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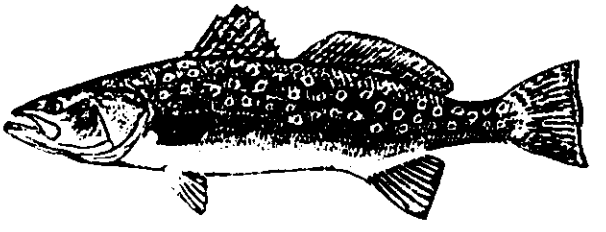
Sea Grant LOUISIANA

February 1, 2001 Volume 25, No. 2

It is with great sadness that we note the untimely death of Paul Thibodaux, the LSU AgCenter's Marine Advisory Agent for Plaquemines and St. Bernard Parishes. Paul lost his lengthy battle with cancer on December 30, after 19 years of work in our program. We will all miss Paul, both professionally and personally, with his big smile and good sense of humor. We mourn his passing.

TROUT ROMANCE

Like all other fish, speckled trout behavior is driven by the dual needs for food and sex. While speckled trout can be and are caught year-round, peak recreational catches take place in the summer months when speckled trout are vigorously spawning and eating everything in sight in order to grow more eggs and sperm.



Speckled trout spawning activity depends on environmental factors such as currents, salinity and temperature. While speckled trout have been reported spawning in a wide variety of locations, recent research in Barataria, Caminada and Timbalier Bays found that medium to large spawning schools tended to locate in areas of good tide movement such as passes between barrier islands and open water channels, in waters 6 to 30 feet deep.

Most spawning activity seems to take place in salinities of 17-35 parts per thousand (ppt). Full strength seawater is 35 ppt. Two different research projects reported that the highest hatch rates for speckled trout eggs occurred at 15-25 ppt and 19-38 ppt. Low salinities due to high river discharges can effect both spawning activity and the survival of speckled trout eggs and young.

The two most important factors that determine when speckled trout spawn are water temperature and day length. Egg development begins to take place as days become

longer in spring. Water temperatures of 68°F seem to trigger spawning, which continues as water temperature increases. Peak spawning takes place between 77°F and 86°F. Some research indicates that spawning stops at temperatures over 86°F.

The cycle of the moon also seems to affect spawning, with spawning peaks occurring on or near the full moons of the spring and summer months.

CAMERON-CREOLE WATERSHED PROJECT

The 113,000-acre Cameron-Creole Watershed Project, the earliest large coastal restoration project in Louisiana, is located near the southeast corner of Calcasieu Lake in extreme southwest Louisiana. The chenier ridges and marshes of the area were settled in the late 1700s. The early settlers farmed as well as fished, hunted alligators and waterfowl, and trapped fur animals. This way of life stayed the same until the 1940s when large oil and gas deposits were located. By the 1950s, the oil boom was in full swing. Roads were built and 2000 miles of navigation channels and canals were built in the chenier marshes.

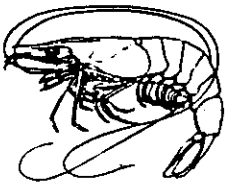
These changes interrupted the natural flow of water through the marshes and saltwater intruded into areas where it had not been before. From 1932 to 1990, southwest Louisiana lost about 25% of its wetlands due to saltwater intrusion, high water levels from the construction of locks and gates, shoreline erosion and marsh subsidence (sinking).

In 1962, a group of concerned Cameron Parish residents met with the agency now known as the Natural Resources Conservation Service and suggested a plan to serve East Cove Marsh. From this beginning point grew the large Cameron-Creole Watershed Project. Between the early 1970s and the project's completion in 1989, a 19-mile lakeshore protection levee was built, 5 water control structures were installed, many changes to water flow patterns were made, and a detailed plan for operating the system was developed.

In spite of the system's design to allow the movement of marine animals into and out of the marshes through the water control structures, area shrimpers have reported a noticeable decline in the quality of the shrimp fishery. Other experts point to positive changes due to the project, including a 1000% increase in alligator nests, an average salinity drop of 42%, a decrease in brackish wetland plants and a 107% increase in freshwater plants, and an average increase in waterfowl numbers of 77%.

Source: *WaterMarks.* November 2000, Number 17. Department of the Army, New Orleans District, Corps of Engineers.

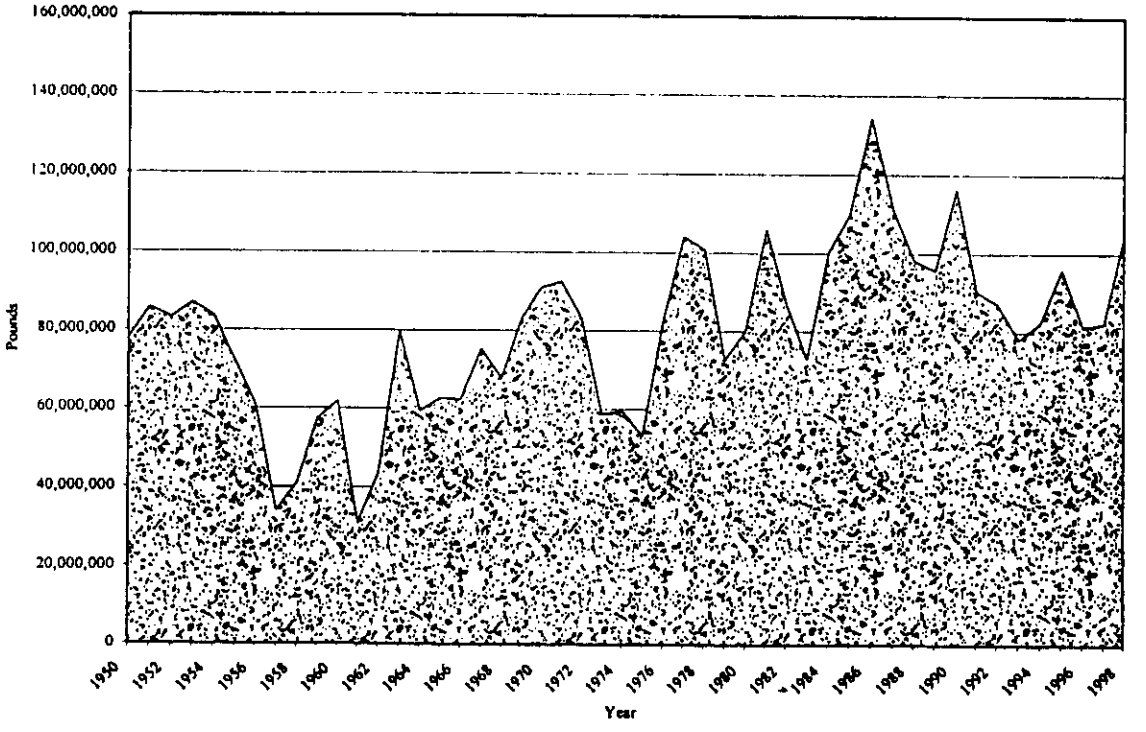
SHRIMP PRICES



As long as there have been commercial shrimpers and as long as there have been shrimp buyers, there has been conflict over the prices that shrimpers receive for their catch. In 1998, the Select Council on Shrimp Management was created to study the existing and future management of the state's shrimp resources and to make management recommendations for the future.

The same legislative act that created the council created a Shrimp Industry Review Panel to review the council's recommendations and from this review make recommendations to the legislature. As could almost be expected, some of the shrimp fishermen on the panel expressed strong concern about the fairness of the prices paid to fishermen for their catch. Their recommendation was to expand and enhance fisheries data collection efforts and to conduct a detailed study of price trends in the shrimping industry. The 1999 Legislature passed Senate Concurrent Resolution 45 which requested the Department of Wildlife and Fisheries to make the price trends study. The results of the study are quite interesting.

Louisiana Shrimp Landings, 1950-1998



The figure on the previous page shows Louisiana's commercial shrimp landings from 1950 through 1998. Landings have gone up and down quite a bit but over the long term, have increased by an average of 4% per year. Over this same period of time, prices paid to shrimpers have increased by an average of 6% per year. Average prices were 21¢ per pound in 1950 and $1.50 per pound in 1998. After the affects of inflation were calculated out, prices still showed a 4% per year average increase.

A closer look at landings the last 13 years shows that small-sized shrimp made up nearly 60% of the average annual landings and 40% of the value of the landings. Medium shrimp accounted for 27% and large shrimp 33% of the value. During this 13-year period, the average yearly price per pound change has been an increase of 3.3% for large shrimp, a decrease of 0.5% for medium shrimp, and an increase of 4.2% for small shrimp.

Of no big surprise, shrimp imports into the U.S. have shown a dramatic increase from 1975 (91,380 metric tons) through 1998 (315,442 metric tons). This represents a 6% average annual increase in shrimp imports. The proportion of small, medium and large shrimp in these imports has changed in the last 10 years. From 1991 to 1999, imports of small shrimp have increased 28%, compared to an increase of 17% for medium shrimp, and a decrease of 9% for large shrimp. Imports of medium-sized shrimp have replaced large shrimp as the largest import category.

Any conflict over price centers around who sets the price. A general rule is that the fewer the number of businesses involved in an enterprise, the more power exists to set the price for a product, with the worst case being a monopoly. One part of this study analyzed the numbers and monopoly power of shrimp dockside buyers and shrimp processors from 1976 through 1998.

During that time period, the number of dockside buyers/first handlers increased from 38 in 1976 to 57 in 1998. During that time, the lowest number was 30 in 1980 and the highest was 67 in 1992. The concentration of buying power was measured by determining the percentage of shrimp bought by the top 4, the top 10, and the top 20 buyers. In all three categories, a drop in concentration of buying power occurred. In 1976, the top 4 buyers controlled 70% of the shrimp. In 1998 they controlled 30%. The top 10 dropped from 90% to 53% and the top 20 dropped from 98% to 78%.

Analysis of this with what is called the Herfindhal-Hirschman Index (HHI) to measure monopoly power, concluded that Louisiana dockside shrimp buyers do not have a firm grip on the market for buying shrimp or much monopoly power.

A similar analysis was done on the shrimp processing sector. This group of businesses breads, cans, drys, freezes, peels or does some other specialty processing to shrimp purchased from dockside buyers for resale. During the 1975 to 1997 period, the

number of processors in Louisiana declined from 48 to 31. The highest number was 57 in 1977 and the lowest was 30 in 1996.

The concentration of buying power was also measured for processors. The market share controlled by the top 4 processors increased from 36% in 1975 to 63% in 1997. For the top 10 firms, the increase was from 62% to 86%, and for the top 20, the increase was from 86% to 98%. The HHI analysis also increased, however the authors of the study felt that there was no direct evidence that increasing monopoly power existed in the Louisiana shrimp processing sector. They pointed out that stiff competition from imports will likely keep processors competitive.

The authors of paper did note that better data is needed to improve the understanding of the state's shrimp industry. They proposed a 3 year survey costing $179,000.

Source: *The Louisiana Shrimp Industry: A Preliminary Analysis of the Industry's Sectors*. Prepared for the Natural Resources Committee, Louisiana State Senate. Joselito Estrada, Assane Diagne and David Lavergne. Louisiana Department of Wildlife and Fisheries. May, 2000.

BARRIER ISLANDS

The Chandeleur Islands are a 43 mile chain of barrier islands located offshore and east of St. Bernard and Plaquemines Parishes. They are very unique, sheltering the only true marine grass beds in Louisiana and providing very high quality coastal fishing. In 1903, these islands became the second National Wildlife Refuge in the United States. In 1975, the northern part of the island chain was designated as a National Wilderness Area.

Barrier islands move and finally disappear because they are made of sand and are located in areas exposed to waves and wind. For example, no matter what man does, the Chandeleur Islands are expected by geologists to disappear by the year 2200. The Chandeleur Islands move by being overwhelmed by storm-caused waves. These either wash sand from the offshore side of the islands up over the top of the island to the backside, or the storm overwash cuts through the island, pushing sand through the cut and depositing it behind the island. There, the sand serves as a platform for the island to build on. During calmer periods, water currents move sand to close the cuts and allow the island to rebuild.

Without strong storms to wash over the islands, these platforms will not build. University of New Orleans scientist Shea Penland goes so far as to say that hurricanes are good for the Chandeleur Islands. Hurricane damage reports by the media give coverage to island erosion, but very little is reported on the rebuilding that occurs between storms.

Between 1855 and 1922, the area of the Chandeleur Islands declined from 8555 acres to 6727 acres, due to a number of hurricane hits at the turn of the century. Between 1922 and 1951, the islands' area increased to 7800 acres. After Hurricane Camille, the area decreased to 5016 acres. By 1978, all of the cuts on the islands had closed, Curlew and Grand Gossier Islands had reappeared, and the islands' area had increased to 5098 acres. By 1989, area had increased to 5322, Total island area decreased to 3003 acres in 1999, the year after hurricane Georges. However, according to Penland, Hurricane Georges began a new phase of platform building behind the islands that should keep the Chandeleur Islands around for over 100 years.

Sources: *The Impact of Hurricane Camille on the Chandeleur Islands in Southeastern Louisiana* and *The Impact of Hurricane Georges on the Chandeleur Islands in Southeast Louisiana: a Comparison with Hurricane Camille.* S. Penland, D. Reed, P. Conner, P. McCarty, C. Zganjar, K. Westphal, A.H. Sallenger and S.J. Williams. Basics of the Basin Research Symposium. May, 2000.

FISHING VERSUS TOURISM

On a world-wide basis, eco-tourism or nature-based tourism is the fastest growing tourist industry. In some coastal areas of the U.S., large parts of the economy have shifted away from commercial and even partly, recreational fishing, towards tourism. Snorkeling, diving and fish-watching are growing activities and increasingly these people are asking for a piece of the "fish allocation pie."

Fish catching, and fish watching don't do well together in the same area. Where fish are hooked or speared, they tend to become very shy and avoid human activity. In contrast, one researcher, Dr. Bill Ballantine, commented that "In places where fish have never been killed, they treat human beings as they treat cloud shadows."

Very little research has been done, however, on the effects of divers, snorkelers and swimmers on fish behavior. During 1996, a National Marine Fisheries Service biologist made an informal test of two areas in Hawaii that have been set aside as reserves. One area the Molokini Crater was declared a 'no-take" Marine Conservation District in 1977. It is a heavily used diving site with as many as 700 divers and snorkelers present at peak times of the day.

The other site, Koho'olawe, has been protected from all fishing and diving access since 1952. It was a U.S. Navy bombing and target range and was closed because of dangers from unexploded bombs and shells. The researcher dove both sites and compared the behavior of the fishes there to places where spearfishing is allowed. His observation was that in areas open to fishing, fishes are extremely shy and almost impossible to photograph.

In contrast, at both Kono'olawe and Molokini, fish were very easy to approach. At Koho'olawe, the area closed to all fishing or diving, the fish ignored the divers. They acted as if they had no experience with humans; they ignored them and went about their business. At Molokini Crater, the fish showed much of the same behavior, with one major exception. There, when the divers first entered the water, a cloud of fishes rose up off of the bottom and surrounded the divers within arm's reach. This was probably due to the fact that divers commonly feed fish in this heavily used area. When the fish determined that they were not going to be fed, they returned to the bottom and went back to their normal activity, ignoring the divers for the rest of the dive.

From these dives, the researcher concluded that just the presence of people, without fishing, has no negative impact on fish behavior. As the demands of coastal tourism increase, so will the demands for marine protected areas dedicated to uses other than fishing.

Source: *Reef Fish Response to Divers in Two 'No Take' Marine Reserves in Hawaii.* Jim Bohnsack. Reef Encounter 23, July, 1998.

KEMP'S RIDLEY SEA TURTLE NEST COUNT

After a 4% decline in the number of Kemp's ridley sea turtle nests on Mexican beaches in 1999, the number of nests took a huge 72% jump in 2000. This turtle nests almost exclusively on one main (Rancho Nuevo) and several smaller beaches in Mexico, and its decline brought on the mandatory use of TEDs in shrimp trawls in the effort to save it.

In 1947, an estimated 40,000 Kemp's ridleys arrived in one mass nesting event. By the mid 1980's, nest numbers had declined to 702. Its decline was primarily due to the collection of eggs on the beaches and the killing of the adults for meat and other products. Additional deaths were also caused by accidental catch in shrimp trawls.

YEAR	NO.OF NESTS	YEAR	NO.OFNESTS
1978	924	1990	992
1979	954	1991	1155
1980	868	1992	1275
1981	897	1993	1184
1982	750	1994	1568
1983	746	1995	1938
1984	798	1996	2080
1985	702	1997	2387
1986	744	1998	3752
1987	737	1999	3600
1988	842	2000	6175
1989	878		

SEA CONDITIONS AVAILABLE ON INTERNET

Both commercial and recreational fishermen have a strong interest in accurate weather information, especially offshore. Now fishermen can find at-sea conditions posted at the internet site, www.erin.csi.lsu.edu, established by the LSU Coastal Studies Institute. This interactive site, established by oceanographer Greg Stone, gives wave height, wave period (distance between waves), water current speed and direction, wind speed and direction, wind gusts, air and water temperature, and barometric pressure from five locations, LUMCON in Terrebonne Parish, Terrebonne Bay, a site offshore of Terrebonne Parish, Mississippi Sound, and offshore of Vermilion Parish. According to Department Head Chuck Wilson, the system when fully up and running will have 15 offshore monitoring locations plus more inshore.

NEW BIRDING BOOK

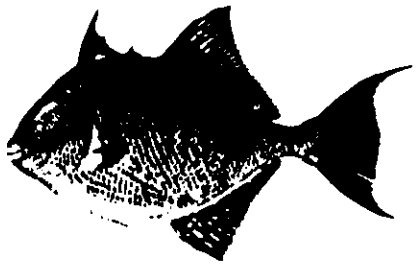
The Louisiana Sea Grant College Program has produced a wonderful new birding reference book for Louisiana called the *Louisiana Breeding Bird Atlas*. The 80-page book has summer and winter ranges of 163 birds that breed in Louisiana along with a color illustration of each bird. The soft cover book costs $15.60 ($16.35 for East Baton Rouge Parish Residents). Order from Louisiana Sea Grant College Program, Communications Office, Sea Grant Building, Louisiana State University, Baton Rouge, LA 70803-7507. Make checks out to **Louisiana Sea Grant.**

UNDERWATER OBSTRUCTION LOCATIONS

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

LORAN Sites		Lat.& Long. Sites	
27650	46914 St. Mary	2917.580	8944.480 Plaquemines
27919	46851 Terrebonne	2918.580	8955.880 Jefferson
28291	46846 Lafourche	2928.484	8957.849 Jefferson
29145	46986 St. Bernard	3003.090	8938.920 St. Bernard
		2914.902	8964.844 Jefferson
		2915.580	8955.880 Jefferson

ARMORED SNAPPER



With tighter limits on all reef fish and especially with both lower limits and shorter seasons on red snapper, other offshore fishes are gradually gaining interest from both recreational and commercial fishermen. One of these is the gray triggerfish, *Balistes capriscus*. The fish has armor-like scales and skin but a delicious firm flesh. Like snappers and groupers, triggerfish use reefs, both natural and man-made as habitat.

Little research on this interesting fish has been done. Recently an Alabama biologist conducted a tag and release study of gray triggerfish on natural and artificial reefs off the Alabama coast. He caught, tagged and released 1235 of these fish between 7 and 21 inches long. Most larger fish (over 15 inches) were caught from the artificial reefs.

Artificial reefs produced 201 triggerfish. Of these, 40 were recaptured once, 2 were caught twice, and 2 were caught 3 times. A total of 1034 fish were tagged from natural reefs and 226 were captured once, 35 twice, 8 three times, 3 were caught 4 times and one fish was recaptured an incredible 5 times. From natural reefs, the larger fish were caught from areas further offshore.

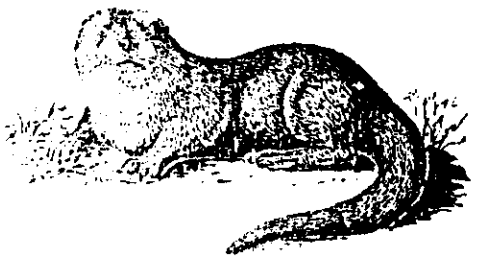
The researcher concluded that many of the differences were due to the fact that the natural reef locations are well known and received heavy fishing pressure. The artificial reefs, on the other hand, were small privately-permitted reefs, whose locations are only known by the persons who put them in place or by people who happen to find them by accident. The researcher also noted higher survival for triggerfish from artificial reefs, especially those further offshore. On the other hand, growth rates were much faster for triggerfish from natural reefs than from artificial reefs.

Overall about 90% of the tagged fish recovered were caught within 3 miles of where they were tagged. He did note that during hurricane Opal, triggerfish moved further and faster than during other times. Most of this movement was westward and northwestward. Triggerfish showed a stronger tendency to stay in one place than red snappers studied in the same area.

Source: *Movement, Growth and Survival of Gray Triggerfish, Balistes capriscus, Inhabiliting Antificial and Natural Reefs in the North-central Gulf of Mexico.* G. Walter Ingram, Jr., and Robert L. Shipp. Gulf of Mexico Fish and Fisheries: Bringing Together New and Recent Research. U.S. Department of the Interior, Minerals Management Service. October, 2000.

OTTERS

Louisiana fishermen and waterfowl hunters are quite used to the sight of otters playing in our waterways. These sleek, beautiful animals are very common in Louisiana, and in fact, Louisiana's otter population is the largest in the nation.



In other states, otter populations have not been as healthy. Eighteen states have undertaken otter restoration programs by releasing live-trapped otters in their waters to rebuild populations of this interesting animal. Missouri's program, which began in 1982, is the largest otter release program in the United States. Their otter population has exploded; otters are now seen in areas that they have not existed in for decades and their Conservation Commission approved fur trapping for otters in 1996.

The Missouri otter release program has caused some controversies however. A steady stream of complaints has come in from fisherman accusing otters of preying heavily on bass, goggle-eye, catfish and other fish. In some areas, fishermen have reported a dramatic decrease in keeper-sized fish and believe otters are responsible. This predation seems to occur most heavily in winter when fish congregate in deeper holes of water, and when crawfish, the otter's most preferred food is less available. Otters have also been accused of invading private fishing ponds and commercial fish hatcheries, where they can clean out a small pond in a matter of a few nights, sometimes leaving dead fish on the bank to rot.

In response, the Conservation Department established a River Otter Task Force. This group is charging with reviewing scientific information and management options and making recommendations to solve otter problems. During the 1997/98 and 1998/99 trapping seasons, biologists examined 443 otter stomachs submitted by trappers to see just what Missouri otters do eat.

Otter Stomach Food Types

Type	Percent
Crawfish	61
Fish	51
Frogs	17
Muskrats	3
Ducks	1
Empty	4

Otter Stomachs Containing Fish

Species	Percent
Bass/Bream	39
Suckers and Carp	3
Minnows	14
Shad	11
Chain Pickerel	6
Trout	3
Catfish	3
Drum (Gaspergou)	3
Unidentified Fish	19

In each column the numbers add up to more than one hundred percent because an otter may have several food types or fish species in its stomach at one time. On average, an otter eats about 2.5 pounds of food per day.

Source: *Controversy in Times of Plenty.* Dave Hamilton. Missouri Conservationist. November 1999

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THE GUMBO POT

Creole Shrimp Butter

This is a real nice spread for hot rolls, bagels or toast. Use it like you would plain margarine or butter, but with a shrimp taste. It is also very good on baked potatoes.

½ lb cooked peeled shrimp
½ cup margarine or butter
2 tbsp fresh lemon juice
2 tsp horseradish
¼ tsp salt
¼ tsp pepper, dash cayenne, paprika

Allow margarine or butter to soften at room temperature. Chop shrimp finely with a food processor or knife. Mix all ingredients thoroughly. Sprinkle with paprika for appearance. Make 1½ cups of spread.

Sincerely,

Jerald Horst
Associate Specialist (Fisheries)