Park have been surveyed through the Big City Fishing catch-and-release program during approximately five to six months each year. Through this program, staff manually track data on fish species, size, location and date. This survey helps inform understanding of fish diversity and abundance at four Park locations. Bluefish, striped bass, oyster toadfish, white perch and American eel have consistently remained the species caught at the highest rates. Since 2019, this data has expanded to include surveying fishes through trapping and continuing a longitudinal study that began in the 1980s by the original River Project. By tracking fish diversity over time, and pairing this data with information received from HRECOS, the Trust can consider how seasonal changes, longitudinal River conditions or major weather events affect local fishes. The data is also helpful for spotting emerging trends for population dynamics within specific species and for the community at large.

The Sanctuary is already the largest site for student-monitored oyster cages in New York City thanks to collaborations with BOP, among others. Teachers, students and the community help to maintain and monitor 24 BOP Oyster Research Stations at a variety of piers. This BOP project welcomes schools and students to be community scientists as they study the growth of oysters over time and track local recruitment of sessile and mobile species.

NYSDEC and its TAC to design an enhancement project that will deploy reef balls, gabions, oyster wraps and textured pile encasements to create new habitat corridors between piers and provide habitat for oysters and finfish under this initiative. The project began installation in the Park’s Sanctuary waters in 2021.

The Park’s River Project staff and community scientist filter sampled River water to collect DNA, which will then be sequenced to learn about fish presence and diversity.
environment Pier 26, the Tribeca Habitat Enhancement Project and eventually the adjacent Estuarium will create a centerpiece for ecology in Tribeca. Pier 26’s Tide Deck was populated with wetland, rock and tide pool features to offer habitat for wildlife, including marine birds, oysters and other shellfish.

Gansevoort Peninsula’s design for its 5.5 acre site includes the creation of a salt marsh and oyster habitat on its northern edge. The construction of this pier began in 2021 and will expand habitat enhancements within the Park. In the future, the upland area south of Pier 76 will include a habitat-enhancing beach. The Park is also exploring a variety of techniques to restore mollusks to the Sanctuary. All of these projects have the potential to help diversify local habitat and encourage the recruitment of intertidal species.

While the projects and initiatives described above are helping scientists and ecologists gain a better understanding of baseline conditions in the Sanctuary, it is indisputable that there is still much more to be done. As such, the Trust has set forth an ambitious research and habitat enhancement Action Agenda to inform Trust staff and its partners in the coming decade.

In 2018, the Park began an exciting collaboration with Cold Spring Harbor Laboratory to expand its Sanctuary fish survey program to include an environmental DNA (eDNA) research project. Twice each month, Park staff and student science partners collect water samples from multiple pier locations and then extract and sequence fish DNA. Species are identified by amplifying short “barcode regions”—DNA sequences from variable regions of genomes that are unique to each species—and using next-generation sequencing to determine the presence of specific Hudson River fish DNA. Although there is mounting evidence that eDNA is a useful tool for the assessment of fish in marine environments, it is still unclear how sensitive the method is, how far DNA moves within the water and how long DNA persists after being shed from fish. For these reasons, traditional sampling will also continue. However, based on the results to date, it seems clear that eDNA sampling has immense potential to be an affordable and effective tool for deepening understanding of fish population dynamics.

Biological data on species richness and abundance is necessary for achieving a fuller understanding of the ecological health of the Sanctuary, and for the entire Hudson River Estuarine system as well. Aside from increasing baseline knowledge, such data will inform habitat enhancement, policy and management decisions regarding the Sanctuary.

**SCIENTIFIC PARTNERSHIPS**

Part of the Park’s responsibility as a steward for the Sanctuary is to facilitate opportunities for scientists to access it. The Park’s River Project staff proactively reaches out to researchers engaged in relevant fields of study to invite their participation in Sanctuary research. In addition, staff members have worked successfully with scientists to secure grants that staff uses to lower costs or otherwise ease project implementation. The Park’s partnerships with Brooklyn College and Cold Spring Harbor Lab are two prime examples of these successes. Most recently, the Trust, in partnership with Hunter College and Killer Snails, was awarded a National Institute of Health grant to continue research and education on oysters within the Sanctuary.

**HABITAT ENHANCEMENT**

While the Sanctuary has always informed Park planning, the design processes for several recent projects have been particularly focused on and inspired by the River
Funding related to Hudson River Park’s Estuarine Sanctuary is inextricably linked to the entirety of Hudson River Park. For this reason, it is not possible to segregate the costs of building and caring for the overall Park from the costs specific to the Sanctuary. Nevertheless, certain costs are clearly more directly related to the Sanctuary’s planning, care and operations than others, and the Action Agenda highlights such costs where possible.

**SANCTUARY FUNDING**

The Act states that, to the extent practicable and consistent with the public interest and limitations placed on commercial activity, the costs of the operation and maintenance of the Park should be paid by revenues generated from within the Park. From its founding to the present day, the Trust has not received funds to support direct operating and maintenance costs from either the City or the State.

The Trust publishes its annual budget, independent annual audit, annual Financing Plan, quarterly financial reports, Board agendas and minutes, Board resolutions and other information on its website: hudsonriverpark.org.

As detailed in the Park’s annual adopted budgets, operating revenue is generated within the Park from lease and other occupancy agreements, parking user fees and sponsorships. Total operating revenue in fiscal year 2020 was $32.2 million. Due primarily to the economic impact of COVID-19 operating revenue in FY21 is projected to be significantly reduced to approximately $22.6 million. For FY22, which began on March 1, 2021, operating revenue is budgeted at $24.6 million.

In the year prior to COVID-19 (FY20), approximately 70% of operating revenue, or $22.4 million, was derived from leases and other occupancy agreements; 24%; or $7.7 million, came from Pier 40 parking charges (net of local and state taxes); and 7%, or $2.1 million, was from user fees and other revenue sources. Separately, the Trust receives contributions from Hudson River Park Friends (HRPF), interest income, foundation support and private contributions and grants. The Trust uses this income to pay for all Trust staff, park security, insurance, horticulture, routine grounds and facilities maintenance, and public and environmental programming and related initiatives.

Operating expenses in FY20 including all salaries, utilities, maintenance, insurance, security etc., net of reimbursement revenue but excluding capital maintenance, totaled $20.8 million. Operating expenses in FY21 are projected to be relatively flat compared to the prior fiscal year at $20.9 million. For FY22, the Trust’s operating cost is budgeted at $25.3 million, as the physical area of the Park has grown since FY20 and in-person activities are resuming. Thus, the operating surplus dedicated to capital maintenance that was generated in FY20 will likely not be available in FY21 or FY22. This is largely because the amount of available funding remains reduced as businesses that pay rent and fees to the Park continue to recover from the economic impact of COVID-19.

Capital maintenance is a cost category that was not fully considered when the Act was passed. It includes repair and replacement of heavily-used physical Park elements that reach the ends of their intended design lives, or that simply break. Examples include renovations and replacements to docks, repairs to existing piers and pavement, and replacements and upgrades to mechanical systems in boathouses, public restrooms and other Park structures. In addition, the Trust has also had to make significant unanticipated investments related to stabilizing legacy assets inherited in poor condition when the Park was created, such as to the historic Morton Street Bulkhead, and jacketing the 3600 piles that support Pier 40. Capital maintenance can also include costs associated with addressing damage caused by natural disasters or other unforeseeable incidents. The Park uses the surplus of operating income in excess of operating expenses whenever possible to support capital maintenance, but this approach is insufficient for many types of repairs and there is still no long-term solution to this issue.

**FUNDING CONTEXT**

As of March 31, 2020, approximately $749.8 million has been expended on new Park construction, equipment and for capital maintenance. With the recent openings of Pier 26 and Little Island on Pier 55, and with the start of construction at both the Gansevoort Peninsula and Pier 97, the Park has recently taken giant steps forward towards completion. The status of Park build-out as of February 1, 2021 is detailed in the Trust’s annual Financing Plan which is found on the Park’s website www.hudsonriverpark.org. Audited financial statements and other financial information are also available on the website.

Capital funds associated with new Park construction have been provided primarily by the State and the City, with supplemental monies received from the Federal government, private foundation sources and allocations of air rights transaction proceeds. In addition, the Trust has received restricted funding as a beneficiary in connection with certain litigation and administrative settlement agreements.

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The Tribeca Boardwalk provides an elevated view of the Sanctuary waters while walking alongside native grasses, flowers and trees.
RESTORATION & ENHANCEMENT PROJECTS

The Trust has provided cost estimates for restoration and enhancement projects and for other capital construction projects associated directly with the Sanctuary (such as the Gansevoort habitat enhancements and Estuarium) in the Action Agenda where feasible. Currently, the salt marsh at the Gansevoort Peninsula is under construction, and the Trust has reserved $2 million for implementation of the Tribeca Habitat Enhancement Project along with another $1 million for scientific monitoring and other enhancements or research in this area. The recently completed Pier 26 Tide Deck cost approximately $10 million, and the habitat features at the Gansevoort Peninsula including the salt marsh are expected to cost approximately $12 million.

RESEARCH PROJECTS

The Trust has also invested increasingly in the advancement of environmental science and habitat enhancement research projects in the Park. Operational funds now support original research projects and expanded staffing, including the positions of Aquaria & Research Coordinator and two Field Science Coordinators. In addition to staffing commitments, the Trust has secured ongoing funding and in-kind or grant funding contributions to enable research and monitoring projects to continue. Currently funded projects include a three year microplastic survey, a study to report on the colonization of piles within the Park, an environmental DNA fish survey and ongoing continuous monitoring of HRECOS stations.

As a public entity, the Trust is subject to a variety of restrictions related to the sources of funding, public procurement and other requirements. For example, funding from New York State or New York City designated as capital funding cannot be used for operating costs. In the context of the Sanctuary, this means that most research, programming, many demonstration projects, staffing and other desired objectives cannot be funded with State, City or Federal capital construction funds. Similarly, operating budgets are limited primarily by the amount of revenue that can be generated in any given year.

BUDGET ESTIMATES & PROJECTIONS

As noted above, it is not possible to segregate the costs of building and caring for the overall Park from the costs of the Sanctuary, given that creating and sustaining access to the River is a core principle of both the Act and ESMP. Staff across the entire Trust perform critical activities needed to advance construction and maintain piers and adjacent landscapes. Insurance, security and sanitation services are also essential underlying costs that cannot be segregated between the Park and the Sanctuary. Nevertheless, certain costs are clearly directly associated with the Sanctuary.

EDUCATION & SCIENCE STAFF

The Trust currently employs five full-time staff members in the River Project department, as well as four part-time staff. The Department has more than doubled since 2012, which reflects the Trust’s continuing commitment to high quality environmental education as well as the significant growth in marine research, stewardship and restoration projects. As further described in the Action Agenda, the number of full-time staff is expected to grow as the Pier 57 and Estuarium facilities come online in the coming few years.
Hudson River Park’s ESMP Action Agenda sets forth a management framework that will guide the Trust and its partners over the next decade as progress continues on the collective goals of protecting and conserving estuarine ecology and habitat, facilitating physical and visual public access to the River and fostering environmental awareness and public education about this vital natural resource.

Hudson River Park’s ESMP Action Agenda sets forth a management framework that will guide the Trust and its partners over the next decade as progress continues on the collective goals of protecting and conserving estuarine ecology and habitat, facilitating physical and visual public access to the River and fostering environmental awareness and public education about this vital natural resource.

The Action Agenda is organized into three management areas: (1) Environmental Education; (2) Research & Habitat Enhancement; and (3) Public Access & Resource Management. Within each management area, the Trust has identified projects that would advance the enumerated goals. While the individual projects reflect current thinking, it is likely that over the course of the nine-year Action Agenda period, specific projects may change or evolve due to new information, technologies and opportunities. Thus, the Action Agenda should be understood as a living document designed to inspire and drive progress toward Sanctuary goals while also being flexible enough to take advantage of new opportunities when warranted. Similarly, while the project status/funding column shows the Trust’s best current projections for project implementation time horizons and funding availability, the nature of City, State and the Trust’s annual budgeting processes necessitates awareness that these too could change.

While the ESMP serves as an essential management resource for the Trust and its partners, it is important to remember that the Sanctuary waters are only a small fraction of the Hudson River, the New York Harbor and the...
surrounding watershed. Thus, the wildlife and water within the Sanctuary are clearly affected by decisions impacting these larger water bodies as well. For this reason, the Trust has attempted where possible to coordinate ESMP goals with those identified in broader regional plans. Appendix G summarizes how the ESMP and these regional plans reflect and reinforce shared goals.

The original 2002 ESMP Base Plan, available on the Trust’s website, remains a useful planning tool in that it sets forth the historic, environmental and regulatory context for the Sanctuary. With a few exceptions noted herein, the 2021–2030 Action Agenda builds upon but does not replace the original 2002 ESMP Base Plan in these respects.

Specifically, the current Action Agenda consolidates the four original management areas from the 2002 ESMP Base Plan (Public Access and Recreation, Education, Resource Protection and Research) into three areas in response to input from the Technical Advisory Committee (TAC). Specifically, Resource Protection and Research have been consolidated into one new area referred to as Research and Habitat Enhancement. Additionally, the timeframe for the current Action Agenda of 2021–2030 has been extended to create better alignment with regional action plans like the NYSDEC Estuary Program Action Agenda and the NY/NJ Harbor and Estuary Program Action Agenda and to reflect the longer horizon periods needed to implement the majority of projects. The Trust has committed to an annual review of progress toward defined goals and actions in conjunction with its TAC and Board.

**OUR TECHNICAL ADVISORY COMMITTEE**

The 2002 ESMP established the need for a Technical Advisory Committee (TAC) to advise and assist the Trust to achieve the ESMP Action Agenda goals and objectives. Original TAC members were named in 2002 by Trust staff in consultation with NYSDEC and the Hudson River Park Advisory Council. This group met periodically for several years after the publication of the 2002 ESMP. Thereafter, Trust staff engaged with individual TAC members on an as-needed basis until the Trust reconvened the entire TAC in 2017 to commence drafting of the 2021–2030 Action Agenda.

A dedicated and well-informed committee of advisors has been a key driver in the effort to set focused yet ambitious Sanctuary goals that will guide successful implementation of the Action Agenda. TAC members have a demonstrated commitment to the Hudson River Park Estuarine Sanctuary and hold expertise in one or more of the three management areas: Public Access and Resource Management, Environmental Education and Research and Habitat Enhancement. Appointments to the TAC are advisory and voluntary and may change as needed at the discretion of the Trust. A list of TAC members is attached as Appendix A. In addition, several organizations that serve on the TAC are also on the Trust’s Advisory Council, a statutorily created body that includes elected officials representing the Park area as well as representatives of local community, park, environmental, civic, labor and business organizations.

In Summer 2017, as the process for updating the ESMP was commencing, the Trust formally reconvened the TAC and the first meeting of the full TAC regarding the drafting of the 2021–2030 Action Agenda was held in June 2017. Thereafter, Trust staff worked with TAC subcommittees to craft goals and actions in each of these three management areas. TAC subcommittee members have been invaluable in helping to push for goals that are simultaneously clear, aspirational and actionable. As an example, the Research and Habitat Enhancement subcommittee has invested much time and effort into identifying areas where research and enhancement are most needed as well as helping shape the Trust’s current Tribeca Habitat Enhancement Project. The resulting goals established through these discussions serve as a critical foundation for the Trust to make significant and meaningful advancements in this area in the coming decade.

The full TAC was reconvened in December 2019 and again in January 2021 to review Action Agenda drafts, Water Use Map updates and the role of the TAC moving forward. The Trust is grateful to all members of the TAC for their enormous enthusiasm for and contributions to the drafting of the 2021–2030 Action Agenda.

Ongoing roles and responsibilities of TAC members include advising and assisting the Trust with the implementation of the 2021–2030 Action Agenda. Such implementation assistance could include contribution of technical expertise, active collaboration or partnership in implementing particular actions, or contribution of funding, staffing, or other resources. TAC members will also be called upon to provide advice on future revisions and updates to this Action Agenda. Following the Trust’s adoption of the 2021–2030 Action Agenda, the Trust will convene a full meeting of the TAC at least once a year, as described in more detail in the section immediately following. In addition, the Trust may call upon individual members or subcommittees periodically, as needed, to consult and collaborate on specific projects.

**SANCTUARY RESEARCH AND HABITAT ENHANCEMENT MEETING**

As outlined in the Action Agenda, Sanctuary research and habitat enhancement projects must be done in a manner that is adaptive and responsive to relevant scientific data and research.

Accordingly, the Trust will convene an annual meeting of scientists and stewards, including members of the TAC and outside experts, for the purpose of reviewing relevant data and research findings from the Park and comparable waterways to inform continuing Sanctuary decision-making and to expand awareness of the Sanctuary within the science community. Information from this meeting and continuing TAC discussions will help inform future scientific and enhancement projects and priorities. Once identified, then the Trust can create preliminary budgets for enhancement projects and can work with its partners to seek funding for such initiatives.

**ACTION AGENDA ANNUAL REVIEW**

The Action Agenda should remain a meaningful, well-utilized document for years to come. Toward this end, the Trust will convene an annual meeting of the full TAC for the purposes of 1) sharing and reviewing progress toward...
acquiring Action Agenda goals in the preceding year; and 2) identifying and discussing Action Agenda priorities and funding targets and opportunities for accomplishing Action Agenda goals for the coming year. A report on annual progress, priorities and Sanctuary funding opportunities will be made available to the Trust’s Board of Directors and Advisory Council.

ENVIRONMENTAL EDUCATION

OVERVIEW

Environmental education within the Park leverages the Hudson River as both the setting and inspiration for increasing the public’s understanding of and connection to the Sanctuary. Over the last two decades, Hudson River Park has prioritized environmental education as a core element of its work, and each year has continued to grow the breadth and depth of programs it offers.

For each of the past five years, the Park has served at least 25,000 people annually through free and low-cost, place-based programs that reach an impressive range of New Yorkers across the demographic spectrum. Whether geared for school children or the general public, programs emphasize experiential, hands-on learning that engages the senses and brings the Hudson River to life.

Over the next decade, the Trust seeks to build upon these successes in environmental education and participatory science. Creatively designed, dedicated indoor educational spaces at Pier 57 and the Estuarium will broaden the impact and reach of Park programming, in particular during the colder weather months. At the Estuarium, live Hudson River animals and “wet” classrooms will bring the Sanctuary to life with discovery-driven exhibition spaces infused with water, while at Pier 57, technology-fueled visual interactions will enhance learning experiences by making river science and history more accessible and dynamic.

Expanding the number and range of environmental education facilities will require more staff. The Trust’s recent strategic alliance with The River Project, a nonprofit marine research and education center that operated independently within the Park for the past 30 years, resulted in a Trust commitment to increase the size of its science and education staff, and the Trust envisions hiring additional full-time education staff in the future to staff new educational facilities assuming budget is available. Strategic partnerships with other educational, environmental and cultural organizations and government agencies will also remain necessary as the Trust seeks to achieve the vision and results articulated in this Action Agenda.

In recent years, the Trust has built academic collaborations with such institutions as City University of New York and Columbia University, which have provided funding for paid summer research internship opportunities and job training within the Sanctuary for 25 students since 2018. Given its location within a highly socioeconomically diverse city, the Trust will continue to expand these efforts to attract and serve communities historically underrepresented in STEM fields.

The COVID pandemic has affected many Park activities. Throughout this document, references to attendance at Park programs generally exclude 2020 unless specifically noted.

In 2020, the Trust was committed to ensuring that Sanctuary education is participatory, accessible and inspirational for years to come.
**ACTION AGENDA**

**ENVIRONMENTAL EDUCATION**

**VISION STATEMENT**
To increase knowledge of the Estuarine Sanctuary and foster dedication to the Hudson River by expanding and improving environmental education in the Park, New York City and the region.

In highly urbanized locations like New York City, parks offer invaluable opportunities to connect with nature and to learn about the environment. Environmental education helps students and members of the public gain a deeper connection to our natural world and an applied understanding of how people affect it. By providing the general public with reliable information about their local environments, parks like Hudson River Park serve an important role in filling the STEM gap in today's education system. Through enriching curricula, discovery-based programming, hands-on volunteering and job training for tomorrow's STEM leaders, Hudson River Park should continue fostering awareness of the Sanctuary and inspiring stewardship to protect it for the future.

**Goal 1:** Use the Sanctuary as the inspiration and setting for high quality environmental education programs and resources that serve the broadest spectrum of Park audiences.

<table>
<thead>
<tr>
<th>ACTIONS</th>
<th>PROJECTS</th>
<th>STATUS / FUNDING</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Enrich NYC K-12 education with hands-on, place-based programs that draw from the Sanctuary’s ecology and history to inspire curiosity and engagement.</td>
<td><strong>ongoing</strong> Continued funding for staff and normal operating expenses assumed through HRPT's annual operating budget.</td>
</tr>
<tr>
<td><strong>A</strong></td>
<td>Offer an adaptable STEM curriculum focused on the Sanctuary and informed by scientific research, current education standards and creative learning tools.</td>
<td><strong>ongoing</strong> Continued funding for staff and normal operating expenses assumed through HRPT’s annual operating budget.</td>
</tr>
<tr>
<td><strong>B</strong></td>
<td>Provide training workshops for NYC Department of Education teachers and other educators interested in incorporating the Hudson River Estuary curriculum into their classrooms.</td>
<td><strong>ongoing</strong> Continued funding for staff and normal operating expenses assumed through HRPT’s annual operating budget.</td>
</tr>
<tr>
<td><strong>C</strong></td>
<td>Integrate additional relevant themes including climate change and environmental justice into education programs.</td>
<td><strong>in progress</strong> Continued funding for staff and normal operating expenses assumed through HRPT’s annual operating budget.</td>
</tr>
</tbody>
</table>

**1.2** Leverage the Park’s prominent setting and high visitorship to broaden public awareness of the Sanctuary’s ecological value.

- **A** Showcase Sanctuary wildlife through programming, technology and dedicated aquaria facilities to engage diverse audiences.
  - **ongoing** Estuarium is a Long Term project
  - Continued funding for staff and normal operating expenses assumed through HRPT’s annual operating budget.
  - Some HRPT budget growth assumed for staffing new facilities. Additional capital funding also required.

- **B** Conduct Sanctuary-focused drop-in programs throughout the Park that attract and engage visitors across a wide range of demographics.
  - **ongoing** Continued funding for staff and normal operating expenses assumed through HRPT’s annual operating budget.

- **C** Host events that bring environmental, educational and waterfront partners together to increase public knowledge of the Sanctuary and greater Hudson River Estuary.
  - **ongoing** Continued funding for staff and normal operating expenses assumed through HRPT’s annual operating budget.

- **D** Support and contribute to a local and regional network for harbor educators to collaborate, share resources and provide relevant trainings.
  - **in progress** Continued funding for staff and normal operating expenses assumed through HRPT’s annual operating budget.

- **E** Ensure that Park policies and practices enable partners and other experts to conduct educational programming in the Park.
  - **in progress** Continued funding for staff and normal operating expenses assumed through HRPT’s annual operating budget.

**1.3** Foster self-guided education in the Park and extend Sanctuary learning beyond Park boundaries.

- **A** Develop enriching digital resources, exhibits and interpretives that inspire self-guided exploration of Park ecology, history and climate change.
  - **in progress** Continued funding for staff and normal operating expenses assumed through HRPT’s annual operating budget.
  - Grants and/or partnerships required for larger scale projects.
<table>
<thead>
<tr>
<th>1.3 Cont’d</th>
<th>ACTIONS</th>
<th>PROJECTS</th>
<th>STATUS / FUNDING</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Create educator resources that enhance in-school learning and extend Sanctuary education beyond the Park’s boundaries.</td>
<td>Near Term</td>
<td>Continued funding for staff and normal operating expenses assumed through HRPT’s annual operating budget.</td>
</tr>
<tr>
<td>C</td>
<td>Develop and maintain a robust, accessible environmental learning hub on the Park’s website to broaden programmatic and content reach.</td>
<td>Near Term</td>
<td>Continued funding for staff and normal operating expenses assumed through HRPT’s annual operating budget.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1.4</th>
<th>Ensure that Park programs are widely accessible to historically underserved populations.</th>
<th>ACTIONS</th>
<th>PROJECTS</th>
<th>STATUS / FUNDING</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Continue targeted outreach to ensure and grow participation from NYC Title I Schools and summer camps educating underserved communities.</td>
<td>Ongoing</td>
<td>Additional funding, grants or pro bono collaboration required.</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Increase outreach and enhance services and materials available for English as a New Language (ENL) students and non-English speakers by translating lessons.</td>
<td>Near Term</td>
<td>Continued funding for staff and normal operating expenses assumed through HRPT’s annual operating budget.</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Maintain a need-based fee waiver policy to provide financial support for school and camp groups to attend field trip programs in the Park.</td>
<td>Ongoing</td>
<td>Continued funding for staff and normal operating expenses assumed through HRPT’s annual operating budget.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1.5</th>
<th>Regularly evaluate Park program content and impact to ensure quality and reach of program offerings.</th>
<th>ACTIONS</th>
<th>PROJECTS</th>
<th>STATUS / FUNDING</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Evaluate student understanding of lessons and track audience demographics where feasible to measure reach and effectiveness of educational initiatives.</td>
<td>Ongoing</td>
<td>Continued funding for staff and normal operating expenses assumed through HRPT’s annual operating budget.</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>1.5 Cont’d</th>
<th>ACTIONS</th>
<th>PROJECTS</th>
<th>STATUS / FUNDING</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Periodically assess Park user attitudes and changes in behavior toward Sanctuary health and stewardship.</td>
<td>Ongoing</td>
<td>Other projects to be prioritized for Near Term and Long Term</td>
</tr>
<tr>
<td>C</td>
<td>Ensure programming metrics are publicly accessible through the Park’s website.</td>
<td>In Progress</td>
<td>Continued funding for staff and normal operating expenses assumed through HRPT’s annual operating budget.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Goal 2: Expand Park educational venues to increase the range and reach of both spontaneous and structured learning opportunities.</th>
<th>ACTIONS</th>
<th>PROJECTS</th>
<th>STATUS / FUNDING</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 Enhance current Park features and facilities to bolster learning opportunities and enrich visitor experiences.</td>
<td>A</td>
<td>Install enriching interpretative signage and other creative elements within the Park to facilitate self-guided education about the Estuary’s history, ecology and changing climate.</td>
<td>In Progress</td>
</tr>
<tr>
<td>B</td>
<td>Integrate native Hudson River wildlife exhibits into existing Park facilities such as the Pier 40 Wetlab.</td>
<td>In Progress</td>
<td>Continued funding for staff and normal operating expenses assumed through HRPT’s annual operating budget.</td>
</tr>
<tr>
<td>C</td>
<td>Continue leveraging the Park’s landscape including the Habitat Garden and Pier 26 as outdoor classrooms to educate about the significance of native plants, birds, insects, marine life and composting.</td>
<td>Ongoing</td>
<td>Continued funding for staff and normal operating expenses assumed through HRPT’s annual operating budget.</td>
</tr>
<tr>
<td>D</td>
<td>Identify and support opportunities for historic and educational vessels to berth and conduct educational programming in the Park.</td>
<td>In Progress</td>
<td>Continued funding for staff and normal operating expenses assumed through HRPT’s annual operating budget and through partnering historic and scientific vessels and collaborators.</td>
</tr>
</tbody>
</table>
3.1 Cont'd

C. Provide career stepping stones within NYC's environmental field by coordinating job opportunities with local partners and STEM networks. In Progress
Continued funding for staff and normal operating expenses assumed through HRPT’s annual operating budget.

D. Participate actively in networks that share resources and trainings on diversity, equity, inclusion and justice. In Progress
Continued funding for staff and normal operating expenses assumed through HRPT’s annual operating budget.

E. Continue to promote internship opportunities that support college and graduate students focused on marine science, sustainability, climate science, education and other STEM fields. In Progress
Continued funding for staff and normal operating expenses assumed through HRPT’s annual operating budget.

3.2 Implement meaningful community science and volunteer projects to engage the public in authentic scientific research.

A. Where feasible, integrate opportunities for community science and volunteering within current and future estuary stewardship and monitoring. Ongoing
Continued funding for staff and normal operating expenses assumed through HRPT’s annual operating budget.

B. Ensure future ecological habitat enhancement projects include community science and volunteer programming. In Progress
Continued funding for staff and normal operating expenses assumed through HRPT’s annual operating budget.

C. Provide career stepping stones within NYC’s environmental field by coordinating job opportunities with local partners and STEM networks. In Progress
Continued funding for staff and normal operating expenses assumed through HRPT’s annual operating budget.

D. Participate actively in networks that share resources and trainings on diversity, equity, inclusion and justice. In Progress
Continued funding for staff and normal operating expenses assumed through HRPT’s annual operating budget.

E. Continue to promote internship opportunities that support college and graduate students focused on marine science, sustainability, climate science, education and other STEM fields. In Progress
Continued funding for staff and normal operating expenses assumed through HRPT’s annual operating budget.

3.3 Develop partnerships with community and research institutions to promote knowledge of the Sanctuary and build stewardship.

A. Continue to leverage partnerships that utilize the Sanctuary as a resource for education and research. Ongoing
Continued funding for staff and normal operating expenses assumed through HRPT’s annual operating budget.

B. Develop a program for visiting scientists to conduct and share Sanctuary research using Park facilities and resources. In Progress
Continued funding for staff and normal operating expenses assumed through HRPT’s annual operating budget.

C. Involve Park tenants in science and outreach to create an informed Park culture and community that supports Park and greater New York initiatives. In Progress
Continued funding for staff and normal operating expenses assumed through HRPT’s annual operating budget.
In its first two decades, Hudson River Park has succeeded in creating access to the Hudson River and in offering a robust environmental education program that fosters both learning and stewardship. Now that completion of Hudson River Park’s public piers and landscapes is in sight, the Trust has identified the Research & Habitat Enhancement management area of the ESMP as the one most requiring focused growth over the next decade.

A number of important projects in this realm are already under way: a salt marsh habitat planned for the Gansevoort Peninsula, a suite of in-water habitat enhancements for oysters and other marine species planned for the area between Pier 26 and Pier 34, and a robust monitoring program on the newly completed Pier 26 Tide Deck. Nevertheless, more is needed.

While there is consensus in the scientific community that the Sanctuary and its wildlife would benefit from additional enhancements to habitat, there is also consensus that there are many unknowns about the estuarine system and the most effective techniques for improving long-term ecosystem health. Therefore, this 2021–2030 Action Agenda aims to establish the foundation for collecting and synthesizing biological and physical data about the Sanctuary and for pilot and scalable habitat enhancements within Park waters that can become the basis for future restoration initiatives. For this reason, the Trust plans to integrate evaluation measures into all phased habitat enhancements to promote an adaptive approach for meeting habitat health outcomes.

### RESEARCH & HABITAT ENHANCEMENT

In this way, informed by science and in collaboration with the NYSDEC and other partners, the Trust foresees creating and monitoring habitat enhancements in varying environmental settings to promote research and understanding across the range of habitat zones.

**PROJECTS**

<table>
<thead>
<tr>
<th>ACTIONS</th>
<th>PROJECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Develop and implement content and events to help the public learn about composting, plastic reduction and low waste behaviors.</td>
</tr>
<tr>
<td>B</td>
<td>Provide volunteer opportunities for community members and students to participate in the Park’s composting and plastic reduction efforts.</td>
</tr>
<tr>
<td>C</td>
<td>Develop branding and messaging that advances public awareness of sustainability both within the Park and more broadly.</td>
</tr>
<tr>
<td>D</td>
<td>Regularly evaluate the effectiveness of the Park’s sustainability efforts through surveys and other tools that assess participant knowledge and behavior.</td>
</tr>
<tr>
<td>E</td>
<td>Work with city and state agencies to further sustainability goals.</td>
</tr>
<tr>
<td>4.3 Facilitate Park-wide sustainability programs that increase community participation in initiatives that benefit the environment.</td>
<td>In Progress</td>
</tr>
<tr>
<td>4.2 Build a Park culture of sustainability by educating and engaging Park staff and tenants in environmental behaviors.</td>
<td>In Progress</td>
</tr>
<tr>
<td>4.3 Facilitate Park-wide sustainability programs that increase community participation in initiatives that benefit the environment.</td>
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<td>4.2 Build a Park culture of sustainability by educating and engaging Park staff and tenants in environmental behaviors.</td>
<td>In Progress</td>
</tr>
</tbody>
</table>

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**Project Status / Funding Key**

- **In Progress**: Reflects projects where work is in the planning phase or has already begun but which are expected to expand or be completed within 1-3 years.
- **Ongoing**: Continued funding for staff and normal operating expenses assumed through HRPT’s annual operating budget.
- **Continued funding for staff and normal operating expenses assumed through HRPT’s annual operating budget.**
- **In Progress**: Reflects projects where work is in the planning phase or has already begun but which are expected to expand or be completed within 1-3 years.
- **Reflects projects expected to be implemented within 5-10 years.**
- **Reflects projects expected to be implemented within 2023.**

- **Funded**: Unless otherwise indicated, funding “assumed through HRPT’s annual operating budget” means that HRPT foresees comparable levels of staffing and operating expenses enabling project to continue. Projects that require additional or specific budget needs are noted. Actual amounts are subject to the HRPT budgeting process and Board of Directors review and approval.
Goal 1: Significantly increase knowledge of today’s Estuarine Sanctuary baseline conditions and trends through continuous monitoring and targeted research of biological and geophysical conditions.

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<tr>
<th>ACTIONS</th>
<th>PROJECTS</th>
<th>STATUS / FUNDING</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Characterize fish utilization of the Park’s Sanctuary waters by surveying species abundance and diversity.</td>
<td>Ongoing Continued funding for staff and normal operating expenses assumed through HRPT’s annual operating budget.</td>
</tr>
<tr>
<td></td>
<td>A. Monitor and report on fish presence and abundance through seasonal trapping and catch and release fishing.</td>
<td></td>
</tr>
<tr>
<td>1.2</td>
<td>Characterize benthic habitat in the Sanctuary by surveying benthic biological community composition.</td>
<td>In Progress for Tribeca area Funding secured for 5 years of studies associated with the Tribeca Habitat Enhancement Project. Procurement to commence in 2022. Additional projects and funding to be determined based on scale, methods, timing and partnerships.</td>
</tr>
<tr>
<td></td>
<td>B. Conduct trawl, seine, acoustic and/or gill net surveys of pelagic and bottom fishes in representative inter-pier nearshore areas.</td>
<td>In Progress for Tribeca area Funding secured for 5 years of studies associated with the Tribeca Habitat Enhancement Project. Procurement to commence in 2022. Additional projects and funding to be determined based on scale, methods, timing and partnerships.</td>
</tr>
<tr>
<td></td>
<td>C. Investigate emerging methods for measuring fish presence and biodiversity including through deploying underwater cameras and environmental DNA.</td>
<td>In Progress Current eDNA studies funded through HRPT’s annual operating budgets, grants and partnerships. Additional projects and funding to be determined based on scale, methods, timing and partnerships.</td>
</tr>
<tr>
<td>1.3</td>
<td>Conduct survey of pelagic and bottom fishes in pile fields and under pier areas.</td>
<td>Long Term Projects and funding to be determined based on scale, methods, timing and partnerships.</td>
</tr>
<tr>
<td></td>
<td>D. Conduct survey of pelagic and bottom fishes in pile fields and under pier areas.</td>
<td></td>
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**ACTION AGENDA**

**RESEARCH & HABITAT ENHANCEMENT**

**VISION STATEMENT**

Improve the health and ecological vitality of the Estuarine Sanctuary by using science to inform adaptive management strategies and habitat enhancements.

Hudson River Park's Sanctuary waters are known to provide vital habitat for 85 species of fish, hundreds of benthic species and a large variety of marine birds, but there are numerous gaps in scientific knowledge regarding its ecological, physical and water quality features. Additional research is needed to fill these gaps and to inform best practices regarding design and operations with the potential to affect the Sanctuary. In the meantime, existing science should be used to create enhanced habitat areas that support greater biodiversity and improve ecosystem health. Hudson River Park's prominent location and broad audience should also be leveraged to promote scientific partnerships, disseminate data and build dialogue about scientific and ecological issues related to the Sanctuary.
### ACTIONS

<table>
<thead>
<tr>
<th>1.3</th>
<th>Assess population levels, biodiversity and health of epibenthic organisms on hard substrates including the bulkhead, piles and other built structures.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Conduct a study that analyzes the species richness and abundance of colonizing organisms at representative pile locations. In Progress</td>
</tr>
<tr>
<td>B</td>
<td>Pursue additional monitoring opportunities of hard substrates including piers, bulkheads and floating docks. Long Term</td>
</tr>
<tr>
<td>C</td>
<td>Analyze the health, including reproduction and recruitment, of organisms that colonize built structures such as oysters and mussels. In Progress for Tribeca area</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1.4</th>
<th>Study and characterize the Sanctuary’s physical environmental features including bathymetry, currents, sediment types, sediment transport and seasonal variations.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Conduct bathymetric surveys throughout the Sanctuary. In Progress for projects listed below</td>
</tr>
<tr>
<td>B</td>
<td>Conduct bottom mapping surveys to characterize the Sanctuary’s sediment and study geophysical conditions such as sediment movement, chemical properties and trends. In Progress for Tribeca area</td>
</tr>
</tbody>
</table>

### PROJECTS

<table>
<thead>
<tr>
<th>A</th>
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</tr>
</tbody>
</table>

### STATUS / FUNDING

- **In Progress** for Tribeca area
- **Long Term** Projects and funding to be determined based on scale, methods, timing and partnerships.
- **In Progress** for projects listed below
- **In Progress** for Tribeca area
- **In Progress** for Tribeca Habitat Enhancement Project for 5 years following installation.
- **In Progress** Baseline work commenced for bottom mapping of sediment types for Tribeca Habitat Enhancement Project in 2020. Funding secured for ongoing research through 5 years following installation.

### ACTIONS

<table>
<thead>
<tr>
<th>1.4 Cont’d</th>
<th>Conduct targeted hydrodynamic studies to inform future habitat enhancements. Long Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>Maintain weather and water quality monitoring station(s) to provide continuous quality-controlled data. Ongoing</td>
</tr>
<tr>
<td>A</td>
<td>Implement regular surface water pathogen monitoring at multiple representative sites in proximity to CSO and MS4 sources within the Sanctuary. Ongoing</td>
</tr>
<tr>
<td>B</td>
<td>Conduct pathogen concentration study comparing conditions at various depths and distances from discharge sites. Long Term</td>
</tr>
<tr>
<td>C</td>
<td>Study concentration and impacts of microplastics in Sanctuary waters. In Progress</td>
</tr>
<tr>
<td>D</td>
<td>Conduct event-based pathogen sampling connected to wet weather events. Near Term</td>
</tr>
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</table>

### PROJECTS

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<th>Conduct targeted hydrodynamic studies to inform future habitat enhancements.</th>
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### ACTIONS

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<thead>
<tr>
<th>Action</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.7</td>
<td>Survey birds, insects and land-based plants within the Park.</td>
</tr>
<tr>
<td>1.8</td>
<td>Collect and review data on common climate change indicators such as warming waters and rising sea levels.</td>
</tr>
</tbody>
</table>

### PROJECTS

<table>
<thead>
<tr>
<th>Project</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Map Park trees and plants in GIS.</td>
</tr>
<tr>
<td>B</td>
<td>Monitor and report on seasonal bird and insect populations, including through regular survey events.</td>
</tr>
<tr>
<td>A</td>
<td>Use HRECOS and other long-term data sets to conduct trend analysis related to climate change and inform discussions on resiliency.</td>
</tr>
<tr>
<td>B</td>
<td>Track rising levels and study its impacts through such assessments as bulkhead algae and colonizer distributions.</td>
</tr>
<tr>
<td>C</td>
<td>Assess impacts from warming waters on the Sanctuary and track changes on algae blooms and plankton communities.</td>
</tr>
<tr>
<td>D</td>
<td>Study the impact of flooding on Park landscape after large storm events.</td>
</tr>
</tbody>
</table>

### STATUS / FUNDING

1. **Ongoing**
   - Continued funding for staff and normal operating expenses assumed through HRPT’s annual operating budget.

2. **Long Term**
   - Projects and funding to be determined based on scale, methods, timing and partnerships.

3. **In Progress**
   - Tribeca Habitat Enhancement Project funded and underway. Additional projects to be identified as feasible.

4. **Additional projects to be identified as feasible.**

---

### ACTIONS

<table>
<thead>
<tr>
<th>Action</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>Use available science to locate and develop enhancements that provide structured and diverse fish habitat.</td>
</tr>
<tr>
<td>2.2</td>
<td>Enhance pile fields and pier areas to improve existing vertical habitat and refuge.</td>
</tr>
<tr>
<td>2.3</td>
<td>Enhance edge environments, including shallows and sloping habitat, where possible within the Sanctuary.</td>
</tr>
<tr>
<td>2.4</td>
<td>Enhance water quality and mitigate impacts from CSO discharges.</td>
</tr>
</tbody>
</table>

### PROJECTS

<table>
<thead>
<tr>
<th>Project</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Construct habitat in inter-pier areas in a phased and adaptive manner for the purpose of studying and promoting spawning, nursery areas and refuge for cover-seeking fishes.</td>
</tr>
<tr>
<td>A</td>
<td>Design and implement ecological enhancements within pile fields and pier areas to strengthen their ability to provide habitat for shellfish and finfish populations.</td>
</tr>
<tr>
<td>A</td>
<td>In the redevelopment of Gansevoort Peninsula, design and construct a salt marsh and ecotidal enhancements.</td>
</tr>
<tr>
<td>A</td>
<td>Promote the Sanctuary as a site for piloting emerging technologies to quantify and communicate CSO and MS4 discharge information.</td>
</tr>
<tr>
<td>B</td>
<td>Maintain and monitor ecological get-down with a rocky intertidal pool, marsh planting area and pile enhancements at the western end of Pier 26.</td>
</tr>
<tr>
<td>B</td>
<td>Design and construct ecological enhancements on the south side of Pier 76.</td>
</tr>
<tr>
<td>C</td>
<td>Pilot techniques to enhance the ecosystem services of Hudson River Park’s historic bulkhead.</td>
</tr>
<tr>
<td>B</td>
<td>Design and construct ecological enhancements on the south side of Pier 76.</td>
</tr>
<tr>
<td>B</td>
<td>Pilot emerging technologies and green infrastructure to improve water quality after CSO and MS4 discharges.</td>
</tr>
</tbody>
</table>

### STATUS / FUNDING

1. **In Progress**
   - Tribeca Habitat Enhancement Project funded and underway. Additional projects to be identified as feasible.

2. **In Progress**
   - Continued funding for staff and normal operating expenses assumed through HRPT’s annual operating budget.

3. **Ongoing**
   - Continued funding for staff and normal operating expenses assumed through HRPT’s annual operating budget.

4. **Long Term**
   - Projects to be determined based on scale, methods, timing and partnerships.
   - Preliminary capital funding identified and subject to confirmation; estimated cost is $10 million.

5. **Projects to be determined as feasible.**

---

### Goal 2: Develop and implement a phased and adaptive program of habitat enhancements targeted at improving water quality and species productivity.
### Goal 3: Collect, synthesize and share data gained from habitat enhancement monitoring and research to inform future Sanctuary enhancement and management practices and public understanding of its value.

<table>
<thead>
<tr>
<th>ACTIONS</th>
<th>PROJECTS</th>
<th>STATUS / FUNDING</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A. Create metrics for ecological enhancements and conduct monitoring of habitat improvements.</td>
<td>Ongoing for Pier 26 Tide Deck; In Progress for Tribeca Habitat Enhancement Project; Near Term for Gansevoort Salt Marsh. Continued funding for staff and normal operating expenses assumed through HRPT’s annual operating budget. Additional projects to be identified as needed.</td>
</tr>
<tr>
<td></td>
<td>B. Broadly share findings from ecological enhancement projects and Sanctuary research including publishing on Park and partner websites and participating in conferences.</td>
<td>Ongoing Continued funding for staff and normal operating expenses assumed through HRPT’s annual operating budget.</td>
</tr>
<tr>
<td></td>
<td>C. Develop quality assurance and quality control measures for original research projects in the Park.</td>
<td>Ongoing Continued funding for staff and normal operating expenses assumed through HRPT’s annual operating budget.</td>
</tr>
<tr>
<td>3.2</td>
<td>Throughout the Park, integrate science findings and data using technology to share Sanctuary research in relatable formats.</td>
<td>In Progress Continued funding for staff and normal operating expenses assumed through HRPT’s annual operating budget and partner operating budgets. HRPT will seek grants or other funding for additional opportunities.</td>
</tr>
<tr>
<td></td>
<td>A. In Park educational facilities, incorporate scientific displays to communicate Sanctuary research.</td>
<td>In Progress Continued funding for staff and normal operating expenses assumed through HRPT’s annual operating budget.</td>
</tr>
<tr>
<td></td>
<td>B. Share real-time water quality and weather data in Park spaces and on website to help the public visualize and understand changing water and climate conditions.</td>
<td>In Progress Continued funding for staff and normal operating expenses assumed through HRPT’s annual operating budget and partner operating budgets. HRPT will seek grants or other funding for additional opportunities.</td>
</tr>
</tbody>
</table>

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### PUBLIC ACCESS & RESOURCE MANAGEMENT

**OVERVIEW**

As a four-mile waterfront expanse on Manhattan’s west side, Hudson River Park welcomes 17 million visits each year and has dramatically improved public access to and into the Hudson River. Prior to the Park’s creation, most of the area was off limits due to its inaccessible and deteriorating infrastructure. Today, people of all ages from New York City and the region rely on the Park’s reconstructed piers, boathouses, mooring areas, landscapes and esplanades for recreation, discovery, water access and play. The Park’s four purpose-built, non-motorized boathouses have been instrumental in getting thousands of people paddling, rowing and sailing in the Hudson River for the first time. Hudson River Park’s contribution to creating and improving both the quantity and quality of public spaces along Manhattan’s western edge is indisputable.

The vast majority of the intended Park has been completed and is enjoyed annually by millions of residents, workers and visitors. In Fiscal Year 2018-2019, former Governor Cuomo and Mayor de Blasio announced their intentions to complete Hudson River Park and have provided financial contributions through their respective budgets to achieve this goal. Thanks to these commitments supplemented by private contributions, ecologically themed Pier 26 opened in 2020, Little Island opened in 2021, Gansevoort Peninsula and Pier 97 began construction in 2021. In addition, a large habitat enhancement project began construction in 2021 in Tribeca and since June 2021, Pier 76, for the first time, provides interim public access to the Hudson River as well.

Over the past twenty years of Park operations, the Trust has learned many valuable lessons that now inform thinking on construction, plant selection, maintenance, boating, environmental stewardship and programming. In the face of increasing sea levels and precipitation, it has been necessary to rethink certain aspects of design. For example, electrical infrastructure that was once thought to be hardened and flood-proofed below-ground has had to be replaced and elevated due to the after-effects of salt from Superstorm Sandy.

Even in normal weather conditions, the Sanctuary’s waters have proven to be a demanding physical environment for docks and other in-water structures. The dynamic marine environment and wave action has caused damage to multiple docks. While wave attenuation systems, such as breakwaters, may mitigate such damage, the Trust has elected not to pursue such structures because of habitat concerns, and instead has modified both its maintenance and design protocols.
to respond proactively to the marine environment. In short, while the Park’s legislated location is its greatest asset, the Sanctuary’s high energy waters, poor quality river soils, depth to bedrock and generally shallow bathymetry are among the factors that have posed unforeseen challenges during design and construction, creating significant capital maintenance demands that were not foreseen when the Park was being planned. As the Trust looks to the future, it is designing and programming with this place-based knowledge in hand.

As compared to the original ESMP, the current operational focus has evolved from “not doing damage,” such as the early commitment to an Integrated Pest Management Plan, to taking proactive measures to advance environmental goals, such as the park-wide Park Over Plastic and Community Composting initiatives begun in 2019 and 2017, respectively. The Sanctuary environment also continues to inform Park operations. More native trees and plants create increased habitat for birds and insects while also providing environmental benefits linked to improved air quality and resiliency in our warming climate.

Advances in accessibility, including through improved signage, improved docks and better promoting tenant-driven safety protocols, will enable more people to use and enjoy the Sanctuary safely. To the extent that water quality will safely allow it, increased direct access to the Sanctuary should continue to be a goal. The Sanctuary must remain and be recognized as a cherished resource for generations to enjoy.

Over the next decade, the Park will continue to mature and the Trust must adapt both to lessons learned and to emerging issues of concern, while staying committed to providing safe public access to the Sanctuary. The Trust foresees completing the currently unfinished park areas to provide greater access to the Sanctuary, while also growing its initiatives in the areas of sustainability and resiliency both internally and with Park tenants and partners.

Goal 4: Complete the public open space portions of Hudson River Park to provide access to the Sanctuary.

### ACTIONS

**A.** Work with the Pier 57 tenant to design and construct a dynamic environmental educational facility operated by the Trust.

**B.** Create a shoreline that provides direct access to the Sanctuary at the Gansevoort Peninsula to capitalize on the unique absence of a historic bulkhead on its edges.

**C.** Construct Pier 97 as a public Park pier including infrastructure for a historic vessel.

### PROJECTS

**A.** Design and construct additional public park areas and elements to provide increased access to the Hudson River and fulfill the vision of the Hudson River Park Act.

**B.** Create a shoreline that provides direct access to the Sanctuary at the Gansevoort Peninsula to capitalize on the unique absence of a historic bulkhead on its edges.

**C.** Construct Pier 97 as a public Park pier including infrastructure for a historic vessel.

### STATUS / FUNDING

<table>
<thead>
<tr>
<th>ACTION</th>
<th>PROJECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Work with the Pier 57 tenant to design and construct a dynamic environmental educational facility operated by the Trust.</td>
<td>In Progress Facility costs funded through Pier 57 redevelopment process.</td>
</tr>
<tr>
<td>B. Create a shoreline that provides direct access to the Sanctuary at the Gansevoort Peninsula to capitalize on the unique absence of a historic bulkhead on its edges.</td>
<td>In Progress Construction commenced in 2021 Capital funding secured for this project; estimated cost is $73 million inclusive of salt marsh and all other Gansevoort construction.</td>
</tr>
<tr>
<td>C. Construct Pier 97 as a public Park pier including infrastructure for a historic vessel.</td>
<td>In Progress Construction commenced in 2021 Capital funding secured for this project; estimated cost is $44 million.</td>
</tr>
</tbody>
</table>
### 1.3 Cont’d

| **D** | Create interim public access at Pier 76 following NYC’s removal of the existing tow pound while planning for Pier 76’s future as a park/commercial pier. | **Ongoing; Near Term** Funded by New York State. |
| **E** | Finish the Park from 29 Street to 44 Street to increase public access while including an ecological beach area on the south side of Pier 76 as well as a permanent composting center. | **Long Term** Capital funding secured for this project; estimated cost is $75 million inclusive of habitat beach. |
| **F** | Construct the Estuarium on Pier 26 to serve as the hub for public Estuary education in the Park. | **Long Term** Partially funded with $14.6 million identified for this project; estimated cost $30 million. |

### 1.2

#### Further climate-smart planning that anticipates rising river levels, extreme heat and more frequent storms while balancing other mandates for access and preservation.

| **A** | Strengthen existing and planned Park facilities to meet climate-smart standards for waterfront areas including flood proofing new Park buildings and incorporating improved drainage, trees, porous surfaces and bioswales where feasible. | **Ongoing; Long Term projects associated with the Estuarium and West 34 Street area** Funding incorporated into capital budgets for Gansevoort and Pier 97. Partial funding identified for Estuarium. Additional funding to be determined based on specific projects that may be identified. |
| **B** | Continue to engage with policy makers on the federal, State and City levels to ensure consideration of the Sanctuary in long-term coastal planning and design. | **Ongoing** Continued funding for staff and normal operating expenses assumed through HRPT’s annual operating budget. |

### 1.3

#### Advance remaining Park design and construction in a manner that promotes the integrity of the Sanctuary and Park ecosystem.

| **A** | Work with designers, regulators, government agencies and research institutions to advance sustainable practices including the use of renewable energy systems and sustainable materials in the Park. | **Ongoing** Funding incorporated into capital budgets for Gansevoort, Pier 97 and the West 29-West 44 Street areas. Partial funding in place for Estuarium. Additional funding to be determined based on specific future capital maintenance projects. |

---

### ACTIONS

| **2.1 Create and implement practices to increase sustainable Park operations in and near the Sanctuary.** |

| **PROJECTS** |
| **STATUS / FUNDING** |
| **A.** Conduct a sustainability audit on water and energy use to evaluate ways to reduce the Park’s environmental footprint. | **In Progress** Funded through HRPT operating budget. |
### 2.2 Further local and regional sustainability initiatives through the use of Park property and resources when possible.

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Facilitate efforts to expand community composting by providing collection, transport and physical composting services within the Park boundaries.</td>
<td>In Progress</td>
</tr>
<tr>
<td>B</td>
<td>Actively participate in City, State and regional conversations on sustainability best practices.</td>
<td>Ongoing</td>
</tr>
<tr>
<td>C</td>
<td>Work with New York City and other partners to provide waterborne transportation opportunities such as water taxis and ferries at appropriate pier locations within the Park while educating such agencies and partners to be mindful of safety, estuary wildlife and infrastructure concerns as such services expand.</td>
<td>Near Term</td>
</tr>
<tr>
<td>D</td>
<td>Look for opportunities to provide more amenities for cyclists using the adjacent bikeway, such as more bike parking, ride share opportunities or bicycle care locations.</td>
<td>In Progress</td>
</tr>
<tr>
<td>E</td>
<td>Promote sustainability initiatives including those within the greater region through activations on Park property, events and the Park's website to broaden public education and increase participation.</td>
<td>In Progress</td>
</tr>
</tbody>
</table>

### 2.3 Define, manage and maintain the Sanctuary's water use zones.

<table>
<thead>
<tr>
<th>ACTIONS</th>
<th>PROJECTS</th>
<th>STATUS / FUNDING</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Increase frequency and coordination of communication with Park tenants and permittees conducting water-based operations, including at least one meeting.</td>
<td>Ongoing</td>
</tr>
</tbody>
</table>
### Goal 4: Seek ways to increase access and enhance safety for Sanctuary visitors.

<table>
<thead>
<tr>
<th>ACTIONS</th>
<th>PROJECTS</th>
<th>STATUS / FUNDING</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1</td>
<td>A</td>
<td>In Progress</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>In Progress</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>Near Term</td>
</tr>
<tr>
<td></td>
<td>D</td>
<td>Ongoing, Long Term</td>
</tr>
</tbody>
</table>

#### 3.2 Cont’d

- **A** Cont’d of all such parties annually to gather and share important information and coordinate best practices. Ongoing
- **B** Conduct regular reviews of the water use map to ensure appropriateness of use areas and any need for refinements and ensure the map is publicly accessible. Ongoing
- **C** Manage water use areas to promote safe recreational access to the River while protecting Sanctuary habitat and communicating other information about use of the Sanctuary. Ongoing
- **D** Provide oversight of water areas through the Park’s Dockmaster, security personnel and systems, coordination with Park tenants and strong relationships with enforcement agencies. Ongoing
- **E** Regularly review and update the Park’s boating rules and policies as necessary to ensure updates are reflected in permits, leases and concession agreements with Park tenants. Ongoing
- **F** Work with federal, State and City agencies involved with overseeing safe and responsible navigation and operations in and along the Sanctuary. Ongoing

#### 3.1 Cont’d

- **A** Ensure other governmental agencies and planning bodies are familiar with Hudson River Park’s unique habitat status to inform long-term priorities and policies. Ongoing; Long Term
- **B** Work with stakeholders to advocate for MS4/CSO discharge abatement and other projects to improve water quality conditions within the Sanctuary. Ongoing
- **C** Participate in City, State and regional stakeholder groups to address harbor-wide boating and water use issues such as wakes and boating safety. Ongoing
- **D** Engage with the NYCDEP to prioritize and implement CSO Long Term Control Plans (LTCPs) as noted in the Citywide Open Waters Retained Alternatives Summary. Near Term

#### 3.2 Cont’d

- **A** Use the Trust’s unique City-State status to work with regional leaders to advance long-term goals involving multiple partners, such as water quality improvements. Ongoing
- **B** Engage with the NYCDEP to prioritize and implement CSO Long Term Control Plans (LTCPs) as noted in the Citywide Open Waters Retained Alternatives Summary. Near Term
- **C** Manage water use areas to promote safe recreational access to the River while protecting Sanctuary habitat and communicating other information about use of the Sanctuary. Ongoing
- **D** Provide oversight of water areas through the Park’s Dockmaster, security personnel and systems, coordination with Park tenants and strong relationships with enforcement agencies. Ongoing
- **E** Regularly review and update the Park’s boating rules and policies as necessary to ensure updates are reflected in permits, leases and concession agreements with Park tenants. Ongoing
- **F** Work with federal, State and City agencies involved with overseeing safe and responsible navigation and operations in and along the Sanctuary. Ongoing
### 4.2 Continually review ways to improve safety through Park maintenance, management and additional facility enhancements.

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>A. Enhance Park safety and security for patrons by providing in-park security personnel and safety enhancements such as video cameras, lit paths, emergency call boxes and life rings.</td>
<td></td>
<td>In Progress Continued funding at current level assumed through future HRPT operating budget.</td>
</tr>
<tr>
<td>B. Conduct regular inspections and maintenance of the Park's public water-based infrastructure including pier infrastructure and floating docks.</td>
<td></td>
<td>Ongoing Routine maintenance funded through HRPT operating budget.</td>
</tr>
<tr>
<td>C. Explore additional opportunities beyond ADA requirements to expand public access to the water for all ages and abilities through design and programming.</td>
<td></td>
<td>In Progress Partial funding in place assumed through future capital construction projects; additional funding may be needed based on specific projects.</td>
</tr>
<tr>
<td>D. Review and inventory access points to the Sanctuary to determine opportunities for increasing capacity and safety of water recreation activities.</td>
<td></td>
<td>Near Term Continued funding assumed through future HRPT operating budget.</td>
</tr>
</tbody>
</table>

### 5.2 Build an invested community of Park tenants that value and actively support the Sanctuary in their operations and programs.

<table>
<thead>
<tr>
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<th>STATUS / FUNDING</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. In conjunction with outreach and regular communications, update tenant leases and permit agreements as feasible to promote practices that protect and preserve the Sanctuary.</td>
<td></td>
<td>Ongoing Continued funding assumed through future HRPT operating budget.</td>
</tr>
<tr>
<td>B. Facilitate trainings and create educational resources for tenants in such areas as sustainability, environmental health, waste management and safety to ensure tenants are aware of and adhere to practices that protect and preserve the Sanctuary.</td>
<td></td>
<td>In Progress Continued funding assumed through future HRPT operating budgets.</td>
</tr>
<tr>
<td>C. Encourage the sharing of information and best practices amongst boating groups in Hudson River Park by creating a network for open communication.</td>
<td></td>
<td>In Progress Continued funding assumed through future HRPT operating budget.</td>
</tr>
<tr>
<td>D. Support Park tenants and community partners focused on in-water recreation by facilitating the cross-promotion of partner operations using Hudson River Park's website and social media channels.</td>
<td></td>
<td>In Progress Continued funding assumed through future HRPT operating budgets and coordination with Hudson River Park Friends.</td>
</tr>
<tr>
<td>ACTIONS</td>
<td>PROJECTS</td>
<td>STATUS / FUNDING</td>
</tr>
<tr>
<td>---------</td>
<td>----------</td>
<td>-------------------</td>
</tr>
<tr>
<td><strong>6.1</strong> Complete development of Park/commercial piers, as defined in the Hudson River Park Act, to support financial self-sufficiency and ensure Sanctuary projects can advance.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. Seek solutions to redevelop Pier 40 that increase funding generated from this pier and reduce continuing capital maintenance costs through permissible Park-compatible development while also providing required public open space.</td>
<td>A. Seek solutions to redevelop Pier 40 that increase funding generated from this pier and reduce continuing capital maintenance costs through permissible Park-compatible development while also providing required public open space.</td>
<td>Long Term Critical capital repairs to Pier 40 in progress. Legislative solution, public procurement, environmental review, etc. needed prior to more comprehensive solution.</td>
</tr>
<tr>
<td>B. Seek a long-term solution for Pier 76 so that Park-compatible development and permanent, planned, public open space can occur.</td>
<td>B. Seek a long-term solution for Pier 76 so that Park-compatible development and permanent, planned, public open space can occur.</td>
<td>Long Term Now that Pier 76 has been converted to interim public park space by New York State, work with HRPT Board of Directors, New York State and New York City to plan long term solution, which may include legislation, environmental review, etc.</td>
</tr>
<tr>
<td><strong>6.2</strong> Seek other funding through grants, donations and in-kind partnerships to further Sanctuary goals.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. Work with Hudson River Park Friends to seek and apply for funding opportunities.</td>
<td>A. Work with Hudson River Park Friends to seek and apply for funding opportunities.</td>
<td>Ongoing Standard operating practice.</td>
</tr>
<tr>
<td>B. Monitor and apply for intergovernmental grants from agencies including DEC, NYS Parks, DOS and others as relevant.</td>
<td>B. Monitor and apply for intergovernmental grants from agencies including DEC, NYS Parks, DOS and others as relevant.</td>
<td>Ongoing Standard operating practice.</td>
</tr>
</tbody>
</table>

See footnotes on following page. *
APPENDIX B
PARK USER SURVEYS

At the onset of the process to update the Estuarine Sanctuary Management Plan (ESMP), the Trust’s staff drafted surveys to solicit Park user/partner feedback on progress made under the guidance of the 2002 ESMP, and also solicited feedback on priorities for the next decade. Survey content was personalized for specific groups, and was selected as the preferred outreach tool because they could reach a larger audience. Three distinct surveys were drafted and sent to three groups of stakeholders. Resource Protection and Environmental Research were combined into one survey; the other two surveys covered Education and Public Access and Recreation. All three surveys went live Thursday, February 16, 2017 with a due date of Monday, March 6, 2017. Recipients were encouraged to forward the survey via email to colleagues or other interested parties. Below is a brief narrative summary of findings for each survey, with recommendations and observations incorporated into the Action Agenda in each area.

Public Access and Recreation Survey
“Seeing the River itself, as well as the greenery and landscaping of the park, helps me get a needed break from the urban landscape and reconnect with nature.” —Public Access and Recreation Survey respondent

The Public Access and Recreation survey was broadly distributed through Hudson River Park’s Advisory Council as well as through the Park’s adjacent Community Boards. It was also added to the Trust’s website home page. The Trust received 209 unique responses to this survey. Generally, respondents to this survey acknowledged the progress Hudson River Park has made in increasing people’s ability to connect with the River. “Enjoying nature” was the top reason people came to Hudson River Park, followed by relaxation/contemplation with exercise close behind.

The survey showed that the creation of the Park has had a positive impact on people’s ability to access the River for both passive and active recreational uses as well as regarding their awareness of the River environment. However, the respondents were generally not aware of the Hudson River’s history, nor informed on issues like water quality.

Respondents were provided with the opportunity to identify their priorities for Hudson River Park now and in the future. Most people want to see the public areas of the Park finished, but many respondents also specifically mentioned sanctuary components as a high priority, specifically “completing the Estuarium” and “River restoration.”

While respondents were complimentary toward the Park and its overall positive impacts, they also suggested areas for improvement. One theme was the desire for more information about current educational and volunteer offerings taking place in the Park. A second suggested an improvement area focused on the need for boating access for those not formally affiliated with the Park.

Resource Protection and Environmental Research Survey
“1% alive: there are living creatures in the water of the Park, the Park helps meet their habitat needs, and there are cool and fun ways to explore.” —Resource Protection and Environmental Research Survey respondent

This survey was targeted for individuals who work in government and related nonprofit fields and who have a deep familiarity with either the Hudson River or Hudson River Park’s Sanctuary waters. It was emailed to 81 recipients with 23 people responding. Questions were asked about river ecology, research needs and conservation goals.

Respondents to the Resource Protection and Research Survey singled out habitat enhancement as an area for improvement and growth. For future efforts, the respondents supported restoration efforts focused on oysters, the near-shore habitat and biodiversity. Popular research topics included water quality and the impact of the urban environment on the River. Some respondents felt that to highlight this research, the Park should promote the concept of the “living River” and use the Park’s annual SUBMERGE Marine Science Festival to share research results.

Education Survey
“Without the Hudson River Park my students’ access to the Hudson River would be almost nonexistent! With public access to the River, my students have been able to get out of the city, learn, have fun and gain a better understanding of the world around them.” —Education Survey respondent

The Education survey was sent to 72 individuals known to conduct environmental education within the Park, including teachers who bring their students to the Trust’s environmental education summer camps and school-year field trip programs. 31 individuals responded. The vast majority of educators said the Hudson River itself is what attracts them to programs in Hudson River Park. The availability of low-cost and free programming, the high quality of environmental educational programming and the availability of field science focused lessons all comprised a high percentages of responses as well. For future efforts, respondents shared that they and their students could benefit from additional opportunities for professional development, plus additional opportunities for hands-on activities for their students. Some respondents also shared their beliefs that future efforts could focus on developing more educational opportunities for the community, especially with communicating data about the River.
Thank you for taking the time to complete Hudson River Park’s River Access and Awareness Survey. Hudson River Park is a 550-acre park, of which 400 acres are waters within the Hudson River. These waters are protected as a New York State designated Estuarine Sanctuary.

Trust staff is currently updating our Estuarine Sanctuary Management Plan (ESMP). The ESMP has served the Trust as a management and planning tool outlining policies and goals for the following water-dependent uses: 1) river access and recreation; 2) education; 3) resource protection; and 4) research.

The ESMP update will report on the progress the Trust has made in achieving these management goals and will develop an action plan for the future. Through this survey we are collecting community feedback on the Park and its Hudson River Estuarine Sanctuary to inform both the progress update and the future action plan.

The survey should take you about 10 minutes to complete. Thank you for taking the time to complete the survey and welcome all thoughts and comments.

We appreciate your taking the time to complete the survey. The survey should take you about 10 minutes to complete.

Questions marked with an *asterisk* are required.

## GENERAL BACKGROUND

Name (Fill in)—Optional

Email (Fill in)—Optional

Zip Code (Fill in)—Optional

### *Relationship to the Park* (Check all that apply)

- Neighbor
- Park Visitor
- Volunteer
- Advisory Council Member
- Park Tenant (Including employed by a tenant)
- Y, which organization?

### *How often do you visit Hudson River Park?*

- 4 or more times/week
- 2 – 3 times/week
- Once a week
- A couple of times a month
- Less than once a month
- Less than once a year

### *Which area of the Park do you visit most often?*

- Tribeca
- Hudson Square
- West Village
- Chelsea
- Hudson Yards
- Clinton/Hell’s Kitchen
- Multiple neighborhoods

### *How do you typically access Hudson River Park?* (Pick up to 2)

- Walking
- Personal bike
- Citi Bike
- Public transportation + walking
- Car (including taxi)
- Boat

## RELATIONSHIP WITH THE HUDSON RIVER

*Check the sentence that is most representative of your feeling towards how the Hudson River affects your relationship to Hudson River Park:*

- Y/N

*The creation of Hudson River Park has contributed to:*

- Y/N

Please explain any of your above answers. (Fill in)

Hudson River Park's Estuarine Sanctuary Management Plan establishes goals and objectives in four areas: 1) public access and recreation; 2) education; 3) resource protection; and 4) environmental research.

*Within these categories, how have you or your family members engaged with the Hudson River while in Hudson River Park?* (Check all that apply)

### Public access and recreation:

- Direct contact with the River through boating and/or permitted swimming
- Enjoying access to the River's edge for scenery, contemplation, or River watching
- Other outdoor recreation including walking and biking

### Education:

- Participation in the Park’s environmental education and other programs for school-aged children
- Participation in the Park’s nature walks and other programs for adults
- Participation in partner programs within Hudson River Park
- Touring historic vessels

### Resource protection:

- Volunteer events such as River clean-ups or Park landscaping
- Oyster restoration (for example, attending "Shell-brate Oysters")
- Composting in Hudson River Park

### Environmental research:

- Attending research-focused park programming
- Attending the SUBMERGE NYC Marine Science Festival
- Participating in water quality monitoring initiatives

Please elaborate on any of your above answers. (Fill in)

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**APPENDIX B**

**Hudson River Park's River Access and Awareness Survey**

Please complete by March 6, 2017.

Questions marked with an *asterisk* are required.

Thank you for taking the time to complete Hudson River Park’s River Access and Awareness Survey. Hudson River Park is a 550-acre park, of which 400 acres are waters within the Hudson River. These waters are protected as a New York State designated Estuarine Sanctuary.

### GENERAL BACKGROUND

- Name (Fill in)—Optional
- Email (Fill in)—Optional
- Zip Code (Fill in)—Optional

### *Relationship to the Park* (Check all that apply)

- Neighbor
- Park Visitor
- Volunteer
- Advisory Council Member
- Park Tenant (Including employed by a tenant)
- Which organization?

### *How often do you visit Hudson River Park?*

- 4 or more times/week
- 2 – 3 times/week
- Once a week
- A couple of times a month
- Less than once a month
- Less than once a year

### *Which area of the Park do you visit most often?*

- Tribeca
- Hudson Square
- West Village
- Chelsea
- Hudson Yards
- Clinton/Hell’s Kitchen
- Multiple neighborhoods

### *How do you typically access Hudson River Park?* (Pick up to 2)

- Walking
- Personal bike
- Citi Bike
- Public transportation + walking
- Car (including taxi)
- Boat

### RELATIONSHIP WITH THE HUDSON RIVER

*Check the sentence that is most representative of your feeling towards how the Hudson River affects your relationship to Hudson River Park:*

- Y/N

*The creation of Hudson River Park has contributed to:*

- Y/N

Please explain any of your above answers. (Fill in)

Hudson River Park's Estuarine Sanctuary Management Plan establishes goals and objectives in four areas: 1) public access and recreation; 2) education; 3) resource protection; and 4) environmental research.

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### Public access and recreation:

- Direct contact with the River through boating and/or permitted swimming
- Enjoying access to the River's edge for scenery, contemplation, or River watching
- Other outdoor recreation including walking and biking

### Education:

- Participation in the Park’s environmental education and other programs for school-aged children
- Participation in the Park’s nature walks and other programs for adults
- Participation in partner programs within Hudson River Park
- Touring historic vessels

### Resource protection:

- Volunteer events such as River clean-ups or Park landscaping
- Oyster restoration (for example, attending "Shell-brate Oysters")
- Composting in Hudson River Park

### Environmental research:

- Attending research-focused park programming
- Attending the SUBMERGE NYC Marine Science Festival
- Participating in water quality monitoring initiatives

Please elaborate on any of your above answers. (Fill in)
Hudson River Park's Education Survey

Thank you for taking the time to complete Hudson River Park's River Access and Awareness survey. Hudson River Park is a unique park created by New York State legislation. Approximately 400 of its overall 550 acres are within the Hudson River and are designated as a New York State Estuarine Sanctuary.

The Hudson River Park Trust (Trust) is currently updating our Estuarine Sanctuary Management Plan (ESMP). The ESMP serves as a management and planning tool for the Sanctuary and outlines policies and goals for river access and recreation, education, resource protection, and research.

The ESMP update will report on the progress the Trust has made in achieving these management goals and will include an action plan for the future. Through this survey, we aim to collect community feedback on how you use, enjoy and learn from the Hudson River to inform both the progress update and the future action plan.

The survey should take you about 10 minutes to complete. We appreciate your taking the time to complete the survey and welcome all thoughts and comments.

While all responses will be compiled and reported anonymously, we encourage you to provide your contact information so we can spotlight specific responses in the report, or follow up with you if needed. However, you do not need to provide your contact information to complete the survey.

Please complete by March 6, 2017.

Questions marked with an "asterisk" are required.

*May we follow up with you via email with additional questions? (Y/N)
Any other questions, comments or feedback? (Fill in)

Household Makeup (Optional)
(Excluding respondent)
☐ Under 16
☐ 16-20
☐ 21-30
☐ 31-40
☐ 41-50
☐ 51-70
☐ 71-80
☐ 81 and over

GENERAL BACKGROUND
Name (Fill in—Optional)
Email (Fill in—Optional)
Zip Code (Fill in—Optional)
School/Camp/Organization Name (Fill in—Optional)

*Relationship to the Park (Check all that apply)
☐ Organizer or Participant in a Hudson River Park School or Camp Program
☐ Organizer or Participant in a Hudson River Park Public Education Program
☐ Participant at Hudson River Park's SUBMERGE NYC Marine Science Festival
*What elements attract you to educational programs in Hudson River Park? (Check all that apply)
☐ Scope of environmental education programming
☐ Educational program is age appropriate
☐ Field science focused lessons
☐ Proximity to Hudson River Park
☐ The Hudson River itself
☐ Exposure to new parts of NYC
☐ Availability of a playground/carousel/green space for pre- or post-education experience fun
☐ Other (Fill in) ___________________________________________________________________
*What program(s) would the children you work with find most engaging? (Check all that apply)
☐ Wildlife
☐ Fishing
☐ Hands-on science
☐ Oysters
☐ Engineering / robotics
☐ Composting
☐ Other (Fill in) ___________________________________________________________________
*How would you rate Hudson River Park’s website? (Y/N) ________________
☐ Excellent
☐ Good
☐ Average
☐ Below Average
☐ Other (Fill in) ___________________________________________________________________
*How do you use Hudson River Park’s educational printed materials? (For example, fish poster, pile poster, striped bass book, or river ranger book)? (Y/N)
If Y, please explain how. (Fill In) ___________________________________________________________________
*How often do you participate in educational programs offered by the Hudson River Park Tenant group (For example, Community Sailing, Historic Vessels)? (Y/N)
If Y, please explain how. (Fill In) ___________________________________________________________________
*How would you rate Hudson River Park’s educational programs overall? (Y/N/NA)
☐ Excellent
☐ Good
☐ Average
☐ Below Average
☐ Other (Fill in) ___________________________________________________________________
*What do you teach about Hudson River topics before or after attending the Park’s educational programs? (Y/N/NA)
If Y, please explain how. (Fill In) ___________________________________________________________________
*Would you value and use pre/post program lessons and resources? (Y/N/NA)
☐ Yes
☐ No
☐ Other (Fill in) ___________________________________________________________________
*Would you value and use pre/post program lessons connected to other outdoor spaces close to your facility? (Y/N/NA)
☐ Yes
☐ No
☐ Other (Fill in) ___________________________________________________________________
*Would you be interested in using a multi-lesson Hudson River Park STEM curriculum that involves classroom, self-guided, and field lessons? (Y/N/NA)
If Y, please explain what topics could be most beneficial? (Fill In) ___________________________________________________________________
*Would you be interested in your students working on a stewardship project (For example, oyster restoration or marine debris removal) in Hudson River Park? (Y/N/NA)
☐ Yes
☐ No
☐ Other (Fill in) ___________________________________________________________________
*How would you rate Hudson River Park’s waters as a New York State designated marine sanctuary? (Y/N/NA)
☐ Yes
☐ No
☐ Other (Fill in) ___________________________________________________________________
*Are you aware that:
☐ Hudson River Park’s waters are a New York State designated marine sanctuary? (Y/N) __________
☐ Hudson River Park hosts many public environmental education programs as well as environmental research and stewardship programs to build public awareness of and protect the health of the River? (Y/N) __________
☐ Your actions (For example, water conservation especially during rain events, consuming products free of microbeads (tiny plastic beads used in many cosmetics), or picking up your pet waste) can directly influence the health and restoration of the Hudson River? (Y/N) __________
*The development of Hudson River Park has improved:
☐ Public ease of reaching the Hudson River
☐ Student and teacher ease of reaching the Hudson River
☐ Science literacy
☐ Interest in science
☐ Availability of environmental educational programs on the Hudson River
☐ Quality of environmental educational programs on the Hudson River
*How would you rate Hudson River Park best use its resources to further awareness, understanding, and stewardship of the Hudson River? (Pick Top 3)
☐ Offer educational programming in multiple locations along the park’s 4 miles
☐ Conduct teacher training workshops on park curricula
☐ Install interpretative/educational signage
☐ Create indoor educational facilities
☐ Partner with historic/research vessels
☐ Provide river clean-up/restoration projects
☐ Provide internships & job training
☐ Create more community partnerships
☐ Other (Fill in) ___________________________________________________________________
Please elaborate on any of your above answers. (Fill In) ___________________________________________________________________
*May we follow up with you via email with additional questions? (Y/N)
☐ Yes
☐ No
☐ Other (Fill in) ___________________________________________________________________
Any other questions, comments or feedback? (Fill In) ___________________________________________________________________
Thank you for completing the Hudson River Park’s Education Survey! We value your responses.
**Hudson River Park’s Resource Protection and Environmental Research Group Survey**

Thank you for taking the time to complete Hudson River Park’s Resource Protection and Environmental Research Survey. Hudson River Park is a unique park created by New York State legislation. Approximately 400 of its overall 550 acres are within the Hudson River and are designated as a New York State Estuarine Sanctuary.

The Hudson River Park Trust (Trust) is currently updating our Estuarine Sanctuary Management Plan (ESMP). The ESMP serves as a management and planning tool for the Sanctuary and outlines policies and goals for river access and recreation, education, resource protection, and environmental research.

The ESMP update will report on the progress the Trust has made in achieving these management goals and will include an action plan for the future. Through this survey, we aim to collect community feedback on how you use, enjoy and learn from the Hudson River to inform both the progress update and the future action plan.

The survey should take you about 10 minutes to complete. We appreciate your taking the time to complete the survey and welcome all thoughts and comments.

While all responses will be compiled and reported anonymously, we encourage you to provide your contact information so we can spotlight specific responses in the report, or follow up with you if needed. However, you do not need to provide your contact information to complete the survey.

Please complete by March 6, 2017.

Questions marked with an *asterisk* are required.

**General Background**

- **Name (Fill in—Optional)**
- **Email (Fill in—Optional)**
- **Zip Code (Fill in—Optional)**
- **Organization Name (Fill in—Optional)**

*Organization Type:*
- Nonprofit
- Government
- Academic
- Community
- Other (Fill in)

*Relationship to the Park (Check all that apply)*
- Research partner
- Independent researcher in Park
- SUBMERGE NYC Marine Science Festival exhibitor
- Citizen science participant
- Park Tenant (Including employed by a tenant)
- Other (Fill in)

*Have you ever conducted or supported resource protection and/or environmental research activities within Hudson River Park (Chambers Street to 59th Street)? (Y/N)*

**Relationship with the Hudson River**

*Are you aware that Hudson River Park’s waters are a New York State designated Estuarine Sanctuary? (Y/N)*

*Did you know that the Park manages two Hudson River Environmental Conditions Observing System (HRECOS) water quality monitoring stations at Pier 84 and Pier 26? (Y/N)*

*Have you used data from HRECOS Pier 84 and/or Pier 26 locations? (Y/N)*

*Please describe why you conduct/support resource protection and environmental research projects within the Park? (Check all that apply)*
- Particular characteristics of the Park’s urban ecosystem
- Ease of access
- Park location provides visibility that increases public awareness
- Logistical or programming support from Park staff
- Scope of the Park’s existing research and citizen science projects
- Availability of funding
- Opportunity to improve habitat conditions at this particular location
- Other (Fill in)

*What ecological elements within the Park do you feel are top priorities to protect or restore? (Fill in)*

*The development of Hudson River Park has improved: (Likert Scale: Strongly Disagree to Strongly Agree)*
- Scientists’ ease of reaching the Hudson River
- Public’s ease of reaching the Hudson River
- Public awareness of the Hudson River as an important habitat and resource
- Resource protection in the Hudson River
- Habitat enhancement in the Hudson River
- Quantity of environmental research projects in the Hudson River

Please elaborate on any of your above answers. (Fill in)

*How can the Park best showcase Hudson River Estuarine research? (Chose up to 3)*
- Public festivals like SUBMERGE NYC Marine Science Festival
- Programs highlighting research data
- Professional conferences/workshops/trainings
- Interpretative signage
- Website features
- Public lectures
- Social media
- Other (Fill in)

*How can the Park improve its collaboration with the resource protection and research communities? (Fill in)*

*May we follow up with you via email with additional questions? (Y/N)*

Any other questions, comments or feedback? (Fill in)

*What are the best ways for the Park to support resource protection and research within Park waters and the surrounding estuary? (Chose up to 3)*
- Collaborate on habitat enhancement projects
- Collaborate on research
- Collaborate on STEM programs
- Facilitate park access for research
- Host citizen science projects
- Enforce Park regulations of park land and waters
- Collaborate on grant applications for funding resource protection and research
- Accommodate research vessels in the Park

□ Provide more science internships & job training in the Park
□ Other (Fill in)

Please explain any of your above answers. (Fill in)

*What key messages or content about the estuary should the Park promote? (Fill in)*

*How can the Park improve its collaboration with the resource protection and research communities? (Fill in)*

*May we follow up with you via email with additional questions? (Y/N)*

Any other questions, comments or feedback? (Fill in)
### APPENDIX C

#### SUMMARY CHART OF PARK PIERS & PLACES

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>DESIGNATION IN HUDSON RIVER PARK ACT</th>
<th>COMPLETION STATUS</th>
<th>SANCTUARY FEATURES</th>
<th>NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pier 25</td>
<td>Park Use Only</td>
<td>Complete</td>
<td>Mooring field, town dock, pumpout facility, berths for 4 historic vessels, water taxi</td>
<td></td>
</tr>
<tr>
<td>Pier 26</td>
<td>Park Use Only</td>
<td>Complete</td>
<td>Tide deck with salt marsh plantings and tide pools, non-motorized boathouse; 2 berths for historic and research vessels; small dock for educational and research programming; biohuts for oysters</td>
<td></td>
</tr>
<tr>
<td>Pier 32</td>
<td>Park Use Only (South finger controlled by HRPT to Port Authority’s Holland Tunnel vent building)</td>
<td>Pile Field</td>
<td>Pile wraps, reef balls, textured piles planned</td>
<td>Location for Tribeca Habitat Enhancement Project to begin installation in Summer 2021</td>
</tr>
<tr>
<td>Pier 34 (southern finger)</td>
<td>Park Use Only (North finger controlled by Port Authority of New York/New Jersey)</td>
<td>Complete</td>
<td>Biohuts planned</td>
<td>Location for Tribeca Habitat Enhancement Project to begin installation in Summer 2021</td>
</tr>
<tr>
<td>Tribeca Upland</td>
<td>Park Use Only</td>
<td>Complete</td>
<td>Tribeca native plant boardwalk</td>
<td></td>
</tr>
<tr>
<td>Pier 40</td>
<td>Park/commercial with minimum 50% of footprint for passive and active public open space</td>
<td>Pier currently complies with Act; comprehensive redevelopment to secure long term future still to occur</td>
<td>Commercial vessels on north and west sides of pier; non-motorized boating and mooring field on south side of pier</td>
<td>Comprehensive redevelopment of Pier 40 will require legislative changes and more community process. In the meantime, HRPT is repairing all of the pier’s piles, and also continues to make other structural repairs including to the roof, facade and life and safety systems</td>
</tr>
<tr>
<td>Pier 42</td>
<td>Park Use Only</td>
<td>Pile Field</td>
<td>Pile Field</td>
<td></td>
</tr>
<tr>
<td>Pier 45</td>
<td>Park Use Only</td>
<td>Complete</td>
<td>Water taxi landing</td>
<td></td>
</tr>
<tr>
<td>Pier 46</td>
<td>Park Use Only</td>
<td>Complete</td>
<td>Western half is pile field</td>
<td></td>
</tr>
<tr>
<td>Pier 49</td>
<td>Park Use Only</td>
<td>Pile Field</td>
<td>Pile Field</td>
<td></td>
</tr>
<tr>
<td>Pier 51</td>
<td>Park Use Only</td>
<td>Complete</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Greenwich Village Upland</td>
<td>Park Use Only</td>
<td>Complete</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Gansevoort Peninsula and Pier 52</td>
<td>Park Use Only</td>
<td>First phase of park construction has commenced; public sculpture called Day’s End funded by the Whitney Museum of American Art opened Spring 2021</td>
<td>Plans include a salt marsh and submerged habitat features on the north side and a rocky beach with non-motorized boat access on the south side</td>
<td>Additional construction contracts awarded in 2021</td>
</tr>
<tr>
<td>LOCATION</td>
<td>DESIGNATION IN HUDSON RIVER PARK ACT</td>
<td>COMPLETION STATUS</td>
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<td>NOTES</td>
</tr>
<tr>
<td>----------</td>
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<td>-------</td>
</tr>
<tr>
<td>Pier 53</td>
<td>Municipal</td>
<td>Complete</td>
<td>Water-dependent municipal use (FDNY Marine Company D)</td>
<td>N/A</td>
</tr>
<tr>
<td>Upland and over-water platform area between Gansevoort to Pier 57</td>
<td>Park Use Only</td>
<td>Substantially complete and open to the public</td>
<td>Final touches on Pier 54 arch restoration, small pavement installation areas and additional historic interpretives were complete in Spring 2021</td>
<td>N/A</td>
</tr>
<tr>
<td>Pier 55 (officially known as “Little Island”)</td>
<td>Park Use Only</td>
<td>Complete</td>
<td>Opened to the public in Spring 2021</td>
<td>N/A</td>
</tr>
<tr>
<td>Pier 54 and Pier 56</td>
<td>Park Use Only</td>
<td>Complete</td>
<td>Pile Fields</td>
<td>Inland park area east of Route 9A</td>
</tr>
<tr>
<td>14th Street Park</td>
<td>Park Use</td>
<td>Complete</td>
<td>Pile Fields</td>
<td>N/A</td>
</tr>
<tr>
<td>Pier 57</td>
<td>N/A</td>
<td>Privately funded construction in progress by RXR/YoungWoo with Google as master subtenant; partial initial occupancy in 2020</td>
<td>Public education-al classrooms and exhibit areas to be operated by Hudson River Park’s River Project and focused on estuary; possible water taxi and marina Under construction including 3.5 acres of public rooftop and perimeter esplanade space funded by developer</td>
<td>N/A</td>
</tr>
<tr>
<td>Pier 58</td>
<td>Pile Field</td>
<td>N/A</td>
<td>Regulatory permits allow piles to be removed for navigation if needed</td>
<td>N/A</td>
</tr>
<tr>
<td>Piers 59, 60 and 61</td>
<td>Park/commercial</td>
<td>Complete under long-term lease known as Chelsea Piers Commercial marina and vessel docking</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Pier 62</td>
<td>Park Use Only</td>
<td>Complete</td>
<td>Several berths for large vessels within Chelsea Piers leasehold</td>
<td>N/A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LOCATION</th>
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<th>NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pier 63</td>
<td>Park Use Only</td>
<td>Complete</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Pier 64</td>
<td>Park Use Only</td>
<td>Complete</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Chelsea Waterside</td>
<td>Park Use Only</td>
<td>Complete – Phase 2 capital restoration nearing design completion</td>
<td>Historic structure also docks privately owned historic vessels</td>
<td>Inland park area east of Route 9A</td>
</tr>
<tr>
<td>Pier 66a (float bridge)</td>
<td>Park Use Only</td>
<td>Complete</td>
<td>Non-motorized boat-house with dock and associated mooring fields</td>
<td>N/A</td>
</tr>
<tr>
<td>Pier 66</td>
<td>Park Use Only</td>
<td>Complete</td>
<td>Inland park area east of Route 9A</td>
<td>N/A</td>
</tr>
<tr>
<td>Chelsea Upland—Pier 62 to 29 Street</td>
<td>Park Use Only</td>
<td>Complete</td>
<td>Includes Chelsea Habitat Garden with native plants</td>
<td>N/A</td>
</tr>
<tr>
<td>Chelsea Upland—29 Street to 39 Street</td>
<td>Park Use Only</td>
<td>Complete with temporary esplanade and heliport, including helicopter landing barge</td>
<td>Park and public composting hub located in this area Design RFP for this area which includes several land use planning issues expected to be released in 2022</td>
<td>N/A</td>
</tr>
<tr>
<td>Pier 72</td>
<td>Pile Field</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>South edge of Pier 76</td>
<td>Park Use Only</td>
<td>Incomplete</td>
<td>Preliminary plans include a habitat beach</td>
<td>Will be designed with the area from 29 to 44 Street</td>
</tr>
<tr>
<td>Pier 76</td>
<td>Park/Commercial with minimum 50% of footprint for passive and active public open space</td>
<td>Interim public open space completed by New York State and opened to the public in June 2021</td>
<td>N/A</td>
<td>2020 NYS legislation required NYC to vacate existing uses. NYC transferred pier to NYS Parks in 2021. Pier will eventually be incorporated within the Hudson River Park leasehold area</td>
</tr>
</tbody>
</table>
### Hudson River Park Act

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>DESIGNATION IN HUDSON RIVER PARK ACT</th>
<th>COMPLETION STATUS</th>
<th>SANCTUARY FEATURES¹</th>
<th>NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pier 79</td>
<td>Municipal</td>
<td>Complete</td>
<td>Municipal Ferry Terminal</td>
<td>Upland area to be improved with the area from 29 to 44 Street</td>
</tr>
<tr>
<td>Upland area between Piers 79-84</td>
<td>Park Use Only</td>
<td>Incomplete, but temporary esplanade in use</td>
<td>N/A</td>
<td>Upland area to be improved with the area from 29 to 44 Street</td>
</tr>
<tr>
<td>Piers 81 &amp; 83</td>
<td>Park/commercial</td>
<td>Complete – Piers are leased for sightseeing and dinner boat cruises and parking</td>
<td>Commercial vessels</td>
<td>N/A</td>
</tr>
<tr>
<td>Pier 84</td>
<td>Park Use Only</td>
<td>Complete</td>
<td>Non-motorized boathouse, water taxi floating dock, estuary classroom operated by the Park’s River Project staff, pier hosts self-powered visiting vessels</td>
<td>N/A</td>
</tr>
<tr>
<td>Pier 86</td>
<td>Intrepid Museum</td>
<td>Complete</td>
<td>Historic and visiting vessels</td>
<td>Complete; pier is accessible to the general public without admission when the museum is open</td>
</tr>
<tr>
<td>Pier 95</td>
<td>Park Use Only</td>
<td>Complete</td>
<td>Get down for proximity to river</td>
<td></td>
</tr>
<tr>
<td>Pier 96</td>
<td>Park Use Only</td>
<td>Complete</td>
<td>Non-motorized boat-house in operation</td>
<td></td>
</tr>
<tr>
<td>Pier 97 and Upland between 57 to 59 Streets</td>
<td>Park Use Only</td>
<td>The Pier 97 pier structure is complete; balance of landscape and park features are incomplete; 100% Design Documents completed as of December 2020; construction to commence in 2021</td>
<td>One berth for one historic vessel; possible future water taxi landing</td>
<td>Pier expected to commence construction in 2021</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>DESIGNATION IN HUDSON RIVER PARK ACT</th>
<th>COMPLETION STATUS</th>
<th>SANCTUARY FEATURES¹</th>
<th>NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pier 98</td>
<td>Park/commercial</td>
<td>Complete – pier is leased to Con Edison</td>
<td>Water dependent use for vessels transferring fuel</td>
<td></td>
</tr>
<tr>
<td>Platform between 98-99</td>
<td>Park Use Only</td>
<td>In-water portion of new pedestrian path completed; landscaping to be completed as part of Pier 97 project</td>
<td>N/A</td>
<td>Area expected to commence construction in 2023</td>
</tr>
<tr>
<td>Pier 99 (Dept. of Sanitation)</td>
<td>Municipal</td>
<td>Complete</td>
<td>NYC Department of Sanitation operates vessels for transferring waste</td>
<td>N/A</td>
</tr>
</tbody>
</table>

¹The Hudson River Park Act called for the construction of numerous public park piers and authorized certain commercial and municipal uses as well. Features highlighted herein as “Sanctuary Features” are for general reference only. In actuality, the Act does not distinguish between programmatic uses linked explicitly to the Sanctuary and other recreational, cultural, commercial, municipal or other uses.
Hudson River Park’s Estuarine Sanctuary waters support a wide range of in-water activities and uses. The Trust’s enabling legislation, the Hudson River Park Act, specifically authorizes Hudson River Park Trust (the Trust) to create “water surface zones...including the establishment of sanctuary/preserve areas and areas where motorized or non-motorized vessels are or are not permitted.” Accordingly, the ESMP includes a Water Use Map to promote coordinated, safe use of the Sanctuary while considering ecological habitat objectives. At the Trust’s discretion, the Water Use Map may be modified from time to time based on evolving uses or needs and special circumstances.

The Trust has identified four Water Use Categories. Definitions for each water use area follow. Delineation of the different areas was based on a number of factors including adjacent uses on piers, habitat goals for particular areas, extant boating areas, planned Park improvements and construction, existing leaseholds and permitted areas, property not controlled by the Trust, safety considerations and existing conditions including but not limited to pile fields and soft edges.

It is important to note that the Water Use Map’s delineation of use areas does not supersede the United States Coast Guard Navigation Rules and Regulations, specifically, the Rules of the Road. The Trust or other government vessels used for official purposes may access all areas subject to appropriate authorizations and may authorize other vessel activity in the various use areas on a case-by-case basis.

**WATER RECREATION**

Water Recreation areas enable direct contact with the river itself through fostering low impact water-based recreation primarily for small non-motorized boats including but not limited to kayaks, stand-up paddle boards, row boats, outrigger boats, canoes and sailboats. Water Recreation areas also allow for recreational fishing, if safety can be maintained given proximities to shared uses. As delineated on the Water Use Map, Water Recreation areas have been designated adjacent to the Park’s four boathouses and abutting the kayak launch area planned for the south side of the Gansevoort Peninsula. On an occasional basis and with Trust authorization, Water Recreation areas may allow small motorized vessels needed to facilitate additional Water Recreation activities, such as organized swims, sailing events and historic vessels operating infrequently under motor. In addition to organized swim events that the Trust may currently permit in this zone, in the future, if governmental agencies monitoring water quality and safety approve, such use, other swimming uses could also occur in Water Recreation areas.

**MOTORIZED**

Motorized boats are small- to medium-sized vessels that normally operate under power and include but are not limited to privately owned pleasure and commercial boats; historic, research, cultural or educational vessels operating under power; and water taxis or other small to medium-sized waterborne transportation vessels. Unless expressly prohibited by sign or other navigational markings, non-motorized boating is permitted in these areas provided boaters do not disturb any features that may be deployed to enhance habitat. Refer to the attached Water Use Map for delineation of specific Reserve use areas within the Sanctuary.

**RESERVE**

Areas designated as Reserve have been identified as priority locations for marine habitat preservation, enhancement, education and research. Unless expressly prohibited by sign or other navigational markings, non-motorized boating is permitted in these areas provided boaters do not disturb any features that may be deployed to enhance habitat. Refer to the attached Water Use Map for delineation of specific Reserve use areas within the Sanctuary.

**RESTRICTED WATER DEPENDENT COMMERCIAL / MUNICIPAL**

Water uses in areas with this designation are generally restricted from use by the general public for specific reasons including their exclusion from Park boundaries, safety or security concerns or active municipal or commercial uses with explicit rights to use defined water areas for designated water dependent uses with large vessels. Refer to the Water Use Map for delineation of specific Restricted use areas within the Sanctuary.
Hudson River Park has hosted environmental education programs for school and summer camp groups since the Park’s creation. These field trips create opportunities for students to interact with the River through fun, hands-on activities that inspire the scientist within each child. The Park aims to make these programs inclusive and accessible to all and adapts lessons to reach all age groups. Field trip programs are offered year-round to visiting school and camp groups for a standard fee of $200; however, fee waivers are awarded to Title I groups and other groups demonstrating financial need. Each year, on average, 70% of education program fees are waived to ensure programs are accessible for a diverse, city-wide audience. While programs and themes are subject to evolution and change, the following chart demonstrates the current breadth and variety of programs offered by the Park’s River Project staff.

### APPENDIX E
### CURRENT ENVIRONMENTAL EDUCATION PROGRAMS

<table>
<thead>
<tr>
<th>PROGRAMS</th>
<th>THEMES</th>
<th>TARGET AUDIENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climate &amp; Our Coast</td>
<td>Climate Change; Sea Level Rise; Greenhouse Gas Emissions; Sustainability</td>
<td>Grades 9-12</td>
</tr>
<tr>
<td>Community Conversations</td>
<td>Environmental Justice; Community Engagement; Human Impact; Wastewater Treatment</td>
<td>Grades 6-12</td>
</tr>
<tr>
<td>Fish Biology</td>
<td>Fish Anatomy; Form and Function; Life Cycles</td>
<td>Grades 2-12</td>
</tr>
<tr>
<td>Junior Explorers</td>
<td>Wildlife; Habitat; Species Anatomy; Life Cycles</td>
<td>Grades K-2</td>
</tr>
<tr>
<td>Maritime Voyage</td>
<td>New York City’s Maritime and Waterfront History; Navigation; Knots; Boat Design</td>
<td>Grades 2-12</td>
</tr>
<tr>
<td>Native Aquarium Tour</td>
<td>Aquarium Design; Fish, Biodiversity; Stewardship</td>
<td>Grades 9-12</td>
</tr>
<tr>
<td>Oyster Ecology</td>
<td>Hudson River Estuary; Oysters; Water Quality; Human Impact on the Hudson River</td>
<td>Grades 9-12</td>
</tr>
<tr>
<td>Plankton Ecology</td>
<td>Plankton; Taxonomy; Adaptations; Food Web; Design and Engineering</td>
<td>Grades 2-12</td>
</tr>
<tr>
<td>Pollution Solutions</td>
<td>CSOs; Water Quality; Plastics; Sustainability</td>
<td>Grades 3-8</td>
</tr>
<tr>
<td>Welfab Tour</td>
<td>Fish; Wildlife Survey; Biodiversity; Hudson River Estuary Ecosystem</td>
<td>Grades K-12</td>
</tr>
</tbody>
</table>

### PROGRAMS INCLUDES Internship Program
High school research intensive with a field-based research project emphasizing basic data analysis work and a culminating poster presentation. A unique facet of the program is the tiered mentoring model, which features undergraduate college mentors, early-career scientists and leading researchers that facilitate the research.

### Junior Explorers
Budding scientists observe various Park animals with scientific inquiry, nature-inspired crafts and activities.

### Maritime Voyage
Discovers NYC’s rich waterfront history by touring a historic vessel, investigating maritime artifacts and practicing nautical skills such as knot tying.

### Native Aquarium Tour
Behind the scenes tour of the Welfab’s aquarium system design, NYC’s only flow-through native fish aquarium.

### Oyster Ecology
Builds field science skills monitoring live oysters, testing estuary health and understanding the value of oysters in the Hudson River.

### Plankton Ecology
Discusses the important role that plankton, tiny aquatic organisms, play in the ecosystem and examine various species using microscopes.

### Pollution Solutions
Explains how wastewater is treated in NYC and students engineer solutions to water pollution by designing and testing a water filter.

### Welfab Tour
Tour of the River Project Welfab to meet Hudson River wildlife up close.
In addition to field trips, Hudson River Park offers free and low-cost drop-in programs for the general public from June through September every year. These programs are designed to reach a wider audience than our field trip programs, and—beyond education—have the additional goal of promoting community stewardship of the Sanctuary environment. Public programs typically incorporate interactive activities that make science accessible for Park visitors of all backgrounds, ages and levels of expertise.

The following chart summarizes current programs. While Park programs have always prioritized being hands-on and in-person, the COVID pandemic has required the Park to reimage alternative ways of serving the public through educational programming. Some public programs were able to be adapted for virtual audiences. For example, staff created the “live from the field” program offered once a week on the Trust’s social media feed as a safe alternative to the Wetlab Look-ins described below. While the Trust certainly looks forward to returning to predominantly in-person, hands-on programming, the success of some of 2020’s virtual programs at reaching an even broader and more diverse audience has inspired a plan to continue some of them even after pandemic restrictions cease.

**PARK EDUCATIONAL PUBLIC PROGRAMS**

<table>
<thead>
<tr>
<th>PROGRAMS</th>
<th>THEMES</th>
<th>TARGET AUDIENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ask a Scientist</td>
<td>Hudson River Estuary Ecology; Local Research; Marine Biology</td>
<td>Ages 8+</td>
</tr>
<tr>
<td>Local STEM experts and HRPK staff present current research on our local waters followed by a live Q&amp;A session.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Big City Fishing</td>
<td>Catch and Release Fishing; Hudson River Estuary Ecology</td>
<td>Ages 5+</td>
</tr>
<tr>
<td>Adults and kids learn how to fish while engaging with Park educators about River science topics.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community EcoPaddle</td>
<td>Oysters; Filter Feeders; Oyster Monitoring; Waterfront Recreation</td>
<td>Ages 8+</td>
</tr>
<tr>
<td>Individuals support oyster research followed by an evening paddle on the Hudson River.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diversity Digest</td>
<td>Hudson River Estuary Ecology; Terrestrial Wildlife; Hudson River Park Ecosystem; Local Biodiversity</td>
<td>Ages 8+</td>
</tr>
<tr>
<td>Showcase of wildlife observations made within Hudson River Park on the iNaturalist app. Features photos submitted by community members and students.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hudson History Walks</td>
<td>NYC Waterfront and Maritime History; History of the Urban Environment</td>
<td>All Ages</td>
</tr>
<tr>
<td>Dynamic walking tour to discover NYC’s waterfront history led by local historians.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hudson River Nature Walks</td>
<td>Terrestrial Wildlife; Hudson River Park Ecosystem</td>
<td>All Ages</td>
</tr>
<tr>
<td>Guided nature walks along the Park’s esplanade led by knowledgeable naturalists.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PROGRAMS**

<table>
<thead>
<tr>
<th>PROGRAMS</th>
<th>THEMES</th>
<th>TARGET AUDIENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Live from the Field</td>
<td>Hudson River Estuary Ecology; Local Research; Marine Biology; Human Impact on the Hudson River</td>
<td>All Ages</td>
</tr>
<tr>
<td>Behind the scenes look at science in Hudson River Park. Participants tune in as Park scientists conduct research on environmental DNA, microplastics, fish populations and more.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meet the Fishes</td>
<td>Fish Biology; Filter Feeders; Wildlife Survey; Life Cycles</td>
<td>All Ages</td>
</tr>
<tr>
<td>Kickoff event of the season in the Wetlab to welcome our newest fish residents. Activities for all ages including touch tanks, catch and release fishing and more.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Open Field Lab</td>
<td>Water Quality; Human Impact on the Hudson River; CSOs; Plastic Reduction; Sustainability</td>
<td>Ages 8+</td>
</tr>
<tr>
<td>Participatory field labs to explore current scientific research and monitoring efforts.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pumpkin Smash</td>
<td>Compost; Sustainability</td>
<td>All Ages</td>
</tr>
<tr>
<td>Fall festival and family-friendly pumpkin smash to dispose of pumpkins the fun and sustainable way.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Release of the Fishes</td>
<td>Fish Biology; Filter Feeders; Wildlife Survey; Life Cycles</td>
<td>All Ages</td>
</tr>
<tr>
<td>Celebration at the end of the Wetlab season. Attendees help release fish, crabs, snails and other animals back into the River.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roving River</td>
<td>Fish; Wildlife; Fish Anatomy; Biodiversity</td>
<td>All Ages</td>
</tr>
<tr>
<td>Tricycle exhibit of live Hudson River wildlife that travels through the Park.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Science Saturdays</td>
<td>Catch and Release Fishing; Wildlife; Hudson River Estuary Ecology; Sustainability</td>
<td>All Ages</td>
</tr>
<tr>
<td>Family-friendly event with catch and release fishing, microscopic investigations, science entertainment, River-inspired crafts and more.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shell-ebrate Oysters</td>
<td>NYC Waterfront History; Oyster Monitoring; Filter Feeders; Human Impact on the Hudson River</td>
<td>Ages 8+</td>
</tr>
<tr>
<td>Families learn the incredible history of oysters and their ecological importance while working alongside Park staff to support oyster research efforts.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Hudson River Park is committed to supporting and conducting research that enhances scientific knowledge of the Lower Hudson River Estuary and provides insight into best practices for habitat enhancement and wildlife preservation. Through consistent monitoring of water quality, pollution indicators and estuarine wildlife, the Park is increasing the amount and availability of valuable data that used to track the health of the Sanctuary’s dynamic ecosystem. The Park also continues to partner with local researchers and institutions to expand the study of our environment. The following chart outlines current research endeavors.

### Summary Chart of Relevant Research Projects & Studies

<table>
<thead>
<tr>
<th>PROGRAMS</th>
<th>THEMES</th>
<th>TARGET AUDIENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUBMERGE Marine Science Festival</td>
<td>Wildlife, Catch and Release Fishing, Plankton, Ecology, Sustainability, Marine Biology, Environmental Conservation, Waterfront Recreation, Engineering, STEM, etc.</td>
<td>All Ages</td>
</tr>
<tr>
<td>Sustainability Workshops</td>
<td>Compost, Recycling, Plastic Reduction</td>
<td>All Ages</td>
</tr>
<tr>
<td>Wetlab Look-Ins</td>
<td>Fish, Wildlife Survey; Hudson River Biodiversity, Water Quality</td>
<td>All Ages</td>
</tr>
</tbody>
</table>

**Summary Chart of Hudson River Park Research Projects**

<table>
<thead>
<tr>
<th>PROJECT SCOPE</th>
<th>DURATION / FREQUENCY</th>
<th>TARGET AUDIENCE</th>
<th>REPORTS &amp; DATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>eDNA</td>
<td>Samples collected 2x monthly, year-round 2019 to present</td>
<td>Dr. Bruce Nash, Cold Spring Harbor Lab Hudson River Park Trust</td>
<td>Analysis underway: <a href="https://hudsonriverpark.org/the-park/parks-river-project/science/current-research/how-we-collect-edna">https://hudsonriverpark.org/the-park/parks-river-project/science/current-research/how-we-collect-edna</a></td>
</tr>
<tr>
<td>HRECOS</td>
<td>Data logged every 15 minutes, year-round 2013 to present</td>
<td>USGS and NYSDEC Hudson River Park Trust</td>
<td><a href="https://ny.water.usgs.gov/maps/hrecos">https://ny.water.usgs.gov/maps/hrecos</a></td>
</tr>
</tbody>
</table>
### PROJECT SCOPE  |  DURATION / FREQUENCY  |  TARGET AUDIENCE  |  REPORTS & DATA
--- | --- | --- | ---

Microplastics | Trawls conducted monthly, June-October 2016 to present | Dr. Brett Branco, Brooklyn College Dr. Ashok Desphande, NOAA at Sandy Hook, NJ Hudson River Park Trust | [https://hudsonriverpark.org/the-park/parks-river-project/science/current-research/microplastics](https://hudsonriverpark.org/the-park/parks-river-project/science/current-research/microplastics/)

Oyster Wraps | Oyster monitored monthly, May-October 2017 to present | Downtown Boathouse Manhattan Kayak Company Hudson River Park Trust | [https://hudsonriverpark.org/the-park/parks-river-project/science/current-research/oysters](https://hudsonriverpark.org/the-park/parks-river-project/science/current-research/oysters/)


### PROJECT SCOPE  |  DURATION / FREQUENCY  |  TARGET AUDIENCE  |  REPORTS & DATA
--- | --- | --- | ---

Tide Deck | 2020 to present | Chris Girgenti & Jackie Wu, Randall’s Island Park Alliance | Analysis underway

Tree Survey | 2016 to present | Hudson River Park Trust | Analysis underway

### ADDITIONAL RELEVANT RESEARCH PROJECTS & STUDIES

Hudson River Park Trust has benefited from partnerships with a number of experts and organizations who have conducted relevant research or advanced scientific understanding about the Sanctuary. The following is a select index of relevant studies that has informed the Park’s understanding of the Sanctuary, its habitat and the health of its organisms.

See Hudson River Foundation for additional literature and visit the Park’s website for PDFs of the below references.


Hudson River Park’s Estuarine Sanctuary Management Plan (ESMP) is a powerful management tool that guides Park staff and its partners in operating and maintaining Hudson River Park. While the ESMP serves as an essential resource, it is nevertheless important to recognize that the Sanctuary area it encompasses—the open waters within Hudson River Park—is but a relatively small subset piece of the entire Hudson River, New York Harbor and surrounding watershed. Other agencies and organizations have been charged with developing management plans for these larger waterways.

The four plans referenced below include Hudson River Park’s Sanctuary waters within their wider geographic jurisdictional areas. One of the goals for the 2021–2030 ESMP Action Agenda is to ensure alignment between the ESMP and these regional plans where appropriate and feasible. Accordingly, ESMP goals and actions have been formulated to build upon the outlined objectives in these regional plans.

**Hudson-Raritan Estuary Comprehensive Restoration Plan**
In 1999, the US Army Corps of Engineers and The Port Authority of New York and New Jersey and its partners developed the Comprehensive Restoration Plan (CRP). The plan sets forth a framework to protect existing habitats and restore habitats that have been lost over decades and even centuries of development. Following a draft version circulated in 2009, the final CRP was released in 2016. The study area for this plan covers the Hudson-Raritan Estuary—within the Park’s Sanctuary area. The 2021–2030 ESMP Action Agenda is to ensure alignment between the ESMP and these regional plans where appropriate and feasible.

**Hudson-Raritan Estuary Action Agenda 2015–2020**
The geographical reach of this management plan focuses on the 5,200 square miles of the Hudson River Estuary from the Verrazano Narrows below Manhattan Island to the head of tide at the federal dam in Troy. The document is divided into six benefit areas, each of which includes long-range vision statements and priority targets, as well as measurable outcomes and a selection of actions to be pursued. As outlined in the chart below, there are many areas where the 2021–2030 ESMP Action Agenda aligns with and helps to further the CRP plan for this region.

**Vision 2020 NYC Comprehensive Waterfront Plan**
In March 2011, NYC published Vision 2020. New York City Comprehensive Waterfront Plan. This plan set forth a city-wide, 10-year vision for the future of the city’s 520 miles of shoreline. It includes a summary of plans for finishing planned piers and places within Hudson River Park in alignment with the Hudson River Park Act.

**New York-New Jersey Harbor & Estuary Program**
The geographic scope of the NY-NJ Harbor and Estuary Program (HEP) includes the Harbor Estuary and extends to the watersheds of the Hudson-Raritan Estuary. The 2017–2022 HEP Action Agenda identifies 5 long-term goals, 17 objectives and 40 specific actions that will help enable people and wildlife to benefit from the fishable and swimmable waters called for by the Clean Water Act. As outlined in the chart below, there are many areas where the 2021–2030 ESMP Action Agenda aligns with and helps to further the HEP plan for this region.

**New York-New Jersey Harbor & Estuary Program**
The 2017–2022 HEP Action Agenda identifies 5 long-term goals, 17 objectives and 40 specific actions that will help enable people and wildlife to benefit from the fishable and swimmable waters called for by the Clean Water Act. As outlined in the chart below, there are many areas where the 2021–2030 ESMP Action Agenda aligns with and helps to further the HEP plan for this region.

**Summary Chart**
The following chart was prepared in consultation with staff from HEP and NYSDEC’s Hudson River Estuary Program to highlight areas where ESMP goals and objectives for the 2021–2030 Action Agenda relate to similar objectives for these other planning documents.
RESEARCH & HABITAT ENHANCEMENT

**Goal 1:** Significantly increase knowledge of Estuarine Sanctuary baseline conditions and trends through continuous monitoring and targeted research of biological and geophysical conditions.

**Objective H-B-2:** Assess and interpret shoreline and shallow-water habitat condition and value.

**Objective WG-C-4:** Design an intensive pathogen monitoring and notification plan in select near-shore areas.

**Objective WO-C-3:** Support and share research to help assess the fate, transport and ecosystem impact of known and emerging contaminants, in particular microplastics, in the Harbor Estuary.

**Objective WO-E-1:** Support and share research to assess climate change impacts on water quality and hydrology.

**Objective WO-E-2:** Identify parameters and potential for establishing a long-term monitoring program to assess climate change impacts on temperatures and other water quality variables.

**Objective H-C-1:** Increase support for monitoring and consistency among metrics.

**Objective MA-A-1:** Map current sediment quality conditions in the Estuary and identify changes over the last 15 years.

**Objective PA-C-1:** Increase understanding of the safety and risks associated with direct contact with the water.

**Objective PA-C-2:** Increase support for public access and visitor use activities in CSO and MS4 areas.

**Objective PA-A-1:** Increase advancement of CSO and MS4 projects to improve, restore, and build resiliency

**Goal 2:** Develop and implement a phased and adaptive program of physical habitat enhancements targeted at improving water quality and species productivity.

**Objective H-A-1:** Increase investment in conservation and restoration projects.

**Objective H-B-2:** Assess and interpret shoreline and shallow-water habitat condition and value.

**Objective MA-B-1:** Map current sediment quality conditions in the Estuary and identify changes over the last 15 years.

**Objective WO-E-2:** Identify parameters and potential for establishing a long-term monitoring program to assess climate change impacts on temperatures and other water quality variables.

**Objective H-C-1:** Increase support for monitoring and consistency among metrics.

**Objective H-D-1:** Increase under- standing of the safety and risks associated with direct contact with the water.

**Objective H-C-2:** Increase support for public access and visitor use activities in CSO and MS4 areas.

**Objective PA-C-2:** Increase advancement of CSO and MS4 projects to improve, restore, and build resiliency

**Goal 3:** Collect, synthesize and share data gained from habitat enhancement monitoring and research to inform future Sanctuary enhancement and management practices and public understanding of its value.

**Objective CE-A-1:** Identify, create and/or publicize shared protocols for habitat and water quality monitoring by civic organizations.

**Objective H-C-2:** Synthesize existing monitoring data to better understand and communicate trends.

**Objective H-B-1:** Share research and best practice among partners.

**Objective WO-B-3:** Synthesize information on LTCP/CSO controls and MS4 permit implementation to determine the effects on shared waters.

PUBLIC ACCESS & RESOURCE MANAGEMENT

**Goal 1:** Complete public open space portions of Hudson River Park to provide access to the Sanctuary.

**Objective PA-A-1:** Advance opportunities for increasing public access, particularly in areas of higher need.

**Objective MA-A-1:** Map current sediment quality conditions in the Estuary and identify changes over the last 15 years.

**Objective PA-C-2:** Increase support for public access and visitor use activities in CSO and MS4 areas.

**Objective WO-B-5:** Reduce sources and develop solutions for trash and floatables in both CSO and MS4 areas.

**Objective PA-B-1:** Identify and support strategies for increasing public stewardship in higher need areas.

**Objective WO-B-2:** Support implementation of green infrastructure opportunities in CSO and MS4 communities.

**Objective H-B-1:** Increase support for public access and visitor use activities in CSO and MS4 areas.

**Objective PA-C-2:** Increase advancement of CSO and MS4 projects to improve, restore, and build resiliency

**Goal 2:** Implement new sustainability measures to protect the integrity of the Sanctuary and to increase public stewardship of natural resources.

**Objective WO-B-5:** Reduce sources and develop solutions for trash and floatables in both CSO and MS4 areas.

**Objective PA-B-1:** Identify and support strategies for increasing public stewardship in higher need areas.

**Objective WO-B-2:** Support implementation of green infrastructure opportunities in CSO and MS4 communities.

**Objective H-B-1:** Increase support for public access and visitor use activities in CSO and MS4 areas.

**Objective PA-C-2:** Increase advancement of CSO and MS4 projects to improve, restore, and build resiliency

**Objective MA-A-1:** Map current sediment quality conditions in the Estuary and identify changes over the last 15 years.

**Objective PA-C-1:** Increase understanding of the safety and risks associated with direct contact with the water.

**Objective H-D-1:** Increase understanding of the safety and risks associated with direct contact with the water.

**Objective WO-B-3:** Synthesize information on LTCP/CSO controls and MS4 permit implementation to determine the effects on shared waters.

**Goal 3:** Collect, synthesize and share data gained from habitat enhancement monitoring and research to inform future Sanctuary enhancement and management practices and public understanding of its value.

**Objective CE-A-1:** Identify, create and/or publicize shared protocols for habitat and water quality monitoring by civic organizations.

**Objective H-C-2:** Synthesize existing monitoring data to better understand and communicate trends.

**Objective H-B-1:** Share research and best practice among partners.

**Objective WO-B-3:** Synthesize information on LTCP/CSO controls and MS4 permit implementation to determine the effects on shared waters.
**ESMP** | **HEP** | **HREP**
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**Goal 3:** Manage the Sanctuary to support a wide range of water-dependent activities while preserving habitat and minimizing in-water conflicts. | Objective PA-A-2: Assess prospects and refine goals for increasing direct access for boating, swimming, and wading, incorporating associated water quality considerations. | Benefit: Clean Hudson River Water Strategy 3: Assess and prioritize water quality project and wastewater needs Strategy 4: Implement water quality improvements Benefit: Robust River Habitats Strategy 2: Build capacity in the resource management community

**Goal 4:** Seek ways to increase access and enhance safety for Sanctuary visitors. | Objective PA-C-1: Increase understanding of the safety and risks associated with direct contact with the water. Objective PA-C-2: Encourage and support public participation in water-based activities. Objective PA-A-1: Advance opportunities for increasing public access, particularly in areas of higher need. | Benefit: An Accessible Hudson River for People of All Ages and Abilities Strategy 2: Best management practices, technical assistance, and capacity building Strategy 3: Implement construction/site improvements

**Goal 5:** Offer a diverse range of activities and programs that are welcoming to all visitors and invite access to the Sanctuary by leveraging partnerships. | Objective PA-C-2: Encourage and support public participation in water-based activities. Objective PA-A-1: Advance opportunities for increasing public access, particularly in areas of higher need. | Objective H-A-1: Increase investment in conservation and restoration projects. Benefit: An Accessible Hudson River for People of All Ages and Abilities Strategy 3: Implement construction/site improvements Strategy 5: Integrate agency programs to maximize resources

**Goal 6:** Continue to seek ways to fund Sanctuary goals and initiatives | Objective H-A-1: Increase investment in conservation and restoration projects. Benefit: An Accessible Hudson River for People of All Ages and Abilities Strategy 3: Implement construction/site improvements Strategy 5: Integrate agency programs to maximize resources

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**ACKNOWLEDGEMENTS**

The Hudson River Park Trust’s Board of Directors adopted the Estuarine Sanctuary Management Plan for Hudson River Park: Progress Report and 2021-2030 Action Agenda on September 30, 2021 following a public review process. The document was prepared by the Park’s River Project team in close collaboration with New York State Department of Environmental Conservation and a Technical Advisory Committee comprised of subject experts in various relevant topic areas.

**Hudson River Park Board of Directors**

*As of September 30, 2021*

- Vicki Been, Chair; Deputy Mayor for Housing and Economic Development
- Basil Seggos, Vice Chair, Commissioner, NYS Department of Environmental Conservation (ex officio)
- Erik Kulleseid, Commissioner, NYS Office of Parks and Historic Preservation (ex officio)
- Margaret Nelson, Acting Commissioner, NYC Department of Parks and Recreation (ex officio)

**Technical Advisory Committee Membership**

*As of September 30, 2021 (listed in alphabetical order)*

- Brett Banco, Brooklyn College
- Lisa Baron, US Army Corps of Engineers, NY District
- Graeme Birchall, Downtown Boathouse *
- Nancy Brous, NYC Water Trail Association *
- Robert Burke, Hudson River Community Sailing
- Alda Chan, NYC Department of Parks and Recreation
- Cathy Drew, The River Project Founder *
- Fran Dunwell, NYSDEC, Hudson River Estuary Program
- George Jackman, Riverkeeper
- Marcha Johnson, Landscape Architect / Ecological Restorationist
- Jonathan Kramer, Hudson River Foundation
- Fred Landa, New York State Department of State, Division of Coastal Resources
- Mary Leou, Wallenstein Collaborative for Urban Environmental Education at NYU
- Jeffrey Levinton, Story Brook University
- David Lipsky, New York City Department of Environmental Protection
- Pete Malinowski, Billion Oyster Project
- Susan Maresca, NYSDEC, Region 2 Office
- Michael McCann, Nature Conservancy
- Rob Pirani, NYS-NJ Harbor and Estuary Program *
- Shay Saleem, Intrepid Sea, Air & Space Museum *
- Shino Tanikawa, NYC Soil & Water Conservation District
- Bob Townley, Manhattan Youth *
- Margie Turin, Lamont-Doherty Earth Observatory
- Cortney Worrall, Waterfront Alliance *

*Notes that this organization also sits on Hudson River Park Trust’s Advisory Council*

The Hudson River Park Trust also acknowledges and thanks all the individuals and organizations who dedicate themselves to enhancing the health, safety and knowledge about our Estuarine Sanctuary.

This document was professionally formatted subsequent to its adoption in September 2021. In the course of preparing the final digital version, minor grammatical corrections were made, and a few photographs and captions were substituted.

Graphic design by Jeffrey Jenkins.