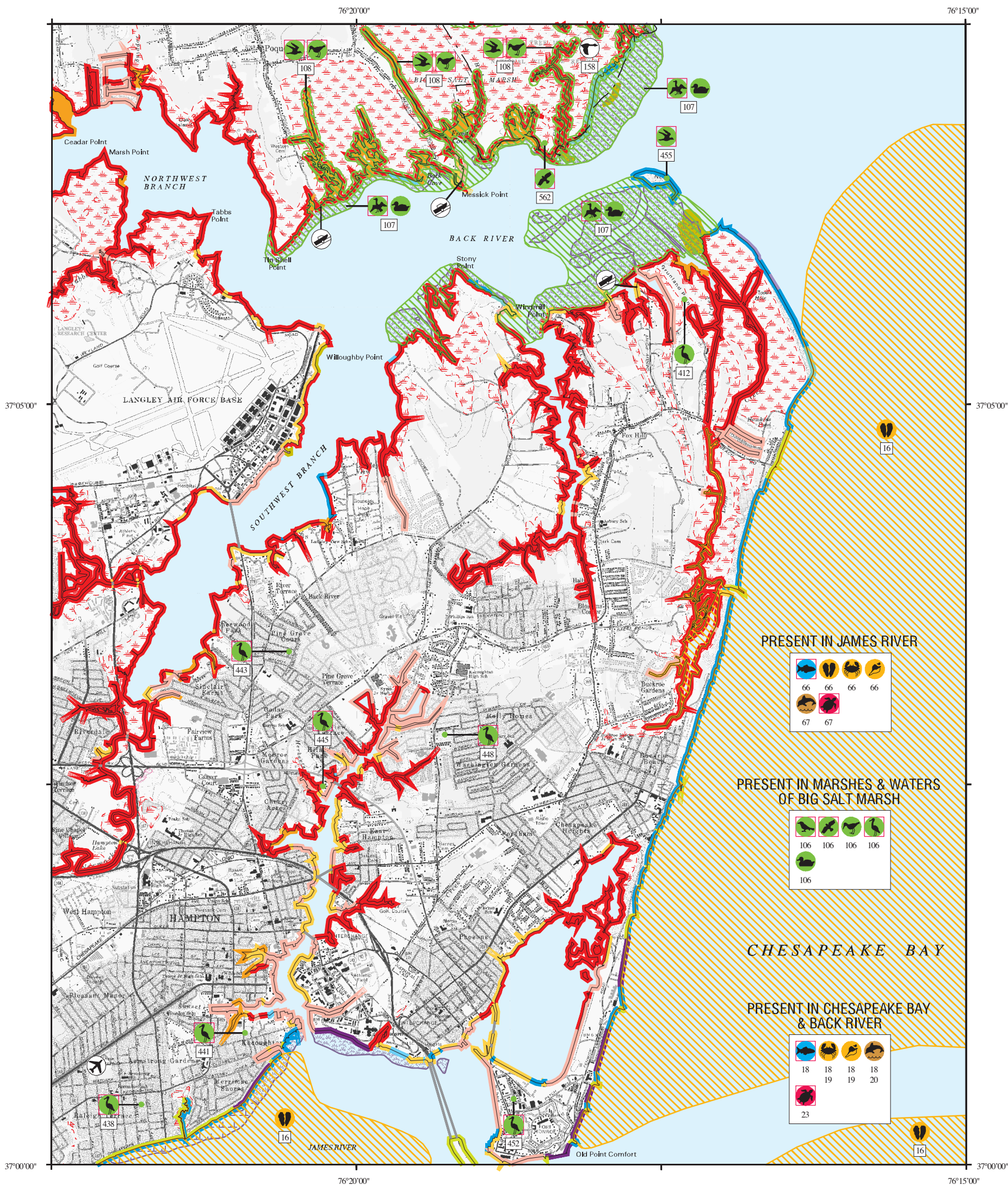
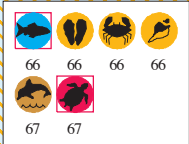


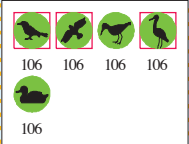
ENVIRONMENTAL SENSITIVITY INDEX MAP



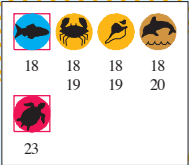
PRESENT IN JAMES RIVER



PRESENT IN MARSHES & WATERS OF BIG SALT MARSH



PRESENT IN CHESAPEAKE BAY & BACK RIVER



SHORELINE HABITATS (ESI)

- 1B EXPOSED, SOLID MAN-MADE STRUCTURES
- 2A EXPOSED WAVE-CUT PLATFORMS IN CLAY
- 2B EXPOSED SCARPS AND STEEP SLOPES IN CLAY
- 3A FINE-TO MEDIUM-GRAINED SAND BEACHES
- 3B SCARPS AND STEEP SLOPES IN SAND
- 4 COARSE-GRAINED SAND BEACHES
- 5 MIXED SAND AND GRAVEL BEACHES
- 6A GRAVEL BEACHES
- 6B RIPRAP
- 7 EXPOSED TIDAL FLATS
- 8A SHELTERED SCARPS IN CLAY
- 8B SHELTERED, SOLID MAN-MADE STRUCTURES
- 8C SHELTERED RIPRAP
- 9A SHELTERED TIDAL FLATS
- 9B SHELTERED, VEGETATED LOW BANKS
- 10A SALT-AND BRACKISH-WATER MARSHES
- 10B FRESHWATER MARSHES
- 10C SWAMP
- 10D SCRUB-SHRUB WETLANDS



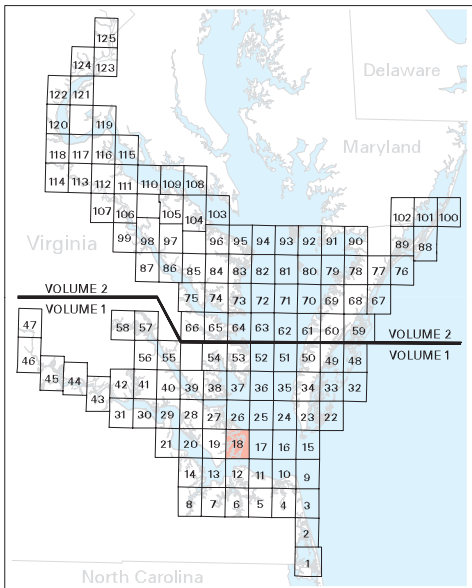
SCALE 1:50000

1 .5 0 1 KILOMETER

1 .5 0 1 MILE

Not For Navigation
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National Oceanic and Atmospheric Administration
National Ocean Service
Office of Response and Restoration
Hazardous Materials Response Division



Virginia: ESIMAP 18

BIOLOGICAL RESOURCES:

BIRD:

RAR#	Species	S F Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Migrating	Molting
106	American black duck		X	X	X	X	X	X	X	X	X	X	X	X	APR-JUN	-	-
	American wigeon		X	X	X	X					X	X	X		-	-	-
	Black-necked stilt				X	X	X	X	X	X					-	-	-
	Blue-winged teal											X	X		-	-	-
	Brant		X	X	X	X					X	X	X		-	-	-
	Canada goose		X	X	X	X	X	X	X	X	X	X	X	X	APR-JUN	-	-
	Glossy ibis	C								X	X				-	-	-
	Great blue heron							X	X	X	X	X	X		-	-	-
	Great egret	C						X	X	X	X	X			-	-	-
	Green-winged teal		X	X	X	X					X	X	X		-	-	-
	Mallard		X	X	X	X	X	X	X	X	X	X	X	X	MAY-JUL	-	-
	Northern harrier	C			X	X	X	X	X	X	X	X	X		MAR-MAY	-	-
	Osprey							X	X	X	X				-	-	-
	Red-shouldered hawk										X	X			-	-	-
	Saltmarsh sharp-tailed sparrow	C	X	X	X	X	X	X	X	X	X	X	X	X	MAY-JUL	-	-
	Sedge wren	C			X	X	X	X	X	X					MAY-JUL	-	-
	Snow goose		X	X	X	X					X	X	X		-	-	-
	Snowy egret				X	X	X	X	X	X	X	X			-	-	-
	Striated heron									X	X				-	-	-
	Tricolored heron	C								X	X	X			-	-	-
	Yellow-crowned night-heron	C								X	X	X			-	-	-
107	Brant	VERY HIGH	X	X	X	X					X	X	X		-	-	-
	Brown pelican	C						X	X	X	X	X	X		-	-	-
	Bufflehead	HIGH	X	X	X	X					X	X	X		-	-	-
	Canvasback		X	X	X	X					X	X	X		-	-	-
	Common goldeneye		X	X	X	X					X	X	X		-	-	-
	Common loon										X	X			-	-	-
	Double-crested cormorant									X	X	X	X		-	-	-
	Long-tailed duck		X	X	X	X					X	X	X		-	-	-
	Mergansers		X	X	X	X					X	X	X		-	-	-
	Ruddy duck		X	X	X	X					X	X	X		-	-	-
	Scaup	HIGH	X	X	X	X					X	X	X		-	-	-
	Scoters	HIGH	X	X	X	X					X	X	X		-	-	-
	Tundra swan		X	X	X	X					X	X	X		-	-	-
108	American oystercatcher								X	X	X	X	X		-	-	-
	Black skimmer								X	X					-	-	-
	Common tern								X	X	X	X			-	-	-
	Great black-backed gull								X	X	X	X	X		-	-	-
	Laughing gull								X	X	X	X			-	-	-
	Least tern	C							X	X					-	-	-
	Lesser yellowlegs					X	X	X			X	X	X		-	-	-
	Piping plover	T T				X	X			X	X				-	-	-
	Royal tern									X	X				-	-	-
	Sandwich tern	C							X	X					-	-	-
	Short-billed dowitcher								X	X		X	X		-	-	-
	Willet								X	X	X	X			-	-	-
412	Great blue heron	6 NESTS	X	X	X	X	X	X	X	X	X	X	X	X	MAY-JUL	-	-
438	Yellow-crowned night-heron	C 7 NESTS			X	X	X	X	X	X	X	X	X		MAY-JUL	-	-
441	Great egret	C 2 NESTS			X	X	X	X	X	X	X	X	X		MAY-JUL	-	-
	Yellow-crowned night-heron	C 4 NESTS			X	X	X	X	X	X	X	X	X		MAY-JUL	-	-
443	Yellow-crowned night-heron	C 55 NESTS			X	X	X	X	X	X	X	X	X		MAY-JUL	-	-
445	Yellow-crowned night-heron	C 5 NESTS			X	X	X	X	X	X	X	X	X		MAY-JUL	-	-
448	Great egret	C 244 NESTS			X	X	X	X	X	X	X	X	X		MAY-JUL	-	-
452	Yellow-crowned night-heron	C 6 NESTS			X	X	X	X	X	X	X	X	X		MAY-JUL	-	-
455	Common tern	9 NESTS			X	X	X	X	X	X	X	X			MAY-JUL	-	-
	Least tern	C 130 NESTS			X	X	X	X	X	X	X				MAY-JUL	-	-
562	Peregrine falcon	T			X	X	X	X	X						MAR-AUG	-	-

FISH:

RAR#	Species	S F Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
18	Alewife			X	X	X	X	X							-	-	-	-	FEB-JUN
	American eel		X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	SEP-DEC
	American shad		X	X	X	X	X					X	X		-	-	-	NOV-MAR	JAN-JUN
	Atlantic croaker					X	X	X	X	X	X	X	X		-	-	-	AUG-DEC	MAY-NOV
	Atlantic mackerel				X	X									-	-	-	-	MAR-APR
	Atlantic menhaden		X	X	X	X	X	X	X	X	X	X	X	X	-	-	MAY-NOV	JAN-DEC	MAY-OCT
	Atlantic silverside		X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-	JAN-DEC	JAN-DEC
	Atlantic spadefish									X	X	X	X		-	-	-	AUG-OCT	AUG-NOV
	Atlantic sturgeon	C	X	X	X	X	X	X	X	X	X				-	-	-	-	JAN-OCT
	Bay anchovy		X	X	X	X	X	X	X	X	X	X	X	X	APR-SEP	-	-	JAN-DEC	JAN-DEC
	Black drum				X	X	X	X	X	X	X	X			APR-JUN	APR-JUN	APR-JUN	APR-NOV	APR-NOV
	Black sea bass				X	X	X	X	X	X	X				JUN-OCT	-	-	APR-OCT	APR-OCT
	Blueback herring		X	X	X	X	X					X	X		-	-	-	NOV-MAR	JAN-JUN
	Bluefish				X	X	X	X	X	X	X	X			-	-	-	MAY-NOV	APR-NOV
	Butterfish				X	X	X	X	X	X	X	X			-	-	-	JUL-NOV	MAR-NOV
	Clearnose skate					X	X	X	X	X	X				-	-	-	-	MAY-NOV
	Gobies		X	X	X	X	X	X	X	X	X	X	X	X	APR-SEP	APR-SEP	APR-OCT	JAN-DEC	JAN-DEC
	Harvestfish				X	X	X	X	X	X					-	-	-	JUL-OCT	APR-OCT
	Hickory shad		X	X	X	X	X					X	X		-	-	-	NOV-MAR	JAN-JUN
	Hogchoker		X	X	X	X	X	X	X	X	X	X	X	X	MAY-SEP	MAY-SEP	MAY-SEP	JAN-DEC	JAN-DEC
	Inland silverside		X	X	X	X	X	X	X	X	X	X	X	X	APR-MAY	-	-	JAN-DEC	JAN-DEC
	Minnows		X	X	X	X	X	X	X	X	X	X	X	X	APR-AUG	-	-	JAN-DEC	JAN-DEC
	Mummichog		X	X	X	X	X	X	X	X	X	X	X	X	APR-AUG	-	-	JAN-DEC	JAN-DEC
	Northern kingfish				X	X	X	X	X	X	X				-	-	-	-	APR-OCT
	Northern pipefish		X	X	X	X	X	X	X	X	X	X	X	X	MAY-JUN	-	-	JAN-DEC	JAN-DEC
	Northern puffer				X	X	X	X	X	X					MAY-AUG	-	-	MAR-OCT	MAR-OCT
	Northern searobin				X	X	X	X	X	X					MAY-JUL	-	-	-	MAR-OCT
	Red drum					X	X	X	X	X	X				JUL-NOV	-	-	AUG-SEP	MAY-NOV
	Red hake			X	X	X	X				X	X	X		-	-	-	FEB-MAY	FEB-MAY
																		SEP-NOV	
	Sandbar shark					X	X	X	X	X	X				-	-	-	MAY-OCT	MAY-OCT
	Scup (porgy)				X	X	X	X	X	X	X				-	-	-	JUN-OCT	MAR-OCT
	Silver hake		X	X	X	X				X	X	X			-	-	-	-	OCT-MAY
	Silver perch		X	X	X	X	X	X	X	X	X	X	X	X	APR-MAY	-	-	JAN-DEC	JAN-DEC
	Spot		X	X	X	X	X	X	X	X	X	X	X	X	-	-	DEC-APR	MAR-NOV	MAR-NOV
	Spotted hake			X	X	X	X			X	X	X			-	-	-	MAR-JUN	MAR-JUN
																		SEP-NOV	
	Spotted seatrout					X	X	X	X	X	X	X	X		MAY-JUL	-	-	APR-NOV	APR-NOV
	Striped bass		X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
	Striped killifish		X	X	X	X	X	X	X	X	X	X	X	X	APR-SEP	-	-	JAN-DEC	JAN-DEC
	Summer flounder		X	X	X	X	X	X	X	X	X	X	X	X	-	-	OCT-MAY	JAN-DEC	APR-OCT
	Tautog		X	X	X	X					X	X	X		-	-	-	-	OCT-APR
	Threadfin shad			X	X	X	X			X	X	X			-	-	-	-	FEB-MAY
																		SEP-NOV	
	Weakfish					X	X	X	X	X	X	X	X		APR-AUG	-	MAY-AUG	APR-NOV	APR-NOV
66	Alewife			X	X	X	X								-	-	-	-	FEB-JUN
	American eel			X	X	X	X								-	-	-	FEB-MAY	-
	American shad		X	X	X	X	X	X				X	X		-	-	-	NOV-MAR	JAN-JUN

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

Virginia: ESIMAP 18 (cont.)

BIOLOGICAL RESOURCES: (cont.)

FISH: (cont.)

RAR#	Species	S F Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
66	Atlantic croaker		X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	-
	Atlantic mackerel			X	X										-	-	-	-	MAR-APR
	Atlantic menhaden		X	X	X	X	X	X	X	X	X	X	X	X	-	-	MAY-NOV	JAN-DEC	MAY-OCT
	Atlantic silverside		X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-	JAN-DEC	JAN-DEC
	Atlantic spadefish							X	X	X	X				-	-	-	AUG-OCT	AUG-NOV
	Atlantic sturgeon	C	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	APR-NOV
	Bay anchovy		X	X	X	X	X	X	X	X	X	X	X	X	APR-SEP	-	-	JAN-DEC	JAN-DEC
	Black drum					X	X	X	X	X	X	X	X		APR-JUN	APR-JUN	APR-JUN	APR-NOV	APR-NOV
	Black sea bass					X	X	X	X	X					-	-	-	APR-AUG	-
	Blueback herring		X	X	X	X	X	X					X	X	-	-	-	NOV-MAR	JAN-JUN
	Bluefish					X	X	X	X	X	X	X			-	-	-	MAY-NOV	APR-NOV
	Butterfish				X	X	X	X	X	X	X	X			-	-	-	JUL-NOV	MAR-NOV
	Clearnose skate					X	X	X	X	X	X				-	-	-	-	MAY-NOV
	Gobies		X	X	X	X	X	X	X	X	X	X	X	X	APR-SEP	APR-SEP	APR-OCT	JAN-DEC	JAN-DEC
	Harvestfish					X	X	X	X	X	X				-	-	-	JUL-OCT	APR-OCT
	Hickory shad		X	X	X	X	X						X	X	-	-	-	NOV-MAR	JAN-JUN
	Hogchoker		X	X	X	X	X	X	X	X	X	X	X	X	MAY-SEP	MAY-SEP	MAY-SEP	JAN-DEC	JAN-DEC
	Inland silverside		X	X	X	X	X	X	X	X	X	X	X	X	APR-MAY	-	-	JAN-DEC	JAN-DEC
	Minnows		X	X	X	X	X	X	X	X	X	X	X	X	APR-AUG	-	-	JAN-DEC	JAN-DEC
	Mummichog		X	X	X	X	X	X	X	X	X	X	X	X	APR-AUG	-	-	JAN-DEC	JAN-DEC
	Northern kingfish					X	X	X	X	X	X				-	-	-	-	APR-OCT
	Northern pipefish		X	X	X	X	X	X	X	X	X	X	X	X	MAY-JUN	-	-	JAN-DEC	JAN-DEC
	Northern puffer				X	X	X	X	X	X	X				MAY-AUG	-	-	MAR-OCT	MAR-OCT
	Northern searobin				X	X	X	X	X	X	X				MAY-JUL	-	-	-	MAR-OCT
	Red drum					X	X	X	X	X	X				JUL-NOV	-	-	AUG-SEP	MAY-NOV
	Red hake		X	X	X	X				X	X	X			-	-	-	FEB-MAY	FEB-MAY
																		SEP-NOV	
	Sandbar shark						X	X	X	X	X	X			-	-	-	MAY-OCT	MAY-OCT
	Scup (porgy)					X	X	X	X	X	X	X			-	-	-	JUN-OCT	MAR-OCT
	Silver hake		X	X	X	X				X	X	X			-	-	-	-	OCT-MAY
	Silver perch		X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
	Spot		X	X	X	X	X	X	X	X	X	X	X	X	-	-	DEC-APR	MAR-NOV	JAN-DEC
	Spotted hake				X	X	X	X		X	X	X			-	-	-	MAR-JUN	MAR-JUN
																		SEP-NOV	
	Spotted seatrout					X	X	X	X	X	X	X	X	X	MAY-JUL	-	-	APR-NOV	APR-NOV
	Striped bass		X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
	Striped killifish		X	X	X	X	X	X	X	X	X	X	X	X	APR-SEP	-	-	JAN-DEC	JAN-DEC
	Summer flounder		X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
	Tautog		X	X	X	X				X	X	X			-	-	-	-	OCT-APR
	Threadfin shad			X	X	X	X			X	X	X			-	-	-	-	FEB-MAY
																		SEP-NOV	
	Weakfish		X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	-

INVERTEBRATE:

RAR#	Species	S F Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
16	Northern quahog (hard clam)		X	X	X	X	X	X	X	X	X	X	X	X	MAY-OCT	MAY-OCT	MAY-OCT	JAN-DEC	JAN-DEC
18	Horseshoe crab		X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
	Knobbed whelk		X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
19	Blue crab		X	X	X	X	X	X	X	X	X	X	X	X	MAY-OCT	MAY-SEP	MAY-NOV	JAN-DEC	JAN-DEC
	Channeled whelk		X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
66	Blue crab		X	X	X	X	X	X	X	X	X	X	X	X	-	MAY-SEP	MAY-NOV	JAN-DEC	JAN-DEC
	Eastern oyster		X	X	X	X	X	X	X	X	X	X	X	X	JUN-SEP	JUN-SEP	JUN-SEP	JAN-DEC	JAN-DEC
	Knobbed whelk		X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC

MARINE MAMMAL:

RAR#	Species	S F Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Mating	Calving	Pupping	Molting
18	Harbor porpoise		X	X	X	X								X	-	-	-	-
20	Bottlenose dolphin				X	X	X	X	X	X	X				-	-	-	-
67	Bottlenose dolphin				X	X	X	X	X	X	X				-	-	-	-
	Harbor porpoise		X	X	X	X								X	-	-	-	-

REPTILE:

RAR#	Species	S F Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Hatching	Internesting	Juveniles	Adults
23	Green sea turtle	T T					X	X	X	X	X	X	X	X	-	-	-	MAY-NOV	-
	Kemp's ridley sea turtle	E E					X	X	X	X	X	X	X	X	-	-	-	MAY-NOV	MAY-NOV
	Leatherback sea turtle	E E					X	X	X	X	X	X	X	X	-	-	-	-	MAY-NOV
	Loggerhead sea turtle	T T					X	X	X	X	X	X	X	X	-	-	-	MAY-NOV	MAY-NOV
67	Green sea turtle	T T					X	X	X	X	X	X	X	X	-	-	-	MAY-NOV	-
	Kemp's ridley sea turtle	E E					X	X	X	X	X	X	X	X	-	-	-	MAY-NOV	-
	Leatherback sea turtle	E E					X	X	X	X	X	X	X	X	-	-	-	-	MAY-NOV
	Loggerhead sea turtle	T T					X	X	X	X	X	X	X	X	-	-	-	MAY-NOV	-

HUMAN USE RESOURCES:

WILDLIFE REFUGE:

HUN#	Name	Contact	Phone
158	PLUM TREE ISLAND NWR	U.S. FISH AND WILDLIFE SERVICE	757/721-2412