

# Lagniappe



June 1, 2007 Volume 31, No. 6

## Do Bass Tournaments Kill Too Many Fish?

The perception that tournament fishing has negative impacts on bass populations is widespread among non-tournament anglers. Many studies have shown that heavy tournament activity does affect bass fishing, but generally not to the degree that many believe. The most recent data from a study on a huge Texas impoundment tends to support the conclusion that population effects do occur but are not excessive.

Sam Rayburn Reservoir is the site for more than 300 bass tournaments every year. About half of the total number of anglers surveyed there participated in tournaments, which is a much higher percentage than average. The result is that about a fifth of total angling effort on Sam Rayburn occurs during tournaments, and more than 150,000 tournament angler-hours were expended during the current study.

Estimates of fishing mortality in the reservoir were generated from a tagging project that marked more than 6,000 fish. Of these, only 40 fish were later documented in creel surveys. When these numbers were expanded, about 27 percent of the tagged fish would be expected to be caught and released, 5 percent would be brought to weigh-in at tournaments and 6 percent would be harvested by non-tournament fishermen

Even when using extreme estimated rates of exploitation (14 percent) and mortality (50 percent), tournament fishing would kill only 6 percent of legal-sized fish, accounting for 28 percent of total angling mortality and 16 percent of total mortality. Using what the authors assumed were most-likely mortality (30 percent) and exploitation (6 percent) rates gives overall mortality of 2 percent of legal fish, 16 percent of total angler mortality and 4 percent of total annual mortality. At 16 percent, tournament-induced bass mortality would actually be lower than mortality for catch-and-release fishing (20 percent of the total fishing mortality). Of course, mortality in the ice chest is 100 percent, and these fish that are harvested by non-tournament anglers would account for between 56 and 83 percent of the total angling mortality.

Will these numbers stop the debates between tournament and non-tournament anglers? Of course not – there are still plenty of issues to argue. It seems that any time that two or more groups utilize natural resources differently, disagreements spread. This study supports the idea that all types of bass fishing will affect populations: even 100 percent catch-and-release. How much impact occurs from tournament, catch-release or harvest fishing depends on local conditions. Still, some tournament anglers would prefer that no bass be brought to the table, while harvest-oriented fishermen are



probably correct in assuming that fish that see lots of lures, and may have been caught before, are often difficult to catch. In fact, the authors of the current study provide some issues for further debate. Their data, like some previous work, indicates that the mortality from tournament bass fishing may be greatest on larger fish. They also point out that their conclusions are not necessarily applicable to lakes much smaller than Sam Rayburn, which is nearly 180 square miles in area.

**Source:**

Impact of Tournaments on the Largemouth Bass Population at Sam Rayburn Reservoir, Texas. 2007. Driscoll, M.T., Smith, J.L., and R.A. Myers. *North American Journal of Fisheries Management* 27:425–433.

## **Gulf Council Meeting in New Orleans to Accept Public Input**

The Gulf of Mexico Fishery Management Council will meet June 4-7, 2007 at the W Hotel, 333 Poydras Street, New Orleans.

During the weeklong meeting, the Joint Reef Fish/Shrimp Management Committee will review comments and recommendations from the Scientific and Statistical Committee (SSC), the Socioeconomic Panel and the Red Snapper Advisory Panel related to Joint Reef Fish Amendment 27/Shrimp Amendment 14. Public hearing comments on the amendment will also be considered. The council is expected to take final action on the amendment after hearing public testimony. The joint amendment proposes to reduce directed and incidental fishing mortality on the red snapper stock and manage effort in the shrimp fishery to prevent excessive bycatch of juvenile red snapper. Under consideration are alternatives to reduce total allowable catch (TAC) for red snapper, as well as other regulatory changes designed to keep the red snapper stock on track with its rebuilding plan.

The Reef Fish Management Committee will discuss bag limits for vermilion snapper, as well as a public hearing draft of Reef Fish Amendment 30A for gray triggerfish and greater amberjack, along with a draft Reef Fish Amendment 30B for gag and red grouper. Both amendments propose new rebuilding plans for those stocks. Additionally, council staff will present an update on the amendment addressing the grouper allocations issue.

A proposed public hearing draft of an Aquaculture Amendment will be discussed by the Joint Reef Fish/Mackerel/Red Drum Management Committee. The committee will also consider comments from the Ad Hoc Aquaculture Advisory Panel before taking any action. The Data Collection Committee will hear a presentation from Dr. John Boreman, director, NMFS Office of Science and Technology, regarding the actions of the National Committee on Recreational Data Surveys. Finally, the Mackerel Management Committee will meet to consider actions recommended by the Joint Special Mackerel Group, and the Budget/Personnel Committee will meet to consider the issue of increasing the liaison grant to the states.

Tuesday evening, from 6-8 pm, NOAA Fisheries Service and Gulf council staff will hold an open public forum/question and answer session on Gulf reef fish. This forum, while not a public hearing, will provide the public an opportunity to ask questions and discuss Gulf reef fish science and management issues in a less formal setting. The forum is intended to increase dialogue between constituents and fishery managers.

Public testimony is scheduled for Wednesday, June 6, 2007, from 11:45 am to noon, and from 1:30-5:30 pm and will be accepted on Exempted Fishing Permits (if any), final Reef Fish Amendment 27/ Shrimp Amendment 14 and final Vermilion Snapper Regulatory Amendment. The council will also hold an open public comment session for citizens to address the council on fishery issues that may not be

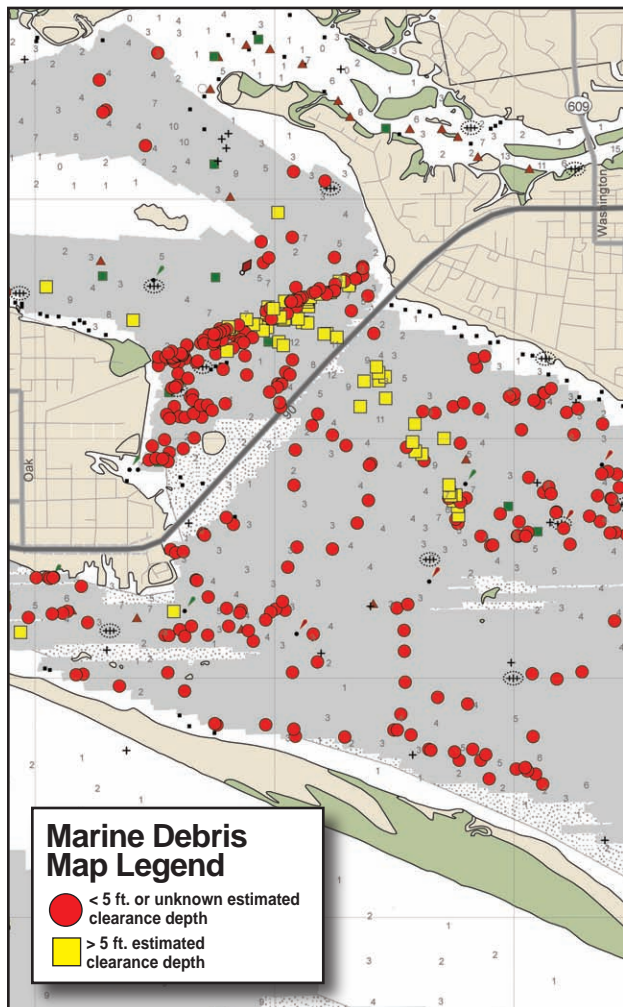
on the agenda. Those comments will begin immediately following public testimony. Anyone wishing to testify before the council should register prior to the start of the scheduled public comment period. For complete agendas, call 813-348-1630.

## NOAA Web Site Charts Katrina Storm Debris

Though the surface may look calm, the near-shore waters of Louisiana, Mississippi and Alabama remain littered with marine debris from Hurricane Katrina that poses a threat to vessels and fishing gear. In response, the National Oceanic and Atmospheric Administration (NOAA) established the Gulf of Mexico Marine Debris Project to conduct underwater surveys off the coasts of the three states to locate obstructions. This data is being used to create debris maps to assist boaters and fishermen and to guide removal efforts. Information is available free of charge at <http://gulfofmexico.marinedebris.noaa.gov>.



Photo credit: NOAA, Gulf of Mexico Marine Debris Project



Similar to this example of Biloxi Bay, printable maps identifying marine debris along the Louisiana, Mississippi and Alabama coasts are available at <http://gulfofmexico.marinedebris.noaa.gov>.

The Web site includes maps that may be downloaded and printed, as well as an interactive mapping server that allows users to focus on a small area and to highlight unique data layers, such as navigation aids and bathymetry. Downloadable GPS coordinates, images of some obstructions, selected hazard notifications, and news on the cleanup process also are available online.

Work began in September 2006 in Alabama with Congressional funding and moved westward. The survey employs side scan sonar to image the sea floor, and sounding measurements are taken to determine the depth of each item and to gather information to update nautical charts. Assessments in Alabama and Mississippi are now complete, and other agencies are removing debris found by the program. Similar work began in Louisiana in Lake Borgne in January and will soon be underway in waters south of Plaquemines Parish. As of late May, 4,862 obstructions had been identified in the three states, and roughly half of these have a clearance depth of less than five feet, according to Neal Parry of NOAA's Marine Debris Program. The Web site and maps are regularly updated as new data are gathered. Additionally, the Gulf of Mexico Marine Debris Project team will produce planning documents to aid in the aftermath of future storms. The project is a joint effort between NOAA's Office of Response and Restoration and Office of Coast Survey. The Louisiana Sea Grant College Program and Mississippi-Alabama Sea Grant Consortium are

conducting public outreach to let boaters and fishermen know about the survey and accompanying Web site. “The most important aspect of this is the benefit to such a broad array of the public in terms of reestablishing of fishing grounds and reducing the risk of injury to people and damage to boats and gear,” said Tim Osborn, regional manager with NOAA’s Office of Coast Survey. “We’re establishing a template for the future when our coasts are impacted by hurricanes or severe storms.”

“We are really grateful to contribute to the region’s recovery after Katrina,” said project manager Nir Barnea with NOAA. “We are pleased that the information is being used to assist with marine debris removal, as well as by fishers and boaters. The cooperation from the states and Sea Grant has been tremendous. We rely on Sea Grant experience and expertise, and are delighted to work with these excellent programs.”

People needing more information, as well as those without Internet access, may contact Paula Ouder, 106 Sea Grant Building, Louisiana State University, Baton Rouge, La. 70803, (225) 578-6451, email [pouder@lsu.edu](mailto:pouder@lsu.edu).

## **Fish, Crawfish Diseases in the News**

Viral outbreaks have been receiving a lot of attention lately; unfortunately, two of these outbreaks have affected some of our most treasured aquatic organisms. One of these, Viral Hemorrhagic Septicemia Virus (VHS), has recently devastated fish populations around the Great Lakes area. The second, White Spot Syndrome Virus (WSSV), has been documented for the first time in Louisiana crawfish ponds. Although neither of these viruses can be transferred to humans, they have caused aquatic mortalities in infected areas. This article will discuss both VHS and WSSV individually, as well as their proper management practices, but first a review on viruses in general.

Viruses are orders of magnitude smaller than their disease-causing counterparts, bacteria. Although a debate continues, viruses are not technically considered living organisms, as they lack a cell structure and they depend completely on the host cell they infect to reproduce. Outside of a host cell, a virus is metabolically inert, existing merely as either DNA or RNA enclosed in a protective protein coat. At this stage they can be destroyed by various disinfection techniques such as strong oxidizing agents (ex. bleach) or pH extremes (ex. stomach acids). Yet, once the virus has infected the host it is generally impossible to eliminate. Since complete destruction of viruses is very difficult, the best treatment is actually protection, in the form of vaccines – controlled exposure to establish immunity.

When the virus comes into contact with the host cell, the virus inserts its genetic material, literally taking over the host cell’s functions. The infected cell produces more viral protein and genetic material instead of its usual products. Some viruses may remain dormant inside host cells for long periods of time, causing no obvious change in the host cells. Once a dormant virus is stimulated, new viruses are formed, self-assemble and burst out of the host cell, killing the cell and going on to infect other cells. Viruses in general can infect a large number of different host organisms (bacteria, plants and animals) with varying effects, some human examples being polio, smallpox, SARS, avian flu, herpes and the common cold. However, each type of virus can infect and parasitize only a limited range of host cells, called its host range.

The VHS virus is typically associated with the rainbow trout from European countries, but can be found in both freshwater and saltwater fish. The first reported outbreak from the United States was in 1988 in spawning salmon in the Pacific Northwest. In 2005 a genetically distinct strain of VHS (similar to the Atlantic strain) was documented in muskellunge in Michigan, and freshwater drum in Ontario.

Since then, VHS has steadily spread around the Great Lakes and Finger Lakes area, and is now being seen in some landlocked water bodies. This is causing great concern for fisheries managers, as it causes fatal anemia and hemorrhaging in many fish species. So far VHS infection has been seen in over 40 species, including salmon, trout, walleye, pike, crappie, bluegill, largemouth bass and channel catfish. Outbreaks are rarely seen when the water temperature reaches 60° F or above.

The VHS virus is classified as a reportable disease by the World Organization of Animal Health, which means it must be reported if detected. This international agency usually imposes restrictions on any host country with VHS to prevent fish from being moved to other areas and countries. Although the initial source of contamination is unknown, a possible culprit is ballast water (similar to zebra mussel introduction) where the infectious agent can persist host-free for several days. Prevention of contact between the virus and the host is the most effective method for controlling VHS. Fisheries managers are developing protocols for avoiding cross-contamination, such as eliminating the removal of live fish (i.e. baitfish) and washing boats after fishing. Right now managers are trying to collect as much information as possible, and limit the spread of VHS as much as possible.

The WSSV is also classified as a reportable disease, thus it was quite a shock to many people when it was announced a few weeks ago that this virus was detected in Louisiana crawfish. This was the first U.S. report of WSSV infections of crawfish, and it has now been identified in four separate ponds (one in St. Martin Parish, two in Vermillion Parish, one in St. Landry Parish). The symptoms of WSSV in crawfish are sluggish crawfish that do not pinch hard and can barely walk, as well as dead crawfish in traps and near the pond edge. Mortality may occur in mature animals while juveniles appear unaffected. This virus can apparently cause significant losses in the pond, yet no other external signs appear besides the sluggishness. Currently several agencies (LDWF, LDAF, LSUSVM, LSU AgCenter, USDA-APHIS, etc.) are collecting and testing more samples from ponds and natural water bodies to try to determine the extent of the problem.

This disease can infect a wide range of crustaceans, including (but not limited to) shrimp, crabs, lobsters, crawfish and possibly some aquatic insects like rotifers. However, it cannot be transmitted to other animals like fish, birds, or humans (i.e. infected crustaceans are safe to eat). WSSV was first reported in farmed shrimp in Thailand and then China in 1992-93. In 1995, WSSV was reported in shrimp farms located in south Texas and in South Carolina. In 2004, it was confirmed in a shrimp farm in Hawaii. It is called "white spot syndrome" because in infected shrimp white spots are visible on the surface of the thin shell. WSSV has been found in wild shrimp and crabs off-shore in the Gulf of Mexico and near shore in Texas, Mississippi, Georgia and South Carolina during 1999-2002. Several species of crabs and shrimp in the wild have been found infected with the virus without displaying any of the clinical signs, possibly acting as a continual reservoir of infection.

The exact source of WSSV in farmed crawfish is unknown, and may never be known. Like our northern counterparts with VHS, we are still in the information collection stage and have developed quarantine protocols for infected ponds. Limiting the spread is difficult, especially when crawfish can walk and birds can transport undigested infected crawfish. However, basic precautions can still be taken such as sterilizing contaminated equipment and avoiding the use of contaminated seed stock. The LSU AgCenter Web site ([www.lsuagcenter.com](http://www.lsuagcenter.com)) has a list of best management practices (BMPs), along with additional WSSV information.

With most diseases, the manifestation of the outbreak is not strictly the result of the presence of the infectious agent. More often than not, there is some sort of external trigger that initiates the symptoms. This could be any number of things, such as poor water quality, low dissolved oxygen,

temperature fluctuations or just general stress. To put it mildly, viral diseases are complicated - the mysteries cannot be unraveled until all the needed information is gathered. Rest assured that the various agencies, researchers, farmers, and interest groups will be working hand-in-hand to ensure these viral outbreaks are managed in the most responsible way.

-Craig Gothreaux

**Sources:**

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[www.lsuagcenter.com](http://www.lsuagcenter.com)

**Species Profile: Bottlenose Dolphin**

Whether you recognize them from the television series Flipper, or from fishing around Louisiana's bays and beaches, chance is you have seen a bottlenose dolphin before. These social and highly intelligent creatures are perhaps the most adaptable marine mammal to live in an aquarium. As such, most of what is known about them is the direct result of early studies performed on display animals. In captivity, bottlenose dolphins are extremely playful, and appear to enjoy performing tasks and tricks regardless of reward. Combine this seeming friendly behavior to the fact that dolphins occasionally "rescue" troubled humans, you have a recipe for man's best friend in the sea (until they start stealing the fish you hook, which seems to be becoming a more common "trick" in Louisiana waters).



Photo credit: University of Oregon

Bottlenose dolphins (*Tursiops truncatus*) are mammals (Class Mammalia) that are classified in the scientific order Cetacea, which includes all whales. The order Cetacea is further divided into three suborders: *Archaeoceti* (extinct group for which we only have fossils), *Mysticeti* (baleen whales) and *Odontoceti* (toothed whales), the last of which contains dolphins. Oceanic dolphins are grouped in the scientific family *Delphinidae*, which also includes killer whales and pilot whales. Although often referred to as porpoises, dolphins can be distinguished by their conical teeth as opposed to the flattened, spade-shaped teeth of porpoises (family *Phocoenidae*).

Like all other mammals, dolphins are warm-blooded, possess 7 cervical vertebrae (fused and/or flattened to facilitate aquatic life), have hair (very sparse and lost shortly after birth) and utilize mammary glands to nourish young. Reminiscent of their terrestrial ancestors, Cetaceans also have a complete set of front limb bones (radius, ulna and digitals) which are modified into flippers. Another Cetacean adaptation for aquatic life is the absence of hind limbs, and the modification of tough connective tissue to create the tail flukes (contain no bone). The typically mammalian trait of

prolonged parental care is exhibited in the 12 month gestation period, which allows for an extremely precocial newborn. Within moments after birth, the baby dolphin is pushed to the surface by its mother to take its first breath of air through its blowhole. This lifting to the surface is also seen involving stillborn and injured adult dolphins; perhaps this is the same instinctual actions dolphins exhibit when “rescuing” ailing humans.



Photo credit: Mary Hollinger, NESDIS/NODC biologist, NOAA

Juvenile dolphins remain close to the mother's side for another year and a half, slowly venturing farther away during play, yet the mother-calf bond remains strong

upwards of six years. Eventually the juvenile dolphin will integrate into the social hierarchy of the pod, or develop their own mixed-sex, sub-adult pods. Both male and female dolphins designate a single alpha individual, and groups of less and less dominant individuals. While the females do not aggressively compete for dominance, they do allow the alpha female a higher position in the water column. Presumably this is for easier access to the surface air, as dolphins need to surface every five to eight minutes. Males on the other hand are much more aggressive, and actually fight with each other for social dominance.

Bottlenose dolphins inhabit warm and temperate seas worldwide, including the Gulf of Mexico. In fact, bottlenose dolphins are the most commonly seen marine mammal along the Louisiana coast. Although their diets vary according to location, they typically consist of a wide variety of fishes, squids, and crustaceans such as shrimp. Despite the presence of teeth, dolphins do not chew their food. Usually they swallow fish whole, or they can break larger fish by shaking or rubbing them on the ocean floor.

Dolphin feeding behavior is very flexible, and adapted to a dolphin's particular habitat and available food resources. In addition, bottlenose dolphins often cooperate when hunting and catching fish. In open waters, a dolphin pod can encircle a large school of fish and herd them into a small, dense mass, sometimes using their tail flukes to stun the fish. The dolphins take turns charging through the school to feed. Another interesting feeding strategy involves herding schools of fish against a sand bar or shoreline to trap them in shallow water where they are easy prey.

Besides group cooperation, bottlenose dolphins have a variety of specializations that make them very efficient aquatic hunters. Dolphins have acute vision both in and out of water, with adaptations to maximize sight in both dim and bright situations. Bottlenose dolphins also possess an incredible sense of hearing. The auditory cortex of the brain is highly developed, and receives sound through the specialized lower jaw and the small external ear openings behind each eye. They also emit sounds, which are used for both communication and echolocation of prey. Echolocation involves an animal listening to the echo of its own sound to determine the bearing, range, or the characteristics of the object it is echolocating.

Bottlenose dolphins also have a well developed sense of touch, but interestingly they, like all Cetaceans, lack a sense of smell. It is believed that this deficiency is the cause for their association with species of tuna, which have a highly developed sense of smell. This association has resulted in the accidental capture (and sometimes drowning) of dolphins in nets being set for tuna. New fishing

gears and techniques then led to the development of “dolphin-safe” tuna labeling, which means no dolphins were killed or seriously injured in the capture of the tuna. This modification of fishing practices, combined with the Marine Mammal Protection Act of 1972, have helped to revitalize stocks of bottlenose dolphins; although, a small local fishery for dolphin still exists in Japan.

### **Evolution with a Twist**

*Many scientists believe that early whales arose 50 million years ago from ancestral mammals that ventured back into the sea. Two small rod-shaped pelvic bones, buried deep in the body muscle of modern toothed whales, may be remnants of the hind limbs of these early mammals. Modern forms of the genus Tursiops first appear in the fossil record about five million years ago.*

*Recently in Japan, a bottlenose dolphin was captured that had an extra pair of pelvic flippers, similar to those seen in early dolphin fossils. This bizarre abnormality brings to light the idea of atavism, which is a technical term for an evolutionary throwback. This stands in the face of the long held concept of “Dollo’s Law” (Louis Dollo – 1890), which states “an organism is unable to return, even partially, to a previous stage already realized in the ranks of its ancestors.” But this dolphin is not a unique case of atavism in marine mammals. In 1919 a humpback whale with a pair of leg-like appendages over 1 meter long, complete with full sets of limb bones, was captured off Vancouver Island in Canada.*

*Over the years there have been many more examples of atavisms, yet no real explanation until 1994 when Rudolf Raff theorized that these evolutionary throwbacks are caused by “silent genes,” that is, genes that are just turned off rather than lost. Examples of these “silent” genes in action can also be found in humans: syndactyly is the occurrence of webbed fingers or toes. This occurs because, during our embryonic development, our hands and feet start off as flat structures. As the structures develop, gradients establish where the fingers or toes should be, and then the unneeded tissue self-destructs. Syndactyly is probably the result of this self-destruct program being prematurely disrupted.*

**- Craig Gothreaux**

#### **Sources:**

Le Page, Michael. 13 January 2007. “The Ancestor Within”. New Scientist.

Lowery, Jr., George H. 1974. The Mammals of Louisiana and its Adjacent Waters. Louisiana State University Press.

<http://www.seaworld.org/infobooks/Bottlenose/home.html>

### **Commercial Deep-Water Grouper Closure**

NOAA Fisheries Service is closing the commercial deep-water grouper fishery in federal waters of the Gulf of Mexico at 12:01 a.m., local time, on June 2, 2007. The Fisheries Service has determined that the commercial quota of 1.02 million pounds for deep-water grouper (misty grouper, snowy grouper, yellowedge grouper, warsaw grouper and speckled hind) will be reached on or before June 2, 2007.

The operator of a vessel with a valid reef fish permit having deep-water grouper aboard must have landed and bartered, traded, or sold such deep-water grouper prior to 12:01 a.m., local time, June 2, 2007. The prohibition on sale or purchase does not apply to sale or purchase of deep-water grouper that were harvested, landed ashore and sold prior to 12:01 a.m., local time, June 2, 2007, and were held in cold storage by a dealer or processor.

The fishery will remain closed until 12:01 a.m., Jan. 1, 2008. During the closure, if commercial quantities of reef fish are onboard, a bag limit of reef fish is not allowed.



## Underwater Obstructions

In accordance with the provisions of R.S. 56:700.1 et. seq., notice is given that 21 claims in the amount of \$79,682.70 were received for payment during the period March 1, 2007 - March 31, 2007: there were 20 claims paid and one claim denied. In April, 25 claims in the amount of \$88,281.39 were received for payment: there were six claims paid and 19 claims denied.

Latitude/Longitude Coordinates of reported underwater obstructions are:

29 04.047	90 47.845	TERREBONNE
29 04.673	90 14.618	LAFOURCHE
29 09.574	90 05.772	JEFFERSON
29 14.341	90 04.740	LAFOURCHE
29 18.200	89 45.700	PLAQUEMINES
29 20.214	90 43.957	TERREBONNE
29 21.058	89 09.578	PLAQUEMINES
29 22.193	89 41.083	PLAQUEMINES
29 23.546	89 58.189	JEFFERSON
29 25.385	91 36.885	ST. MARY
29 38.270	89 37.490	PLAQUEMINES
29 41.548	89 21.938	ST. BERNARD
29 41.799	90 21.196	LAFOURCHE
29 42.816	89 34.757	ST. BERNARD
29 43.054	89 38.583	ST. BERNARD
29 43.429	89 30.900	ST. BERNARD
29 48.630	89 50.500	ST. BERNARD
29 49.754	89 16.602	ORLEANS
29 50.467	89 38.220	ST. BERNARD
29 53.661	89 46.082	ST. BERNARD
29 58.286	89 56.396	ST. BERNARD
29 17.983	89 48.817	PLAQUEMINES
29 30.459	89 30.331	PLAQUEMINES
29 41.969	89 47.608	PLAQUEMINES
29 56.057	89 48.107	ST. BERNARD
30 10.031	89 45.054	ORLEANS
29 20.326	90 01.562	JEFFERSON

A list of claimants and amounts paid can be obtained from Marjorie McClinton, administrator, Fishermen's Gear Compensation Fund, P.O. Box 44277, Baton Rouge, LA 70804 or you can call (225)342-0122.

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## THE GUMBO POT

### Shrimp and Cheese Manicotti

Gay Matherne

1 box manicotti noodles	1 T garlic powder
1 lb mozzarella cheese	1 T parsley
1 lb longhorn style colby cheese	2 eggs
1/2 cup parmesan cheese	1 16-oz jar spaghetti sauce
1/2 cup Italian breadcrumbs	1/2 cup oil
2 1/2 lbs headless medium shrimp	salt and pepper

Heat water to a boil in a pot large enough to hold noodles. Add 1/2 cup cooking oil to boiling water. Drop noodles singly into boiling water. Boil until soft. Drain and rinse. Peel shrimp. Cut cheese into cubes. Mix all of the ingredients (except spaghetti sauce) and fill noodles. Place noodles in a single layer into baking dish. Cover with spaghetti sauce. Bake at 350 degrees for 35-40 minutes.

Serves 4

Reprinted from *A Louisiana Seafood Cookbook*, available for \$6 from Louisiana Sea Grant. Make checks payable to Louisiana Sea Grant College Program, 105 Sea Grant Building, LSU, Baton Rouge, LA 70803.

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#### For more information, contact your local extension agent:

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