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Hurricane Katrina: Fishing and Aquaculture Industries — Damage and Recovery

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Summary

Hurricane Katrina struck a center of commercial and recreational fishing along the Gulf of Mexico coast, where 10% of the shrimp and 40% of the oysters consumed in the United States are produced. Initial losses to seafood production are estimated at $1.1 billion for Louisiana and could exceed $200 million for Alabama, exclusive of infrastructure. Although Alabama waters have been closed to commercial fishing until pollution-related contamination concerns are resolved, undamaged fishing vessels are being readied to resume fishing. In addition, inland areas account for much of the U.S. farmed catfish production. This report summarizes damage assessments and recovery efforts, with more detailed assessments provided as they become available. This report will be updated as warranted to incorporate new information.

Hurricane Katrina struck the Gulf Coast of the United States on August 29, 2005, causing widespread flooding and significant property and infrastructure damage to the fishing and aquaculture industries in the Louisiana, Mississippi, and Alabama region. A total of 15 major fishing ports, 177 seafood processing facilities, 1,816 federally permitted fishing vessels, and an unknown number of state permitted fishing vessels were located in this region.[1] Katrina earlier brushed across the Florida Keys, causing damage there.

The number of fishing vessels beached, sunk, damaged, or otherwise lost has not yet been determined; other vessels are trapped in back bays by debris that blocks shipping channels. For fishermen who did not lose their vessels, recovery may be mitigated somewhat as many fishermen are traditionally opportunistic, adaptable, and highly mobile, moving vessels to avoid catastrophe, shifting deliveries among ports as stocks move or prices offered by processors change as well as changing gear and refitting vessels to exploit different stocks at different times of the year. Unlike oysters, which likely suffered significant mortality, fish and crustacean populations may have suffered minimal increased mortality due to the hurricane. However, marketablility of catch could be

[1] For a background discussion on the difficulties in counting fishermen and vessels, see CRS Report RS21312, *How Many Commercial Fishermen?*

affected by contamination from storm runoff or consumer concerns about such. Persistence of high fuel costs could have a significant effect on the economic viability of the more fuel-consumptive sectors of domestic seafood production (e.g., shrimp trawling) relative to imported seafood. Damage to processing facilities and disruption of former market dealer relationships will add to recovery time and alter broader seafood markets and product availability.

Shrimp. Commercial shrimpers fishing out of or delivering to Alabama, Mississippi, and Louisiana ports account for almost half of all U.S. shrimp production. Katrina has destroyed or severely damaged shrimp boats and shrimp processing and storage facilities throughout this area during this, the peak harvesting season; other vessels are beached or trapped by debris blocking shipping channels. How much of the processing capacity and how many vessels might be salvageable is still being determined. For shrimp, the Louisiana Department of Wildlife and Fisheries estimates the 12-month potential loss at dockside at more than $81 million, with 12-month potential production losses at the retail level at almost $540 million.[2] An undetermined number of shrimpers may have drowned trying to ride out the storm aboard their vessels, but information is not yet available to document these fatalities. Several million pounds unrefrigerated shrimp at damaged processing plants must be disposed; the Coast Guard reportedly has approved ocean disposal of this waste.

Even prior to Katrina, this segment of the U.S. fishing industry had been declining due to competition from less-expensive foreign imports and among domestic harvesters, since domestic capacity is much greater than necessary to efficiently harvest the resource. In addition, shrimp trawling is very fuel consumptive and rising fuel costs make shrimp trawling increaingly uneconomical; some shrimpers who survived Katrina may find it difficult to resume fishing because of high fuel costs. Additional impediments to shrimping are the underwater obstacles that foul and damage shrimp trawls; hurricane debris will provide many new obstacles (i.e., "hangs"), and Katrina's storm surges may have moved former obstacles to new, uncharted positions.[3] Some shrimp fishermen from the affected area may relocate to Texas or Florida, if their trawlers are capable of repair and fishing. Others in the affected areas have refloated beached vessels and are readying undamaged vessels to resume fishing.

Oysters. With the decline of oyster harvest from the Mid-Atlantic region, the Gulf Coast has been supplying most of the recent domestic oyster harvest. Oyster beds and oyster vessels along the Gulf Coast were extensively damaged, if not totally destroyed by siltation and contamination related to Katrina. Molluscan shellfish (oysters, clams, and mussels) beds in Louisiana and Mississippi are closed to harvesters. For oysters, the Louisiana Department of Wildlife and Fisheries estimates the direct loss of available resource at more than $205 million and the 24-month potential loss at dockside at almost $45 million, with 24-month potential production losses at the retail level at almost $300

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[2] Louisiana Dept. of Wildlife and Fisheries, *Preliminary Analyses of Economic Losses Caused by Hurricane Katrina to Louisiana's Fisheries Resources*, Sept. 7, 2005, 6 p. (Hereafter "Louisiana Analyses")

[3] Louisiana's Underwater Obstruction Removal Program estimates between $600 to $15,000 to remove a single obstruction.

million, assuming oyster mortality at 99% based on the size and strength of Katrina.[4] While the Louisiana Department of Wildlife and Fisheries estimated oyster reef rehabilitation costs would exceed $860 million,[5] a Gulf Oyster Task Force more recently estimated the cost for restoration of oyster beds and infrastructure at more than $400 million[6] and the Gulf Oyster Industry Council said it would cost more than $335 million.[7] In addition, the Florida oyster industry, struggling to recover from damage by earlier Hurricane Dennis, has been closed because of toxic red tide; Florida seafood processing facilities normally receive oysters from Louisiana and Texas. Because of extensive hurricane-related pollution and related contamination concerns, oysters in areas affected by Katrina may not be harvestable for an undetermined period. However, areas adjacent to the more devastated areas are being reopened for harvest — based on test results, the Louisiana Department of Health announced on September 16, 2005, that oysters in Terrebonne Parish were safe to harvest.

Spiny Lobster. In the Florida Keys, an estimated one-fourth to one-half of all commercial spiny lobster traps were tangled or destroyed by the passage of Katrina. About 600 individuals are licensed to fish for spiny lobster in this area, and account for about 80% of Florida's lobster harvest.

Other Fisheries. The Louisiana Department of Wildlife and Fisheries estimates the 12-month potential losses at dockside for crab ($12.3 million), freshwater fish ($190,000), menhaden ($44.6 million), and other saltwater fish ($11.8 million), with 12-month potential production losses at the retail level for crab ($82 million), freshwater fish ($1.3 million), menhaden ($93 million), and other saltwater fish ($79 million).[8]

Processor and Dealer Infrastructure. Coastal seafood dealers and processors suffered damage from severe flooding, with many anticipated to be total physical losses. Flooding destroyed docks, electrical systems, and costly machinery and processing equipment (e.g., compressors, motors, peelers, conveyors). Estimated repair times range from as little as a few weeks to as much as a year, depending on the availability of power, clean water, and functional sewer systems, as well as the response of insurers and the availability of replacement equipment. In some areas, smaller dealers sell fresh product to larger local processors, delaying the reopening of the smaller dealers until the larger processors can resume work.[9] Laitrim Machinery, a major manufacturer of shrimp peeling, grading, and cooking equipment, reports that its main factory in Harahan, LA, a suburb of New Orleans, sustained only minor damage, and has resumed operations.[10]

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[4] Ibid., p. 1.

[5] Ibid., p. 2.

[6] *Headlines*, Seafood.Com News, Sept. 19, 2005.

[7] IntraFish Media, *$335 Million to Rebuild Gulf Coast Oyster Industry*, Sept. 19, 2005, 2 p.

[8] Ibid., p. 1.

[9] Alabama Marine Resources Division, *Preliminary Assessment of Alabama's Seafood Industry following Hurricane Katrina*, Sept. 7, 2005, 3 p.

[10] *Headlines*, Seafood.Com News, Sept. 15, 2005.

Aquaculture. Mississippi catfish operations appear to have suffered little damage from the storm; some lost power, but high winds and other factors contributed to no significant loss of fish. High winds and waves in large ponds did cause some levee damage from erosion. A major concern for catfish and crawfish operators is the loss of their New Orleans market, as this was a significant market for their products. Louisiana catfish and crawfish producers apparently avoided damage to their operations as most were outside the affected areas. Preliminary Louisiana aquaculture product and infrastructure losses have been estimated for turtles ($7.4 million for 2005; $5 million for 2006), alligators ($11.4 million for 2005; $3.8 million for 2006); oysters ($34 million for 2005; $33.8 million for 2006), and other species ($1.9 million for 2005; $0.8 million for 2006) for a total projected aquaculture loss of $54.6 million (2005) and $43.5 million (2006) for Louisiana.[11]

Recreational Fishing. Damage to small boats and charter craft has been extensive; however, information is still sketchy on how this sector may have been affected. The Louisiana Department of Wildlife and Fisheries estimates the 12-month retail value of lost sales resulting from the potential disruption of recreational fishing activities at almost $200 million.[12] Artificial reefs have not yet been inspected to determine the extent of possible damage. However, the system of buoys marking the artificial reef off Grant Isle, LA, has not responded since Katrina hit and may be damaged beyond repair; replacement costs are estimated to exceed $500,000.[13]

Fishery Management. The National Marine Fisheries Service (NMFS) has many employees and contractors in the area damaged by Katrina. As of September 7, 2005, NMFS had made contact with all 132 employees and contractors in the affected area. The NMFS facility at Pascagoula, MS, sustained significant damage.[14] The Gulf of Mexico Fishery Management Council meeting originally scheduled for September 12-16 in New Orleans has been postponed until October and moved to St. Petersburg, FL.

It is unknown what effect the hurricane and related events, including pollutant runoff, may have on fish and shellfish stocks. Inshore nursery areas could have been disrupted. Although the hypoxic "dead zone" off the mouth of the Mississippi River normally dissipates at this time of year, it might be displaced or altered in size, due to increased river discharge. Management measures may need to be reviewed to assess their adequacy in protecting fish and shellfish stocks if any stocks are determined to have been significantly harmed by Katrina-related events. Contaminants in runoff waters could affect the edibility and marketability of some fish and shellfish.

Seafood Consumers. While some fish and shellfish from the Gulf may disappear from the market, extensive domestic and imported seafood alternatives remain. There could be some increase in price as retailers adjust to different products and

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[11] C. Greg Lutz, aquaculture specialist, AgCenter, Louisiana State University, Baton Rouge, Sept. 3, 2005.

[12] Louisiana Analyses., p. 1.

[13] Ibid., p. 6.

[14] Photographs of damage were available at [http://www.nmfs.noaa.gov/pascagoula.htm] on Sept. 7, 2005.

suppliers. The price of oysters may be more affected than some other seafood products, because of less opportunity for substitution of similar items. However, some shrimp and oysters are still being produced in the Gulf; areas such as western Louisiana are landing and shipping seafood. In addition, fishermen are moving quickly to resume fishing with those vessels that were relatively undamaged. The U.S. Food and Drug Administration (FDA) is working with state and local officials to visit seafood processors, packagers, and transporters in the affected area to determine if stored product caught prior to the hurricane is safe. Although Alabama processors report a supply of stored shrimp that will be marketed, the FDA is not aware of any seafood caught prior to the hurricane from the affected areas that has entered the commercial marketplace since the hurricane.[15]

Disaster Assistance. On September 9, 2005, Secretary of Commerce Carlos M. Gutierrez declared a fishery failure in the Gulf of Mexico, a necessary precursor for federal fishery disaster assistance.[16] The affected area includes the Florida Keys and along the Gulf Coast from Pensacola, FL, to the Texas border. Fishery disaster assistance is provided primarily through two authorities — §312(a) of the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. §1861a(a)) and §308 of the Interjurisdictional Fisheries Act (16 U.S.C. §4107). These NMFS programs are further detailed at [http://sero.nmfs.noaa.gov/grants/fda.htm] and [http://www.nmfs.noaa.gov/mb/financial_services/disaster.htm]. Aquaculture loss may be covered under the U.S. Department of Agriculture's Noninsured Crop Disaster Assistance Program, with details at [http://disaster.fsa.usda.gov/nap.htm]. On the private front, various fishermen's groups and associations from other regions and nations have announced special funds and programs to assist Gulf of Mexico fishermen.

Capacity Reduction. Distress in the commercial shrimp industry presents a potential opportunity for a capacity reduction program to remove vessels and licenses permanently from the fleet. Such a program might be funded as part of disaster relief and could provide both compensation for damages for those who decide to sell their licenses and vessels as well as reduction in competition to those who may decide to resume shrimping. A summary of NMFS capacity reduction programs can be found at [http://www.nmfs.noaa.gov/mb/financial_services/buyback.htm].

Habitat Concerns. Contaminants from runoff and hydrocarbon spills are expected to cause fish kills and losses of crustacean and molluscan species in nearshore areas. Reported contaminant sources include seven major oil spills from refineries or tank farms that total 6.7 million gallons,[17] releases from 25 major sewage treatment centers and many smaller ones, and runoff from countless fuel storage tanks and household and

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[15] U.S. Food and Drug Administration, *FDA Hurricane Katrina Recovery Update: Seafood Availability and Safety*, Bulletin 2, Sept. 12, 2005, available at [http://www.cfsan.fda.gov/~dms/fsdisas2.html], on Sept. 16, 2005.

[16] A press release is available at [http://www.commerce.gov/opa/press/Secretary_Gutierrez/2005_Releases/-September/Katrina%20Economic%20Recovery%20Effort.htm], on Sept. 9, 2005.

[17] [https://www.mmrs.fema.gov/news/publichealth/2005/sep/nph2005-09-14.aspx], on Sept. 19, 2005.

industrial chemical stores (antifreeze, bleach, acids, alcohols, etc.).[18] In addition, increased nutrients in storm runoff have the potential to stimulate harmful algal blooms in offshore waters. Water masses containing debris are reportedly moving eastward into Florida coastal waters; no information is available to determine the extent these waters may be transporting contaminants. The NOAA research vessel *Nancy Foster* is working off the Gulf Coast to study the effects of Hurricane Katrina on marine resources and the ecosystem. The State of Florida is also testing offshore waters southwest of Panama City. In addition, NOAA has chartered a private shrimp trawler to assist sampling for any evidence of toxic contamination and pathogens.

There is no estimate yet of losses to the extensive and unique habitat provided by seagrass beds along the Louisiana coast in Breton and Chandeleur Sounds. Species that depend on these seagrass beds include marine mammals, turtles, and fish, as well as migratory waterfowl.

[18] Louisiana Analyses, p. 6.