

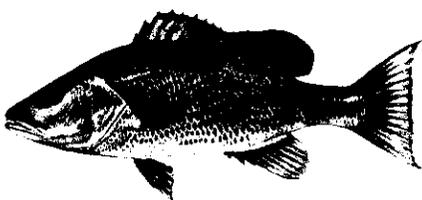
Lagniappe



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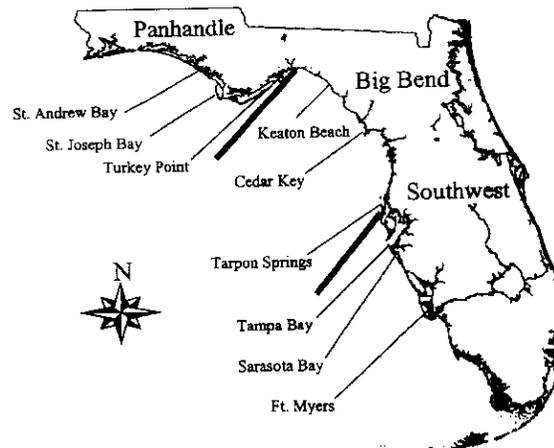
UNLOCKING GRAY SNAPPER SECRETS

In a perfect world of fisheries science, biologists would be able to look at the numbers of eggs or juveniles (young) of a fish species and from that be able to predict the population available for harvest 1-3 years later. In many fish species, one year's successful spawn (year class) can be several times larger than the one before or after it. Scientists have come close to being able to accurately predict mid-Atlantic coast striped bass landings with a sampling procedure using seines to catch juveniles.



Of all reef fish species, the gray snapper, (a.k.a. mangrove snapper) *Lutjanus griseus*, might be the one closest to predictability. Its life cycle is well-worked out. Adults live in relatively shallow offshore waters, but young gray snappers spend the early part of their lives in inshore waters, especially preferring grass beds. At about 3.0-3.5 inches long, they begin to gather around debris and at channel edges. They frequently remain in large bays and lakes until 8-10 inches long and sexual maturity.

A great deal must be known about a fish in order to develop predictably. Two biologists studied juvenile gray snapper in great detail in 1996-1997 with that purpose in mind. They divided the Gulf Coast of Florida into 3 zones, Panhandle, Big Bend and Southwest, and intensively collected juvenile fish from turtle grass beds using trawls and scrapes. They also examined the egg masses of adult female gray snapper to verify the spawning times calculated from the catch of juveniles. Juvenile gray snapper were found in the grass beds of the Panhandle and the



Big Bend from June to November and from April to November in the Southwest. From the presence and size of the juveniles collected, the scientists were able to back-calculate spawning dates.

Of the juveniles captured in 1996, a few were spawned in April-May, but most spawning began in mid-June, peaked in mid-July and then declined, with the latest fertilized spawning occurring in mid-September in the Southwest. The spawning pattern for 1997 was very similar, except for one thing. Some juveniles caught in Southwest grass beds in 1997 had been spawned in the period beginning November 1996, peaking in January 1997, and then declining to April.

Examination of the egg masses of the adult females showed a match for the May to September spawning, but didn't agree with the odd November-April (winter) spawn. The biologists raised the possibility that these winter-spawned fish could have been spawned outside the Gulf of Mexico, perhaps from the waters of an island.

One of the researchers in the study had, in other research, found two patterns of snapper spawning: 1) spawning from continental populations with long summer seasons; and 2) spawning from island populations which goes on year-round, with heavier pulses in the spring and fall. Gray snapper larvae are free floating (planktonic) for 25 days before they settle out into their juvenile homes. With this long planktonic stage, larvae spawned in one area can be carried great distances by ocean currents.

One interesting bit of information from this research was that the scientists could find no connection between moon phases and spawning peaks for gray snappers, as had been speculated to exist by other biologists.

Source: *Temporal and Spatial Dynamics of Spawning, Settlement, and Growth of Gray Snapper (Lutjanus griseus) from the West Florida Shelf as Determined from Otolith Microstructures*. Robert J. Allman and Churchill B. Grimes. Fishery Bulletin. Volume 100, No. 3. July 2002.

LOUISIANA WILDLIFE FEDERATION RESOLUTIONS

At its March 3-5 Annual Meeting, the Louisiana Wildlife Federation passed two resolutions of direct importance to fisheries. **Resolution 7C** urges the Louisiana Department of Wildlife and Fisheries (and supporting partners) to restock the rivers that drain into Lake Maurepas with fish because of the impacts of Hurricanes Katrina and Rita on the area.

Resolution 8C concerned the Louisiana Wildlife and Fisheries Commission Notice of Intent to reduce the daily recreational limit on speckled trout from 25 to 15 in parts of Calcasieu and Cameron Parishes. The resolution urges the commission to conduct a statistically valid statewide survey to determine the preferences of Louisiana anglers and guides and to suspend its rulemaking on the issue until the survey is completed.

It also urges the commission not to place rules on anglers across the coast only for the propose of having uniform regulations or because of charter guides' concerns about business disadvantages. Finally, the resolution urges that if the survey shows that a clear majority of charter guides want the limit reduced and that they have business concerns about guides in one part of the state having different limits than guides in other parts of the state, that the commission consider creating harvest limits that would apply only to guides, separate from anglers.

SPECK RESOLUTION PASSES LEGISLATURE

The 2006 Special Session of the Louisiana Legislature, which ended on February 17, resulted in one piece of fisheries legislation. House Concurrent Resolution 42 by Representative Mickey Frith urges and requests the Louisiana Wildlife and Fisheries Commission not to reduce the daily creel limit for speckled trout. The rationale of the resolution is that there are no biological reasons to restrict the harvest in Calcasieu and Cameron Parishes and a creel limit reduction may reduce the economic recovery of the area by slowing economic activity.

FOLK MANAGEMENT: EXAMPLES IN OYSTERS

The term "folk management" is increasingly being heard in discussions on fisheries management options. Folk management in fisheries refers to traditions ingrained in a culture or community that promote the long-term use of fish without overfishing. Folk management can influence or control who can fish, when and where they can fish, and what gear can be used.

Some examples in folk management still exist in the United States, but by-and-large the role of the fishing community in management has become severely reduced, as government fisheries management experts have become more conservative and less flexible. Some fisheries management scientists now feel that this change has resulted in a further decline in the stability of fish populations.

Two scientists attempted to compare Gulf of Mexico oyster fisheries in states with folk management to those in states with little folk management. To do this, they used the term natural resource community (NRC) for each of four states' (Louisiana, Mississippi, Alabama and Florida) oyster harvesters.

Louisiana and Florida were defined as "closed NRCs", oyster fisheries with many restrictions to getting into the fishery due to influences from folk management. Participation in the fishery in these states is strongly rooted in having family already in it, or in being an "insider" to the community.

In Louisiana, the majority of the best areas for oyster harvesting are under lease to private parties. This lease system, which was put into law in 1902 by oyster harvesters and state government working together, was really just a legalization of the way oyster producers worked under folk management before 1902. At that time, the industry was heavily dominated by one cultural group, Yugoslavian immigrants.

The Florida oyster fishery is also classified as a closed NRC with folk management. Most of the state's oyster fishery occurs in Apalachicola Bay and the harvesters are descendents of the Scotch-Irish immigrants who originally settled there. Until recently, over 90% of all the residents of Apalachicola depended directly or indirectly on the local oyster fishery. Access to outsiders is discouraged, with residents not sharing their knowledge of the fishery with outsiders. Becoming an insider can take several generations. Few other job opportunities in the area exist for residents.

"Open NRCs" are less affected by folk management and the local community has little formal or informal control over access to the fishery. This allows people to enter or leave the fishery at will. The Mississippi and Alabama oyster fisheries are considered open NRCs.

The oyster fishery of Mississippi is made up of a variety of ethnic groups and cultures. Its fishery did develop from the close interaction of oystering families, as in Louisiana and Florida. Mississippi oyster harvesters have historically been involved in other resources such as timber, agriculture, livestock and manufacturing. Many are part-time or seasonal harvesters. All of Mississippi's reefs are public and open to everyone.

The Alabama fishery is also classified as an open NRC, even though some family ties exist among participants in the fishery. Alabama fishermen have strongly supported keeping oyster reefs public because of the fear that seafood processors would dominate any leasing system. Knowledge of oyster harvesting and resources is widely shared. Also, when Alabama oyster resources are poor, Alabama harvesters commonly travel to Mississippi to tong oysters there, so Alabama harvesters do not depend on local resources.

To test for the effects of folk management, the scientists compared the Louisiana oyster fishery to the Mississippi fishery, both dredge fisheries, and the Florida to the Alabama fishery, both tong fisheries. Louisiana had more stable overall production and stable production per harvester than Mississippi, and 5 times the average catch than Mississippi harvesters had.

The two states that harvest with tongs, Florida and Alabama, were compared. Here, Florida had more stable total harvests and more stable production per harvester than Alabama, plus Florida had nearly 3 times as much production as Alabama.

They concluded that folk management in the closed NRCs of Louisiana and Florida led to maintaining strong, stable levels of oyster production. The folk management practices of the two states served to limit access to the fisheries, thereby reducing the possibilities of overfishing and increasing income to fishermen and their communities.

Many U.S. commercial fisheries have been described as being in crisis. Crisis management has led to many traditional fisheries-use cycles being disrupted by

regulation. This situation in turn has led fishermen to be in conflict, both among themselves and with fisheries managers. The scientists drew three major conclusions:

To the extent that increased fishing effort or changes in fishing practices have harmed, or perceptually harmed fisheries, the most notable cause has been unlimited access.

In most fisheries of the United States, managers have been ineffective or apathetic in controlling access.

Folk management and co-management may be the best strategies for establish conservative management programs to obtain optimum sustained benefits from fisheries on a continuing basis.

Co-management of fisheries involves some sort of agreement or arrangement, formal or informal, between fisheries groups or communities that use the resource and government fisheries management agencies to share management responsibility. Under this concept, fisheries users actively participate with the agency in developing regulations and sharing responsibility for enforcement. Passing some of power and responsibility to fisheries users is crucial if folk management and co-management are to succeed.

The scientists admitted that folk management does not work perfectly in all places and at all times, but said that consideration of folk knowledge and folk management can be used to ease crisis conditions in many fisheries of the world.

Source: *Folk Management in the Oyster Fishery in the U.S. Gulf of Mexico.* Christopher L. Dyer and Richard L. Leard. In, *Folk Management in the World's Fisheries: Lessons for Modern Fisheries Management.* Edited by Christopher L. Dyer and James R. Goodwin. University Press of Colorado. 347 pp. 1994.

PREY SELECTION BY SPECKLED TROUT

Spotted seatrout (*Cynoscion nebulosus*) are one of the most common and active predators in coastal estuaries. Much speculation exists on how important shrimp are in the diet of this fish. Some studies indicate that specks are a major predator of fish; others show shrimp as only a minor part of their diets.



In the 1980s, National Marine Fisheries Service biologists studied prey selection by small speckled trout, as they are usually called, in the laboratory. Under various conditions, speckled trout were offered a choice between brown shrimp, spot and pinfish.

The study was done with 6 speckled trout ranging in size from 6.4 inches to 8.4 inches long. Young spot were chosen as a fish to offer speckled trout in the tests because they were common in Galveston Bay, the waters that the trout came from, because they are often reported as occurring in the stomachs of trout in food studies and because spot survive handling well. The trout were held for one month before being used. While the trout were held, they were fed with equal numbers of live brown shrimp and live young spot. No sand was present in these tanks. In these holding tanks, the trout ate the shrimp before the spot 81% of the time.

The feeding tests were done in a 144-square foot, oval concrete tank with a sand bottom. In half of the tests, the sand was covered with plastic mesh to prevent the shrimp from burrowing and in half the sand was left uncovered.

The tank was divided into fourths with plastic mesh barriers. Two speckled trout were put in each of three sectors in a small cage and allowed to acclimate to the tank. They were not fed for 24 hours. Twenty brown shrimp and 20 young spot the same size as the shrimp were put in each of the four sectors. The speckled trout were released 20 hours later and allowed to feed for 24 hours. Then the tank was drained and the surviving spot and shrimp were counted.

To determine whether spot were avoided as food by speckled trout, experiments were conducted in which specks were offered a choice of the same size of spot and pinfish. In 18 such tests, speckled trout ate the spot before the pinfish 16 times. However, some of this was due to the fact that pinfish were better at evading the trout attacks than spot were. These experiments did show, however, that trout did willingly eat spot.

In the feeding trials where the sand bottom was covered to prevent the shrimp from burrowing, the trout ate the shrimp rather than the spot 100% of the time. In the trials with a sand bottom, 62-67% of the shrimp were buried with most of their body into the sand. Still, the specks preferred the shrimp. Shrimp were 77-78% of the prey eaten.

Although attempts were made to offer spot and shrimp of a consistent size, there was some variation. The speckled trout showed a slight preference for smatter shrimp, less than 3 inches in length. A small preference was also shown for the smaller spot over larger ones.

Source: *Selection for Brown Shrimp, Penaeus aztecus, as Prey by the Spotted Seatrout, Cynoscion nebulosus*. Thomas J. Minello and Roger J. Zimmerman. Contributions in Marine Science. Vol. 27: 159-167. 1984.

LOUISIANA ISSUES MERCURY ADVISORIES

The state of Louisiana has issued several new fish consumption advisories due to mercury. In these advisories, a fish meal is considered ½ pound.

- * **King Mackerel.** Women of childbearing age and children less than 7 years old should not consume any king mackerel. Other people should not consume king mackerel over 39 inches in length and no more than 2 meals per month of king mackerel 39 inches long or less.
- * **Cobia, Amberjack & Blackfin Tuna.** Women of childbearing age and children less than 7 years old should consume no more than one meal per month of these species combined. Other people should consume no more than four meals per month of these species combined.
- * **Black Bayou Lake in Caddo Parish), Iatt Lake (in Grant Parish) and Bayou Chene/Bayou Lacassine (in Southwest Louisiana).** Women of childbearing age and children under 7 years old should consume no more than one meal per month of largemouth bass and bowfin (choupique) combined. Other people should consume no more than four meals per month of these species combined.
- * **Lake Bistineau.** Women of childbearing age and children under 7 years old should consume no more than one meal per month of bowfin (choupique). Other people should consume no more than four meals per month of bowfin.
- * **Bayou Dorcheat** Flathead (yellow) catfish have been added to the species for which it is recommended that women of childbearing age and children under 7 years old have been advised not to eat more than one meal per month of all species combined. Other people should eat no more than four meals per month of these species combined. Besides flathead catfish, the species include largemouth bass, spotted bass, black crappie, freshwater drum (gaspergou) and bowfin (choupique). For complete Louisiana fish advisories, visit <http://www.dhh.louisiana.gov/offices/page.asp?-id=205&detail=6532>

MARINE MAMMAL PROTECTION ACT CERTIFICATES

Marine mammals include such sea creatures as porpoises, whales, seals and sea otters. The Marine Mammal Protection Act was originally passed by U.S. Congress in 1972 to protect populations of these animals, some of which are very low. Under the act, each type of U.S. commercial fishery is placed in one of three categories, based on its likelihood to interact with marine mammals.

Under the act, all state-licensed commercial fishermen who fish in a Category I (highly likely to injure or kill marine mammals), or a Category II (moderately likely to injure or kill marine mammals) fishery, must be registered in the Marine Mammal Authorization Program (MMAP). In Louisiana, Category I and II fisheries include the mullet strike net fishery, the pompano strike net fishery, and the menhaden purse seine fishery.

The MMAP issues an Authorization Certificate to each fisherman who participates in the above Louisiana fisheries. The certificate allows for accidental injuries

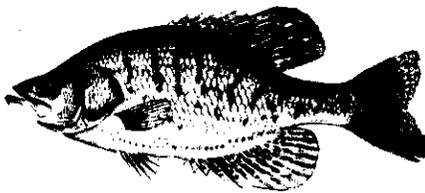
and mortalities of marine mammals while normal fishing is taking place. Having this certificate on board protects these fishermen from being prosecuted should they injure or kill a marine mammal. Registration in this program is automatic and does not require fishermen to act in any way.

The National Marine Fisheries Service (NMFS) is providing, through the mail, MMAP materials to all fishermen participating in the fisheries listed above. The mailing will include a question-and-answer fact sheet about the program, an observer requirement fact sheet, the certificate itself, and a Mortality/Serious Injury Reporting Form.

If a fisherman should accidentally injure or kill a marine mammal while fishing, he is required to fill out the self-addressed reporting form provided in the mail-out, and send it to the NMFS Office of Protected Resources. Fishermen who report an injury or mortality will not suffer any penalties. The information collected from each report will be used for scientific monitoring purposes, and aid in fishery management decisions. Anyone with any more questions after reviewing the MMAP information should contact Juan Levesque at Juan.Levesque@noaa.gov, or Kate Wells at Kate.Wells@noaa.gov, or by phone at (727) 824-5312.

MANAGING CRAPPIE

Crappie, most often called "sac-a-lait" in south Louisiana and "white perch" in north Louisiana, are among of the most popular freshwater fish in the U.S. Actually, two species, white crappie, *Pomoxis annularis* and black crappie *Pomoxis nigromaculatus*, rather than one, crappie are poor fighters, but excellent tablefare. Their popularity has increased with the creation of crappie fishing tournaments or "crappiethons".



This popularity comes at a price. They are notorious for experiencing boom and bust spawning years. When a population experiences several poor spawns and dedicated crappie fishermen catch fewer of the fish, the anglers often vocally call for tighter fishing regulations to restore populations. Most often re-requested are minimum size limits.

It is all too easy to assume that minimum sizes will produce results, because to the average angler it is logical to assume that if you protect the little ones they will grow up to spawn and produce more crappie. And under some conditions, minimum sizes can have a positive effect, especially in increasing the average size of crappie caught.

But in many other circumstances, minimum size regulations don't work. One such case was in Lake Chicot, a 5,000-acre oxbow lake near the Mississippi River in Arkansas. There, fishery managers put a 10-inch minimum size rule into effect in the early 1990s because of demand from concerned sports fishermen. After 10 years, biologists studied the effects of the regulation to see if it had produced results. For

two years they trapped and tagged crappie with reward tags to determine the rate at which the fish were being caught. Tags were worth \$5, \$20 and \$100 and the tag and reward program was heavily advertised. Both species of crappie were also collected for a 3-year period by biologists for analysis. These fish were measured and aged by counting the growth rings in cross-sections of their otoliths (ear bones).

The results of the two-year tagging study showed that fishermen caught about 17% of the crappie population each year. However, the mortality (death) rate of crappie from natural (non-fishing) causes was 61% per year, meaning that 78% of the fish died each year from a combination of fishing and natural causes. Study of the otoliths showed that Lake Chicot crappie had fast growth rates.

Generally speaking, crappie populations that have a low fishing mortality rate and a high natural mortality rate, like those in Lake Chicot, receive little to no benefit from minimum harvest size restrictions, even if the fish have a rapid growth rate.

Analysis of the data showed that removing the 10-inch minimum size rule would result in more than doubling the number of fish harvested. The analysis also revealed that the change in the number of crappie in the lake if the size limit were removed would be all but unnoticeable.

The major benefit to keeping the 10-inch minimum size restriction would be a larger average size of crappie at harvest. The biologists suggested a survey of Lake Chicot fishermen to see if they preferred to catch fewer but larger crappies, or more but smaller crappies.

Source: *Evaluation of a Crappie Length Limit on Lake Chicot, Arkansas.* James M. Carlson, Christopher I. Racey and Steve E. Lochmann. Proceedings of the Fifty-eighth Annual Conference of the South-eastern Association of Fish and Wildlife Agencies, 23-29. 2004.

COMMISSION PROPOSES SHRIMP V.M.S. SYSTEM

The Louisiana Wildlife and Fisheries Commission has passed a notice of intent at its March meeting to develop a vessel monitoring system (VMS) for some participants in the shrimp industry. The rules are being proposed as required by state law, created by Act 102 of the 2005 Louisiana Legislature.

Under the proposed rules, a VMS will be required for any person subject to a court order that requires monitoring for the duration specified in the court order and any person having two or more convictions in the last five years for harvesting shrimp during a closed season for a period of three years from the date of the most recent conviction. People with three or more convictions in the last five years for harvesting shrimp during a closed season will be monitored for 10 years from the date of the most recent conviction.

Commercial fishermen who require to be monitored shall not be present on board any vessel harvesting or possessing shrimp or which has any trawl, skimmer or butterfly

net on board unless the vessel is equipped with and is using an approved VMS. A vessel that will have a monitored person on board must first notify the Louisiana Department of Wildlife and Fisheries (LDWF) of the VMS installation. VMS units also must be approved, certified, installed and fully operational on any vessel carrying a monitored person.

Public comment for this notice of intent may be submitted to Maj. Jeff Mayne, Law Enforcement Division, Department of Wildlife and Fisheries, P.O. Box 98000, Baton Rouge, LA 70898 before May 4, 2006.

NEW WRINKLE IN CRAB MANAGEMENT

In January, the state of North Carolina put into effect rules that take a new approach to blue crab management — maximum size limits. Under the rules, female blue crabs larger than 6¾ inches, point-to-point cannot be possessed from January 16 through April 30, 2006. During the same period, female peeler crabs larger than 5¼ inches cannot be possessed.

The rules were put into place because of very low numbers of large females making spawning runs across the state's sounds. Large females can produce over 8 million eggs compared to less than 1 million for the smallest females.

North Carolina does not prevent the harvest of sponge crabs, like some other states do. No research has shown that protecting sponge crabs works to increase crab populations. To further support that view, North Carolina biologists report that they have found that when sponge crabs are captured in traps, they often rip apart their egg mass due to the stress of being captured.

ATLANTIC CUTLASSFISH

The Atlantic cutlassfish, *Trichiurus lepturus* is a very common fish, but is seldom ever called by its proper name. Usually going by the names ribbonfish, silver eel or hairtail, it can be found from the water's surface to the bottom, but is usually in waters over mud bottoms. Scientists studying bottomfish biology in the Gulf of Mexico found it in trawl samples at all depths trawled, from 30 feet to 300 feet deep.



They found that male cutlassfish outnumbered female fish by a ratio of 1.6 to 1.0. Many more males than females were found in fish 10-20 inches long. In fish over 20 inches long, females outnumbered males. The smallest mature fish found in their samples were 15.5 inches for males and 14.0 inches for females. Ready-to-spawn females were found from April through October and were found at all depths sampled. Eggs produced per female ranged from 5,000 for a 16.8-inch, 1.3-ounce female to 42,100 eggs from a 36.8-inch, 18.3-ounce fish.

Cutlassfish are a strange-looking fish, with a metallic silver body that is very flattened from side-to-side and ribbon-like in shape. They are very thin and weigh very little for their length. It has a single dorsal fin that extends the length of the body. It has no pelvic fin or tailfin, and the anal fin is all but unnoticeable. The cutlassfish has large eyes and a very large mouth filled with impressive fang-like teeth.

It puts these teeth to use in pursuing its diet of finfish, with a few shrimp thrown in for variety. Half of all the finfish consumed by cutlass fish are anchovies and most of the shrimp eaten are small pelagic shrimp.

Source: *Reproduction and Food Habits of Seven Species of Northern Gulf of Mexico Fishes*. Peter F. Sheridan, David L. Trimm and Bruce M. Baker. Contributions in Marine Science. Vol. 27: 175-204. 1984.

THE GUMBO POT

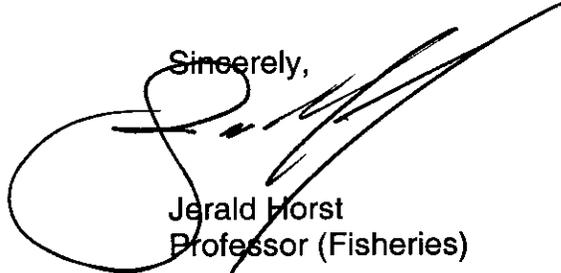
Crawfish Casserole

It's crawfish season again and even though supplies are a little tight, a good Louisianan will find a way to get them. I very often use Old Bay crab steaming seasoning in cooking. It's perfect for this dish. Don't leave it out.

1	10-oz box of frozen broccoli spear	1½	cups cooked rice
1	medium-large onion, chopped	1	can whole kernel corn
2	stalk celery, chopped	2	lb crawfish tail meat
3	tbsp butter	1	tsp salt
1	can cream of chicken soup	1	tsp hot sauce
1	soup can of milk	1½	tsp Old Bay seasoning
1	small jar jalapeno cheese spread		

Boil about 1 cup of water in a saucepan. Remove from heat and add broccoli to thaw, and then drain. Sauté onion and celery in butter until soft. Add soup, milk and cheese. Simmer a few minutes to melt cheese well, and then add broccoli, rice and corn. Pour mixture into a glass baking dish. Bake uncovered in 350°F oven for 20 minutes. Add crawfish tails, salt, hot sauce and Old Bay seasoning. Mix well, cover and bake for 20 more minutes. Serves 6.

Sincerely,



Jerald Horst
Professor (Fisheries)