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Lagniappe Sea Grant LOUISIANA

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CIRCLE HOOKS MANDATED IN BILLFISH TOURNAMENTS

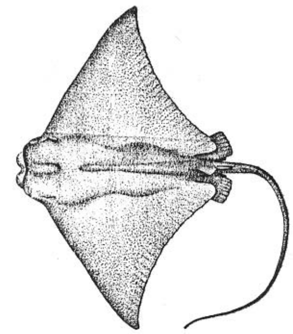
Starting Jan. 1, 2007, billfish tournament participants in the Atlantic, Gulf of Mexico and U.S. Caribbean using natural bait or artificial lure/natural bait combinations will be required to use only circle hooks. This new regulation is part of a much larger rule by NOAA Fisheries Service for the conservation of highly migratory species – billfish, tunas, swordfish and sharks – in the Atlantic and Gulf of Mexico.

Studies have shown that fish caught on circle hooks are more likely to survive being caught and released than those caught on standard "J" hooks. Circle hooks are much more likely than J hooks to hook fish in the mouth or jaw, causing minimal damage. The National Marine Fisheries Service (NMFS) predicts that the new circle hook requirement for tournaments could save an estimated 300 billfish from dying in catch-and-release tournaments per year. Many anglers already use circle hooks voluntarily for a number of reasons. They are finding that fewer fish destined for release are deeply hooked, so that hooks are quick to remove and fish are in better condition. Additionally, many anglers find that circle hooks give them a higher percentage of solid hook-ups, with fewer fish coming unhooked part-way to the boat. Commercial longliners in the open-water pelagic fishery have been required to use circle hooks since 2004.

Tournament participants who use artificial lures may continue using the traditional J-style fishing hooks since there is a high survival rate for fish that are caught and released using this fishing method. Tournaments that wish to fish for blue marlin using J-hooks and natural bait may apply for an exempted fishing permit, given on a case-by-case basis, to help NOAA collect additional scientific information on the impacts of J-hooks on white marlin using different fishing methods.

The new regulations also require that circle hooks used in billfish tournaments be of the non-offset style. This means that the hook must not have any lateral bend that puts the point of the hook off line with the shaft. Researchers (and anglers) have found that a strong offset in a circle hook will reduce the benefits of the hook design, resulting in a higher likelihood of deep-hooking fish.

CHOO – CHOO



Cownose rays are fairly large rays, dark slate-colored above and white below, that are common in nearshore waters from southern New England through the Gulf of Mexico. They turn up occasionally in shrimpers' nets and the nickname "choo-choo" comes from the sound that they make as the flounce themselves on the deck, usually crushing lots of the shrimp catch in the process. Naturally, shrimpers quickly return these unwelcome guests to the water to lessen their damage to the catch.

The cownose ray, *Rhinoptera bonasus*, is not a well-studied species in the northern Gulf, so LSU researchers recently tried to learn more about the species. The biologists collected cownose rays with gillnets over a 4-year period. All the rays were sexed, weighed and measured. Also measured was clasper length. Claspers are elongated extensions of the anal fins found in male sharks and rays and are used by males to transfer sperm into females. To age the rays, 5-7 vertebrae were removed and stored. Ages were determined by counting the growth rings in the vertebrae. A total of 227 cownose rays were collected for the study.

Size was measured in disc width, the distance from one wing tip to the other wing tip. Males ranged from 13½ to 38½ inches. Females ranged from 13½ to 41 inches. Cownose rays were captured in all months but December, January and February. They were collected at water temperatures of 68 - 90°F and salinities of 22 to 36 parts per thousand (the latter being full strength seawater).

The smallest rays collected (13½ inches) were less than a year old. Size at birth averages 14 inches, but can be as large as 16 inches, so the smallest rays collected were likely newborns. The oldest males were 16 years old and the oldest females were 18 years.

Unlike many fishes which have a very fast growth rate when young and very little growth when old, the cownose rays in this study showed a fairly regular growth rate as they aged. Growth rates only slowed slightly after 12 years of age.

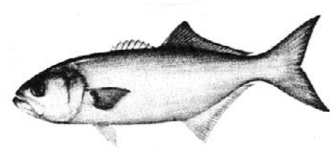
Both males and females matured at 4-5 years old. The smallest mature male found was 25 inches and the largest immature male was 30 inches. The smallest mature female was also 25 inches and the largest immature female was 28½ inches wide. The biologists collected 33 gravid (pregnant) females during the study. Each female had only one pup in it. Gestation takes 11-12 months and pupping seems to occur mid-April to mid-May.

Food habits of the cownose ray were not part of this study, but other research shows that they eat clams and crustaceans, such as shrimp and crabs.

Source: *Life History of the Cownose Ray, Rhinoptera bonasus, in the Northern Gulf of Mexico, with Comments on Geographic Variability in Life History Traits*. Julie A. Neer and Bruce A. Thompson. Environmental Biology of Fishes 73:321-331. 2005

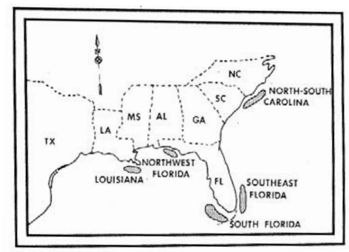
THEY EAT ANYTHING

Bluefish, *Pomatomus saltatrix*, are well-known as predators with endless appetites. It might seem that a bluefish food habits study would be easy to summarize as “they eat anything.” But actually, their dietary habits aren’t quite that simple.



Bluefish are widespread saltwater fish found near the surface over the whole U.S. Atlantic Coast from beaches to deep offshore waters. The frequently rove in large schools that fishermen compare to wolf packs. They are most famous for eating until their stomachs are full, then vomiting and going back to feed.

Unlike many other fish, they do not have to swallow their prey whole. Their sharp, triangular shark-like teeth allow them to remove bite-sized chunks from larger prey animals.



In the mid-1980s, NMFS biologists collected 4,841 bluefish with hook and line from five areas in the Gulf and South Atlantic, including an area on the Louisiana coast. The stomach of each fish was preserved and later the contents were sorted and identified.

Sixty-eight percent of the stomachs were empty. Of the food items, finfish accounted for 95 percent of the items and 96 percent of the volume. Twenty-four families of fish were identified, with five families, drums, herrings, jacks, mullets and porgies, accounting for 86 percent of the volume of identifiable fish. Crabs made up 2.4 percent of the items, shrimp were 0.3 percent, squid and snails 1.7 percent and sea grasses 1.4 percent.

The food of bluefish varied by area. Fish made up over 90 percent of the volume of the stomachs in all areas except the Carolinas. The most common families of fish in bluefish diets, drums, herrings and jacks, were the same from all areas, but made up an increasing percentage of the total volume of stomach contents from east to west, with 39 percent of the volume in the Carolinas and 78 percent in Louisiana.

Crabs were most common in the Carolina samples. Squid was not found in south Florida and east Florida fish but were not rare in fish from northwest Florida and Louisiana. Smaller bluefish ate more shrimp and squid than larger bluefish.

Seagrasses and snails were found in Carolinas, south Florida and northwest Florida. Louisiana bluefish had no sea grasses, but several were found with sand in them. The presence of seagrasses, snails and sand in some buefish stomachs indicates that bluefish spend at least part of their time feeding on the bottom.

In Louisiana, the most common member of the drum family eaten was the Atlantic croaker. The most common herrings were menhaden and Spanish sardines. The most common jacks eaten were round scad (cigar minnows), Atlantic bumpers and blue runners. The most shrimp were eaten in the spring. Fish increased from the spring to the summer and then increased to 100 percent of their diet by fall. No winter samples were taken.

Source: *Food of Bluefish (Pomatomus saltatrix) From the U.S. South Atlantic and Gulf of Mexico*. Steven P. Naughton and Carl H. Saloman. NOAA Technical Memorandum NMFS-SEFC-150. 1984.

THE QUIET POLLUTION

Water pollution often brings to mind oil spills or industrial waste discharges. However, in many south Louisiana waters, there are types of pollution that don't necessarily kill fish directly but quietly harm fishing. These are sediment and nutrient pollution.

Sedimentation is the deposit of sands, silts and clays that cover the bottom and fill in waterbodies. Nutrient enrichment (eutrophication) involves the addition of unhealthy levels of nitrogen and phosphorus. While much of the man-made portion of these problems can be controlled, solutions aren't always easy.

Sediments and nutrients are mostly nonpoint sources of pollution. Nonpoint pollution is "sources of pollution which enter surface or groundwaters through widely diffused small increments," as described in the Clean Water Act. Sources include urban and industrial stormwater runoff, agricultural runoff (sediment, fertilizers, chemicals and manure), forestry activities, construction projects and water control projects such as dams, levees, channels and weirs. Point sources of nutrient pollution include sewage discharges.

Sediment tends to slowly fill basin-type lakes that collect lots of drainage, such as Lake Fausse Point and Lake Verret. (Major rivers like the Atchafalaya carry huge sediment loads, but that's another story.) Everyone knows that muddy water makes fishing tough, but not everyone stops to think about what happens as the water clears.

The sediment drops out of the water and slowly fills the lake. As large areas of a lake become shallower than four to five feet, their capacity to hold fish drops dramatically. Not only do muddy bottoms make for poor fish nesting, but the shallow water heats up tremendously in the summer, and oxygen levels can be depleted. Large areas of shallow water also are ideal for growth of choking mats of aquatic vegetation.

Local and area drainage is the main source of sediment for these types of lakes, and we have considerable control over this source of sedimentation. Everyone demands good drainage for their homes, roads and crop fields, but we don't always take the extra steps to get the sediment out of the runoff.

Sediment fences, sediment traps and vegetated buffer strips all help solve the problem. Every time you see a developer use good sediment barriers around a construction site, you know that a bit of the problem way down the bayou has been addressed. Fencing livestock away from ditch banks also has positive impacts because erosion from trampled banks can be severe. Eutrophication can be a problem in any lake, but it is almost always a concern in lakes receiving lots of drainage.

Along with sediment comes nutrients from agriculture, pastures, yards, and municipal and camp sewage. The resulting deep green algae blooms in the water are an indication of an ecosystem that is "on the edge."

The normal oxygen cycle in a lake has highest dissolved oxygen (D.O.) late in the day and lowest levels just before dawn. In eutrophic systems this cycle tends to swing wildly from extremely high D.O. at dusk to very low D.O. at dawn. These waters tend to gradually become dominated by fish species that can handle those conditions – the so-called rough fish: carp, gar, bullhead catfish.

Fish kills occur in areas where the dawn low D.O. drops below about 1.5 milligrams per liter (mg/L). When a lake gets to these conditions, public use drops and the Sportsman's Paradise becomes a little less like paradise.

As with the local sources of sedimentation, we can make good decisions about controlling nutrient pollution. State-of-the-art fertilizer application and advanced sewage treatment with wetland or dryland nutrient uptake components are solutions that should be popular with people who are serious about quality fishing.

IRRADIATED OYSTERS?

Last year, the Food and Drug Administration approved irradiation treatment of oysters, clams and mussels. This will add another method of post-harvest processing (PHP) that can be used to kill bacteria in oysters. Current methods include low-heat pasteurization, high-pressure treatment and quick freezing.

All four methods will kill most bacteria, particularly the Vibrio species that have caused such a stir in the news. PHP oysters have been very popular in the half-shell market; some processors report that they can sell every oyster they treat.

In irradiation experiments, it has been found that live oysters to be served on the half-shell can be treated without affecting their shelf life. That is, the oysters remain alive until shucked. Additionally, packaged shucked oysters that have been irradiated will have double the shelf life (up to 30 days in cold storage) of the standard product.

Several types of irradiation have been used to kill germs in food. All can be effective, none leave behind any radiation or dangerous substances, and the nutritional value of foods isn't changed by irradiation. However, consumer acceptance of this treatment can be low, probably because folks just don't like the sound of "radiation" when used in the same sentence with "food."

One study found that up to 80 percent of consumers would buy irradiated products if they were informed about why the product had been treated – that is, the risks from bacteria. Then there are the folks who would starve before eating an irradiated product. These attitudes will have to be considered by anyone looking at applying this technology to Louisiana oysters.

UNDERWATER OBSTRUCTIONS

In accordance with the provisions of R.S. 56:700.1 et. seq., notice is given that 9 claims in the amount of $35,073.14 were received for payment during the period Sept. 1, 2006 – Sept. 30, 2006.

Latitude/Longitude Coordinates of reported underwater obstructions are:

27 48.606	89 39.138	ST BERNARD
29 16.536	89 55.996	JEFFERSON
29 19.311	89 49.474	PLAQUEMINES
29 20.150	89 56.480	JEFFERSON
29 22.138	89 46.034	PLAQUEMINES
29 36.410	89 39.280	PLAQUEMINES
29 50.942	89 36.467	ST BERNARD
29 51.139	89 40.205	ST BERNARD

There were 8 claims paid and 1 claim denied.

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

VESSEL RECOVERY FACT SHEETS AVAILABLE

The Louisiana Sea Grant Legal Program has expanded its series of fact sheets to help people affected by Hurricanes Katrina and Rita navigate Federal Emergency Management Agency (FEMA) programs and related legal issues during the rebuilding process. The latest installment is “Vessel Salvage Fact Sheet.”

This one-page guide provides information on FEMA and U.S. Coast Guard authority in recovering stranded commercial and recreational boats, vessel owners’ responsibilities and the disposition of abandoned boats. It and other program materials are available online at www.lsu.edu/sglegal and www.laseagrant.org. The series also seeks to answer questions about the National Flood Insurance Program, flood elevations, rebuilding after a flood and other reconstruction matters.

Louisiana Sea Grant Legal provides timely, relevant legal information to the diverse users of the state’s coastal lands and waters, including state and local governments, coastal businesses, commercial fishers, recreational fishers, non-governmental organizations and the general public.

HURRICANES RAVAGED COASTAL MARSHES

The latest analysis of land change data from the U.S. Geological Survey’s National Wetlands Research Center indicates that 217 square miles of Louisiana’s coastal lands were transformed to water after Hurricanes Katrina and Rita. Some recovery is expected in the short term, but exactly how much of this transformation of land to water will be permanent can only be determined after continued field studies as well as aerial photography and analysis of satellite imagery after each growing season.

The number of square miles of land that changed to water in southwestern Louisiana were: in the Calcasieu/Sabine basin, 22; Mermentau basin, 62; Teche/Vermilion, 5; and Atchafalaya, 9. The 62 square miles of land in the Mermentau basin included significant flooded marshes primarily between Calcasieu Lake and White Lake.

In southeastern Louisiana, basin-by-basin land losses were: Terrebonne basin, 19; Barataria, 18; Mississippi River Delta, 18; Breton Sound, 41; Pontchartrain, 19; and Pearl River, 4.

Land transformed to water along the coast and on barrier islands further reduced Louisiana’s natural protection from future storms. Louisiana had already lost 1,900 square miles of coastal lands, primarily marshes, between the years 1932 and 2000. The 217 square miles of potential land loss from the 2005 hurricanes represent 42 percent of what scientists had predicted would take place over a 50-year period from 2000 to 2050, even though they had factored storms into their model.

Some transformations of land to water will be permanent: they were caused by direct removal of land by storm surge. However, some areas that held temporarily impounded storm water may recover fairly quickly.

Many new open-water areas will undoubtedly become permanent lakes. For example, as of Sept. 16, 2006, flights indicated that some of the large marsh shears or rips in the particularly hard-hit Breton Sound area have remained open water.

Continued monitoring will show whether some areas recover. Some areas that are now open water may actually be temporary ponding of marsh, temporary removal of floating and submerged aquatic plants or even normal water-level variations.

There were even a few new land gains calculated in the latest USGS work. These land gains are probably also temporary, caused by winds depositing wrack (piles of marsh vegetation) or mats of aquatic vegetation.

Where land was transformed to water after the hurricanes varied in different areas along the coast but followed similar patterns. Shears (ripping or removal of vegetation) were often located in marshes that fringed areas where land had already decreased from 1956 to 2000, but they also occurred in some historically stable areas: the upper Breton Sound basin, the lower Pearl River basin, the marshes bordering the east bank of Freshwater Bayou in the southwestern Teche/Vermilion basin, and the marsh just north of Johnsons Bayou and south of the Sabine National Wildlife Refuge in the Calcasieu/Sabine basin.

Hurricane Rita's surge effectively removed remnant marsh from areas that suffered severe erosion during the mid-1960s to the mid-1970s in western Barataria basin and central and eastern Terrebonne basin. This pattern was also seen on the west bank of Freshwater Bayou, due east of Pecan Island in the southwestern Teche/Vermilion basin; south of Sweet Lake in the Mermentau basin; due east of Deep Lake in the Mermentau basin; and north of Mud Lake in the Calcasieu/Sabine basin.

The USGS National Wetlands Research Center calculated these land changes by comparing geographic information system data bases that include vegetation cover to satellite images obtained from the USGS Center for Earth Resources Observation and Science (EROS) in Sioux Falls, S.D. EROS provided Landsat Thematic Mapper satellite images of coastal Louisiana taken between Oct. 16 and Oct. 25, 2005. These images were compared to ones taken between Oct. 13 and Nov. 7, 2004. USGS scientists also gathered information on several small-plane overflights and on-the-ground field studies.

Further analyses were made by comparing the 2004 imagery to that of 2001 to provide an estimate of normal variations in seasonal land and water area changes before the 2005 hurricanes. For more information on this work and much more wetland research, visit www.nwrc.usgs.gov.

MARINE DEBRIS PROGRAM MOVING TOWARD REMOVAL

Since Hurricane Rita passed through southwestern Louisiana over a year ago, items ranging from telephone poles to pieces of homes to crude oil tanks have littered Calcasieu Lake and the adjacent estuary. With the help of numerous boaters, volunteers and community partners, the Louisiana Sea Grant College Program (LSG) and the National Oceanic and Atmospheric Administration (NOAA) Office of Coast Survey have made strides in assessing, marking, and mapping obstructions and pieces marine debris through the Calcasieu Lake Marine Debris Marking and Mapping Project.

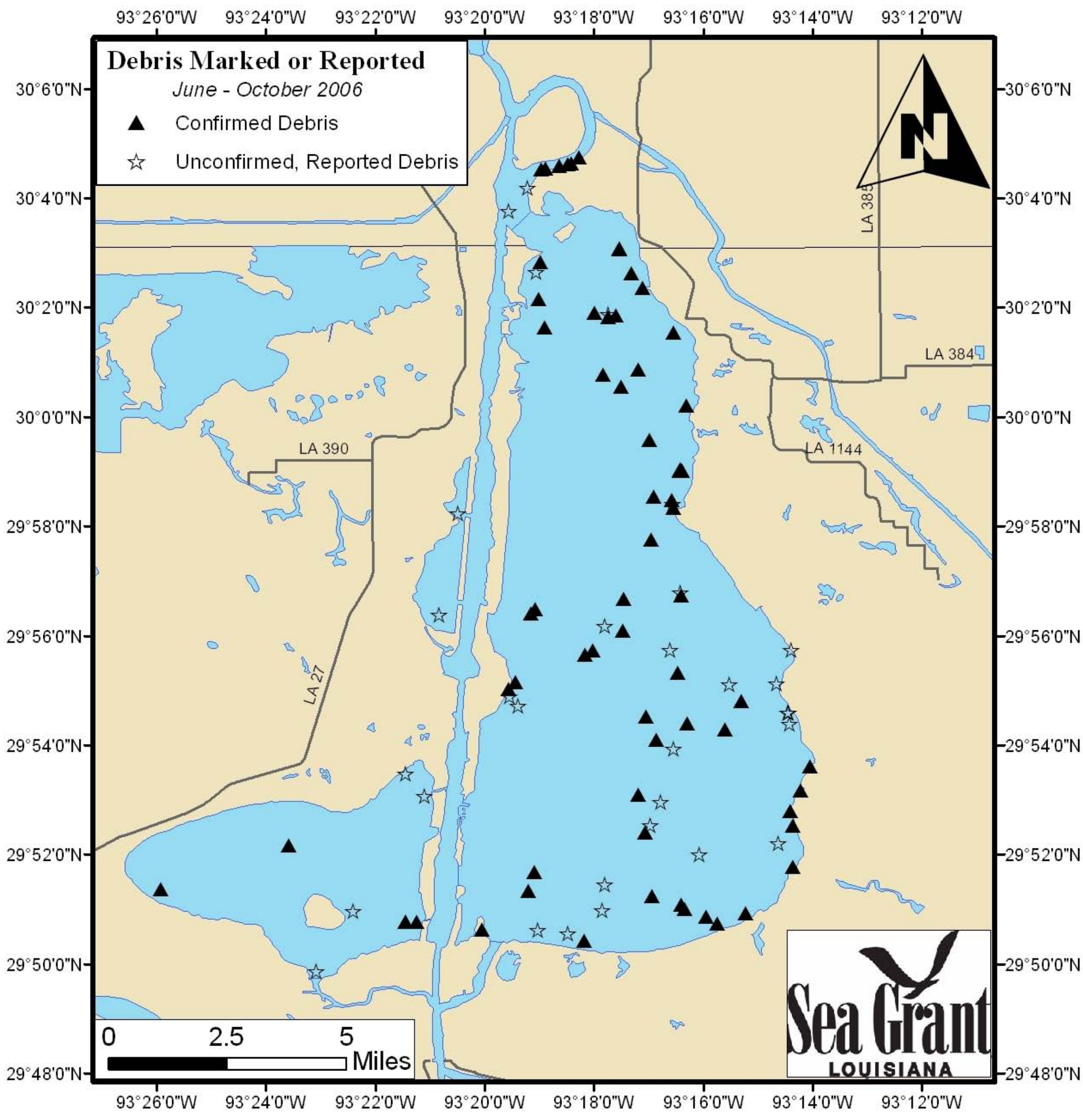
After debris visible on the surface was documented, the project goal shifted to better delineating obstructions that remained underneath the water. Toward that end, the project received an important boost from Calcasieu Parish Sheriff's Office (CSPO). During staff training in September and October the CPSO donated the use of its newly acquired side scan sonar equipment in locating and identifying underwater obstructions. "During the process of assessing debris items visible above the waterline several sunken wing-net shrimp barges were observed," stated LSG Port Specialist Justin Farrell. "We knew there had to be one or two more in the vicinity that had sunken out of view." Wing-net barges are used in the vicinity of the old channel of the Calcasieu River to catch shrimp as the tide retreats. "It was amazing, even in a depth-limited estuary, we could see clearly where one barge had dragged anchor over 200 feet before coming to rest," said Farrell.

As of this writing, 99 large debris items/obstructions were reported or documented by the project, including (see also Figure 1):

- 68 confirmed obstructions (documented with water depth, images, descriptions, differential GPS);
- 31 obstructions reported, but unconfirmed during ground-truthing on 9/1, 9/15, and 10/5.

Based on these results, the Louisiana Department of Natural Resources' (LDNR) Underwater Obstruction Program has committed approximately $250,000 to remove those items confirmed and documented by the project. LDNR is currently preparing a bid and coordinating with other local agencies on logistics, with the goal of beginning the removal in December.

For more information, contact Tim Osborn, Tim.Osborn@noaa.gov, (337) 291-2111; Kevin Savoie, KSavoie@agcenter.lsu.edu, (337) 475-8812; or Justin Farrell, jfarrell@lsu.edu, (225) 578-6348.



THE GUMBO POT
Corn and Crab Bisque

Ingredients
1/4 cup butter
3/4 cup chopped onion
3 (14 oz.) cans chicken broth
2 bay leaves
2 teaspoons Tony Chachere seasoning
2 cans whole kernal corn, drained
1 can cream corn
1/2 cup half and half
3 tablespoons dry roux mix
1/2 cup milk
1 lb. fresh lump crabmeat

Directions
1. Heat butter in a large pot over medium heat. Stir in onion; cook until soft and translucent. Pour in chicken broth, and bring to a boil. Stir in bay leaves and Tony Chachere seasoning. Stir drained whole kernal corn into boiling broth. Simmer about 10 minutes. Reduce heat to medium low.
2. Mix together cream corn and half and half. Set aside.
3. In a small bowl, stir together roux and milk. Slowly stir into simmering soup. Stirring constantly, simmer for 1 to 2 minutes. Then stir in half and half mixture.
4. Reduce heat to low, stir in crabmeat, and cook until warmed through, about 5 minutes.

Serves 8

For more information, contact your local extension agent:

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