

MORE AQUATIC & TERRESTRIAL SPECIES

- 20. Blue Mussel (*Mytilus edulis*) *Mytilidae*
- 21. Ribbed Mussel (*Geukensia demissa*) *Mytilidae*
- 22. Soft-Shell Clam (*Mya arenaria*) *Myacidae*
- 23. Slipper Shell (*Crepidula fornicata*) *Calyptraea*
- 24. Bryozoa
- 25. Horseshoe Crab (*Limulus polyphemus*) *Limulidae*
- 26. Barnacles (*Balanus* sp.) *Balanidae*
- 27. Fiddler Crab (*Uca pugnax*) *Crustacea*
- 28. Grass Shrimp (*Palaemonetes pugio*) *Palaemonidae*
- 29. Northern Diamondback Terrapin (*Malaclemys l. terrapin*) *Emydidae*
- 30. Eastern Garter Snake (*Thamnophis sirtalis*) *Colubridae*
- 31. Northern Water Snake (*Natrix sipedon*) *Colubridae*
- 32. Bull Frog (*Rana catesbeiana*) *Ranidae*
- 33. Muskrat (*Ondatra zibethica*) *Cricetidae*
- 34. Sandy-Mud Worm (*Streblospio benedicti*) *Polychaeta*
- 35. Dragonfly (*Libellula* sp.) *Insecta*

BIRDS

- 36. Great Egret (*Casmerodius albus*) *Ardeidae*
- 37. Snowy Egret (*Egretta thula*) *Ardeidae*
- 38. Great Blue Heron (*Ardea herodias*) *Ardeidae*
- 39. *Black-Crowned Night Heron (*Nycticorax nycticorax*) *Ardeidae*
- 40. Great Black-backed Gull (*Larus marinus*) *Laridae*
- 41. Herring Gull (*Larus argentatus*) *Laridae*
- 42. Ring-billed Gull (*Larus delawarensis*) *Laridae*
- 43. *Common Tern (*Sterna hirundo*) *Laridae*
- 44. **Black Skimmer (*Rynchops niger*) *Rynchopidae*
- 45. Mallard (*Anas platyrhynchos*) *Anatidae*
- 46. Double Crested Cormorant (*Phalacrocorax auritus*) *Phalacrocoracidae*
- 47. *Osprey (*Pandion haliaetus*) *Pandionidae*
- 48. ***Peregrine Falcon (*Falco peregrinus*) *Falconidae*
- 49. Red-Winged Blackbird (*Agelaius phoeniceus*) *Icteridae*

PLANTS

- 50. Horsetail, common (*Equisetum arvense*) *Equisetaceae*
- 51A. Common Cattail (*Typha latifolia*) *Typhaceae*
- 51B. Narrow-Leaved Cattail (*Typha angustifolia*) *Typhaceae*
- 52. Cinnamon Fern (*Osmunda cinnamomea*) *Osmundaceae*
- 53A. Salt Meadow Grass 'Salt Hay' (*Spartina patens*)
- 53B. Salt Marsh Grass 'Smooth Cordgrass, Saltwater Cordgrass' (*Spartina alterniflora*)
- 53C. Salt Reed Grass 'Big Cordgrass' (*Spartina cynosuroides*) *Gramineae*
- 54. Pin Oak (*Quercus palustris*) *Fagaceae*
- 55. Scotch Pine (*Pinus sylvestris*) *Pinaceae*
- 56. Asiatic Dayflower 'Spiderwort' (*Commelina communis*) *Commelinaceae*
- 57. Seaside Goldenrod (*Solidago sempervirens*) *Asteraceae*
- 58. Sunflower (*Helianthus annuus*) *Asteraceae*
- 59. Black-Eyed Susan (*Rudbeckia hirta*) *Asteraceae*
- 60. Ox-Eye Daisy (*Chrysanthemum leucanthemum*) *Asteraceae*
- 61. Swamp Rose Mallow (*Hibiscus palustris*) *Malvaceae*

- * NJ Threatened Species
- ** NJ Endangered Species
- ** NY Threatened Species
- ** NY Endangered Species

AQUATIC SPECIES

- 1. Striped Bass (*Morone saxatilis*) *Moronidae*
- 2A. Bluefish (*Pomatomus saltatrix*) *Pomatomidae*
- 2B. Snappers 'Snapper Blues, Young Bluefish'
- 3. White Catfish (*Ameiurus catus*) *Ictaluridae*
- 4. White Perch (*Morone americana*) *Moronidae*
- 5. Blue Claw Crab (*Callinectes sapidus*) *Portunidae*
- 6. American Eel (*Anguilla rostrata*) *Anguillidae*
- 7. Atlantic Menhaden 'Mossbunker, Bunker' (*Brevoortia tyrannus*) *Clupeidae*
- 8. Atlantic Herring (*Clupea harengus*) *Clupeidae*
- 9A. Summer Flounder 'Fluke' (*Paralichthys dentatus*) *Paralichthyidae*
- 9B. Winter Flounder (*Pleuronectes americanus*) *Pleuronectidae*
- 10. Mummichog 'Common Killie' (*Fundulus heteroclitus*) *Cyprinodontidae*
- 11. Striped Seabrook (*Prionotus evolans*) *Triglidae*
- 12. Oyster Toadfish 'Oyster Cracker' (*Opsanus tau*) *Batrachoididae*
- 13. Carp (*Cyprinus carpio*) *Cyprinidae*
- 14. Scup 'Porgy' (*Stenotomus chrysops*) *Sparidae*
- 15. Bluegill 'Sunfish' (*Lepomis macrochirus*) *Centrarchidae*
- 16. Atlantic Silverside (*Menidia menidia*) *Atherinidae*
- 17A. Lion's Mane 'Red Jellyfish' (*Cyanea capillata*) *Cyanidae*
- 17B. Moon Jellyfish *Ulmaridae*
- 17C. Comb Jelly *Ctenophora*
- 18A. Spirogyra 'Green Algae' *Chlorophyta*
- 18B. Sea Lettuce (*Ulva lactuca*) *Ulvacaeae*
- 19. Plankton, Phytoplankton & Zooplankton

WILDLIFE OF THE NEW YORK- NEW JERSEY HARBOR ESTUARY

The NY-NJ Harbor Estuary is a highly urbanized area that is also home to a wide variety of animal and plant species. A number of these appear on the States' threatened or endangered species lists. This brochure, which is a companion piece to the Wildlife of the Harbor Estuary poster, is designed to identify and provide some basic information about the species illustrated. The objective of the poster is to create an awareness of the rich natural resources that can be found within the Harbor Estuary.

The core area of the Harbor Estuary includes the bi-state waters of the Hudson River, Upper and Lower New York Bays, Arthur Kill, Kill van Kull, and Raritan Bay. In New York, the area includes the East, Harlem, and Bronx Rivers and Jamaica Bay. In New Jersey, it includes the Hackensack, Passaic, Raritan, Shrewsbury, Navesink, and Rahway Rivers as well as Newark and Sandy Hook Bays.

FISH CONSUMPTION ADVISORIES

The States of New York and New Jersey issue advisories to the public on safe consumption practices for recreationally-caught fish. The advisories are issued due to the elevated levels of chemicals that may be found in certain species. Some individuals, such as pregnant women and children under the age of 15, may be at higher risk from the effects of eating contaminated fish.

In NEW JERSEY, the species under consumption advisories are Blue Claw Crab, Striped Bass American Eel, Bluefish, White Catfish and White Perch. Do not eat any of these species out of the waters listed above until you know the advisory for your specific area and population (general or high risk). In addition, there is a ban on the taking or harvesting of Blue Claw Crab from the Newark Bay Complex.

The New Jersey Department of Environmental Protection (NJDEP) and New Jersey Department of Health and Senior Services (NJDHSS) can provide more information on the advisories and the health effects of chemical contaminants in the fish. To stay current with advisory updates and to request additional information:

- ✓ Call the NJDEP toll free at 1-866-DEP-KNOW or 609-984-6070, or visit www.state.nj.us/dep/dsr/njmainfish.htm.
- ✓ Call the NJDHSS at 609-588-3123 or visit www.state.nj.us/health/eoh/foodweb.

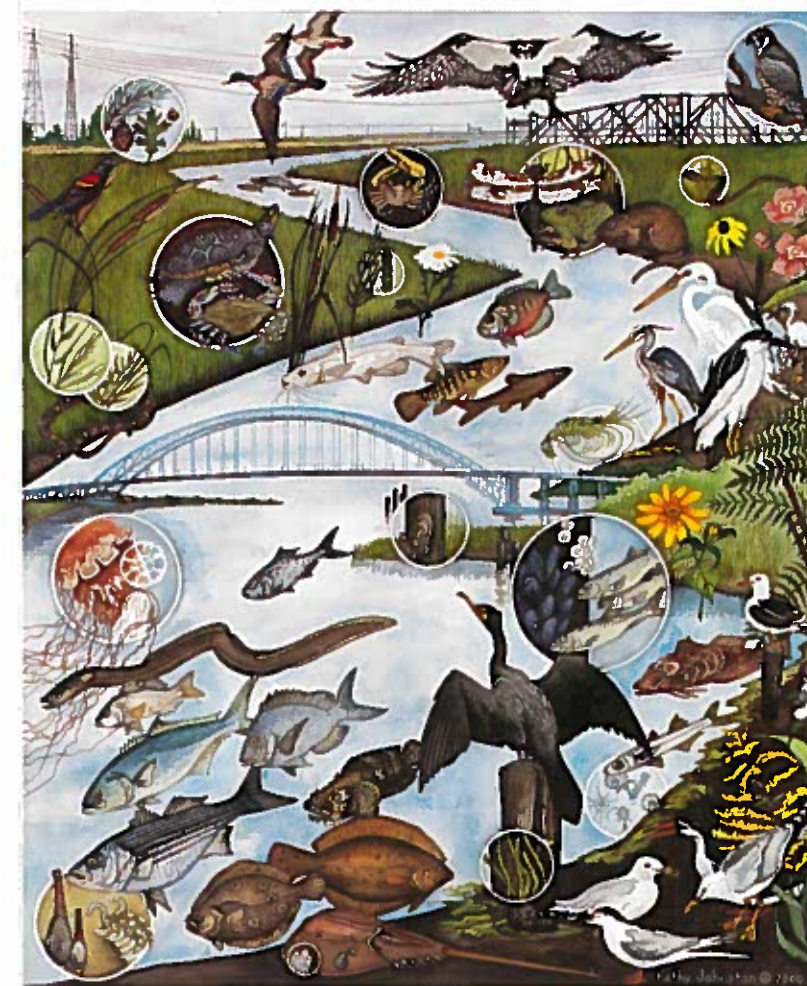
In NEW YORK, the species under consumption advisories are Blue Claw Crab, Striped Bass American Eel, Bluefish, White Catfish, White Perch, Atlantic Needlefish and Rainbow Smelt. Do not eat any of these species out of the waters listed above until you know the advisory for your specific area and population (general or high risk). In addition, it is advised that individuals not eat more than one meal per week of other fish species caught in the waters listed above.

The New York State Department of Health (NYSDOH) can provide more information on the advisories and the health effects of chemical contaminants in the fish. To stay current with advisory updates and to request additional information:

- ✓ Call the NYSDOH at 800-458-1158 ext. 27815
- ✓ Visit www.health.state.ny.us/nysdoh/fish/fish.htm.

ABOUT THE ARTIST

Raised in Southern New Jersey, Kathy Johnston was never at a loss for nature's beauty or scenery to paint. Salt marshes, old buildings, fishing boats and historical sites were among her favorite subjects. Recreational scuba diving, kayaking, mountain biking and hiking have offered opportunities for inspiration from which Kathy often paints. Now relocated in Malvern, Pennsylvania, Kathy searches for new students, new scenery and new inspiration to share her enthusiasm for the arts. Artistic affiliations include Young Audiences, Rutgers University, the Atlantic City Ocean Life Center, the Artificial Reef Association, and New Jersey Outdoors Magazine. This self-taught artist has developed skills that have received many awards and much recognition. Kathy's paintings and prints can be found in New York, Texas, the Virgin Islands, Australia and the East Coast from Maine to the Florida Keys. Her respect for the marine environment and its inhabitants is always apparent in her paintings and lifestyle. Kathy Johnston can be reached at Custom Artwork, 472 E. King Street, Unit B, Malvern, Pennsylvania 19355.



WILDLIFE

of the
New York - New Jersey
Harbor Estuary



New York - New Jersey
Harbor Estuary Program

AQUATIC SPECIES

If you encounter anglers in the Harbor Estuary, chances are they are trying to catch **Striped Bass** (1). Striped Bass commonly reach 30 lbs., but can be 50, 60, or even 70 lbs or more. They are anadromous, spending most of their adult lives in the open ocean and returning to their native river to spawn. The Hudson River stock is one of the most important populations on the East Coast. Another important recreationally-caught fish, **Bluefish** (2A), spawn off the coast from June to August. The Harbor Estuary is an important nursery ground for Bluefish juveniles, known as **Snappers** (2B), which average less than 10 inches. Maturity is reached in 2 years at about 14 inches. These voracious fish prey heavily on other fish like Menhaden and Silversides. **White Catfish** (3) have feelers extending from both jaws, giving them whisker-like features. If you want to catch a catfish you'll find them at the bottom of the freshwater portions of the Harbor. **White Perch** (4), another sought after fish, spawns in the spring, when the female deposits a long string of eggs in shallow waters of the estuary.

Undoubtedly one of the most popular catches, not only in the Harbor Estuary, but in much of the Mid-Atlantic region, is **Blue Claw Crab** (5), which is olive on top, with a deep blue stripe down the middle of its claws. Although they can swim to catch prey, they are generally bottom feeders. They prefer sandy bottoms where they hide from predators and burrow to overwinter. Blue Crabs reach maturity in 12-18 months, but most do not live beyond 2 years. The crab can grow up to 9 inches wide, and is always half as long as it is wide. The most unusual species on the poster may be the **American Eel** (6), which swims against the tide, to turn a phrase, it lives in fresh or brackish water, but returns to the open ocean to spawn. Migration and reproduction of eels remained a mystery until the 20th century when their spawning grounds were discovered in the Sargasso Sea (between Bermuda & Puerto Rico). Species 1-6 are all different, however they do have something very important in common; they are all listed in NY and NJ's Fish Consumption Advisories.

Atlantic Menhaden (7), a.k.a. Bunker or Mossbunker, travel in large schools along the coast. The fish, which is rich in oil, is caught in large quantities and is used for bait and animal feed. In 1997, refined Menhaden fish oil was FDA approved for general use in foods for human consumption. **Atlantic Herring** (8) swim near the water's surface in huge schools, feeding on plankton. As with trees, scientists can determine the age of a Herring by counting the rings on their scales. **Summer Flounder** (9A) and **Winter Flounder** (9B) are bottom-dwelling flat fish. These fish look similar, however, there is one sure way to tell them apart; it's in the eyes. Summer Flounder, also called Fluke, have both eyes on the left side of their body. Winter Flounder, the smaller of the two fish, have both eyes on the right side. **Mummichog** (10) also called Killie, is most commonly used for bait. In fact, one can find Killie traps within the Harbor Estuary just waiting to fill up with what will soon be dinner for larger fish.

Do you think fish can't talk? Think again; if you catch the bottom dwelling **Striped Searobin** (11) don't be surprised to hear it grunt, a sound produced by its swim bladder. While it may not win a Grammy (or a beauty contest for that matter) the **Oyster Toadfish** (12) also produces a croaking noise. This large headed fish can live out of the water for several hours! It is also called Oyster Cracker because of its huge, strong mouth. **Carp** (13) is a freshwater fish that can be found swimming in the upper rivers of the Harbor Estuary. They prefer shallow, warmer, fresh waters and in winter they stop feeding and stay near the bottom. The **Scup** (14), aka Porgy, is a popular fish. This carnivorous fish may look small, but it is a strong fighter for it's size. **Bluegill** (15) another freshwater fish, is also commonly known as a Sunfish. During spawning, the male Bluegill will build a shallow nest and guard the eggs until they hatch. The **Atlantic Silverside** (16) another important bait fish, is usually found in salt marshes and estuaries, in less than 10 feet of water. These schooling fish are an important link in the food chain of the Harbor Estuary ecosystem. They consume many smaller fish and are then eaten by larger fish of both commercial and recreational importance. You will find the mesmerizing **Lion's Mane Jellyfish** (17A) moving by means of a slow-motion jet propulsion. Also known as the Red Jellyfish, its graceful dance can rival the most prima ballerina. Along with the **Lion's Mane** are the **Moon Jellyfish** (17B) and the **Comb Jelly** (17C). Both are translucent, but in fact are not true jellyfish since they do not sting and are pushed primarily by currents.

Algae (18A & B), simple plant-like organisms, are the foundation of most aquatic food webs. One of the most important photosynthesizing organisms on earth, algae capture more of the sun's energy and produce more oxygen than all plants combined. Green Algae or **Spirogyra** (18A) are microscopic algae. In contrast, **Sea Lettuce** (18B) or Ulva, considered seaweed, is the

largest algae. Sea Lettuce is a translucent bright green and can grow up to 3 feet long. It provides food and shelter for marine animals. **Plankton** (19), the smallest organisms shown on the poster, are microscopic open-water plants, animals or bacteria. Plankton can be divided into Phytoplankton (plants) and Zooplankton (animals), which are dinner for some of the smaller inhabitants of the Harbor Estuary.

MORE AQUATIC & TERRESTRIAL SPECIES

The **Blue Mussel** (20), violet-blue with a shiny blue-black outer covering, brings color to the often dark and dreary pilings found along the Harbor's waterfront. This common sea mussel, found attached to rocks on the shores of America and Europe, is widely used as food and bait. The **Ribbed Mussel** (21), identified by its ridges, can be found growing in clumps in the marshes of the Harbor Estuary. The **Soft-Shell Clam** (22), aka Steamer, is generally found in muddy sand. When disturbed it ejects a spurt of water and withdraws to safer depths by means of a hatchet-shaped muscular foot. The wavy, irregular shaped **Slipper Shell** (23) and **Bryozoan** (24) also called "moss animals" [aquatic organisms living in colonies of interconnected individuals] are often found attached to the **Horseshoe Crab** (25). The Horseshoe Crab, more closely related to spiders than crabs, has remained literally unchanged for more than 300 million years. In late spring, females lay eggs on the sandy beaches of the estuary. The population of this timid creature is threatened because of its value as bait for conch and eel traps. However, there is an important factor that may help save one of the oldest living creatures on our planet; the serum from the live horseshoe crab is the world's only known source of a compound used in hospitals around the world to test for purity in drugs, vaccines and intravenous drips.

At first glance, **Barnacles** (26) resemble mollusks, but they are actually crustaceans. Their planktonic larvae are free-swimming, but as adults they are always attached to objects such as rocks, piling, ship bottoms. During this stage, the barnacle lives in a tiny igloo-like structure, kicking food into its mouth with its feet. Hundreds of **Fiddler Crabs** (27) can be found on mud flats and in low salt marshes throughout the estuary during low tide. The male Fiddler Crab has one large front claw, so large it is up to half its body weight. The claw is used to court females and define territory. If the male loses this claw, the smaller claw enlarges and a new small claw regenerates in place of the one lost.

Grass Shrimp (28) can get only as large as 2 inches. This nearly transparent to brown colored shrimp may be inedible for humans, but is a feast for many inhabitants of the Harbor Estuary. Take a canoe ride through any salt marsh creek in the Harbor Estuary at low tide and you will almost certainly see the **Northern Diamondback Terrapin** (29), the only estuarine turtle, sunning itself on a mudflat. The Northern Diamondback is in peril because bulkheading and coastal development destroy nesting sites, and cars run them over when they emerge onto causeways to lay eggs. The sex of the hatchlings is determined by the temperature at which the eggs are incubated. Those nearer the surface, thus experiencing greater warmth, are more likely to become female. **Eastern Garter Snake** (30) can grow to about one meter long. This slender snake lives close to water, feeding on amphibians, insects, small mammals, and birds. The Garter Snake can vary in its appearance, but is usually olive, grey, or brown. The **Northern Water Snake** (31) is about the same size as the Garter and can be almost any color from light grey to dark brown. This heavy-bodied snake can be found in swamps and marshes, feeding on fish and amphibians.

Visit any marsh or pond in the estuary and you may find (and hear) the largest frog in the United States, the **Bullfrog** (32), which has a distinct deep-throated call of "Jug-a-rump." This carnivorous amphibian's hind legs, which are longer than its body, are considered a delicacy. The **Muskrat** (33) is very abundant throughout the Harbor Estuary. This semi-aquatic rodent has a long tail, which it uses as a rudder when swimming. The Muskrat eats water plants, invertebrates, and sometimes fish. The **Sandy Mud Worm** (34) can be found burrowing in tidal flats and is an important forage base for many fish and wading birds. The largest known **Dragonfly** (35), with a wingspan of 29 inches, lived more than 270 million years ago. While you are unlikely to see one quite that large in the estuary, these interesting insects, known for their territorial behavior, can be observed munching on mosquitoes and other small flying insects.

BIRDS

It is easy to see a heron or egret along the waterways of the Harbor Estuary, especially in areas of extensive mudflats, tidal marshes and shallow pools. **Great Egrets** (36) are the largest of the white, long-legged wading birds. Often they are seen walking slowly through shallow water, ready to stab at prey with their large yellow bills. The smaller **Snowy Egret** (37) eats fish and amphibians. When seen out of the water it can be recognized by its yellow feet or "golden slippers." **Great Blue Herons** (38) are the largest of the wading birds, appearing almost gray from a distance. The Great Blue Heron was once listed as a threatened species in New Jersey, meaning it had the potential to become endangered if conditions such as habitat, disease, or contamination were not improved. It was removed from the list in 1999, wonderful news for New Jersey and of course for the Great Blue Heron.

Not easily seen is the medium-sized **Black-Crowned Night Heron** (39). It rests during the day by hiding in the cattails and reeds, but at dusk it becomes active. Like other wading birds, it will walk slowly along the banks of the marshes, patiently waiting to strike out at fish, crabs and other aquatic creatures to eat. Unlike the Great Blue Heron, the Black-Crowned Night Heron is still included on the threatened species list in New Jersey.

It is difficult to visit the Harbor without crossing paths with a gull. Termed "seagulls," there are many types of gull that visit the estuary during migration and the winter months. The largest of these is the **Great Black-Backed Gull** (40), easily recognized by its black wings that contrast with a striking white head. Also common is the slightly smaller **Herring Gull** (41) with gray wings and a red dot on its yellow bill. Smaller yet is the **Ring-Billed Gull** (42), aptly named for the black ring around its bill. All of these birds are opportunistic feeders; they will scavenge along the water's edge, find food in refuse piles and even steal food from other birds.

Similar to a gull to the casual observer, but vastly different in habit, is the **Common Tern** (43). This buoyant flier can be seen hovering above the water's surface, eyeing the fish below. When it feels that it can grab a good meal, the tern will dive straight down, headfirst into the water. This differs dramatically from the feeding strategy of the **Black Skimmer** (44), which flies just above the water's surface, dipping its bill into the water as it flies. As soon as the Skimmer's bill encounters a fish, the bill snaps shut with its prey. The Black Skimmer is listed as endangered in New Jersey, which means their prospects of survival are in immediate danger, and assistance is needed to prevent extinction. In New York, the Black Skimmer is listed as a species of special concern, which means that the species is not yet recognized as endangered or threatened, but there is documented concern for its welfare.

Floating on the surface of the water could be a **Mallard** (45). Traveling in pairs, these common dabbling ducks feed on aquatic vegetation and often can be seen with their tails in the air as they try to reach plants growing just under the water's surface. Diving nearby one might see the **Double-Crested Cormorant** (46), a duck-like bird with a long neck. They eat primarily fish and will dive under the surface and swim underwater to find food. If you find yourself along the water's edge watching this bird in action, you will soon discover why the Cormorant may be considered the most successful angler in the Harbor Estuary.

The **Osprey** (47) has made an incredible comeback from being on the brink of extinction, although it is still listed as threatened in New Jersey and a species of special concern in New York. This large bird of prey, with its striking black, brown, and white markings, can be seen gliding over the estuary's large waterways. Ospreys feed primarily on live fish, which they grab from the water with their long hooked talons. Also increasing in population are **Peregrine Falcons** (48), with several pairs nesting on bridges and buildings in the Harbor Estuary region. These fast flying, powerful birds feed primarily on other birds such as pigeons, waterfowl and shorebirds. Improved prospects for the survival of the Peregrine Falcon lead to its removal from the Federal list of endangered species in 1999. However, it is still listed as endangered in both New York and New Jersey.

The estuary's marshes are filled with many songbirds, the most common being the **Red-Winged Blackbird** (49). Singing from atop a reed stalk, this bird proclaims its territory to others of its species with the loud "kon-ka-reel!"

PLANTS

Horsetail (50), a medium-height perennial herb, can be found in both brackish and freshwater marshes throughout the Harbor Estuary. Common Horsetail, growing to about 1 foot, has hollow green stems and minute dark brown, pointed scale-like leaves. **Common Cattail** (51A) and **Narrow-Leaved Cattail** (51B) are home during the day for the Black-Crowned Night Heron. These tall perennial herbs have long flat leaves with flowers in dense, cylindrical terminal spikes. The Common or Broad-Leaved Cattail grows 5-9 feet high, with simple elongate leaves up to 1 inch wide. Its terminal spike is composed of two parts, the male flower spike above and contiguous with the female spike. Narrow-Leaved Cattail, most commonly found in tidal marshes, can be distinguished from its counterpart by the separation between the male and female parts of the flower. Also, as its name implies, the leaves are narrow, getting up to only 1/2 inch wide. The graceful, delicate leaves of the **Cinnamon Fern** (52) are found in forested wetlands and along stream banks. This fern grows up to 5 feet tall and is often seen with cinnamon-colored woolly stalks. The Cinnamon Fern also grows in Canada, Europe, and the tropics.

A predominant plant found throughout the wetland areas of the Harbor Estuary is commonly referred to as *Spartina*. Often mistaken for the same plant, many varieties of this hollow-stemmed grass exist. The poster contains three species: Salt Meadow Grass, Salt Marsh Grass, and Salt Reed Grass. **Salt Meadow Grass** (53A), also called Salt Hay, is low to medium height (1-3 feet tall) and is found in irregularly flooded salt and brackish marshes; **Salt Marsh Grass** (53B) is usually the only species of *Spartina* found in the regularly flooded low marsh zone of salt and brackish marshes. Salt Marsh Grass, also called Smooth Cordgrass or Saltwater Cordgrass, grows 1 to 8 feet tall. **Salt Reed Grass** (53C) can be found in irregularly flooded salt, brackish, and tidal fresh marshes. Also known as Big Cordgrass, this plant stands 3' to 10 feet tall and has an open terminal inflorescence composed of 20-50 crowded spikes.

The moderate to fast growing **Pin Oak** (54) can be found bordering swamps. This broad-leaved deciduous tree has a growth pattern unlike most oaks, a continuous central trunk with scaly, ridged bark and slender, short lateral branches. The dark gray to brown Pin Oak, with light brown acorns, can be found up to 110 feet tall. **Scotch Pine** (55), often used as Christmas trees, is the most widely distributed pine in the world. The Scotch Pine, with its oblong cones and dark bluish green leaves, is not native to New York and New Jersey, but has been naturalized in parts of New England, Sandy Hook, the Pinelands, and can be found along the rivers of the Harbor Estuary.

Birds are not the only ones that contribute to the amazing colors of the Harbor Estuary; from spring through fall all sorts of flowering plants dot the landscape. **Asiatic Dayflower** (56), sometimes called Spiderwort, can be found in many varieties of colors. These colorful flowers unfortunately last a short time, as their name suggests. By contrast, between August and October, the graceful clusters of the deep yellow flowers and green foliage of **Seaside Goldenrod** (57) seem to go on forever. This perennial, 3 to 4 feet in height, is found in irregularly flooded salt, brackish, and tidal marshes of the Harbor Estuary, in addition to sand dunes and beaches. One of the most striking flowers is the short-lived **Sunflower** (58). This burst of yellow energy is an important source of vegetable oils for humans. Blooming from July through frost is the **Black-Eyed Susan** (59). The dark brown disk surrounded by deep golden yellow rays seems to light up the landscape. **Ox-Eye Daisy** (60), with the appearance of what would be considered the common daisy, can be found cheering up the Harbor Estuary. Growing along non-tidal and brackish marshes is the **Swamp Rose Mallow** (61), with its huge saucer-shaped blooms. This beautiful perennial can grow as tall as 7 feet. The flower, which is 4-6 inches, has white or rose colored petals with deep purple or red centers.



This brochure was adapted from *Wildlife of the Harbor Estuary's Newark Bay Complex* originally produced by NJDEP as part of an outreach effort to Newark Bay anglers and residents of the Complex.



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