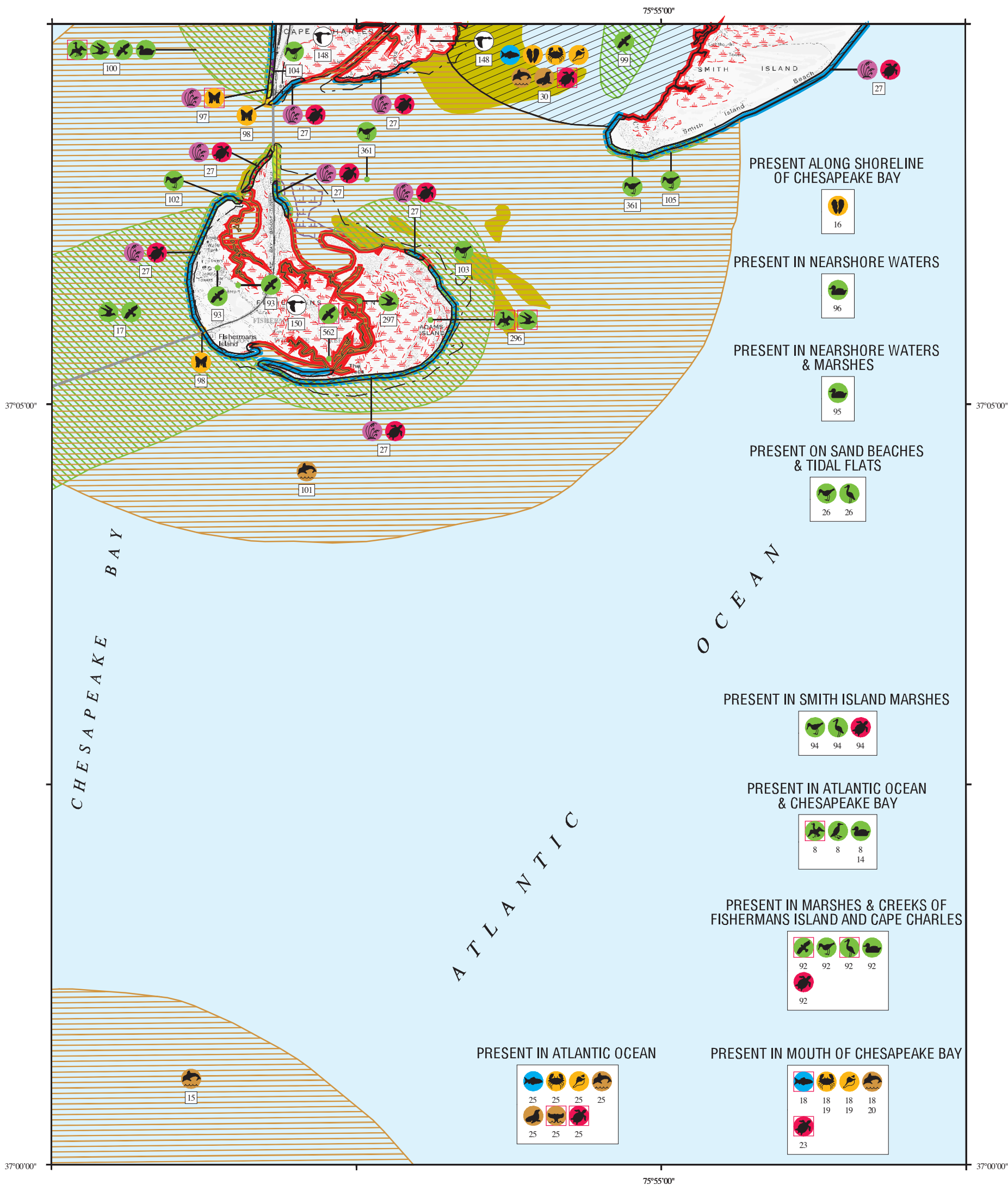


ENVIRONMENTAL SENSITIVITY INDEX MAP



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

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SCALE 1:50000

1 KILOMETER

1 MILE

Virginia: ESIMAP 15

BIOLOGICAL RESOURCES:

BIRD:

RAR#	Species	S F Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Migrating	Molting
8	Brown pelican	C			X	X	X	X	X	X	X	X	X	X	-	-	-
	Common loon		X	X	X								X	X	-	-	-
	Northern gannet	HIGH	X	X	X							X	X		-	-	-
	Red-breasted merganser	VERY HIGH	X	X	X								X	X	-	-	-
	Red-necked grebe			X	X										-	-	-
	Red-throated loon		X	X	X								X	X	-	-	-
14	Black scoter	HIGH	X	X	X	X							X	X	-	-	-
	Surf scoter		X	X	X	X							X	X	-	-	-
	White-winged scoter		X	X	X	X							X	X	-	-	-
17	Gulls		X	X	X	X							X	X	-	-	-
	Raptors		X	X	X	X							X	X	-	-	-
26	American woodcock		X	X							X	X	X	X	-	-	-
	Black-bellied plover				X	X	X	X	X	X	X	X	X	X	-	-	-
	Dunlin		X	X	X	X				X	X	X	X		-	-	-
	Greater yellowlegs			X	X	X	X	X	X	X	X	X	X		-	-	-
	Killdeer					X	X	X							-	-	-
	Least sandpiper			X	X	X	X	X	X	X	X	X	X		-	-	-
	Lesser yellowlegs			X	X	X	X	X	X	X	X	X	X		-	-	-
	Pectoral sandpiper					X	X	X	X	X	X	X	X		-	-	-
	Red knot			X	X	X	X	X							-	-	-
	Ruddy turnstone			X	X	X	X	X	X						-	-	-
	Sanderling		X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Semipalmated plover			X	X	X	X	X	X	X	X	X	X		-	-	-
	Semipalmated sandpiper			X	X	X	X	X	X	X	X	X	X		-	-	-
	Short-billed dowitcher		X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Stilt sandpiper					X	X	X	X	X	X	X	X		-	-	-
	Western sandpiper					X	X	X	X	X	X	X	X		-	-	-
	Whimbrel			X	X	X	X	X	X						-	-	-
	White-rumped sandpiper			X	X	X									-	-	-
	Willet		X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
92	American black duck	COMMON	X	X	X	X	X	X	X	X	X	X	X	X	APR-JUN	-	-
	American kestrel	ABUNDANT									X	X	X		-	-	-
	American wigeon	COMMON								X	X	X	X		-	-	-
	Black-crowned night-heron	COMMON	X	X	X	X	X	X	X	X	X	X	X	X	MAY-JUL	-	-
	Blue-winged teal	COMMON		X	X	X				X	X	X			-	-	-
	Brant	COMMON	X	X	X	X	X			X	X	X	X		-	-	-
	Broad-winged hawk	COMMON								X	X	X			-	-	-
	Canada goose	COMMON	X	X	X	X	X	X	X	X	X	X	X	X	APR-JUN	-	-
	Cattle egret	COMMON		X	X	X	X	X	X	X	X	X			MAY-JUL	-	-
	Clapper rail	VERY ABUNDANT	X	X	X	X	X	X	X	X	X	X	X	X	APR-JUN	-	-
	Gadwall	COMMON	X	X	X	X	X	X	X	X	X	X	X	X	APR-JUN	-	-
	Glossy ibis	C		X	X	X	X	X	X	X	X	X	X		MAY-JUL	-	-
	Great blue heron	COMMON	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Great egret	C COMMON		X	X	X	X	X	X	X	X	X	X		MAY-JUL	-	-
	Green-winged teal		X	X	X	X				X	X	X	X		-	-	-
	King rail		X	X	X	X				X	X	X	X		-	-	-
	Little blue heron	C		X	X	X	X	X	X	X	X	X	X		MAY-JUL	-	-
	Mallard	COMMON	X	X	X	X	X	X	X	X	X	X	X	X	MAY-JUL	-	-
	Merlin	COMMON								X	X	X			-	-	-
	Northern harrier	C COMMON	X	X						X	X	X	X		-	-	-
	Northern pintail		X	X	X	X				X	X	X	X		-	-	-
	Northern shoveler		X	X	X	X				X	X	X	X		-	-	-
	Red-tailed hawk	COMMON	X	X						X	X	X	X		-	-	-
	Sharp-shinned hawk	ABUNDANT								X	X	X			-	-	-
	Snow goose		X	X	X	X				X	X	X	X		-	-	-
	Snowy egret	COMMON		X	X	X	X	X	X	X	X	X			-	-	-
	Sora			X	X	X				X	X	X			-	-	-
	Striated heron	COMMON		X	X	X	X	X	X	X	X	X	X		MAY-JUL	-	-
	Tricolored heron	C COMMON	X	X	X	X	X	X	X	X	X	X	X	X	MAY-JUL	-	-
	Tundra swan		X	X	X	X				X	X	X	X		-	-	-
	Virginia rail		X	X	X	X	X	X	X	X	X	X	X		-	-	-
	Willet	COMMON	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUN	-	-
	Yellow-crowned night-heron	C		X	X	X	X	X	X	X	X	X	X		MAY-JUL	-	-
93	Osprey			X	X	X	X	X	X	X	X	X	X		MAR-AUG	-	-
94	Clapper rail	HIGH	X	X	X	X	X	X	X	X	X	X	X	X	APR-AUG	-	-
	King rail		X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Sora			X	X	X				X	X	X			-	-	-
	Virginia rail		X	X	X	X	X	X	X	X	X	X	X	X	APR-JUN	-	-
	Whimbrel	HIGH		X	X	X				X	X	X			-	-	-
	Willet	HIGH	X	X	X	X	X	X	X	X	X	X	X	X	APR-SEP	-	-
95	American black duck	HIGH	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	American wigeon	MODERATE	X	X	X	X				X	X	X			-	-	-
	Brant	HIGH	X	X	X	X				X	X	X			-	-	-
	Canada goose	HIGH	X	X	X	X	X	X	X	X	X	X	X	X	APR-JUN	-	-
	Gadwall	MODERATE	X	X	X	X	X	X	X	X	X	X	X	X	APR-JUN	-	-
	Green-winged teal	MODERATE	X	X	X	X				X	X	X			-	-	-
	Mallard	MODERATE	X	X	X	X	X	X	X	X	X	X	X	X	MAY-JUL	-	-
	Northern pintail	MODERATE	X	X	X	X				X	X	X			-	-	-
	Northern shoveler	LOW	X	X	X	X				X	X	X			-	-	-
	Snow goose	HIGH	X	X	X	X				X	X	X			-	-	-
96	Bufflehead	HIGH	X	X	X	X				X	X	X			-	-	-
	Long-tailed duck	MODERATE	X	X	X	X				X	X	X			-	-	-
	Mergansers	HIGH	X	X	X	X				X	X	X			-	-	-
	Scoters	HIGH	X	X	X	X				X	X	X			-	-	-
	Tundra swan	MODERATE	X	X	X	X				X	X	X			-	-	-
99	Osprey			X	X	X	X	X	X	X	X	X			-	-	-
100	Brown pelican	C		X	X	X	X	X	X	X	X				-	-	-
	Gulls		X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Loons		X	X	X	X				X	X	X			-	-	-
	Mergansers		X	X	X	X				X	X	X			-	-	-
	Osprey			X	X	X	X	X	X	X	X	X			-	-	-
	Scoters	HIGH	X	X	X	X				X	X	X			-	-	-
	Terns			X	X	X	X	X	X	X					-	-	-
102	American oystercatcher	15 ADULTS		X	X	X	X	X	X						MAR-JUL	-	-
103	American oystercatcher	82 ADULTS		X	X	X	X	X	X						MAR-JUL	-	-
104	American oystercatcher	1 ADULT		X	X	X	X	X	X						MAR-JUL	-	-
105	American oystercatcher	4 ADULTS		X	X	X	X	X	X						MAR-JUL	-	-
296	Brown pelican	C 939 ADULTS		X	X	X	X	X	X	X					MAY-JUL	-	-
	Great black-backed gull	63 ADULTS	X	X	X	X	X	X	X	X	X	X	X	X	MAY-JUL	-	-
	Herring gull	860 ADULTS	X	X	X	X	X	X	X	X	X	X	X	X	MAY-JUL	-	-
	Royal tern	3380 ADULTS		X	X	X	X	X	X	X					MAY-JUL	-	-
	Sandwich tern	C 54 ADULTS		X	X	X	X	X	X	X					MAY-JUL	-	-
297	Forster's tern	40 ADULTS		X	X	X	X	X	X	X					MAY-JUL	-	-
361	American oystercatcher	HIGH	X	X	X					X	X	X	X		-	-	-
562	Peregrine falcon	T		X	X	X	X	X	X						MAR-AUG	-	-

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.

BIOLOGICAL RESOURCES: (cont.)

RAR#	Species	S F Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults		
18	Alewife	C	-	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	FEB-JUN		
	American eel		X	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	X	-	-	-	-	NOV-MAR	JAN-JUN	
	Atlantic croaker		-	X	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	X	-	-	MAY-NOV	JAN-DEC	MAY-OCT	
	Atlantic silverside		X	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		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	X	APR-SEP	-	-	-	JAN-DEC	JAN-DEC
	Black drum		-	X	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	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	X	X	-	-	-	-	-	-	-	-	-	MAY-NOV
	Gobies		X	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	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	X	APR-MAY	-	-	JAN-DEC	JAN-DEC	
	Minnows		X	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	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	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	X	X	-	-	-	-	JUL-NOV	-	-	AUG-SEP	MAY-NOV	
	Red hake		-	X	X	X	X	-	-	-	-	X	X	X	-	-	-	-	-	FEB-MAY	SEP-NOV
	Sandbar shark		-	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	MAY-OCT	MAY-OCT
	Scup (porgy)		-	X	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-	JUN-OCT	MAR-OCT
	Silver hake		X	X	X	X	X	-	-	-	-	X	X	X	-	-	-	-	-	-	OCT-MAY
	Silver perch		X	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	X	-	-	DEC-APR	MAR-NOV	MAR-NOV	
	Spotted hake		-	X	X	X	X	-	-	-	-	X	X	X	-	-	-	-	-	MAR-JUN	MAR-JUN

Virginia: ESIMAP 15 (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
30	White hake		X X X X X X X	-	-	-	-	MAR-MAY SEP-NOV
	White perch		X X X X X X X X X X X X	APR-JUN	APR-JUN	APR-JUN	JAN-DEC	JAN-DEC
	Winter flounder		X X X X X X X X	-	-	-	DEC-JUL	DEC-MAY

HABITAT:

RAR#	Species	S F Conc.	J F M A M J J A S O N D
27	Maritime dune scrub		X X X X X X X X X X X X
	Native coastal strand vegetation		X X X X X X X X X X X X
	Sea-beach knotweed		X X X X X X X X X X X X
	Southern beach spurge		X X X X X X X X X X X X
97	Maritime dune scrub		X X X X X X X X X X X X

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
25	Blue crab		X X X X X X X X X X X X	-	-	MAY-NOV	JAN-DEC	JAN-DEC
	Channeled whelk		X X X X X X X X X X X X	-	-	-	JAN-DEC	JAN-DEC
30	Blue crab		X X X X X X X X X X X X	-	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
	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
97	Northeastern beach tiger beetle	T T	X X X X X X X X X X X X	JUN-SEP	JUN-SEP	-	JAN-DEC	JUN-OCT
98	Monarch butterfly	1000S	X X X	-	-	-	-	-

MARINE MAMMAL:

RAR#	Species	S F Conc.	J F M A M J J A S O N D	Mating	Calving	Pupping	Molting
15	Bottlenose dolphin	HIGH	X X X X X X X	-	APR-OCT	-	-
18	Harbor porpoise		X X X X X X	-	-	-	-
20	Bottlenose dolphin		X X X X X X X	-	-	-	-
25	Bottlenose dolphin		X X X X X X X	-	-	-	-
	Common dolphin		X X X X X X	-	-	-	-
	Harbor porpoise		X X X X X X	-	-	-	-
	Harbor seal		X X X X X X X	-	-	-	-
	Humpback whale	E E	X X X X X X X X X X X	-	JAN-DEC	-	-
30	Bottlenose dolphin		X X X X X X X	-	-	-	-
	Harbor porpoise		X X X X X X	-	-	-	-
	Harbor seal		X X X X X X X	-	-	-	-
101	Bottlenose dolphin	HIGH	X X 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	Interesting	Juveniles	Adults
23	Green sea turtle	T T	X X X X X X X	-	-	-	MAY-NOV	-
	Kemp's ridley sea turtle	E E	X X X X X X X	-	-	-	MAY-NOV	MAY-NOV
	Leatherback sea turtle	E E	X X X X X X X	-	-	-	-	MAY-NOV
	Loggerhead sea turtle	T T	X X X X X X X	-	-	-	MAY-NOV	MAY-NOV
25	Green sea turtle	T T	X X X X X X X	-	-	-	MAY-NOV	-
	Kemp's ridley sea turtle	E E	X X X X X X X	-	-	-	MAY-NOV	MAY-NOV
	Leatherback sea turtle	E E	X X X X X X X	-	-	-	-	MAY-NOV
	Loggerhead sea turtle	T T	X X X X X X X	-	-	-	MAY-NOV	MAY-NOV
27	Diamondback terrapin		X X X X X X X X X	MAY-JUL	-	-	MAR-NOV	MAR-NOV
30	Green sea turtle	T T	X X X X X X X	-	-	-	MAY-NOV	-
	Kemp's ridley sea turtle	E E	X X X X X X X	-	-	-	MAY-NOV	MAY-NOV
	Leatherback sea turtle	E E	X X X X X X X	-	-	-	-	MAY-NOV
	Loggerhead sea turtle	T T	X X X X X X X	-	-	-	MAY-NOV	MAY-NOV
92	Diamondback terrapin		X X X X X X X X X	-	-	-	MAR-NOV	MAR-NOV
94	Diamondback terrapin		X X X X X X X X X	-	-	-	MAR-NOV	MAR-NOV

HUMAN USE RESOURCES:

WILDLIFE REFUGE:

HUN#	Name	Contact	Phone
148	EASTERN SHORE OF VIRGINIA NWR	U.S. FISH AND WILDLIFE SERVICE	757/331-2760
150	FISHERMANS ISLAND NWR	U.S. FISH AND WILDLIFE SERVICE	757/331-2760

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