



U.S. Fish and Wildlife Service

## BP Deepwater Horizon – After the Spill

April 2012

### Gulf of Mexico Sturgeon Injury Assessment

#### Question and Answer

The Gulf of Mexico sturgeon (or Gulf sturgeon) exists in coastal rivers from the Pearl River in Louisiana to the Suwannee River in Florida. To save the species from extinction, the State of Florida halted Gulf sturgeon fishing in 1984, and in 1991 the federal government granted protection to the species throughout its range, as a threatened species under the Endangered Species Act.

#### What are some of the biological characteristics of the Gulf sturgeon?

The normal life expectancy for adult Gulf sturgeon is about 20-25 years. Few Gulf sturgeons live more than 20 years.

Adults grow to a maximum total length of about 7.5 feet. Most males probably stop growing at about five feet; larger fish are typically females. It is important for females to grow to large size so that they can carry and nurture a great number of eggs.

The **heaviest** Gulf sturgeon found in recent decades was a 300 pound fish from the Pearl River, Louisiana. A 503 pound sturgeon (possibly a Gulf sturgeon) was captured at the mouth of the Mississippi River in 1936.

**Sexual maturity** of male Gulf sturgeons is at about age eight. Males probably spawn every year thereafter. Females become sexually mature at about age 12, probably requiring at least three years to produce each batch of eggs thereafter. A female that lives to a normal life expectancy of 20-25 years will probably spawn only three to four times during her lifespan. Large females are the critical mainstay of the population and must be protected if the species is to survive.

#### Why are Gulf sturgeons called anadromous?

The Gulf sturgeon is an anadromous fish, which means it migrates from the marine environment to the freshwater river systems where spawning occurs. Like their ancient ancestors, Gulf sturgeons are fundamentally freshwater fishes, however. They visit marine waters to feed on the rich supply of invertebrates found on sandy

marine bottoms. They return to freshwater rivers to spawn since the eggs, larvae, and young of the year cannot tolerate saltwater.

Spawning and non-spawning adult and sub-adult Gulf sturgeons migrate into the rivers in the spring (March-May) and stay until the fall (September-November). Upon fall migration, fish may remain in the river mouth for a few days or weeks prior to entering saltwater, gradually adjusting to salinity. Thereafter, individuals disperse widely along the coast in bays, estuaries, and the open Gulf, usually remaining in waters less than 20 feet deep.

#### How do Gulf sturgeons reproduce?

Eggs are deposited in freshwater rivers on rock and gravel. Each female produces between 200,000-500,000 eggs per spawning cycle. Natural mortality from mishaps, predators, diseases, water quality, and other causes will claim 99.999% of eggs, hatchlings and juveniles. So, only a very few eggs will eventually become adult sturgeons. This is natural. Each female only needs to produce a few spawning offspring during her life to maintain a stable population, replacing herself and one male.



### How do Gulf sturgeons feed?

Adult and sub-adult Gulf sturgeons are bottom feeders, normally consuming a variety of bottom dwelling marine organisms, including amphipods (small shrimp-like crustaceans), isopods (small crustaceans), lancelets (sediment-dwelling worm-like animals), polychaetes (bristle worms), and other marine worms.

The Gulf sturgeon has an unusual life history trait: they do not eat during their six to eight month fresh water residency - except during their first year of life in the river. All feeding after the first year takes place in estuarine waters (juveniles) or in nearshore marine waters of the open Gulf of Mexico (subadults and adults) during winter. Gulf sturgeon feed intensively in winter, vacuuming up small bottom-dwelling prey from soft, sandy marine substrates. When in freshwater, they use the energy stored in their body fat and muscle. Individual fish can lose up to 30% of their body weight during the summer-fall fasting period. But, this weight loss is more than compensated for during the next round of winter feeding, when Gulf sturgeons can increase their body weight as much as 130%

### Do Gulf sturgeons home to the river where they hatched?

Like anadromous salmon, sturgeons are thought to home strongly to their natal river, the river where they hatched from eggs. Telemetry (radio-tracking) and genetic studies confirm general homing behavior. There is some straying and movement among Gulf Coast river populations, however.

### Why are the Natural Resource Trustees assessing injury to the Gulf sturgeon?

While the Trustees are assessing injuries to a wide range of wildlife species, the assessment plan for the threatened Gulf sturgeon focuses on collecting information

that will facilitate the evaluation of potential injury from the DWH Oil Spill in adult sturgeon. Its purpose is to measure indicators of potential injury including health indicators in the blood and behavioral changes of adult sturgeon as they overwinter in the Gulf of Mexico and return to the rivers in the spring.

### What are the main objectives of the Gulf sturgeon assessment work?

The main objectives of the assessment plan are:

- (1) document the condition of Gulf sturgeon during the fall and spring migrations and compare condition of adult Gulf sturgeon between migrations;
- (2) collect blood samples from up to 180 adult Gulf sturgeon from among the nine major river systems associated with the DWH oil spill; and
- (3) document offshore movement and habitat use of up to 180 adult Gulf sturgeon during the overwintering period in the Gulf of Mexico.

### Where is the research being conducted?

Researchers are netting sturgeon on nine river systems: the Apalachicola, Ochlockonee, Blackwater, Yellow, Escambia, Suwannee, Pascagoula, Choctawhatchee and Pearl rivers. Fish are being tagged with ultrasonic acoustic transmitters that will be monitored by an array of receivers in the Gulf of Mexico.

### What kind of data are the Trustee researchers gathering from the Gulf sturgeons?

When netted, each fish will be tagged, and the following data will be collected for each fish:

- Length
- Weight
- Fin clips for genetic samples

- Whether fish had been previously tagged by scientists
- Blood samples
- Photographs

### When did the Gulf sturgeon injury assessment work begin, and when will it end?

The NRDA Gulf sturgeon assessment sampling was first conducted from September through November 2010 as the fish migrated out of freshwater to feed. While in marine waters, we monitor movement and habitat use of Gulf sturgeon with transmitter tags using an array of receivers placed throughout the Gulf of Mexico. Additional sampling occurred in February-April 2011, as the fish migrated to the rivers to spawn and in the fall of 2011 as the fish returned to coastal estuaries and the Gulf of Mexico. The sampling now underway intercepts fish as they migrate back to the rivers to spawn.

### What happens after you collect the samples, and what can you tell from analysis of the samples?

Using the data collected from the receivers, we will be able to map the movement and habitat use of tagged Gulf sturgeon to see if there was interaction with potentially oiled areas. The blood and genetic samples allow us to test for the exposure to oil related chemicals like polycyclic aromatic hydrocarbons (PAHs) and to determine if there is any injury to Gulf sturgeon organ and/or immune function.

### For more information about BP Deepwater Horizon NRDAR

[www.doi.gov/deepwaterhorizon](http://www.doi.gov/deepwaterhorizon)

[www.gullspillrestoration.noaa.gov](http://www.gullspillrestoration.noaa.gov)

[www.restorethegulf.gov](http://www.restorethegulf.gov)

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