



Connecting with Our Waterways:
Public Access and its Stewardship in the
New York - New Jersey Harbor Estuary



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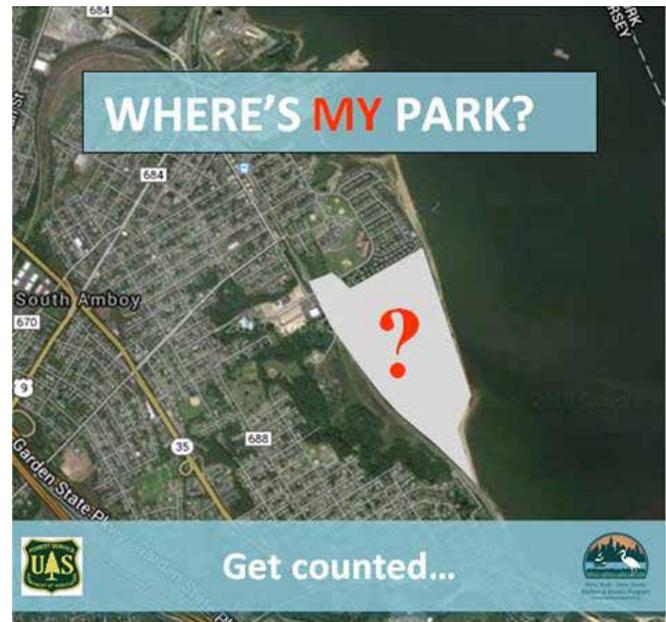
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OVERVIEW

The New York – New Jersey Harbor Estuary is the biggest public space in the nation’s largest metropolitan area. Access to its waters – whether for swimming, boating, fishing, or just enjoying the spectacular views – is an amenity that impacts quality of life and drives spending and investments by residents, visitors, and businesses. Park access and use have been positively correlated with physical activity levels and public health.³ Further, access is critical for fostering a connection with and stewardship of the estuary, especially for young people. For all these reasons, ensuring and improving access is an important goal shared by federal, state, and local governments throughout the estuary.

The last twenty years has seen an extraordinary transformation of the waterfront. Cleaner water, the opportunity posed by available industrial sites, and the desire by people for outdoor activities has resulted in new public parks and other public spaces being created or refurbished all along the waters of the Harbor Estuary (Figure 1). From 2009-2014, over 500 acres of new parks or public spaces on the waterfront were opened to the public.⁴ In some cases, this access includes the ability to safely touch the waters of the estuary for swimming, boating, or other purposes. In other places, access is limited to the shoreline by physical conditions, safety concerns, poor water quality, a lack of facilities for boating or swimming, and/or other management considerations.

To document this progress, and recognize and address new challenges to public access, the New York - New Jersey Harbor & Estuary Program, in partnership with



An assessment of 146 stewardship groups was conducted throughout the region.

the USDA Forest Service and a Public Access Work Group of key public agencies and private organizations, has characterized public access and its distribution around the Harbor Estuary, the relationship of these parks and public spaces to socioeconomic need, and where and how civic organizations are providing stewardship and programming at the waterfront.

The assessment was accomplished by compiling and mapping existing parks and other waterfront access opportunities, and analyzing this information relative to socioeconomic indicators and the activity of civic organizations derived from a harbor-wide assessment of stewardship.



Public access to Raritan Bay provides fishing, boating, and other recreational opportunities.

John Witsch

KEY FINDINGS

Thanks to concerted action by government, business, civic organizations, and community leaders, 37% of the nearly 1,600 miles of waterfront in the estuary and 41,078 acres are now dedicated for park purposes or otherwise accessible to the public. Places where the public can enjoy swimming, boating and other programs touching the water are more limited; there are only seven public swimming beaches scattered throughout the region.

Brooklyn near Newtown Creek and the Navy Yard, there are more than 20,000 people that live within one half mile of the waterfront but have no access.

Civic organizations play a critical role in terms of providing public access to the waterfront and supporting waterfront stewardship. An assessment of the stewardship of 146 civic organizations indicates that they provide a broad array of programs that help

Public access by the numbers

- Total length of waterfront in the Harbor Estuary: 1,592 miles
- Publicly accessible waterfront: 595 miles (37%)
- Waterfront with limited access due to park construction, sensitive wildlife, or other considerations: 50 miles (3%)
- Inaccessible waterfront: 947 miles (60%, 2% of which is due to security zones)
- Amount of waterfront parks and public spaces: 41,078 acres
- Total number of waterfront parks and public spaces: 539
- Total population within one half mile (or about a ten minute walk of the water or a waterfront park): 5.3 million
- Percent of population within a half mile of waterfront and currently lacking access: 17.1%
- Population living within one half mile of the water or a waterfront park and with higher need for public access: 513,037
- Total miles of waterfront in these higher need areas: 260
- Total miles of publicly accessible waterfront in higher need areas: 24 (9%)



While there are many acres of accessible waterfront parks in the region, only 37% of the linear waterfront is accessible.

These parks and public spaces are not evenly distributed across the estuary, especially when considered in the context of differing socioeconomic characteristics of the estuary's waterfront populations. Twelve waterfront areas, from the Bronx to the mouth of the Raritan River, are identified as higher need waterfront areas due to the limited number of parks, densely developed housing, or an otherwise disadvantaged population. In the Passaic River watershed, for example, 50% of people living within one half mile of the waterfront lack access. Along the shores of the Harlem River in the Bronx or Northern Manhattan are some of the lowest income populations among all waterfront areas. In northern

engage people with the Harbor Estuary, primarily through community organizing, public outreach, and volunteering or employment. Particularly relevant to waterfront activities, 22% of these organizations offer boating, swimming, or fishing programs. About one third conduct climate change education programs or projects critical to building social resiliency. But as with physical access, the location and the capacity of this network is not evenly distributed. Stewardship turfs, the specific areas identified by these organizations as their area of focus, are more concentrated in some areas than others (e.g. Manhattan).

APPLICATIONS

This assessment is intended to serve multiple purposes. The New York – New Jersey Harbor & Estuary Program (HEP) will use the information to better identify priorities, allocate resources, and refine and track progress toward public access and stewardship goals established by the upcoming HEP Action Agenda and the Hudson-Raritan Estuary Comprehensive Restoration Plan.⁵ HEP and its partners in its bi-state management conference will use this information as a guide for fostering stewardship capacity in areas of higher need, addressing physical gaps in access, and improving the quality of existing access.

The geographic data used to create the need and stewardship assessments will also be made available to the public via an online platform, enabling government officials, civic organizations, and the public the means of utilizing this information for their own needs, such as creating municipal public access plans in New Jersey or identifying priorities for budgeting processes in New York City.



Kate Boicourt

Over 75% of assessed stewardship organizations monitor the quality of their local environment, an effort facilitated by safe public access.

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Kate Boicourt

Public access opportunities range from larger contiguous park spaces, such as pictured here in Jamaica Bay, to narrow esplanades.

OVERVIEW

The New York-New Jersey Harbor & Estuary Program (HEP) in partnership with its Public Access Work Group and the USDA Forest Service sought to establish a comprehensive baseline of the types and extent of publicly-accessible waterfront spaces in the core waters of the NY-NJ Harbor Estuary: the tidal waters from the Tappan Zee Bridge south to Sandy Hook, NJ and Far Rockaway, NY, and east to the New York City border at Throgs Neck, including the tidal tributaries that feed into these water bodies (Figure 1). Hereafter, these core waters are referred to as the Harbor Estuary.

This assessment presents the first comprehensive accounting and analysis of the extent of waterfront access, the communities being best served by public waterfront spaces, and what stewardship groups exist to support these areas. The work builds on previous efforts including an effort led in 2006 by NY/NJ Baykeeper, Waterfront Alliance, and HEP to map and categorize public access. In 2007, the USDA Forest Service Urban Field Station assessed environmentally focused stewardship groups in the region, developing the first map of stewards in the region via the Stewardship Mapping & Assessment Project (STEW-MAP).⁶ STEW-MAP was later expanded in 2009 in collaboration with HEP, to assess groups of interest to HEP. The specific goals and objectives of this study are as follows.

Assess current public access to document progress toward goals

The current HEP Action Plan (2011) and the Hudson-Raritan Estuary Comprehensive Restoration Plan (2009) share the goal that by 2050, all waters of the Harbor Estuary are accessible to all residents within a short walk or public transit trip.⁷ While there has been considerable progress towards these goals, a comprehensive account of where and what kind of public access exists across the nearly 1,600 miles of shoreline was needed to track change over time. This report establishes a 2016 baseline and will inform future priorities for HEP and its partners.

Identify gaps in access relative to need

There has been extraordinary progress in creating parks and public spaces along some parts of the Harbor Estuary. But not every community has easy access to those facilities. By documenting the location of existing public access, and comparing the location and activities of these areas to population density and socioeconomic

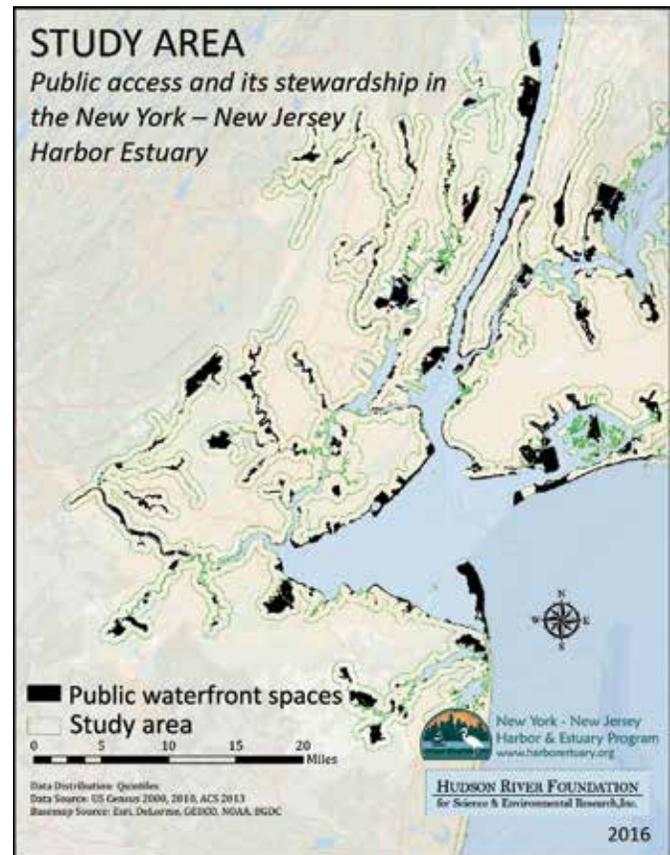


Figure 1: The study focuses on the area within ½ mile of the waterfront or a waterfront park within the core waters of the Harbor Estuary.

characteristics, this assessment identifies gaps and opportunities for creating new or enhancing existing public access. Moreover, access to the water's edge is not access to the water. This information contained in the assessment can help start identifying where additional swimming, boating and other recreational and educational programs are possible and most needed.

Understand civic capacity for stewardship

Local and regional civic organizations play a critical role in the stewardship of the waterfront, from identifying new public access opportunities, directly or indirectly improving management and maintenance of parks, to offering important educational and recreational programs. The assessment of these civic organizations shows the extraordinary capacity that exists throughout the region and where additional efforts are needed to foster stewardship capacity, particularly in areas of higher need.

⁶www.stewmap.net

⁷www.harborestuary.org; www.watersweshare.org

OVERVIEW

Undertaking this assessment involved mapping public access sites and compiling data sets into an ArcGIS geodatabase; developing a methodology for analyzing that information relative to socioeconomic characteristics available from the US Census, and contacting over 500 civic organizations to encourage participation in an assessment. The results and methods are summarized below in terms of access, need, and stewardship. It is important to note that

this assessment provides a snapshot based on the best available information, and that access is likely to change over time. Stewardship data are self-reported by civic organizations, and public access site data were supported by very limited field verification. HEP intends to improve the utility of the database over time by correcting any errors, adding details, and tracking progress (see Appendix A for detailed methods).



Shelly Xia

Kayakers test out the waters during City of Water Day, an annual celebration of New York and New Jersey's waterfront and waterways.

ACCESS IN THE HARBOR ESTUARY

Access to and from the Harbor Estuary can take many forms. In some cases, public access includes the ability to safely swim, boat, or otherwise touch the water. In other places, access is limited to the shoreline due to safety concerns, poor water quality, a lack of facilities for boating or swimming, and/or other management considerations. In this assessment, access was primarily defined by the legal basis under which access is granted or restricted. Most public access occurs in park lands owned and managed by federal, state, and local park agencies. But access also occurs in regular and limited ways on other public and private property (see Defining Public Access, below). Spatial data for

all of these publicly accessible waterfront spaces were compiled from public and private sources, verified and corrected as needed, and reclassified for the purposes of this study.

Of the nearly 1,600 linear miles of waterfront in the Harbor Estuary, approximately 37% is permanently accessible. This waterfront mileage adjoins 41,078 acres of lands dedicated as parks or otherwise permanently accessible to the public. This includes nearly 600 acres of privately-owned public spaces, which are primarily esplanades along waterfronts where public entities hold easements. Three percent of the waterfront

has limited public access, including park lands under development and not currently open, and areas with restricted access times due to sensitive conditions or features.

However, significant gaps in public access remain (Figure 2). Approximately 60% of our waterfront is not accessible to the public—two percent of that

waterfront is inaccessible due to security zones around airports and maritime facilities. But lack of access to the remaining 947 miles of shoreline means that there are still long stretches of the waterfront where the nearest access point is more than one half mile or about a ten minute walk for the more than five million people who live in waterfront areas.

Defining public access

Public access exists in many forms and stages of development some current and long-standing, others recently opened or planned for the future. The following are the typologies and definitions used in the assessment and developed in collaboration with the Public Access Work Group:

Parks: owned by federal, state, county, municipal, or private conservation entities and dedicated for park purposes.

Other public access: owned by public agencies or private sector with public easement, and generally open to public such as:

- Public boat ramps and marinas (not in parks)
- Public esplanades/piers (not in parks)
- Privately-owned esplanades/piers with public easements
- Improved street-ends and civic plazas

Limited: temporary or permanent restrictions on public access such as:

- Designated wildlife areas owned by federal, state, county, municipal, or private conservation entities with restricted access.
- Park lands owned by federal, state, county, municipal, or private conservation entities, where access is currently restricted but anticipated given future improvements (e.g. Fresh Kills, Penn and Fountain landfills).
- Public lands with highly controlled public access (e.g. Brooklyn Navy Yard)

Privately owned and open to public use but not dedicated as public space:⁸

- Marinas and boat launches that are privately owned and open to public
- Other commercial establishments (e.g. restaurants) that allow regular access to the water.

Gaps: sites with no current access to the waterfront including:

- Privately or publicly owned with no current access to the waterfront. This may include sites where access is occasionally allowed for special events or other purposes.

Prohibited access: areas with permanent restrictions on public access such as:

- Airports, marine terminals, ports, and other protected facilities/infrastructure (e.g. Port Newark)
- Military and corrections facilities (e.g. Naval Weapons Station Earle, Rikers Island)

⁸Sites in this category (privately owned and open to public use through informal arrangements or business practice) were mapped separately and categorized as information was available, but were considered inaccessible in the gap analysis, and represent a partial data set that could be expanded on in the future.

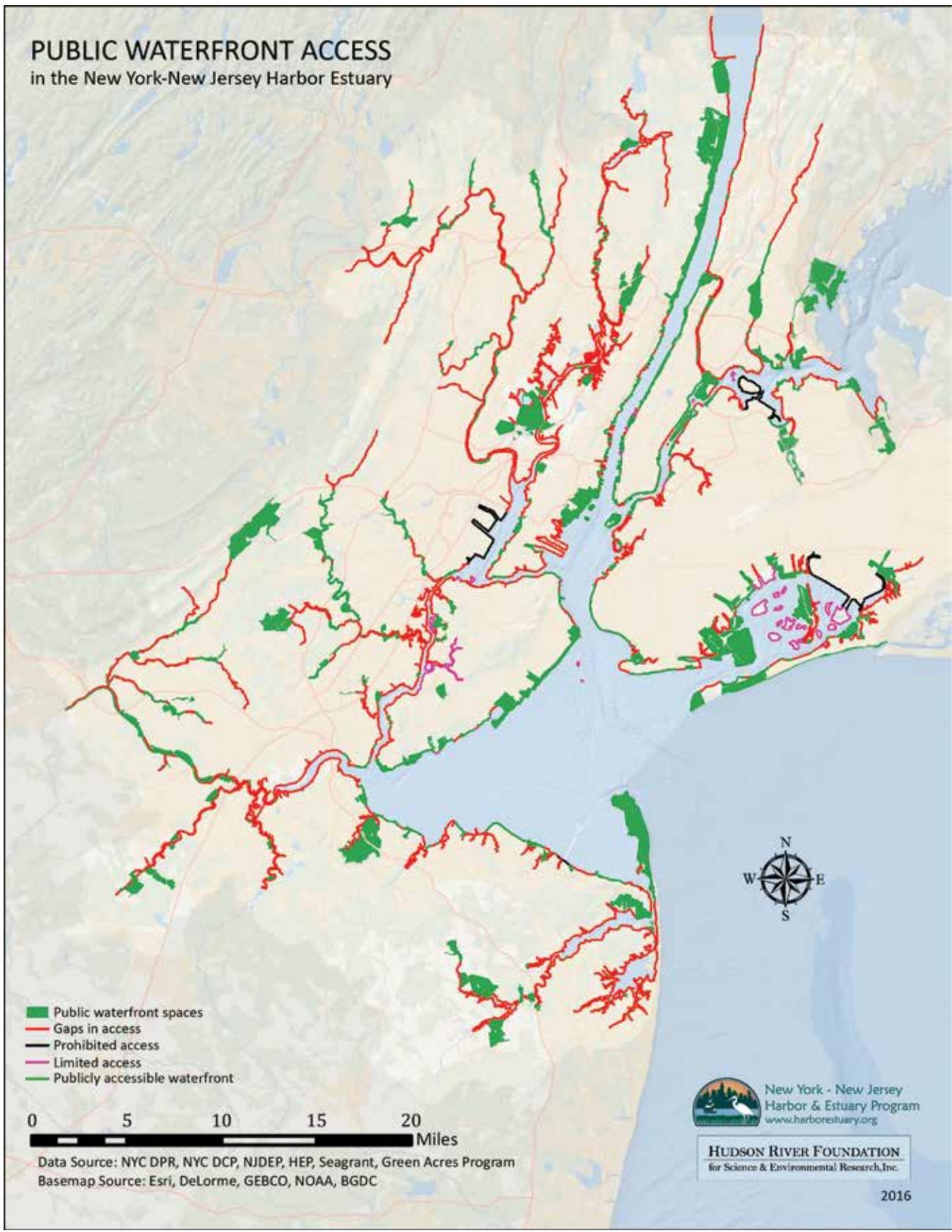


Figure 2: While large publicly-accessible waterfront spaces were found throughout the region, long stretches of gaps in access remain in many areas.

ANALYSIS & RESULTS: NEED

WHERE IS PUBLIC ACCESS NEEDED MOST?

The waterfront populations of the New York – New Jersey Harbor Estuary, and their relative need for public access, reflect the diversity of the metropolitan area. These populations are defined as the people living within one half mile of the waterfront; a distance that allows for a short (roughly 10-minute) trip to the water.⁹ The goal of HEP's current Action Plan and the Comprehensive Restoration Plan is that all waters of the Harbor Estuary are accessible to all residents within a short walk or public transit trip by 2050.

There are 5.3 million people living within one half mile of the Harbor Estuary. Spurred by the amenities offered by our waterways, including beautiful views and possibilities of outdoor recreation, and the availability of former industrial properties, the population in these waterfront areas grew by three percent over the past 10 years. While there have been dozens of public parks

built in the past 20 years, approximately 17% of people living within one half mile of the waterfront are unable to access it within a ten minute walk from their homes.

The socioeconomic characteristics of some waterfront areas indicate higher need for increased public access and civic stewardship. These higher need areas, as defined by a Need Index of population, economic, and public space criteria are home to 513,037 people in New York and New Jersey. As a whole, only about 9% of the linear waterfront in these higher need areas is publicly accessible (compared to 37% for the estuary as a whole). These areas also contain higher percentages of youth and people of color, and median household incomes that are 53% lower on average than the entire study area. These characteristics indicate a higher need for stewardship and public access resources.



Kate Boicourt

About 37% of the waterfront as a whole is accessible to the public, but that percentage drops in the highest need areas.

⁹This is defined as one linear half mile from the water's edge. This definition is an approximate indicator of accessibility, and does not necessarily reflect the exact actual distance required to travel to the water's edge by a pedestrian (i.e. street distance).

DEFINING NEED

To understand the relative need for additional or improved public access and stewardship capacity, a Need Index was developed and refined with input from HEP's Public Access Work Group. The index is comprised of five key indicators: youth population (under the age of 14), population growth, communities of color, income (median household), and the population within the study area lacking access to waterfront public space (table 1). The five indicators reflect consideration of prior socioeconomic and park use assessments and the guidance of the HEP Public Access Work Group. Data were compiled at the block group scale and aggregated via a consistent ranking method (see Appendix A for detailed methods). To help interpret the results of this analysis, the values generated in the Need Index were also systematically reevaluated to account for the values of neighboring census blocks using a cluster analysis. This cluster analysis helps highlight concentrations of higher need waterfront areas across the estuary, whereas the Need Index results may be more appropriate for understanding needs at the finer block group scale. The combination of these indicators highlights relative need across the Harbor Estuary - areas

with fewer options for outdoor recreation, of particular importance for engaging youth, and where additional resources may be needed to increase or improve access through programming, improved facilities, or other means. Identifying these relatively higher need areas recognizes that resources (including lack of public open space) are not distributed equitably, and that physical activity levels and park use are dependent on socioeconomic and regional characteristics.^{10,11,12}

It is important to note that the Need Index and the identification of higher need areas demonstrate a concentration of relative need. There are many areas with significant gaps in public access and particularly boating access, but areas exhibiting multiple indicators of need including socioeconomic factors are considered to be in the highest need for increased resources for access and stewardship. This study also does not differentiate between local and regional parks. The size and programming of these parks, such as Liberty State Park, Brooklyn Bridge Park, or Pelham Bay Park, are designed to serve more than a local population, and could be analyzed in more detail in future study.

Table 1: New York – New Jersey waterfront population at a glance

Need Index component	Harbor-wide	Higher need areas
Population without waterfront access	17.10%	47%
Income (median household)	\$67,782	\$35,978
Communities of color	58.30%	92%
Youth (under the age of 14)	17.40%	22.80%
Population growth	3.50%	3.40%

NEED INDEX COMPONENTS

Compiled US Census data were used to map the five indicators in every census block group within one half mile of the waterfront or a waterfront park (see Appendix A for detailed methods).¹³ Each indicator was then ranked and aggregated into an overall Need Index at the census block group scale (Figures 3-7).



Kate Boicourt

Transportation is one of the challenges currently cutting off some areas, such as the Harlem River, from adjacent communities.

Population without waterfront park access

People without access to waterfront public spaces is measured as the number of people by census block group within the study area without access to a waterfront park or open space within one-half mile. This input indicates need for public access and stewardship.

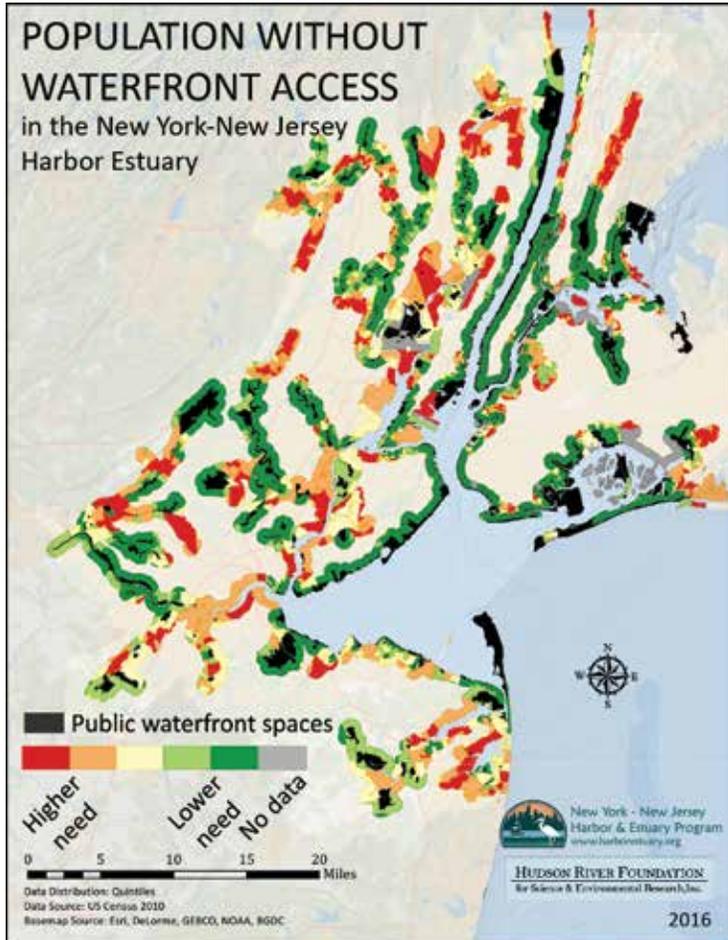


Figure 3: Areas without waterfront park access occur in clusters throughout the Harbor Estuary

Income

For income, median household income was used, and serves as a relative indication of available community resources and the options for outdoor recreation available to residents.

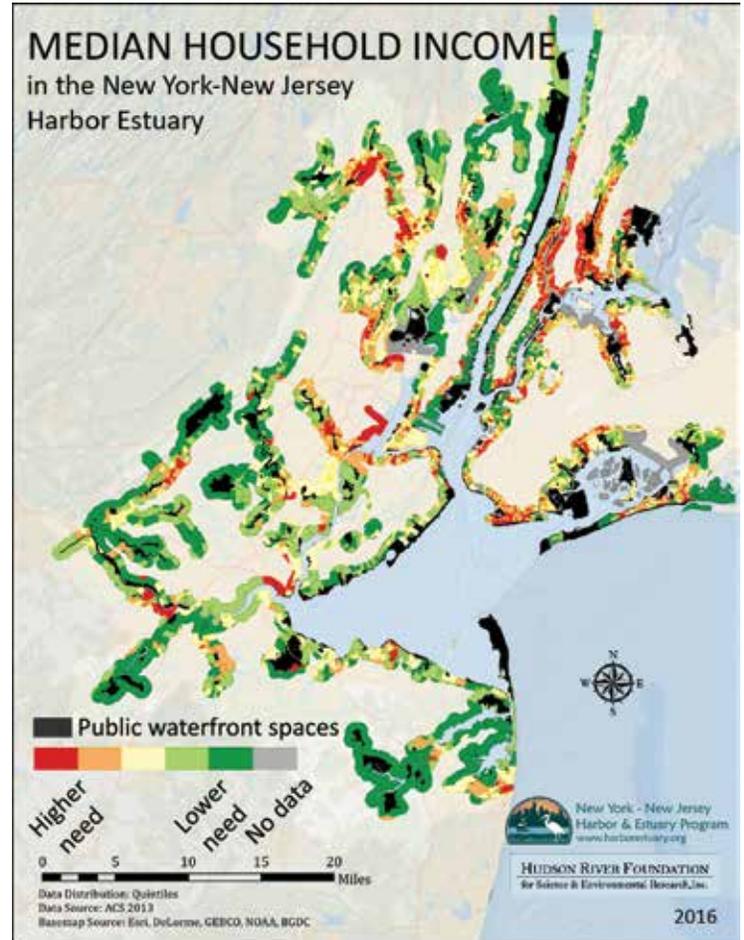


Figure 4: Lower incomes are prevalent in the Bronx, Newark Bay, Upper Passaic, and Coney Island areas.

Table 2: Quintile group values of population without waterfront park access for census block groups in the study area

Quintile	Value range
1	0
2	0-73
3	73-336
4	336-784
5	784-10,864

Source: 2010 US Census, waterfront public spaces layer developed by NY-NJ HEP and partners.

Table 3: Quintile group values of median household income (2009-2010) for the study area

Quintile	Value range (\$USD)
1	\$98,047-250,000
2	\$72,322-98,068
3	\$53,357-72,321
4	\$34,882-53,356
5	\$7,092-34,881

Source: 2009-2013 5-year American Community Survey, US Census

¹²Gordon-Larsen, P., Nelson, M., Page, P. & Popkin, B. 2006. Inequality in the Built Environment Underlies Key Health Disparities in Physical Activity and Obesity. *Pediatrics*. 117(2): 417

¹³US census data were used: 2000 to 2010 population growth, 2010 communities of color, 2010 youth population under the age of 14, and 2010 median household income

Communities of color

Communities of color are defined as the percent of people identifying as Black, Hispanic, or another ethnic minority. This definition builds off the existing Communities of Color layer on the OASIS website.

Youth (under the age of 14)

The percent of the population under the age of 14 is an important indicator of the need for waterfront access and programming, particularly as children under 14 can less easily travel out of their neighborhoods for recreation opportunities.

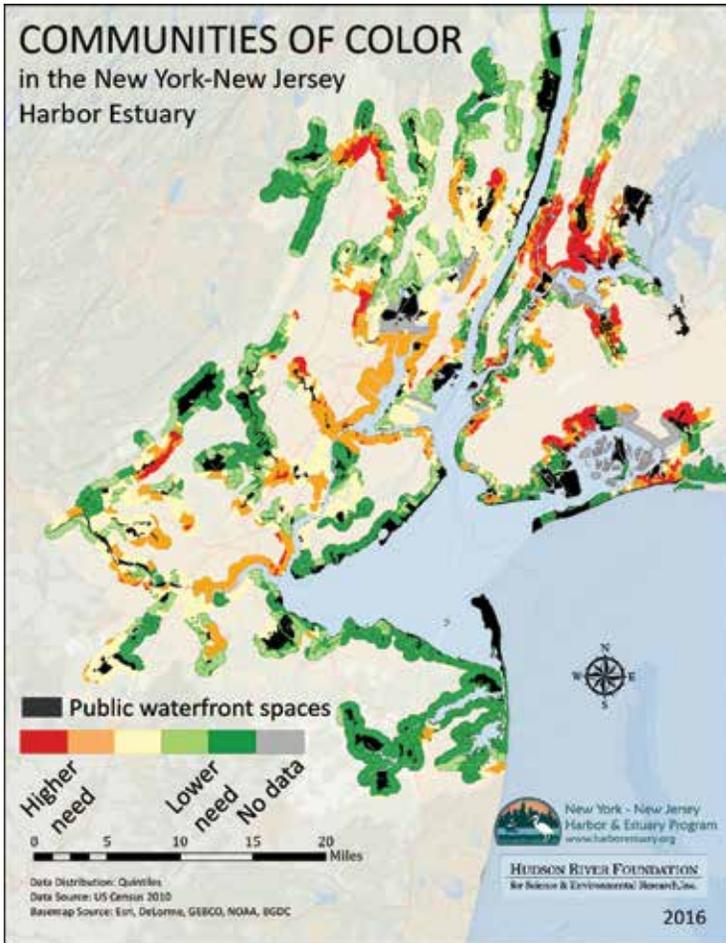


Figure 5: Communities of color are defined as the % of the population identifying as a person of color.

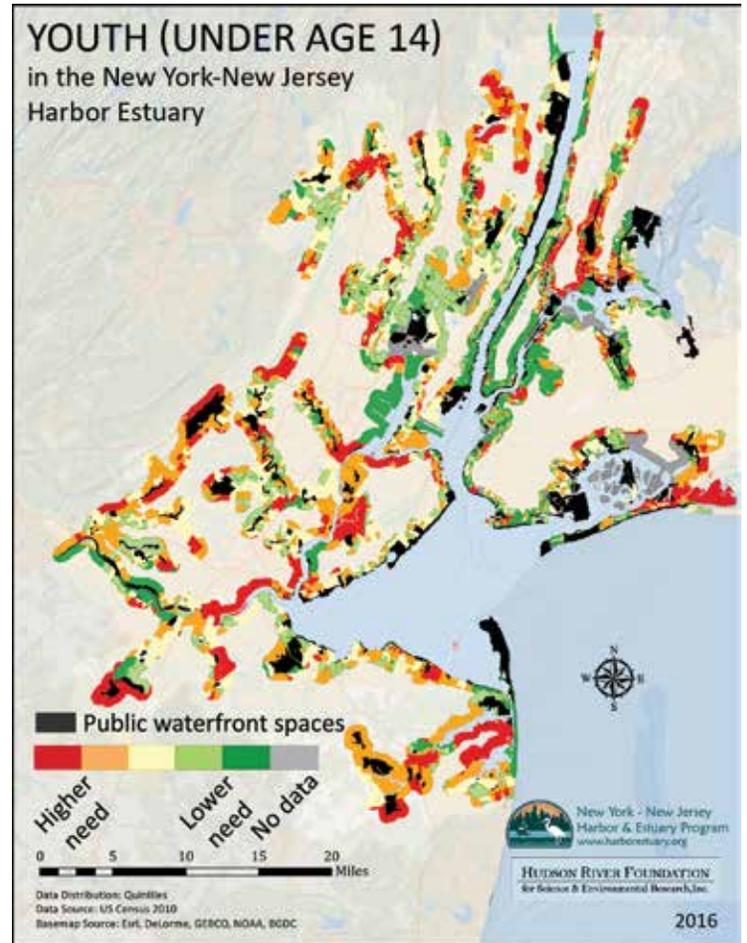


Figure 6: Youth was defined as the % of persons under the age of 14.

Table 4: Quintile group values of communities of color in 2010 for census block groups in the study area

Quintile	Value range (%)
1	0-22
2	22-40
3	40-67
4	67-93
5	93-100

Source: 2010 US Census, rounded to whole numbers. See Appendix A for all figures.

Table 5: Quintile group values of people under age 14 in 2010 for census block groups in the study area

Quintile	Value range (%)
1	0-13
2	13-16
3	16-19
4	19-22
5	22-63

Source: 2010 US Census, rounded to whole numbers. See Appendix A for all figures.

Population growth

The growth of residential population between 2000 and 2010 is an indication of increasing demand for public access and stewardship resources.

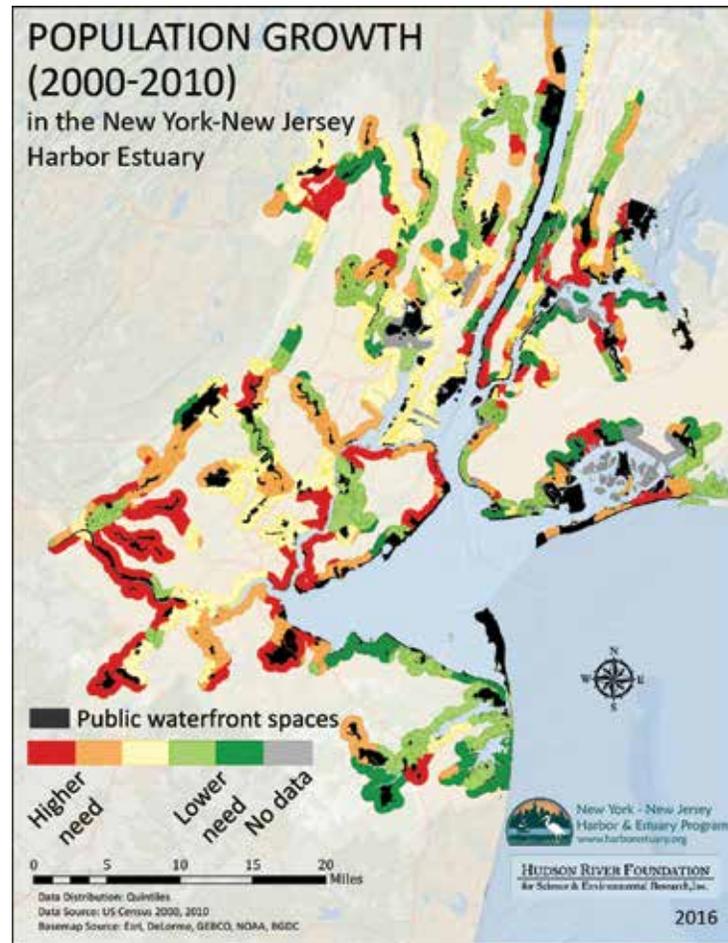


Figure 7: Population growth (measured as percent change between 2000-2010) was particularly high along the Raritan River and northern shore of Staten Island.

Table 6: Quintile group values of population growth between 2000 and 2010 for census block groups in the study area

Quintile	Value range (%)
1	-22- (-2)
2	-2-1
3	1-3
4	3-7
5	7-272

Source: 2000 and 2010 US Census, rounded to whole numbers. See Appendix A for all figures.

Need Index

The Need Index demonstrates the composite score (between 5 and 25, with 25 representing the highest need) for all of the five equally-weighted indicators by census block group (see Defining Need for Public Access and Stewardship Capacity and Appendix A). This score provides a high-level indication of need at the census block group scale.

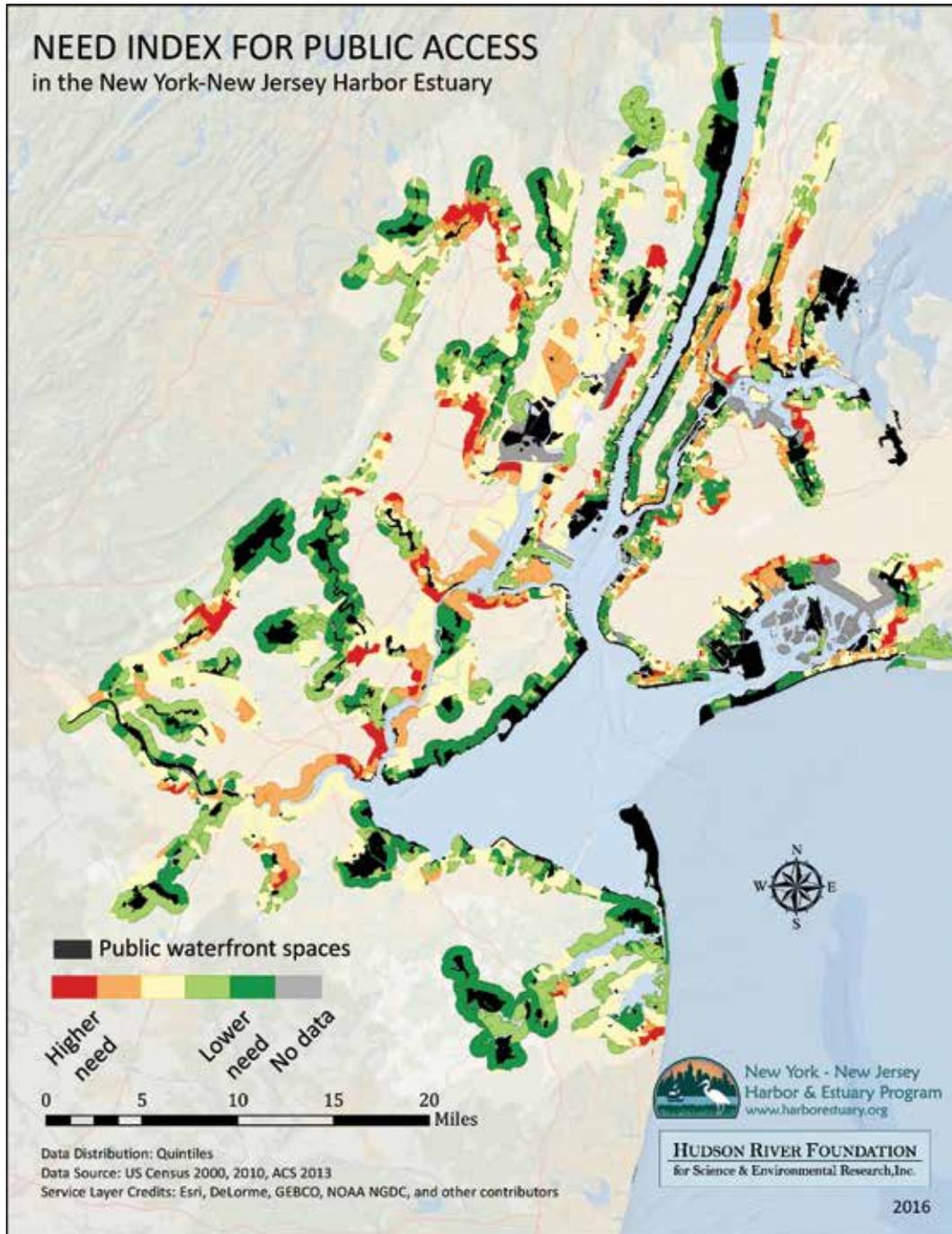


Figure 8: The Need Index was based on the composite scores of each of the five indicators of need for public access and mapped at the census block group level.

IDENTIFYING HIGHER NEED AREAS

A spatial cluster analysis was conducted to provide a regional-scale indication of where the higher need areas in the Harbor Estuary are located. Areas were reclassified based on the value of the surrounding neighborhood; this technique highlights locations with spatial clusters of higher need areas.¹⁴ The delineation of these distinct areas was then interpreted based on expert judgement of HEP staff and the Public Access Work Group to account for geographic boundaries and the relative population size of the clusters (Figures 9-10 and Appendix A). This level of analysis is useful for making comparisons at a regional scale, while for specific interpretation at a smaller scale, the Need Index should be used (Figure 8).

Twelve waterfront areas were identified (Figure 9). Compared to the Harbor-wide study area (all areas located within one half mile of the waterfront, these areas had fewer public access opportunities per person, higher population growth, and/or more economically disadvantaged populations. Individual higher need areas are described below with reference to the specific stewardship and access needs and opportunities identified through the stewardship assessment. These ranged from the need for increased or improved physical access to the water to increased programming and funding for stewardship organizations.



Kate Boicourt

Some portions of the Bronx are dominated by industrial uses in which public access development is a challenge.

List of higher need areas indicated by the spatial cluster analysis

1. The Bronx (Harlem River, Bronx River, Co-op City)
2. Passaic River (Newark, Paterson, Passaic)
3. Jamaica Bay (East New York, Ozone Park, Rosedale, Far Rockaway)
4. Brooklyn (Sunset Park, Navy Yard, Bushwick)
5. Elizabeth River
6. Green Brook (Plainfield, North Plainfield)
7. Staten Island's North Shore
8. Raritan Mouth/Arthur Kill
9. Hackensack River (Hackensack, Englewood, North Bergen)
10. Yonkers
11. North Manhattan/Harlem River
12. Flushing Bay

The Bronx (Harlem River, Bronx River, Co-op City)

Despite many large-scale parks within its region (Soundview Park, Bronx Park, Ferry Point Park, Pelham Bay Park), the Bronx higher need area is characterized by the second lowest median household income of all groups (\$31,394) and little access to the Harlem River in particular. Consistent needs highlighted by stewards of the region included funding for programming and improved public services (bathrooms, drinking fountains). A number of plans in this region highlight potential public access, including plans developed by the Bronx Borough President's office for the Harlem River and other waterfront areas, the work of the Bronx River Alliance, and community and civic-led initiatives for Hunts Point, Mott Haven, and other neighborhoods. Potential future access to the Harlem River may include the development of access to Depot Place, a small property recently acquired for the purposes of public access but as of 2016 not yet developed. Further, multiple stewardship groups operate throughout this region, providing an opportunity for community engagement and programming (Figure 13).

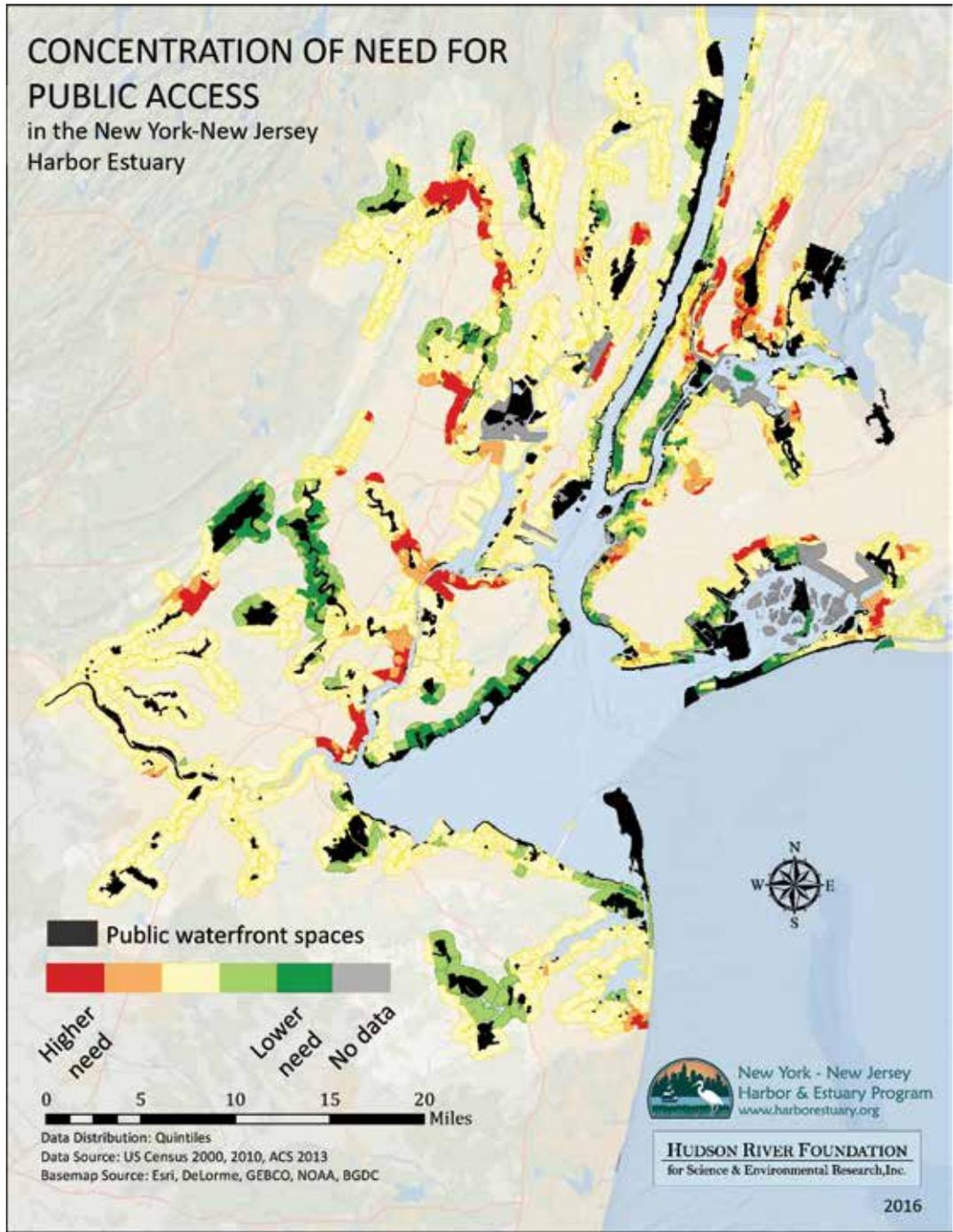


Figure 9: A spatial cluster analysis of the need index helped identify where higher need areas are concentrated.

Table 7: Socioeconomic characteristics of higher need areas, as compared to the Harbor Estuary average

Area	Income (avg. median household)	Communities of color (%)	Youth (% under age 14)	Population growth (%)	% population with no waterfront access	Population
Harbor-wide study area	\$67,782	58.3%	17.4%	3.5%	17.1%	5,260,699
Higher need areas combined	\$35,978	92.0%	22.8%	3.4%	47%	513,037
The Bronx (Harlem River, Bronx River, Co-op City)	\$31,394	95.1%	23.6%	4.8%	31.8%	197,854
Passaic River (Newark, Paterson, Passaic)	\$32,225	91.8%	23.7%	0.2%	50.1%	118,171
Jamaica Bay (East New York, Ozone Park, Rosedale, Far Rockaway)	\$45,281	92.9%	23.1%	5.1%	59.3%	42,953
Brooklyn (Sunset Park, Navy Yard, Bushwick)	\$37,065	84.5%	22.3%	-0.1%	91.2%	23,857
Elizabeth River	\$37,454	88.6%	17.8%	-0.1%	49.7%	22,663
Green Brook (Plainfield, North Plainfield)	\$42,874	91.3%	22.8%	4.0%	53.8%	22,591
Staten Island's North Shore	\$43,937	86.2%	25.2%	10.8%	62.8%	17,174
Raritan Mouth/Arthur Kill	\$43,353	85.4%	23.3%	7.7%	100.0%	16,767
Hackensack River (Hackensack, Englewood, North Bergen)	\$49,621	87.3%	19.2%	3.6%	0.8%	16,071
Yonkers	\$40,317	88.5%	21.3%	-0.1%	62.4%	13,313
North Manhattan/Harlem River	\$30,469	93.0%	19.7%	4.5%	21.4%	12,484
Flushing Bay	\$38,977	88.0%	12.6%	5.2%	81.7%	9,138

Note: rounded to the nearest 10th; incomes rounded to the nearest dollar amount.

Table 8: Public access of higher need waterfront areas compared to the Harbor Estuary average

Area	Linear accessibility		Linear gaps in access		Miles of access	Miles of gaps in access	Total miles of waterfront
Harbor-wide study area	37.4%	59.5%	595.0	947.0	1592.0		
Higher need areas combined	9.1%	82.8%	23.7	215.3	260.1		
The Bronx (Harlem River, Bronx River, Co-op City)	27.0%	72.7%	13.2	35.6	48.9		
Passaic River (Newark, Paterson, Passaic)	3.5%	96.4%	2.8	76.8	79.7		
Jamaica Bay (East New York, Ozone Park, Rosedale, Far Rockaway)	1.5%	22.3%	0.4	5.9	26.4		
Brooklyn (Sunset Park, Navy Yard, Bushwick)	3.7%	96.3%	0.5	12.1	12.6		
Elizabeth River	0.0%	100%	0.0	2.5	2.5		
Green Brook (Plainfield, North Plainfield)	12.3%	87.7%	2.1	14.4	16.4		
Staten Island's North Shore	0.0%	92.3%*	0.0	8.9	9.7		
Raritan Mouth/Arthur Kill	4.6%	95.6%	1.6	32.5	34.1		
Hackensack River (Hackensack, Englewood, North Bergen)	4.2%	95.8%	0.6	13.0	13.6		
Yonkers	10.0%	90.0%	0.4	3.6	4.0		
North Manhattan/Harlem River	72.0%	28.0%	1.8	0.7	2.5		
Flushing Bay	3.1%	95.3%	0.3	9.3	9.7		

Note: rounded to the nearest 10th *The remaining waterfront in this area is classified as "limited accessibility"

Passaic River (Newark, Paterson, Passaic)

There is little contiguous public access between Riverbank Park in Newark until Great Falls National Historic Park and Westside Park in Paterson. The area bordering the Passaic River around Paterson and Garfield is characterized by both dense residential and industrial/commercial development, as well as a State Highway 20, separating residents from the river. Physical access to sites was highlighted as a challenge by civic organizations responding to the assessment. Some public access sites have a variety of programming (e.g. Riverbank Park's public education and horticultural/ecological restoration programs and fishing and boating programs). This area had relatively fewer respondents to the stewardship assessment, suggesting a potential need for increased stewardship (Figure 13). Median household incomes in this higher need area are less than half of the study area average, and linear gaps in area are over 96%, the second highest in the region, highlighting a need for increased public waterfront space.

Jamaica Bay (East New York, Ozone Park, Rosedale, Far Rockaway)

Jamaica Bay is characterized by beach access on the ocean side as well as Rockaways Community Park and

Bayswater Park along the bay itself. However, certain areas have little access due to security zones along the waterfront (i.e. JFK airport), or contain relatively higher need populations. Together, these neighborhoods are home to a population that is over 90% communities of color. About 60% of these residents do not have waterfront access within one half mile of their home. This suggests a higher need for resources targeted towards programming as well as means of accessing existing or developing new waterfront spaces. Near-term expected public access improvements include in-progress projects such as restoration of Spring Creek South in East New York/Howard Beach.



Don Riepe

Jamaica Bay has extensive natural areas and parks, but some communities are separated from these resources due to security zones or other factors.



National Park Service

The Passaic River's historic industrial waterfront has recently become more accessible, but still has some of the longest stretches of inaccessible waterfront.

Elizabeth River

Adjacent to a major shipping channel, the New Jersey side of the Arthur Kill and Elizabeth River is highly residential, with industrial operations occurring primarily at the mouth of the river and along the Arthur Kill. There are two waterfront public spaces providing larger stretches of contiguous access - the Elizabeth River Parkway and the Arthur Kill Greenway. The primary gaps in this area are between Parker Road and South Broad Street and adjacent to the Norfolk Southern rail terminal. Household incomes are within the lower-middle range of higher need waterfront areas (\$37,454) and about half of the population is not served by access within one half mile. By linear measures, this area has no access (0%), demonstrating that increasing access may be a major priority in this area, possibly

increasing the connection to the Elizabeth River Parkway, which provides access for a large stretch of adjacent waterfront.

Green Brook (Plainfield, North Plainfield)

Green Brook has a median household income of over \$20,000 lower than the harbor-wide average, and the area also has much less public access (about half of the population does not have access within one half mile). Additionally, 91% of the population identifies as a person of color, and youth populations are moderately high. About one half of the area's waterfront is accessible. No civic organizations identified themselves as stewards of particular public access sites in the area.

Brooklyn (Sunset Park, Navy Yard, Bushwick)

Brooklyn contains three key clustered higher need waterfront areas – surrounding the Navy Yard, Newtown Creek, and Sunset Park. Industrial activities at the Navy Yard limit access. The Bushwick community contains an industrial portion of Newtown Creek, which similarly limits access. The higher need area in Sunset Park is similarly dominated by industrial waterfront with the exception of the newly-opened Bush Terminal Piers Park. These areas house the fourth lowest median incomes of all higher need waterfront areas (\$37,065). Identifying a means of helping local residents enjoy currently limited access through additional programming may be a near-term option for these areas.



Kate Boicourt

The north shore of Staten Island has an industrial past as well as old rail lines, contributing to a lack of access in the area

Staten Island's North Shore

Staten Island's north shore along the Kill Van Kull is an active maritime industrial area. There is also a large residential population that is largely disconnected from its waterfront with a large gap in linear access, a primary challenge for this area. Further, the area has the highest youth population of all higher need areas (25.2%) as well as the highest amount of growth (10.4%). Significant points of access include Faber Park, the recent addition of Heritage Park, Snug Harbor, and the esplanade leading toward St. George Terminal to the east. A potential opportunity for access in the future is Arlington Marsh, where New York City Parks is assessing steps for remediation.

Yonkers

This higher need waterfront area is characterized by fenced industrial areas, and over 60% of its population without access to a waterfront public space within one half mile. Yonkers has expanded waterfront access in the past few years, however, including an environmental education center (Beczak Environmental Center), which stewardship assessment respondents indicated is in need of funding for maintenance and programming. Additionally, there are a moderately high percentage of young people (over 21.3%).

Raritan Mouth/Arthur Kill

The mouth of the Raritan River is adjacent to two relatively large contiguous public stretches in both Perth Amboy and the southern tip of Staten Island (Perth Amboy Waterfront Park and Conference House Park, respectively). A new park in Perth Amboy (Second Street Park, highlighted as in need of funding for multiple services by stewardship assessment respondents) was also in development as of 2016. However, the south shore of the Raritan in New Jersey between the South Amboy train station to the east and Buchanan Park to the west has no public access. There is a particularly high need for open space given high rates of growth in the area (11%) and a high youth population (23.3%).

Hackensack River (Hackensack, Englewood, North Bergen)

The Hackensack River is characterized by both natural areas (wetlands) and industrial-commercial waterfront, and contains three distinct higher need areas, particularly due to socioeconomic factors. Incomes are about 30% lower than the harbor-wide average and percent communities of color are similar to other higher need areas (87.3%). Significant access points in

the area include Overpeck County Park, and Foschini Park. Stewards of Overpeck County Park highlighted multiple community programs that occur at the site (boating, fishing, events). The area is also characterized by large stretches of access gaps (over 95%).

North Manhattan/Harlem River

The Harlem River shoreline in Manhattan is characterized by residential and industrial development and steep embankments in some places that create challenges to direct access to the water. Harlem River Park and Sherman Creek Park are the primary waterfront parks in the area, as well as Inwood Hill Park near the mouth of the River. Multiple sites were highlighted as needing funding for maintenance, programming, and increased access via parking or other means by respondents to the stewardship assessment. This area is also characterized by the lowest income of the higher need areas (\$30,469), and a population of which 93% identify as

persons of color. Recent advancements in public access in the area include the reopening of the historic High Bridge (adjacent to Highbridge Park and Harlem River Drive) in 2015, connecting Manhattan with the Bronx.

Flushing Bay

Flushing Bay and Creek, lie adjacent to Flushing Meadows Corona Park, one of NYC's larger parks, which holds frequent public education, citizen science, and boating programs. However, the area also contains large areas of no or prohibited access, including along the LaGuardia Airport shoreline to the west. To the east is a large stretch of private and inaccessible waterfront, presenting a challenge to providing access. Very little linear waterfront in this area is open to the public (3%), and median household incomes are low (\$38,977). Redevelopment proposals by New York City may offer opportunities for creating new public access in this area.



Kate Boicourt

Harlem River Park is a primary waterfront access site along the northern end of Manhattan. In this stretch, the seawall was designed to incorporate lower-impact habitat considerations, and is currently under study by citizen scientists.

OVERVIEW

Civic organizations are critical to the stewardship of the Harbor Estuary and improving public access to its waters. These organizations complement the work of local, state and federal parks departments and other landowners by identifying opportunities for and advocating for the development of new parks and access points. They also improve management and maintenance of parks by building active constituencies and undertaking a variety of voluntary and professional tasks. Whether locally based or representing a specific user group, many civic organizations offer educational and recreational programs, especially important for introducing people to the estuary and engaging young people in outdoor activity.

The New York – New Jersey Harbor Estuary boasts an extraordinary number of stewardship organizations. The 146 organizations that completed our assessment are located throughout the estuary. Almost all of them educate the public about the environmental values of the harbor or otherwise work to advance conservation values. More than 60% are active in managing parkland – mostly locally owned parks - and other Harbor resources. While many civic organizations identified “environment” their primary focus (43%), the majority spent more time on other recreation and community issues. These stewardship organizations are mostly small in size – about 45% have an annual budget of less than \$50,000 – they collectively engage about 116,000 volunteers and have 237,000 members.

IDENTIFYING CIVIC STEWARDS

To better understand and locate the extraordinary civic spirit that exists throughout the region and where efforts are needed to foster additional stewardship capacity, a stewardship assessment was distributed to more than 500 organizations and publicized via multiple newsletters, direct e-mail, and phone calls. The assessment was aimed at understanding organizational capacity and stewardship practices, including organizational focus, geographic “turf,” and social networks (Appendix A). It was based upon the previous (2007) STEW-MAP assessment and modified to focus exclusively on stewards of waterfront public spaces. In addition to questions retained from the 2007 STEW-MAP assessment that characterize stewardship organizations’ capacity and geography, additional questions were added focusing on waterfront areas that organizations directly steward.

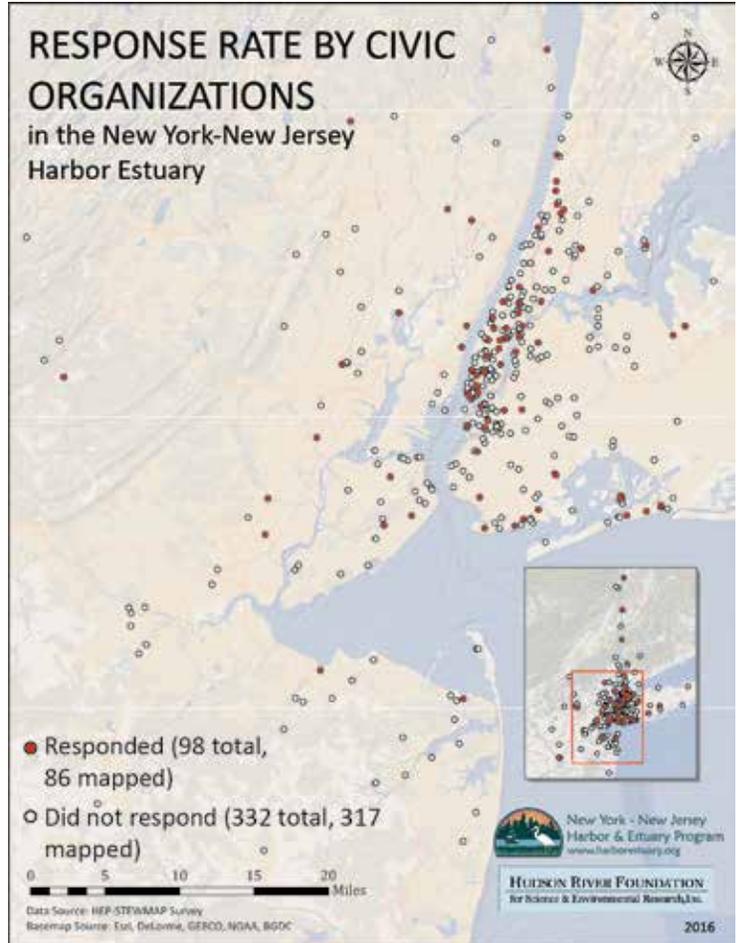


Figure 10: Civic organizations had a slightly higher response rate in New York. Multiple organizations (27) were not mapped due to lack of physical office location, but are still reflected in the total number as indicated in the legend.

In total, 167 groups responded, of which 146 were civic organizations (i.e. non-governmental organizations), the focus of this assessment. Respondents were distributed across the Harbor Estuary, with a higher response rate by organizations with offices in New York (24.1%) relative to New Jersey (18.7%, Figure 10). The assessment included questions about organizational characteristics, where groups work, and which other groups they work with. About 74% of these organizations answered questions about publicly accessible waterfront sites in which they operate. These groups provide a broad array of programs that help engage people with the Estuary, with the highest focus on educational curricula, community organizing, and public relations/outreach, and labor (volunteers, students, interns). A subset of these responses is presented here, emphasizing how and where groups work.

TYPES OF STEWARDSHIP AND ORGANIZATIONAL FOCI

Organizations were asked to identify their key goals related to environmental stewardship. Responding civic organizations engaged in one, multiple, or all five types of stewardship (education, conservation, advocacy, monitoring, and management, Table 9). Education was the most common focus across all organizations (97.2%), while management was a focus of just over half of the organizations (59.7%). The environment was the primary focus of many of these organizations (43.1%), but many other types of civic organizations that responded had a different primary focus, ranging from recreation to housing to a suite of other urban concerns (Table 9).



Don Riepe

A majority of civic groups (60%) are active in managing park lands.

Table 9: Aims of responding civic organizations

	Frequency	Percent
Types of stewardship		
Educate the public about the local environment	140	97.2%
Conserve local environment	137	95.1%
Advocate for the local environment	135	93.8%
Monitor the quality of the local environment	109	75.7%
Manage some area of the local environment	86	59.7%
Primary focus		
Environment	66	43.1%
Other (please specify)	17	11.1%
Education	16	10.5%
Recreation and sports (including boating)	16	10.5%
Community improvement and capacity building	5	3.3%
Youth	5	3.3%
Arts, culture	4	2.6%
Animal related	3	2.0%
Religion related	3	2.0%
Research in science, technology, and social sciences	3	2.0%
Housing (including homeowners or condo association, real estate mgmt. firm)	2	1.3%
Public health	2	1.3%
Human services	1	0.7%
Private grant-making foundation	1	0.7%
Transportation related (including water taxis and ferries)	1	0.7%
Development	0	0.0%

Of the responding organizations, almost half (46.4%) mentioned that stewardship activities comprise 80-100% of the time spent by the organization (Table 10).

Table 10: Amount of time organization spends on stewardship

Amount of time spent on stewardship	Number of organizations	Percent of total organizations
80-100%	65	46.4%
60-79%	17	12.1%
40-59%	16	11.4%
20-39%	18	12.9%
0-19%	24	17.1%
Total responding organizations	140	100%

WHERE AND HOW CIVIC ORGANIZATIONS WORK

Respondents were also asked to identify all services that their organizations provide. Most organizations offer more than one type of service (Table 11). Education curricula (45.1%) and community organizing (44.4%) are the most commonly offered services. One-third (31.4%) of organizations engage in coastal resilience/ climate change education efforts or projects and 22.9% of organizations engage in public boating, fishing, or swimming programming.

Particularly relevant to this assessment, 22% offer boating, swimming, or fishing programs (although only one group said that they conduct swimming programming at a particular site). Educational programming about climate change is an important element of stewardship programming, as many of these waterfront areas are vulnerable to the effects of sea level rise and coastal storms; 31% conduct climate change education programs or projects.

Table 11: Services offered by organizations (more than one answer is possible)

Service offered	Frequency	Percent
Educational curricula	69	45.1%
Community organizing	68	44.4%
Public relations/outreach	59	38.6%
Labor (volunteers/students/interns)	57	37.3%
Coastal resiliency/climate change education or projects	48	31.4%
Technical assistance	41	26.8%
Public boating, fishing, or swimming programs	35	22.9%
Plant materials/equipment	27	17.6%
Data	25	16.3%
Buildings/facilities	14	9.2%
Grants	11	7.2%
Legal resources	7	4.6%
Computing/internet	6	3.9%

In addition, organizations described specific services. These include:

- Citizen science participation, including for water quality testing
- Scientific research
- Restoration efforts, including oyster restoration and marsh plantings
- Green infrastructure installation
- Open space conservation
- Public policy analysis
- Wildlife rescue

Responding civic organizations work in a variety of sites (Table 12, Figure 11). Parks (57.3%) are the most common site type, followed by aquatic-based sites (waterfront, beach or shoreline (53.1%); watershed or sewer-shed (46.9%); stream, river or canal (42.7%), “natural”/restoration area (39.2%), or bay (25.9%). Sites have varied ownership. Most stewarded sites are on governmental land; the most common type of ownership is town/city (55.1%, Table 13).

Table 12. Sites where civic organizations work (more than one answer is possible)

Site type	Frequency	Percent
Park	82	57.3%
Waterfront, beach or shoreline	76	53.1%
Watershed or sewershed	67	46.9%
Stream, river or canal	61	42.7%
“Natural”/restoration area	56	39.2%
Bay	37	25.9%
Community garden	36	25.2%
Public right of way (e.g., street ends, roadside, traffic island, greenstreet)	31	21.7%
Marina, docks or boat ramp	29	20.3%
Forest/woodland	24	16.8%
Vacant land	23	16.1%
Street tree	22	15.4%
Green building	21	14.7%
School yard	21	14.7%
Historically-designated buildings/landscapes	19	13.3%
Playground/playing field/ball field	18	12.6%
Ocean	15	10.5%
Urban farm	15	10.5%
Grassland	12	8.4%
Front yard/back yard	11	7.7%
Apartment /grounds	10	7.0%
Rooftop	9	6.3%
Dog run/dog park	5	3.5%
Botanical garden	5	3.5%
Greenway/rail-trail	5	3.5%
Courtyard/atrium/plaza	5	3.5%

Table 13: Ownership of property (more than one answer is possible)

Ownership type	Frequency	Percent
Town/township/city/village government	81	55.1%
State government	49	33.3%
County government	37	25.2%
Nonprofit or civic organization	26	17.7%
Individual	25	17.0%
Federal government	22	15.0%
Corporation (including stores and commercial businesses, joint ventures, real estate investment groups)	21	14.3%
Other government (e.g., Port Authority)	18	12.2%
Homeowners/condo association	9	6.1%
Religious organization	8	5.4%
Don't know	5	3.4%

ORGANIZATIONAL CAPACITY

Organizations varied in their capacity, in terms of funding sources, budgets, staffing, and hours. But in aggregate, these civic stewards provide a remarkable amount of service, collectively engaging about 116,000 volunteers and 237,000 members despite limited resources. Of the 120 organizations who answered questions about budget, 45% had an annual budget of less than \$50,000.

Assessed civic organizations receive their funding from a variety of sources, with individuals as the most frequently cited source (50.7%, Table 14). Organizations also have a broad range of annual budgets. The smallest budget category, \$0 – 1,000 included 12.8% of organizations, while 6.7% of respondents have a budget between \$2,000,000 and \$5,000,000 (Table 15). A large

percentage of respondents chose not to answer this question (9.4%) or left it blank (16.1%).

Organizations also varied in amounts of staff and volunteers. Some organizations had no staff, while others had up to 550 full-time staff and 350 part-time staff (Table 16). While some organizations had no members, the average level of membership was 1,614.3 and some organizations had up to 80,000 members. Volunteer hours averaged 4,910 per year, and total volunteers averaged 798.

Table 14. Funding sources for organizations (more than one answer is possible)

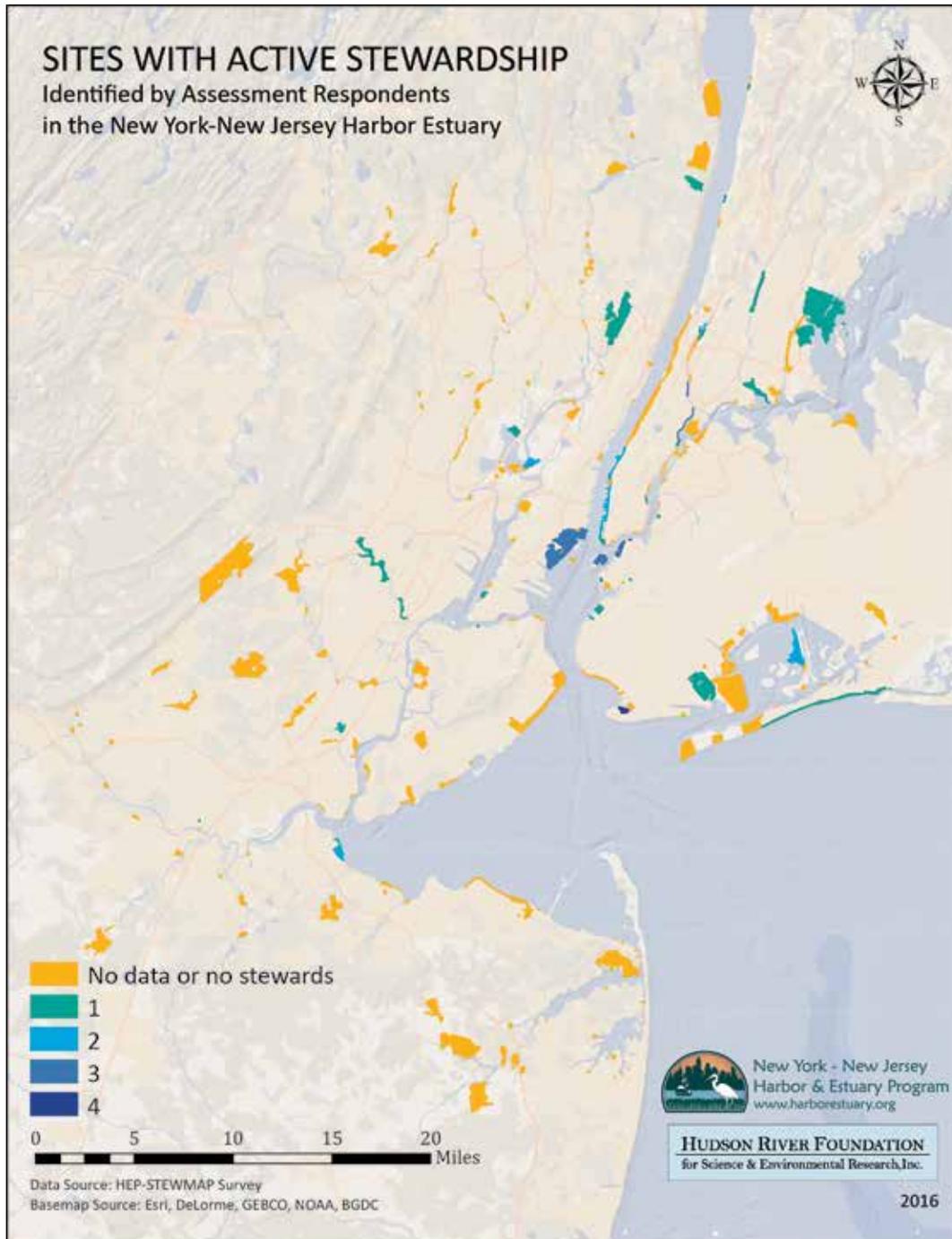
Funding Source	Frequency	Percent
Individuals	75	50.7%
Foundation	71	48.0%
Government	67	45.3%
Corporate	52	35.1%
In-kind	48	32.4%
Fees/programming	34	23.0%
Endowment	9	6.1%

Table 15. Annual budget for civic organizations

Annual Budget	Frequency	Percent
\$0 - 1,000	19	12.8%
\$1,001 - 10,000	15	10.1%
\$10,001 - \$50,000	20	13.4%
\$100,000 - \$200,000	8	5.4%
\$200,000 - \$500,000	13	8.7%
\$50,001 - \$100,000	8	5.4%
\$500,001 - \$1,000,000	10	6.7%
\$1,000,001 - \$2,000,000	6	4.0%
\$2,000,001 - \$5,000,000	12	8.1%
Prefer not to answer	14	9.4%
Left blank	24	16.1%

Table 16: Amount of staff and volunteers by organization

Labor Type	Average	Minimum	Maximum
Full-time Staff	15.4	0	550
Part-time Staff	8.5	0	350
Members	1,614.3	0	80,000
Volunteers	797.6	0	60,000
People on List	5,640.7	0	80,000
Volunteer Hours	4,191.0	0	90,000

**Figure 11: A number of public waterfront spaces are directly stewarded by civic organizations.**

WHERE ORGANIZATIONS OPERATE

Organizations were asked to describe or provide a map of the geographic extent of where they worked. Areas where organizations work are called “stewardship turfs,” ranging from a specific waterfront park to an entire county or larger in size. While there is a stewardship presence throughout the region, some areas are more densely stewarded than others. Figure 12 shows the distribution of stewardship turfs throughout the Harbor

Estuary. Notably, there are a greater number of stewards located in Manhattan and New York City in general as compared to the Passaic, Hackensack, and lower Raritan Bay areas. Further analysis is needed to understand this distribution in detail, but previous analysis (STEW-MAP) identified population density as one of the most important factors influencing the number of groups in a given census block group.

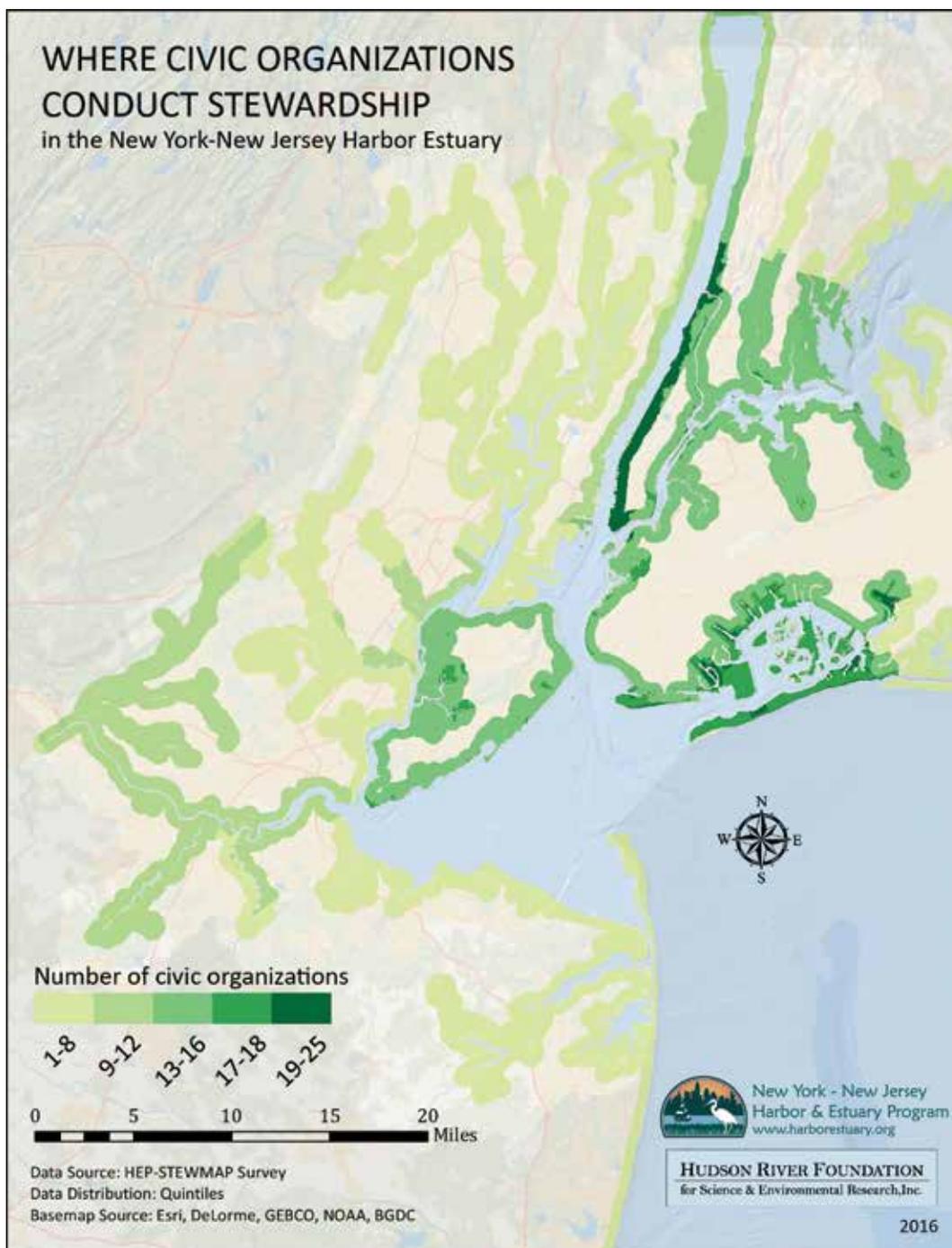


Figure 12: The stewardship “turf” of civic organizations was distributed throughout the region, with a slightly higher number of organizations responding in New York (mapped by office location).

OVERVIEW

Direct access – where one can safely touch and travel to and from the water – is an important but more challenging measure. To address a portion of this question, all public access sites with known boat launches and swimming beaches were mapped (Figure 13).¹⁵

Though an incomplete data set, it should also be noted that 183 sites were either indicated by civic organizations via the stewardship assessment or by HEP as places where one could “safely touch the water.” Further data collection and analysis on this aspect of access could help to further address this question throughout the Harbor Estuary.

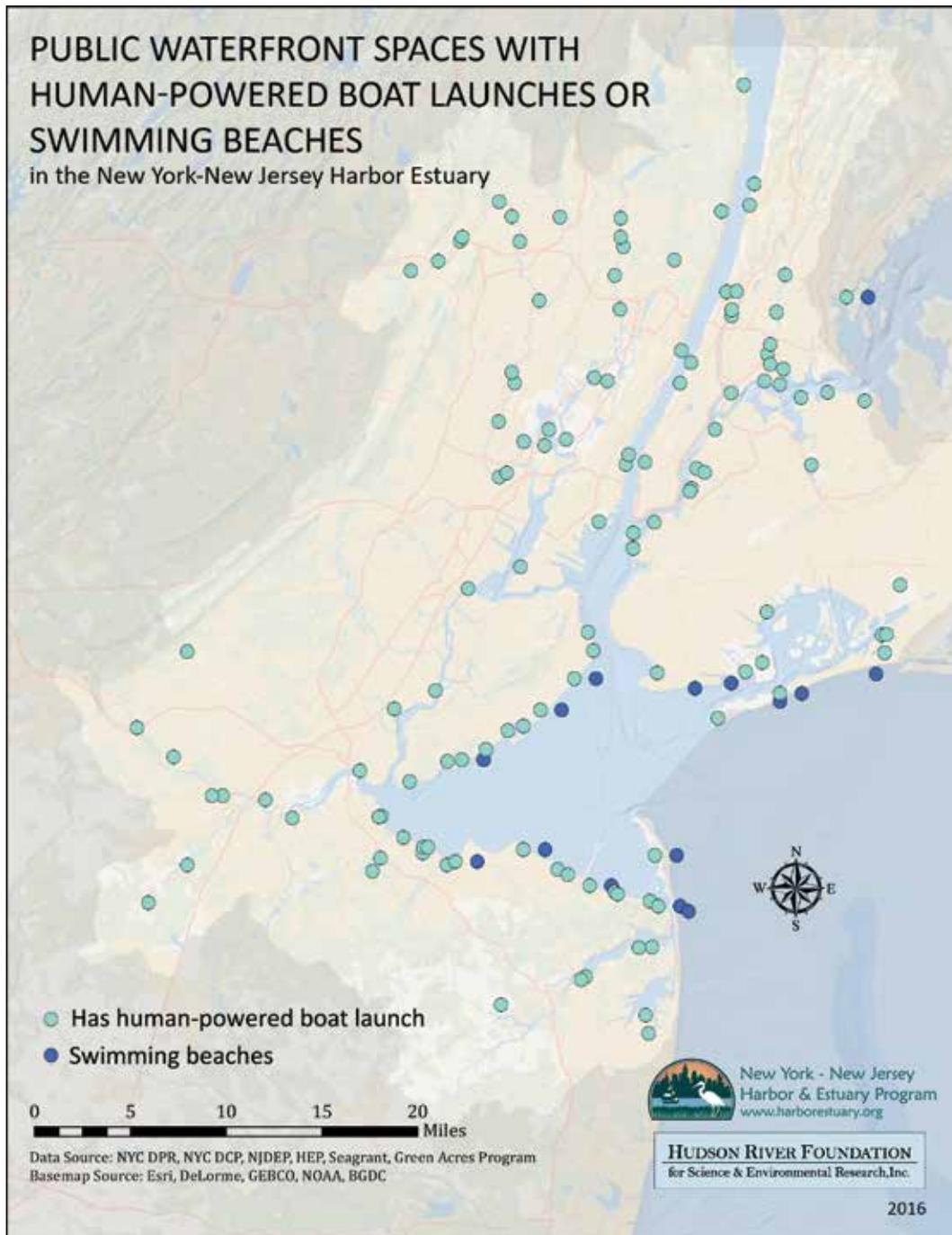


Figure 13: Direct access was measured by whether or not a public space contained a human-powered boat launch or swimming beach. Note that points indicate presence, rather than exact location.

¹⁵Data for launch sites were sourced from the NY-NJ Harbor & Estuary Program, NYC Water Trail Association, NY/NJ Baykeeper, Hackensack Riverkeeper, AN-JEC, Bronx River Alliance, the National Park Service, NYC Dept. of Parks & Recreation, Waterfront Alliance, and the Passaic Valley Sewerage Commissioners.

CONCLUSIONS AND NEXT STEPS

OVERVIEW

Great progress has been made in the New York-New Jersey Harbor Estuary in the past few years in terms of access.¹⁶ However, there is still much ground to be gained. Only 37% of our linear waterfront is accessible, yet regional goals emphasize that all waters should be accessible by 2050.¹⁷ Moreover, as shown by this assessment, only about 9% of the waterfront in the neighborhoods with the highest need is currently accessible.

Moving forward requires discussion of several key questions. What are the best means of addressing high need areas: increased public access or improved stewardship and programming at existing access sites? What does “all waters accessible” mean from

a functional standpoint? The desire by the civic organizations throughout the Harbor Estuary for more direct connections to and from our waterways requires improved water quality as well as management action. How is access to be grown and managed so that both people and wildlife are best served? For example, a 2014 assessment by the Trust for Public Land found that approximately half of New York City’s public access areas and park lands are considered natural areas, and left largely undisturbed and managed for ecological value, versus the other half of areas that are constructed and managed primarily for human use.¹⁸ These questions require further inquiry so that increases to public access can be better planned and managed.



Rowers prepare to depart from Brooklyn Bridge Park beach along the East River.

Rob Buchanan

¹⁶ Boicourt, Kate et al. 2015. Restoring the New York-New Jersey Harbor Estuary. New York-New Jersey Harbor & Estuary Program.

¹⁷ Baron et al. 2009. Hudson-Raritan Estuary Draft Comprehensive Restoration Plan. Draft, Vol I.

¹⁸ Harnik, Peter; A. Martin; T O’Grady. 2014. City Park Facts. The Trust for Public Land.

NEXT STEPS

A few next steps are recommended to begin to address these issues:

- **Track progress on public access and stewardship:** HEP will use this assessment to create a public platform that can be used to foster local cooperation and measure regional progress towards regional goals. Continued cooperation by all the partners represented in the Public Access Work Group will be critical towards maintaining this shared resource. A more interactive platform for stewardship organizations could be provided to register highly localized needs and opportunities for increasing access.
- **Devise strategies to increase public access:** In particular, the results of this assessment could be incorporated into the HEP Action Plan, Hudson-Raritan Estuary Comprehensive Restoration Plan, New Jersey's Municipal Public Access Plans, and New York State Local Waterfront Revitalization Plans to help address limited access in high need areas. Individual responses by civic organizations that are catalogued as part of this assessment (Appendix B: Site Assessment Responses) could be further reviewed to provide site-specific insight. These data, as well as the perspectives and knowledge of the larger community of organizations concerned with public access, provide a baseline from which to begin to analyze needs and develop strategies to improve access and engagement along the entire Harbor Estuary.
- **Strengthen civic stewardship and engagement:** Broad public support is needed to increase public access to the Estuary. Stewardship organizations and the public agencies that manage waterfront spaces work hand-in-hand to foster this support, acting as conduit and catalyst for awareness, a sense of place, and caring for our waterways. Many of the groups currently at work along the waterfront have annual budgets of less than \$50,000. These groups may benefit from leveraged support that includes funding, labor, technical expertise, and information. HEP and other groups that support civic efforts should use the assessment and database to inform and strengthen public access and stewardship programs. For example, stewardship organizations provide an impressive number of volunteer hours per year (4,910 on average). Site-specific analyses of how volunteer hours are distributed regionally and programmatically could assist land-managers and stewards alike in planning how resources are allocated (and perhaps even networks that should be strengthened).



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