

extent of Unit 8 is the MHW line on each shoreline of the included water bodies or the entrance to rivers, bayous, and creeks.

The Pearl River and its distributaries flow into The Rigolets, Little Lake, and Lake Borgne, the western extension of Mississippi Sound. The Rigolets connect Lake Pontchartrain and Lake St. Catherine with Little Lake and Lake Borgne. The Pascagoula River and its distributaries flow into Pascagoula Bay and Mississippi Sound.

This unit provides juvenile, subadult and adult feeding, resting, and passage habitat for Gulf sturgeon from the Pascagoula and the Pearl River subpopulations. One or both of these subpopulations have been documented by tagging data, historic sightings, and incidental captures as using Pascagoula Bay, The Rigolets, the eastern half of Lake Pontchartrain, Little Lake, Lake St. Catherine, Lake Borgne, Mississippi Sound, within 1 nm (1.9 km) of the nearshore Gulf of Mexico adjacent to the barrier islands and within the passes (Davis *et al.*, 1970; Reynolds, 1993; Rogillio, 1993; Morrow *et al.*, 1998a; Ross *et al.*, 2001a; Rogillio *et al.*, 2002; and F. Parauka, pers. comm. 2002). Substrate in these areas range from sand to silt, all of which contain known Gulf sturgeon prey items (Menzel, 1971; Abele and Kim, 1986; and American Fisheries Society, 1989).

The Rigolets is an 11.3 km (7 mi) long and about 0.6 km (0.4 mi) wide passage connecting Lake Pontchartrain and Lake Borgne (U.S. Department of Commerce (USDOC), 2002). This brackish water area is used by adult Gulf sturgeon as a staging area for osmoregulation and for passage to and from wintering areas (Rogillio *et al.*, 2002). Lake St. Catherine is a relatively shallow lake with depths averaging approximately 1.2 m (4 ft), connected to The Rigolets by Sawmill Pass. Bottom sediments in Sawmill Pass are primarily silt; Lake St. Catherine's are composed of silt and sand (Barrett, 1971). Incidental catches of Gulf sturgeon are documented from Lake St. Catherine and Sawmill Pass (Reynolds, 1993; and H. Rogillio, Louisiana Department of Wildlife and Fisheries, pers. comm. 2002). Based on the proximity of Little Lake, Lake St. Catherine, and Sawmill Pass to The Rigolets and Pearl River, we believe these areas are also used for staging and feeding and, therefore, we have included them with The Rigolets as critical habitat.

Rogillio (1990) and Morrow *et al.* (1996) indicated that Lake Pontchartrain and Lake Borgne were used by Gulf sturgeon as wintering habitat, with most catches during late September through

March. Lake Pontchartrain is 57.9 km (36 mi) long, 35.4 km (22 mi) wide at its widest point, and 3 to 4.9 m (10 to 16 ft) deep (USDOC, 2002). Morrow *et al.* (1996) documented Gulf sturgeon from the Pearl River system using Lake Pontchartrain (verified by tags) and summarized existing Gulf sturgeon records, which indicated greater use of the eastern half of Lake Pontchartrain. Although Rogillio *et al.* (2002) did not relocate any of their sonic tagged adult Gulf sturgeon in Lake Pontchartrain, the eastern part of this lake is believed to be an important winter habitat for juveniles and subadults (H. Rogillio, pers. comm. 2002). Furthermore, we believe that Gulf sturgeon forage in Lake Pontchartrain during the winter. The Lake Pontchartrain Causeway, twin toll highway bridges, extends 33.6 km (20.9 mi) across Lake Pontchartrain from Indian Beach on the south shore to Lewisburg and Mandeville on the north shore. Sediment data from Lake Pontchartrain indicate sediments have a greater sand content east of the causeway than west (Barrett, 1976). Most records of Gulf sturgeon from Lake Pontchartrain are located east of the causeway, with concentrations near Bayou Lacombe and Goose Point, both on the eastern north shore (Reynolds, 1993; and Morrow *et al.*, 1996). While Gulf sturgeon have also been documented west of the causeway, generally near the mouths of small river systems (Davis, 1970), we have excluded the western portion of Lake Pontchartrain because we believe that the sturgeon utilizing this area are coming from western tributaries and not the Pearl River.

Lake Pontchartrain connects by The Rigolets with Lake Borgne. Lake Borgne, the western extension of Mississippi Sound, is partly separated from Mississippi Sound by Grassy Island, Half Moon (Grand) Island and Le Petit Pass Island. Lake Borgne is approximately 14.3 km (23 mi) in length, 3 to 6 km (5 to 10 mi) in width and 1.8 to 3 m (6 to 10 ft) in depth (USDOC, 2002). Most of Lake Borgne sediment is clay and silt (Barrett, 1971). Many Gulf sturgeon were anecdotally reported as taken incidentally in shrimp trawls in Lake Borgne 0.6 to 1.2 km (1 to 2 mi) south of the Pearl River between August and October from the 1950s through the 1980s (Reynolds, 1993). There are twenty-two additional records of Gulf sturgeon in Lake Borgne (D. Walther, FWS, pers. comm. 2002). Known locations are spread out around the perimeter of the Lake, including at the mouth of The Rigolets, Violet Canal, Bayou Bienvenue, Polebe, Alligator

Point, and at Half Moon Island (Reynolds, 1993). We have included all of Lake Borgne as critical habitat.

The Mississippi Sound is separated from the Gulf of Mexico by a chain of barrier islands, including Cat, Ship, Horn, and Petit Bois Islands. Natural depths of 3.7–5.5 m (12 to 18 ft) are found throughout the Sound and a channel 3.7 m (12 ft) deep has been dredged where necessary from Mobile Bay to New Orleans (USDOC, 2002). Incidental captures and recent studies confirm that both Pearl River and Pascagoula River adult Gulf sturgeon winter in the Mississippi Sound, particularly around barrier islands and barrier islands passes (Reynolds, 1993; Ross *et al.*, 2001a; and Rogillio *et al.*, 2002). Pascagoula Bay is adjacent to the Mississippi Sound. Gulf sturgeon exiting the Pascagoula River move both east and west, with telemetry locations as far east as Dauphin Island and as far west as Cat Island and the entrance to Lake Pontchartrain, Louisiana (Ross *et al.*, 2001a). Tagged Gulf sturgeon from the Pearl River subpopulation have been located between Cat Island, Ship Island, Horn Island, and east of Petit Bois Islands to the Alabama State line (Rogillio *et al.*, 2002). Gulf sturgeon have also been documented within 1 nm (1.9 km) off the barrier islands of Mississippi Sound. We, therefore, have included 1 nm (1.9 km) offshore of the barrier islands of Mississippi Sound. Habitat used by Gulf sturgeon in the vicinity of the barrier islands is 1.9 to 5.9 m (6.2 to 19.4 ft) deep (average 4.2 m (13.8 ft)), with clean sand substrata (Heise *et al.*, 1999b; Ross *et al.*, 2001a; and Rogillio *et al.*, 2002). Preliminary data from substrate samples taken in the barrier island areas indicate that all samples contained lancelets (Ross *et al.*, 2001a). Inshore locations where Gulf sturgeon were located (Deer Island, Round Island) were 1.9 to 2.8 m (6.2 to 9.2 ft) deep and all had mud (mostly silt and clay) substrata (Heise *et al.*, 1999b), typical of substrates supporting known Gulf sturgeon prey.

#### *Unit 9. Pensacola Bay System in Escambia and Santa Rosa Counties, Florida*

Unit 9 includes Pensacola Bay and its adjacent main bays and coves. These include Big Lagoon, Escambia Bay, East Bay, Blackwater Bay, Bayou Grande, Macky Bay, Saultsma Cove, Bass Hole Cove, and Catfish Basin. All other bays, bayous, creeks, and rivers are excluded at their mouths. The western boundary is the Florida State Highway 292 Bridge crossing Big Lagoon to Perdido Key. The southern boundary is the 72 COLREGS line between Perdido Key and Santa