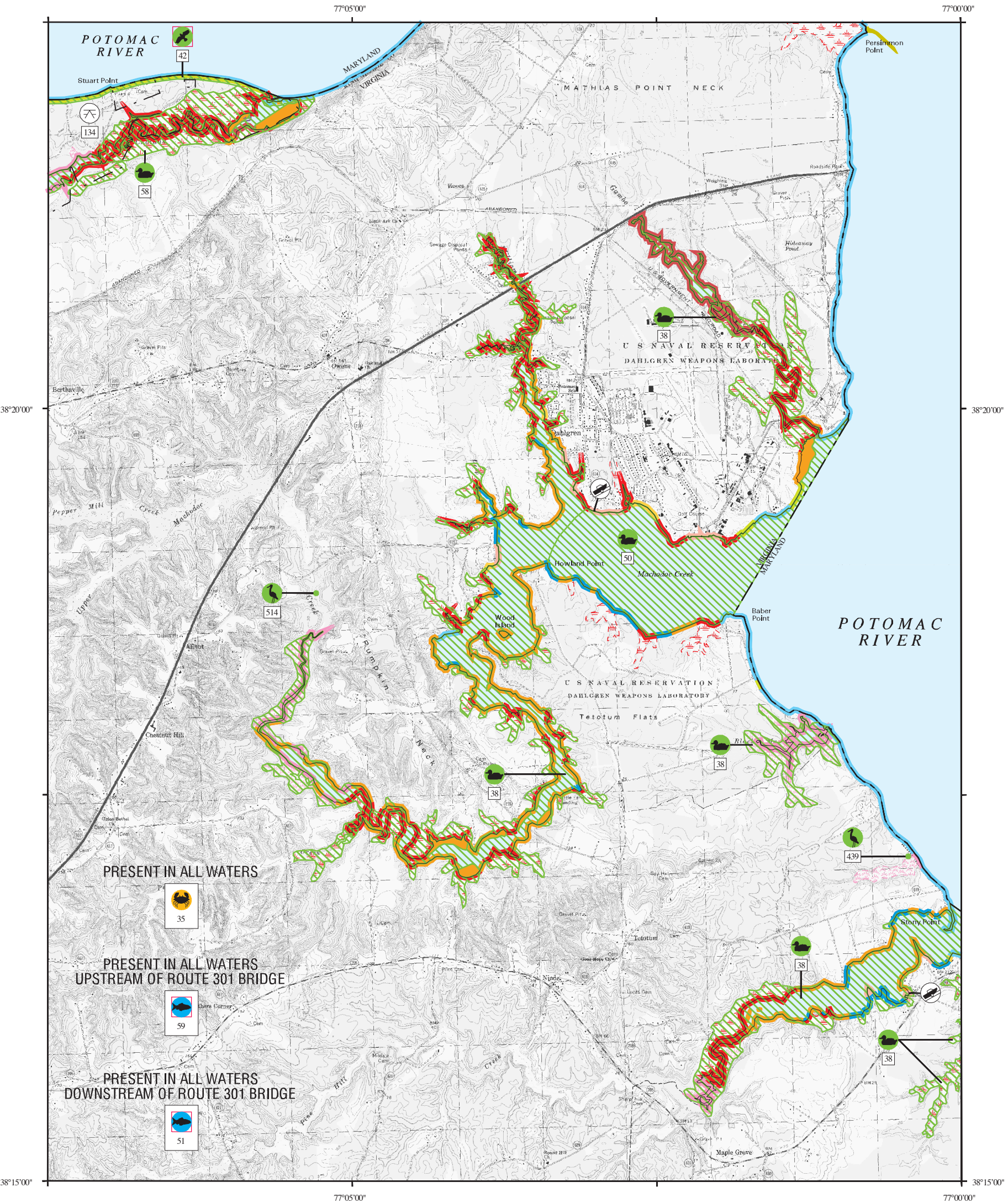


ENVIRONMENTAL SENSITIVITY INDEX MAP

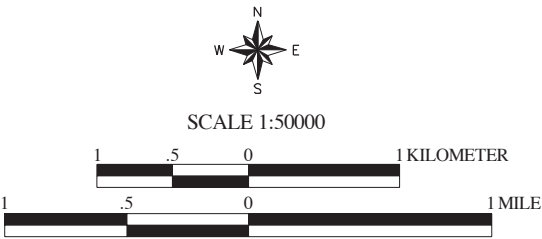


PRESENT IN ALL WATERS

PRESENT IN ALL WATERS
UPSTREAM OF ROUTE 301 BRIDGE

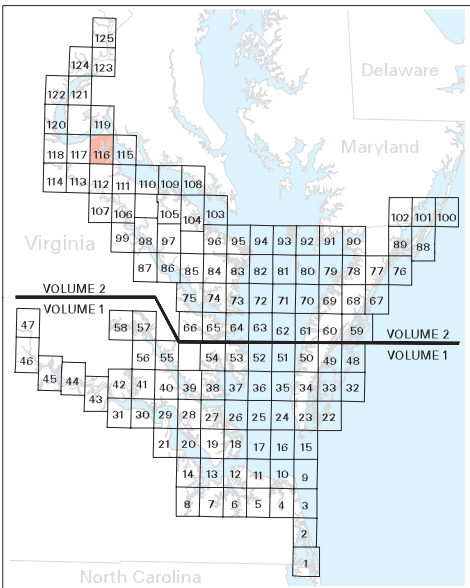
PRESENT IN ALL WATERS
DOWNSTREAM OF ROUTE 301 BRIDGE

- 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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Virginia: ESIMAP 116

BIOLOGICAL RESOURCES:

BIRD:

RAR#	Species	S F Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Migrating	Molting
38	American black duck		X	X	X	X						X	X	X	-	-	-
	American coot		X	X	X	X						X	X	X	-	-	-
	American wigeon		X	X	X	X						X	X	X	-	-	-
	Bufflehead	MODERATE	X	X	X	X						X	X	X	-	-	-
	Canada goose	HIGH	X	X	X	X						X	X	X	-	-	-
	Gadwall		X	X	X	X						X	X	X	-	-	-
	Mallard	MODERATE	X	X	X	X						X	X	X	-	-	-
	Mergansers	MODERATE	X	X	X	X						X	X	X	-	-	-
42	Bald eagle	T T HIGH	X	X	X	X	X	X	X					X	-	-	-
50	Bufflehead	MODERATE	X	X	X	X						X	X	X	-	-	-
	Canvasback	HIGH	X	X	X	X						X	X	X	-	-	-
	Common goldeneye		X	X	X	X						X	X	X	-	-	-
	Mergansers	MODERATE	X	X	X	X						X	X	X	-	-	-
	Mute swan		X	X	X	X						X	X	X	-	-	-
	Ruddy duck	MODERATE	X	X	X	X						X	X	X	-	-	-
	Scaup	HIGH	X	X	X	X						X	X	X	-	-	-
	Scoters	MODERATE	X	X	X	X						X	X	X	-	-	-
	Tundra swan	HIGH	X	X	X	X						X	X	X	-	-	-
58	American black duck	HIGH	X	X	X	X						X	X	X	-	-	-
	American coot		X	X	X	X						X	X	X	-	-	-
	American wigeon		X	X	X	X						X	X	X	-	-	-
	Bufflehead	MODERATE	X	X	X	X						X	X	X	-	-	-
	Canada goose	HIGH	X	X	X	X						X	X	X	-	-	-
	Gadwall		X	X	X	X						X	X	X	-	-	-
	Mallard	HIGH	X	X	X	X						X	X	X	-	-	-
	Mergansers	MODERATE	X	X	X	X						X	X	X	-	-	-
	Northern pintail		X	X	X	X						X	X	X	-	-	-
	Tundra swan	HIGH	X	X	X	X						X	X	X	-	-	-
439	Great blue heron	8 NESTS	X	X	X	X	X	X	X	X	X	X	X	X	MAY-JUL	-	-
514	Great blue heron	52 NESTS	X	X	X	X	X	X	X	X	X	X	X	X	MAY-JUL	-	-

FISH:

RAR#	Species	S F Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
51	Alewife			X	X	X	X	X							-	-	-	-	FEB-JUN
	American eel		X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	-
	American shad			X	X	X	X	X							-	-	-	-	FEB-JUN
	Atlantic croaker		X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	MAY-NOV
	Atlantic menhaden					X	X	X	X	X	X	X	X		-	-	MAY-NOV	MAY-NOV	MAY-OCT
	Atlantic sturgeon	C	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	APR-NOV
	Banded killifish		X	X	X	X	X	X	X	X	X	X	X	X	APR-SEP	-	-	JAN-DEC	JAN-DEC
	Bay anchovy		X	X	X	X	X	X	X	X	X	X	X	X	APR-SEP	-	-	JAN-DEC	JAN-DEC
	Blueback herring			X	X	X	X	X							-	-	-	-	FEB-JUN
	Bluefish				X	X	X	X	X	X	X	X	X		-	-	-	JUL-NOV	APR-NOV
	Bluegill		X	X	X	X	X	X	X	X	X	X	X	X	APR-SEP	-	-	-	JAN-DEC
	Brown bullhead		X	X	X	X	X	X	X	X	X	X	X	X	APR-JUN	-	-	-	JAN-DEC
	Chain pickerel		X	X	X	X	X	X	X	X	X	X	X	X	FEB-APR	-	-	-	JAN-DEC
	Common carp		X	X	X	X	X	X	X	X	X	X	X	X	MAY-AUG	-	-	-	JAN-DEC
	Gizzard shad		X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
	Gobies		X	X	X	X	X	X	X	X	X	X	X	X	APR-SEP	APR-SEP	APR-OCT	JAN-DEC	JAN-DEC
	Hickory shad			X	X	X	X	X							-	-	-	-	FEB-JUN
	Hogchoker		X	X	X	X	X	X	X	X	X	X	X	X	MAY-SEP	MAY-SEP	MAY-SEP	JAN-DEC	JAN-DEC
	Largemouth bass		X	X	X	X	X	X	X	X	X	X	X	X	MAR-MAY	-	-	-	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 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	X				MAY-AUG	-	-	MAR-OCT	MAR-OCT
	Pumpkinseed		X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUN	-	-	JAN-DEC	JAN-DEC
	Shortnose sturgeon		X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
	Silver perch		X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
	Silversides		X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	MAR-JUL	APR-SEP	JAN-DEC	JAN-DEC
	Spot		X	X	X	X	X	X	X	X	X	X	X	X	-	-	DEC-APR	MAR-NOV	JAN-DEC
	Spotted seatrout				X	X	X	X	X	X	X				-	-	-	APR-NOV	-
	Striped bass			X	X	X	X	X	X	X	X				-	-	-	MAY-OCT	FEB-JUN
	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	-
	Weakfish				X	X	X	X	X	X	X				-	-	-	APR-NOV	-
	White catfish		X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	-
	White perch		X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	JAN-DEC
	Winter flounder		X	X	X	X	X	X	X	X	X	X	X	X	FEB-MAY	FEB-MAY	MAR-MAY	MAR-NOV	NOV-MAY
59	Alewife			X	X	X	X	X	X	X					-	FEB-JUN	FEB-JUN	FEB-OCT	FEB-JUN
	American eel		X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	-
	American shad			X	X	X	X	X	X	X					-	FEB-JUN	FEB-JUN	FEB-OCT	FEB-JUN
	Atlantic croaker					X	X	X	X	X	X	X			-	-	-	MAY-DEC	-
	Atlantic menhaden					X	X	X	X	X	X				-	-	MAY-NOV	MAY-NOV	MAY-OCT
	Atlantic sturgeon	C	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	APR-NOV
	Banded killifish		X	X	X	X	X	X	X	X	X	X	X	X	APR-SEP	-	-	JAN-DEC	JAN-DEC
	Bay anchovy		X	X	X	X	X	X	X	X	X	X	X	X	APR-SEP	-	-	JAN-DEC	JAN-DEC
	Black crappie		X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-	JAN-DEC	JAN-DEC
	Blueback herring			X	X	X	X	X	X	X					-	FEB-JUN	FEB-JUN	FEB-OCT	FEB-JUN
	Bluefish				X	X	X	X	X	X					-	-	-	MAY-NOV	-
	Bluegill		X	X	X	X	X	X	X	X	X	X	X	X	APR-SEP	-	-	-	JAN-DEC
	Bluespotted sunfish		X	X	X	X	X	X	X	X	X	X	X	X	MAY-JUN	-	-	-	JAN-DEC
	Brown bullhead		X	X	X	X	X	X	X	X	X				APR-JUN	-	-	-	JAN-DEC
	Chain pickerel		X	X	X	X	X	X	X	X	X	X	X	X	FEB-APR	-	-	-	JAN-DEC
	Channel catfish		X	X	X	X	X	X	X	X	X	X	X	X	MAR-MAY	-	-	JAN-DEC	JAN-DEC
	Common carp		X	X	X	X	X	X	X	X	X	X	X	X	MAY-AUG	-	-	-	JAN-DEC
	Gizzard shad		X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
	Gobies		X	X	X	X	X	X	X	X	X	X	X	X	APR-SEP	APR-SEP	APR-OCT	JAN-DEC	JAN-DEC
	Hickory shad			X	X	X	X	X	X	X					-	FEB-JUN	FEB-JUN	FEB-OCT	FEB-JUN
	Hogchoker		X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
	Largemouth bass		X	X	X	X	X	X	X	X	X	X	X	X	MAR-MAY	-	-	-	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
	Pumpkinseed		X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUN	-	-	JAN-DEC	JAN-DEC
	Redbreast sunfish		X	X	X	X	X	X	X	X	X	X	X	X	JUN-JUL	-	-	JAN-DEC	JAN-DEC
	Shortnose sturgeon		X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
	Silver perch					X	X	X							-	-	-	JUL-OCT	-
	Silversides		X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	MAR-JUL	APR-SEP	JAN-DEC	JAN-DEC
	Spot		X	X	X	X	X	X	X	X	X	X	X	X	-	-	DEC-APR	APR-NOV	-
	Spotted seatrout				X	X	X	X	X	X	X				-	-	-	APR-NOV	-
	Striped bass			X	X	X	X	X	X	X					-	FEB-JUN	FEB-JUN	MAY-OCT	FEB-JUN
	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	-
	Tessellated darter		X	X	X	X	X	X	X	X	X	X	X	X	APR-JUN	-	-	-	JAN-DEC
	Threadfin shad		X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	-
	Weakfish				X	X	X	X	X	X					-	-	-	APR-NOV	-
	White catfish		X	X	X	X	X	X	X	X	X	X	X	X	MAY-JUN	-	-	JAN-DEC	JAN-DEC
	White perch		X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC

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 116 (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
59	Yellow perch		X X X X X X X X X X X	APR-JUN	-	-	JAN-DEC	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
35	Blue crab		X X X X X X X X X X X	-	-	MAY-NOV	JAN-DEC	JAN-DEC

HUMAN USE RESOURCES:

PARK:

HUN#	Name	Contact	Phone
134	CALEDON NATURAL AREA STATE PARK	VA DCR	540/663-3861