The NYC Social Assessment: Understanding Waterfront Users
Coney Island Creek Waterfront Profile

Authors: Lindsey Strehlau-Howay, Brielle Manzolillo, Tatyana Graham, Christina Thomas, Lindsay Campbell, Michelle Johnson, Anne Toomey

Zone Names									
South Shore					North Shore				
Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8	Zone 9	Zone 10
Seagate	Coney Island Creek Park	Fishing Nook	Kaiser Park	West 23rd St. Community Garden	Eastern Natural Area	Home Depot Baseball Fields	Recreation	Fields	Western Natural Area

I. Waterfront Introduction

Coney Island Creek is a tidal creek located in the southwestern most part of Brooklyn, stretching 1.8 miles inland from its mouth at Gravesend Bay. Prior to the 1920s, the creek was three miles long, connecting Gravesend Bay and Sheepshead Bay, and separating Coney Island from the mainland (Immerso 2002). During the 1920s and 30s the eastern half of the creek was filled for highway and other development projects. Currently, the Coney Island Creek is an important body of water for ecological, social, and economic reasons. It contains more than 4 miles of waterfront, including sandy beach and tidal estuary ecosystems (NYCEDC 2016). Each year, countless birds migrate along the NYC coastline, and the brackish waters of the Coney Island Creek provide a welcome resting spot (Kensinger 2014; Rivel & Rosenheim 2016). The creek is also home to many species of marine life, including blue crab, bass, mullet, and mussels, which attract fishers and nature lovers alike (Kadinsky 2016).

The creek is lined by a mix of parks, capped landfills, industrial waterfront, and residential neighborhoods. The easternmost portion of the creek begins where Shell Road intersects with the Belt Parkway. Also along the eastern section of the creek are several warehouses, a remediated brownfield site, and an active combined sewer outfall, which results in raw sewage and stormwater bypassing treatment plants and overflowing directly into the creek during storms (NYCEDC 2016). The regular influx of sewage into the creek leads to nutrient loading and coastal eutrophication, where low oxygen zones limit the abundance and distributions of marine species, and can adversely affect the health of humans who consume fish and other aquatic life caught in these areas (HEP 2012; McPhearson et al. 2013).

Parks and other green space line most of the western half of the creek, including Six Diamonds Park and Calvert Vaux Park on the northern shore, and Kaiser Park and Coney Island Creek Park on the southern shore. These parks support a multitude of official recreational and leisure activities, including sports, walking, biking, fishing (for sport), and picnicking (Auyeung et al. 2016). Unofficially, the lands surrounding the creek provide campment areas for homeless individuals, and the marine life in the creek is caught or trapped for sustenance (Kensinger 2014). The sandy mouth of the creek is also a frequent location for bathers, and religious activities (e.g. baptisms, ceremonies) have also been reported to occur in this area.

In 2013, the storm surge from Hurricane Sandy caused the creek to flood and eroded some of the sandy beach in the Seagate area (at the mouth of the creek) (Kensinger 2017). To address future potential flooding and erosion, the New York City Economic Development Corporation conducted a resiliency study of Coney Island Creek, which resulted in several proposals for flood mitigation (NYCEDC 2016). One of these proposals included the insertion of a tidal barrier, which was widely challenged by local community members due to concerns that the barrier would exacerbate existing pollution problems (REF). Previous studies have indicated the water quality of the creek to be among the worst in the city, with fecal coliform counts deeming the water unsafe for most water-related activities (NYCDEP 2017; Mccann 2019). It was due to the high level of pollution that the Department of Environmental Conservation initially denied a permit sought by the Billion Oyster Project (BOP) to install a community

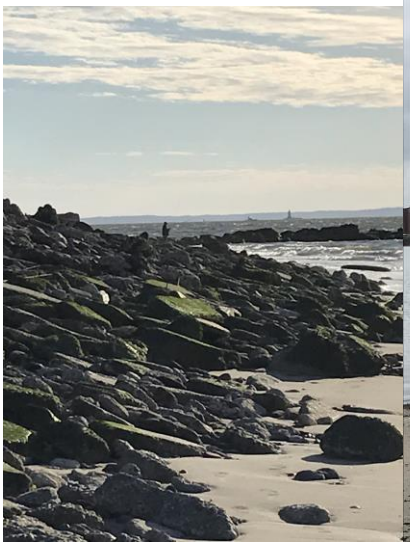
oyster reef in the creek, based on concerns that the oysters could be inadvertently consumed and lead to sickness (Mccann 2019). Members of the community organized in support of the permit, and in July of 2018, the BOP installed a community reef off the Kaiser Park fishing pier (Zone 4 in Figure 1).

The research described below demonstrates the wide array of activities that people engaged in along the Coney Island Creek. Findings suggest that in spite of the creek's reputation as being one of the most polluted water bodies in the city, many local users of the creek do not share the perception that the water is dirty. Several of our interviewees reported feeling safe eating fish from the creek, and a minority indicated that they would swim in the water. This raises interesting questions with regard to how polluted urban waterways are perceived by local communities, especially if these water bodies support activities that they deem important to their well-being.

Coney Island Creek from Western Natural Area

Soccer Fields in Recreation Zone

Beachfront fishing in Seagate



Rocky Shore in Seagate

Fishing Pier in Fishing Nook

Ship remains in Western Natural Area

Sand dune fences in Coney Island Creek Park

Coney Island Creek from Eastern Natural Area

Recreation courts in Kaiser Park

Garden plots and building in West 23rd Garden

Sand dune and creek in Fishing Nook

Waterfront path in Kaiser Park

Beachfront in Eastern Natural Area

Informal path in Coney Island Creek Park

Baseball field being used for dog in Rec. Zone

Baseball field in Home Depot Baseball Fields

Picnic area in Eastern Natural Area

Encampment in back of West 23rd Garden

Rocky shore in Western Natural Area

Beach and wildlife in Fishing Nook

Paved path in Western Natural Area

(Photographs By Lindsey Strehlau-Howay)

II. Research Questions and Methods

We explored the following questions:

1) What uses, values, and meanings are associated with the Coney Island Creek waterfront?
2) To what extent are local users aware of the ecological conditions of the Coney Island Creek?
3) To what extent do local users engage in stewardship activities associated with the Coney Island Creek?

This waterfront study was adapted from the existing methodology for studying the use, value, and meaning of parks and natural areas created by the USDA Forest Service, NYC Parks, and the Natural Areas Conservancy (Auyeung et al. 2016). Social and site data were collected in order to understand how urban waterfront users engage with Coney Island Creek. Primary means of understanding were direct observations of human actions, observations of signs of human use, and assessment of language and narrative conveyed through interviews with waterfront users.

Data collection was carried out between October and December in 2018 by four field researchers. Pairs were always used in order to enhance reliability through corroboration and to provide greater richness of daily debriefs and qualitative field notes. In addition to paired debriefs, full team debriefs were conducted at the end of each day in order to gather overall impressions, observations, and questions about sites as a whole. An end-of-season debrief was held with the full team.

We triangulated three data collection approaches: *direct observations of human activities*, *observations of signs of human use*, and *interviews with waterfront users*. Human activities were grouped functionally by type (e.g. sitting, socializing, bicycling, exercise, nature recreation). Field observation protocols (Appendix A-D) guided a mix of structured, quantitative counts; qualitative field notes; and photographic documentation.

The *direct human observation protocol* (Appendix A) was implemented throughout the study area, which was subdivided into zones according to park boundaries, management practices, uses, infrastructure, and cover type (see map). The prior protocol was modified to include a broader range of specific waterfront activities. Pairs implemented the protocol, taking photographs and logging observations of waterfront users and signs of human use, with debriefs conducted at the completion of a zone and at the end of a day of fieldwork. Research crews covered all terrain that was navigable without extensive bushwhacking, following all established trails and desire lines within each park site before moving onto another site. Crews were instructed to complete zones in a single day (i.e., not to split zones across visits). Type of activity and level of sociability (individual, pair, small group, large group) were recorded for all people observed in a particular zone. A total of 1921 observations were made through this protocol.

Observations of signs of human use (Appendix B) were collected through attention to the following key areas: signs of activity; signs of neglect, decay, or damage; signs of environmental stewardship; and

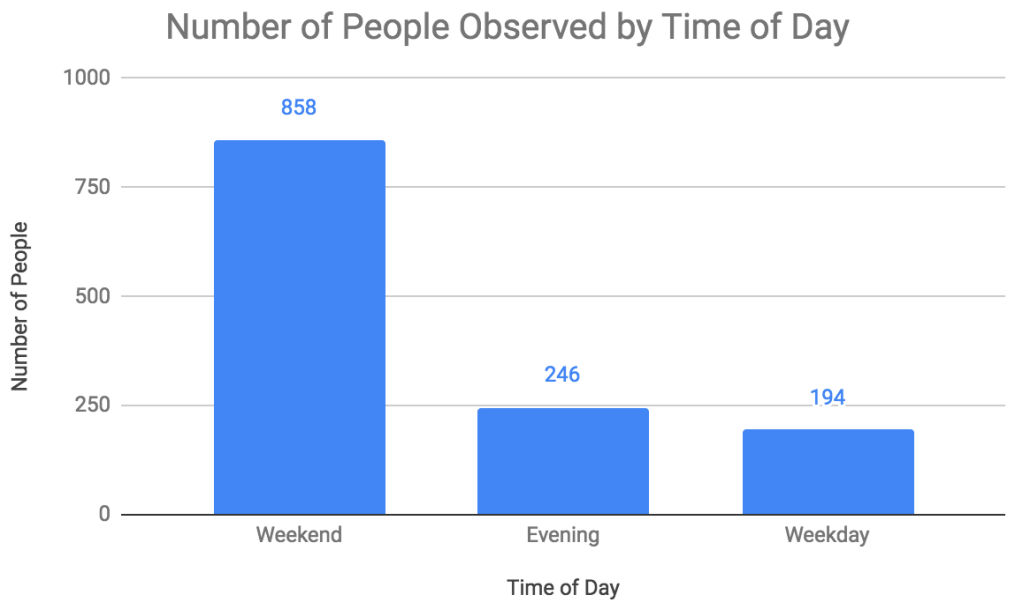
signage, writing, and art. In other words, these signs are part of the traces that people leave behind in waterfront parks, offering important clues and insights into the use and value of a particular area. Photos of key signs (as indicated with the camera symbol on the forms) were also collected. Field researchers observed 451 signs of human use and captured 716 images through photographic documentation.

Finally, the *interview protocol* (Appendix C) was implemented throughout the study area. The prior protocol for park users was modified to gather additional data about waterfront use and perceptions of waterways. Minors under the age of 18 were excluded from interviews and not approached. Researchers selected any waterfront user encountered and approached them for a rapid interview, unless they were overly occupied (i.e. playing sports, talking on a phone) or if the situation deemed too uncomfortable (i.e. approaching homeless individuals around a camp). This technique was used due to the limited number of people found in each zone. Interviews were voluntary and remained anonymous. This included 49 in-place interviews with waterfront users. Of the interviewees, 73% were male and 27% were female. 69% of participants fell in the age range of 18-65. 31% were over the age of 65. Research teams found that language was a barrier when conducting interviews, with some park visitors only speaking what was observed as possibly Russian, Chinese and Spanish languages.

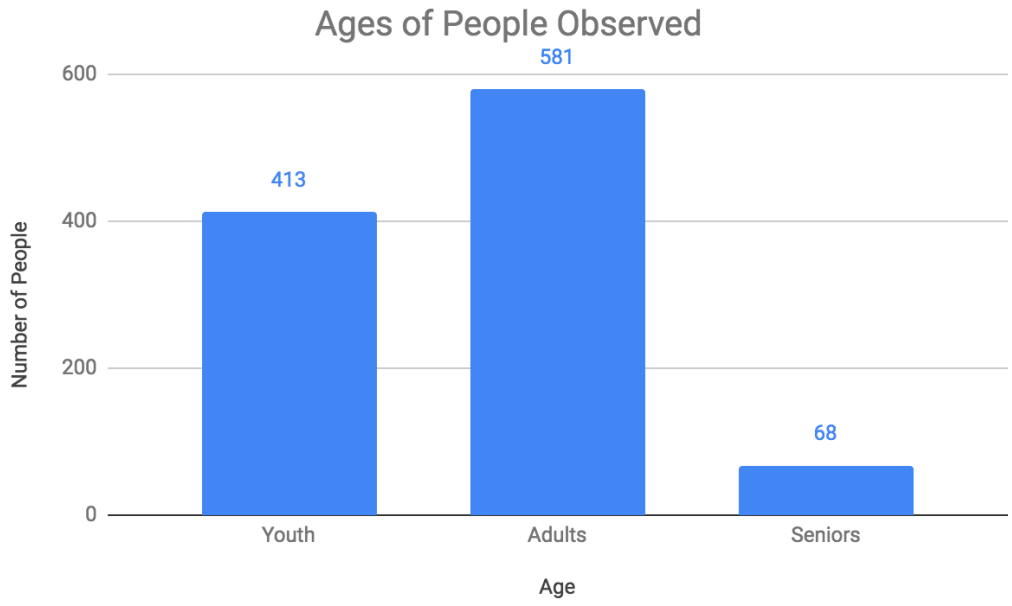
III. Waterfront Observations

When did we see people in the waterfront?

People were counted throughout the park during weekday, evening, and weekend visits. Tides had a large influence on when people and wildlife would be present in certain zones, particularly the ones containing beaches and natural or nature-based shorelines. We would learn through visiting how low tides would open up more shore to walk around and enjoy, expose large beds of ribbed mussels, influence when and what type of fish would be present for fishermen, and create access to areas otherwise blocked with water.

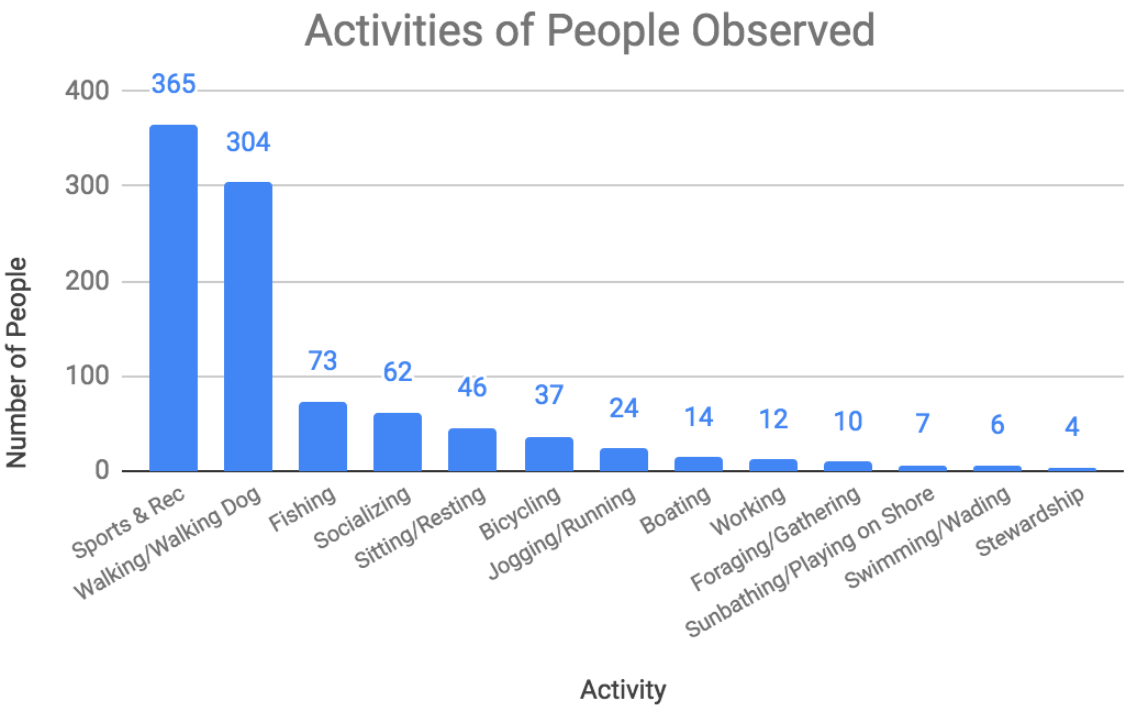

Number of People Observed by Time of Day
1000
750
500
250
0
Number of People
858
246
194
Weekend
Evening
Weekday
Time of Day

Who are they?


Ages of People Observed
600
400
200
0
Number of People
581
413
68
Youth
Adults
Seniors
Age

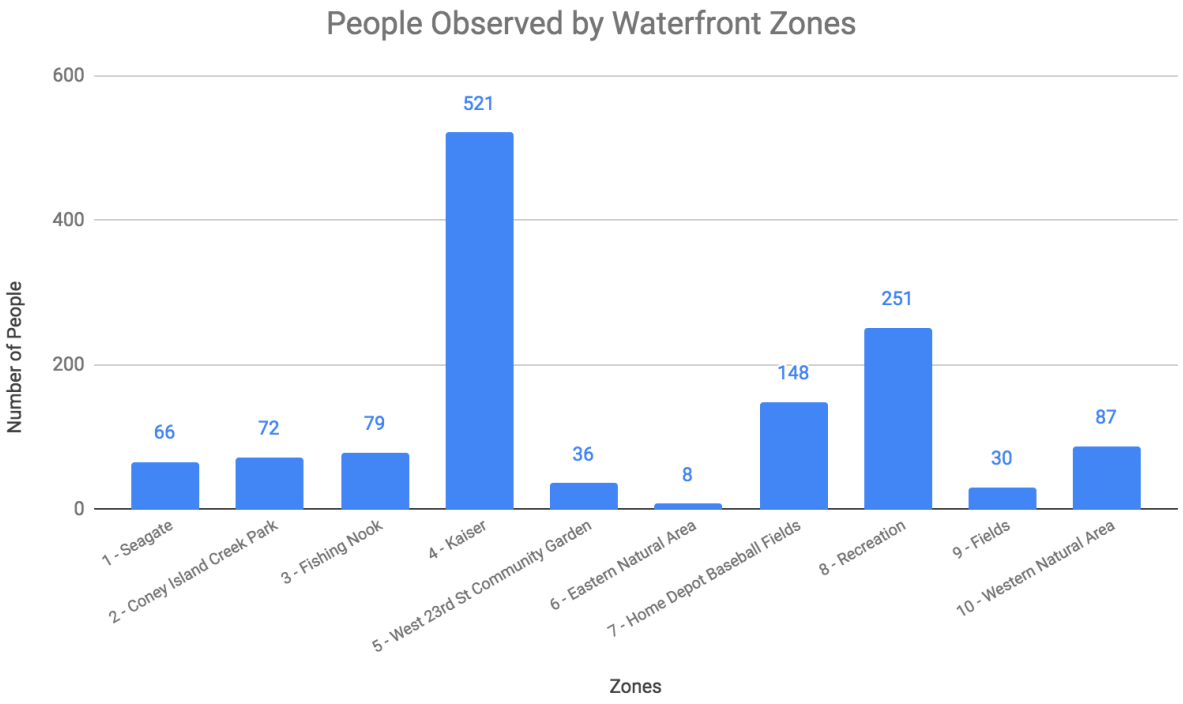
What are they doing?

The activities listed below represent categories of activities observed at Coney Island Creek. Some categories represent a singular activity observed, such as walking, bicycling, or fishing. Other categories represent an overall theme of the activity observed. For example, the majority (365) people were seen engaging in sports and recreation. This theme includes activities such as playing, free play in the park area or on playground equipment, or practicing for a sport. For the socializing category, people were observed sitting together on benches, meeting up to talk, or resting together on the grass.



Where did we observe them?

Seven out of the ten zones fall directly alongside Coney Island Creek. Both the Recreation and Fields zones are set inland behind the Western Natural Area zone on the north side of the creek. The third inland zone is the Home Depot Baseball Fields as it sits behind the Eastern Natural Area, again on the north side of the creek. Seagate, Coney Island Creek Park, Fishing Nook, Kaiser Park, and the West 23rd Community Garden are all on the south side of the creek and have direct access to the waterfront.



Detailed Counts

Activity: Counts of people observed in the waterfront interior by zone.

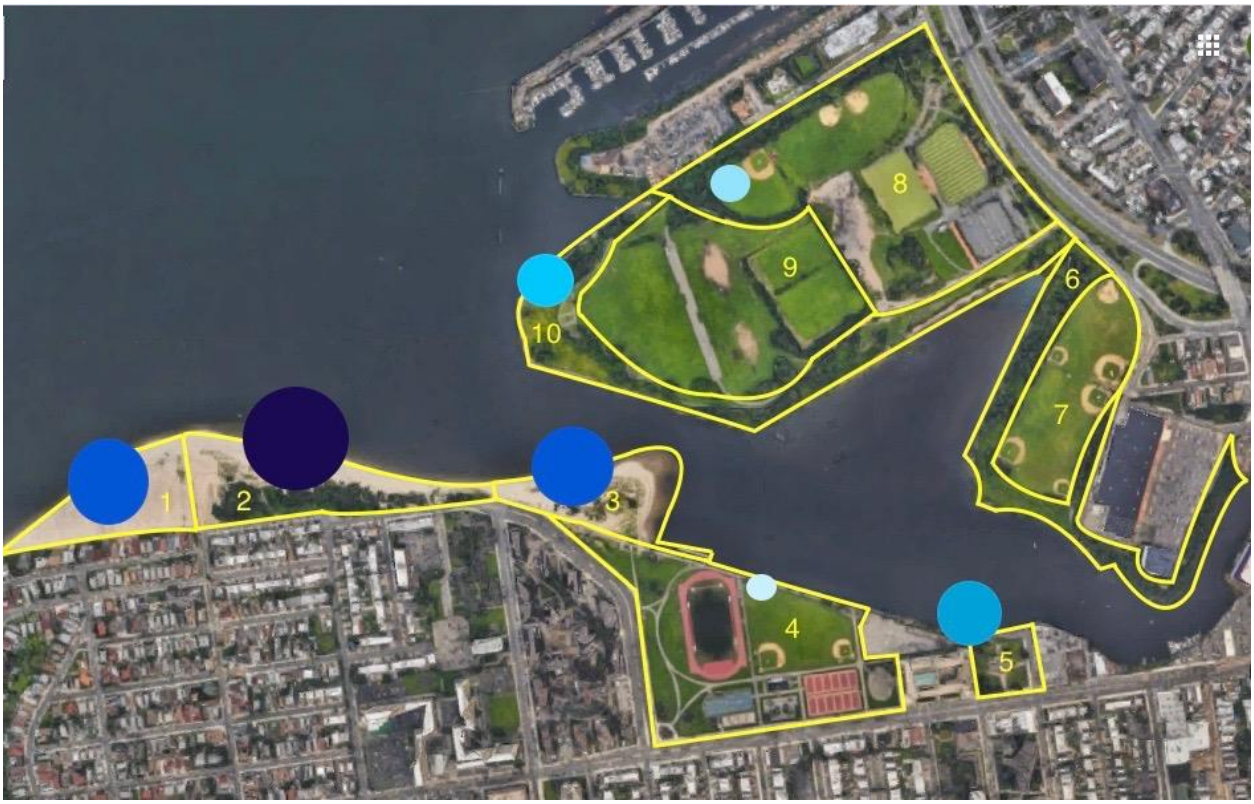
	Waterfront Zone										
Activity Observed	**1-Seagate**	**2-Coney Island Creek Park**	**3-Fishing Nook**	**4-Kaiser Park**	**5-West 23rd St. Community Garden**	**6-Eastern Natural Area**	**7-Home Depot Baseball fields**	**8-Recreation**	**9-Fields**	**10-Western Natural Areas**	**Total**
Sport & Recreation	1	0	1	186	0	0	128	49	0	0	**365**
Walking/Dog Walking	15	10	11	128	1	4	10	76	7	42	**304**
Other Activity	0	3	4	32	3	0	2	30	10	9	**93**
Fishing	15	27	15	1	9	0	0	2	0	4	**73**
Socializing in Place	2	8	10	17	4	0	0	16	2	3	**62**
Sitting/Resting/Standing/ Waiting/Keeping Watch	2	0	10	18	7	1	0	4	1	3	**46**
Bicycling	0	0	1	20	0	0	1	11	0	4	**37**
Jogging/Running	0	1	0	20	0	0	0	1	0	2	**24**
Boating - with engines or sails	1	4	5	2	0	0	0	0	0	0	**12**
Working	0	1	0	4	0	0	2	5	0	0	**12**
Plant Collection/Foraging/Gathering	0	1	2	0	0	1	0	5	0	1	**10**
Sunbathing/Free Play on Shore	7	0	0	0	0	0	0	0	0	0	**7**
Swimming/Wading/Water Play	6	0	0	0	0	0	0	0	0	0	**6**
Stewardship	0	0	0	0	3	0	0	0	0	1	**4**
Boating - nonpower	1	0	1	0	0	0	0	0	0	0	**2**
Educational Group/Tour	0	0	0	0	0	0	0	0	0	0	**0**
Nature Recreation	0	0	0	0	0	0	0	0	0	0	**0**
Crabbing	0	0	0	0	0	0	0	0	0	0	**0**
Total	**50**	**55**	**60**	**428**	**27**	**6**	**143**	**199**	**20**	**69**	**1057**

Activity: Counts of people observed in the waterfront by time of visit and age group.

	Time of Visit				Age Group			
Activity Observed	**Weekday (AM)**	**Evening (PM)**	**Weekend**	**Total**	**Youth**	**Adults**	**Seniors**	**Total**
Sport & Recreation	37	62	266	**365**	272	93	0	**365**
Walking/Dog Walking	47	58	199	**304**	89	177	38	**304**
Other Activity	12	23	58	**93**	3	89	1	**93**
Fishing	7	21	45	**73**	1	62	10	**73**
Socializing in Place	12	11	39	**62**	5	50	7	**62**
Sitting/Resting/Standing/ Waiting/Keeping Watch	12	3	31	**46**	4	41	1	**46**
Bicycling	7	5	25	**37**	16	17	4	**37**
Jogging/Running	1	9	14	**24**	17	7	0	**24**
Boating - with engines or sails	0	0	12	**12**	0	12	0	**12**
Working	5	1	6	**12**	0	11	1	**12**
Plant Collection/Foraging/Gathering	4	0	6	**10**	2	4	4	**10**
Sunbathing/Free Play on Shore	1	0	6	**7**	4	3	0	**7**
Swimming/Wading/Water Play	0	0	6	**6**	0	6	0	**6**
Stewardship	3	0	1	**4**	0	4	0	**4**
Boating - nonpower	0	0	2	**2**	0	2	1. 0	**2**
Educational Group/Tour	0	0	0	**0**	0	0	0	**0**
Nature Recreation	0	0	0	**0**	0	0	0	**0**
Crabbing	0	0	0	**0**	0	0	0	**0**
Total	**148**	**193**	**716**	**1057**	**413**	**578**	**66**	**1057**

Density Map of Fishing Activity per Zone

The darker color and increase in size of the circle indicate higher numbers of fishing activities. Zone 2, Coney Island Creek Park, has the highest number of observed fishing, while zone 4, Kaiser Park, has the least.



Signs of Activity Observed by Zone

Because you can't always see people "in the act" of interacting with the site, the assessment team documented signs of human use to capture traces of activities and practices that occur across different timeframes and over longer time horizons. We will miss the birders at dawn, or the slow erosion of grass under feet. So we look for traces, for signs of human use, for the imprint that waterfront users leave on the landscape. We note desire lines and well-worn trails. We document counter-narratives in the form of graffiti, hand-made signs, dumping, and vandalism. We note murals, gardens, impromptu seating, and temporary shelters. All of these signs are evidence that humans are ecosystem engineers, that our waterfronts are co-created by the Waterfronts Department, of course, but also by the broader public. *Crews were instructed to take note of any other noteworthy or unique observations that stood out to them in each waterfront. For the Coney Island Creek waterfront areas, other signs of activity noted included, for example, images of writing in the sandy beach, graffiti on slabs of concrete, and a memorial cross hung on a tree near the fishing pier.

	Zone										
Sign	**1-Seagate**	**2-Coney Island Creek Park**	**3-Fishing Nook**	**4-Kaiser Park**	**5-West 23rd St. Community Garden**	**6-Eastern Natural Area**	**7-Home Depot Baseball fields**	**8-Recreation**	**9-Fields**	**10-Western Natural Areas**	**Total**
Graffiti, Art, Murals	18	23	11	24	13	6	7	11	16	25	**154**
Signage, Flyers, & Stickers	0	4	3	24	1	0	3	19	9	5	**68**
Substantial Dumping/ Debris	11	8	1	2	7	9	2	6	1	2	**49**
Informal Trails	0	12	3	0	0	11	0	1	1	18	**46**
Fire pit	3	14	0	5	1	2	1	2	0	13	**41**
Informal/Improvised Sitting Places	0	6	2	0	12	2	1	0	0	5	**28**
Boats (Stationary or Tied)	0	0	1	1	4	10	0	0	0	2	**18**
Other	1	2	1	2	3	4	0	0	0	0	**13**
Encampment/Sleeping Area	0	0	0	2	1	5	1	0	0	1	**10**
Memorial/ Shrine/ Sacred Symbol	0	1	6	0	0	0	0	0	0	0	**7**
Damaged/ Vandalized Building or Property	1	0	0	1	0	3	0	2	0	0	**7**
Fishing (lines, hooks, nets, etc.	2	0	0	0	2	1	0	0	0	1	**6**
Bird Feeder/ Birdbath/ Bird box/ Bat box	0	0	0	0	0	2	0	0	0	0	**2**
Garden in Park	0	1	0	0	0	0	0	0	0	0	**1**
Crabbing, etc. (Clam digging, traps)	0	0	0	0	1	0	0	0	0	0	**1**
Total	**36**	**71**	**28**	**61**	**45**	**55**	**15**	**41**	**27**	**72**	**451**

Informal trail in Fields Zone *Encampment in W. Natural Area* *Fire pit in W. Natural Area* *Memorial in Fishing Nook*

Broken fencing in Rec. Zone *Dumping in W. 23rd Garden* *Graffiti in W. 23rd Garden* *Sign in Kaiser Park*

Garden in Coney Is. Creek Park *Cat feeding box in Eastern Natural Area* *Boat on creek in Kaiser Park*

Crabbing net left in Seagate *Fishing net left in W. 23rd Garden* *Writing in sand in Seagate*

(Photographs By Lindsey Strehlau-Howay)

Sociability Observed by Zone

Zone	Sociability				
	Dogs	**Pair (2)**	**Small Group (3-10)**	**Large Group (10+)**	**Total**
1-Seagate	3	4	7	0	**14**
2-Coney Island Creek Park	5	6	6	0	**17**
3-Fishing Nook	4	11	4	0	**19**
4-Kaiser Park	14	47	27	4	**92**
5-West 23rd St. Community Garden	0	5	2	0	**7**
6-Eastern Natural Areas	2	0	0	0	**2**
7-Home Depot Baseball Fields	2	2	0	1	**5**
8-Recreation	16	20	15	1	**52**
9-Fields	4	4	2	0	**10**
10-Western Natural Areas	3	12	3	0	**18**
Total	**53**	**111**	**66**	**6**	**236**

Resident Encounter	Waterfront Zone										
	1-Seagate	**2-Coney Island Creek Park**	**3-Fishing Nook**	**4-Kaiser Park**	**5-West 23rd St. Community Garden**	**6-Eastern Natural Area**	**7-Home Depot Baseball fields**	**8-Recreation**	**9-Fields**	**10-Western Natural Areas**	**Total**
Positive Encounter with Resident	1	0	0	0	0	0	0	0	0	0	**1**
Negative Encounter with Resident	1	0	0	1	2	0	0	0	0	0	**4**
Total	**2**	**0**	**0**	**1**	**2**	**0**	**0**	**0**	**0**	**0**	**5**

IV. Interviews with Waterfront Users

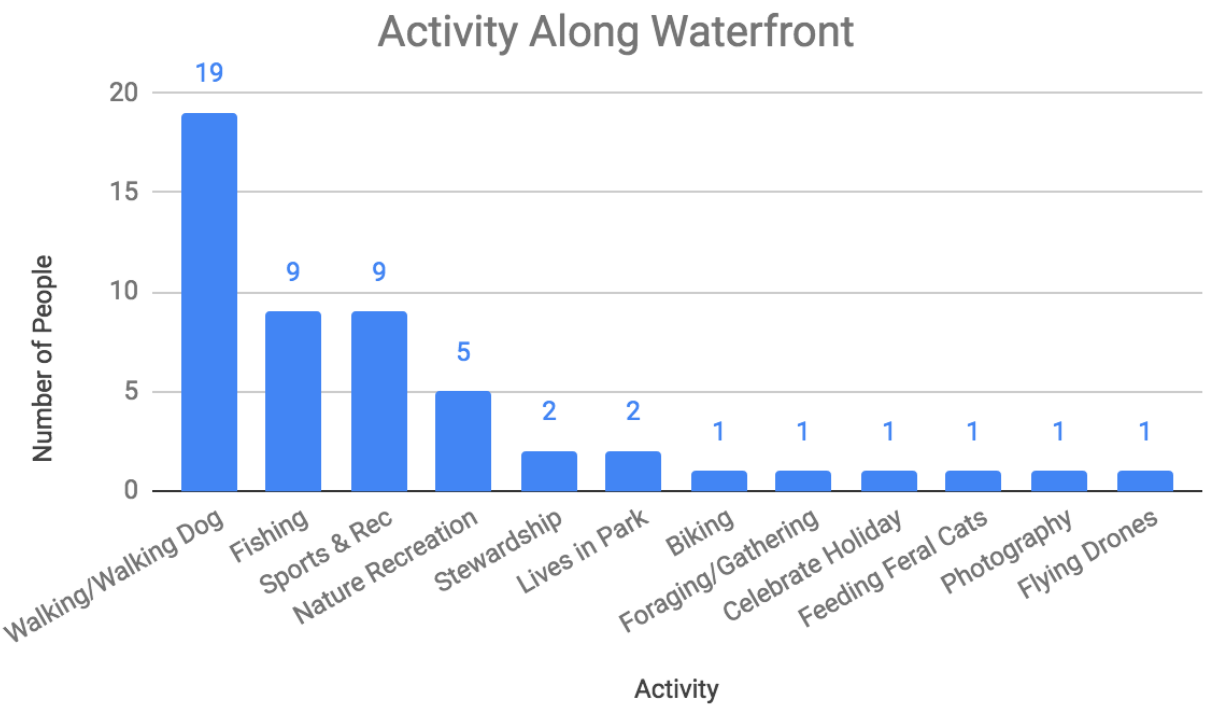
The next section presents the results of open-ended interview questions with waterfront users. Respondents could answer in any way that they chose and these responses were later coded for emergent themes by researchers. The tables present a summary of the rank-order of the occurrence of these themes among all the interviewees in the waterfront, which are then explained in the text. The percentages may total to more than 100% because respondents often identified with multiple themes.

Forty-nine participants were interviewed in the Coney Island Creek waterfront areas, of which 73% were male and 27% were female. 69% of participants fell in the age range of 18-65. 31% were over the age of 65. Research teams found that language was a barrier when conducting interviews, with some park visitors only speaking what was observed as possibly Russian, Chinese and Spanish languages. All but one of the foragers approached for an interview declined due to difficulty in speaking English. It is notable that even though there was a recognizable diversity in language, all but one sign/notice were posted in English. The one sign, seen below, is located in the Western Natural Area and written in both English and Russian.

Q.1 What are you doing along this waterfront today?

The majority (36.5%) of respondents answered that they were in the park to walk. 17.3% of respondents were in the area to fish. 9.6% were doing nature recreation activities. These included answers such as sitting by the waterfront, watching birds, or enjoying the weather. Two respondents who answered that they were doing activities such as cleaning up trash and cleaning up a community garden area are categorized under stewardship. The one person who stated they were celebrating a holiday was observing Halloween by coming to the park with a few friends.

Activity Along Waterfront		
ACTIVITY	**COUNT**	**% OF RESPONDENTS**
Walking/Walking Dog	19	36.5%
Fishing	9	17.3%
Sports & Rec	9	17.3%
Nature Recreation	5	9.6%
Stewardship	2	3.8%
Lives in Park	2	3.8%
Biking	1	1.9%
Foraging/Gathering	1	1.9%
Celebrate Holiday	1	1.9%
Feeding Feral Cats	1	1.9%
Photography	1	1.9%
Flying Drones	1	1.9%
Total Responses	**52**	**100.0%**


Activity Along Waterfront
Number of People
20
15
10
5
0
19
9
9
5
2
2
1
1
1
1
1
1
Walking/Walking Dog
Fishing
Sports & Rec
Nature Recreation
Stewardship
Lives in Park
Biking
Foraging/Gathering
Celebrate Holiday
Feeding Feral Cats
Photography
Flying Drones
Activity

Q.2 Why do you choose to come here?

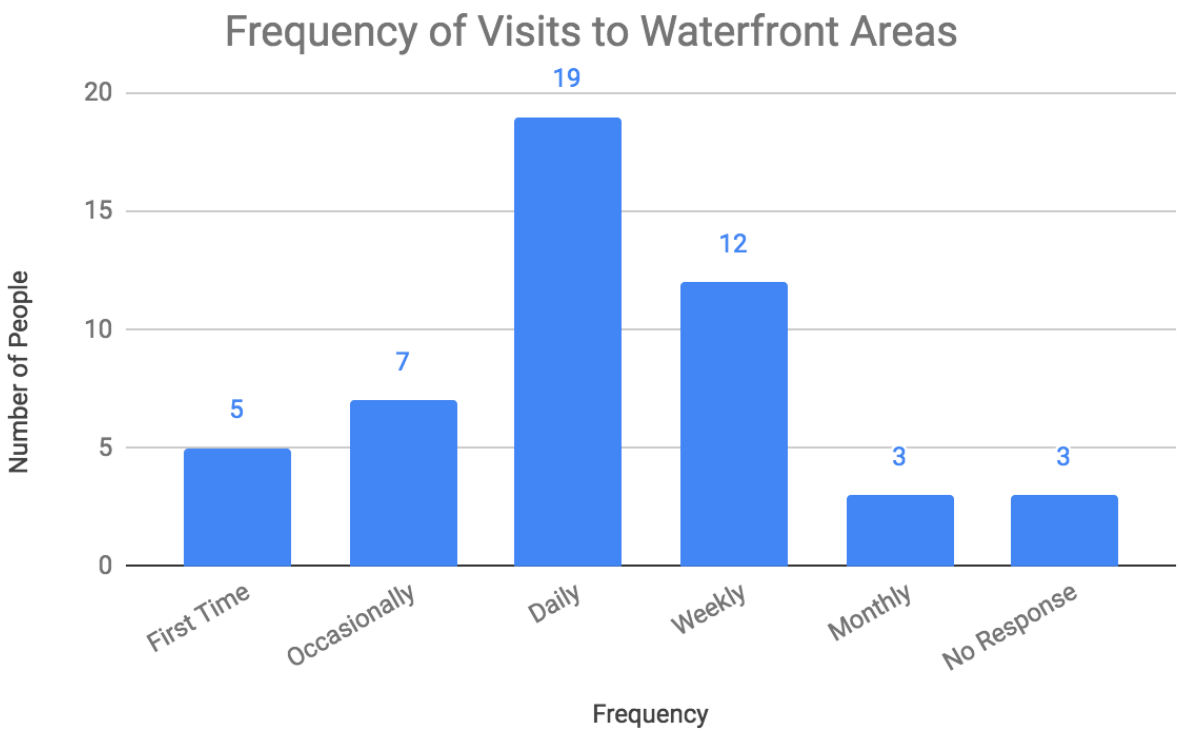
The majority of participants (30.5%) said that the reason they came to the Coney Island Creek waterfront areas was due to the peacefulness, beach and wildlife in the area that attracted them. One person mentioned how the creek is a beautiful place to take pictures of wildlife, while another stated it felt like the country. Others (28.8%) gave reasons that it was because of the proximity to their home or close drive from a school. 8.5% said that fishing was the main reason they came to these particular waterfront areas, stating it has better fishing and this is where the fish are.

Reasons for Visiting Waterfront Areas		
REASON	**COUNT**	**% OF RESPONDENTS**
Peaceful/Nature Rec	18	30.5%
Proximity	17	28.8%
Sports & Rec	7	11.9%
Fishing	5	8.5%
Socialization	3	5.1%
Walking/Walking Dog	2	3.4%
No Response	2	3.4%
Safe	2	3.4%
Large Park Size	2	3.4%
Biking	1	1.7%
Total Responses	**59**	**100.0%**

Q.3 How often do you visit the waterfront?

Most participants who visit the waterfront do so on a daily (38.78%) or weekly basis (24.49%). Only 3 respondents said they come monthly. Reasons why they come to the waterfront and how often they come to the waterfront could be explored to see if there is a connection.

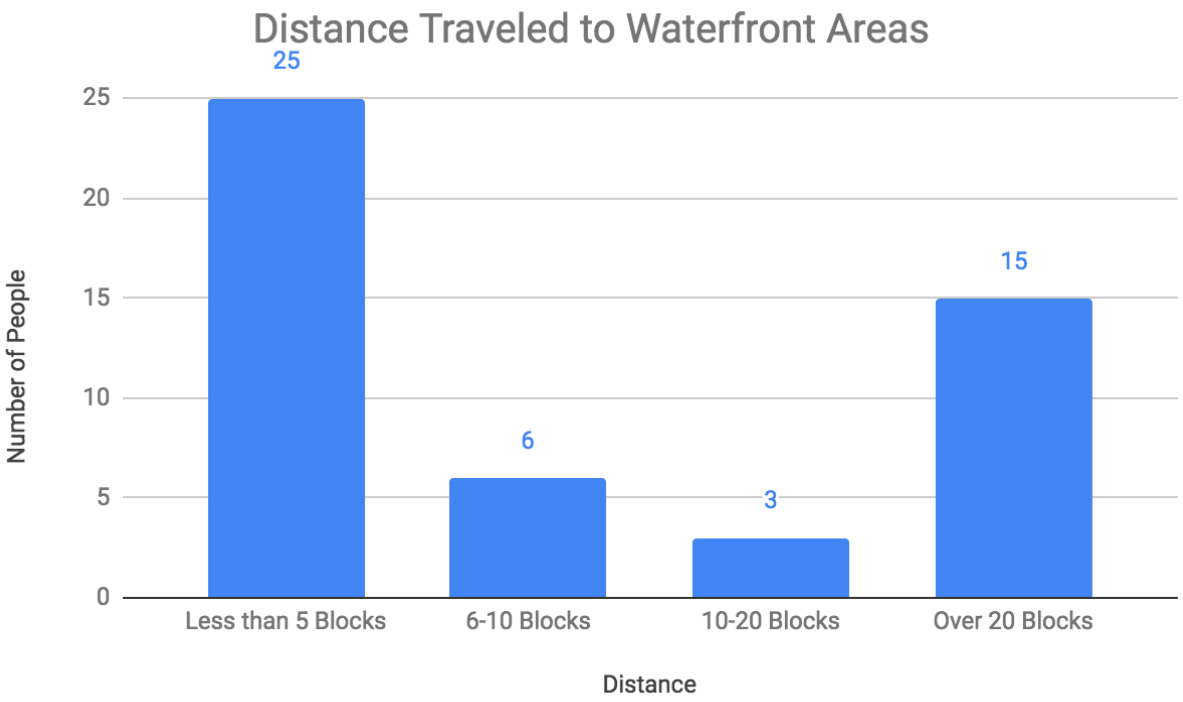
Frequency of Visits to Waterfront Areas		
FREQUENCY	**COUNT**	**% OF RESPONDENTS**
First Time	5	10.20%
Occasionally	7	14.29%
Daily	19	38.78%
Weekly	12	24.49%
Monthly	3	6.12%
No Response	3	6.12%
Total Respondents	**49**	**100.0%**



Q4. How far did you travel to get here?

The majority (51.02%) of participants traveled less than 5 blocks to get to the Coney Island Creek waterfront areas. However, 30.61% stated that they traveled more than 20 blocks to reach the area.

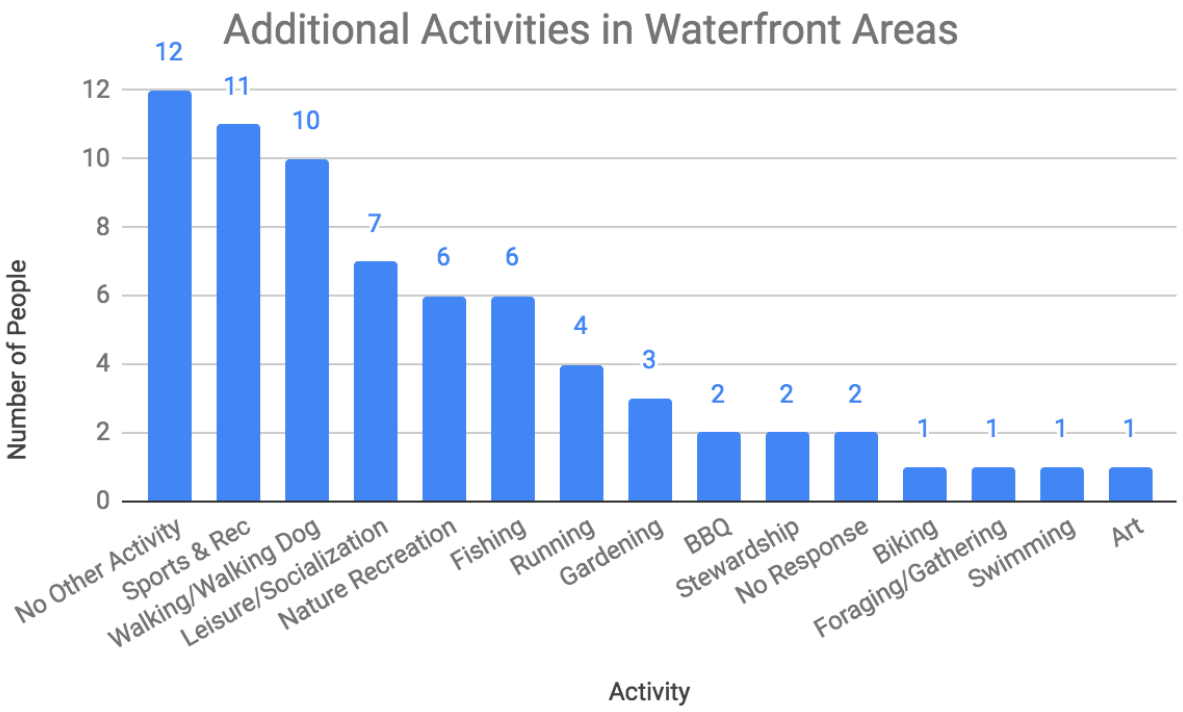
Distance Traveled to Waterfront Areas		
DISTANCE	**COUNT**	**% OF RESPONDENTS**
Less than 5 Blocks	25	51.02%
6-10 Blocks	6	12.24%
10-20 Blocks	3	6.12%
Over 20 Blocks	15	30.61%
Total Respondents	**49**	**100.0%**


Distance Traveled to Waterfront Areas
25
6
3
15
25
20
15
10
5
0
Number of People
Less than 5 Blocks
6-10 Blocks
10-20 Blocks
Over 20 Blocks
Distance

Q.5 What other types of activities do you like to do in this area? (i.e. fishing, boating, etc.?)

Participants listed many activities they enjoy doing in the park. The majority (17.4%) stated they did not participate in additional activities in the area beyond their current one. Others (15.9%) enjoyed sports and recreation in the park. This included activities such as handball, watching/coaching/playing soccer, and playing on the playgrounds. 10.1% of people said they enjoyed leisure activities or socializing in the park. This included answers such as relaxing, sitting down, hanging out, or killing time. Some participants (8.7%) had nature recreation related answers. This included answers such as: walking to the waterfront, watching the water, or watching the boats go by on the water. The participant who engaged in art liked to draw and write poetry in the area, while the foraging/gathering activity was centered around finding medicinal plants for tea. The two stewardship activities included participating in a food drive and cleaning up trash.

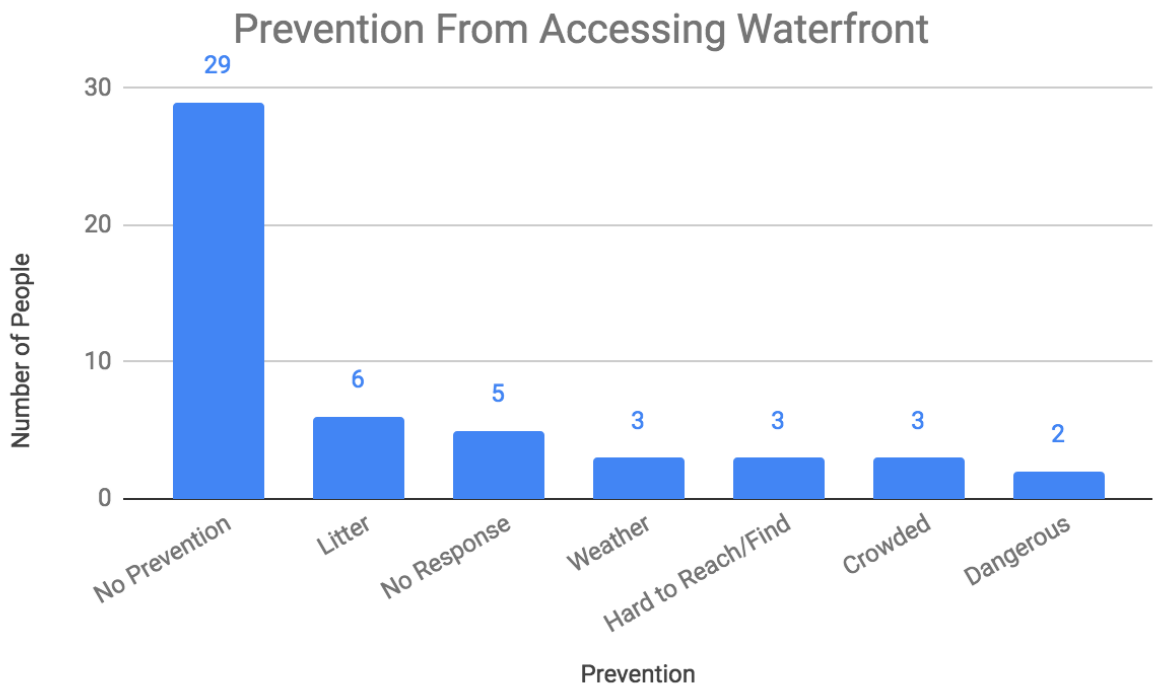
Additional Activities in Waterfront Areas		
ACTIVITY	**COUNT**	**% OF RESPONSES**
No Other Activity	12	17.4%
Sports & Rec	11	15.9%
Walking/Walking Dog	10	14.5%
Leisure/Socialization	7	10.1%
Nature Recreation	6	8.7%
Fishing	6	8.7%
Running	4	5.8%
Gardening	3	4.3%
BBQ	2	2.9%
Stewardship	2	2.9%
No Response	2	2.9%
Biking	1	1.4%
Foraging/Gathering	1	1.4%
Swimming	1	1.4%
Art	1	1.4%
Total Responses	**69**	**100.0%**



Q.6 Is there anything preventing you from accessing this waterfront?

The majority (56.9%) of participants stated that there was nothing that prevented them from accessing the waterfront. However, 11.8% did say that the amount of dumping, litter, and overall cleanliness in the area did prevent them from getting to the waterfront. A few participants (5.9%) also stated that physically getting to the waterfront was difficult. One person in Kaiser Park said that they got lost trying to find it, while another said the paths are not as easy to walk through. People in the Recreation zone mentioned that there is no access to the waterfront by car and they wished that they could drive up to it. Others (5.9%) mentioned that the area gets crowded during events or on the weekends when members of a helicopter flying group come out to use the park, while another spoke about open fires at a picnic area by the water and how it is dangerous with kids sometimes in the area.

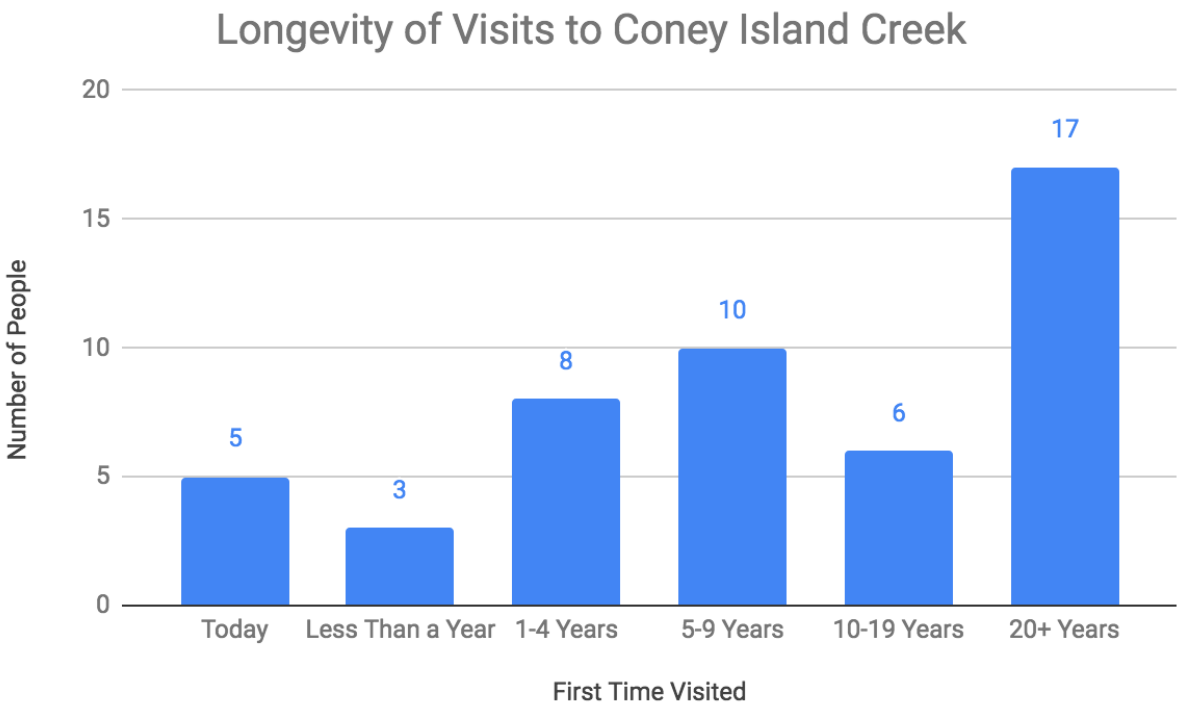
Prevention From Accessing Waterfront		
PREVENTION	**COUNT**	**% OF RESPONDENTS**
No Prevention	29	56.9%
Litter	6	11.8%
No Response	5	9.8%
Weather	3	5.9%
Hard to Reach/Find	3	5.9%
Crowded	3	5.9%
Dangerous	2	3.9%
Total Responses	**51**	**100.0%**



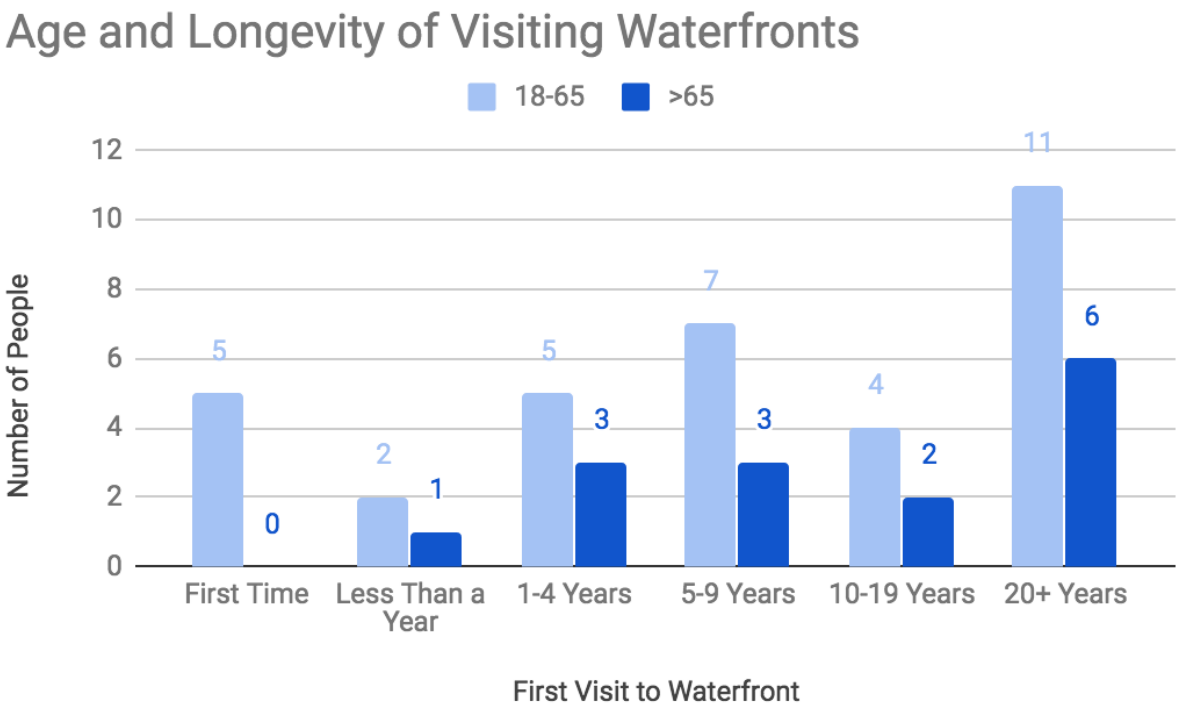
Q.7 When was the first time you came here? (year, or month if in the last year)

The majority of our participants (34.7%) have been coming to the park for over 20 years. Only 6.1% of people have started coming within the last year and 10.2% stated it was their first time at the park. Within the 20+ years group, many participants mentioned they had been coming to the waterfront for 30-40 years. Participants in all groups often described a historical benchmark associated with when they first came to the area, stating when their son first started playing baseball, before they fixed the park, or when the park opened. While some who had been coming to the site for many years, were in a new part of the waterfront for the first time. One participant in the Recreation zone stated that they did not know how wild it was in the back, referring to the Western Natural Area.

Longevity of Visits to Coney Island Creek Park		
FIRST TIME VISITED	**COUNT**	**% OF RESPONDENTS**
Today	5	10.2%
Less Than a Year	3	6.1%
1-4 Years	8	16.3%
5-9 Years	10	20.4%
10-19 Years	6	12.2%
20+ Years	17	34.7%
Total Respondents	**49**	**100.0%**



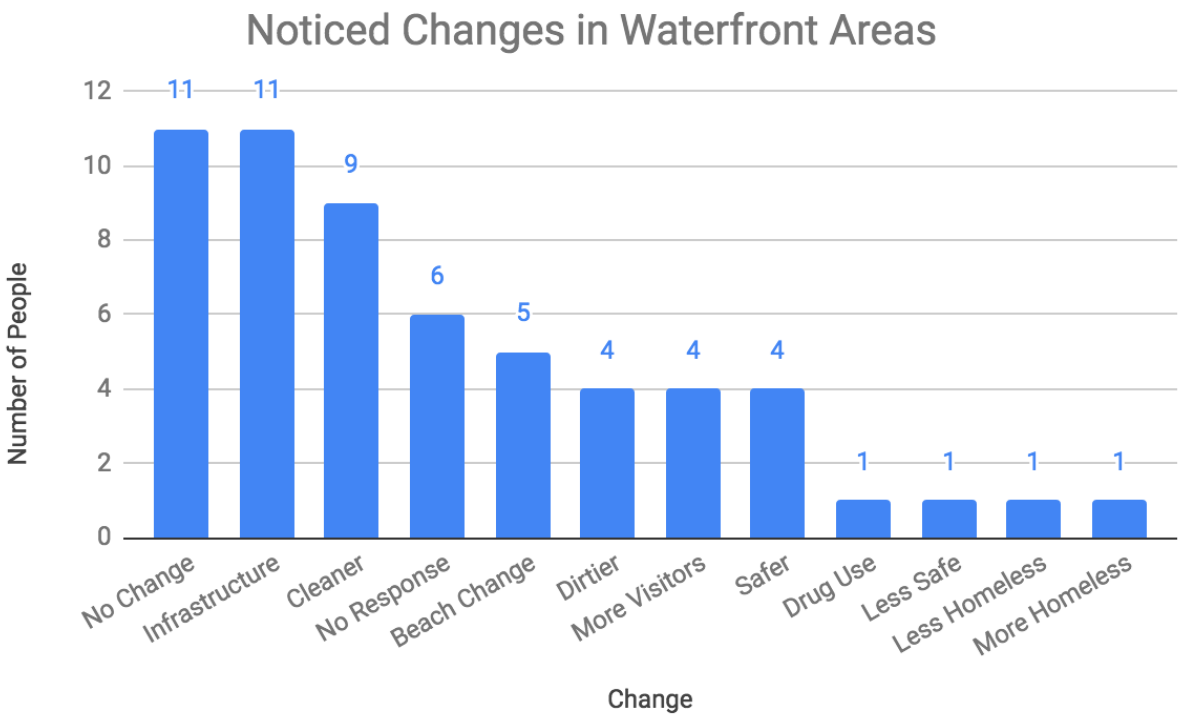
Looking further into place attachment, we compared people's ages to the time frame when they first visited the waterfront area. Ages older than 65 had somewhat even numbers across the less than a year, 1-4 years, 5-9 years, and 10 to 19 years categories. The highest concentration was found in the 20+ years (n=6). The 18-65 age range also had the highest concentration of people visiting 20+ years (n=11) showing great place attachment. However, this age group also shows an almost steady decline in the subsequent year groupings.



Q.8 Have you noticed any changes since then? If so, what? (i.e. usage, development, access, pollution, wildlife, etc.)

The majority (70.6%) of participants said that Coney Island Creek has changed in some way over time. Participants (15.5%) said that the park is cleaner than it used to be, some saying that there is less dumping than there was in the past. However, 6.9% of participants said that the park was dirtier than it used to be, stating that there is actually more dumping now as compared to in the past. One participant also mentioned that the number of homeless in the park has gone up. More drug use and safety concerns were also stated as being more prevalent. Participants (19.0%) also mentioned how the park has been developed over time and has added new infrastructure, such as the playground, bathrooms, and new soccer fields. Six people (10.3%) did not respond to the question. After interviews, people would often continue to talk about the waterfront and it is notable that participants mentioned safety and cleanliness in terms of cars speeding through parking lots, lack of lights in certain areas, feeling safe watching soccer games late at night, and how certain bathrooms are kept locked so people end up going outside. Others spoke about the future of the park and what they would like to see happen, such as a beach with dog access, water improvement, or how there is limited grass space for their children to play or walk and that they would like more grass that is not deemed recreation or drone occupied. While one participant wanted nothing to change since they love the wildlife and natural areas, saying please "don't tell people about the park" in hopes that we won't get more people to come and ruin the area.

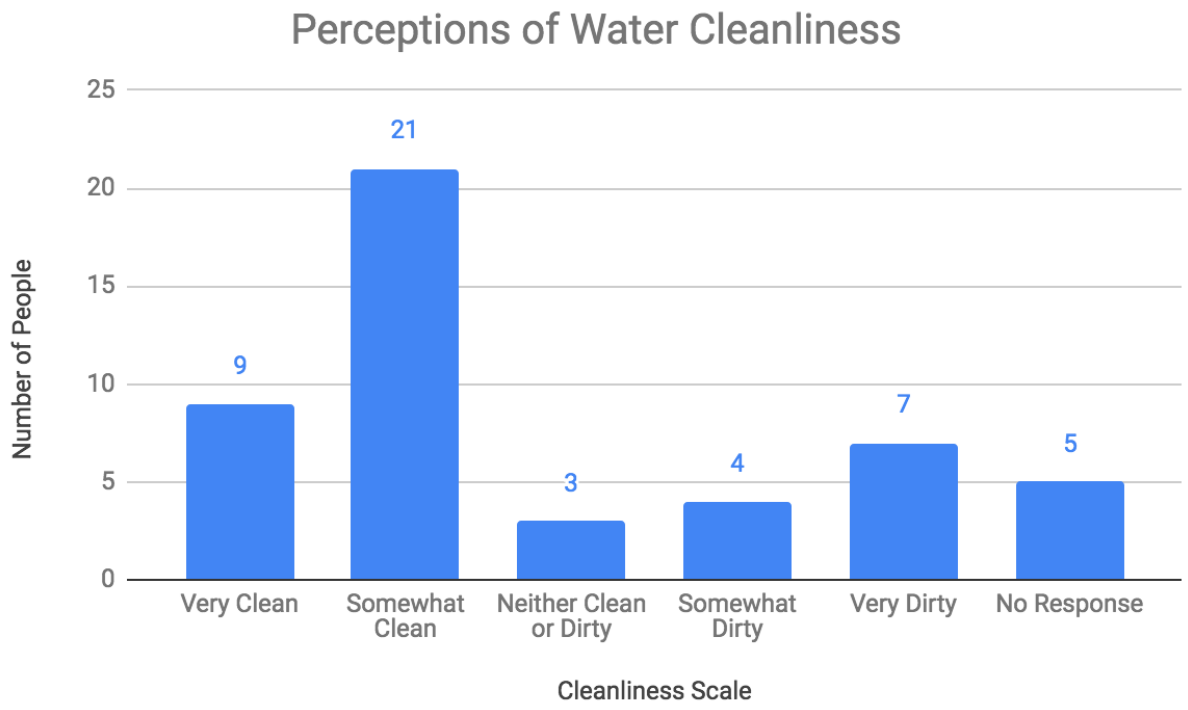
Noticed Changes in Waterfront Areas		
CHANGE	**COUNT**	**% OF RESPONDENTS**
No Change	11	19.0%
Infrastructure	11	19.0%
Cleaner	9	15.5%
No Response	6	10.3%
Beach Change	5	8.6%
Dirtier	4	6.9%
More Visitors	4	6.9%
Safer	4	6.9%
Drug Use	1	1.7%
Less Safe	1	1.7%
Less Homeless	1	1.7%
More Homeless	1	1.7%
Total Responses	**58**	**100.0%**



Q.9 Based on the following scale, how clean do you think the water is? (very clean, somewhat clean, neither clean or dirty, somewhat dirty, very dirty)

The majority of participants (61.3%) stated that the park was “somewhat clean” or “very clean”. 22.5% stated that it was “somewhat dirty” or “very dirty”. People who stated that the park was dirty mentioned litter and dumping as a reason. One person mentioned the number of rats and raccoons that were in the area, while another talked about seeing people litter in the water and citing this as a reason for not entering the water. A participant also mentioned that the cleanliness level changed depending on if the tide was low or high, saying that at high tide the water was dirtier. This interpretation could partly be due to debris being constantly washed ashore at high tide or since there is less beach available at high tide, it highlights the impact of the litter more significantly than at low tide. Issues with how people were interpreting the question also came to light as some did not specify solely the creek or creek area within a zone and so may have been addressing NY waterways as a whole. Some interpretations were how the water looks clean, but there is a lot of dirty stuff around it or how they would simply not trust any water in New York, while others mentioned water quality in comparison to other waterfronts in other countries, such as Russia.

Perceptions of Water Cleanliness		
CLEANLINESS SCALE	**COUNT**	**% OF RESPONDENTS**
Very Clean	9	18.4%
Somewhat Clean	21	42.9%
Neither Clean or Dirty	3	6.1%
Somewhat Dirty	4	8.2%
Very Dirty	7	14.3%
No Response	5	10.2%
Total Respondents	**49**	**100.0%**



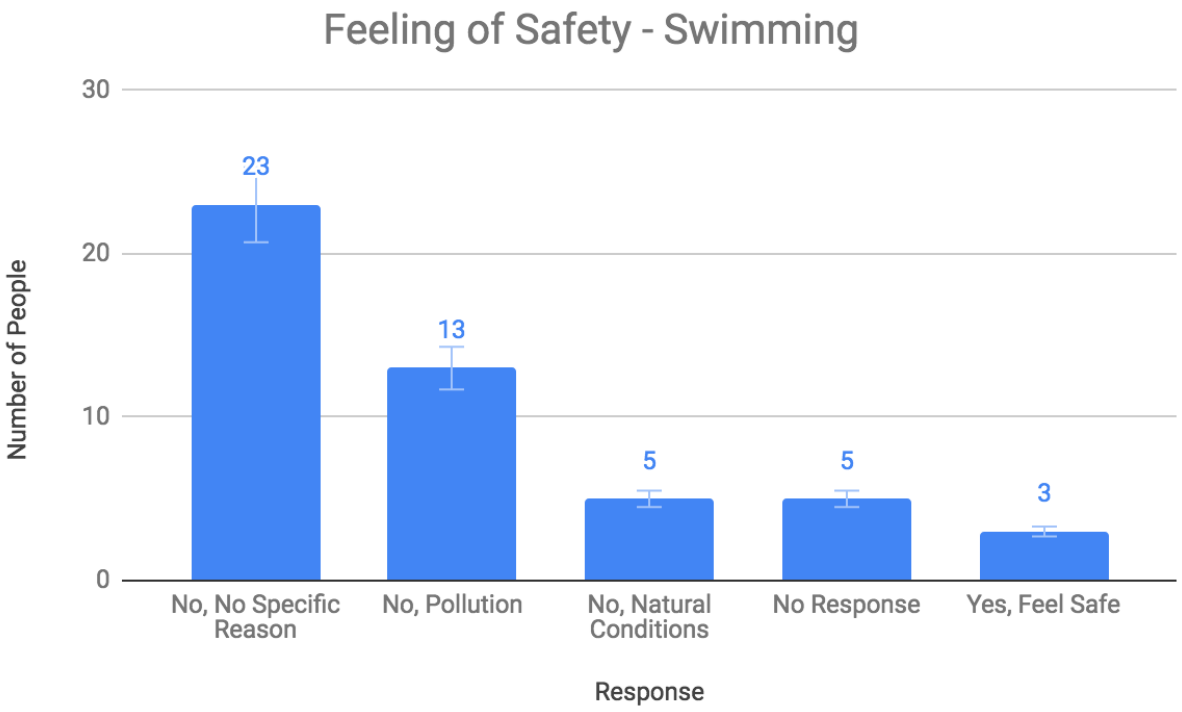
Q.10 Would you feel safe swimming here? Would you feel safe eating the fish?

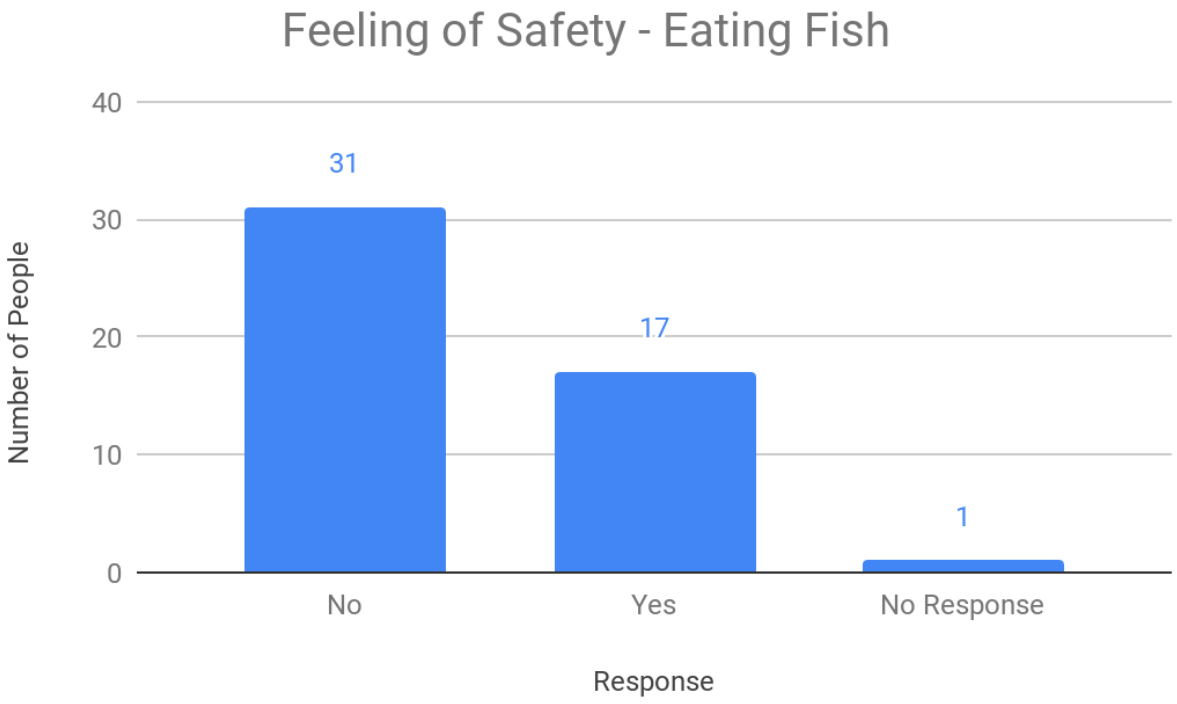
Coney Island Creek includes a beach and a fishing pier, and we asked all participants whether they felt safe swimming or eating the fish in or from these areas. A majority of respondents (46.9%) simply said they did not feel safe swimming in the creek. A few (10.2%) cited the natural conditions of the creek, such as the strong currents, tides, and animals such as sharks and stingrays as reasons not to swim. Approximately one-fourth of respondents (26.5%) spoke about the uncleanliness of the creek, such as dumping and items submerged underwater, as posing safety concerns for swimming. One respondent specifically mentioned the 'do not swim' signs posted in some places, and another mentioned how the

sewer goes into the creek. Only 6.1% of those interviewed said the creek was safe for swimming. There was a significant change in response when asked about the safety of eating fish. 34.7% answered yes, with one person mentioning how the fish are safe because they came from the sea and not originally from the creek. Of the respondents who said no (63.3%), some mentioned not eating fish due to taste or diet, but would still not eat the fish from the creek regardless. Several others mentioned the polluted state of NYC's waters as a reason for not eating the fish. While in the field, the research team noticed a dead, waterlogged rat had washed ashore right next to people swimming and fishing who did not seem to mind it. In contrast, the research team also spoke with one fisherman who wore waders in the water and even avoided getting his arms wet.

Feeling of Safety - Swimming		
RESPONSE	**COUNT**	**% OF RESPONDENTS**
No, No Specific Reason	23	46.9%
No, Pollution	13	26.5%
No, Natural Conditions	5	10.2%
No Response	5	10.2%
Yes, Feel Safe	3	6.1%
Total Respondents	**49**	**100.0%**

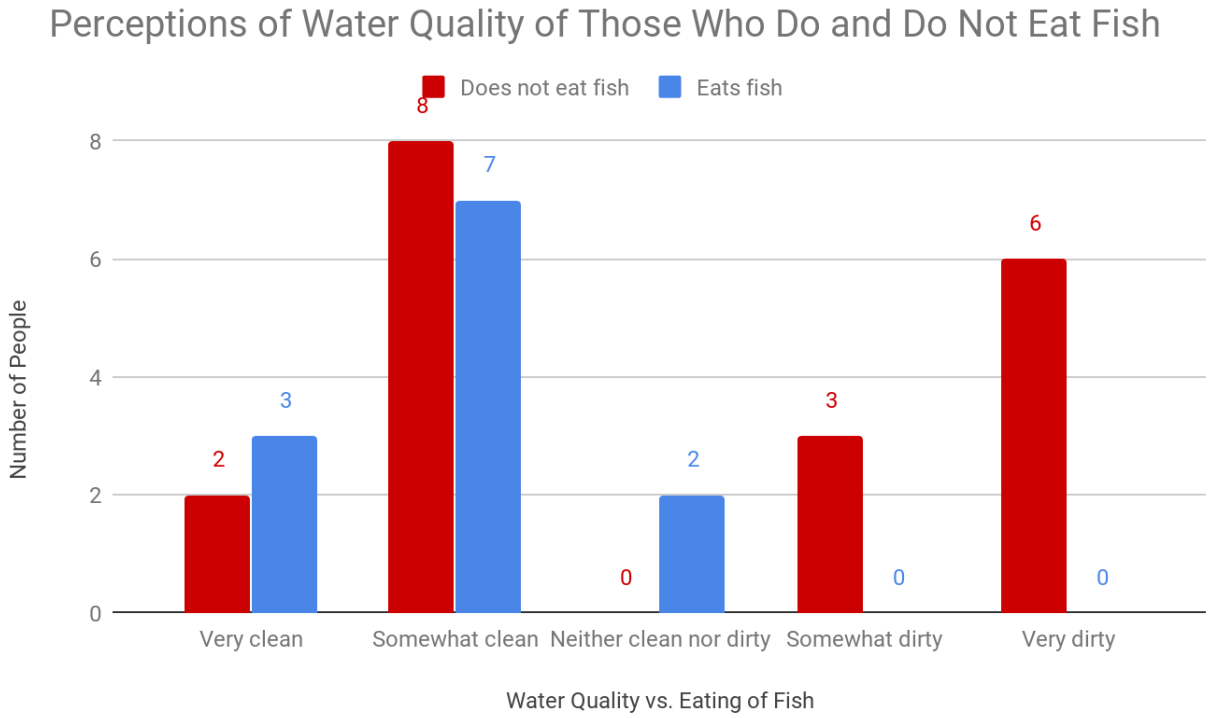
Feeling of Safety - Eating Fish		
RESPONSE	**COUNT**	**% OF RESPONDENTS**
No	31	63.3%
Yes	17	34.7%
No Response	1	2.0%
Total Respondents	**49**	**100.0%**


Feeling of Safety - Swimming
30
20
10
0
Number of People
23
13
5
5
3
No, No Specific Reason
No, Pollution
No, Natural Conditions
No Response
Yes, Feel Safe
Response


Feeling of Safety - Eating Fish
40
30
20
10
0
Number of People
31
17
1
No
Yes
No Response
Response

10.b. What are the perceptions of water quality for people who eat fish?

We looked to see if there was a relationship between respondents who would eat the fish and their perceptions of water cleanliness. The data does suggest that there is a pattern, where participants who would eat the fish only report the water quality to be in the “very clean”, “somewhat clean”, or “neither clean nor dirty” categories. Responses on water quality from those who stated they would not eat the fish were more varied. It should also be noted that some respondents commented that they would not eat the fish due to reasons unrelated to water cleanliness, such as allergies or taste.



Q.11 If you do eat fish or crabs from water, what types, and how do you prepare them?

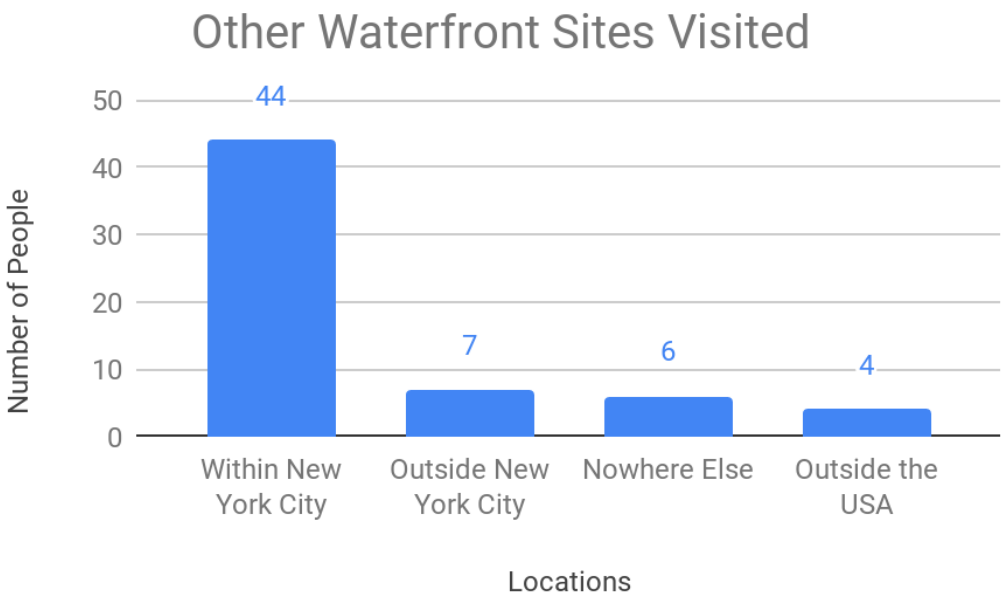
Additionally we asked participants for specific species they catch or eat to get a better sense of the range found in the creek during the field research season, as well as to have a better understanding of which species attract fishers. We found the species most frequently mentioned were mullet, porgy, bluefish, and striped bass. The most popular methods of preparation were frying, BBQing, steaming, baking, and stewing. This data could be further developed and used to explore the ecology of the area, the activities certain fish seasons bring, as well as how some of the community might be utilizing the creek for not only fishing recreation, but as a main or supplemental source of food.

Types of Fish Caught and Eaten		
FISH VARIETY	**COUNT**	**% OF RESPONSES**
Striped Bass (Morone saxatilis)	9	26.5%
Bluefish (Pomatomus saltatrix)	7	20.7%
Mullet (Mugilidae)	6	17.7%
Porgy or Scup (Stenotomus chrysops)	5	14.7%
Snapper (Lutjanidae)	2	5.9%
Tuna (Thunnini)	1	2.9%
Flounder (Paralichthys)	1	2.9%
Ling (Molva molva)	1	2.9%
Lafayette or Spot fish (Leiostomus xanthurus)	1	2.9%
Small Sharks	1	2.9%
Total Responses	**34**	**100.0%**

Q.12 Where else do you like to go to be close to the water?

Participants listed various places that they visited along the waterfront, with many people responding with multiple locations resulting in a total of 61 answers. The majority of responses (72.1%) mentioned sites that were either in or within a short distance to New York City. These were then broken down in a list seen below. El Salvador, the Mediterranean Sea, France and Bermuda were the "close to the water" locations people liked to visit outside the USA.

Other Waterfront Sites Visited		
LOCATION	**COUNT**	**% OF RESPONDENTS**
Within New York City	44	72.1%
Outside New York City	7	11.5%
Nowhere Else	6	9.8%
Outside the USA	4	6.6%
Total Responses	**61**	**100.0%**

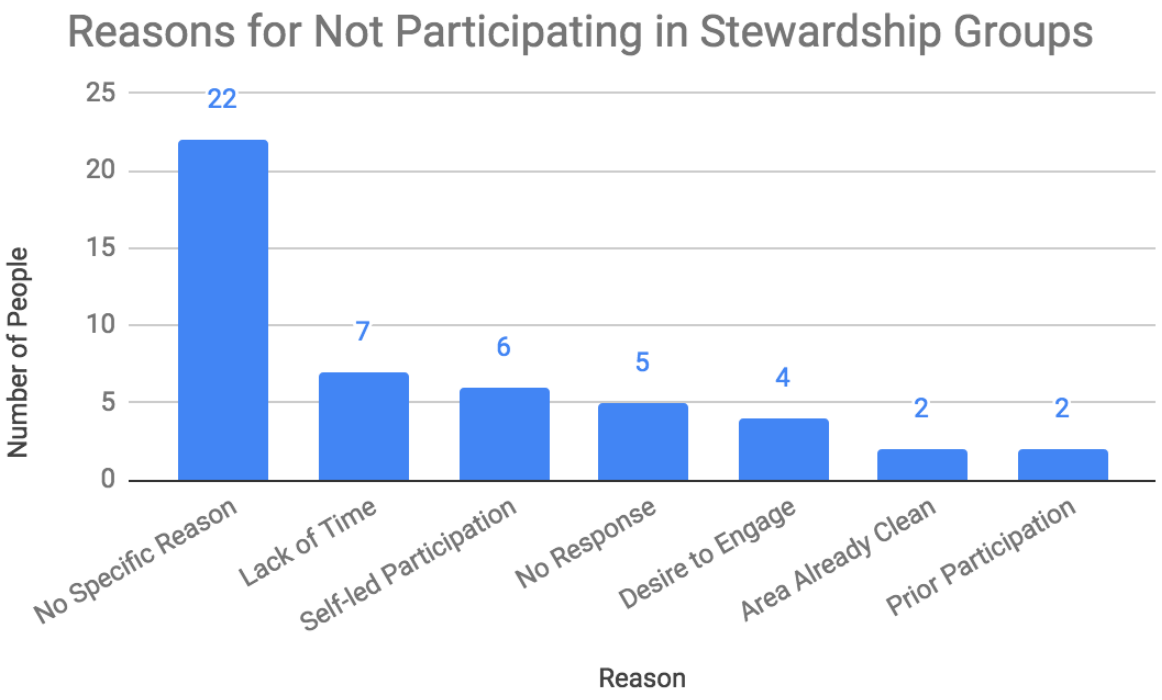


Waterfront Sites Within New York City		
LOCATION	**COUNT**	**% OF RESPONDENTS**
Coney Island Beach	20	45.5%
Rockaway Beach	5	11.4%
Seagate	5	11.4%
Brighton Beach	3	6.8%
Plum Beach	2	4.5%
Sheepshead Bay	2	4.5%
Howard Beach	1	2.3%
Manhattan Beach	1	2.3%
Dyker Heights	1	2.3%
Kaiser Park	1	2.3%
Gowanus Canal	1	2.3%
Bay Ridge	1	2.3%
Domino Park	1	2.3%
Total Responses	**44**	**100.0%**

Q.13 Are you involved in any stewardship groups that take care of the environment?

The majority of interviewees (87.8%) stated they were not connected with stewardship groups, with only one person overall answering yes and 10.2% having no response. If the participant answered no, we then asked for any reason they were not involved. Most had no specific answer (n=22) as to why they were not involved with a stewardship group, though one respondent claimed that his dog helped by grabbing trash. Other respondents cited lack of time (n=7) and that the area was already clean (n=2). However, some respondents (n=6) reported self-led stewardship primarily with trash removal. A desire to engage in stewardship (n=4) and prior involvement in stewardship (n=2) were also noted, with one respondent indicating that they had previously participated in a beach cleanup, but ceased future involvement due to a cut from a broken beer bottle while cleaning. The sole person who stated they were involved in a stewardship group, specified the name and mission of the organization - New York Cares, which hosts beach clean-ups on Staten Island. In addition to responses, some people went on to state clean-ups they had seen or heard happening in the area. Some simply mentioned noticing the Parks department coming to pick up trash. Even though the participant may not be active in stewardship, they still noticed and recognized stewardship, suggesting the awareness and impact level of such activities.

Reasons for Not Participating in Stewardship Groups	
REASON	**COUNT**
No Specific Reason	22
Lack of Time	7
Self-led Participation	6
No Response	5
Desire to Engage	4
Area Already Clean	2
Prior Participation	2
Total Respondents	**48**


Reasons for Not Participating in Stewardship Groups
Number of People
25
20
15
10
5
0
22
7
6
5
4
2
2
No Specific Reason
Lack of Time
Self-led Participation
No Response
Desire to Engage
Area Already Clean
Prior Participation
Reason

References

Auyeung, D. S. N., Campbell, L. K., Johnson, M., Sonti, N. F. & Svendsen, E. 2016. Reading the Landscape: Park Profiles 2013 - 2014. . *Social Assessment White Paper No. 3.* New York: New York Urban Field Station.

HEP. 2012. The State of the Estuary 2012. New York-New Jersey Harbor Estuary Program.

Immerso, M. 2002. *Coney Island: The people's playground*, Rutgers University Press.

Kadinsky, S. 2016. *Hidden Waters of New York City: A History and Guide to 101 Forgotten Lakes, Ponds, Creeks, and Streams in the Five Boroughs*, The Countryman Press.

Kensinger, N. 2014. Coney Island's Untamed Creek, Caught Between Past & Future. *Curbed New York*.

Kensinger, N. 2017. Five years after Hurricane Sandy, NYC's coastal communities remain vulnerable. *Curbed NY*.

McCann, M. 2019. Restoring Oysters to Urban Waters: Lessons Learned and Future Opportunities in NY/NJ Harbor. New York, NY: The Nature Conservancy.

McPhearson, T., Maddox, D., Gunther, B. & Bragdon, D. 2013. Local assessment of New York City: Biodiversity, green space, and ecosystem services. *Urbanization, biodiversity and ecosystem services: Challenges and opportunities.* Springer.

NYCDEP. 2017. New York Harbor Water Quality Report. New York City Department of Environmental Protection.

NYCEDC. 2016. Coney Island Creek Resiliency Study. New York: The New York City Economic Development Corporation.

Rivel, D. & Rosenheim, K. 2016. *Birdwatching in New York City and on Long Island*, University Press of New England.

Appendix A: Direct Human Observation Protocol

DIRECT HUMAN OBSERVATION OF URBAN WATERFRONTS – 2018

☐ **WEEKDAY** ☐ **EVENING** ☐ **WEEKEND**

DIRECT HUMAN OBSERVATION	# Kids (<18)	# Adults (18-65)	# Seniors (>65)
Bicycling			
Jogging / Running			
Walking / Dog Walking			
Sports & Recreation (soccer, tennis, cricket, baseball, volleyball, football, frisbee, playground use, tag, etc.)			
Educational Group / Tour(remember primary purpose, note the activity - count each individual)			
Nature Recreation (birding, digging, building w nature, climbing, etc.)			
Fishing (fishing with pole, fishing with net or hands)			
Crabbing			
Swimming / Wading / Water play (jumping, playing, relaxing in water)			
Sunbathing / free play on shore (playing in sand, beach activities)			
Boating – with engines or sails (launching or landing boat, jetskiing, sailing)			
Boating – nonpower (launching or landing boat, kayaking, paddleboarding)			
Plant Collection / Foraging / Gathering			
Stewardship (gardening, tree care, weeding, trash removal, watering, volunteers in parks)			
Sitting / Resting / Standing / Waiting / Keeping Watch (alone, not socializing)			
Socializing in Place (people talking, barbecuing, party, in groups, children in free play)			

Working (parks maintenance, vendor, utility, repair, building, re-building)			
Other Activity (homeless person sleeping, musician on street, washing or fixing car)			
Encounter with Resident: positive (remember to record what they are doing)			
Encounter with Resident: negative (remember to record what they are doing)			
SOCIAL OBSERVATION			
# of pairs			
# of small groups (3-10)			
# of large groups (10+)			
# of dogs			

Team Name:	**Park Name:**		**Zone:**
Date (MM/DD/YYYY):	**Camera #**	**First Photo #:**	**Last Photo #:**

Field Notes:

Appendix B: Interview Protocol

WATERFRONT OBSERVATION – 2018 ☐ **WEEKDAY** ☐ **EVENING** ☐ **WEEKEND**

Team name:	**Park name:**	**Date:**	**Zone:**
Approximate age: ☐18-65 ☐>65	**Gender:** ☐Male ☐Female		**Time:**
What are you doing along this waterfront today?			
And why do you choose to come here?			
How often do you visit this waterfront area? ☐**Daily** ☐**Weekly** ☐**Monthly** ☐**Occasionally** ☐**Rarely**			
How far did you travel to get here? ☐**Less than 5 blocks** ☐**6-10 blocks** ☐**11-20 blocks** ☐**Over 20 blocks**			
What other types of activities do you like to do in this area? (i.e. fishing, boating, running, etc.)			
Anything preventing you from accessing this waterfront?			
When was the first time you came here? (year, or month if in the last year)			
Have you noticed any changes since then? If so, what? (i.e. usage, development, access, pollution, wildlife, etc.)			
Based on the following scale, how clean do you think the water is? (very clean, somewhat clean, neither clean nor dirty, somewhat dirty, very dirty)			

Would you feel safe swimming here? Would you feel safe eating the fish?
If you do eat fish or crabs from water, what types, and how do you prepare them?
Where else do you like to go to be close to the water? *(capture named sites & specific geography whenever possible)*
Are you involved in any groups that help take care of waterfront areas or the environment? ☐**Yes** ☐**No** ☐**No, but…** *If necessary, prompt interviewee to think about LOCAL stewardship activities / groups, within NYC* **→If" yes," which group(s)?** **→If "no," why not?** **→If "no, but," capture details:** *(e.g.: related profession, individual practice, home stewardship, other volunteerism)*
FIELD NOTES:

Appendix C: Signs of Human Use Protocol

PARKS OBSERVATION – 2018 ☐ **WEEKDAY** ☐ **EVENING** ☐ **WEEKEND**

Name:		**Park Name:**	**Zone:**
Date (MM/DD/YYYY):	**Camera #**	**First Photo #:**	**Last Photo #:**

SIGNS OF HUMAN USE	COUNT
Informal Trails 📷 (cut-throughs, foot paths, desire lines, bike tracks)	
Encampment / Sleeping Area 📷	
Informal / Improvised Sitting Places 📷 (bench, chair, grill)	
Fire Pit 📷	
Memorial / Shrine / Sacred Symbol 📷 (colored ribbons, RIP, "in memory of," stuffed animals)	
Damaged / Vandalized Building or Property 📷	
Substantial Dumping or Debris 📷 (NOT bagged trash or litter)	
Graffiti, Art, Murals 📷 (hand written/painted messages or signs – do NOT photo small, illegible tags)	
Signage, Flyers & Stickers 📷 (community bulletin boards, institutional signs, NOT city street signs or standard parks signs)	
Garden in Park 📷	
Bird Feeder / Birdbath / Bird Box / Bat box 📷	
Boats 📷 (stationary or tied)	

Fishing (lines, hooks, nets)	
Crabbing, Etc. (clam digging, traps)	
Other (specify in Field Notes)	

Field Notes: *capture any official or unofficial name for the zone – via signage or in conversation with public / managers*

Zone Overview Photo #:
Zone Debrief Notes:

Appendix D: Debrief Notes Protocol

PARKS OBSERVATION – 2018 ☐ **WEEKDAY** ☐ **EVENING** ☐ **WEEKEND**

Team:	Date (MM/DD/YYYY):	Park Name:

DEBRIEF NOTES	
General Park Observations:	**Interview Refusals**