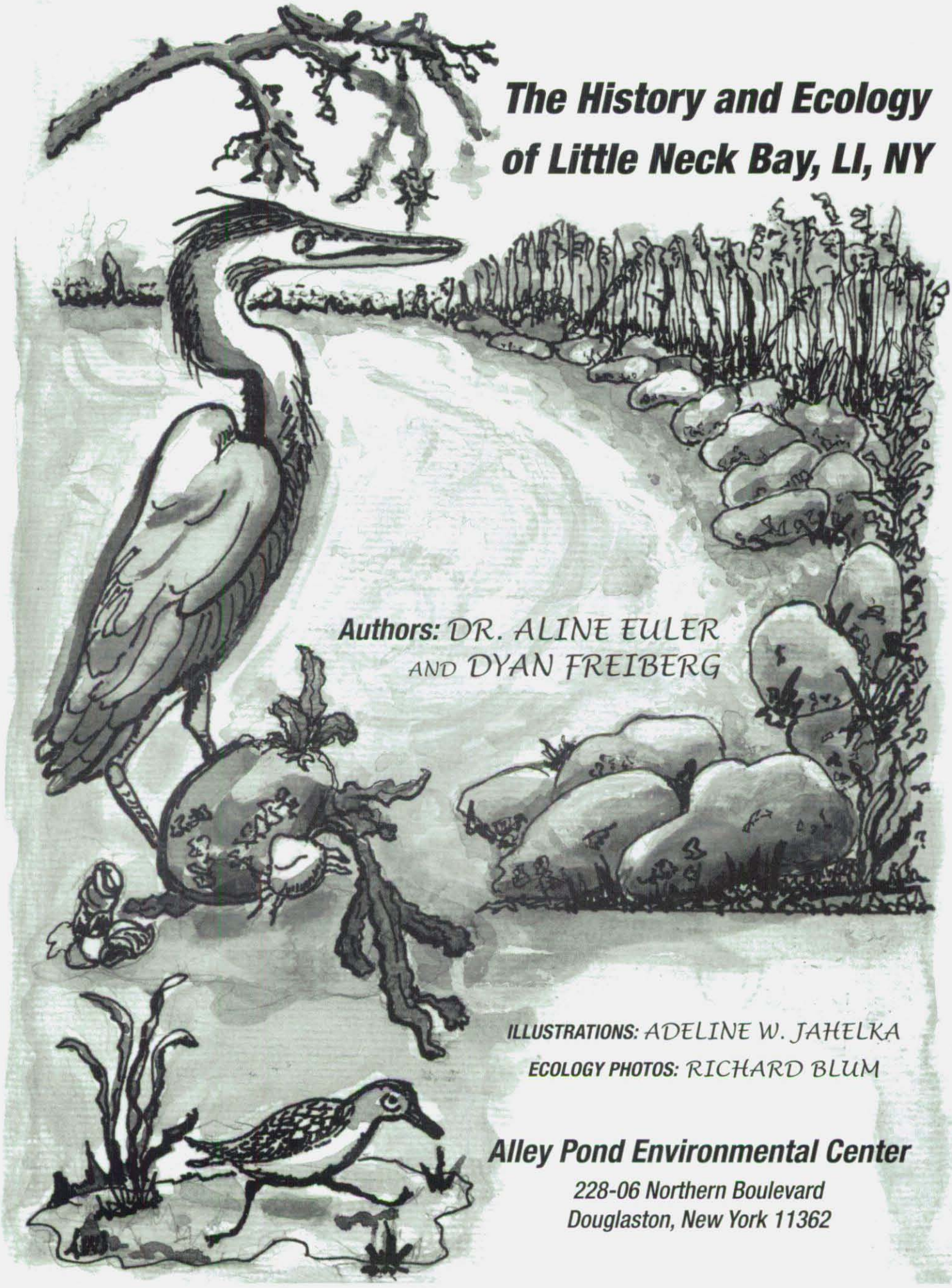

The History and Ecology of Little Neck Bay, LI, NY

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The History and Ecology of Little Neck Bay, LI, NY

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The authors wish to recognize and thank our volunteer illustrator, artist Adeline Wuttke Jahelka who freely gave of her time and talent for this guide. This booklet would not be the same without her artistic insight and beautiful illustrations. We truly appreciate her patience and perseverance during the editing process!

We would also like to recognize APEC Board members Richard Blum and Bill Nieter for their contributions to this booklet. Bill provided much of the information for the ecology text. Richard's beautiful photographs can be seen on pages 41 through 48. The ecology section would not be complete without their assistance.

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Our appreciation and acknowledgement to the Coalition to Save Hempstead Harbor. A special thanks to Carol DiPaolo for granting us permission to use two illustrations by Dimitry Schidlovsky from their book *Hempstead Harbor* in our geology section. Their book was also an inspiration and motivation for us to think about researching and writing our own book of Little Neck Bay.

Finally we would like to thank and recognize our families, colleagues, especially Karen Pierro, intern Lief Hazelwood and Henry P. Euler for proofreading. This book is a grateful tribute to all those who are part of the Little Neck Bay and Alley story.

It is the authors' hope that in some small way this book will generate an experience for the reader to desire to come forth and experience a renewed effort to champion and cherish the resources and intrinsic values of Sintsinck. You are always welcome to join the Alliance for Little Neck Bay. Please call Aline Euler at 718-229-4000 for further details.

INTRODUCTION

Little Neck Bay is one of several bays found on the north shore of Long Island. The bay's western shore is located in the New York City Borough of Queens and is bordered by the residential development of Bayside. Its eastern shore is in the Nassau County Town of North Hempstead and abuts the towns of Great Neck and Douglaston. The bay's northern boundaries are Willets Point on the west and the Village of Kings Point on the east. It extends south to Northern Boulevard (Route 25A) in Douglaston. A look at the US Geological Survey topographic map (see figure 1) will help to delineate the boundaries of Little Neck Bay.

The open water surface of Little Neck Bay encompasses roughly 1400 acres and is just over a mile wide at its widest point. Although water in the center varies from around 6 to12 feet deep, most of the bay is less than 8 feet deep at mean low water-the average height of low tide measured over several years. The deepest areas, ranging up to around 26 feet are located just north of Fort Totten, where the bay meets the East River and the Long Island Sound.

Little Neck Bay is roughly triangular in shape with the open base of the triangle leading to the Long Island Sound. At the apex of the triangle is Alley Creek, which is the main contributor of fresh water to the bay. Other fresh water sources are the drainage system from Udall's Cove to the east and the surface water runoff from the surrounding watershed.

Little Neck Bay is an estuary, an ecosystem where fresh and salt water meet and mix. The fresh water running off the land mixes with and dilutes the saltier waters of the Long Island Sound. This mix of salt and fresh water is often called brackish. The salinity (concentration of salt) in the bay is not as high as what is found in the sound or ocean, but not as low as freshwater.

Estuaries like Little Neck Bay and the Long Island Sound are among the Earth's most productive ecosystems, creating more organic matter than comparably sized areas of forest or farm. They are ideal stops for migratory birds to rest and feed, and breeding ground for commercially important fish and shellfish. These bodies of water also provide recreational opportunities like boating, fishing, and swimming.

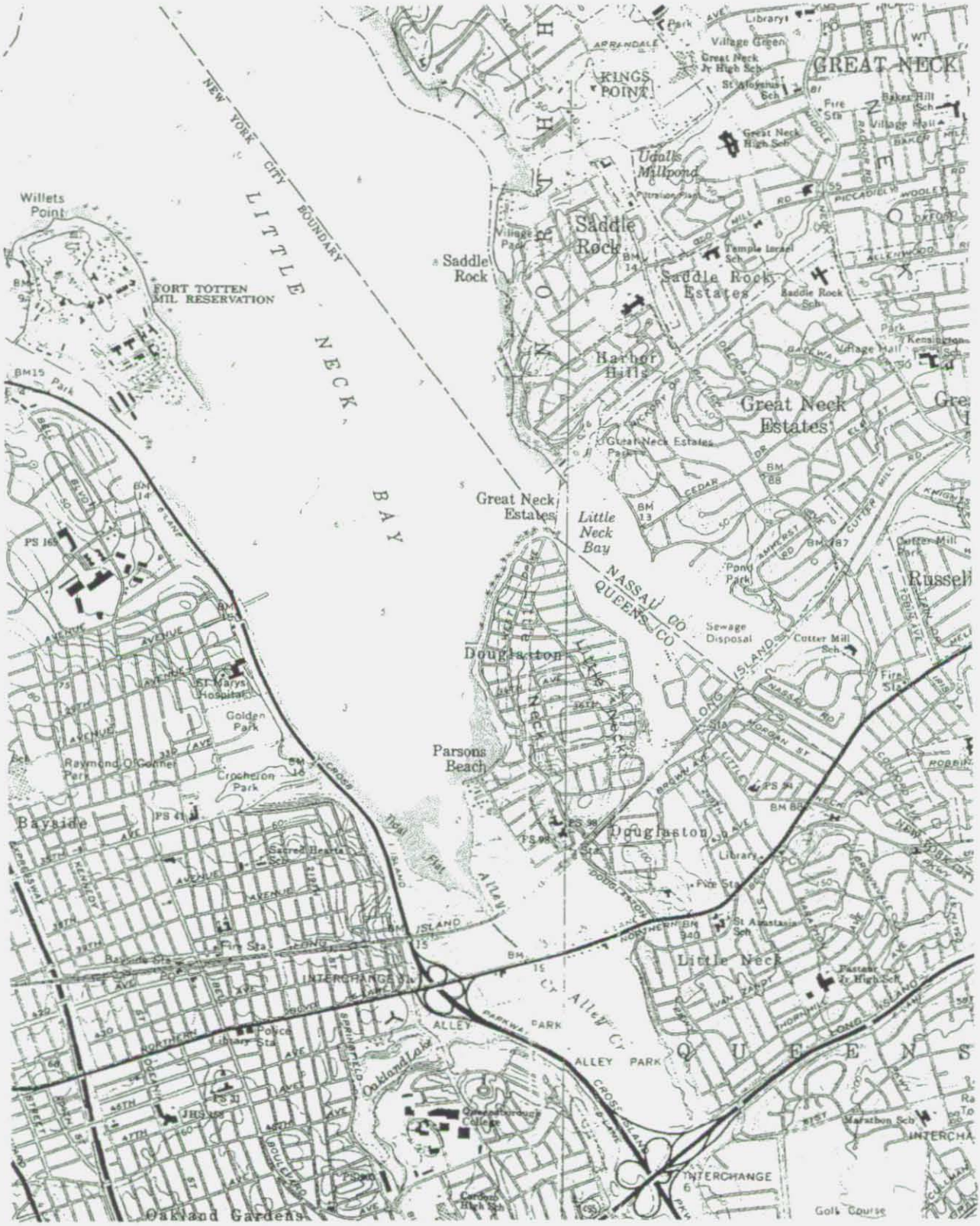


Figure 1
USGS topographical map of Little Neck Bay and surrounding area

A HISTORY OF *SINTSINCK:*

The bountiful Little Neck Bay

Human actions upon the natural environment have created reactions which affect the lives of the earth's other inhabitants; ecologically, economically, historically, and philosophically. Could a site which once was a birthplace for European settlement long before the Revolutionary War, supported an active coastal town and a bay world famous for clams, today be an overdeveloped, polluting series of paved highways and urban sprawl? Let us develop the continuing story of Little Neck Bay's rich history, and describe these human actions for their ramifications upon a way of life then and now.

We will begin with the **geological history** resulting in the present land and sea formations. Currently, there are two accounts of Long Island's geological past; an early 20th century one reported by John Sanders of Barnard College and Hofstra University and a contemporary one proposed by Les Sirkin of Adelphi University. In the early account, it is reported that during the late Cretaceous Period (80-60 million years ago) streams and rivers carried sediments from the eroding ancient Appalacian Highlands to low coastal areas. These sands, silts and clays of the Raritan and Magothy formations created the foundation of Long Island. In the Tertiary Period (60-2 million years ago) Long Island was uplifted above sea level and running waters carved the Cretaceous sediments. The resulting valley which was cut by a major river was occupied by L.I. Sound. The valleys of the north shore bays were formed by smaller tributary streams.

The early account of geologists describes four glaciations interspersed with warm interglacial episodes in which sediments were deposited. During the late Cenozoic Era (approx 1 million years ago) the first continental ice sheet advanced to Long Island and then retreated. Approximately 300,000 years ago, the second ice sheet advanced to this area. The third major glacial advance occurred about 115,000 years ago. During the Wisconsin glacial stage (approximately 50,000-25,000 years ago), the fourth advance of ice produced the moraines that formed practically all of Long Island's North Shore. The Ronkonkoma terminal moraine roughly bisected the island from north to south and formed the backbone of the south fluke to Montauk Point. The sandy outwash from this glacial sheet formed the flat south shore. The Harbor Hill terminal moraine overrode the Ronkonkoma Moraine and runs from New Jersey and Staten Island through Brooklyn and Queens to the north fluke to Orient Point building up the north shore of Long Island. These two moraines intersect near Lake Success. During the Holocene Epoch (about 15,000 years ago), the glaciers began to melt, the sea level rose creating the present form of Long Island. From the rise in temperature, the resulting waves and streams eroded the moraine setting free sand, stones, rocks and boulders which make up the present substrate of Long Island's north shore beaches.

Today through the use of new technology and more advanced field techniques, the early account is being questioned. Now some geologists report there were more than 16 Pleistocene glaciations over the last 2 million years which formed as arcs rather than linear moraines due to deposition along a lobbed ice margin. However, only two glaciations or drift sheets are reported in this area with interglacial warm periods in between them. The most recent drift or the Laurentide Ice Sheet and its moraines occurred about 22,000 thousand years ago.

Long Island can be divided by its topography and strata into two provinces both influenced by glacial action: the moraines of the northern half and the outwash plains of the southern half. Along Long Island's north coast, wetlands of rocky mud flats and vast adjacent salt marshes may be found. This marine environment can support varied forms of marine life characteristic of these habitats; the sea, land and the intertidal zone. The evolvement of plant and animal life within these habitats furnishes this environment with a diversity of organisms. Rich forests developed on the fertile soils in the upland areas and are representative of those which can be viewed today in the forests of Alley Pond Park. Thus, over millions of years the topography of Little Neck Bay, its uplands and watershed was created and evolved, and continues to evolve through natural actions and, unfortunately, by recent human intervention and destruction.

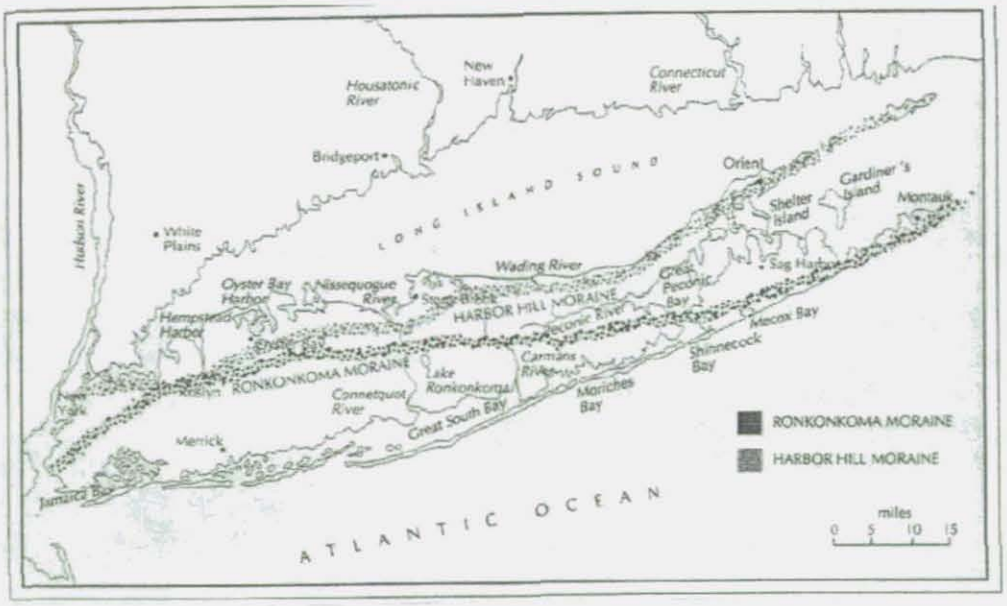


Figure A. This is a representation of early 20th century concepts, which depicts two surface moraines of different ages running the length of Long Island.

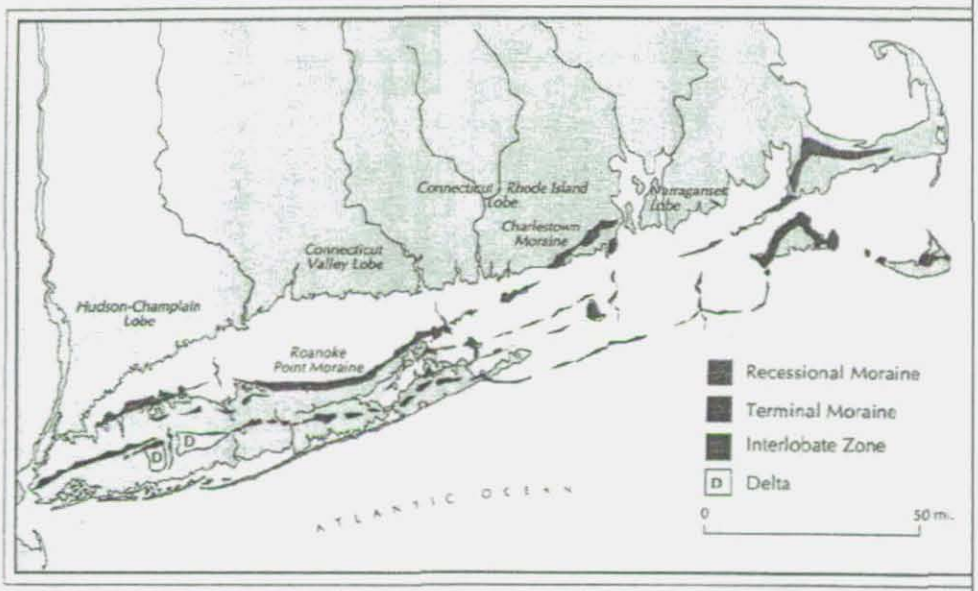


Figure B. This represents a more modern approach to the geology of Long Island, taking into account new technological sources of data. It depicts glacial lobes and sequences of end and recessional moraines – all deposited by the most recent glaciation. The terminal moraine segments are restricted to their respective lobes.

Both illustrations by D. Schidlovsky from *Hempstead Harbor* used with permission. See ackknowledgement page.

When the Europeans came to the shores of Little Neck Bay over 400 years ago, they found **Stone Age people** who had been inhabitants of this land for approximately 12,000 years and the land probably had changed very little under their occupation. In order to better understand Indian prehistory, archaeologists group the Long Island Indians into four stages based on their knowledge of these peoples' foods, tools and weapons. These Stone Age people left no written records, so we do not have any idea of languages spoken or tribal names. Their way of life changed slowly over a long period of time and was brought on by ingenious ways they adapted to changes in the natural environment and by migrations of new peoples who brought new ideas. The four stages were: Paleo-Indian or Big Game Hunting Stage (about10,000-7,000 years ago - no evidence yet of this stage on Long Island); Archaic or Hunting and Gathering Stage (campsites evident about 4,600 B.C. in southern NY State and about 2000 B.C. on Long Island), the Transitional Stage (radiocarbon dated about 1,000 B.C., the orient culture on Long Island), and the Woodland or Agricultural Stage (1,000 A.D. to European contact).

With European contact, historical recordings began. The **Europeans** encountered a peaceful people of the Woodland or Agricultural Stage, tribes of the Delaware Nation and Algonquin culture, who lived along the creeks and bays of Long Island. Evidence of Native People's villages with the long houses and wattle huts or wigwams has been discovered along the shores of Little Neck Bay. This area provided deer, wild fowl and fur bearing animals which they shot with bow and arrow, a characteristic tool only of this Woodland culture stage. The arrowheads found on Long Island are triangular in shape and the points used on the throwing spear or atlatl were stemmed projectile points. They built permanent villages and cultivated the land. Maize, squash, beans and tobacco were grown in the rich soil and tools were of chipped stone.

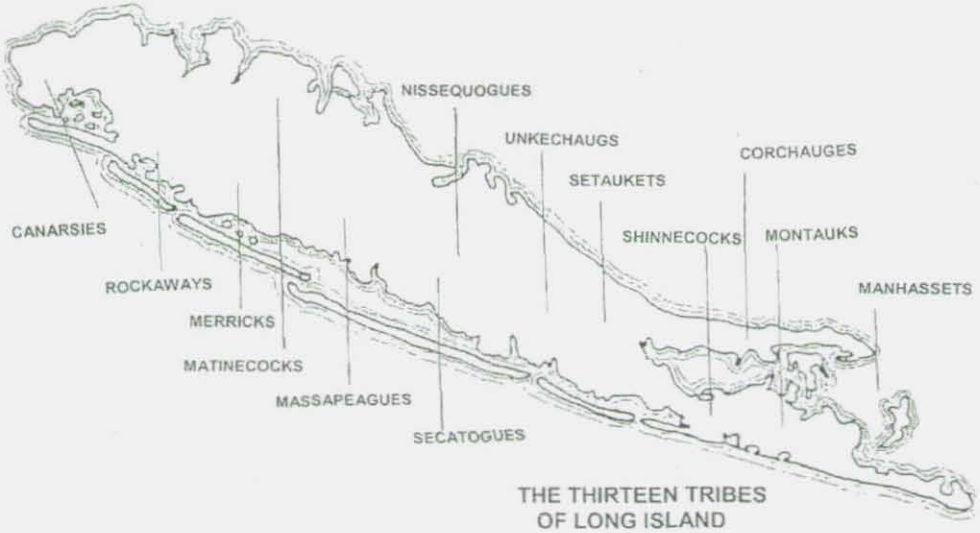
These Native People used tree logs (from what is now known as tulip trees) anywhere from 20 to 60 feet long to make their boats. If the tree was standing, a fire was made at the base of the tree's trunk, a mud collar was placed on the trunk above the fire to protect the rest of the trunk and a stone axe was used to chop away at the fire softened charred wood. By using fire to burn portions of the log and then hacking with a sharpened sea shell or stone tool, a hollowed out boat was created which enabled these dwellers to obtain fish and shellfish from the **Bountiful Bay or Sintsinck** as they called it. The shellfish (oysters, clams, mussels, and whelks) not only provided food, but were the raw material from which the wampum beads were made. Wampum was recognized and used as currency, and more importantly to these People was regarded as a ritual object.

Researchers state that there were 13 tribes or bands of the Montauk Confederacy living on Long Island and their names will sound familiar. Some of these bands of people lived on land that currently is named for them:

1. Matinecocks, 2 . Nissequogues, 3. Setaukets, 4. Corchaugs, 5. Rockaways, 6. Canarsies, 7. Merricks, 8. Massapeques, 9. Secatogues, 10. Unkechaugs or Patchoag, 11. Shinnecocks, 12. Montauks, 13, Manhansets.

The **Matinecock** (means the hilly land) Indian tribe or band which settled in this area occupied land from Newtown Creek to the Nissequogue River in Smithtown. They found it to their liking for the wildlife and tillable land available. They fished the bays and found shell fish on the tidal mud flats. The periwinkle, conch and quahog clam shells were most abundant from Little Neck Bay for the preparation of sewan or wampum. Richardson coined the phrase "the Little Neck mint", for the Matinecocks were quite duly engaged in the making of the desired shell money with the abundant shell supply found in this area. They used menhaden (a fish) which they caught in the Bay to fertilize their corn, bean and squash crops. This crop combination was called the 3 sisters because they grew well together and used relatively little space to grow. Mad-nan-ock was the Indian name for this area which was derived from this fish, and it remained so until the settlers changed it to Little Madnan's Neck during the 17th century. The name appears as Cornberry in other records. (Perhaps this name had something to do with the corn grown here by the Indians.) Eventually, the area was divided into 2 necks- Little Neck and Great Neck.

So into the early 1600's, Indians roamed about and inhabited Little Madnan's Neck using the products of the land and sea to live their life. In 1635, it was estimated that there was about 6,500 Indians or about 500 people per tribe or band on Long Island. Unfortunately, their numbers steadily declined from this point on. To the extent that these people did in fact use the gifts of shell fish of the "Sintsinck" to survive is apparent, for without these natural resources some of the early settlements would have been lost. Large "kitchen middens" or Indian shell heaps indicate the abundance of shellfish and their dependence on them. In the winter, near the shores of the bays, they would break the ice and gathered copious amounts of whelks, oysters, clams, mussels and scallops. From archaeological diggings in this area, many quantities of shells were found imbedded beneath the soil's surface as well as relics of Indian tribes. These Woodland People revered the land and water; nothing was taken for sport or fun. Their Mother Earth was respected as an honored and sacred provider of their needs.



THE THIRTEEN TRIBES
OF LONG ISLAND

The Matinecocks were gradually driven off their land, displaced by the new interlopers and in the 1860s the U.S. Government announced that the tribe had been dissolved. A gravestone in Douglaston's Zion Churchyard tells, "Here lies the last of the Matinecocks . . .". However, this was not the truth at all because no actual survey was made by the U.S.Government or New York State to ascertain this fact. The fact is that there are ancestors of this tribe living within our midst, today. The figures presented were based on a biased estimate, seemingly designed to cover up an appropriation of land for which the Matinecocks received no compensation. Matinecock descendants proved that they were legitimate members of the tribe and are recognized and accepted today.

The land and bay flourished under their gentle care and were not despoiled or its resources plundered and depleted as it was under the European and later settlements.

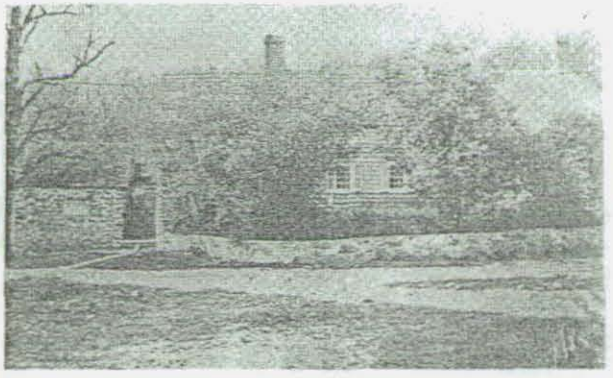
Quotes from **Chief Sealth's** letter to U.S. President Franklin Pierce.

How can you buy or sell the sky - the warmth of the land? The idea is strange to us. .....Every part of this earth is sacred to us. Every shinning pine needle, every sandy shore, every mist in the dark woods, every clearing and every humming insect is Holy in the memory and experience of my people. .. We know that the white man does not understand our ways. One portion of the land is the same as the next, for he is a stranger who comes in the night and takes from the land whatever he needs. The earth is not his brother, but his enemy, and when he has conquered it he moves on.

In 1614, some of the Matinecocks of the Little Neck Bay area probably saw the sailing by of **Adrien Block's 16 ton, 44½ ft. ship "Onrust"**. He was the first to discover that Long Island was indeed an island. Block's first appearance, then, was the prelude to the memories to be born of the sailing days . . .the days when a forest of masts was the first view of any considerable size on the North Shore Bays

Joseph Brown stated that the Alley area was the birthplace of this section of the North Shore of Long Island. In 1637, the first European settler, **Thomas Foster**, received a grant of 600 acres in the "Alley" area from the King of England. He came with his three brothers by ship down Little Neck Bay and was dropped off in the Alley inlet. These tidal inlets on the north shore of Long Island were somewhat sheltered and protected areas and land could be reached by boat. His transportation was provided free by the West India Company of Holland to those who would farm. The property included land near what was to be Alley Pond, east of the present Cross Island Parkway, and contained salt marshes. The salt marsh grasses were much appreciated by these new farmers, for they cut and used them as fodder and bedding for their farm animals. Foster built a stone house with one room and one window, and used a trap door through the attic for an entrance. This kind of entrance provided protection from possible attack.

Tidal Alley Creek which was the natural approach to his home, was navigable from Little Neck Bay (also known at that time as Mathew Garritson's Bay by some), so Foster built a dock near his house. It is recorded that a guest of the Fosters, a master of a British sloop who sailed up Alley Creek, gave the Fosters a pear tree cutting. Eventually this cutting yielded the first Bartlett pears in the country.



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Foster House - Alley Pond. This print shows the original stone one room section built in 1638 and the adjoining addition built in 1663.

Another view of the Foster House.

The Fosters were followed by many English and Dutch settlers during the next 100 years. The Hicks, Allens, Walters, Cornells, Van Wycks, Doughtys, Thornes, Wickes and Lawrences were some of the more prominent families who founded and built this area into a thriving town. The Lawrences owned an extensive tract of land along the west side of Little Neck Bay. In1660, Thomas Hicks, the second settler, arrived in the Alley and a few years later with a band of armed settlers, fought a battle with the Mattinecocks on what is now the site of the Douglaston-Little Neck Library on Northern Blvd.

The war from 1776 to 1783 between the Tories and the Whigs brought hardship to these settlers. After the Battle of Long Island, the British occupied the Island and the landholders found it easier to take the Oath of Allegiance to the Crown (regardless of personal conviction) than to subject themselves to the harassments of the Loyalists. Long Island was then British headquarters, and the inhabitants and their possessions were forced to be at the disposal of the British soldiers. Firewood, food supplies and hay, both salt and upland, were under supervision of British officers. There were the infamous prison ships lying off Long Island Sound where rebel soldiers from this area were placed when captured. Life then reverted to water transportation and for this area, **Little Neck Bay** played a key role in the daily activities.

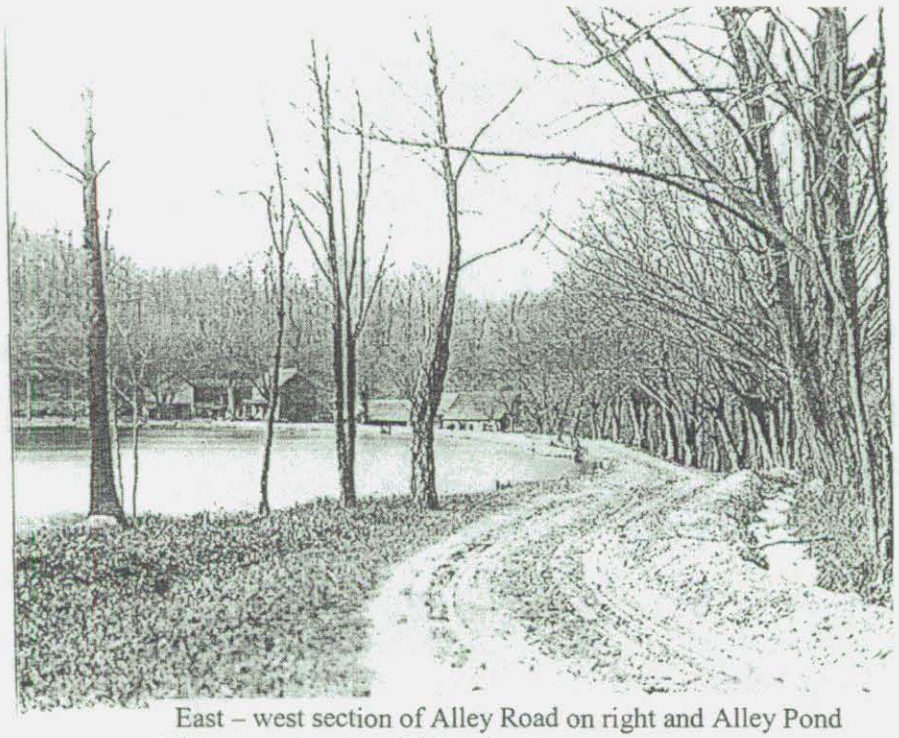
From Connecticut, raiders or pirates in swift sloops and whaleboats would cross the Sound and Bays at night, at first to gather information and hostages, and later to steal and loot valuables from the unprotected farms on Long Island's North Shore. Secret rooms were built to store and protect valuables, but one dark night, raiders sailed up Alley Creek and took law books and silver from the home of Captain Hicks. Raids by these Yankee longboat men became so brazen that bond boys were stationed in the tall trees at night and when strange craft approached, alarms would sound. The Hessian mercenaries were feared by both Tory and Whig on Long Island. It is told that Hessian soldiers invaded the home of 86 year old Thomas Foster (descendent of the first Thomas Foster) looking for hidden silver and hanged Foster to a tree when he would not answer them. Neighbors rescued him and shot and killed two of the soldiers in the house. The bloodstains on the floor were a source of satisfaction and pride to the townspeople.

The Foster House. The original house was the small building in front of the large building. Note the untouched forest on the hill.

This is a map from 1781 showing Alley Creek and the marshes. The double dark lines are the original east and west road from Flushing to points east.

By 1800, **the Alley** was a busy village. A small spring fed stream at the head of this glacial valley flowed down to Alley Creek and to Little Neck Bay. This stream was dammed by a miller, James Hedges, creating a pond which eventually powered the grist mill he built by the dam. To reach the mill, the settlers built **an east - west road - Alley Road** and the farmers gathered at this meeting place while their grain was being ground. This pond known as Alley Pond and its Village became the crossroads around Little Neck Bay and its vast salt marshes. It was the main route from Flushing to Roslyn and became a stage coach station for travelers. According to the news of the time, even our first president, George Washington, made a stop here in his travels. There was a large rock denoting this occurrence on the west side of the Cross Island Pkwy near 223rd Street and West Alley Rd. in Bayside.

On December 23, 1811, the beginning of **the "Great Storm"** of wind and snow was recorded. It came from the northeast and swept across New York City, Long Island and southern New England. Temperatures fell to -15 C while the extremely powerful storm intensified off Long Island. Gale force winds and dangerous high tides ravaged the shores and caused extensive damage to these shipping ports. Snow fall averaged 15 inches while severe blizzard conditions laid waste to the docks. More than 60 vessels were beached on the North Shore of Long Island and early accounts stated that, there was probably never a time before when more destruction was sustained by shipmasters on the island. It took weeks of work before activities got back to normal.

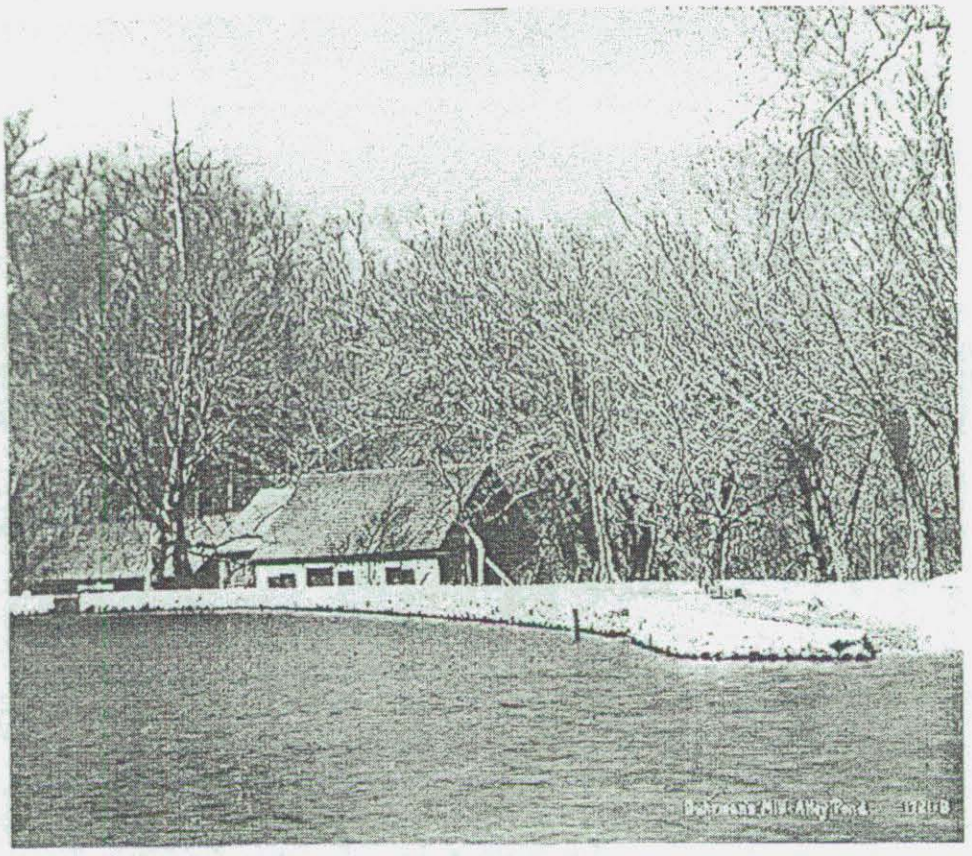


East – west section of Alley Road on right and Alley Pond Village on the side of Alley Pond.

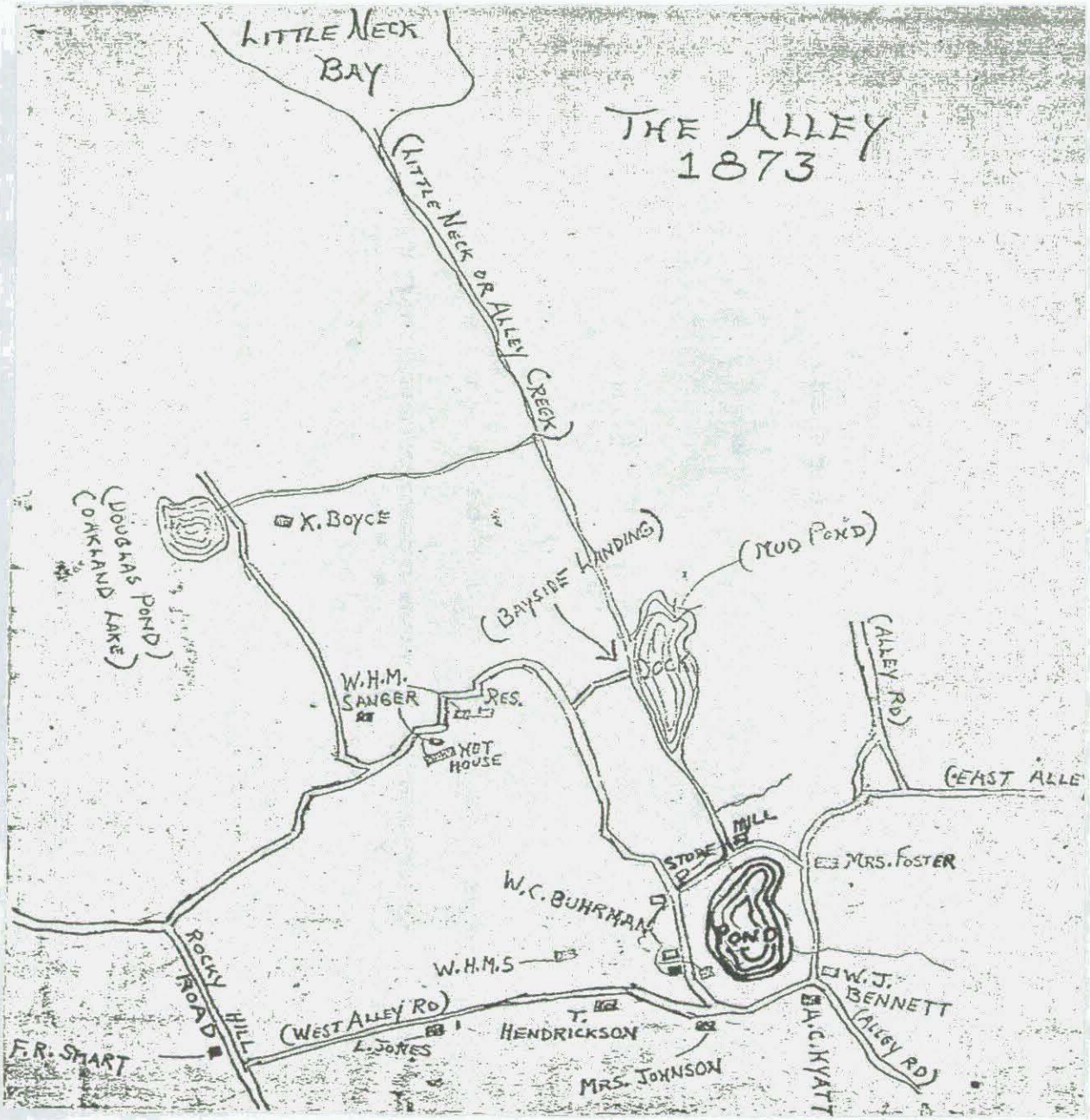
Because both Little Neck Bay and Alley Creek were navigable, small businesses began, including two mills, a tavern, blacksmith and wheelwright, general store and the first Flushing Post Office, as well as a dozen homes. In 1826, Wyant Van Zandt, a well to do business man, had a causeway constructed over the Creek and salt marshes between Bayside and Douglaston, and donated the Zion Episcopal Church which he had built to the town's people. The Alley lost its big industry in 1827 when John Baird's woolen mill burned down. It was later replaced by a grist mill. In 1858, William Buhrmann and his wife Mary Loweree bought the general store which also contained the post office and an adjoining mill. **Buhrmann's store** which could be reached by boat and by road was stocked with dry goods, grains, groceries, hardware, even striped peppermint sticks, and people wagered if he might or might not have a particular item in stock. He usually did, somewhere in his general store! The Buhrmann Homestead, a lovely three story residence, was located on the west side of Alley Pond, providing a nice walk to work.

Buhrmann's General Store built around Alley Pond.

Buhrmann's Homestead on west side of Alley Pond.

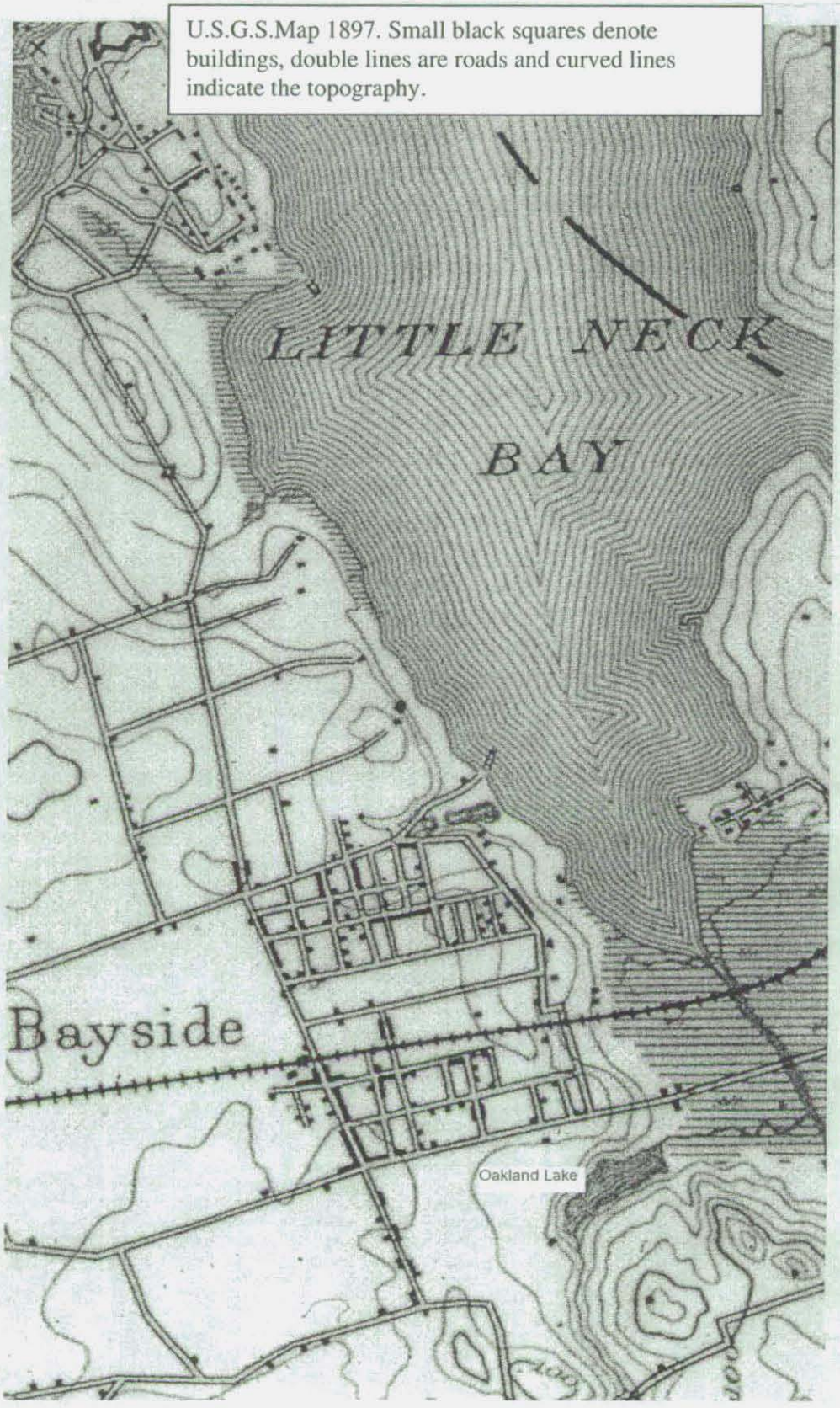


Buhrmann's Mill by Alley Pond


LITTLE NECK BAY
THE ALLEY 1873
(LITTLE NECK OR ALLEY CREEK)
(DOUGLAS POND) (OAKLAND LAKE)
K. BOYCE
(BAYSIDE LANDING)
(MUD POND)
DOCK
W.H.M. SANGER
RES.
HOT HOUSE
(ALLEY RD)
(EAST ALLE
STORE
MILL
MRS. FOSTER
W.C. BUHRMAN
POND
W.H.M.S
W.J. BENNETT
(ALLEY RD)
ROCKY HILL ROAD
(WEST ALLEY RD)
T. HENDRICKSON
L. JONES
A.C. KYATT
F.R. SHART
MRS. JOHNSON

Thus, Alley Creek served the Mattinecock tribe as a boat way to the Bay, and now had become the main trading post of this side of the island for the new settlers. It accommodated sea-going vessels, barges and smaller craft. It was a way of life for the people of this era. Some of the commercial uses of the Bay in the nineteenth century were due to the operation of steamboats that carried freight; therefore, **several docks were built around the Bay**. One of them was on Shore Rd. (now 28 Avenue) in Bayside. Just south of the Shore Road dock and north of Crocheron Ave was Greene's dock that was built for steamboats. There was a commercial dock on the "Great Creek" (Alley Creek) just north of Northern Blvd. (aka North Hempstead Turnpike and Broadway), and a dock on the Great Creek just south of North Hempstead Turnpike. Mr. Buhrman bought the Hicks Meadow property on which he built a 200 foot long dock. On the east shore of the Alley Creek, Sweezey's Coal and Lumber Yard had a dock to get supplies by water. Cord Meyer built a pumping station to bring water to his 600 hundred acre Forest Hills development just northeast of Buhrman's Mill. Wooden troughs from artesian wells carried the water to the pumping station and through pipes to Forest Hills. In the early 1900s, steam tug boats carried large amounts of coal via Little Neck Bay through Alley Creek back to Cord Meyer's pumping station.

Dock is in the lower left hand side of picture.



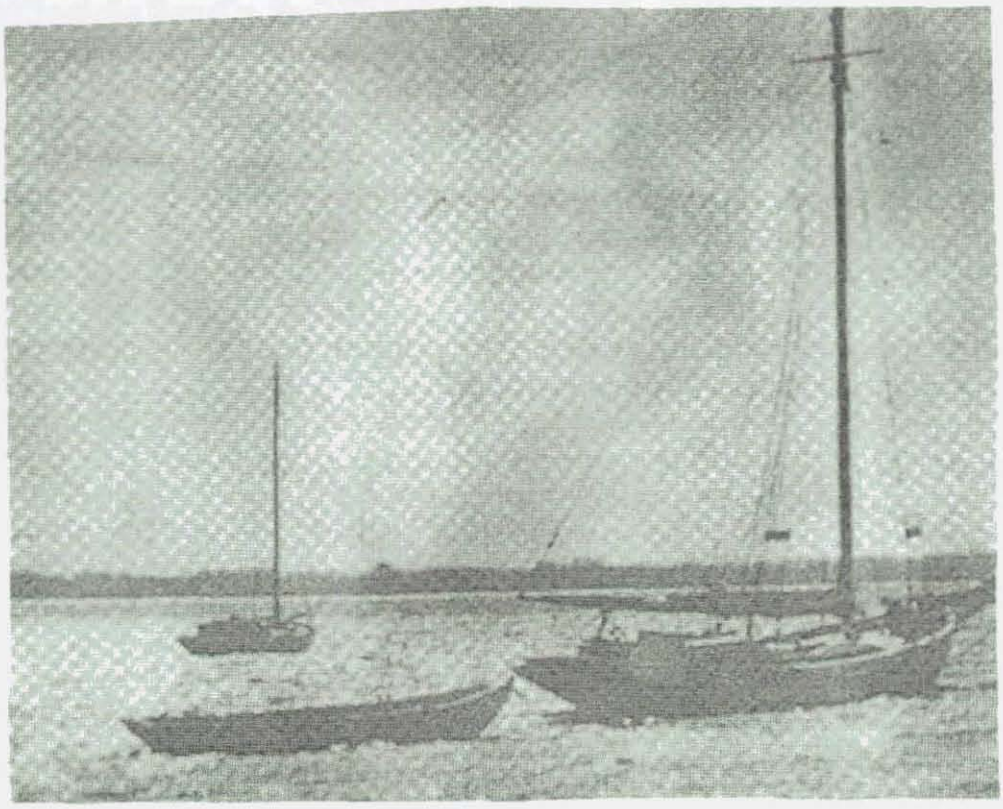
U.S.G.S.Map 1897. Small black squares denote buildings, double lines are roads and curved lines indicate the topography.

During the years of 1860-1890 the clamming and oyster industry was born. The renowned "Little Neck Clams" became a desired commodity and this brought many boats to the area - two masted schooners, sloops, canal boats, tugs and scows. One who made his living and developed the clam and oyster industry of this area was **Captain Christian William Kirkman.** He was born in Denmark and as soon as he was old enough he went to sea. In 1852 he arrived in New York and worked on the docks as a longshoreman. He happened to observe a clam rake while buying junk and inquired as to its use. Clams were bringing a good price in the New York market so each week he would row from his home in Greenpoint, Brooklyn to Little Neck Bay. During the week, he slept in a temporary shelter on shore of the Bay, and on Friday brought his catch to market.

In a short time, Kirkman was able to buy a one ton sloop in which he hauled not only his catch, but purchased those of other bay men and brought all to be sold to markets. These **Little Neck Clams** were served in the best restaurants in New York and several European capitals. Captain Kirkman then discovered he made more money transporting the clams to market than digging them, so he used two sloops and when he eventually quit the business, he owned a sloop of 40 tons.

It was to Captain Kirkman's credit that the clam and oyster business developed in Little Neck Bay to the extent it did. At first, the yield was poor and there were but a few bay men eking out a living, however, Kirkman purchased oyster seeds and with other bay men planted beds. This action provided a spawning ground for the Little Neck hard shelled clams under the oyster beds and they increased rapidly. After this seeding, there were as many as 60 or 70 men working Little Neck Bay, and they could make from $18 to $20 a week. Captain Kirkman bought and shipped half of the Bay's yield during these productive times. In the 1870s and 1880s, Little Neck clams were the choicest: the reason given was that the bottom of Little Neck Bay was filled with freshwater springs which were of great value to the clams. The clams that fed on this freshwater were sweeter, fatter and better than those varieties which came from water that was entirely salt. As a matter of fact the salt water clams had to be given freshwater to make them better tasting.

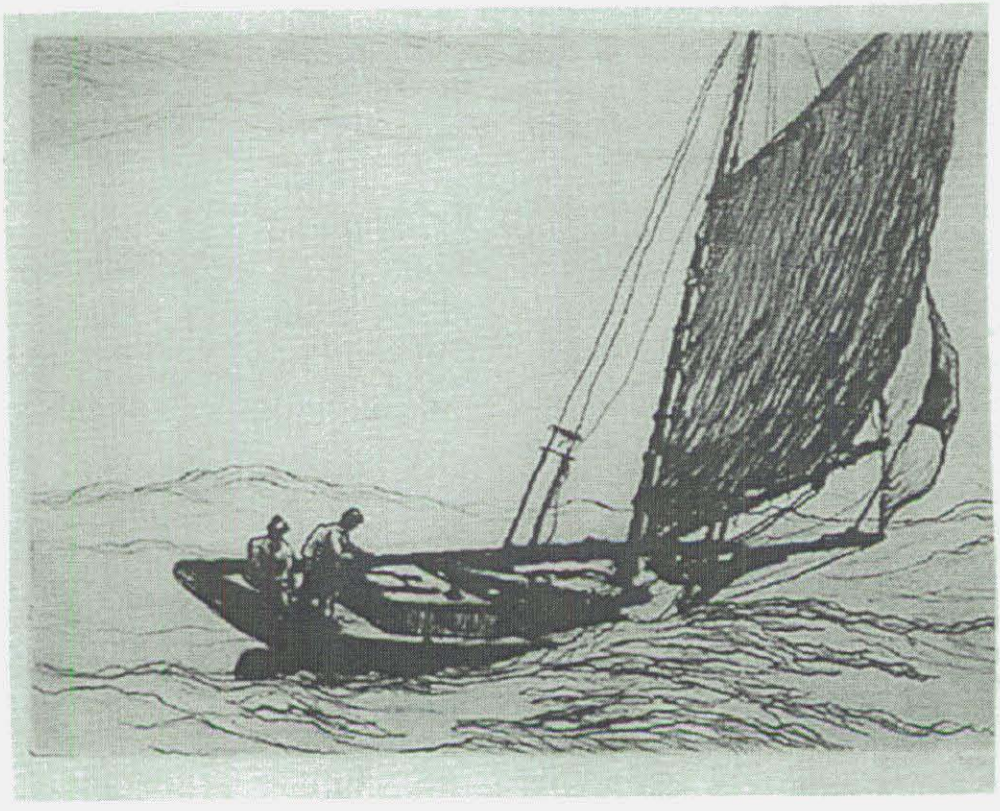
In 1899, Trow's Business Directory of Queens County lists 3 Baysiders who had oyster businesses, George Smith, James White and Christopher Fowler. But good things could not last - - even in the 1890s. The refuse and sewage flowing from New York City began silting in Little Neck Bay killing the clams and adversely affecting the oysters. And so Captain Kirkman, using his life savings, tried planting the Bay once again with an enormous amount of oyster seed. The results were disastrous. The bottom of the Bay had become too filthy to support the once thriving shellfish industry, and Captain Kirkman lost his entire fortune. The oysters that were not dead were muddy. Captain Kirkman tried to continue buying clams, but without the necessary capital he had to give up. Two years before his death, he operated a fish route in Little Neck and vicinity. Captain Kirkman succumbed to pneumonia in his 72nd year, and was buried in Zion's Churchyard, Douglaston. He was revered by the community during his prosperous years, for he provided the community with a livelihood, and Little Neck Bay gained prominence and a reputation for its fine clams worldwide.



Types of boats used by bay men for oystering and clamming.

Oysters, Dutchmen and the Bay

Around 1900, New York City had a population of about 4.6 million and was consuming over a million oysters a day. The numbers got a big boost from the prodigious Gourmand, Diamond Jim Brady, the railroad equipment magnate. Jim weighed over 250 pounds and his philosophy in "dining" was straightforward, "I always make it a point to leave just four inches between my stomach and the edge of the table and then when I can feel 'em rubbin' together pretty hard I know I've had enough."

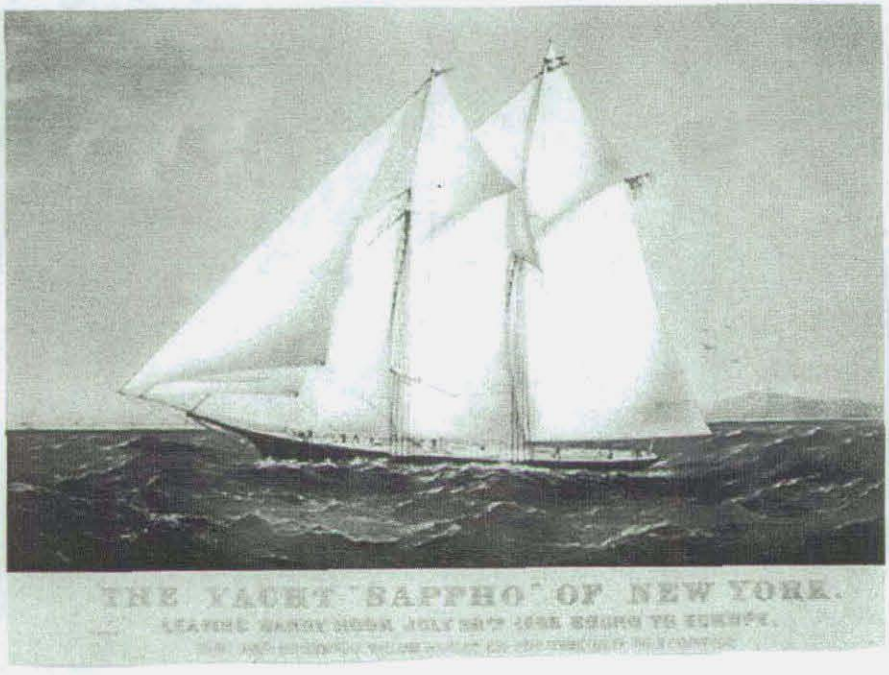


The oysters were transported by ships, schooners, and wagons. A schooner would carry about 700 bushels, (about 50,000 pounds)

Oyster Sloop Boat Petrel in 1896

Mention should be made of **Bloodgood Haviland Cutter** (1817-1906), who was born in northeast Queens. He was the "farmer poet of Long Island", who at 16 was put upon a coasting schooner by his grandfather. The schooner made trips from Little Neck Bay to New York City, up the Hudson River, and south to Philadelphia. He, like others, found the experience "before the mast" a difficult one, but managed to save enough within two years to buy his own schooner. From this time on he was known as Captain Cutter, and his coasting business prospered so that he was able to purchase two more vessels. He had the reputation of dealing fairly, executing his commission very well, and paying the best wages to his men. This in turn brought him the most able seamen to his service. His first mate was John Waters - - a strong descendent of the Shinnecock Indians. When his grandfather died, Captain Cutter inherited his fortune and decided to sell his ships. He then settled back to his dream of being a gentleman farmer, devoted his time to study and reading, and started his illustrious career as a poet.

Mr. William Douglass (son of George) who was vice-commodore of the New York Yacht Club skippered the "Sappho", the boat that left the "greatest wake of them all". The 120 ft., 210 ton schooner was bought by Douglass and re-rigged and re-fitted to become a champion. In 1871, she defended the America's Cup against the British "Livonia". Poet, Capt. Cutter composed a special poem about the splendid **"Sappho"**.



On The Yacht Sappho
by Bloodgood Cutter

The Sappho is a noble boat,
  Of yachts, she seemed the largest size;
And so gracefully she did float,
  As I cast over her my eyes.

Her bow I did examine well,
  The shape did seem so like a wedge;
So easily she cut the swell,
  It scarcely moved the waters' edge.

A perfect boat she seems to be,
  And fitted up so strong and neat
So she can safely cross the sea
  And there the British yacht be beat.

For my own part I hope she will
  Beat the whole fleet of Father Bull;
With joy that would my bosom fill;
  And cheer me up so wonderful.

She bears indeed a lady's name;
  Once, in her youth did famous prove –
She did attain poetic fame,
  But she was also crossed in love.

To get relief, herself she threw
  From Leucadia's height into the sea;
To thus so ardent fall in love.
  But death did set her spirit free.

But if he should with some fair one,
  And by her then rejected be.
I hope he'll not take Sappho's turn,
  Nor spring from her deck into the sea.

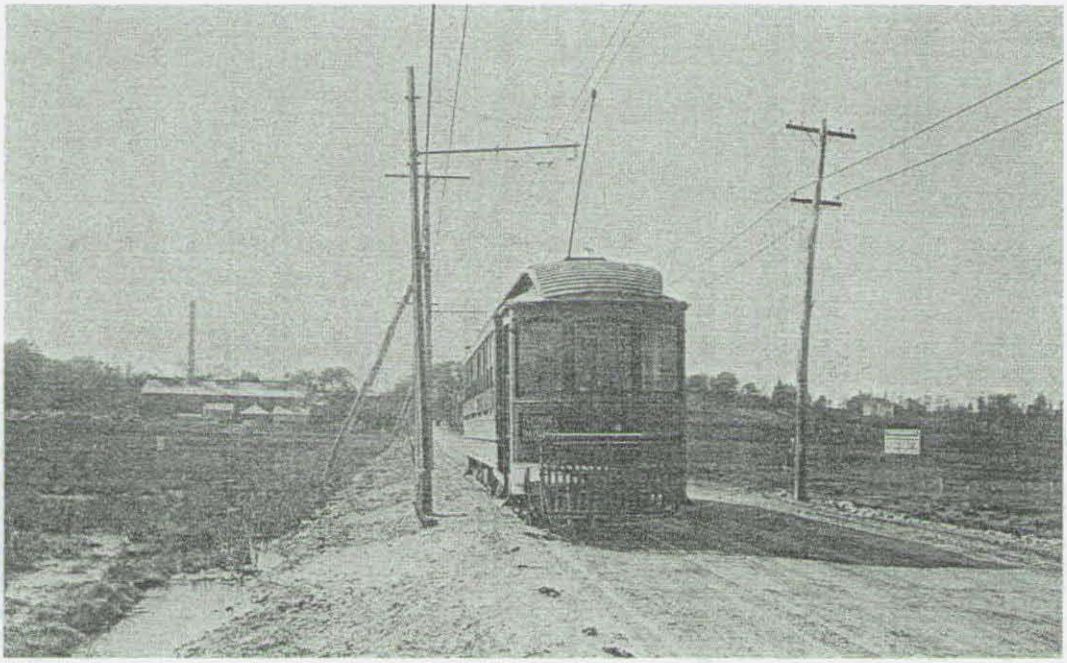
Although he might leap in and bathe,
  That of itself would do him good;
Thus in the sea his body lave,
  'Twould also purify his blood.

Then let the British maidens go,
  And return to his native land;
The girls stand ready here, I know,
  To accept at once his proffered hand.

Little Neck, L.I. 1869

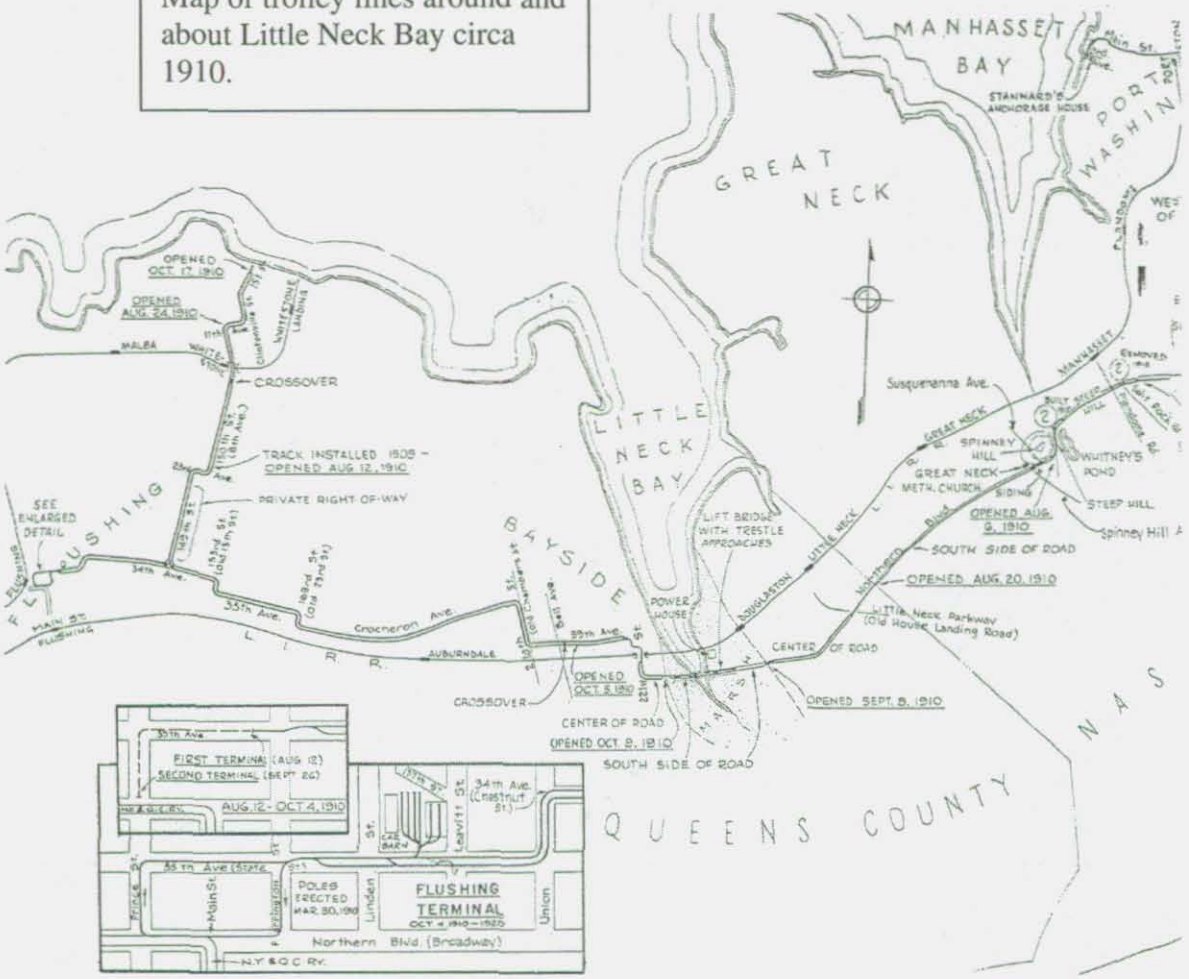
During the **19th Century**, Little Neck Bay was utilized to support the people and their day to day living. Fishing provided a good living for the Roe brothers (John, Louis, George) and John Allen, for flounders, eels and other small fish were caught in great quantities. But it was the **East River shad runs** into the Bay that proved most rewarding. The Roes would stretch a net across the Bay and when the tide rose, the shad would strike into the net and catch their gills in the gill-net meshes. The sound of splashing fish brought the men out in large row boats to gather in the net and loosen the fish into the side of the boat. Sometimes pound nets were used as well. The shad were taken to New York markets or were sold locally. The economy at this time was based upon water transportation and the shell and fin fish industry, resources of Little Neck Bay, resulting in thousands of people being employed.

Other sea captains who piloted **sloops** in and out of the Bay were: Captain Hults who brought manure for the farmers from the New York City horse-car barns; Captain Mott who took out oysters to Oyster Bay; and Captain Fowler who ran a coal barge to provide coal primarily for a **trolley power plant** in the Alley. **The trolley** ran along Northern Blvd. and went to and from various destinations. Samuel Parsons was known world wide at that time for his famous nursery in Flushing. He imported trees and shrubs from far-off places, particularly the Orient, by clipper ship in order to measure their ability to withstand local conditions. His friend, George Douglass of Little Neck, shared Parsons' interests and planted these imported specimens on his estate, many of which are still thriving and observable today.



On the right side is the trolley running along Northern Boulevard. On the left side Is the trolley power plant.

Map of trolley lines around and about Little Neck Bay circa 1910.



MILEAGE	
CITY LINE – PLANDOME ROAD	2.6 MILES
PLANDOME ROAD – ROSLYN BARN	1.77
ROSLYN BARN – PT. WASHINGTON	3.9
ROSLYN BARN – PWR. HOUSE RD.	2.54
PWR. HOUSE RD. – MINEOLA	3.25
MINEOLA – HICKSVILLE	6.77

Note: On the left side of the picture, the trolley tracks leading to the drawbridge over Alley Creek. The draw bridge could open to let some boats through. Old car in the middle of the picture is traveling on Broadway, now known as Northern Blvd. A sign of things to come!

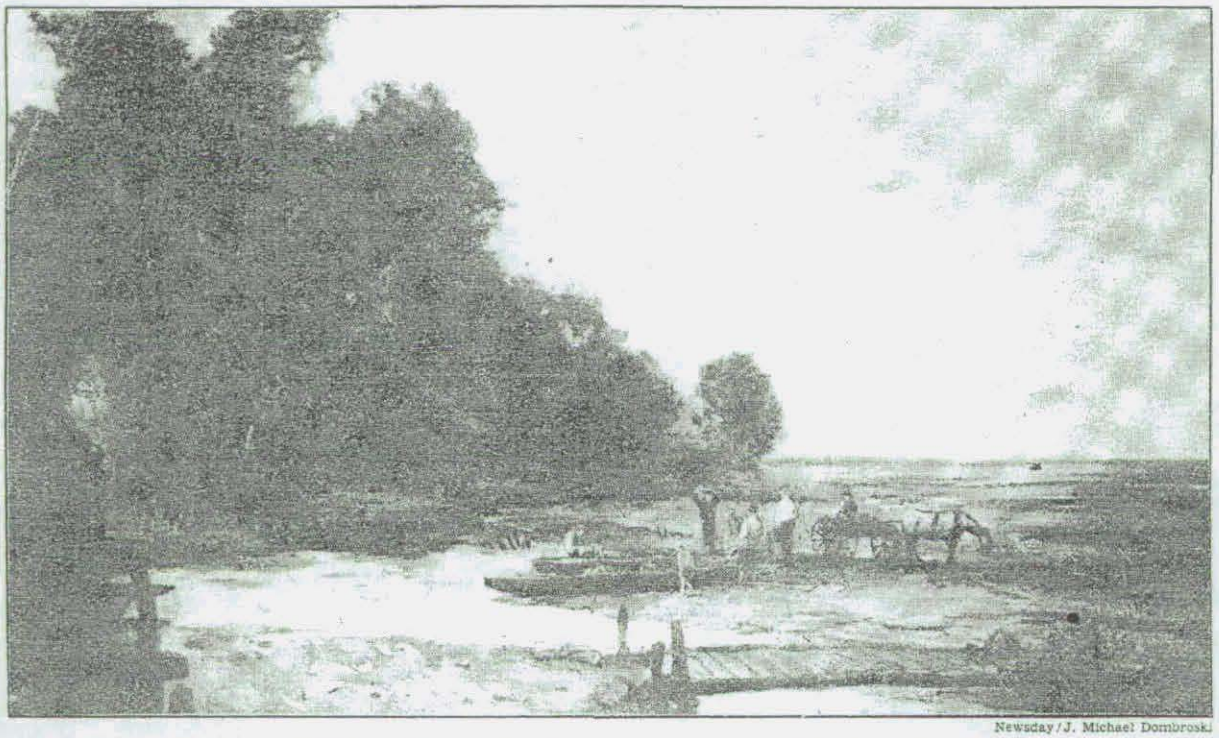
In 1854, the first hotel and restaurant on Little Neck Bay in Bayside belonged to Andrew Lynch who sold it to Joseph Crocheron, a noted restaurateur in 1867. Under his management, **The Crocheron House Hotel** became a well known resort by New York City celebrities, high society, politicians, fishermen and some infamous boarders. During Boss Tweed's regimen in the 1870s, he established an alternate base of operations at the hotel and it gained its greatest notoriety then. The Hotel flourished with its great clambakes and its annual "Harvest Home Festival" bringing in people from all over the country. Sadly, it burned down in 1878, was reconstructed and caught fire again in 1907. Today, it is the site of Crocheron Park and adjoining Cross Island Pkwy.

Robert Willet owned a 200 acre property called **Shore Acres** between what is now known as Fort Totten and 20th Avenue in Bayside. About 1850, a roomy mansion was built by Willet overlooking Little Neck Bay and in 1899 his daughter and her husband inherited the property. The property was sold in 1939, the beautiful Bayside Woods were destroyed, the land was excessively developed with commercial and residential units, and is now crowded Bay Terrace. Unfortunately, the original Willet mansion was torn down in 1963. The Willet Farmhouse is still standing in Fort Totten today, is in desperate need of repair and a strong voice from the community to preserve it.

Crocheron House Hotel

In the 1860s, the construction of **the North Shore Railroad** began. Conrad Poppenhysen of College Point started organizing the various competing railroads in this area into the single company called The Long Island Railroad. In the 1870s, service came to Bayside and subsequently then passed through the Alley's salt marshes and crossed over Alley Creek The Bayside station land was donated by the Bell Family. When this construction reached the Creek a bridge was built over the creek preventing sail boats and other large boats from coming into the Alley Settlement. The economic collapse and disappearance of family farms, the inability to reach Buhrmann's Alley by boat, and the construction of new communities and roads, signaled the end of the "Alley Era."

The loss of these beautiful areas prompted a little known artist of the times to paint landscapes of these areas before they were destroyed and disappeared. His name was **Charles Henry Miller** (1842-1922) who lived in Queens Village and studied in London and Paris. His paintings and etchings today are very collectible and there was recently a showing of his work at the Long Island Museum in Stony Brook. His work details life on Long Island and especially in local Queens during this era. Miller's painting "Clam Gathering at the Head of Little Neck Bay" epitomizes his style and illustrates his love and concern for the preservation of inspiring local landscapes and a bucolic way of life

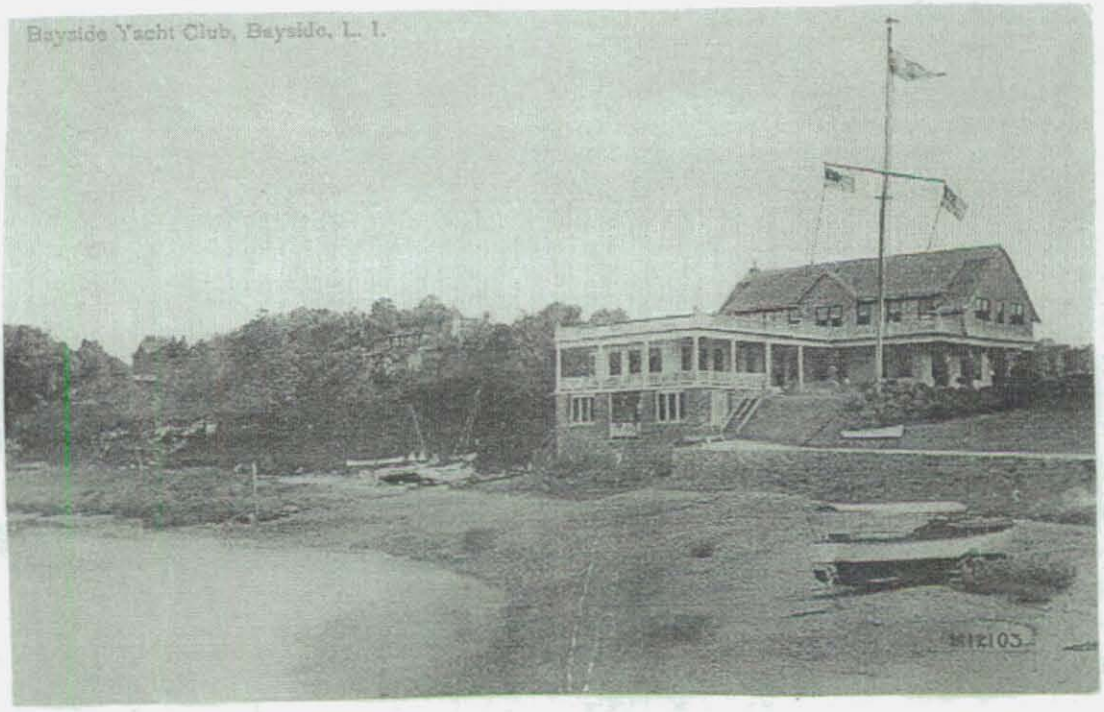


Newsday / J. Michael Dombroski

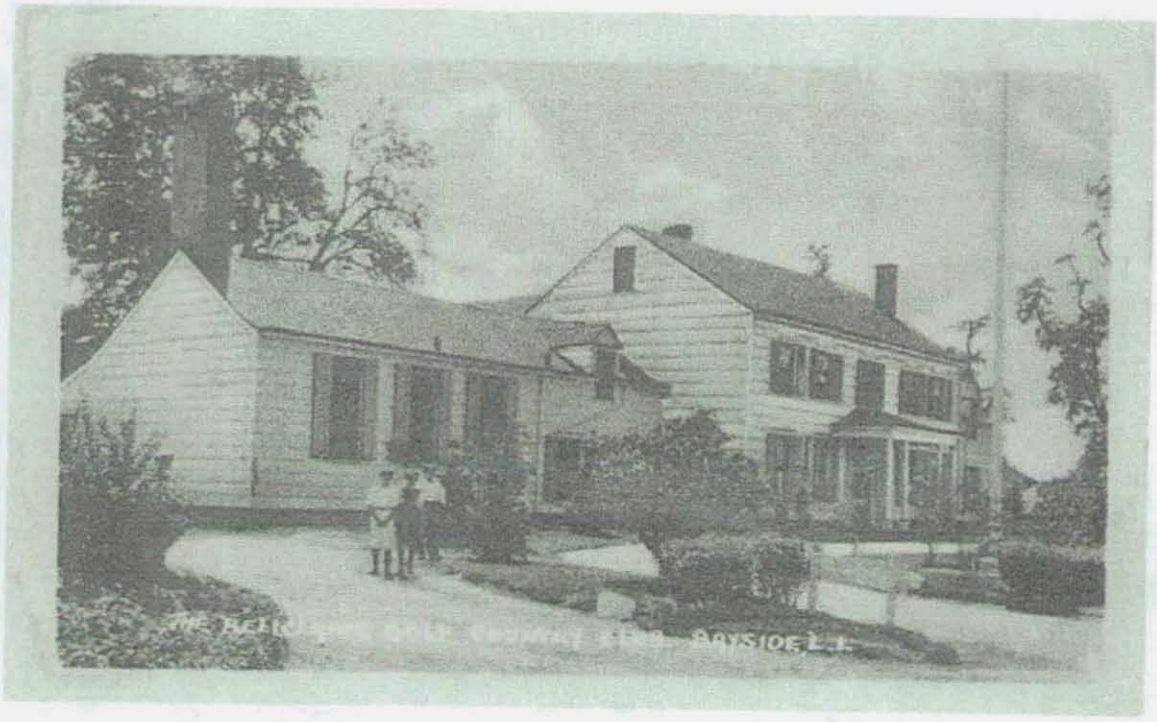
Charles Henry Miller's 'Clam Gathering at the Head of Little Neck Bay'

The 20th Century arrived with its haphazard development, increasing population and continuing pollution. The natural environment was looked upon as human's domain and was treated as a force to be overcome and conquered. Transportation modes changed with the building of faster more direct roads, Northern Blvd. (formally known as Broadway) was widened.

The **Bayside Yacht Club** which was founded in 1902 was situated on Little Neck Bay and utilized the dock on Shore Road. The Club gained membership in the prestigious Yacht Racing Association of Long Island Sound. It was the center of Bayside's boating and social set for years. Some famous members included Thomas Lamb, noted architect of nearly 300 theaters around the world, including the RKO Keith's in Flushing, Ralph Wilkinson, music arranger for Glenn Miller, and W.P. Stevens, Editor of the Registry of American Yachts. The Yacht Club had a fleet of 100 various boats- schooners, sloops, motor boats, yawls and the famous Star Class racing sailer. Little Neck Bay took on a recreational perspective at this time.



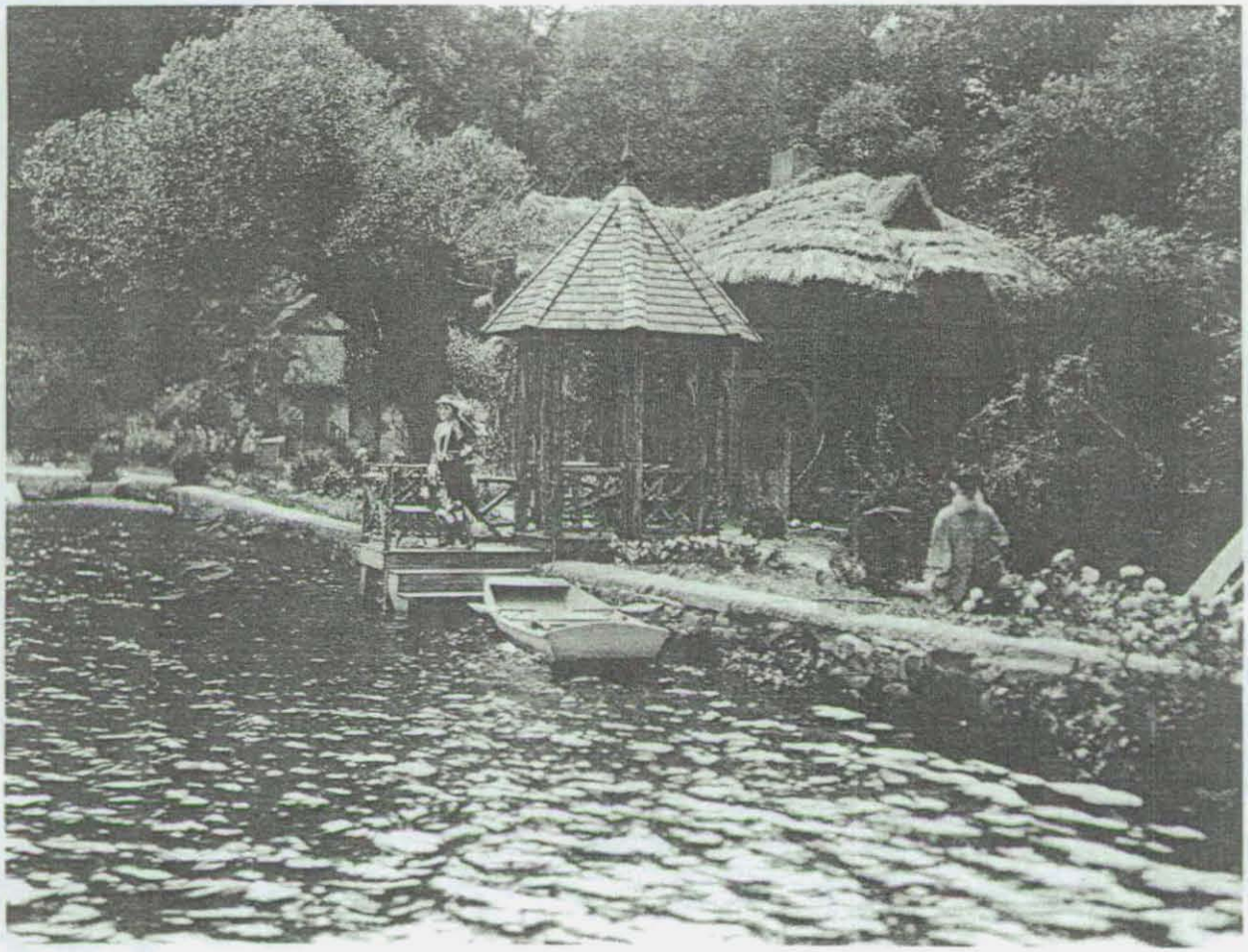
The 117 acre farm of James Cain that was the watershed area of Oakland Lake which connected to Alley Creek and in turn connected to Little Neck Bay was sold to the owner of the Belleclaire Hotel in Manhattan after Mr. Cain died. The owner converted this land to a golf course known as the **Belleclaire Country Club** and used the Cain House as the clubhouse in 1916. The golf course changed hands a few times and eventually was sold to the Gross Morton Company for the development of Bayside Hills. A lot of soil and hills were removed for use at the location of the 1939 World's Fair construction site. Again, we are disturbing the drainage patterns of this grand watershed system.



Belleclaire Golf Country Club

Layout map of property owners adjacent to Little Neck Bay, Alley Creek and Pond.

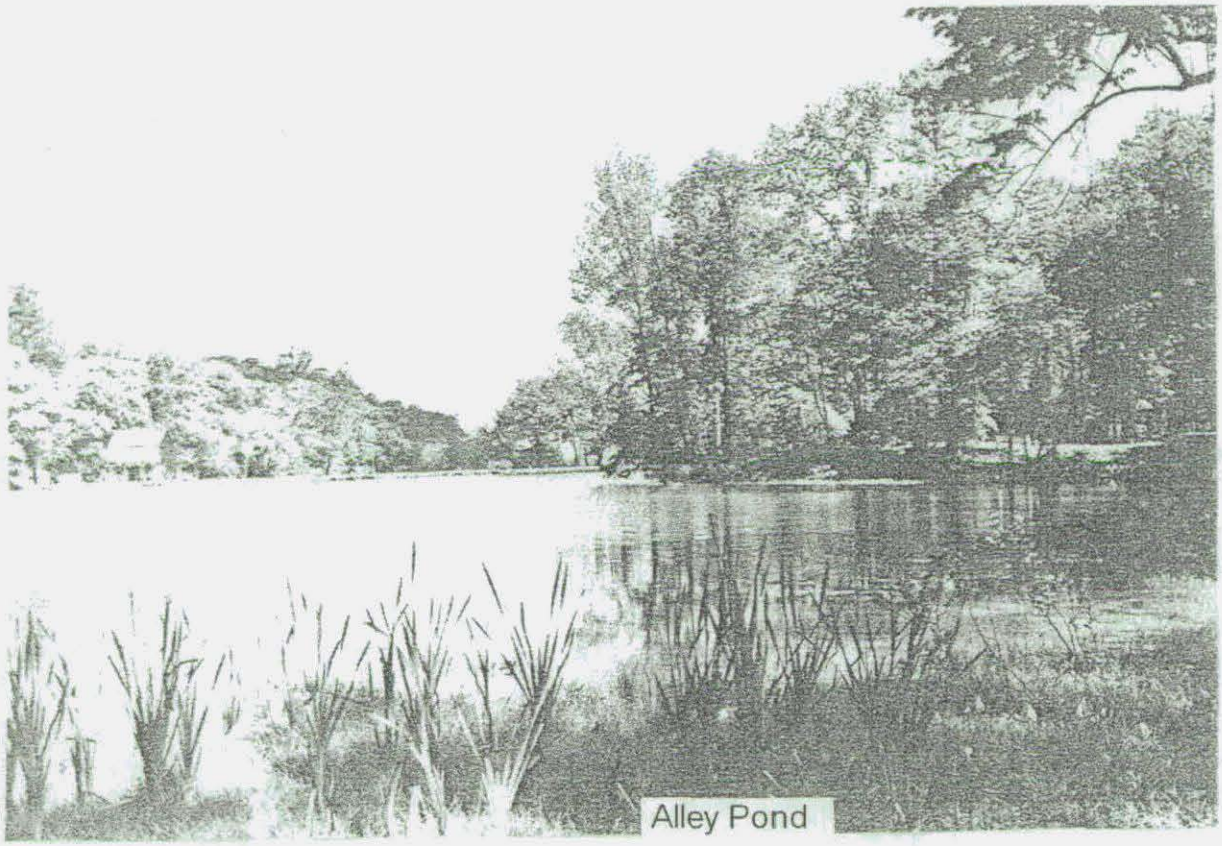
A set for the 1923 black and white silent movie **"Zaza"** was created in the Alley adjacent to Alley Pond. The movie starring Gloria Swanson was partially filmed at this location and at the Paramount Studios in Astoria, Queens, New York. Zaza is a French music hall star who competes with her rival, Mary Thurman, for the attention of a rich man, H.B. Warner. She is always adorned with the letter "Z" on her clothing, hats or jewelry. In the film's music hall sequence, Swanson swings way out over the audience tossing flowers to various men. Thurman cuts the rope and sends Swanson crashing to the floor. Later, in the country cottage that Warner has for Zaza, Mary and Zaza have a great catfight scene.



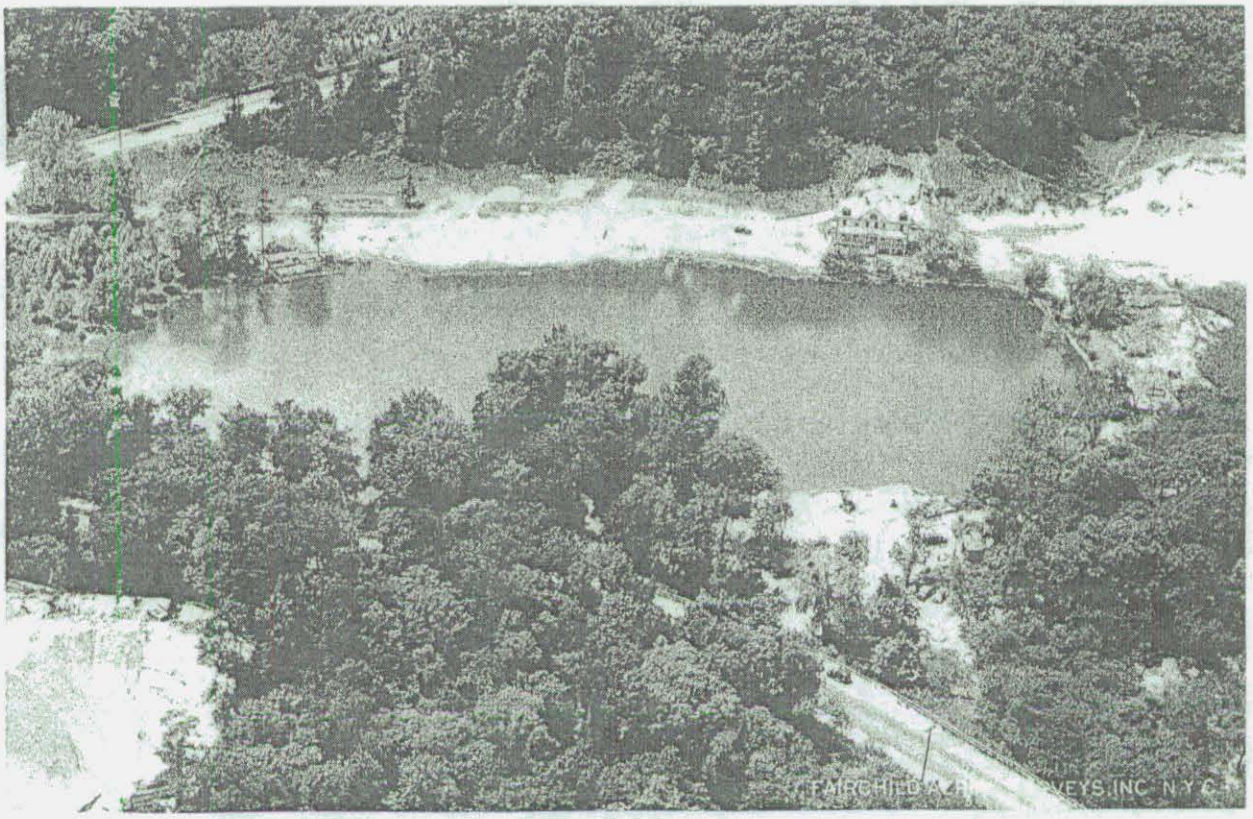
In 1929, New York City bought the land that has become Alley Pond Park and sadly, the remaining historic houses were torn down including **Foster's home** which was the first house in the Alley, built in 1637. It still remained in fair condition and just imagine what a marvelous historical attraction it and the other buildings would be today. Our New York City forefathers had no foresight when it came to environmental and historical concerns, a sense of place or beauty whatsoever. The Indians would shed tears of exasperation and frustration for the total insensitivity of these newcomers. Money, personal greed and sheer profit speak louder than principles, integrity and thinking of preservation for future generations.

The Great Hurricane of 1938 hit the northeast including Long Island where staggering losses and damage occurred. The "Long Island Express", as it was dubbed caused 2.6 million dollars of destruction to boats, docks, equipment, clams, oyster beds and shore plants in the salt marshes. The Bay bottom was churned up and the beds covered with mud suffocating the oysters. People in this area recollect that all types of boats were tossed and strewn from Little Neck Bay into the salt marshes north of Northern Blvd. costing a fortune to move, repair or discard. Tons of sand washed up and over the salt marshes decreasing the area of these marshes for years. This natural catastrophe affected the incomes, work and pleasure of all those people who had an investment in using Little Neck Bay.

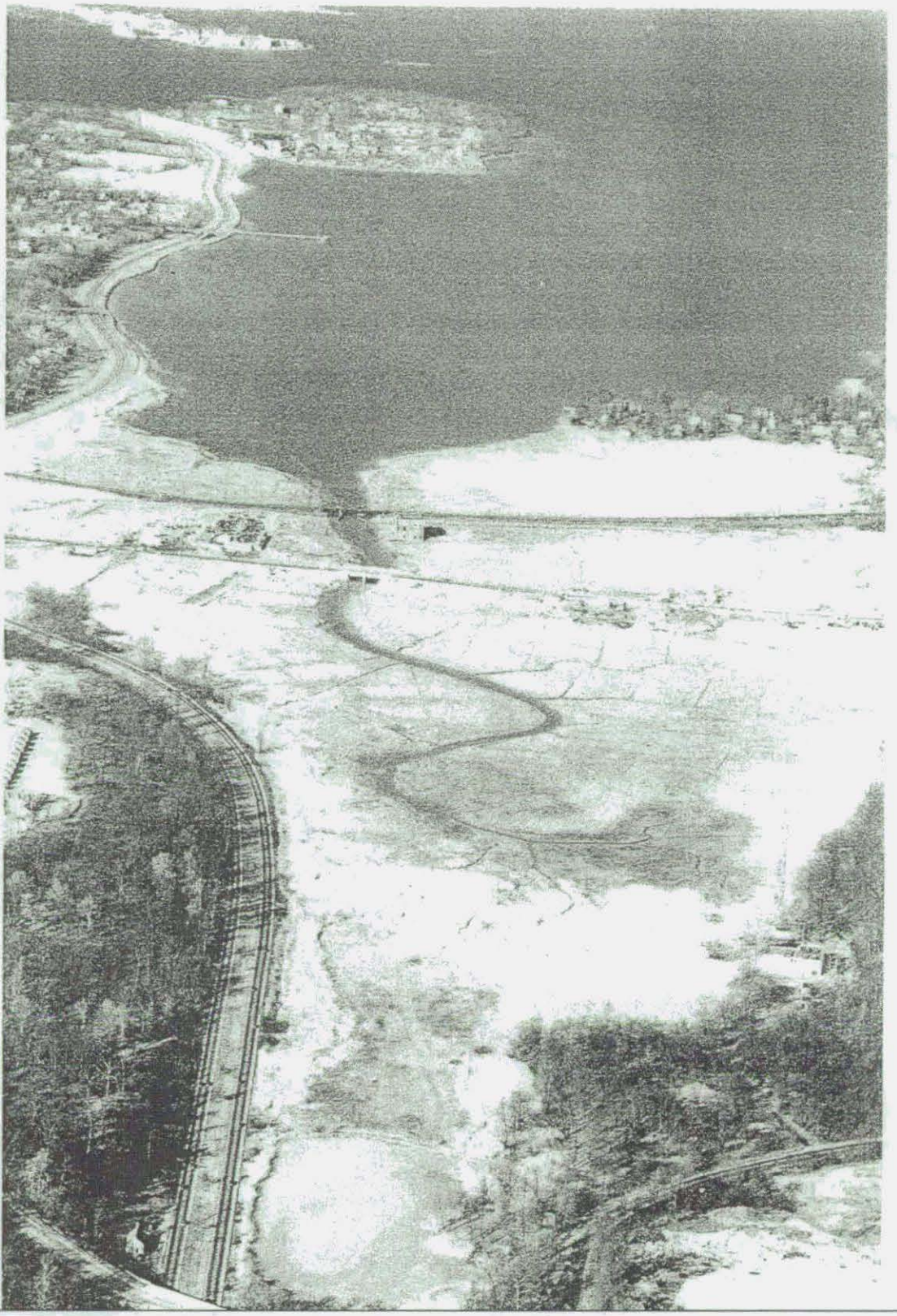
Robert Moses, the power broker, led the building of the **Cross Island Parkway** which was constructed on the western border of Alley Pond Park in the late 1930s. The marshes were filled in, the dam demolished and the pond eradicated. The Parkway was built on the west side of Little Neck Bay, taking property from many Baysiders and the Bayside Yacht Club and eliminated direct access to its shore. The **Long Island Expressway** was built in the 1950s and the clover leaves at the junction of these two major highways are on Alley Pond Parklands. The consequences were that Buhrman's Alley was destroyed - gone forever, and the beautiful Alley Pond and its bucolic surroundings ceased to exist.



Alley Pond



Aerial view of Alley Pond, Buhrmann's Homestead and the road that went
From east to west. 1929 – 30.



Winter aerial photo of Little Neck Bay, Alley Creek and Pond, and the Cross Island Pkwy. which extends all along the Bay's west shore and completely prevents Bayside people's access to the Bay.

In the **1940s, 50s and 60s**, construction debris and solid waste were dumped by the NYC Sanitation Dept. on the salt marshes on the north and south sides of Northern Blvd. adjacent to Little Neck Bay and its watershed. Marshes were considered waste lands to be filled in, at that time. Raw sewage from the growing city and towns was drained into the surrounding waters and the tidal flow brought this polluted water and silt into Little Neck Bay. Roads were clogged with polluting vehicles. There was no feeling to protect the past because there was so much land available to buy for a few dollars.

The once productive Sintsinck became off-limits to clammers, fishermen, swimmers and sea captains due to silting from runoff, bacteria from untreated sewage and air, land and water pollution - a sign of the new times. The new "Alley" along Northern Blvd. lined with gas stations, cheap stores and greasy eateries is hardly noticed or cared for by the passing motorist. The serenity, beauty and natural watershed function and productivity of this grand ecosystem is now spoiled and impaired.

Vast Salt Marshes in the Alley – Little Neck Bay's Watershed which became a dumping ground and land fill. Note trolley power station on the left and Broadway, later Northern Blvd. on the right.

Chronology of Significant Events to Protect Little Neck Bay, its Watershed and its Inlet, the Alley, during the 20th and early 21st Centuries

- September, 1969. More than 2,500 concerned people including NYC Mayor John Lindsay and NYC Parks commissioner August Heckscher take a "Walk in the Alley" to voice their concerns for restoration of this historical and ecological place. The walk was organized and conducted by the newly formed Alley Restoration Committee under the leadership of Joseph Brown and John Reidl and many community groups.

- September, 1969. Bayside Historical Society sponsors a tour of notable and historic homes around Alley Pond Park.

- April, 1970. The first grand celebration to focus awareness on protecting our natural environment, Earth Day, was commemorated and it empowered people nationwide to act locally, think globally on the earth's behalf.

- September, 1970. The N.Y.C Sanitation Department uses the fragile Alley to store tons of salt for winter use. Citizens, including Dr.Andrew Greller, Queens College Botanist, Tom Schweitzer, Jim Trent and others protest this action until the salt is removed.

- July, 1971. The Alley Restoration Committee obtains a commitment from various city agencies that they will not dump any more construction waste and garbage in the Alley on the salt marshes.

- In 1972, Alley Pond Environmental Center (APEC) was beginning to form by a group of educators headed by Joan and Hy Rosner, who resolved with their committee to establish an environmental education center in and utilizing Alley Pond Park.

- March, 1972. NYC Board of Standards and Appeals grants variance to the Shell Gas Station in the Alley to erect a repair shop which was opposed by the Alley Restoration Committee.

- In 1973, Sen. Padavan establishes the New York State North East Queens Nature and Historic Preserve Commission to oversee protect and preserve the coastline from Little Neck to College Point. (www.sneq.com)

- In 1973, the New York State Tidal Wetlands Act was enacted to protect tidal wetlands to some degree which includes places such as Alley Creek and the shores of Little Neck Bay. The NYS Department of Environmental Conservation is charged with enforcing this law.

- January, 1973. Mayor Lindsay meets with the Alley Restoration Committee to discuss the restoration of the Alley Ponds. The City appropriates $500,000 for restoration.

- March, 1973. Alley Restoration Committee and community arduously oppose construction of a 5 story motel behind the Shell Gas Station. The applicant withdraws the request.

- October, 1973. Ford Motor Company requests a variance to build buildings and a dealership in the Alley. The NYS Tidal Wetlands Act is used by the community to prevent this request. Eventually, this land becomes part of Alley Pond Park.

- February, 1974. Alley Restoration Committee protests the removal of $700,000 to purchase privately owned land along Northern Blvd. in the Alley

- July, 1974. A Wetlands Reclamation Program is initiated by the NYC Department of Parks to restore three ponds in the Alley.

- In 1975, the New York State Freshwater Wetlands Act was enacted to protect inland freshwater bodies, such as Oakland Lake.

- In 1976, Alley Pond Environmental Center is incorporated and moved into its present building in Douglaston, N.Y.

- In 1979, Alley Pond Environmental Center was designated a National Environmental Study Area by the US Environmental Protection Agency.

- In 1980, Udalls Cove Preservation Committee was founded by Aurora Gareiss, a noted local environmentalist and a self-made activist with help from Ralph Kamhi.

- In 1982, the Oakland Lake and Ravine Conservation Committee was founded by Gertrude and Ted Waldeyer, residents and environmental activists of Bayside.

- In 2002, A Water Quality Improvement Project and Alley Creek Project started by the NYC Department of Environmental Protection to improve the water quality of Little Neck Bay in order to reach federal standards. This project will take about nine years to complete.

- In 2004 and 2005, during the construction of an HOV lane on the Long Island Expressway, a mitigation project enabled the reconstruction of Alley Pond at approximately its original location.

- September 2005. Alley Pond Environmental Center sponsors on National Estuary Day, its first "Festival of Little Neck Bay" to bring attention to the community about the resources and protection needed of this wonderful estuary.

- September 2006. Alley Pond Environmental Center's second annual "Festival of Little Neck Bay" attended by over 1,000 people.

- October 2006. The formation of a new organization called the Alliance for Little Neck Bay is announced by Aline Euler.

- November, 2006. Alley Pond Environmental Center celebrates its 30th anniversary of providing environmental education programs, nature walks and workshops to people of all ages and disciplines.

- December 2006. Long Island Sound Study announces a federal plan to protect Long Island Sound called the "Stewardship Initiative". This proactive Initiative includes the salt marshes of Alley Pond Park which borders Little Neck Bay and the contiguous Sound to improve the water quality by reducing the amount of nitrogen that enters into the Bay and Long Island Sound.

- *March 2007. Long Island Sound Citizens' Summit.* Sound Stewardship, Preserving Long Island Sound's Special Places, including Alley Pond Park : LISSA of 2006 (See December 2006)

We are now at the beginning of the **21st Century** and one wonders what will be in store for Little Neck Bay and its watershed in the ensuing years. At this time we have a chance to reclaim some privately owned Little Neck Bay watershed land along Northern Blvd. in the Alley to protect and enhance the water quality of Little Neck Bay for future generations. The New York City Department of Parks was advised about this opportunity, but no promises are forthcoming. We will continue to pursue, persist and prevail on this issue. There is still an unfulfilled promise out there that Mayor Lindsay made during "The Walk in the Alley" to this community that some property adjacent to parkland along Northern Boulevard would be acquired by the city and added to Alley Pond Park.

Now is the time to call upon our elected officials, and to work together to protect this bountiful estuary called Little Neck Bay and its watershed. We are forming the Alliance for Little Neck Bay organization to gather community folks to support these goals. We will follow in the footsteps of the Alley Restoration Committee, the Udalls Cove Preservation Committee, Aurora Gareiss, Virginia Dent, Ted and Gertrude Waldeyer and others to add to their amazing accomplishments. Luckily, there is very little commercial or manufacturing development around the shore of Sintsinck and it is a strikingly beautiful seascape.

We want to help you Sintsinck and be able to eat the fish and clams you nurture, partake in the recreation you afford and delight in the serenity you share.

In retrospect, the history of Little Neck Bay and the Alley, reflects peoples' need for its life giving resources, their changing attitudes and lifestyles and money or satisfaction. It has shown a shift from a conservation ethic, nature based existence of the Matinecocks to a short term ever crowded, materialistic, hurried and polluted lifestyle of the colonists and their kin. The days when the sail was supreme have passed . . . .

Instead of watching the sky with glorious sunsets and cloud patterns for us to predict the next day's weather or observe migrating birds, we watch the speedometer, comment on the price of gas or tense up by all the vehicles and people around us .

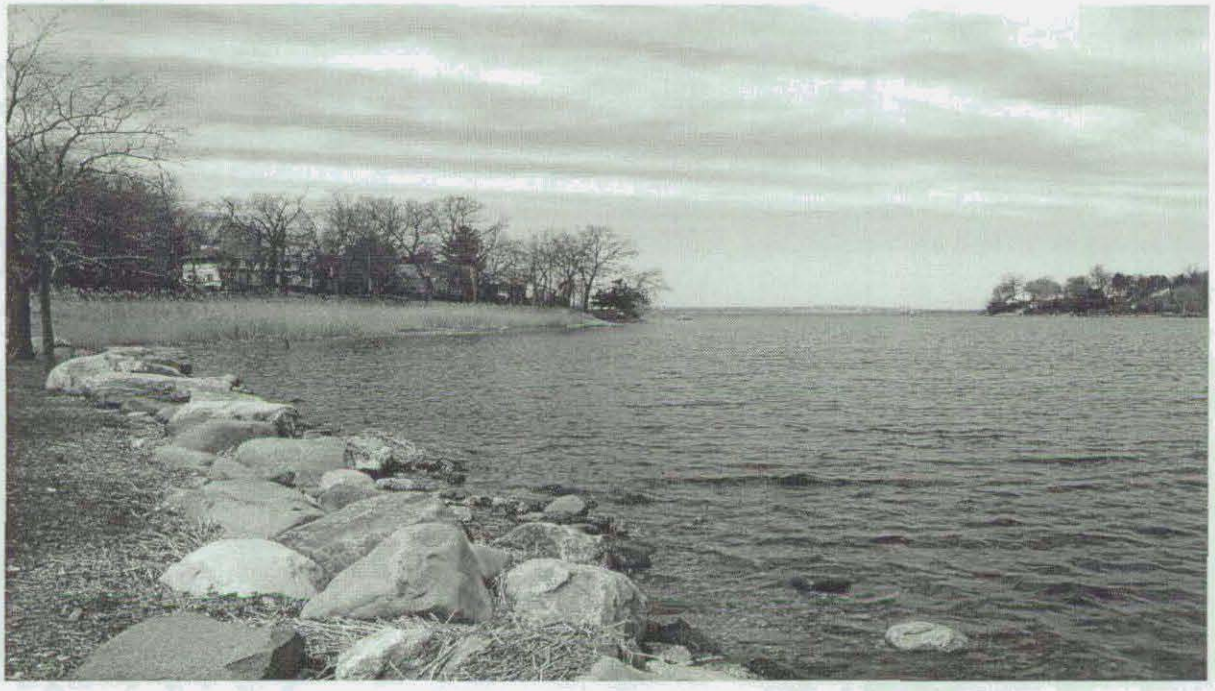
. . And this we call progress.

THE ECOLOGY OF LITTLE NECK BAY

Estuaries are dynamic environments subjected daily to the rise and fall of the tides. The tides are a result of the gravitational pull between the Earth, the sun and the moon. All surfaces of the Earth are attracted to the moon and the sun. As the moon rotates around the Earth water underneath it is pulled toward it, forming a bulge. During high tide the bulge hits the land and water piles. Between bulges, low tides take place. Tides occur approximately fifty minutes later each day because it takes the moon twenty-four hours and fifty minutes to rotate around the Earth. During this 24 hours and 50 minutes Little Neck Bay experiences two high and two low tides. There are approximately 6 hours between high and low tide each day.

The area of land that meets the estuary and is most affected by the tides is known as the intertidal zone. It is a harsh and constantly *changing environment.* Salinity, temperature, water and dissolved oxygen levels can change within a matter of hours. Although it is dynamic, the intertidal zone provides several different habitats for countless numbers of plant and animal species. Many of the organisms that call this area home are stationary or incapable of moving great distances. They rely on the tides to bring their food, remove their waste, and carry on reproduction.

Along the intertidal zone of Little Neck Bay there are several habitats for various organisms. These include the salt marsh, mud flat, rocky shore, and sandy beach. The open waters of the bay also provide habitat.



View of Little Neck Bay at Memorial Park

HABITATS OF LITTLE NECK BAY

SALT MARSHES

The **salt marshes** of Little Neck Bay dominate the southern sections of the estuary as you travel toward Alley Creek and Udalls Cove. Salt marshes are tidal wetlands that support a great variety of wildlife by providing food, shelter, and nursery ground. They also help to improve water quality by absorbing contaminants, excess nutrients and sediments. In addition, these ecosystems help to absorb stormwater, thereby preventing floods and buffering erosion.

A typical salt marsh has 3 distinct zones (with belts of particular vegetation types) - **high marsh, low marsh**, and **mud flats**. The **high marsh** is rarely flooded except during the high spring tides. Spring tides occur during times of the new and full moons when the tide generating forces of the moon and sun are combined. The tidal bulges created by the moon and sun align, creating one big bulge. At this time, the tides are very high and the high zone of the salt marsh will flood. This area of wetland is dominated by salt meadow cordgrass (*Spartina patens*) and spike grass. Glasswort can be found in small depressions in the high marsh.

Alley Creek salt marshes during high tide

The **low marsh** is flooded daily by the tides. This part of the marsh is dominated by salt marsh cordgrass (*Spartina alterniflora*). This plant has the ability to increase the amount of salt in its cells to balance the salt content of the water outside. Glands on leaf surfaces will excrete any excess salt that accumulates in the plant. These adaptations enable *Spartina alterniflora* to be one of the few plants in the world that can survive in a salt-water environment.

Dead and decaying marsh grasses are mowed down by the tides and float out to the bay as detritus. This detritus releases nutrients into the water and becomes food for bacteria, worms, snails, crabs, and the immature stages of finfish and shellfish. Marshes are recognized as being among the most biologically productive areas in the world.

Alley Creek salt marshes and mud flats during low tide

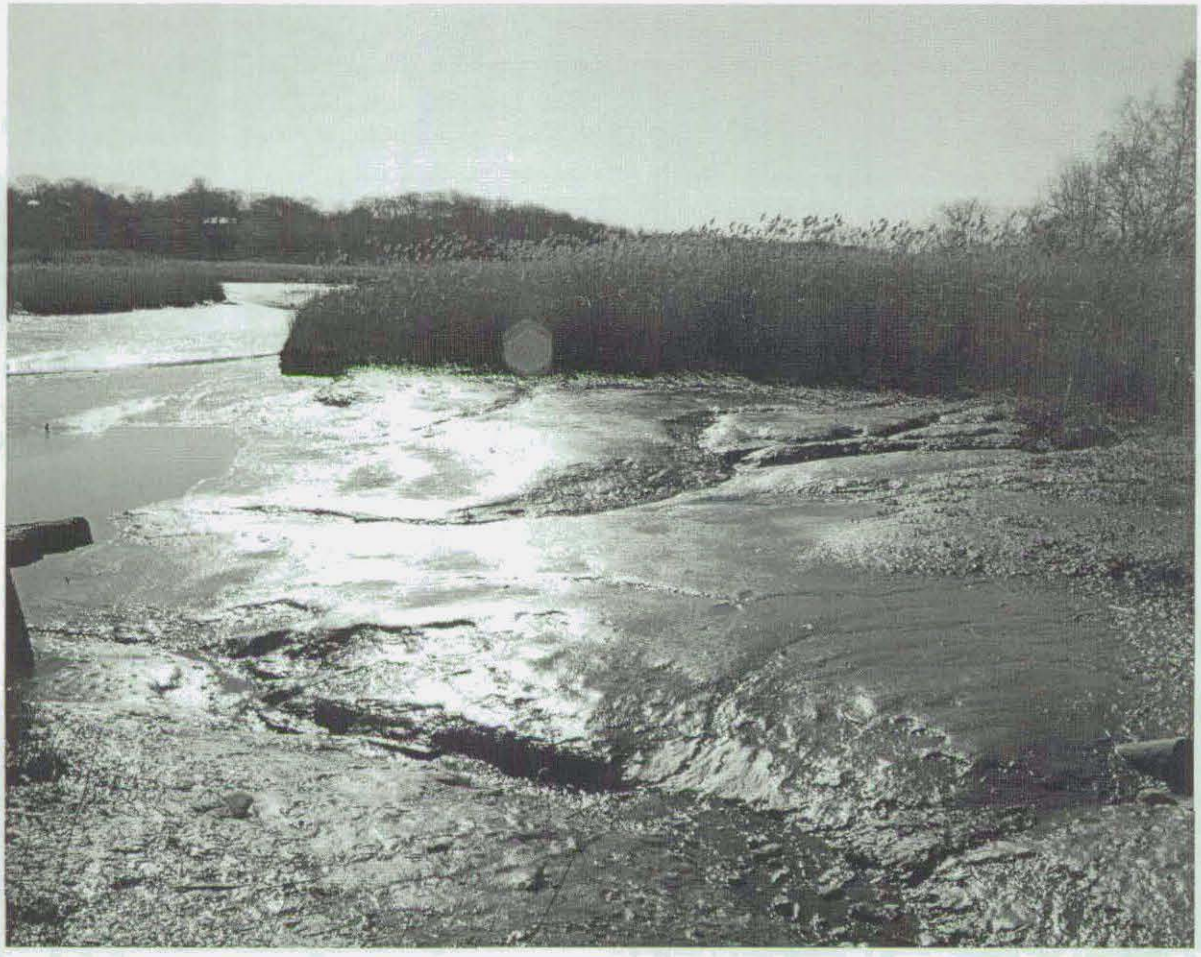
Areas of salt marsh along Little Neck Bay where the soil, elevation and tidal flow have been altered are dominated by the invasive common reed (*Phragmites).* Such is the case with the embankment of the LIRR acting as a dike to separate the southern wetlands from the open water of the bay. This has effectively blocked most tidal action and flushing. As a result the southern wetlands have freshened and the *Spartina* has been crowded out by *Phragmites. Phragmites* is a very hardy and adaptable plant that spreads quickly. Although it does provide dense cover, it offers limited food and is considered to be of little ecological value.

Alley Creek looking north toward Long Island Railroad

In 1998 the NY/NJ Port Authority completed a salt marsh restoration of 13 acres on Little Neck Bay as part of a mitigation project. The restoration site is located north of the LIRR, on the east side of the Alley Creek inlet. The elevation of the wetlands in this area had been increased with the placement of fill materials. In the restoration project, the soil elevation was lowered and the area was replanted with *Spartina.* Several winding water channels and a tidal pool were also created. The sighting of numerous shore birds in the area has proven the project to be a success.

MUD FLATS

Mud flats border the low marsh and occur between the high and low tide lines of the estuary. These areas are covered with mud and slick fine particles of sand. The soil in the flats is usually dark gray or brown-black, may smell like sulfur, and is mostly made up of decomposing organic matter that feeds detritivores. The mud is low in oxygen and difficult for animals to walk on without sinking. Many of the animals that use this habitat are found underneath borrowing. The mud provides camouflage and food for worms, snails, and clams.



ROCKY SHORES

Rocky shores occur naturally in some areas of Little Neck Bay, but are also man-made on the western bay shore where several rocks and boulders were placed during the construction of the Cross Island Parkway in the 1930s. This habitat is a harsh place for plants and animals because they have to deal with the constant wear and tear from waves hitting against the rocks. The organisms that live here, such as periwinkle snails, barnacles, and mussels have hard outer shells that allow them to attach securely to the rock surfaces. Seaweed is usually very abundant here. It drapes over the rocks, offering ideal protection for many organisms that inhabit the shore.

SANDY BEACHES

The **sandy beaches** of the intertidal zone are without large rocks, algae or pools of water. This "barren" environment results in very few places for animals to hide or attach themselves for protection. These organisms also have to contend with shifts in their sandy habitat caused by wind and tides. Animals that inhabit this area must have adaptations that prevent them from drying out. At first glance the sandy beach may appear to be void of life, but many organisms are actually living underneath the sand's surface. The mole crab has legs that are adapted for digging backward so it can use its long feather-like antennae to catch small particles of food. Segmented worms and razor clams are also found here.

Arleigh Beach, Douglaston

OPEN WATER

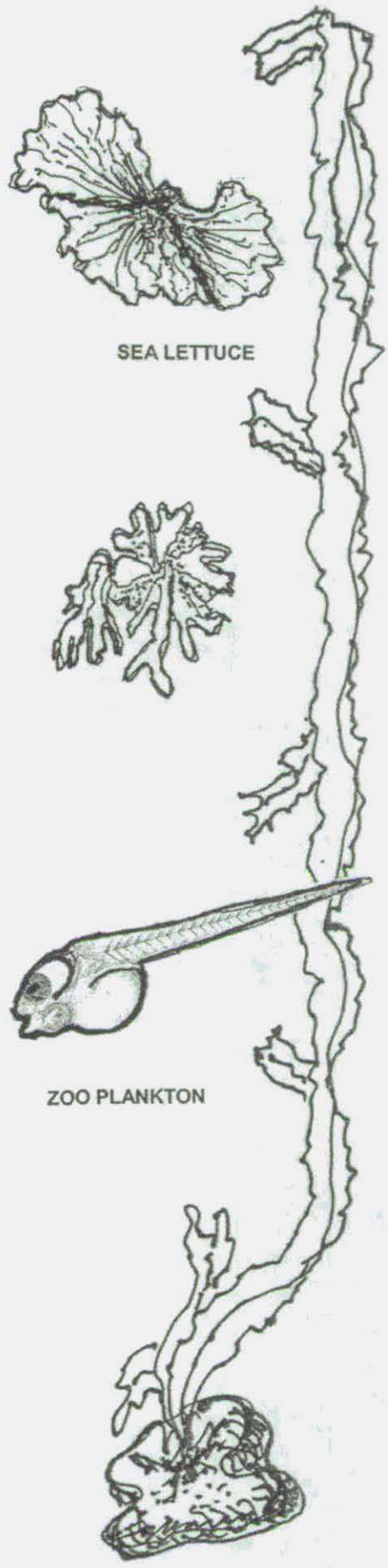
This habitat is an area that is always submerged under water. Organisms can be found along the bottom of the estuary and swimming or floating in the open water. The plants and animals of the open water do not have to contend with the conditions that intertidal zone inhabitants do. There are no sudden drastic changes in temperature and salinity, and dehydration is not a factor.

The organisms that live in the habitats of the intertidal zone are specialized and adapted to handling the environmental changes caused by the tides. They are used to being exposed to the sun and air for hours at a time, close to the point of drying up. On the other extreme they are also adapted for being dunked under water for hours during high tide. They are a tough and varied bunch! The remainder of this guide will focus on several of these creatures.

PLANTS

Phytoplankton are small, often microscopic, free-floating plants that rely on the currents and tides for movement. They need to be near the surface of the water to capture the sun's energy for photosynthesis, the process by which plants make their food. The amounts and types of phytoplankton found in the bay will often determine the color of the water usually green or brown. The organisms are important producers and begin the estuary food chain. The most common phytoplankton in the bay are diatoms, whose skeletal remains are used to make the diatomaceous earth found in filers.

Seaweeds in the bay provide food, oxygen, and protective cover for many of the resident animals. They are categorized into 3 groups based on their color-green, red, and brown. **Sea lettuce** is bright green and does well in nutrient rich waters. It usually grows near and below the low tide mark. Snails will often use it to attach their egg cases. Sea lettuce is commonly boiled and eaten or dried and powdered to use as seasoning. **Irish moss** is a dark red-purplish seaweed that is used in hundreds of products (toothpaste, ice cream, soup, medicine) as a stabilizer and thickener. The brown seaweeds known as **rockweeds** include **bladder** and **knotted wrack**. Rockweeds have air bladders to allow them to float near the surface of the water. This enables them to get the light they need to photosynthesize.



ANIMALS

Zooplankton are the tiny animals that feed on phytoplankton and bacteria. They act as prey for larger organisms and are usually capable of some type of locomotion. Zooplankton can include organisms like copepods and amphipods, as well as the larvae of crustaceans like crabs and barnacles.

Jellyfish are organisms that exhibit radial symmetry; their body parts are arranged around the center. They have a top and bottom, but no front, back, left or right. Jellyfish have no organs or brains, only tissues. They have a single opening that acts as both mouth and anus. Most have specialized stinging cells used for feeding and defense. Moon jellyfish are the most common jellyfish in Little Neck Bay. They are usually translucent white or pink in color and have sticky tentacles they use to catch plankton. Although moon jellies are slightly venomous, contact with them does not

produce the stinging rash commonly associated with other jellyfish. **Comb jellyfish** are often mistaken for jellyfish, but they are actually completely different animals. Comb jellies do not have stinging cells. At night these clear blobs give off bright green flashes of light produced through bioluminescence.

WORMS

Several different kinds of marine worms live in the bottom sediments of Little Neck Bay. Some, like the ***clamworms*** are free swimming and emerge from the bottom at night to prey on small crustaceans and mollusks. These predators are armed with sharp-toothed jaws for seizing prey and up to 200 pairs of tiny oars for active swimming.

Other worms prefer the relative safety of the bottom subtrate and live out their entire lives in tubes they build out of sand grains or in the mud. Some will pump water into and out of the burrow and trap floating plankton on sticky hairs. Others, such as the **trumpet worms** will extend feathery tentacles that pull in plankton and tiny swimming larva of other organisms.

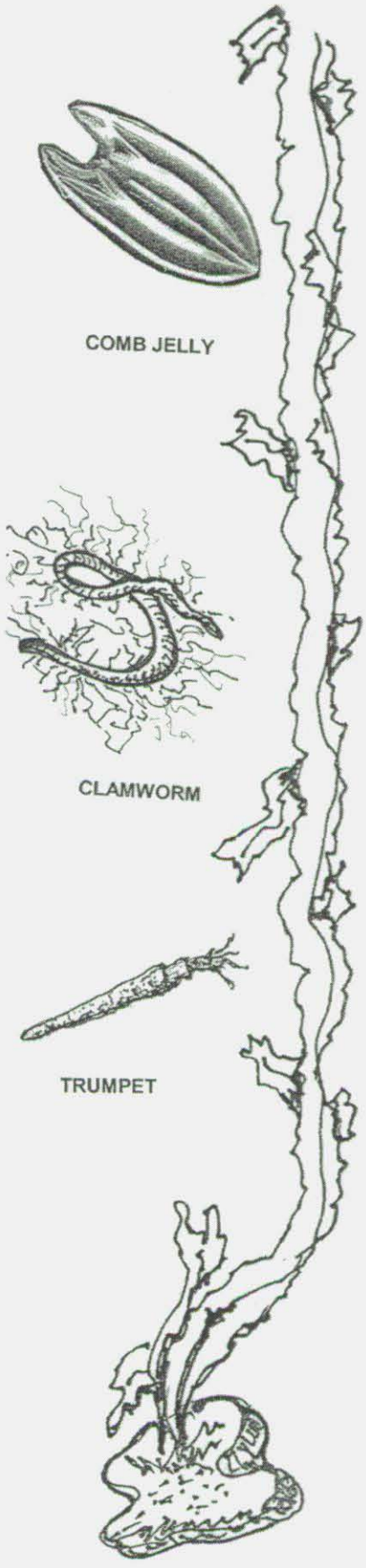
All marine worms are an important link in the estuarine food web. They harvest the invisible crops of phytoplankton and the runoff debris from marsh and estuary, converting it into usable animal protein. Later they will be eaten by many of the important higher organisms including several different crabs, fish and shore birds.

MOLLUSKS

The animals in Little Neck Bay belonging to the mollusk group include the gastropods (snails) and bivalves (clams, etc.). Although they are a varied group all mollusks share some common features. Their soft bodies are divided into 3 sections: muscular foot (used for movement), visceral mass (contains all organs), and mantle (heavy fold of tissue that drapes over the visceral mass and may secrete a shell). The gastropods and bivalves are protected by a hard shell made of calcium carbonate.

Gastropods/Snails

Most gastropods are protected by single spiraled

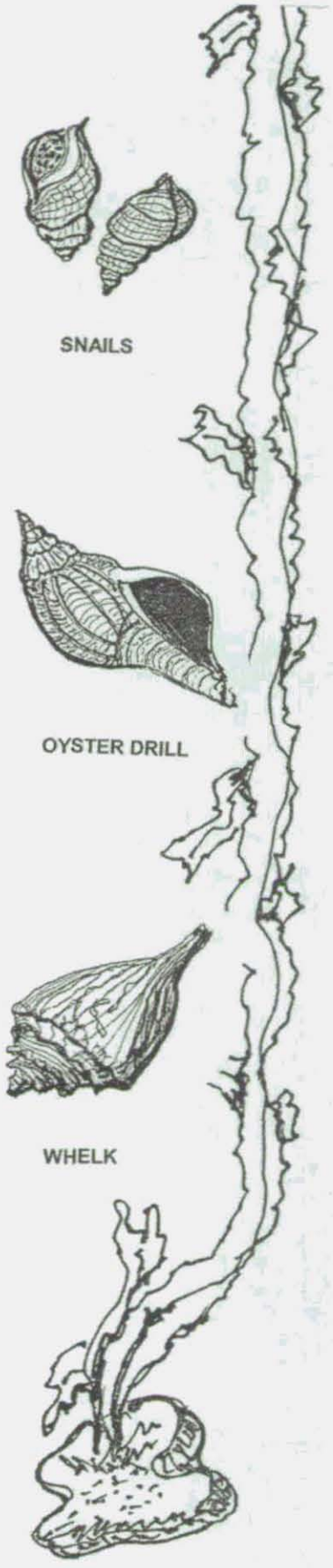


shells into which they can retreat when threatened. Many have distinct heads with eyes at the tips of tentacles. They usually have a muscular foot adapted for crawling. Many snails have an operculum that acts like a trap door they close for protection from predators and to prevent desiccation. Gastropods eat using their radula- a tongue-like structure with teeth.

A common gastropod often found by the hundreds during low tide is the **mud snail**. They bury themselves in the mud flats and scavenge on leftovers and dead animals. They communicate with each other through touch and use of chemical secretions. The **periwinkle snail** is well adapted to the challenges of life along the intertidal zone. When the tide goes out and the snails are out of water they will seal themselves to rocks with mucus produced by their foot. While the mucus hardens, the snail pulls into its shell and closes its operculum. This creates a tight seal to protect the snail from drying out. When the tide comes back in the perwinkle glides over the rocks, scraping off algae using its radula.

A predatory snail found in Little Neck Bay is the **oyster drill**. This voracious carnivore will use its radula to drill a hole through the shell of an oyster so it can eat the meat of its prey. Another carnivorous snail is the **whelk**, which uses its foot to pry open the shells of clams and mussels. You may sometimes find strings of their plastic like egg cases washed up on the shore.

Slipper shells/boat shells are usually pink or white and look like boats or slippers. Although they do have a foot they do not often move. They are usually found tightly attached to rocks or the shells of other animals. Water enters through a small gap on the side and the snail filters out particles to eat. They are often found in stacks of two or more with the older, larger females snails on bottom. Slipper snails are able to change their sex. Younger, smaller males may become female depending on the sex ratio of surrounding snails.



Bivalves

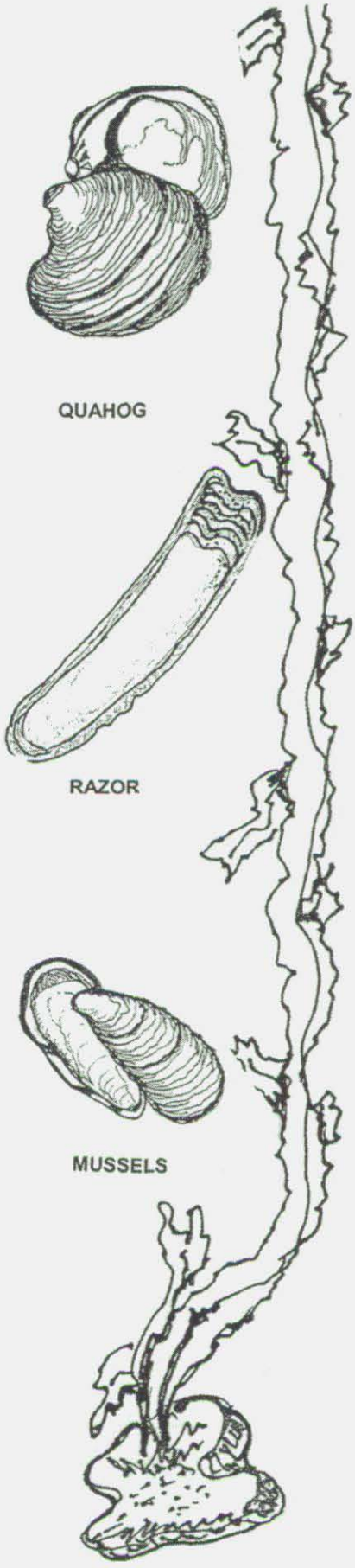
Bivalves are the mollusks whose shells are divided into 2 halves. The oldest part of a bivalve is the bump near the hinge of the shell called the umbo. Usually the halves are held tightly closed by powerful muscles, but when the shells are open the bivalve may stretch out its hatchet-shaped foot for digging or anchoring. Most are suspension or filter feed-

ers using an incurrent siphon to suck in water (from which the clam then filters out plankton) and an excurrent siphon to expel excess water and waste products.

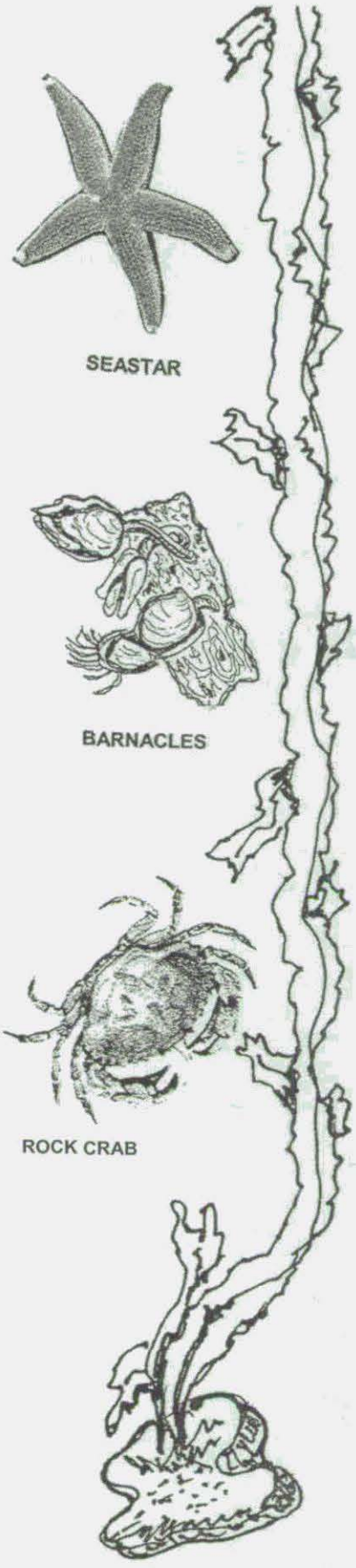
Three kinds of clams are commonly found in Little Neck Bay. The **hard-shell clam** also known as the quahog, little neck, cherry stone and chowder (depending on the size) burrows just below the surface of sand and mud using its muscular foot. The purplish inside of the shells were once used to make Native American wampum. In the late 19th century so many clams were harvested from Little Neck Bay and sold in restaurants of New York City that the smallest and most delicious variety came to be called "little necks". According to the NYS Department of State Little Neck Bay is valuable as a hard-shell clam producing area. Although the baywaters are not certified for commercial shell fishing, significant numbers of young clams are removed for transplanting into approved waters.

Soft-shell clams also known as steamers look similar to the quahog, but have thinner more oval shaped shells. They bury deep in the mud with their foot. The siphons of the soft-shell clam are so long they cannot be pulled all the way back into the shell and the shell cannot completely close. While filter feeding these clams can pass up to one quart of water per hour through their bodies. **Razor clams** live closer to the surface of the mud than the steamers. They are extremely fast diggers and therefore difficult to find. Their shape resembles the old fashioned shaving tool.

Other bivalves in the bay include the **blue** and **ribbed mussels**. These animals do not burrow like their clam cousins, but instead are found attached to rocks, pilings, plants and each other. Mussels anchor to the sides of rocks and crevices using tough fibers they secrete called byssal threads. The edible **blue mussels** grow in clumps along the rocky shores. The ribbed mussels, found attached to salt marsh plants, are not edible. On a hot day or under dry conditions both varieties will keep their shells closed. When water passes over them during high tide they part open their shells to filter feed on microscopic plankton. **Oysters** also feed on plankton. Oysters do not have siphons to feed; they simply open their shells and allow the plankton filled water to pass over their bodies. They also do not have a foot. Young oysters use an adhesive fluid to attach themselves to a hard object where they will spend the rest of their life.



A voracious predator of bivalves is the **sea star**. Sea stars belong to the group of animals known as echinoderms or "*spiny skinned*". They are bottom dwelling organisms whose mouth is found on the underneath side of their body. On their arms sea stars have tube feet with suction cups that they use for locomotion and to pry open the shells of mussels and oysters. Once the bivalve is opened a sea star's stomach will come out of its mouth to digest the meat of its meal. The orange spot on the topside of their body is called the madreporite and it is used to take in water. Sea stars can regenerate lost limbs.



ARTHROPODS

Seventy five percent of all known species on Earth are arthropods, most of them are insects. Arthropods have a segmented body, jointed appendages and an *exoskeleton* that provides them with a hard shell. As these animals grow, their exoskeletons do not so they molt periodically.

Crustaceans

Almost all of the arthropods found in brackish and marine waters are crustaceans. Crustaceans have 5 or more pairs of appendages for locomotion, 3 pairs of mouthparts and 2 pairs of antennae. Lost appendages can be regenerated. This group includes the **barnacles, shrimp, crabs and lobster**.

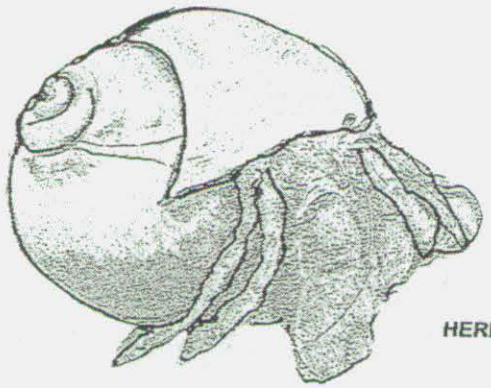
Barnacles are the only sessile crustaceans that will attach themselves to anything submerged long enough for them to do so. They cannot move from place to place to find food or escape predators. They are cemented with a glue-like substance to a particular habitat, head first. Barnacles are covered in plates that part open when covered in water. Then they extend their feathery legs to gather food. When the tide goes out they close their plates to prevent moisture loss. Very few live longer than 5 years.

There are several different species of crabs found in and around Little Neck Bay. **Fiddler crabs** can be found scurrying around sideways in the salt marshes. If you find small balls of sand next to holes in the marsh sediment, crabs aren't too far behind. When the tide is high these small crabs will retreat to their underground burrows. During low tide they come out to eat decaying plants and animals. Male fiddler crabs have one claw much larger than the other which they wave around to scare away enemies and to attract females. **Green crabs** can also be found in the intertidal zone hiding under rocks. They scavenge for small worms, mollusks and crustaceans. These crabs are very

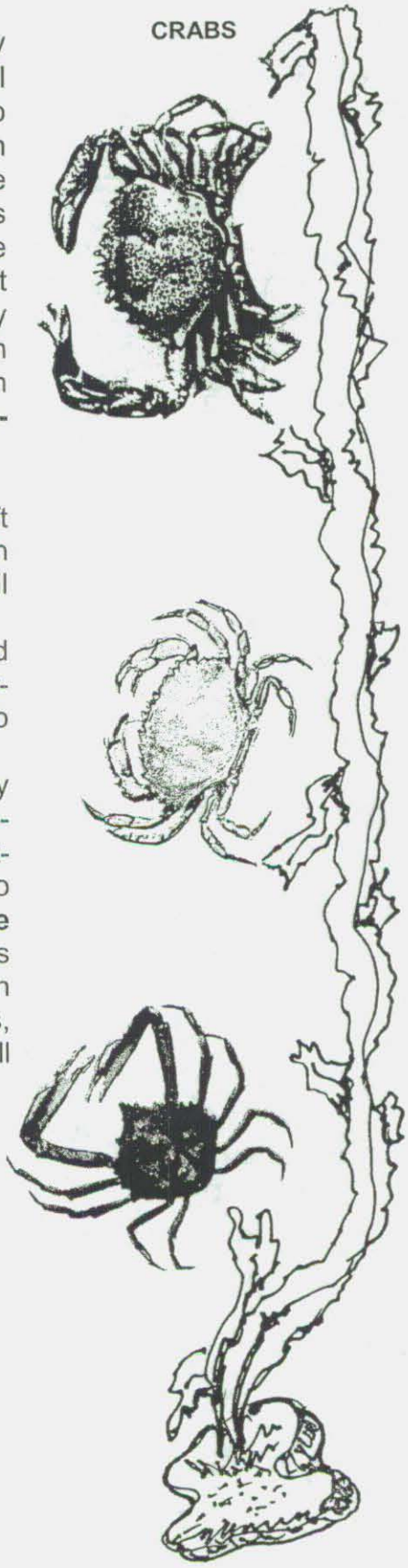
tolerant of the harsh conditions of the rocky shore. They can withstand drying out and drops in temperature, but will actually leave the intertidal zone in winter. The green crab is an accidentally introduced species brought over from Europe. If you turn over rocks you will most likely come across another non-native, the **Japanese shore crab.** This crab was introduced to the Atlantic coastline during the late 1980s. It is an extremely adaptable species, eating just about anything and tolerating wide temperature and salinity ranges. Its breeding season appears to be twice the length of native crabs. All of these factors create stiff competition for native crabs that share the same habitat like the **black-fingered mud crab**.

As the tide goes out often there are small pools of water left behind covering the rocks and areas of sandy beaches. In these pools you can find the crab that has to borrow a shell – the **hermit crab**. The hermit crab has a soft, unprotected abdomen, so it will use the abandoned shells of snails to live in. As it grows it must find a new larger shell to inhabit. Outside of its shell the hermit crab looks like a soft bodied lobster.

In the shallow waters is the scary looking but completely harmless **spider crab**. This crab is slow moving and somewhat lazy. Instead of aggressively attacking to protect itself, it will use its long legs to attach seaweed to its back to hide. A more aggressive and very tasty crab is the **blue claw crab.** This crab is olive green with bright blue claws that can cause a big pinch. They prey on small shellfish and finfish. The last pair of legs is shaped like paddles, enabling it to swim in deeper waters. The edible soft-shell crab is actually a newly molted blue claw crab.



HERMIT CRAB



CRABS

The **horseshoe crab** is not really a crab at all, but more closely related to ticks and spiders. These fascinating creatures may look threatening but actually pose no harm. Their tail is used as a rudder while swimming and to right themselves when stranded on the beach. Horseshoe crabs spend most of their time in the open water swimming upside down and searching for detritus, small animals and worms found along the bottom of the estuary. In May and June thousands come ashore along the Atlantic Coast to mate. The males use their hooked first pair of claws to hold onto the larger sized females as they hitch a ride onto a sandy beach. The female will dig a hole in the sand and deposit the eggs. As she drags the male over the eggs he fertilizes them. The horseshoe crab's blue blood is used in cancer research and to test injectable drugs.

HORSESHOE CRABS

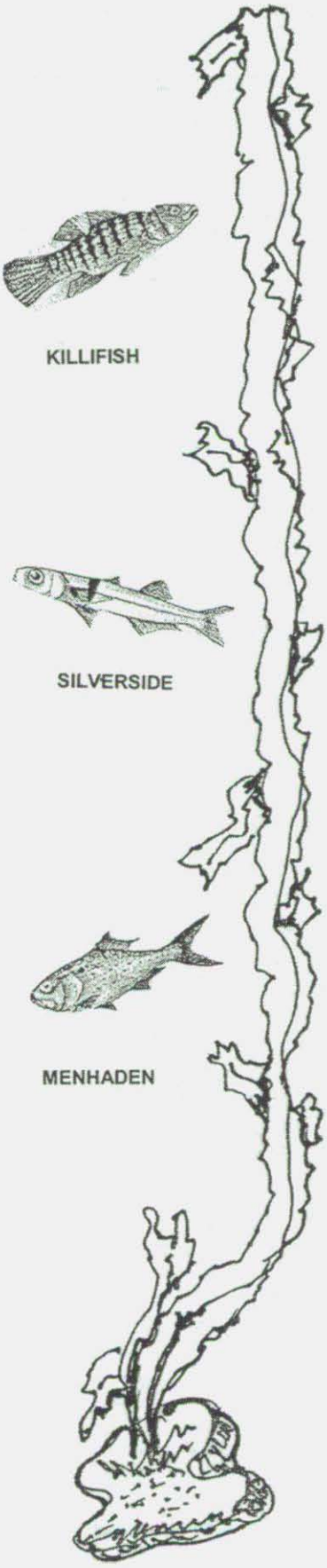
FISH

The NY State Department of State has determined that Little Neck Bay is a productive area for marine finfish. As a result of the abundant fisheries resources in the bay, and its proximity to the metropolitan New York area, Little Neck receives very heavy recreational fishing pressure, of statewide significance. A great variety of fish inhabit the bay either year round or seasonally. The number of species is so vast, ranging from the small minnows to the large striped bass, that we will focus on the characteristics of just a few for this guide.

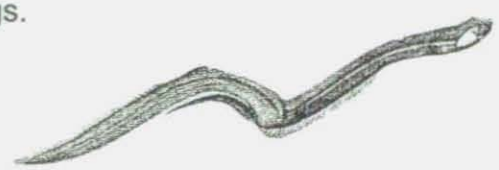
The **killifish**, also known as mummichog is a small, bluish gray minnow abundant in salt marshes. Mummichog comes from a Native American word that means "going in crowds". Schools of these fish occur in large numbers, usually close to shore in harbors and tidal creeks. The killi is a very adaptable fish and can easily get used to changes in oxygen levels, temperature and salinity. It eats living and dead plants and animals, and especially loves mosquito larvae.

Atlantic silversides are small, slender, and usually have a prominent silver stripe alongside. They live close to shore in large schools. Schooling is safer than swimming alone and makes it easier to find food and scare predators. Silversides are important as baitfish and as food for other fish including snapper blues, striped bass, and flounder.

Menhaden, also known as bunker, are large (up to 14 inches) brassy colored herring that feed on plankton. These fish are an important food source for bluefish and striped bass. Unfortunately they are sometimes victims of summer fish kills. Bluefish will herd the bunker into shallow water that does not hold as much oxygen. The frenzied bunker use up all available oxygen and suffocate by the hundreds or thousands.



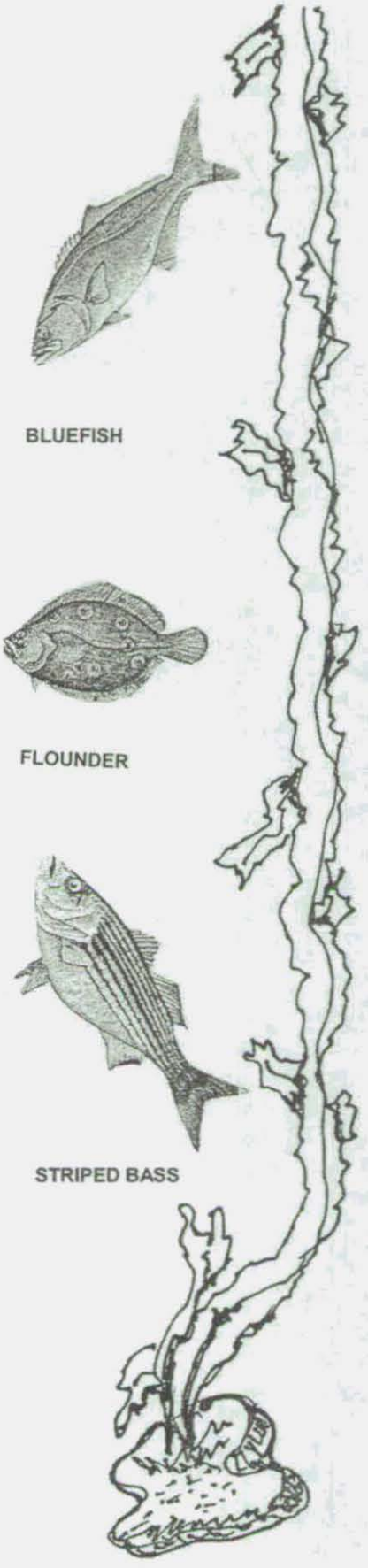
The **American eel** is a scavenger that will eat practically anything. They are active at night, during the day they burrow in the mud. Mature adults travel over 1000 miles to breed in the Sargasso Sea off the coast of the Bahamas. Young eels travel back to North America to inhabit the fresh water streams, tidal creeks and estuaries. They will stay on the Atlantic Coast for about 10 years until they reach sexual maturity. Then it becomes their time to travel south to spawn. The eels die after laying their eggs.



Adult **bluefish** are voracious predators that average between 2 and 10 lbs., but can weigh up to 30 lbs. They are active surface feeders following schools of baitfish into shallow waters. They arrive in spring and remain until fall when they travel south. Bluefish appear in greatest numbers in July and August. A commonly caught fish, young blues are called snappers.

Winter flounder are flat, bottom dwelling fish that feed primarily on benthic worms. As their name implies they prefer cool temperatures. They spawn in shallow water when the temperature falls and in summer they move to deep water. These flatfish are not born flat. When they hatch they look similar to other larval fish. Within a few weeks their body changes shape becoming very thin and flat. When a winter flounder is young its left eye moves to the right side of its head. The little fish sinks to the bottom and spends the rest of its life swimming on its side, right side and two eyes up. They can change their color enabling them to hide in surrounding sediments. Unfortunately these fish have suffered widely from pollution and overfishing.

One of the top-level predators in Little Neck Bay is the **striped bass**. This silvery fish has 7-8 black stripes on its side and can grow up to 70 lbs. In the late fall the anadromous fish migrates from salt-water to fresh water streams and rivers to spawn. Most stripers found in Little Neck Bay begin their lives in the Hudson River. The bay serves as an important nursery and feeding area for striped bass.

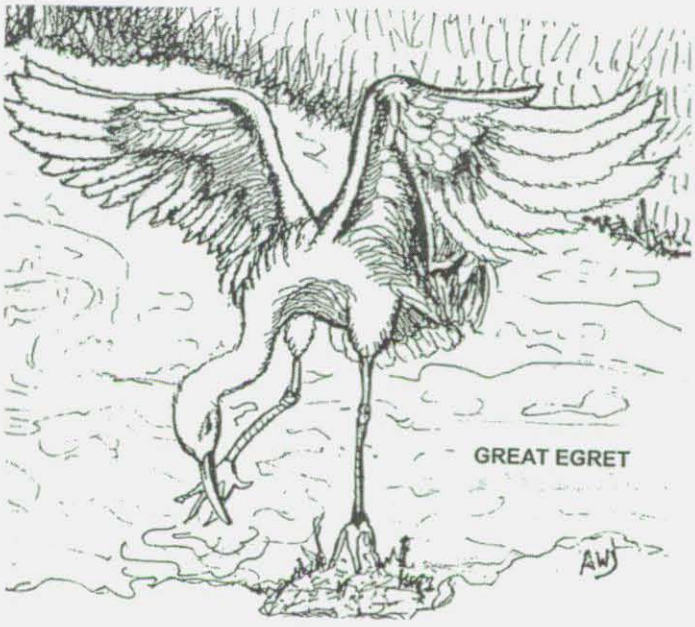


BIRDS

The birds of Little Neck Bay vary depending on the season you visit. Climate and food availability will determine the species present during specific times of year. Most birds migrate south of their breeding range for the winter and return north to breed in the summer. Little Neck Bay is one of about 5 major waterfowl wintering areas on Long Island's north shore. According to the NY State Department of State mid-winter surveys over several years show average concentrations of over 1,200 birds in the bay each year (2,564 in peak year). The most common of the winter species include **scaup, canvas back, American black duck, mallard duck, Canada goose, common goldeneye, and red-breasted merganser**. The scaup, canvas back, common goldeneye, and red-breasted merganser are all considered diving ducks, searching underwater to find their prey. These ducks will feed on small plants, fish, mollusks, and crustaceans. Diving ducks have their feet located further back on their bodies, closer to the tail, to help propel themselves underwater. They must run across the surface of the water to get enough speed for take off.

The **mallard** and **American black ducks** are dabbling ducks. These birds eat aquatic plants from either the water's surface or by upending themselves in shallow water and reaching for the bottom with their bills to grab food. Their feet are located more centrally than diving ducks, enabling them to walk on land searching for plants to eat. Dabbling ducks can also take flight directly into the air without having to run across the surface of the water.

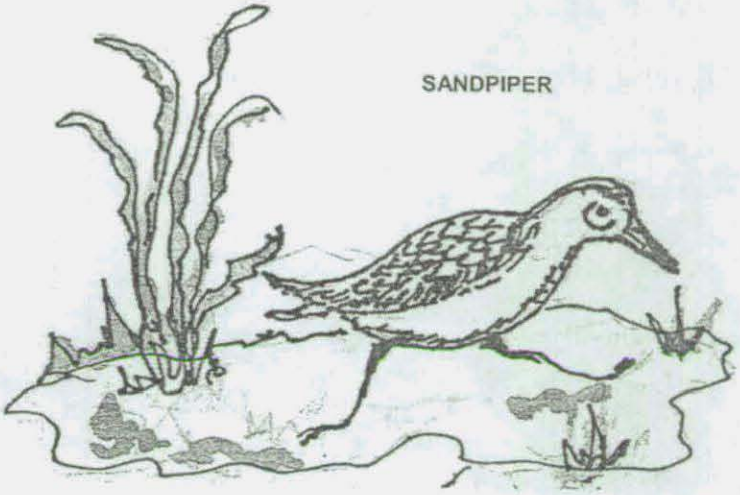
Summer is the season to see wading birds like herons, egrets, bitterns, and ibises. These birds have long legs and necks, and dagger like bills. They are usually seen standing in the mud flats and marshes during low tide stalking their prey. Their long widespread toes enable them to walk on the mud without sinking. In flight herons' and egrets' necks are kept folded like an "S". The **great blue heron** and the **great egret** are the most commonly seen. The great blue may grow up to 4 feet tall. It eats fish, crustaceans and even mice. The great egret can easily be confused with the **snowy egret**, another bird often seen in the marshes of the bay. The snowy egret has a black bill, black legs and yellow feet. The great egret has a yellow bill, black legs and black feet and is also larger. An unusual looking heron with its short legs and stocky hunched build is the **black-crowned night heron**. During the day they roost in trees and at night they hunt for eggs, chicks and dead animals to eat.



Shore birds like plovers and sandpipers are also present in the summer months. During this time of year the shore birds are traveling from their breeding ground in the Arctic North to their winter destinations in South America. They stop along the Atlantic Migratory Flyway in places like Little Neck Bay to rest and fill up on fuel. Species of these birds are some of the hardest to identify. Both plovers and sandpipers search for crustaceans, worms, and mollusks in the mud.

Plovers are wading birds, more compactly built, thicker necked than most sandpipers, with shorter pigeon like bills and larger eyes. Unlike most sandpipers, plovers run in short starts and stops. The plovers found in the wetlands and mud flats of Little Neck Bay include the **semipalmated plover, ruddy turnstone**, and **killdeer**. Sandpipers are small to medium sized wading birds with bills more slender than those of plovers. The **sanderling, dowitcher, willet, greater** and **lesser yellow legs** all occur here.

The shallow marine waters and tidal flats provide an ideal haven for several different gulls including the **Herring, ring-billed, laughing** and **great black-backed**. Gulls are exceedingly graceful birds whether soaring on air currents for long periods of time or perched on pilings contemplating the sea. They live in large clans that have a social structure all their own. These birds are well adapted to living in an urban setting. They scavenge for food from the water and shore and will eat almost anything including garbage, shellfish and young birds. They are often seen opening mussels and clams by dropping them on hard surfaces.



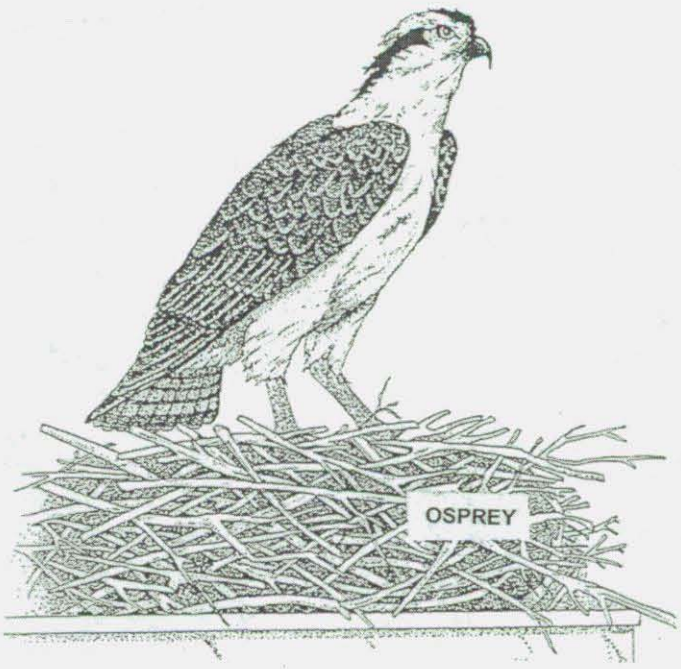
SANDPIPER

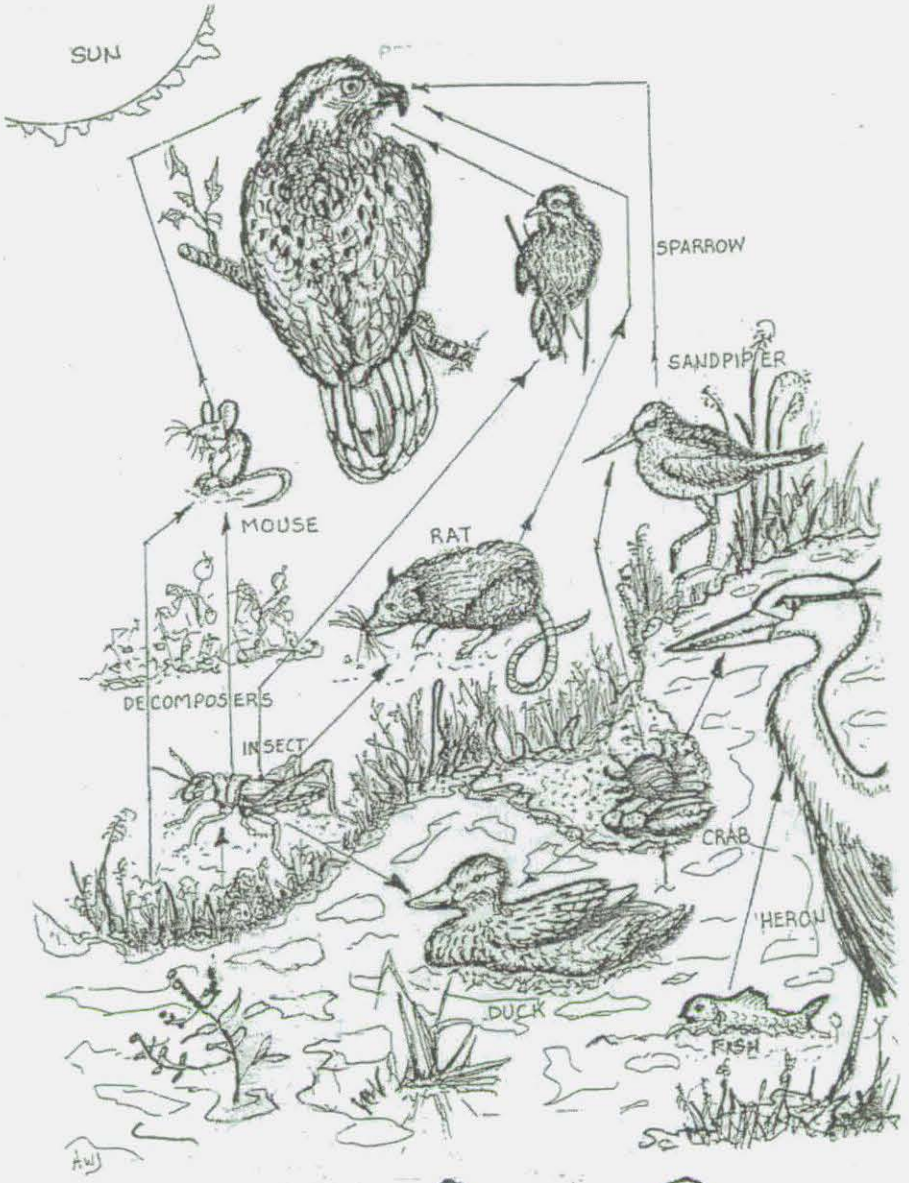
Terns are colored similarly to gulls, but are smaller, more streamlined and usually have forked tails. Their bill is kept pointed down toward the water during flight. Unlike gulls, terns hover in the air, then dive into the water for fish. Normally they do not swim. Most terns are whitish with black caps that turn white in winter. The **common and least terns** are threatened species and protected in New York State.

Double-crested cormorants are large blackish colored water birds often seen perching on docks and old pilings with their wings outstretched. Their feathers are not waterproof so they stand "spread eagle" to dry off. Cormorants eat fish. To capture their prey cormorants dive underwater from a swimming position, not from the air. They have very flexible throats and by tilting their head up they can swallow surprisingly large fish.

It is magnificent to watch the **osprey** of Little Neck Bay hunt for fish. These birds circle over the water using their keen eyesight to find fish. Once spotted the osprey will plunge feet first into the water to catch their prey. The population of these birds was once threatened by the use of DDT. As with the bald eagle the pesticide was causing the osprey's eggshell to weaken. When a female sat on her eggs to incubate, the eggs would break and there would be no offspring. Since the ban of DDT, the ospreys have made a comeback on Long Island.

These birds build large nests of coarse sticks, seaweed and other materials high up in dead trees along coastal areas. People encourage osprey to nest by erecting platforms in wetlands. In Little Neck Bay the Udalls Cove Preservation Committee with assistance from other organizations has installed two nesting platforms. The first, erected in 1997, is located in the Alley Park portion of the bay. Each year since its installation, a pair of nesting osprey have returned and raised a family. The second platform, built in 2004 is on the Udalls Cove shoreline between Douglaston and Great Neck about a mile away from the Alley Pond Park platform. The platform has been used during the last two nesting seasons.




SUN
SPARROW
SANDPIPER
MOUSE
RAT
DECOMPOSERS
INSECT
CRAB
HERON
DUCK
FISH

FOOD WEB

BIBLIOGRAPHY

Bailey, P., *The Thirteen Tribes of Long Island.* Syosset: Friends for Long Island's Heritage, 1959.

"Bloodgood H. Cutter, Farmer Post, Is Dead", Brooklyn Daily Eagle, 1906.

Brown, Joseph H., *"The Alley"*, Queens Tribune Bicentennial Supplement, 1974.

"*Captain Kirkman's Death*", Flushing Journal, 1900.

Coulombe, D.A., *The Seaside Naturalist: A Guide to Study at the Seashore.* New York: Simon & Schuster, 1984.

DiPaolo, C. and Waldman, J., *Hempstead Harbor: Its History, Ecology, and Environmental Challenges.* Sea Cliff: Coalition to Save Hempstead Harbor, 1998.

Golder, W. E., *Long Island's First Inhabitants.* 2002 6th Edition.

Greller, Andrew M., "Observations of the forest of northern Queens County, Long Island, from colonial times to the present. *Bulletin Torrey Botanical Club*, 99. 1972

Gubernick, Loys. *Little Neck Then and Now*, 1975.

Jackson, Birdsall, *Stories of Old Long Island*, New York, 1963.

James, William, *The History of Little Neck*, 1952.

Mandeville, Rev. G. Henry, *Flushing Past and Present – A Historical Sketch*, 1860.

Nieter, W. and O'keefe, B., *Life Along the Shores of Little Neck Bay.* Douglaston: Alley Pond Environmental Center.

Parker, S., *Eyewitness Books- Fish.* London: Dorling Kindersley Limited, 1990.

Redington, C.B., *Plants in Wetlands.* Dubuque: Kendall/Hunt Publishing Company, 1994.

Richardson, Catherine T. *Little Madnans Neck and the Alley*, 1947.

Riley, Lester Leake, *The Chronicle of Little Neck and Douglaston Long Island*, 1936.

Robins, C.R., Ray, G.C., Douglass, J., and Freund, R., *A Field Guide to Atlantic Coast Fishes of North America.* New York: Houghton Mifflin Company, 1986.

Stanne, S., *New York's Estuaries.* Reprinted from the New York State Conservationist, August 2003.

The Indian Archaeology of Long Island, The Nassau County Museum Educational Leaflet November 1998.

Thompson, Benjamin F., *History of Long Island*, New York, 1918

Whale, L., *Plants and Animals of Long Island Sound.* Groton: CT Sea Grant, 1990.

Van Siclen, W. Alonzo., *A Narrative History of Bayside,* 1991.