

APPENDIX C

**LISTS OF WILDLIFE SPECIES KNOWN OR LIKELY TO
OCCUR IN STUDY AREA**

Table C-1. Invertebrates Species Collected in Marine Offshore Habitats During Trawl Surveys

Scientific Name	Common Name
<i>Aurelia aurita</i> *	Moon jelly
<i>Arctica islandica</i> *	Ocean quahog
<i>Asteroidea</i> spp.*	Sea star species
<i>Callinectes sapidus</i> *	Blue crab
<i>Cancer borealis</i> *	Jonah crab
<i>Cancer irroratus</i> *	Rock crab
<i>Caprella</i> spp.*	Skeleton shrimp species
<i>Crangon septemspinosa</i> *	Sand shrimp
<i>Cyanea capillata</i> *	Lion's mane
<i>Echinarachinus parma</i> *	Sand dollar
<i>Ensis directus</i>	Razor clam
<i>Hippolyte</i> spp.*	Grass shrimp species
<i>Homarus americanus</i> *	Northern lobster
<i>Ilex illecebrosus</i> *	Short-finned squid
<i>Ilyassoma obsoleta</i>	Eastern mud snail
Isopoda	Isopods
<i>Libinia emarginata</i> *	Spider crab
<i>Limulus polyphemus</i> *	Horseshoe crab
<i>Littorina obtusata</i>	Smooth periwinkle
<i>Loligo pealeii</i> *	Long-finned squid
<i>Lunatia heros</i>	Northern Moon Snail
<i>Mnemiopsis leidyi</i> *	Comb jelly
<i>Mytilus edulis</i>	Blue mussel
<i>Ovalipes ocellatus</i> *	Lady crab
<i>Pagurus</i> spp.*	Hermit Crab species
<i>Paleomonetes vulgaris</i> *	Shore shrimp
<i>Pandalus borealis</i> *	Boreal red shrimp
<i>Panopeus herbstii</i> *	Mud crab
<i>Polydora</i> spp.	Mud worm species
<i>Porifera</i> spp.	Yellow sponge species
<i>Sepioteuthis sepioidea</i> *	Caribbean reef squid
<i>Spisula solidissima</i> *	Surf clam
<i>Squilla empusa</i> *	Mantis shrimp

* FIMP Conceptual Model indicator invertebrate species for marine offshore habitat
Source: USACE 2008a

Table C-2. Historic Domestic Commercial, Recreational, and Foreign Finfish Species for Landings in the North and Middle Atlantic Regions, Including the New York Bight

Scientific Name	Common Name
<i>Acipenser oxyrinchus oxyrinchus</i>	Atlantic sturgeon ¹
<i>Alosa aestivalis</i> *	Blueback herring
<i>Alosa mediocris</i>	Hickory shad
<i>Alosa pseudoharengus</i> *	Alewife
<i>Alosa sapidissima</i> *	American shad
<i>Aluterus schoepfii</i>	Orange filefish
<i>Ammodytes americanus</i> *	American sandlace
<i>Anchoa hepsetus</i>	Striped anchovy
<i>Anchoa mitchilli</i>	Bay anchovy
<i>Anguilla rostrata</i>	American eel
<i>Apeltes quadracus</i>	Fourspine stickleback
<i>Balistes capriscus</i>	Gray triggerfish
<i>Brevoortia tyrannus</i>	Atlantic menhaden
Carangidae sp.	Scad species
<i>Centropristis striata</i>	Black sea bass
<i>Citharichthys arctifrons</i>	Gulf stream flounder
<i>Clupea harengus harengus</i> *	Atlantic herring
Clupeidae sp.*	Herring species
<i>Conger oceanicus</i>	Conger eel
Cottidae sp.	Sculpin
<i>Cynoscion regalis</i>	Common weakfish
<i>Dasyatis centroura</i>	Roughtail stingray
<i>Decapterus punctatus</i> *	Round scad
<i>Enchelyopus cimbrius</i>	Fourbeard rockling
<i>Epinephelus niveatus</i>	Snowy grouper
<i>Etropus microstomus</i>	Smallmouth flounder
<i>Etrumeus teres</i>	Round herring
<i>Fistularia petimba</i>	Red cornetfish
<i>Fistularia tabacaria</i>	Bluespotted cornetfish
Gadidae sp.*	Hake species
<i>Gadus morhua</i>	Atlantic cod
<i>Gasterosteus aculeatus aculeatus</i>	Threespine stickleback
Gobiidae sp.	Gobiidae species
<i>Hemitripeterus americanus</i>	Sea raven
<i>Heteropriacanthus cruentatus</i>	Glasseye snapper
<i>Hippocampus erectus</i>	Lined seahores
<i>Hippoglossina oblonga</i>	American fourspot flounder
<i>Icelus bicornis</i>	Twohorn sculpin
<i>Leiostomus xanthurus</i>	Spot croaker
<i>Lepidopus caudatus</i>	Ribbonfish

Scientific Name	Common Name
<i>Leucoraja erinacea</i> *	Little skate
<i>Leucoraja ocellata</i> *	Winter skate
<i>Limanda ferruginea</i>	Yellowtail flounder
<i>Liparis inquilinus</i>	Inquiline snailfish
<i>Liparis</i> sp.	Seasnail species
<i>Lophius americanus</i> *	Goosefish
<i>Lopholatilus chamaeleonticeps</i>	Golden tilefish
<i>Melanogrammus aeglefinus</i>	Haddock
<i>Menidia menidia</i>	Atlantic silverside
<i>Menticirrhus saxatilis</i>	Northern kingfish
<i>Merluccius bilinearis</i> *	Silver hake
<i>Micropogonias undulatus</i>	Atlantic croaker
<i>Morone americana</i>	White perch
<i>Morone saxatilis</i> *	Striped bass
<i>Mullus auratus</i>	Red goatfish
<i>Mustelus canis</i>	Smooth dogfish
<i>Myoxocephalus aeneus</i>	Grubby sculpin
<i>Ophidion marginatum</i>	Striped cusk-eel
<i>Opsanus tau</i>	Oyster toadfish
<i>Ostracion cubicus</i>	Yellow boxfish
<i>Paralichthys dentatus</i> *	Summer flounder
<i>Peprilus triacanthus</i> *	Atlantic butterfish
<i>Petromyzon marinus</i>	Sea lamprey
<i>Pholis gunnellus</i>	Rock gunnel
<i>Pollachius virens</i>	Pollock
<i>Pomatomus saltatrix</i> *	Bluefish
<i>Prionotus carolinus</i>	Northern searobin
<i>Prionotus evolans</i>	Striped searobin
<i>Pristigenys alta</i>	Short bigeye
<i>Pseudopleuronectes americanus</i> *	Winter flounder
<i>Raja eglanteria</i> *	Clearnose skate
<i>Sarda sarda</i>	Atlantic bonito
<i>Scomber scombrus</i> *	Atlantic mackerel
<i>Scophthalmus aquosus</i> *	Windowpane
<i>Selar crymenophthalmus</i>	Bigeye scad
<i>Selene setapinnis</i>	Atlantic moonfish
<i>Selene vomer</i>	Lookdown
<i>Serranida</i> sp.	Groupers
<i>Sphoeroides maculatus</i>	Northern puffer
<i>Sphyraena borealis</i>	Northern sennet
<i>Squalus acanthias</i>	Spiny dogfish
<i>Stenotomus chrysops</i> *	Scup
<i>Stephanolepis setifer</i>	Pygmy filefish

Scientific Name	Common Name
<i>Symphurus plagiusa</i>	Blackcheek tonguefish
<i>Syngnathus fuscus</i>	Northern pipefish
<i>Synodus foetens</i>	Inshore lizardfish
<i>Tautoga onitis</i> *	Tautog
<i>Tautoglabrus adspersus</i>	Cunner
<i>Thunnus thynnus</i>	Atlantic bluefin tuna
<i>Torpedo nobiliana</i>	Atlantic torpedo
<i>Tracharus lathami</i> *	Rough scad
Trachipteridae sp.	Ribbonfish species
<i>Trigloporus quadricornis</i>	Fourhorn sculpin
<i>Upeneus parvus</i>	Dwarf goatfish
<i>Urophycis chuss</i> *	Red hake
<i>Urophycis regia</i> *	Spotted hake
<i>Urophycis tenuis</i> *	White hake
<i>Xiphias gladius</i>	Swordfish
<i>Zoarces americanus</i>	Ocean pout

* FIMP Conceptual Model indicator finfish species for marine offshore habitat

Source: NOAA 1977 and USACE 2008a

¹Federal or state-listed threatened or endangered species, or species with special protection status.

Table C-3. Avian Use of Marine Beach and Dunes and Swales Habitats

Common Name	Scientific Name	Primary Use
Black-bellied Plover	<i>Pluvialis squatarola</i>	Foraging during winter and migration
American Golden Plover ¹	<i>Pluvialis dominica</i>	Foraging during migration
Semipalmated Plover	<i>Charadrius semipalmatus</i>	Foraging during migration
Piping Plover ³	<i>Charadrius melodus</i>	Foraging, breeding, nesting in summer
Killdeer	<i>Charadrius vociferus</i>	Foraging, breeding, nesting in summer
American Oystercatcher ²	<i>Haematopus palliatus</i>	Foraging, breeding, nesting in summer
Greater Yellowlegs	<i>Tringa melanoleuca</i>	Foraging during winter and migration
Lesser Yellowlegs ²	<i>Tringa flavipes</i>	Foraging during migration
Solitary Sandpiper ²	<i>Tringa solitaria</i>	Foraging during migration
Spotted Sandpiper	<i>Actitis macularia</i>	Foraging in summer
Willet	<i>Catoptrophorus semipalmatus</i>	Foraging in summer
Whimbrel	<i>Nemenius phaeopus</i>	Foraging during migration
Ruddy Turnstone	<i>Arenaria interpres</i>	Foraging during winter and migration
Rufa Red Knot ^{2,3}	<i>Calidris canutus rufa</i>	Foraging during winter and migration
Hudsonian Godwit ¹²	<i>Limosa haemastica</i>	Foraging during migration
Marbled Godwit ¹	<i>Limosa fedoa</i>	Foraging during migration
Sanderling	<i>Calidris alba</i>	Foraging during winter and migration
Semipalmated Sandpiper ²	<i>Calidris pusilla</i>	Foraging during migration
Western Sandpiper	<i>Calidris mauri</i>	Foraging during migration
Least Sandpiper	<i>Calidris minutilla</i>	Foraging during migration
White-rumped Sandpiper ¹	<i>Calidris fuscicollis</i>	Foraging during migration
Pectoral Sandpiper ¹	<i>Calidris melanotos</i>	Foraging during migration
Purple Sandpiper ¹²	<i>Calidris maritima</i>	Foraging during winter and migration
Dunlin	<i>Calidris alpina</i>	Foraging during winter and migration
Stilt Sandpiper ¹	<i>Micropalama himantopus</i>	Foraging during migration
Short-billed Dowitcher ¹²	<i>Limnodromus griseus</i>	Foraging during migration
Long-billed Dowitcher ¹	<i>Limnodromus scolopaceus</i>	Winter foraging (rare occurrence)
Long-billed Curlew	<i>Nemenius americanus</i>	Winter foraging (rare occurrence)
Laughing Gull ¹	<i>Larus atricilla</i>	Summer foraging
Herring Gull	<i>Larus argentatus</i>	Year round foraging
Iceland Gull ¹	<i>Larus glaucoides</i>	Winter foraging (rare occurrence)
Lesser Black-backed Gull ¹	<i>Larus fuscus</i>	Winter foraging (rare occurrence)
Glaucous Gull ¹	<i>Larus hyperboreus</i>	Winter foraging (rare occurrence)
Great Black-backed Gull	<i>Larus marinus</i>	Year round foraging
Caspian Tern ¹	<i>Sterna caspia</i>	Foraging during migration
Royal Tern ¹	<i>Sterna maxima</i>	Foraging, breeding, nesting
Roseate Tern ³	<i>Sterna dougallii</i>	Foraging, breeding, nesting
Common Tern ³	<i>Sterna hirundo</i>	Foraging, breeding, nesting

Common Name	Scientific Name	Primary Use
Forster's Tern ³	<i>Sterna forsteri</i>	Foraging, breeding, nesting
Least Tern ^{2,3}	<i>Sterna albifrons</i>	Foraging, breeding, nesting
Black Skimmer ²	<i>Rynchops niger</i>	Foraging, breeding, nesting
Black-legged Kittiwake ¹	<i>Rissa tridactyla</i>	Winter foraging (rare occurrence)
Ring-billed Gull	<i>Larus delawarensis</i>	Foraging during winter and migration
Black-headed Gull ¹	<i>Larus ridibundus</i>	Winter foraging (rare occurrence)
Bonaparte's Gull	<i>Larus philadelphia</i>	Foraging during winter and migration
Little Gull ¹	<i>Larus minutus</i>	Foraging during winter and migration
Horned Lark	<i>Eremophila alpestris</i>	Foraging, breeding, nesting

¹ Species is likely to depend on beach/dune communities on Fire Island, but not documented during USACE avian surveys (USACE 2003a).

² Species listed as Bird of Conservation Concern (USFWS, December 2008)

³Federal or state-listed threatened or endangered species, or species with special protection status.

**Table C-4. Primary Habitat Associations of Common Mammal Species
In Study Area**

Species	Common Name	Marine Beach	Dunes and Swales	Terrestrial/Mainland Uplands	Bayside Beach	Salt Marsh
<i>Didelphis marsupialis</i>	Opossum		X	X		X
<i>Mus musculus</i>	House mouse	X	X	X	X	X
<i>Microtus pennsylvanicus</i>	Meadow vole		X			<u>X</u>
<i>Microtus pinetorum</i>	Woodland vole			X		
<i>Myotis lucifugus</i>	Little brown bat		X	X	X	X
<i>Odocoileus virginianus</i>	White-tailed deer		X	X	X	
<i>Ondatra zibethica</i>	Muskrat		X	X		<u>X</u>
<i>Peromyscus leucopus</i>	White-footed mouse	X	X	X	X	X
<i>Procyon lotor</i>	Raccoon		X	X		X
<i>Rattus norvegicus</i>	Norway rat		X	X		
<i>Sciurus carolinensis</i>	Gray squirrel			X		
<i>Sorex cinereus</i>	Masked shrew	X	<u>X</u>		X	<u>X</u>
<i>Sylvilagus floridanus</i>	Cottontail rabbit		X	X		X
<i>Vulpes fulva</i>	Red fox	X	X	X	X	X

X bold/underlined indicates strong association between species and geomorphological feature.

Sources: Connor 1971, USACE 2004d

Table C-5. Habitat Associations of Herpetile Species of Fire Island

Scientific Name	Common Name	Barrier Island Communities			
		Marine Beach	Dunes and Swales	Terrestrial Upland	Bayside Beach
<i>Bufo woodhousei</i>	Fowlers toad		X	X	X
<i>Chelydra serpentina</i>	Common snapping turtle		X	X	
<i>Chrysemys picta</i>	Red-eared slider		X	X	
<i>Chrysemys picta picta</i>	Eastern painted turtle		X	X	
<i>Clemmys guttata</i> ²	Spotted turtle ²			X	
<i>Coluber constrictor</i>	Northern black racer		X	X	
<i>Heterodon platyrhinos</i> ²	Eastern hog-nosed snake ²	X	X	X	
<i>Kinosternon subrubrum</i> ¹	Mud turtle ¹			X	
<i>Malaclemys terrapin</i>	Diamondback terrapin ²	X	X	X	X
<i>Pseudocris crucifer</i>	Spring peeper			X	
<i>Rana catesbeiana</i>	Bullfrog			X	
<i>Rana clamitans melanota</i>	Green frog			X	
<i>Scaphiopus holbrookii</i> ²	Spadefoot toad ²		X	X	
<i>Terrapene carolina</i> ²	Box turtle ²		X	X	
<i>Thamnophis sirtalis</i>	Garter snake		X	X	

¹Federal or state-listed threatened or endangered species, or species with special protection status

²Federal or state-listed species of Special Concern

Table C-6. Invertebrates Collected By Beach Seine within the Backbay Habitats of the Study Area

Scientific Name	Common Name
<i>Argopecten irradians</i> *	Bay scallop
<i>Asterias forbesi</i> *	Sea star
<i>Aurelia aurita</i> *	Moon jelly
<i>Callinectes sapidus</i> *	Blue crab
<i>Cancer irroratus</i> *	Rock crab
<i>Carcinus maenas</i> *	Green crab
<i>Crangon septemspinosa</i> *	Sevenspine bay shrimp
<i>Crepidula fornicata</i>	Atlantic slipper snail
<i>Cyanea capillata</i> *	Lion's mane jellyfish
<i>Dyspanopeus sayi</i> *	Say mud crab
<i>Hippolyte pleurocantha</i> *	Hippolyte shrimp
<i>Ilyassoma obsoleta</i> *	Eastern mud snail
<i>Libinia emarginata</i> *	Spider crab
<i>Limulus polyphemus</i> *	Horseshoe crab
<i>Loligo pealeii</i>	Long-finned squid
<i>Mercenaria mercenaria</i> *	Hardshell clam
<i>Microciona prolifera</i>	Red beard sponge
<i>Mnemiopsis leidyi</i> *	Comb jelly
<i>Mytilus edulis</i> *	Blue mussel
<i>Nereis succinea</i>	Clam worm
<i>Ovalipes ocellatus</i> *	Lady crab
<i>Pagurus pollicaris</i> *	Hermit crab
<i>Palaemonetes vulgaris</i> *	Marsh grass shrimp
<i>Panopeus herbstii</i> *	Mud crab
<i>Polychaete spp.</i> *	Polychaete species
Porifera	Gold sponge species
Porifera	Orange sponge species
Porifera	Other sponge species
<i>Tunicata</i>	Tunicate
<i>Uca minax</i> *	Fiddler crab

* Indicator invertebrate species for SAV habitat
Source: USACE 2006d

Table C-7. Finfish Collected By Beach Seine Within the Backbay Habitats of the Study Area

Scientific Name	Common Name
<i>Acanthurus chirurgus</i>	Doctorfish
<i>Alosa aestivalis</i> *	Blueback herring
<i>Alosa pseudoharengus</i> *	Alewife
<i>Anchoa mitchilli</i>	Bay anchovy
<i>Anguilla rostrata</i> *	American eel
<i>Apeltes quadracus</i> *	Fourspine stickleback
Balistidae	Triggerfish species
<i>Brevoortia tyrannus</i>	Atlantic menhaden
<i>Caranx hippos</i>	Crevalle jack
<i>Chaetodon capistratus</i>	Foureye butterflyfish
<i>Chaetodon ocellatus</i>	Spotfin butterflyfish
<i>Chaetodon sedentarius</i>	Reef butterflyfish
<i>Chilomycterus schoepfi</i>	Striped burrfish
Clupeidae spp.*	Herring species
<i>Cynoscion regalis</i> *	Weakfish
<i>Cyprinodon variegatus</i>	Sheepshead minnow
<i>Enchelyopus cimbrius</i>	Fourbeard rockling
<i>Epinephelus flavolimbatus</i>	Yellowedge grouper
<i>Epinephelus nigritus</i>	Warsaw grouper
<i>Etropus microstomus</i>	Smallmouth flounder
<i>Fistularia tabacaria</i>	Bluespotted cornetfish
<i>Fundulus heteroclitus</i> *	Mummichog
<i>Fundulus majalis</i> *	Striped killifish
<i>Gasterosteus aculeatus aculeatus</i> *	Threespine stickleback
<i>Gobiosoma bosc</i>	Naked goby
<i>Hippocampus erectus</i>	Lined seahorse
<i>Lactophrys quadricornis</i>	Scrawled cowfish
<i>Leiostomus xanthurus</i>	Spot croaker
<i>Menidia menidia</i> *	Atlantic silverside
<i>Menticirrhus saxatilis</i>	Northern kingfish
<i>Microgadus tomcod</i>	Atlantic tomcod
<i>Micropogonias undulatus</i>	Atlantic croaker
<i>Monacanthus hispidus</i>	Planehead filefish
<i>Morone saxatilis</i> *	Striped bass
<i>Mugil cephalus</i>	Striped mullet
Mullidae	Goatfish species
<i>Mullus auratus</i>	Red goatfish
<i>Mycteroperca microlepis</i>	Gag
<i>Myoxocephalus aeneus</i>	Grubby sculpin

Scientific Name	Common Name
<i>Opsanus tau</i>	Oyster toadfish
Ostraciidae	Boxfish/cowfish species
<i>Paralichthys dentatus</i>	Summer flounder
<i>Pholis gunnellus</i>	Rock gunnel
<i>Pollachius virens</i>	Pollock
<i>Prionotus evolans</i>	Striped searobin
<i>Prionotus carolinus</i>	Northern searobin
<i>Pseudopleuronectes americanus</i> *	Winter flounder
<i>Pterois volitans</i>	Lionfish
<i>Selene vomer</i>	Lookdown
Serranidae	Grouper species
<i>Sphoeroides maculatus</i> *	Northern puffer
<i>Sphoeroides spengleri</i>	Bandtail puffer
<i>Sphyraena borealis</i>	Northern sennet
<i>Stenotomus chrysops</i>	Scup
<i>Strongylura marina</i>	Atlantic needlefish
<i>Syngnathus fuscus</i> *	Northern pipefish
<i>Tautoga onitis</i> *	Blackfish
<i>Tautoglabrus adspersus</i> *	Cunner
<i>Upeneus parvus</i>	Dwarf goatfish
<i>Urophycis chuss</i>	Red hake
<i>Urophycis regia</i>	Spotted hake

* Indicator finfish species for SAV habitat
Source: USACE 2004c and USACE 2006d