

# The Gulf Oil Spill: What it means to the Gulf and the future of fisheries biology students

**Figure 3.** Expansive boom set to protect the barrier islands from oil.

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During the annual meeting of the Western Division AFS in Salt Lake City, Utah, American Fisheries Society President Don Jackson invited students from the division to see and experience firsthand the Pascagoula River. Several students were already committed to fieldwork, or their graduate projects, but two students were able to visit Mississippi. The Pascagoula River originates in east-central Mississippi, then flows south as an independent system, and eventually forms a large estuary prior to discharging into the Gulf of Mexico. It is regarded as a national treasure due to its uniqueness as the very last physically-unmodified large river system in the lower 48 states. Additionally, it is home to state and federally listed species, including the Gulf sturgeon.

On the morning of 20 April 2011, the BP Deepwater Horizon oilrig exploded off the coast of Louisiana. That evening in Salt Lake City, the invitation was made. However, unknown at the time was just how catastrophic this accident would become. Over the next weeks, as the disaster in the Gulf of Mexico evolved, our plans to visit

the Pascagoula River shifted focus to witness the environmental and political aspects of the largest environmental disaster in American history. During this trip, which occurred 53 days after the accident, we were able to explore not only the Pascagoula River, but we also extended our activities into the estuary and further into the Gulf of Mexico around barrier islands off the coast of Mississippi. This enabled us to view the inland river habitat that was already of high conservation value, as well as the estuary and Gulf of Mexico, which were now at the forefront of a growing ecological problem.

On the Pascagoula River, houseboats floated, and a handmade cedar boat ferried a grandfather and grandson to their trotline—evidence that the river and the lives of people in this part of the country are deeply intertwined. We were provided opportunity to engage in recreational fishing, both freshwater (trotlines for catfishes) and estuarine (blue crabs and brackish-water finfish), in order to get a feel for the resources from the perspective of consumptive users (Figures 1 and 2). At the river mouth, the estuary was filled with boat traffic, including shrimp boats either heavy with

the day's catch (prior to closure of the region's fisheries), or engaged in activities focused on intercepting the approaching oil slick. Because of a recently imposed ban on recreational

fishing in marine waters, most of the activity that we encountered along the coast was associated with addressing the oil spill.

The Mississippi Department of Marine Resources provided us with a boat and a driver to witness the oil coming onshore, and to see the subsequent preventive efforts on the barrier islands. The barrier islands

were protected by expansive sets of orange and yellow booms designed and positioned to limit the amount of oil actually making it to shore (Figure 3). While circumnavigating the islands, we observed sharks, blue crabs, sea turtles, horseshoe crabs, and schools

of mullet. There was a conspicuous smell of oil in the air, and an oily, prismatic sheen on the water. On the south side of the islands, rust colored globs of oil, some as large as baseballs, and many with debris tangled up inside

of them, floated on the waves and washed ashore. Despite preventive efforts, the island beaches were littered with washed up oil globs, tar balls, and oily debris (Figure 4).

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**Figure 1.** Blue crab from the Pascagoula estuary



**Figure 2.** Stingray sampled in the Pascagoula estuary.



**Figure 4.** Oil on a barrier island



It became clear to us during our trip to the Mississippi Gulf Coast, and upon reflection after our trip, that the oil spill is generating profound opportunities (and responsibilities) for the emerging cohort of new fisheries professionals in AFS. We will be needed to address contemporary and future needs of fisheries throughout the region. There are going to be numerous jobs available for persons with fisheries training. Due to the nature of the challenges associated with recovery from the oil spill, many of these opportunities could very likely establish the framework for entire careers. Our trip not only gave us firsthand experience in this emerging arena, but also insight into how we may be able to orient our academic

programs and participation in AFS to better address the specific needs in the region.

Whether students are more inclined to conservation biology, fisheries science, or ecology, this situation requires diverse perspectives. The presence of threatened and endangered species, such as the Gulf sturgeon and brown pelican, warrants the need for people with a conservation biology concentration. These professionals will also be needed to effectively communicate with a concerned public. The economically valuable near-shore and offshore fisheries require skilled fisheries scientists to be able to explain the real and possible effects of this disaster to the various fin and shellfish markets. During the oil spill, recreational fishing was closed, and throughout the Gulf, boat captains were forced to adopt the role of protector in place of harvester. Subsistence and recreational resource users may be forced to adapt by utilizing freshwater systems. Like other marine subsidies, coastal fishing economies could be diverted inland as commercial and recreational fishermen focus on more pristine waters. With these issues, trained fisheries scientists can help expedite the region's recovery. Furthermore, the extent of the oil spill stretched from the deep-sea to the surface, and to every state that borders the Gulf. But unlike the beaches and near-shore habitats, the impacts to the deep-sea ecosystem will be difficult to assess. Likewise, any aquatic ecosystem in proximity to the Gulf, like the Pascagoula River and estuary complex, is at risk. Consequently, the vast scope of this disaster calls for ecologists to assist in determining the broad spatial scale that is affected and the likely changes we may see from the deep sea to the rivers that feed the Gulf. Professionals from

these disciplines will be necessary to help others begin to comprehend the oil spill and its effects on the various ecosystems and organisms that are in the region's waters and lands. It may

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be difficult for the nation to comprehend the hardship faced by the Gulf, given the severity of the disasters faced recently. However, the risks and use of extractive methods to obtain natural resources are pervasive in the U.S., through nickel mines in the Great Lakes, gold mining in Alaska, coal bed methane in Wyoming, and offshore drilling in the Gulf. Implications of resource exploitation extend nationwide, and with continued use of extractive methods, fisheries professionals will remain responsible for creating best management practices of resources, and to be proactive if something goes wrong. The Deepwater Horizon accident is a tragedy, but the response from stakeholders (i.e., BP, residents, resource users, and the Government) necessitates objective science via skilled individuals. Objective science will be facilitated through state and federal agencies, academia, and private firms with the same purpose: to assess, mitigate, and manage the Gulf of Mexico's natural resources responsibly. The effect of the Deepwater Horizon spill will span

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generations, and this cohort of students can take advantage of the opportunities presented to young fishery scientists. Sometimes, just being involved can help you get there. Additionally, our trip underscored the importance of membership in AFS, and attendance and participation in AFS meetings. Had we not attended the 2011 Western

Division Annual Meeting, there would have been no invitation, and we would not have been able to have the trip, nor gain the associated perspective regarding the oil spill. ☺