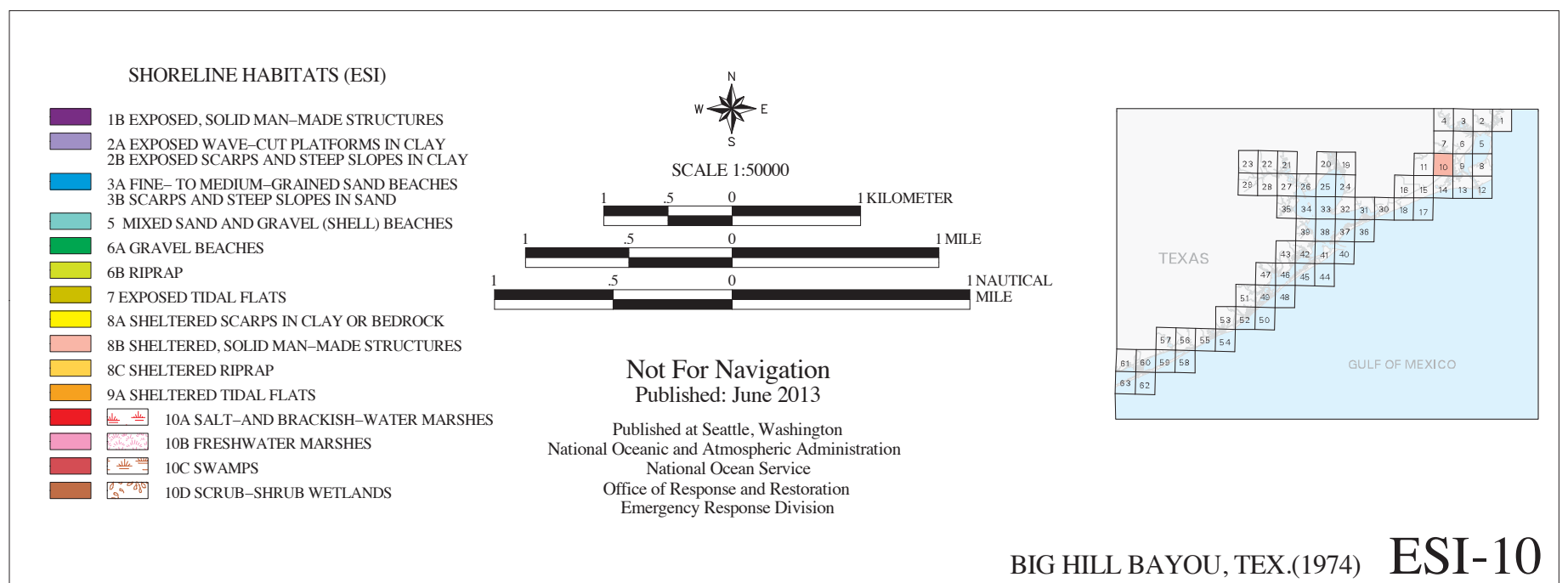
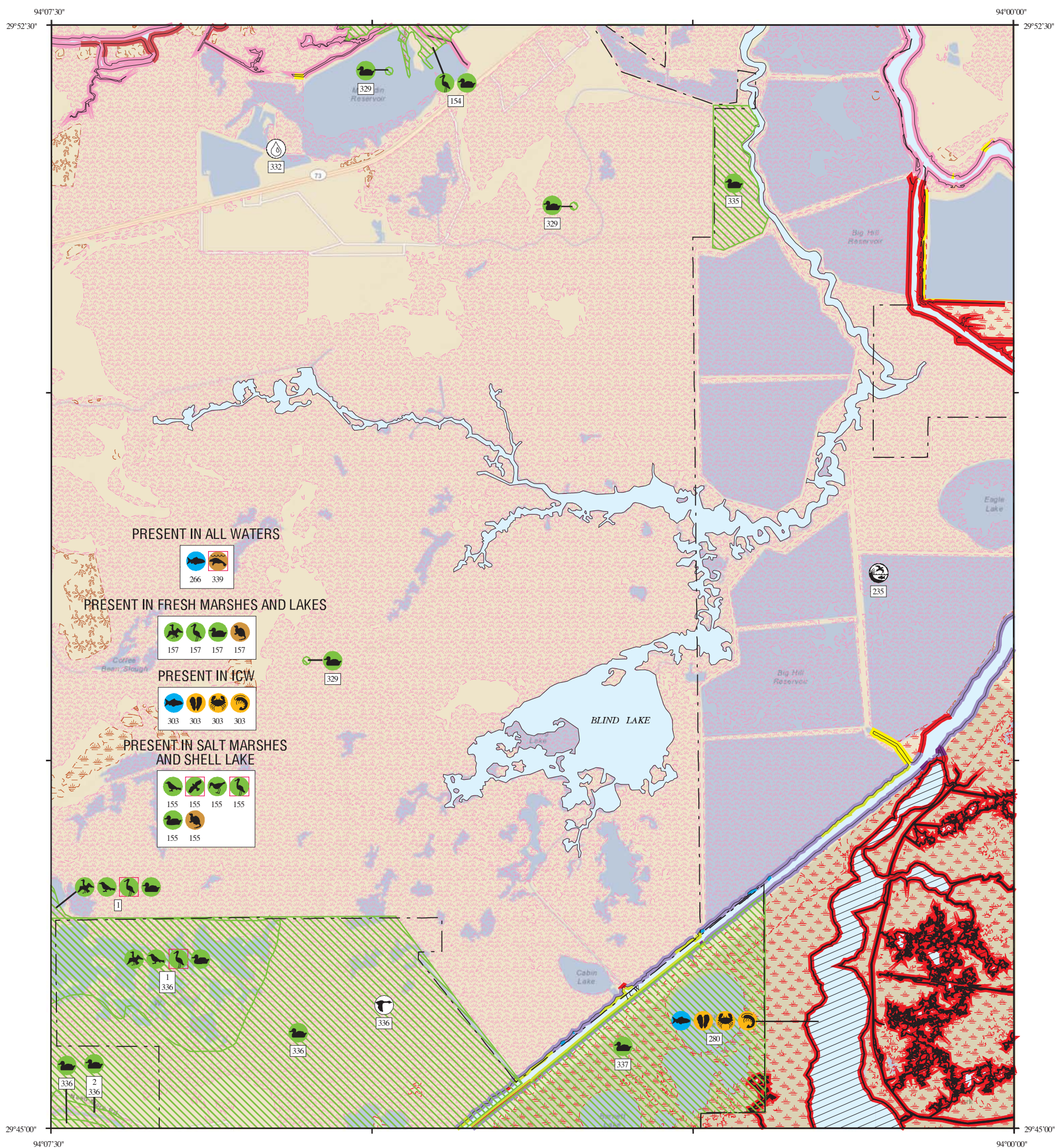


# ENVIRONMENTAL SENSITIVITY INDEX MAP





Upper Texas Coast: ESIMAP 10

BIOLOGICAL RESOURCES:

BIRD:

| RAR# | Species                     | S F Conc. | J | F | M | A | M | J | J | A | S | O | N | D | Nesting | Migrating          | Molting |
|------|-----------------------------|-----------|---|---|---|---|---|---|---|---|---|---|---|---|---------|--------------------|---------|
| 1    | Anhinga                     |           | X | X | X | X | X | X | X | X | X | X | X | X | -       | -                  | -       |
|      | Diving birds                |           | X | X | X | X | X | X | X | X | X | X | X | X | -       | -                  | -       |
|      | Egrets                      |           | X | X | X | X | X | X | X | X | X | X | X | X | -       | -                  | -       |
|      | Hérons                      |           | X | X | X | X | X | X | X | X | X | X | X | X | -       | -                  | -       |
|      | Marsh birds                 |           | X | X | X | X | X | X | X | X | X | X | X | X | -       | -                  | -       |
|      | Migratory songbirds         |           |   |   | X | X |   |   |   |   |   |   |   |   | -       | -                  | -       |
|      | Roseate spoonbill           |           | X | X | X | X | X | X | X | X | X | X | X | X | -       | -                  | -       |
|      | Wading birds                |           | X | X | X | X | X | X | X | X | X | X | X | X | -       | -                  | -       |
|      | Waterfowl                   | HIGH      | X | X | X | X | X | X | X | X | X | X | X | X | -       | -                  | -       |
|      | White ibis                  |           | X | X | X | X | X | X | X | X | X | X | X | X | -       | -                  | -       |
|      | White-faced ibis            | T         | X | X | X | X | X | X | X | X | X | X | X | X | -       | -                  | -       |
| 2    | Waterfowl                   |           | X | X | X | X | X | X | X | X | X | X | X | X | -       | -                  | -       |
| 154  | Common moorhen              |           | X | X | X | X | X | X | X | X | X | X | X | X | MAR-OCT | -                  | -       |
|      | Dabbling ducks              |           | X | X | X | X |   |   |   | X | X | X | X |   | -       | -                  | -       |
|      | Marsh birds                 |           | X | X | X | X | X | X | X | X | X | X | X | X | -       | -                  | -       |
|      | Purple gallinule            |           |   |   | X | X | X | X | X |   |   |   |   |   | -       | -                  | -       |
|      | Rails                       |           | X | X | X | X | X | X | X | X | X | X | X | X | -       | -                  | -       |
|      | Wading birds                |           | X | X | X | X | X | X | X | X | X | X | X | X | -       | -                  | -       |
|      | Waterfowl                   |           | X | X | X | X | X | X | X | X | X | X | X | X | -       | -                  | -       |
| 155  | American bittern            |           | X | X | X | X |   |   |   | X | X | X | X |   | -       | -                  | -       |
|      | Black rail                  |           | X | X | X | X | X | X | X | X | X | X | X | X | -       | -                  | -       |
|      | Black-necked stilt          | 10S       |   | X | X | X | X | X | X | X | X |   |   |   | -       | -                  | -       |
|      | Clapper rail                |           | X | X | X | X | X | X | X | X | X | X | X | X | FEB-SEP | -                  | -       |
|      | Common moorhen              |           | X | X | X | X | X | X | X | X | X | X | X | X | MAR-OCT | -                  | -       |
|      | Dowitchers                  | 100S      | X | X | X | X |   | X | X | X | X | X | X | X | -       | MAR-MAY<br>JUL-NOV | -       |
|      | Dunlin                      | 100S      | X | X | X | X |   |   |   | X | X | X | X |   | -       | -                  | -       |
|      | Killdeer                    | 100S      | X | X | X | X | X | X | X | X | X | X | X | X | -       | DEC-MAR            | -       |
|      | King rail                   |           | X | X | X | X | X | X | X | X | X | X | X | X | APR-MAY | -                  | -       |
|      | Marsh birds                 |           | X | X | X | X | X | X | X | X | X | X | X | X | -       | -                  | -       |
|      | Migratory songbirds         |           |   |   | X | X |   |   |   |   |   |   |   |   | -       | -                  | -       |
|      | Peregrine falcon            | T         | X | X | X |   |   |   |   | X | X | X | X | X | -       | -                  | -       |
|      | Shorebirds                  | 1000S     | X | X | X | X |   | X | X | X | X | X | X |   | -       | -                  | -       |
|      | Sora                        |           | X | X | X | X |   |   |   | X | X | X | X |   | -       | -                  | -       |
|      | Wading birds                |           | X | X | X | X | X | X | X | X | X | X | X | X | -       | -                  | -       |
|      | Waterfowl                   | HIGH      | X | X | X | X | X | X | X | X | X | X | X | X | -       | -                  | -       |
|      | Western sandpiper           | 100S      | X | X | X | X | X | X | X | X | X | X | X | X | -       | FEB-MAY<br>JUL-NOV | -       |
|      | Willet                      | 100S      | X | X | X | X | X | X | X | X | X | X | X | X | -       | APR-APR<br>AUG-AUG | -       |
|      | Wood stork                  | T         |   |   |   |   |   | X | X | X | X | X |   |   | -       | -                  | -       |
|      | Yellow rail                 |           | X | X | X | X |   |   |   | X | X | X | X |   | -       | -                  | -       |
|      | Yellowlegs                  | 10S       | X | X | X | X | X | X | X | X | X | X | X | X | -       | MAR-MAY<br>JUL-NOV | -       |
| 157  | Common loon                 |           | X | X | X | X |   |   |   |   | X | X | X |   | -       | -                  | -       |
|      | Diving birds                |           | X | X | X | X | X | X | X | X | X | X | X | X | -       | -                  | -       |
|      | Diving ducks                |           | X | X | X | X |   |   |   | X | X | X |   |   | -       | -                  | -       |
|      | Wading birds                |           | X | X | X | X | X | X | X | X | X | X | X | X | -       | -                  | -       |
|      | Waterfowl                   |           | X | X | X | X | X | X | X | X | X | X | X | X | -       | -                  | -       |
| 329  | Greater white-fronted goose |           | X | X | X |   |   |   |   | X | X | X |   |   | -       | -                  | -       |
|      | Snow goose                  |           | X | X | X |   |   |   |   | X | X | X |   |   | -       | -                  | -       |
| 335  | Mottled duck                | 3-7 NESTS | X | X | X | X | X | X | X | X | X | X | X | X | FEB-AUG | -                  | JUN-AUG |
| 336  | American coot               | 10000S    | X | X | X | X |   |   |   | X | X | X | X |   | -       | -                  | -       |
|      | American wigeon             | 1000S     | X | X | X |   |   |   |   | X | X | X | X |   | -       | -                  | -       |
|      | Blue-winged teal            | 10000S    | X | X | X | X | X | X | X | X | X | X | X | X | MAY-JUL | -                  | -       |
|      | Bufflehead                  | PRESENT   | X | X | X |   |   |   |   | X | X |   |   |   | -       | -                  | -       |
|      | Canada goose                | 100S      | X | X | X |   |   |   |   | X | X | X |   |   | -       | -                  | -       |
|      | Canvasback                  | 100S      | X | X | X |   |   |   |   | X | X | X |   |   | -       | -                  | -       |
|      | Fulvous whistling-duck      | 100S      | X | X | X | X | X | X | X | X | X | X | X | X | MAY-AUG | -                  | -       |
|      | Gadwall                     | 10000S    | X | X | X | X |   |   |   | X | X | X | X |   | -       | -                  | -       |
|      | Greater white-fronted goose | 1000S     | X | X | X |   |   |   |   | X | X | X |   |   | -       | -                  | -       |
|      | Green-winged teal           | 10000S    | X | X | X | X |   |   |   | X | X | X | X |   | -       | -                  | -       |
|      | Lesser scaup                | 1000S     | X | X | X | X |   |   |   | X | X | X |   |   | -       | -                  | -       |
|      | Mallard                     | 1000S     | X | X | X |   |   |   |   | X | X | X |   |   | -       | -                  | -       |
|      | Mottled duck                | 100S      | X | X | X | X | X | X | X | X | X | X | X | X | FEB-AUG | -                  | JUN-AUG |
|      | Northern pintail            | 10000S    | X | X | X |   |   |   |   | X | X | X | X |   | -       | -                  | -       |
|      | Northern shoveler           | 1000S     | X | X | X | X |   |   |   | X | X | X | X |   | -       | -                  | -       |
|      | Redhead                     | 10S       | X | X | X |   |   |   |   | X | X | X |   |   | -       | -                  | -       |
|      | Ring-necked duck            | 10000S    | X | X | X |   |   |   |   | X | X | X |   |   | -       | -                  | -       |
|      | Ruddy duck                  | 100S      | X | X | X |   |   |   |   | X | X | X |   |   | -       | -                  | -       |
|      | Snow goose                  | 10000S    | X | X | X |   |   |   |   | X | X |   |   |   | -       | -                  | -       |
|      | Wood duck                   | 10S       | X | X | X | X | X | X | X | X | X | X | X | X | FEB-JUL | -                  | -       |
| 337  | American coot               | 10000S    | X | X | X | X |   |   |   | X | X | X | X |   | -       | -                  | -       |
|      | American wigeon             | 1000S     | X | X | X |   |   |   |   | X | X | X | X |   | -       | -                  | -       |
|      | Blue-winged teal            | 10000S    | X | X | X | X | X | X | X | X | X | X | X | X | MAY-JUL | -                  | -       |
|      | Bufflehead                  | 10S       | X | X | X |   |   |   |   | X | X |   |   |   | -       | -                  | -       |
|      | Canada goose                | 100S      | X | X | X |   |   |   |   | X | X | X |   |   | -       | -                  | -       |
|      | Canvasback                  | 100S      | X | X | X |   |   |   |   | X | X | X |   |   | -       | -                  | -       |
|      | Fulvous whistling-duck      | 10S       | X | X | X | X | X | X | X | X | X | X | X | X | MAY-AUG | -                  | -       |
|      | Gadwall                     | 10000S    | X | X | X | X |   |   |   | X | X | X | X |   | -       | -                  | -       |
|      | Greater white-fronted goose | 100S      | X | X | X |   |   |   |   | X | X | X |   |   | -       | -                  | -       |
|      | Green-winged teal           | 10000S    | X | X | X | X |   |   |   | X | X | X | X |   | -       | -                  | -       |
|      | Lesser scaup                | 1000S     | X | X | X | X |   |   |   | X | X | X |   |   | -       | -                  | -       |
|      | Mallard                     | 100S      | X | X | X |   |   |   |   | X | X | X |   |   | -       | -                  | -       |
|      | Mottled duck                | 100S      | X | X | X | X | X | X | X | X | X | X | X | X | FEB-AUG | -                  | JUN-AUG |
|      | Northern pintail            | 1000S     | X | X | X |   |   |   |   | X | X | X | X |   | -       | -                  | -       |
|      | Northern shoveler           | 10000S    | X | X | X | X |   |   |   | X | X | X | X |   | -       | -                  | -       |
|      | Redhead                     | 10S       | X | X | X |   |   |   |   | X | X | X |   |   | -       | -                  | -       |
|      | Ring-necked duck            | 1000S     | X | X | X |   |   |   |   | X | X | X |   |   | -       | -                  | -       |
|      | Ruddy duck                  | 1000S     | X | X | X |   |   |   |   | X | X | X |   |   | -       | -                  | -       |
|      | Snow goose                  | 10000S    | X | X | X |   |   |   |   | X | X |   |   |   | -       | -                  | -       |
|      | Wood duck                   | 10S       | X | X | X | X | X | X | X | X | X | X | X | X | FEB-JUL | -                  | -       |

FISH:

| RAR# | Species            | S F Conc.       | J | F | M | A | M | J | J | A | S | O | N | D | Spawning | Eggs    | Larvae  | Juveniles | Adults  |
|------|--------------------|-----------------|---|---|---|---|---|---|---|---|---|---|---|---|----------|---------|---------|-----------|---------|
| 266  | Tarpon             | RARE            |   | X | X | X | X | X | X | X | X | X | X | X | -        | -       | -       | MAR-NOV   | -       |
| 280  | Alligator gar      | ABUNDANT        | X | X | X | X | X | X | X | X | X | X | X | X | -        | -       | -       | JAN-DEC   | JAN-DEC |
|      | Atlantic croaker   | HIGHLY ABUNDANT | X | X | X | X | X | X | X | X | X | X | X | X | -        | -       | JAN-JUN | JAN-DEC   | JAN-DEC |
|      | Atlantic spadefish | RARE            |   | X | X | X |   |   |   |   |   |   |   |   | -        | -       | -       | MAY-AUG   | -       |
|      | Bay anchovy        | ABUNDANT        | X | X | X | X | X | X | X | X | X | X | X | X | MAR-NOV  | MAR-NOV | MAR-NOV | FEB-DEC   | JAN-DEC |
|      | Bay whiff          | COMMON          | X | X | X | X | X | X | X | X | X | X | X | X | -        | -       | -       | APR-SEP   | JAN-DEC |
|      | Black drum         | COMMON          | X | X | X | X | X | X | X | X | X | X | X | X | -        | -       | -       | JAN-DEC   | JAN-DEC |
|      | Blue catfish       | RARE            | X | X | X | X | X | X | X | X | X | X | X | X | -        | -       | -       | JAN-DEC   | JAN-DEC |
|      | Crevalle jack      | COMMON          |   |   |   | X | X | X |   |   |   |   |   |   | -        | -       | -       | JUN-AUG   | -       |
|      | Gizzard shad       | ABUNDANT        | X | X | X | X | X | X | X | X | X | X | X | X | -        | -       | -       | -         | JAN-DEC |
|      | Gulf menhaden      | ABUNDANT        | X | X | X | X | X | X | X | X | X | X | X | X | -        | -       | -       | JAN-DEC   | APR-OCT |
|      | Hardhead catfish   | ABUNDANT        | X | X | X | X | X | X | X | X | X | X | X | X | MAY-AUG  | MAY-SEP | MAY-SEP | MAY-SEP   | JAN-DEC |
|      | Pinfish            | COMMON          |   | X | X | X | X | X | X | X | X | X | X | X | -        | -       | -       | MAR-NOV   | MAY-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.

Upper Texas Coast: ESIMAP 10 (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  |
|------|---------------------|-----------------|-------------------------|----------|---------|---------|-----------|---------|
| 280  | Red drum            | COMMON          | X X X X X X X X X X X X | -        | -       | -       | JAN-DEC   | JAN-DEC |
|      | Sand seatrout       | RARE            | X X X X X X X X X X X X | -        | -       | -       | JAN-DEC   | JAN-DEC |
|      | Sheepshead          | COMMON          | X X X X X X X X X X X X | -        | -       | -       | DEC-JAN   | JAN-DEC |
|      | Silver perch        | RARE            | X X X X X X X X X X X X | MAY-SEP  | MAY-SEP | MAY-SEP | SEP-SEP   | JAN-DEC |
|      | Silversides         | COMMON          | X X X X X X X X X X X X | MAR-AUG  | MAR-AUG | MAR-AUG | JAN-DEC   | JAN-DEC |
|      | Southern flounder   | ABUNDANT        | X X X X X X X X X X X X | -        | -       | -       | JAN-DEC   | JAN-DEC |
|      | Spot                | HIGHLY ABUNDANT | X X X X X X X X X X X   | -        | -       | -       | FEB-NOV   | APR-NOV |
|      | Spotted gar         | COMMON          | X X X X X X X X X X X X | APR-MAY  | APR-MAY | -       | JAN-DEC   | JAN-DEC |
|      | Spotted seatrout    | COMMON          | X X X X X X X X X X X X | -        | -       | -       | AUG-NOV   | JAN-DEC |
|      | Striped mullet      | COMMON          | X X X X X X X X X X X X | -        | -       | -       | JAN-DEC   | JAN-DEC |
|      | White mullet        | COMMON          | X X X X X X X X         | -        | -       | -       | JUN-SEP   | -       |
| 303  | Alligator gar       |                 | X X X X X X X X X X X X | -        | -       | -       | JAN-DEC   | JAN-DEC |
|      | Atlantic croaker    | HIGHLY ABUNDANT | X X X X X X X X X X X X | -        | -       | JAN-JUN | JAN-DEC   | JAN-DEC |
|      | Atlantic spadefish  | RARE            | X X X X X X X X         | -        | -       | -       | MAY-DEC   | -       |
|      | Bay anchovy         | COMMON          | X X X X X X X X X X X X | MAR-NOV  | MAR-NOV | MAR-NOV | FEB-DEC   | JAN-DEC |
|      | Bay whiff           | RARE            | X X X X X X X X X X X X | -        | -       | -       | APR-SEP   | JAN-DEC |
|      | Black drum          | COMMON          | X X X X X X X X X X X X | -        | -       | -       | JAN-DEC   | JAN-DEC |
|      | Blue catfish        | ABUNDANT        | X X X X X X X X X X X X | -        | -       | -       | JAN-DEC   | JAN-DEC |
|      | Bull shark          | COMMON          | X X X X X X X X X X X X | -        | MAY-AUG | MAY-AUG | APR-NOV   | JAN-DEC |
|      | Gafftopsail catfish | COMMON          | X X X X X X X X         | APR-MAY  | -       | -       | APR-OCT   | APR-OCT |
|      | Gizzard shad        | RARE            | X X X X X X X X X X X X | -        | -       | -       | -         | JAN-DEC |
|      | Gulf menhaden       | ABUNDANT        | X X X X X X X X X X X X | -        | -       | -       | JAN-DEC   | APR-OCT |
|      | Hardhead catfish    | ABUNDANT        | X X X X X X X X X X X X | MAY-AUG  | MAY-SEP | MAY-SEP | MAY-SEP   | JAN-DEC |
|      | Red drum            | COMMON          | X X X X X X X X X X X X | -        | -       | -       | JAN-DEC   | JAN-DEC |
|      | Sand seatrout       | RARE            | X X X X X X X X X X X X | -        | -       | -       | JAN-DEC   | JAN-DEC |
|      | Sheepshead          | COMMON          | X X X X X X X X X X X X | -        | -       | -       | DEC-JAN   | JAN-DEC |
|      | Silver perch        | RARE            | X X X X X X X X X X X X | MAY-SEP  | MAY-SEP | MAY-SEP | JUN-DEC   | JUN-DEC |
|      | Southern flounder   | COMMON          | X X X X X X X X X X X X | -        | -       | -       | JAN-DEC   | JAN-DEC |
|      | Spot                | HIGHLY ABUNDANT | X X X X X X X X X X X X | -        | -       | -       | FEB-NOV   | APR-NOV |
|      | Spotted seatrout    | COMMON          | X X X X X X X X X X X X | -        | -       | -       | AUG-NOV   | JAN-DEC |
|      | Striped mullet      | COMMON          | X X X X X X X X X X X X | -        | -       | -       | 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  |
|------|------------------------|-----------------|-------------------------|----------|---------|---------|-----------|---------|
| 280  | Atlantic rangia        | HIGHLY ABUNDANT | X X X X X X X X X X X X | MAR-OCT  | -       | MAR-OCT | JAN-DEC   | JAN-DEC |
|      | Blue crab              | ABUNDANT        | X X X X X X X X X X X X | MAR-NOV  | -       | MAR-NOV | JAN-DEC   | JAN-DEC |
|      | Brown shrimp           | ABUNDANT        | X X X X X X X X X X X   | -        | -       | MAR-APR | MAR-DEC   | -       |
|      | Grass shrimp           | ABUNDANT        | X X X X X X X X X X X X | JAN-DEC  | JAN-DEC | JAN-DEC | JAN-DEC   | JAN-DEC |
|      | White shrimp           | HIGHLY ABUNDANT | X X X X X X X X X X X X | -        | -       | MAY-JUN | MAY-DEC   | JAN-DEC |
| 303  | Atlantic rangia        |                 | X X X X X X X X X X X X | MAR-OCT  | -       | MAR-OCT | JAN-DEC   | JAN-DEC |
|      | Atlantic seabob shrimp | RARE            | X X X X X X X           | -        | -       | -       | -         | AUG-NOV |
|      | Blue crab              | ABUNDANT        | X X X X X X X X X X X X | MAR-NOV  | -       | MAR-NOV | JAN-DEC   | JAN-DEC |
|      | Brown shrimp           | COMMON          | X X X X X X X X X       | -        | -       | MAR-APR | MAY-NOV   | -       |
|      | White shrimp           | ABUNDANT        | X X X X X X X X X X X X | -        | -       | MAY-JUN | MAY-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 |
|------|---------------------|---------------|-------------------------|--------|---------|---------|---------|
| 339  | West Indian manatee | E E VERY RARE | X X X                   | -      | -       | -       | -       |

TERRESTRIAL MAMMAL:

| RAR# | Species              | S F Conc. | J F M A M J J A S O N D |
|------|----------------------|-----------|-------------------------|
| 155  | Northern river otter |           | X X X X X X X X X X X X |
| 157  | Northern river otter |           | X X X X X X X X X X X X |

HUMAN USE RESOURCES:

MANAGEMENT AREA:

| HUN# | Name              | Contact | Phone |
|------|-------------------|---------|-------|
| 235  | J.D. MURPHREE WMA | TPWD    |       |

WATER INTAKE:

| HUN# | Name                        | Contact | Phone |
|------|-----------------------------|---------|-------|
| 332  | VEOLIA PORT ARTHUR FACILITY |         |       |

WILDLIFE REFUGE:

| HUN# | Name                              | Contact | Phone |
|------|-----------------------------------|---------|-------|
| 336  | MCFADDIN NATIONAL WILDLIFE REFUGE |         |       |