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Sea Grant
LOUISIANA

EXTENSION PROGRAMS
Agriculture and Forestry
Community Leadership
Economic Development
Environmental Sciences
Family and Consumer Sciences
4-H Youth Development
Natural Resources

June 1, 2001 Volume 25, No. 6

COBIA GROW FAST!

Cobia are one of the more popular offshore recreational and commercial fishes in the Gulf of Mexico. They grow quite large and are found world-wide in warm waters. The current world record is a 135 lb, 9 oz fish taken off of Australia in 1985. The fishery is healthy in the Gulf, as four of the five Gulf states' record cobia were caught in the last seven years. Florida—128.8 lb in 1995, Alabama—117.7 lb in 1995, Mississippi —106.8 lb in 1996, and Louisiana—112.0 lb in 1994.

Cobia grow to these large sizes quite rapidly. In 1999, scientists from Mississippi published the results of the largest cobia age and growth study ever done. A total of 1005 cobia were sampled. Most were caught by recreational hook and line. Fish under the legal minimum size limit were supplied to the researchers by the Mississippi Department of Marine Resources. The fish were aged by counting the annuli (growth rings) in their otoliths (ear bones). The fish were measured in fork length, the length from the tip of the nose to the fork in the tail.

Sizes ranged from 13 inches to 66 inches, fork length. Females (730) outnumbered males (275). Females were larger, averaging 4 inches longer than males of the same age. Of fish 40 inches long or longer, 85% were female.

Cobia grow quickly. Some fish reach 20 inches before their first birthday. By age two, the average size is about 35 inches, although some fish are up to 44 inches long. The minimum legal size for harvest is 33 inches fork length, so most fish reach legal size quite young. This is also about the age and size at which they start spawning. Ten age one fish in the study were 33 inches long or longer.

Most of the fish that were aged in the study were between two and five years old. Fish six or older were uncommon. The oldest female was 11, and two males were age nine. Size of fish was a very poor indicator of age. For example, in the 44-46 inch size group, fish from the ages of two to seven were found. A large 137 pound cobia caught

near Destin, Florida in 1995 was found to be only eight years old. Some individuals just grow faster than others.

Source: *Age and Growth of Cobia, Rachycentron canadum, from the Northeastern Gulf of Mexico.* J.S. Franks, J.R. Warren, and M.V. Buchanan. Fishery Bulletin 97 (3), 1999. *Cobia Tag and Release Newsletter.* Number 11, March, 2000. Gulf Coast Research Laboratory, Ocean Springs, MS.

SHRIMP SCIENCE

White and brown shrimp have usually been considered to be species that are very difficult to recruitment overfish. In other words, since they hatch, grow to maturity and spawn in one year, and produce so many eggs, the fishery cannot catch more mom and pop shrimp than are needed to produce the next generation.

While this is still generally considered to be true, a minority of scientists are expressing concerns that shrimp can indeed be recruitment overfished. Good fisheries management demands good science, and while some research has been done on shrimp maturity, spawning areas, and spawning times, little has been done to determine how many eggs shrimp are capable of laying.

Mexican scientists recently did exactly such research, and their results were interesting, especially for white shrimp. The researchers concluded that both white and brown shrimp can spawn up to 3 times per season, with white shrimp spawning on average, once every 26 days and brown shrimp once every 17 days.

Spawning females of both species were found throughout the year, but both species had spawning peaks. For brown shrimp the largest peak was February to April with a smaller spawning peak in the fall. White shrimp spawning peaked in May and June, followed by a lower peak in October and November.

Finally, in estimating the number of eggs that a female white shrimp carries, they came up with 365,156 eggs for 7-inch females and 558,270 for 8-inch females. This is less than half of what was previously thought.

Source: *Fecundity of Litopenaeus setiferus, Farfantepenaeus aztecus and F. duorarum, in the Southwestern Gulf of Mexico.* Martin Perez Valazquez and Adolfo Gracia. Gulf and Caribbean Research. Volume 12. March, 2000.

SURVEY TIME

Every few years, the National Sea Grant Office sends a team to Louisiana to review how effective this program is at helping people. In order to assist our preparations, we are asking our readers to PLEASE take the time to complete the questionnaire on these two pages.

Once you complete the evaluation, please tear it out of the newsletter and mail to **DR. KENNETH ROBERTS, LSU AGCENTER, P O BOX 25100, BATON ROUGE, LA.** 70894-5100 Your assistance is important!

SEA GRANT PROGRAM SURVEY

1. What is your primary role in fisheries?
   Circle one. COMMERCIAL FISHING, RECREATIONAL FISHING, CHARTER OPERATOR, MARINE-RELATED BUSINESS, MEDIA, GOVERNMENT/ UNIVERSITY.

2. Rate the value of the following types of information provided by the Sea Grant/LSU AgCenter.

	High	Medium	Low
New fisheries laws, regulations and policies			
Fisheries management methods			
Fisheries biology			
Ocean and wetlands health			
Vessel, gear & equipment			
Fisheries business management			
Seafood safety and nutrition			
Seafood markets and marketing			
Safety			

3. Rate the importance and accuracy of the following sources of fisheries information.

	High	Medium	Low
Sea Grant/LSU AgCenter			
Louisiana Dept. of Wildlife and Fisheries			
Newspapers and magazines			
National Marine Fisheries Service			
Internet			
Televison and radio			
Other fishermen or fisheries businesses			

4. During the past year, about how much have you participated in Sea Grant/LSU AgCenter fisheries programs such as meetings and workshops?	Often_____ Occasionally_____ Never_____
5. How often do you call or visit an Sea Grant/LSU AgCenter office for fisheries information?	Often_____ Occasionally_____ Never_____

6. Rate the value of the following educational methods used by Sea Grant/LSU AgCenter.

	High	Medium	Low
Newsletters			
Newspaper columns			
Local meetings			
Personal agent visits			
Telephone replies			

7. What are some topics of interest that you would like to see Sea Grant/LSU AgCenter cover?

8. Additional Comments. PLEASE BE CANDID.

LIGHTS

Lately we have gotten requests for clarification on shrimp vessel lighting requirements. The law is not as simple as it seems. What follows is an explanation of requirements when a fishing boat is operated between sundown and sunrise.

A vessel with shrimp gear in the water must display a green light 3 feet above a white light. Both lights must be visible for 2 miles and mounted as near as practical to the centerline, from bow to stern of the vessel. During the day this same vessel should display a shape made up of 2 cones or triangles, one above the other, with their points pointing together.

The same requirements apply to a vessel using fishing gear other than trawls, except that the light must be red over white. Also, when the vessel has gear that extends more than 490 feet from the vessel, the vessel shall display an all-around white light in the direction of the gear at night and a cone or triangle pointing toward the gear in the daytime.

These lighting requirements are in addition to the running light requirements for all vessels operating between sunset and sunrise. These are as follows:

All vessels must have a red sidelight on the port side and a green sidelight on the starboard side, each light visible over an arc of 112.5 degrees. Visibility shall be 1 mile for vessels less than 39 feet long and 2 miles for vessels 39 to 164 feet in length.

A vessel less than 39 feet must also display a white masthead light and a stern light visible over a 135 degree arc and visible for 2 miles or instead of these two lights, the vessel may display an all-around (visible 360 degrees) white stern light. All stern lights must be visible for 2 miles.

Vessels from over 39 feet to 164 feet must display both masthead lights and stern lights. For vessels 65 to 164 feet long, the masthead light must be placed in the forward half of the vessel and be visible for 5 miles. For vessels 39 to 65 feet long, the masthead light does not have to be placed in the front half of the vessel, but just as far forward as practical. The light must be visible for 3 miles.

All masthead lights, no matter what the size of the vessel, must face forward and be visible for an arc of 225 degrees. They should be mounted as near as possible to the centerline between the bow and stern of the vessel.

This article was contributed by Mark Schexnayder of the LSU AgCenter and David Johnson of the U.S. Coast Guard.

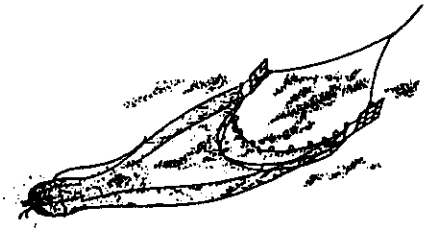
FISHING GEAR & ESSENTIAL FISH HABITAT

When U.S. Congress reauthorized the Magnuson-Stevens Act in 1996, they included a requirement that all fishery management plans must include a description and identification of essential fish habitat (EFH) for the species managed. The act also required that the negative impacts on EFH from fishing be identified and minimized "to the extent practicable." All fishing has an effect on the marine environment and therefore on habitat. Fishing has been identified as the most widespread user activity in the marine environment.

In attempt to further the process required by law, the National Marine Fisheries Service Southeast Region held a workshop to review the research available on fishing gear types used in the southeastern U.S. and their possible impacts on EFH. Summaries, by gear type, from the review are as follows:

Trawls

Trawls are probably the most widely recognized and criticized type of gear in the Gulf region. The trawl is also one of the most studied gear types and many of the study results contradict each other. Generally speaking, most of the research agrees that trawl gear damage is less severe in shallow water habitats than in deepwater habitats. This is because shallow water habitats are impacted much more by storms and waves than are deeper areas. The types of bottom animals in shallower areas, therefore, adjust more easily to disturbances by trawls than those in deeper waters.



That is not to say that trawl gear doesn't have some impacts. Trawls do disturb bottom animals and in the case of hard bottoms such as areas with corals, sponges and rocks, the disturbance can be serious. Fortunately, little of this type of bottom is trawled in the southeastern U. S.

Trawl use on fine mud bottoms does temporarily decrease water clarity when the otter doors and footrope disturb these light sediments. Studies done in Texas showed that the shrimp trawl footropes can disturb the upper 2 inches of bottom sediments and otter doors can mark the bottom 2 to 12 inches deep. Much depends on the design and weight of the gear used. Also, sand is much less disturbed than mud. Constant use of trawls in an area does also tend to smooth bottoms and remove rocks and debris.

Bottom recovery from trawl impacts is much quicker in shallow water than deep water. One study in Tampa Bay, Florida showed that it was impossible to tell that an area had been trawled 8 hours after trawling. On the other hand, a study done in waters over 635 feet deep off of California showed that it took over 50 years for trawl marks to disappear.

Management recommendations to reduce trawl gear impacts focus most heavily on gear zoning or the creation of marine reserves (marine protected areas). Other recommendations include requiring and encouraging the use of alternative trawl designs or lighter trawls. The overall conclusion was that trawling has a minor physical impact to EFH in many areas of the Gulf of Mexico.

Oyster Dredges

Oyster dredges were rated to have a moderate to strong impact on habitat. Their heaviest impact is on oyster reefs, off course. One study of restored oyster reefs showed that dredge use reduced the height of the reefs by about 30% in one season and that the reefs would be completely gone after 4 years of harvesting. It was noted that reduction in the height of natural reefs should be less because these reefs are more effectively cemented together. Research indicates that tall reefs are better habitat than short reefs, because tall reefs provide refuge from low-oxygen bottom waters.

Another study did show that oyster dredging made no difference in the numbers and make-up of other bottom animals. The oyster population in the dredged area in that study consisted of smaller, younger animals with much better spat (baby oyster) set, than in areas without oyster dredging.

Management recommendations were for no fishing restrictions in certain areas to protect broodstock. The report noted that "Due to overfishing and disease, oysters may now be more economically valuable for the habitat they provide for other valued species than they are for the oyster fishery." The report concluded that "Oyster reefs warrant special consideration. Impacts to oyster reefs, especially fishing activities that target oysters, directly reduce EFH and hamper the natural water-cleansing ability of oysters." Strong words!

Oyster Tongs

Very little was written in the report concerning oyster tongs, other than that while tongs are very effective at harvesting the oyster population, they probably have only a small effect on the reef structure. If management is needed, some reefs may need to be closed to protect oyster broodstock.

Gillnets & Trammel Nets

Most studies show that gillnets have very little effect on bottom animals or water plants, although they can damage coral. Lost gillnets tend not be serious problem, since marine growths weight them down and they collapse to the bottom, "roll up", and become covered by more growths.

Hoop Nets

There are no studies showing negative effects of hoop nets on habitat, due to their primary use being on flat bottoms.

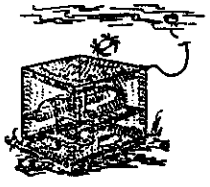
Longlines

Pelagic, or open-water off-bottom longlines have no impact on habitat. Bottom longlines can have some impacts on certain bottoms such as coral or rocky bottoms, since these longlines are often dragged for at least some distance across the bottom during haul-back. Freshly hooked fish can also move the longline somewhat while fighting the line. Bottom longlines have little impact on sand or mud bottoms.

Rod and Reel & Bandit Gear

The most serious damage from this gear comes from lost or discarded line. These lines may tangle up on coral or hard bottom where heavy algae growth on the lines can smother and kill corals and live bottom. These types of bottoms receive heavy hook and line fishing pressure and the weights on the fishing lines can also cause substantial bottom damage over a period of time.

Traps & Pots



Like most other gear types, traps and pots cause the most damage when used on coral or live bottom. Much of the damage takes place during trap retrieval when a trap may be dragged a distance before being lifted off of the bottom. This is especially true when the traps are fished on trotlines or longlines. Traps can also smother sea grasses when fished in sea grass beds. Finally, bottom damage can also occur when lost or unbuoyed traps are recovered by dragging a grappling hook or "drag". Recommendations are for traps and pots not to be used on coral habitat. Traps should not be weighted any more than necessary and limiting the number of traps on a trotline would reduce bottom damage.

Spear Guns

Damage caused by spear use was rated as low, although spearfishing on reef habitat can cause some coral breakage. Touching coral with hands was also listed as a cause of damage.

Source: *A Review of the Fishing Gear Utilized Within the Southeast Region and Their Potential Impacts on Essential Fish Habitat.* Michael C. Barnette. National Marine Fisheries Service, Southeast Regional Office. 2001.

UNDERWATER OBSTRUCTIONS LOCATIONS

The Louisiana Fishermen's Gear Compensation Fund has asked that we print the coordinates of sites for which damage has been claimed in the last month. The coordinates are listed below:

Loran sites

27750	46916	ST. MARY
27894	46862	TERREBONNE
28118	46898	TERREBONNE
28573	46855	JEFFERSON
28953	46784	PLAQUEMINES

Lat. & Long. Sites

29 16.353	89 29.915	PLAQUEMINES
29 17.254	89 42.485	PLAQUEMINES
29 22.126	89 35.981	PLAQUEMINES
29 30.594	90 07.754	JEFFERSON
29 43.330	90 07.250	JEFFERSON
29 44.365	89 28.421	ST. BERNARD
29 51.842	93 20.783	CAMERON
29 57.651	89 42.539	ST. BERNARD

SPOTTED INVADER

Last summer, Louisiana coastal fishermen east of the Mississippi River witnessed the invasion of large numbers of spotted jellyfish, *Phyllorhiza punctata.* These large animals, up to 2 feet in diameter and weighing 25 pounds, also invaded the coasts of Alabama and Mississippi.

This animal is originally native to the waters of western Australia. It seems to have made its way through the Panama Canal by one stage of its life cycle attaching itself to the hulls of ships. It has been in the southern Caribbean, as far north as Puerto Rico, for at least 30 years, but has never made it to the northern Gulf of Mexico until last year.

Scientists theorize that the jellyfish were carried here by the Loop Current which carries water from the Carribean into the Gulf between Cuba and Mexico. They think that an eddy may have broken off of this current and traveled northward instead of leaving the Gulf between the tip of Florida and Cuba.

Scientists fear all alien or non-native animals and plants. Sometimes these invaders make little difference in an ecosystem, other times they can crowd out native, valuable species. The animal is not likely to harm humans, having a sting about as strong as that of the common "cannonball jellyfish".

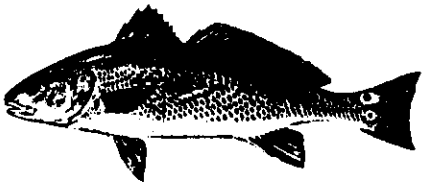
Spotted jellyfish are filter feeders, eating zooplankton, tiny microscopic free-floating animals. Zooplankton is important as food to young fish and shellfish. Also many of these same species valuable to humans spend the early part of their lives as tiny eggs and larvae, small enough to be eaten by the jellyfish. Some concern also exists that in high enough numbers the jellyfish may interfere with trawling and beach tourism.

At this time, no one knows if the spotted jellyfish will reappear this summer or if its occurrence was a one-time event.

Source: *The Spotted Jellyfish: Alien Invader.* Harriet M. Perry and Monty Graham. J. L. Scott Marine Education Center and Aquarium. 2000.

RED ROMANCE

Redfish, like many other members of the drum family, spawn in high salinity waters in areas of high tidal current flow, such as areas near barrier island passes. Spawning usually takes place over an 8 or 9 week period from mid August to mid October.



During this period, male redfish stake out, in large numbers, the prime spawning areas in and near the passes, being ready to spawn virtually every night. There they form large schools at night, called drumming aggregations, because of the drumming sound that they make with their air bladders to attract females. Females on the other hand, tend to appear at these areas only when immediately ready to spawn, which seems to be once every 2 to 4 days. This means that the large majority of redfish taken during this time by recreational fishermen are males, rather than females.

While the 2-month spawning period is less than half that for speckled trout, the spawning potential of an individual redfish is truly stupendous. At an average of 1.5 million eggs per spawn, and a spawning every 2 to 4 days, the average female can be expected to produce 20-40 million eggs per season.

While it has been a generally accepted rule of thumb that redfish leave inshore waters when they mature around age 5, there is a lot of variation in this. Immature 2 to 5 year old fish have been found in the offshore schools. Also, a small percentage of females mature at age 3 and about 9 pounds in weight. A few males mature even sooner, at age

2 and 5½ pounds. All females are mature by age 6 and all males by age 5. Once mature, redfish typically will spawn for the rest of their lives.

SWORDFISH LONGLINERS NEED SAFETY DECAL

The National Marine Fisheries Service (NMFS) has issued a reminder that all vessels holding Swordfish Limited Access Permits (direct or incidental) must display a Commercial Fishing Vessel Safety Decal. Their reason is that vessels with swordfish permits must carry NMFS observers on board if they are selected. The decal can be obtained after an inspection by a Coast Guard Marine Safety Office Examiner. The examiners for the three main Louisiana swordfish ports are Tim Arant 1-800/884-8724 for Dulac and Leesville, and David Johnson 1-800/891-1197 for Venice.

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THE GUMBO POT

Seafood Medley Gumbo

Gumbo deserves to be the official Louisiana State Dish. Interestingly, ten gumbos cooked by ten different people all taste different. I've tasted many different gumbos, but this one may be the most unique I've ever eaten, unless you count kaliloo as a gumbo. The dish was an entry into the LSU AgCenter District One 4-H Seafood Cookery contest by Hunter Fornea of Washington Parish.

1	cup flour	1	16-oz can tomato sauce
1	cup oil	1	tsp liquid seafood boil
1	large onion, chopped	6	cups water
1	bunch green onions, chopped	1	cup shrimp
2	cloves garlic	1	cup crab
1	large bell pepper, chopped	1	cup oysters
2	tbsp margarine	2	cups okra, cup up
1	32-oz can tomatoes	1	tsp salt

In a large skillet make the roux by browning four in oil. Set aside. Saute onions, garlic and pepper in margarine until tender. Put in a large pot the roux, sauteed vegetables, tomatoes, tomato sauce, liquid seafood boil, and water. Bring to a boil, turn heat down and simmer for one hour. Add shrimp, crab, oysters, and okra. Bring to a boil. Turn down heat and simmer for 15 minutes. Serves 6

Sincerely,

Jerald Horst
Associate Specialist (Fisheries)