

NATURAL AREA: CAVEN POINT (LIBERTY STATE PARK)

County Hudson Municipality Jersey City Phys. Prov. Piedmont

Quad Jersey City Bearings 40 o 41 ' 34 "N

Acres: 235.9 upland 21.5 74 o 4 ' 9 "W
riparian 214.4

Attachment A is a map of the Caven Point acquisition which totals 293.1 acres. Of this acquisition 235.9 acres have significant natural value. (Attachment B).

The remaining 63.3 acres includes the Caven Point pier. N.J.S.A. 13:1B-15.12 a 1. indicates that Natural Areas may not necessarily be wholly unmarked by man, but that the impact of man be not permanent, not seriously destructive of the area's potential for natural values and not obtrusively apparent to the casual observer.

The pier is both permanent and obtrusively apparent to the casual observer and therefore should be excluded from the recommended natural area.

Natural Resource Elements:

1. Habitat/Ecosystem Types:

<u>Rock Out.</u>	<u>Uplds, Mesic</u>	<u>Lowlds: Swamp</u>	<u>Aquatic</u>	<u>Other:</u>
<u>Ridgetop(s)</u>	<u>Uplds, Dry</u>	<u>Fldpl.</u>	<u>Marine</u>	<u>dry upland beach</u>
<u>Steep Slp(s)</u>	<u>Dunes</u>	<u>X Marsh, Slt</u>	<u>X Estuar.</u>	<u>_____</u>
<u>Ravine(s)</u>	<u>_____</u>	<u>Marsh, Fr</u>	<u>Stream</u>	<u>_____</u>
		<u>Bog</u>	<u>Lake/pnd</u>	<u>_____</u>

2. Community Types:

There are three ecotypes found on the Caven Point area. They are a beach area, tidal marshes and a shallow water flat. Attachment C.

Upland Beach Area

The upland beach area is primarily vegetated with panic grass Panicum sp. with a band of Phragmites running in a northeast-southwest direction. State Park Service staff have observed heavy use of this area by shore birds.

Tidal Marshes

The tidal marshes are of two types the lower marsh and high marsh. The lower marsh is located along the western edge of Caven Cove and is vegetated primarily by cord grass Spartina alterniflora. The high marsh consists of a three acre area located on the tip of a small peninsula adjacent to the Liberty State Park boat ramp. The dominate plant type in this area is salt hay Spartina patens. State Park Service staff observed egrets, bittern and herons in this area.

Shallow Water Flat

This area is a flat sandy bottomed marine area adjacent to the cord grass Spartina alterniflora marsh. This area has a high resident and seasonal fish population.

3. Special Plants:

The tidal marshes, although not containing any rare, threatened or endangered plant species, contain the most valuable plant communities of the area. The value of these areas lies in the fact that they provide a habitat for wildlife. The two types of tidal marshes found in the Caven Point area are a lower marsh and a high marsh.

Lower Marsh

The lower marsh is dominated by cord grass, Spartina alterniflora and is located on the western edge of Caven Cove. This actively building marsh provides a habitat for ribbed mussels, bait fish, young game fish and waterfowl.

High Marsh

The high marsh is dominated by salt hay, Spartina patens and is a three acre marsh located on the point adjacent to the boat ramp area. This marsh area is unique in that it is the northern most S. patens community in the Hudson River Estuary.

4. Special Wildlife

The most valuable aspect of the Caven Point area is that it provides habitats for both permanent resident and seasonal resident wildlife.

Fish Population

Thirty two (32) fish species were collected by Texas Instruments between August 15, 1975, through July 21, 1976, in Caven Cove. Attachment D is a list of fish species collected by Texas Instruments at three locations, two of which were in Caven Cove. The results of this study indicated two important facts concerning Caven Cove:

- A. Caven Cove is a year round residence for fish that are an important food source for large fish such as bluefish and striped bass. The food fish include Atlantic silversides, striped killifish and mummichog; and
- B. Caven Cove is a nursery area for a large number of fish species. Of the species collected 68% were juvenile specimens which supports the nursery functions of the Caven Point area. The bay anchovy, striped bass, atlantic tomcod and atlantic herring were the most numerous species collected.

The fish population of the area have been assessed as thriving. The striped bass population is most successful. This is attributed to their spawning success farther north and the migration of the young to Caven Cove.

The Texas Instrument study states that 97 bird species were observed in the vicinity of the Liberty State Park area from September 1975 through June 1976. More than 50% of the species observed are commonly associated with open water, shorelines and marshes. Attachment E is the annotated list from the Texas Instrument study. Of the 97 species listed eleven (11) were sighted in Caven Cove; these species are indicated with an asterisk. Attachment F is a list of non-game birds species which the staff of Division of Fish, Game and Wildlife, Non-Game species have indicated could be expected to use Caven Cove.

Eighteen of the 97 bird species observed in the Liberty State Park area during the Texas Instrument study were waterfowl. Attachment G is a list of waterfowl observed in the area.

Data from the Texas Instrument study specific to Caven Cove indicate the Canvasback, Scaup and Ruddy Duck were the three major species found there.

Canvasback: Canvasback migratory and winter movements were substantial; flocks of several hundred birds appeared to move freely from location to location in the general area. During the winter of 1975, Texas Instrument estimated that 9,000 canvasback ducks wintered in the shallows at Caven Cove.

Greater Scaup: The Texas Instrument study indicated that Caven Cove appeared to be more important to the scaup than the canvasback. Monthly counts (best estimates from both aerial and ground surveys) were 4,398 in January, 330 in February and 1,432 in March.

Ruddy Duck: This is the only duck species which exhibited a special affinity to Caven Cove. They were seen continuously from mid-December through late March at the Cove while there was only one sighting elsewhere in Liberty State Park.

Texas Instrument observers made five sightings of two loon species, all in offshore waters of the Black Tom Canal (the northern boundary of the Caven Point).

The Division of Fish, Game and Wildlife has assessed Caven Cove as being one of the most important habitats in New Jersey's portion of the Lower Hudson River for diving ducks. The canvasback ducks at Caven Cove are a significant percentage of the canvasback populations in New Jersey.

The Division of Fish, Game and Wildlife have identified 20 species of waterfowl which may use Caven Cove. These species include those waterfowl listed in the Texas Instrument study, the snow goose and the american coot.

While preparing this assesment State Park Service staff observed the following species of waterfowl at Caven Cove.

American Wigeon	Canvasback
Black Duck	Great Scoup
Mallard	Brant
Gadwall	Grebe

Other birds observed by State Park Service staff in the Caven Point area include egrets, bitterns, herons, hawks, kestrels and short-eared owls.

Other animal populations

Various invertebrates also found in the area include: shrimps, mullusks and polycheates.

Geological/Topographical Features

Geology

The Caven Point area consists of shallow water flat, marsh areas and a small area of upland beach. The dry portion is relatively flat with a small ridge.

The water's edge along the entire Hudson River estuary has been extensively altered through dredging and landfill operations.

Most of the land west of the Caven Point area was a shallow water flat which was built up using landfill material prior to the 1860's.

There has not been an intense soil survey of Hudson County. Soils of the general area are considered unconsolidated marine sediments over lake sediments. This has been altered somewhat through the deposit of landfill material.

Substrates: Unconsolidated sands.

Glaciation: The Hudson River area was glaciated by the Wisconsin ice sheet.

The glacial till was later covered by lake deposits which in turn were covered by marine deposits. The glacial till of the entire Liberty State Park area is relatively deep. The closest location to Caven Point where glacial till is found on or near the surface is the Pallasades.

Fossils: The Department of Environmental Protection has no documentation that any research on fossils of the Hudson River area has been prepared. If fossils were to be found in the Liberty State Park area they would most likely be plant material dating approximately 6,000 years.

Evaluation of Ecological Quality of the Area

Fair.

Air Quality: The Jersey City area is listed as having three pollutants; carbon monoxide, particulate matter and ozone present in air samples.

Water Quality: The water quality is considered poor according to New Jersey State Water Quality standards. The area is suitable for secondary contact recreational purposes. There is an advisory in effect on eating fish caught in this area. The Texas Instrument study lists a number of pollutants found in sediment materials in this area.

Although the water quality is not good for primary recreational use, the wildlife of the area demonstrate diverse and productive populations.

The general condition of the beach adjacent to Caven Cove reflects the presence of man. Debris found on the beach includes wooden poles, wooden crates and other artifacts of man which have been washed ashore.

In addition to the beach debris, there is a concrete structure on the upland portion of the Caven Point. This structure is approximately six feet high, eight feet wide and twenty feet long.

These artifacts do affect the estentic quality of the area.

Reasons for inclusion of Area in the Natural Areas System

N.J.A.C. 7:2.11.3 states the criteria for an area's inclusion into the Natural Areas System. It states:

"The Department shall consider an area for inclusion into the system if it demonstrates:

1. Examples of biotic or geologic types that are common to this state;
2. Examples of atypical biotic or geologic types;
3. Major ecosystems or geologic formations of the state; or
4. Other natural features that are worthy of preservation".

The inclusion factors are:

1. Caven Point is one of the last relatively undisturbed examples of the Hudson River Estuary, a major ecosystem of this state. Caven Point has been altered through some landfill operation; however, this portion of the shallow water flat remains and is significantly important as a resting, wintering and feeding area for waterfowl and a feeding and nursery area for numerous game and non-game species of fish.

2. Caven Point through its diverse wildlife populations demonstrates numerous examples of biotic types that are common to this state. There are 32 species of fish and 60 species of birds which have either been sighted in the area or are expected to use the area.

3. Caven Point represents one of the last relatively undisturbed examples of the Hudson River Estuary. The Texas Instruments study states that as development continues along the Hudson River waterfront, areas such as Caven Point will become increasingly important to the areas waterfowl populations. Nearly all shallow water areas along the Hudson River, south of the George Washington Bridge, have been destroyed through dredging operations. The uniqueness of Caven Point as one of the last relatively undisturbed areas of the Hudson River Estuary makes it worthy of preservation.

Evaluation of the Protectability of the Area

There are a few potential threats to the integrity of the area. They are:

1. The storage of oil adjacent to Caven Point poses a potential threat of oil spills. While the Office of Natural Areas staff visited the Caven Point to prepare this assessment, oil company employees were observed placing what appeared to be an oil spill net in the water to contain oil seepage.

2. The planned industrial, commercial, residential and recreational development adjacent to Caven Point creates a possible threat to wildlife populations.

3. The Texas Instrument study brought out the fact that as the abandoned pier structures on the northern boundary of the area are removed and the Liberty State Park marina is developed, increased boat traffic cutting across Caven Cove will disturb the waterfowl. The pier structures have been removed and State Park Service staff indicate there has been no observed significant increase of boat traffic observed at Caven Cove.

Reference and Field Material

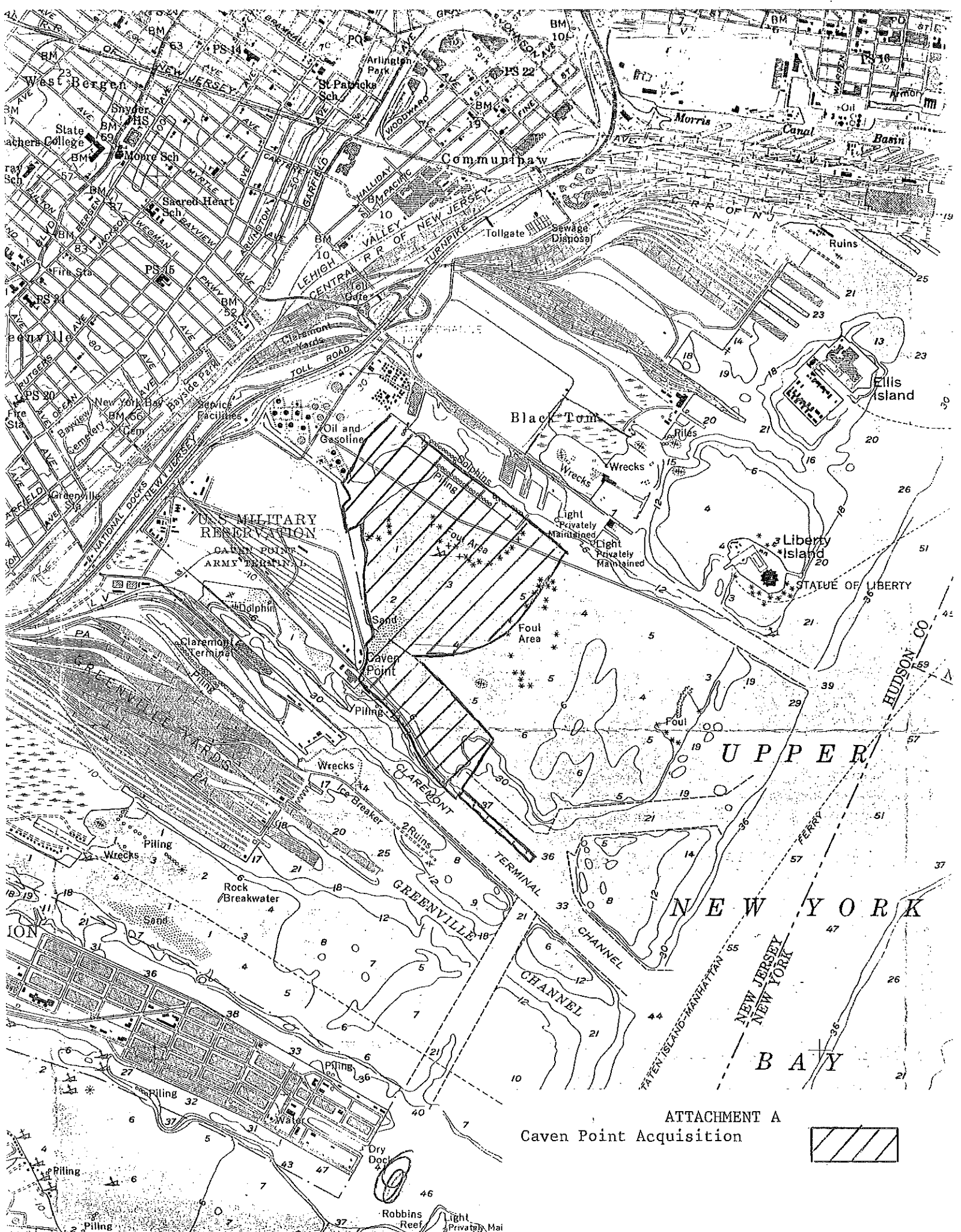
Liberty State Park Ecological Study Report prepared for the Port Authority of New York and New Jersey by Texas Instrument Inc., Ecological Services.

Bureau of Geology: David Harper, personal communication.

USDA Soil Conservation Service: Wendel Kirham, personal communication
Seymour Goodman, personal communication.

State Park Service: Jim Leon, William Vibbert, Peter Straw,
Barry Leilich, staff observations.

Division of Fish, Game and Wildlife: William Anderson, Donald Burns,
Steven Toth, James Scrascia, personal communications.

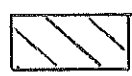


ATTACHMENT A
Caven Point Acquisition

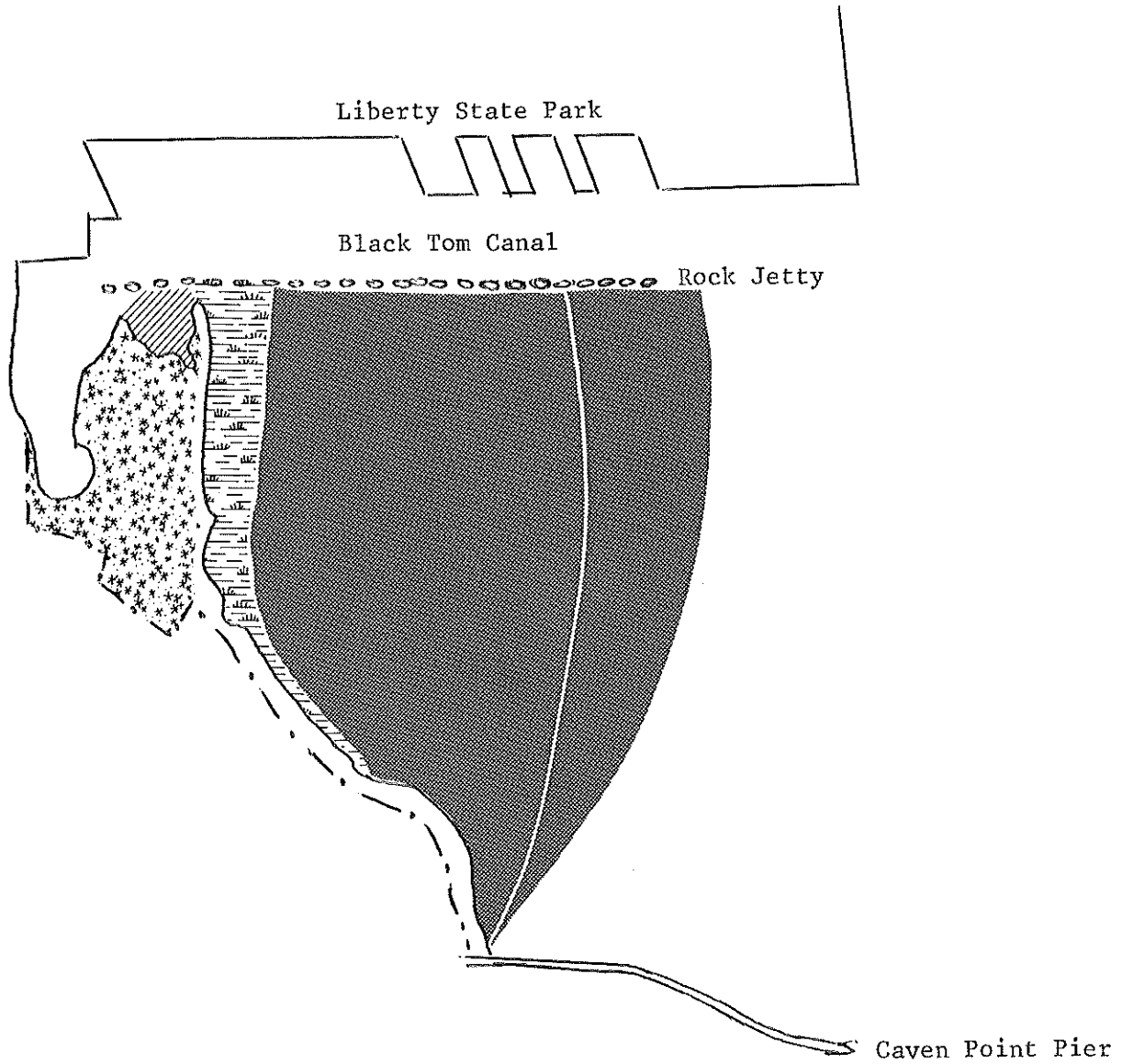




ATTACHMENT B
Area of Natural Significance



Attachment C: Community Types found on Caven Point



Legend

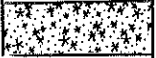

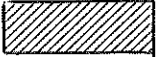

- Dry Upland Beach 
- Marshes
Cord Grass 
- Salt Hay 
- Shallow Water Flat 
- Western Boundary of
Area Of Significance . - . -



Table III-1
Fishes Collected in Fisheries Sampling Gear during
Liberty State Park Studies

Species		
Family	Scientific Name	Common Name
Anguillidae	<u>Anguilla rostrata</u>	American eel
Clupeidae	<u>Alosa aestivalis</u>	Blueback herring
	<u>Alosa pseudoharengus</u>	Alewife
	<u>Alosa sapidissima</u>	American shad
	<u>Brevoortia tyrannus</u>	Atlantic menhaden
	<u>Clupea harengus harengus</u>	Atlantic herring
Engraulidae	<u>Anchoa mitchilli</u>	Bay anchovy
Osmeridae	<u>Osmerus mordax</u>	Rainbow smelt
Gadidae	<u>Merluccius bilinearis</u>	Silver hake
	<u>Microgadus tomcod</u>	Atlantic tomcod
Belonidae	<u>Strongylura marina</u>	Atlantic needlefish
Cyprinodontidae	<u>Fundulus heteroclitus</u>	Mummichog
	<u>Fundulus majalis</u>	Striped killifish
Atherinidae	<u>Membras martinica</u>	Rough silverside
	<u>Menidia beryllina</u>	Tidewater silverside
	<u>Menidia menidia</u>	Atlantic silverside
Gasterosteidae	<u>Apeltes quadracus</u>	Fourspine stickleback
	<u>Gasterosteus aculeatus</u>	Threespine stickleback
Syngnathidae	<u>Syngnathus fuscus</u>	Northern pipefish
Percichthyidae	<u>Morone americana</u>	White perch
	<u>Morone saxatilis</u>	Striped bass
Pomatomidae	<u>Pomatomus saltatrix</u>	Bluefish
Caranigidae	<u>Caranx hippos</u>	Crevalle jack
Sciaenidae	<u>Cynoscion regalis</u>	Weakfish
	<u>Leiostomus xanthurus</u>	Spot
	<u>Menticirrhus saxatilis</u>	Northern kingfish
Mugilidae	<u>Mugil curema</u>	White mullet
Uranoscopidae	<u>Astroscopus guttatus</u>	Northern stargazer
Gobiidae	<u>Gobiosoma boscii</u>	Naked goby
Triglidae	<u>Prionotus carolinus</u>	Northern searobin
Cottidae	<u>Myoxocephalus aeneus</u>	Grubby
Pleuronectidae	<u>Pseudopleuronectes americanus</u>	Winter flounder



Table D-3

Annotated List of Bird Species Observed
on Liberty State Park Site, September 1975-June 1976

Scientific Name	Common Name	Status*	Comments
* <u>Gavia immer</u>	Common Loon	Uncommon migrant; rare in winter.	One individual was observed near Caven Point on 5 January 1976.
<u>Gavia stellata</u>	Red-throated Loon	Rare migrant and in winter.	Five observations were recorded in Upper New York Bay in November and early December 1975.
<u>Podiceps auritus</u>	Horned Grebe	Common migrant and in winter.	From 10 November through 5 April, the maximum number observed in the vicinity of the Liberty State Park site was 15 on 24 November, 22 December, and 16 February.
<u>Podilymbus podiceps</u>	Pied-billed Grebe	Uncommon migrant and in summer; rare in winter.	This small grebe was observed on six occasions between 3 January and 12 April 1976.
<u>Phalacrocorax auritus</u>	Double-crested Cormorant	Abundant spring migrant; common fall migrant; rare in summer.	Seven individuals were observed on 20 October; the spring maximum was 119 on 12 April; on 21 June 1976, 19 birds were still present.
<u>Ardea herodias</u>	Great Blue Heron	Common fall migrant; uncommon spring migrant and in winter; rare in summer.	This large heron was observed on the study area in September, October, and April, with only one individual being sighted on any one date.
<u>Butorides virescens</u>	Green Heron	Common migrant and in summer; rare in winter.	One individual was sighted near the onsite waterbody on 23 September and another at the same location and in the tidal marsh on 7 June 1976.
<u>Egretta thula</u>	Snowy Egret	Abundant fall migrant; common spring migrant and in summer; uncommon in winter.	This wading bird species was observed feeding in the tidal marsh on the study area during fall and spring; the maximum was five on 5 April 1976.
<u>Nycticorax nycticorax</u>	Black-crowned Night Heron	Abundant migrant and in summer; common in winter.	Individuals were seen in the tidal marsh on the study area during September-December and again in June; the maximum was 14 on 3 November 1975.
<u>Plegadis falcinellus</u>	Glossy Ibis	Abundant migrant and in summer; rare in winter.	Observations occurred in September, May, and June. The maximum, six, occurred in the study area's tidal marsh on 24 May and 21 June 1976.
* <u>Branta canadensis</u>	Canada Goose	Abundant fall migrant; common spring migrant; uncommon in summer and winter.	There were seven sightings between 10 October and 3 November, with a maximum of four occurring off Caven Point on 27 October 1976. On 12 April 1976, 30 were observed on the Caven Cove beach.
<u>Branta bernicla</u>	Brant	Abundant migrant and in winter; uncommon in summer.	A pair were seen during the first week of June at several locations along the Liberty State Park shoreline.
<u>Chen caerulescens</u>	Snow Goose	Common migrant; uncommon in winter; rare in summer.	Nine birds were observed on Upper New York Bay near the study area on 8 March, and a flock of 177 of the white morph flew northward over the site on 6 April 1976.
<u>Anas platyrhynchos</u>	Mallard	Abundant throughout the year.	Mallards, the first of seven dabbling duck species observed on the study area, occurred during every month from September 1975 through June 1976. A maximum of 10 was observed on the onsite waterbody on 21 September 1975.
<u>Anas rubripes</u>	Black Duck	Abundant throughout the year.	Like the Mallard, the Black Duck was observed in every month, with the maximum of 60 occurring on 24 November.
<u>Anas strepera</u>	Gadwall	Common migrant and in summer; uncommon in winter.	Gadwalls were first observed in November and continued to be regular through early May, with the maximum of 72 occurring on 22 December 1975.
* <u>Anas acuta</u>	Pintail	Abundant fall migrant; common in winter; uncommon spring migrant; rare in summer.	Pintails were sighted only in January and early February; a maximum of 201 were counted from the Liberty State Park site south to Caven Point.
<u>Anas crecca</u>	Green-winged Teal	Common migrant; uncommon in summer and winter.	This small duck was observed only in September when there were three on the onsite waterbody.



Table D-3 (Contd)

Scientific Name	Common Name	Status*	Comments
<u>Anas discors</u>	Blue-winged Teal	Common migrant; uncommon in summer; rare in winter.	Two individuals were observed on 15 March 1976.
<u>Anas americana</u>	American Wigeon	Abundant migrant and in winter; rare in summer.	Wigeons were observed regularly from September until early May, with the maximum being 123 on 27 October 1975.
<u>Aythya americana</u>	Redhead	Uncommon migrant and in summer.	Two individuals were seen on 12 January 1976.
<u>Aythya collaris</u>	Ring-necked Duck	Uncommon migrant; rare in summer.	Two individuals were observed off Caven Point on 22 December 1975.
<u>Aythya valisineria</u>	Canvasback	Abundant fall migrant and in winter; common spring migrant; rare in summer.	On 27 October, an estimated 500 birds were observed in Constable Point Bay. From the Liberty State Park study area, Canvasbacks were first sighted on 17 November; by early January, the population had increased to a maximum of more than 1000 birds. The species last appeared on 12 April 1976.
<u>Aythya marila</u>	Greater Scaup	Abundant migrant and in winter; uncommon in summer.	Greater Scaup first appeared on 24 November and were last seen on 3 May. The maximum observed from the park site was 407 on 15 March 1976.
<u>Aythya affinis</u>	Lesser Scaup	Uncommon migrant and in winter.	One individual was observed on Upper New York Bay from the park site on 29 December, and eight were seen on 12 January 1976.
<u>Bucephala clangula</u>	Common Goldeneye	Common in winter; uncommon fall migrant; rare spring migrant.	Goldeneyes were observed on three dates during the winter season, with a maximum on six February 1976.
<u>Bucephala albeola</u>	Bufflehead	Abundant migrant and in winter; rare in summer.	This small diving duck species was observed regularly from 3 November through 12 April, with a maximum of 65 occurring in the site vicinity on 29 December 1975.
* <u>Melanitta deglandi</u>	White-winged Scoter	Rare fall migrant and in winter.	A single individual was seen off Caven Point on 6 April 1976.
* <u>Oxyura jamaicensis</u>	Ruddy Duck	Abundant migrant and in winter; common in summer.	Ruddy Ducks resided off Caven Point from 15 December until 29 March. The maximum was 119 on 12 January 1976.
<u>Lophodytes cucullatus</u>	Hooded Merganser	Uncommon migrant; rare in summer and winter.	Hooded Mergansers were observed on two dates in early February. The maximum was seven on 9 February 1976.
<u>Mergus serrator</u>	Red-breasted Merganser	Abundant in winter; common migrant; uncommon in summer.	Six individuals were sighted on 8 March 1976.
<u>Circus cyaneus</u>	Marsh Hawk	Uncommon migrant and in winter; rare in summer.	Single birds were observed hunting for prey over the Liberty State Park site in September, February, March, and April.
<u>Pandion haliaetus</u>	Osprey	Uncommon migrant.	One Osprey was observed along Burma Road on the park site on 22 September 1975; it was perched on a pole and feeding on a fish.
<u>Falco sparverius</u>	American Kestrel	Common fall migrant; uncommon spring migrant and in winter; rare in summer.	This small falcon species was observed during fall most frequently in the northern portion of the park site. A maximum of 22 was concentrated on the site on 3 October 1975.
<u>Phasianus colchicus</u>	Ring-necked Pheasant	Rare throughout the year.	This permanent resident was observed throughout the park site. A maximum of eight birds was flushed on 6 April 1976.
<u>Rallus longirostris</u>	Clapper Rail	Common migrant and in summer; uncommon in winter.	This large rail inhabited the tidal marsh on the Liberty State Park site during fall, spring, and summer.
<u>Rallus limicola</u>	Virginia Rail	Uncommon migrant; rare in winter.	In early June, two individuals were observed in phragmites bordering the onsite waterbody.
<u>Fulica americana</u>	American Coot	Common fall migrant and in winter; uncommon spring migrant and in summer.	Coots were observed during every month from October through April, with a winter maximum of 11 on 26 January and a spring maximum of nine on 12 April 1976.



Table D-3 (Contd)

Scientific Name	Common Name	Status*	Comments
<u>Charadrius vociferus</u>	Killdeer	Common migrant and in summer; uncommon in winter.	This common plover species was observed during each season on the study area.
* <u>Pluvialis squatarola</u>	Black-bellied Plover	Abundant migrant; common in winter; uncommon in summer.	A maximum of 30 occurred near Caven Point on 27 October, and single individuals were seen on the Liberty State Park site on 10 November and 24 May; on the latter date, 12 were observed also near Caven Point.
<u>Philohela minor</u>	American Woodcock	Uncommon migrant and in summer; rare in winter.	One individual was flushed from a small stand of eastern cottonwoods on the park site in early June.
<u>Capella gallinago</u>	Common Snipe	Uncommon migrant; rare in winter.	Single individuals were observed along the edge of the study area's tidal marsh on 12 January, 5 April, and 3 May 1976.
<u>Actitis macularia</u>	Spotted Sandpiper	Common migrant; uncommon in summer.	Spotted Sandpipers were sighted along the shoreline of Upper New York Bay on the study area on 2 and 10 October, 24 May, and 6 June.
<u>Tringa melanoleuca</u>	Greater Yellowlegs	Abundant migrant; common in summer; uncommon in winter.	Six individuals were observed on the Liberty State Park site on 3 May, and a single bird was noted on 8 June 1976.
* <u>Erolia maritima</u>	Purple Sandpiper	(Not listed)	On 5 April, four individuals were observed feeding on an abandoned boat hull washed with waves off Caven Point; this sandpiper species winters on rocky shores and jetties along the Atlantic coast.
* <u>Calidris minutilla</u>	Least Sandpiper	Abundant migrant; uncommon in summer.	On 24 May 1976 from Caven Point, 25 individuals were observed.
<u>Calidris alpina</u>	Dunlin	Abundant fall migrant and in winter; common spring migrant.	Five individuals were sighted from Caven Point on 13 October and 75 at the same location on 5 January 1976.
* <u>Calidris pusillus</u>	Semipalmated Sandpiper	Abundant migrant; uncommon in summer; rare in winter.	On 24 May, 15 individuals were observed feeding with the Least Sandpipers near Caven Point.
<u>Larus marinus</u>	Great Black-backed Gull	Abundant fall migrant and in winter; common spring migrant and in summer.	This large gull species was observed along the waterfront of the study area from September through June.
<u>Larus argentatus</u>	Herring Gull	Abundant throughout the year.	Like the previous species, Herring Gulls occurred regularly along the waterfront.
<u>Larus delawarensis</u>	Ring-billed Gull	Abundant migrant and in winter; uncommon in summer.	The species occurred regularly in the study area, with a maximum of 45 individuals being counted 22 September.
<u>Larus atricilla</u>	Laughing Gull	Common migrant; uncommon in summer.	Laughing Gulls were sighted in September, April, and June.
<u>Larus philadelphia</u>	Bonaparte's Gull	Uncommon migrant and in winter; rare in summer.	A maximum of 30 was counted along the waterfront of the study area on 2 October, and the species also was seen in April.
<u>Sterna hirundo</u>	Common Tern	Abundant migrant and in summer.	Two Common Terns flew over Upper New York Bay on 8 June 1976.
<u>Sterna albifrons</u>	Least Tern	Common migrant and in summer.	A single individual was noted on 21 June 1976.
* <u>Rynchops nigra</u>	Black Skimmer	Common migrant and in summer.	On 13 October 1975, 15 were seen from Caven Point.
<u>Columba livia</u>	Rock Dove	Common throughout the year.	This semidomesticated pigeon occurred at Liberty State Park throughout the study, with a maximum of 45 being counted on 23 September 1975.
<u>Zenaidura macroura</u>	Mourning Dove	Common throughout the year.	This dove species was present in the study area throughout the year. A large concentration of 260 birds was tallied on 22 September 1975.



Table D-3 (Contd)

Scientific Name	Common Name	Status*	Comments
<u>Asio flammeus</u>	Short-eared Owl	Uncommon fall migrant and in winter; rare spring migrant and in summer.	This owl species was observed hunting over the open fields on the Liberty State Park site on 17 November 1975, 12 January, and 16 February 1976.
<u>Chaetura pelagica</u>	Chimney Swift	Uncommon migrant; rare in summer.	Two swifts flew over the park site on 9 June 1976.
<u>Megasceryle alcyon</u>	Belted Kingfisher	Uncommon migrant; rare in winter.	This fish predator was observed in the study area during fall, winter, and spring, primarily near the tidal marsh.
<u>Colaptes auratus</u>	Common Flicker	Common migrant; uncommon in winter; rare in summer.	A single individual was observed on the Liberty State Park site on 24 September, and a pair was noted near the former Jersey City drug center on 6 April 1976.
<u>Sayornis phoebe</u>	Eastern Phoebe	Common fall migrant; uncommon spring migrant.	One individual was seen in the study area on 6 April 1976.
<u>Empidonax traillii</u>	Willow Flycatcher	Rare migrant.	One individual was singing from an eastern cottonwood stand near the onsite waterbody on 8 June and another on 10 June along Burma Road.
<u>Iridoprocne bicolor</u>	Tree Swallow	Abundant migrant; common in summer; rare in winter.	Three individuals were observed migrating northward on 6 April 1976.
<u>Hirundo rustica</u>	Barn Swallow	Abundant migrant; uncommon in summer.	Several colonies, the largest consisting of approximately 16 birds, nested in and beneath abandoned buildings that extended from shore into Upper New York Bay.
<u>Corvus brachyrhynchos</u>	Common Crow	Rare throughout the year.	A few Common Crows were sighted in the Liberty State Park study area in September, April, and June.
<u>Corvus ossifragus</u>	Fish Crow	Uncommon spring migrant; rare fall migrant and in summer and winter.	Fish Crows were observed on the park site in September and April.
<u>Parus atricapillus</u>	Black-capped Chickadee	Uncommon fall migrant; rare spring migrant and in winter.	A maximum of six individuals occurred in the study area in September and April.
<u>Troglodytes aedon</u>	House Wren	Uncommon migrant.	A single individual was seen along Wolf Road on 22 September 1975.
<u>Mimus polyglottus</u>	Mockingbird	Uncommon throughout the year.	A few individuals resided in the study area during all seasons.
<u>Dumetella carolinensis</u>	Gray Catbird	Common migrant and in summer; rare in winter.	One catbird was observed along Wolf Road on 24 September 1975.
<u>Toxostoma rufum</u>	Brown Thrasher	Common migrant; uncommon in summer; rare in winter.	A pair was discovered in the western portion of the park site on 10 June 1976.
<u>Turdus migratorius</u>	American Robin	Common migrant; uncommon in summer and winter.	One individual was observed along Burma Road on 6 April 1976.
<u>Catharus ustulata</u>	Swainson's Thrush	Uncommon migrant.	One individual was sighted on the park site on 10 October 1975.
<u>Regulus calendula</u>	Ruby-crowned Kinglet	Common migrant.	An individual was seen foraging for insects in the study area on 6 April 1976.
<u>Lanius ludovicianus</u>	Loggerhead Shrike	Rare migrant and in winter.	An individual was perched on a transmission line along Wolf Road on 22 September 1975.
<u>Sturnus vulgaris</u>	Starling	Abundant throughout the year.	Starlings were present on the Liberty State Park site throughout the period of study.
<u>Dendroica coronata</u>	Yellow-rumped Warbler	Abundant fall migrant; common spring migrant and in winter.	Two individuals were foraging in vegetation along Wolf Road on 10 October 1975.
<u>Geothlypis trichas</u>	Common Yellowthroat	Common migrant and in summer; rare in winter.	Yellowthroats, the second of the two warbler species observed on the park site, were recorded in September and June. A maximum of four was counted in the study area on a single date in those months.



Table D-3 (Contd)

Scientific Name	Common Name	Status*	Comments
<u>Passer domesticus</u>	House Sparrow	Common throughout the year.	This regularly occurring species in the study area reached a maximum of 23 on 22 September 1975.
<u>Agelaius phoeniceus</u>	Red-winged Blackbird	Abundant migrant and in summer; common in winter.	This blackbird species was a noticeable component of the bird life of the study area during fall, spring, and summer.
<u>Icterus galbula</u>	Northern Oriole	Uncommon migrant.	An individual was observed in a recently planted tree in the southern portion of the park site.
<u>Quiscalus quiscula</u>	Common Grackle	Common migrant and in summer; rare in winter.	A few grackles were observed on the Liberty State Park site in April and June.
<u>Molothrus ater</u>	Brown-headed Cowbird	Common migrant and in winter; uncommon in summer.	A male was noted near the Jersey City drug center on the park site on 9 June 1976.
<u>Passerina cyanea</u>	Indigo Bunting	Uncommon migrant.	An individual was seen near the yacht club in the study area on 8 June 1976.
<u>Carpodacus mexicanus</u>	House Finch	Common throughout the year.	House Finches were noted on and flying over the park site in September and June.
<u>Spinus tristis</u>	American Goldfinch	Common fall migrant; uncommon spring migrant and in winter; rare in summer.	Goldfinches were sighted in the Liberty State Park study area in September, January, April, and June; a maximum of 13 appeared along Wolf Road on 22 September 1975.
<u>Pipilo erythrophthalmus</u>	Rufous-sided Towhee	Common migrant and in summer; uncommon in winter.	One was observed in a cottonwood stand near the onsite waterbody on 8 June 1976.
<u>Passerculus sandwichensis</u>	Savannah Sparrow	Common migrant and in winter; rare in summer.	Seven individuals occurred in one location on the park site in September, and nine were found on 6 April 1976.
<u>Junco hyemalis</u>	Dark-eyed Junco	Common migrant and in winter.	Juncos were present on the study area in January, and a lone individual also was observed on 6 April 1976.
<u>Spizella arborea</u>	Tree Sparrow	Common in winter; uncommon fall migrant.	A few small flocks were discovered in the Liberty State Park study area in January.
<u>Spizella pusilla</u>	Field Sparrow	Uncommon migrant and in winter.	Two were observed on the park site on 6 April 1976.
<u>Zonotrichia albicollis</u>	White-throated Sparrow	Abundant fall migrant; common spring migrant and in winter.	White-throated Sparrows were seen in brushy areas on the park site in January and April.
<u>Melospiza georgiana</u>	Swamp Sparrow	Common fall migrant; uncommon spring migrant and in winter.	This wetland inhabiting species was noted either near the tidal marsh or the onsite waterbody in September, April, and June.
<u>Melospiza melodia</u>	Song Sparrow	Common throughout the year.	This was the most conspicuous sparrow species on the park site throughout the year.
* <u>Plectrophenax nivalis</u>	Snow Bunting	Uncommon in winter; rare fall migrant.	Three were noted on the Caven Point dock on 23 February, and six occurred at the same location on 1 March 1976.

* Abundant = more than 50 individuals per visit
 Common = 10-50 individuals per visit
 Uncommon = 1-9 individuals per visit
 Rare = only a few individuals during season

Spring = principally April and May
 Summer = June and July, the breeding season
 Fall (early and late) = August through November
 Winter = December through March

(Davis, T.H. 1976. The birds of Jamaica Bay Wildlife Refuge. Kingbird 26:111-22)

Attachment F, Nongame bird species which can be expected to use Caven Cove.
Supplied by Division of Fish, Game and Wildlife, Nongame Species Program.

<u>Common Name</u>	<u>Scientific Name</u>
Common Loon	<u>Gavia immer</u>
Pied-billed Grebe	<u>Podilymbus podiceps</u>
Double-crested cormorant	<u>Phalacrocorax auritus</u>
Great Blue Heron	<u>Ardea herodias</u>
Green Heron	<u>Butorides virescens</u>
Snowy Egret	<u>Egretta thula</u>
Black-crowned Night Heron	<u>Nycticorax nycticorax</u>
Glossy Ibis	<u>Plegadis falcinellus</u>
Marsh Hawk	<u>Circus cyaneus</u>
Osprey	<u>Pandion haliaetus</u>
clapper Rail	<u>Rallus longirostris</u>
Killdeer	<u>Charadrius vociferus</u>
Black-bellied Plover	<u>Pluvialis squatarola</u>
American Woodcock	<u>Philohela minor</u>
Common Snipe	<u>Capella gallinago</u>
Spotted Sandpiper	<u>Actitis macularia</u>
Greater Yellowlegs	<u>Tringa melanoleuca</u>
Least Sandpiper	<u>Calidris minutilla</u>
Dunlin	<u>Calidris alpina</u>
Semipalmated Sandpiper	<u>Calidris pusillus</u>
Great Black-backed Gull	<u>Larus marinus</u>
Herring Gull	<u>Larus argentatus</u>
Ring-billed Gull	<u>Larus delawarensis</u>
Laughing Gull	<u>Larus atricilla</u>
Bonaparte's Gull	<u>Larus philadelphia</u>
Common Tern	<u>Sterna hirundo</u>
Least Tern	<u>Sterna albifrons</u>
Black Skimmer	<u>Rynchops nigra</u>
Short-eared Owl	<u>Asio flammeus</u>
Belted Kingfisher	<u>Megaceryle alcyon</u>
Peregrin Falcon	<u>Falco peregrinus</u>
Common Egret	<u>Casmerodius albus</u>
Little Blue Heron	<u>Florida caerulea</u>
Yellow Crowned Night Heron	<u>Nyctanassa violacea</u>
Black Rail	<u>Laterallus jamaicensis</u>
Semipalmated Plover	<u>Charadrius semipalmatus</u>
Lesser Yellowlegs	<u>Totanus flavipes</u>

Table III-32

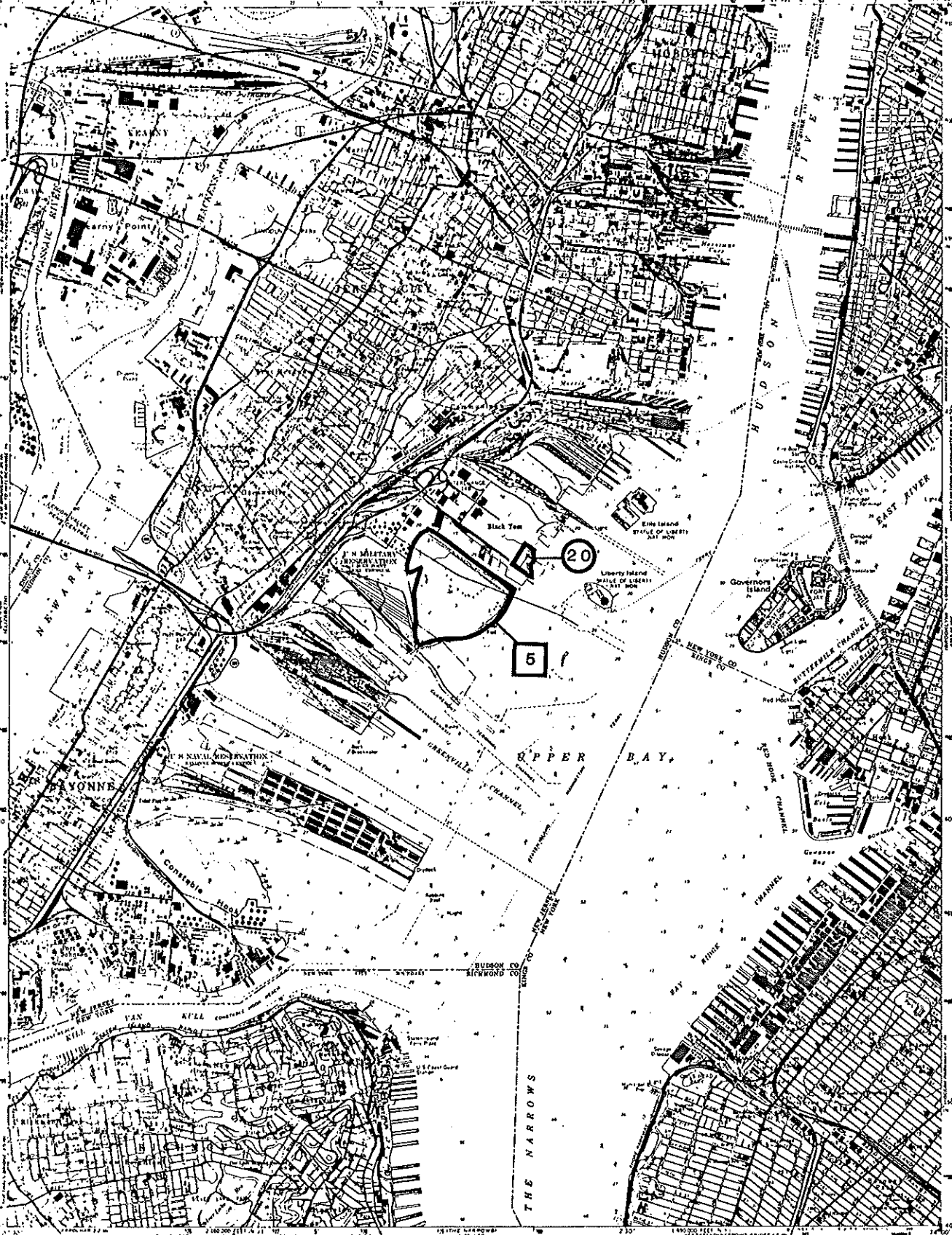
Number of Individuals of 18 Waterfowl Species Observed during
34 Ground Surveys in Vicinity of Liberty State Park,
September 1975-June 1976

Species	Number
Canada Goose	3
Brant	2
Mallard	90
Black Duck	573
Gadwall	646
Pintail	98
Green-winged Teal	3
Blue-winged Teal	2
American Wigeon	679
Redhead	1
Canvasback	5530
Greater Scaup	2334
Lesser Scaup	9
American Goldeneye	9
Bufflehead	714
Ruddy Duck	1
Hooded Merganser	10
Red-breasted Merganser	6
Unidentified	73
Total	10,783

NATURAL AREAS
 DEP. Parks & Forestry, Natural Lands Management
 Date Prepared : 8/15/84 Revised :

UNITED STATES
 DEPARTMENT OF THE INTERIOR
 GEOLOGICAL SURVEY

JERSEY CITY QUADRANGLE
 NEW JERSEY-NEW YORK
 15 MINUTE SERIES (TOPOGRAPHIC)



○ Designated Sites
 □ Register Sites

Map edited and published by the Geological Survey
 Revised in cooperation with New York Department of Transportation
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 U.S. Dept. of the Interior, Geological Survey
 Prepared by the New York State Department of Environmental Conservation
 U.S. GEOLOGICAL SURVEY
 Open File Report 1977-1032 15430 15450 15460 15470
 15480 15490 15500 15510 15520 15530
 Contour interval 10 feet
 Vertical datum: Mean Sea Level
 Horizontal datum: North American Datum 1983
 Scale: 1:24,000
 Date: 1977
 Printed in the United States of America
 1977

IN THE QUADRANGLE
 SCALE 1:24,000
 CONTOUR INTERVAL 10 FEET
 1" = 2,000 FEET
 DEPTH CURVES AND SOUNDINGS IN FEET - 1" = 10 FEET IN WATER
 THE MAP, COPY BY A NATURAL AREA, IS AVAILABLE
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 A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST
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