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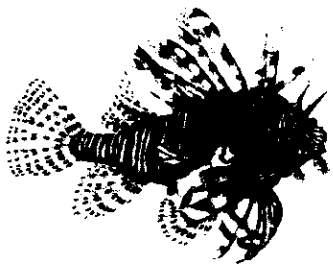
September 1, 2004 Volume 29, No. 9

LIONFISH ON THE LOOSE

Nonindigenous (non-native) plants and animals are gathering more and more attention as their numbers increase. Nonindigenous plants, like water hyacinths and salvinia can affect entire ecosystems. Nonindigenous animals can out-compete or prey on native species. Most nonindigenous fish are found in freshwater, such as the silver, bighead, grass, and black carps.



Salt waters are not immune to nonindigenous species, however. Scientists are now convinced that the lionfish (*pterois volitans)*, has established a breeding population in Atlantic Coast waters between New York and Florida. This fish, also known as the turkeyfish or red lionfish, is native to coastal waters of the south Pacific and Indian Oceans.

With its distinctive red or maroon and white stripes, fleshy tentacles above the eyes and mouth, fan-like pectoral fins, and long dorsal fin spines, it has become an enormously popular saltwater aquarium fish in the U.S. It belongs to the scorpionfish family, which has about 380 species in it, including at least 8 species of lionfish. Four of these are commonly found in the aquarium trade.

Many members of the scorpionfish family have venomous spines. The lionfish is no exception, with venomous spines in the dorsal, anal and pelvic fins. With the slightest touch, a sheath is pushed down the spine and venom travels in a groove up the spine into the victim, similar to the way that a stingray "stings". The wound is very painful, but usually not fatal to humans. Exposing the wound to very hot, but not scalding water will help break down the venom. Fortunately, lionfish are not aggressive and most wounds are incidental.

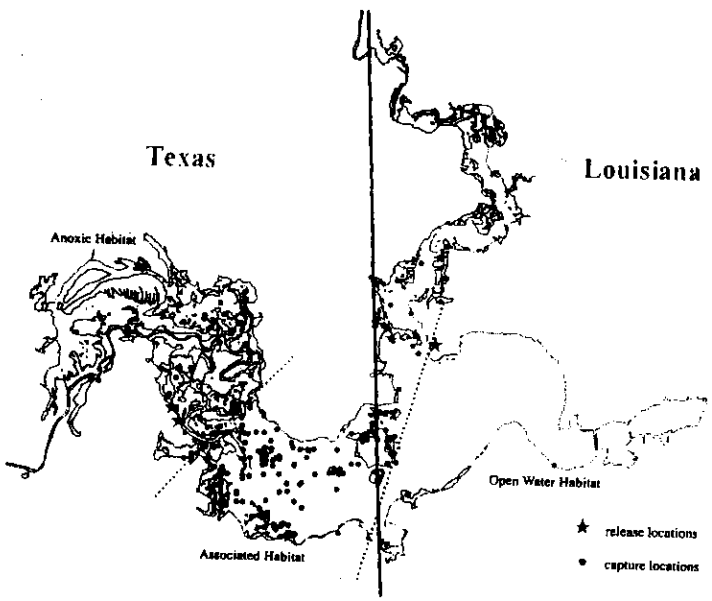
Besides being a danger to careless human divers, it is feared that lionfish, if their population builds up to large numbers, could affect the Atlantic Coast ecosystem

because they are fierce predators. They feed not only on shrimp, but also on any size fish they can fit into their large mouths, perhaps including young snappers and groupers. Lionfish have been observed to hunt in packs, spreading their large fins to herd smaller fish together. Lionfish have no natural predators in the Atlantic.

Lionfish have been observed by divers in the Atlantic since at least the early 1990s, starting off of Florida. It is believed that their eggs and larvae were spread up the coast by the Gulf Stream. Adults are found in 85-300 feet of water and juveniles are seen in shallower, nearshore waters. The largest lionfish found on the U.S. Atlantic so far is a 17-inch, 2½-pound fish caught on a hook in March 2004.

TEXAS BASS FISHERMEN HELP BIOLOGISTS

As more interest has developed amongst both fishermen and biologists in the biology of trophy-sized fish, biologists have turned more and more to using fishermen to help them gather data. Very large fish in any species are rare; that is why they are considered trophies. Because of this rarity, biologists collecting fish during their sampling efforts catch very few of them.



The Texas Parks and Wildlife Department (TPWD) has relied on its "ShareLunker" Program since 1986 to get genetic information from largemouth bass 13 pounds and larger that have been captured by fishermen. In 1997, TPWD biologists developed a program in Caddo Lake to get even more detailed information from large angler-caught bass. Caddo Lake is Y-shaped, with only the larger of two upper arms being in Texas, and the remainder of the lake being in Louisiana. After Florida largemouth bass stockings began in 1981, Caddo Lake developed a popular trophy bass fishery.

Between 1990 and 1998, five 13-pound bass from the lake were submitted to the TPWD ShareLunker Program. During that same time biologists were only able to catch three such fish in their electrofishing (shocking) surveys. These efforts didn't provide enough information on large bass, so TPWD biologists took advantage of a privately sponsored program on the lake called Bass Life Associates (BLA). Under this program, fishermen receive a discount on a fiberglass replica of a fish, if they release a bass of 8 pounds or larger. Hundreds of largemouth bass have been entered into the program since it began in 1993.

The cooperative program with BLA began in 1997, and depended heavily on the three marinas in the BLA Program. Marina operators recorded information in a ledger on each fish entered, including the length, weight, and girth (measurement around the fish at the belly). Marina operators then asked the fishermen to voluntarily locate where they caught the fish on a digitized grid map of the lake, but only if their location was accurate. Following this, the bass were held in a holding net near a pier or stall, and a TPWD biologist was contacted.

The biologist took a small blood sample from the fish, unless it was stressed, tagged it with both internal and external tags, and placed it back in the net pen to recover before release. All releases took place at the marinas, two which were in Texas and one in Louisiana. Then, beginning May 31, 1999, marina operators began scanning all entries for tags. This was done through May 2001.

TPWD also gathered a random sample of 25 largemouth bass from anglers' live wells and put them through the same procedure as the program bass. These fish were released in a half-acre pond. The pond was drained 30 days later and the fish were counted and inspected. This was done to get some idea of what percentage of program bass died after release into the lake.

A total of 176 largemouth bass were tagged and released under the program. During the 30-day pond study, 8% of the fish died, so it is reasonable to estimate that 14 of the 176 bass died after release. Twenty-three of the bass (13.1%) were recaptured. Of these, 19 were released alive. Of the nineteen, 4 (21%) were recaptured again. Two of these were released alive. During the entire program, 55% of the bass were caught in March and April. In the first two years of the program, 77.2% of the entries were caught in March (46.9%) and April (30.3%).

Blood samples were taken from 105 of the fish, but genetic information was obtained only from 71, because of the deterioration of some samples. The results showed just how important the introduction of Florida bass has been to the trophy fishery.

Genetic Origin	Number	Percent of Total
Florida Bass	11	15.5%
Native Northern Bass	0	0%
First Generation Florida/Northern Hybrid	32	45.1%
Later Generation Florida/Northern Hybrid	28	39.4%

Most interestingly, while no native northern largemouth bass occurred in the program fish, sampling done on young-of-the-year fish in the lake showed 23.3% of the sample to be native northern bass. Since northern largemouth bass are noted to be easier to catch than Florida largemouth bass, the genetics for large fish from the Florida bass alone seem to be responsible for the catch of large fish in the program.

Many tagged bass in this study showed substantial movement after release and many seemed to home-in to near where they were caught. The average distance

traveled was about two miles and ranged from 0.2 to 5.0 miles. Seven bass were recaptured less than 0.4 miles from where they were originally caught.

Of the 176 entries, 85% were caught in the middle portion of the lake. The upper portion is shallow with very heavy vegetation and suffers from low-oxygen problems each summer. The lower portion is deeper and has well-oxygenated water, but has little cover in the form of vegetation or standing timber. The middle portion has both cover and oxygenated water. The data indicated that the middle section of the lake provided the best habitat for trophy bass and that the fish stayed there year round. The biologists concluded that a need existed for an aggressive management plan to improve habitat and water quality in the upper portion of the Texas arm of Caddo Lake.

This program was 26 times more efficient than electrofishing in using TPWD manpower time to collect biological data on trophy largemouth bass. It is unknown how much the BLA Trophy Replica Program has improved the trophy bass fishery in the lake. Many fishermen already released much of their largemouth bass catch anyway. One conclusion reached from this study is that biologists should take the size of fish in their sample into consideration in any study to determine the impact of Florida bass genes in a population. Not a single fish of the 176 trophy fish in this study was a native northern largemouth, yet 23% of the small young-of-the-year fish sampled were northern largemouths.

"Finally, this study provided a means whereby fishing organizations, fishermen, and TPWD could work together in a cooperative environment, each participant sharing in the common goal of making fishing better. This collaborative effort generated good will and enthusiasm among participants, providing opportunities to exchange information, educate constituents, and enhance public relations."

Source: *Use of an Angler Incentive Program for Data Collection and Management of a Trophy Bass Fishery.* Michael J. Ryan, Michael W. Brice, and Loraine Fries. Proceedings of the Fifty-sixth Annual Conference, Southeastern Association of Fish and Wildlife Agencies. 2002.

HACCP & SCP TRAINING

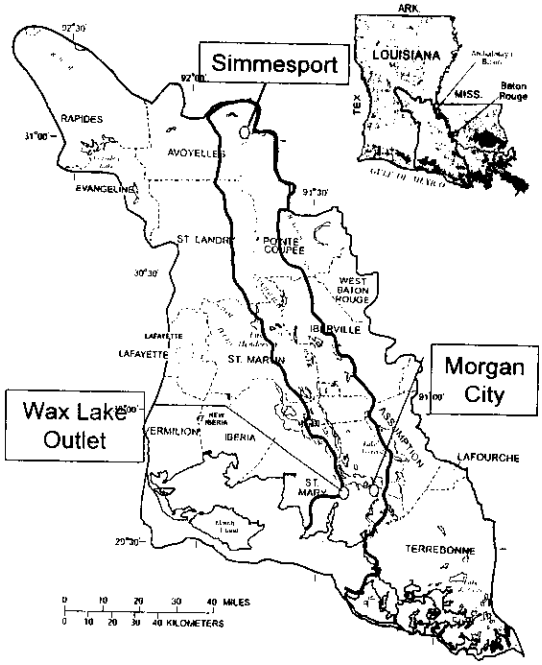
Jon Bell, LSU AgCenter/Sea Grant Program Food Technologist has announced two meetings of interest to seafood processors. A Sanitation Control Procedures (SCP) meeting will be held on Tuesday, September 28. The program contains important information for meeting GMP (Good Manufacturing Practices) regulatory requirements, and improving basic sanitation and processing and product quality. The registration fee is $90 and the course is limited to the first 25 registrants.

The second class is Basic HACCP for Processing Fish and Fisheries Products. It is a 3-day course and will be held from Wednesday to Friday, September 29 through October 1. The fee is $160 and it is also limited to 25 participants.

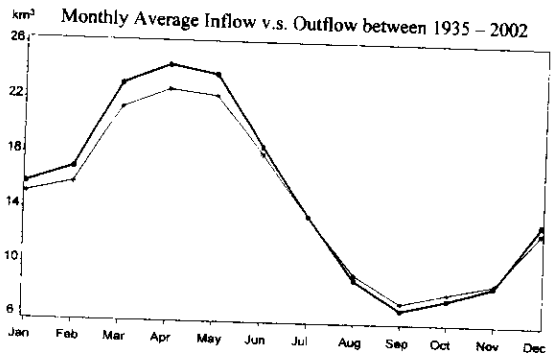
Both will be held on the LSU Campus in Baton Rouge. More information, including registration forms, can be found by clicking on "Calendar" at the website www.lsuagcenter.com/seafood. Bell may be contacted at 225/578-5190.

WATER IN THE ATCHAFALAYA BASIN

The Atchafalaya Basin is a vast river-swamp located in south-central Louisiana. The illustration on the right shows the present size of the Basin as it is now between its guide levees (dark lines) and what it would be without levees. The Basin is an incredible producer of fish and wildlife. The huge majority of wild crawfish commercially harvested in Louisiana come from the Basin. Spillway crawfish come from this spillway. What drives its productivity is water, especially flood waters. All of the Red River flow and a large portion of the Mississippi River's flow enter the Basin from the north, near the town of Simmesport. The water flows out from the Basin through Wax Lake Outlet and the Lower Atchafalaya River at Morgan City.



Without river floodwaters, the fisheries productivity of the Basin would sharply drop. River waters carry nutrients, but river waters also carry huge amounts of sediment (sand, slit, and clay) that threatens to clog the Basin's bayous and lakes, and convert them into land. Understanding water flow patterns into and within the Basin is important to managing it for maximum fisheries benefits while minimizing negative influences from sediment.

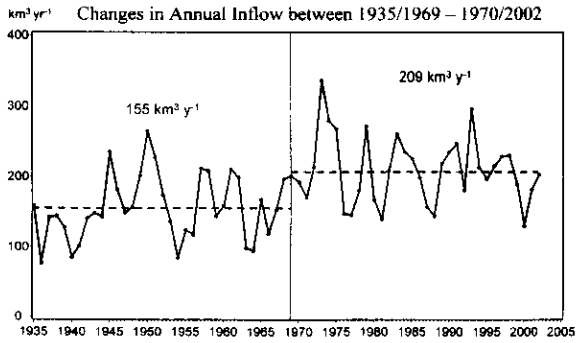


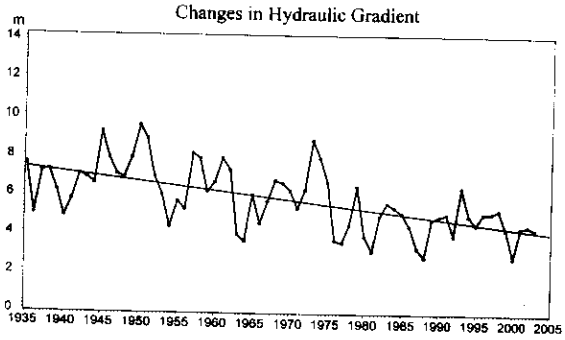
A recent presentation by an LSU hydrology professor to the Atchafalaya Basin Program's Water in the Basin Committee provided interesting information on the subject. Water inflow into the Basin follows a distinctly seasonal pattern. Highest levels of water flows both into and out of the Basin occur in the spring, peaking in April. Lowest levels of flow are in the fall. In the graph at the left, inflow is the heavier line and outflow is the lighter line. Notice that at high flow periods, outflow from the Basin is lower than inflow. This is the time of the year that the

Basin fills up like a tub with river water. In the fall, during low-flow periods, outflow from the Basin is higher than inflow, dewatering or drying the Basin out. It is this cycle of flooding and drying that produces the Basin's fisheries productivity.

Notice in the graph that the gap between inflow and outflow in the spring is much greater than in the fall. More water flows into the Basin than flows out of it on a yearly average. This is because some of the inflow is lost to evaporation into the air and seepage into the soil. A proportionally higher percentage of the inflow is lost to evaporation and seepage in strong flood years than in weak flood years. The average yearly amount of difference between what flows into and out of the Basin is equivalent to a cube of water 2.4 miles long, wide and high.

The graph on the right shows each year's river inflow into the Basin from 1935 to 2002. That the river's flow runs in cycles is very clear. Several years of high inflows will be followed by several years of low inflows, followed again by years of high inflows. The tremendous flood year of 1973, followed by another strong inflow year in 1974 can clearly be seen. Even more interesting is that annual river flow has averaged almost 35% higher in the 33 years between 1969 and 2002 than in the 34 years between 1935 and 1969.





Finally, the Basin has experienced a major decrease in hydraulic gradient in the 1935-2002 period. The hydraulic gradient is simply the difference in elevation at the top of the Basin as compared to the elevation at bottom of the Basin. The bigger the difference, the steeper the slope is, and the steeper the slope is, the faster the water current will be. In 1935, the elevation difference between the upper and the lower ends of the Basin was almost 7.4 meters (24 feet). By 2003, the difference was about 4.5 meters (less than 15 feet). The decline in gradient has averaged almost 2 inches per year over 68 years. The Basin is filling with sediments.

Source: *Surface Hydrologic Changes of the Atchafalaya River Basin.* Y. Jun Xu. School of Renewable Natural Resources, Louisiana State University. Presented at the Atchafalaya Basin Program Water in the Basin Committee Meeting. March 9, 2004.

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 in the last two months. The coordinates are listed below:

Loran Sites

27304	46929	JEFFERSON
27709	46895	ST. MARY
27890	46861	TERREBONNE
27923	46852	TERREBONNE
28322	46825	LAFOURCHE
28590	46862	JEFFERSON
29291	47031	ST BERNARD

Lat. & Long. Sites

28 58.223	89 18.480	PLAQUEMINES
28 59.258	89 08.377	PLAQUEMINES
28 59.417	89 08.308	PLAQUEMINES
29 03.018	89 16.722	PLAQUEMINES
29 08.233	89 19.894	PLAQUEMINES
29 09.096	90 56.253	TERREBONNE
29 10.441	90 27.921	TERREBONNE
29 10.496	90 03.716	JEFFERSON
29 12.900	90 52.560	TERREBONNE
29 13.770	90 27.980	LAFOURCHE
29 14.311	90 17.533	LAFOURCHE
29 16.618	89 57.101	JEFFERSON
29 16.996	89 49.398	JEFFERSON
29 17.770	89 44 230	PLAQUEMINES
29 18.112	89 54.833	JEFFERSON
29 18.239	89 53.184	JEFFERSON

Lat. & Long. Sites

29 19.137	90 00.201	JEFFERSON
29 22.278	90 30.845	TERREBONNE
29 24.018	89 31.070	PLAQUEMINES
29 24.662	90 02.764	LAFOURCHE
29 26.680	89 58.464	JEFFERSON
29 26.807	90 47.912	JEFFERSON
29 28.803	91 43.107	IBERIA
29 31.079	90 06.442	JEFFERSON
29 33.591	89 55.742	PLAQUEMINES
29 33.610	92 06.370	VERMILION
29 36.508	89 33.662	PLAQUEMINES
29 39.951	90 07.528	JEFFERSON
20 40.750	89 79.562	PLAQUEMINES
29 41.944	89 46.876	PLAQUEMINES
29 44.230	89 28.198	ST BERNARD
29 49.710	89 14.450	ST BERNARD
29 50.585	89 36.249	ST BERNARD
29 50.916	89 38.662	ST BERNARD
29 51.208	89 40.013	ST BERNARD
29 53.917	89 13.786	ST BERNARD
29 54.451	89 21.088	ST BERNARD
30 02.761	89 46.779	ORLEANS
30 03.075	89 46.657	ORLEANS
30 08.830	89 24.540	ST TAMMANY
30 09.398	89 23.195	ST BERNARD

COUNCIL WANTS REEF FISH I.F.Q. PANEL

The Gulf of Mexico Fishery Management Council is looking for recreational and commercial fishermen to form a temporary Individual Fishing Quota (IFQ) Advisory Panel. IFQs are simply catch quotas assigned to individual fishermen.

Currently, reef fish such as snappers and groupers are managed by opening or closing seasons for specific species. The disadvantage in using closed seasons is that while fishermen fish for species open to harvest, they catch and must release fish for which the season is closed. Some of these released fish die.

Managing with IFQs could reduce or eliminate the need for closed seasons. Individual fishermen could harvest their personal quota whenever it suits their needs. For commercial fishermen, the IFQ system currently being developed for red snapper would continue to be developed, but an IFQ that applies to all reef fish would be considered.

Tags similar to the tarpon tags issued by some states could be used as a starting point for developing a recreational reef fish IFQ system.

Development of an overall IFQ system will take time. Who gets what will have to be determined, a data collection system will need to be developed and the system must be enforceable for both recreational and commercial fishermen.

Advisory panels (APs), made up of people interested in a fishery, are often used by the Council to help develop regulations and plans. To assist in the development of a reef fish IFQ system, the Council is forming an Ad Hoc Reef Fish IFQ Advisory Panel.

Anyone interested in serving on the panel should submit a letter indicating their interest and giving a sketch of their background. Submit these by mail to the Gulf of Mexico Fishery Management Council, 3018 North U.S. Highway 301, Suite 1000, Tampa, Florida 33619-2272, by FAX to 813/225-7015, or by e-mail to gulfcouncil@gulfcouncil.org.

NEW GROUPER RULES

The Gulf of Mexico Fishery Management Council has adopted new rules on grouper fishing, primarily intended to affect red grouper populations. The new rules are below. All quotas are in gutted weight.

- A 2-fish recreational red grouper bag limit is set within the aggregate 5-fish grouper bag limit.
- A commercial red grouper quota of 5.31 million pounds is set.
- A commercial shallow-water grouper (gag, black and red) quota of 8.8 million pounds is set.
- The entire commercial shallow-water grouper fishery is closed if the commercial red grouper quota is met before the commercial shallow-water quota is.
- A commercial deep-water grouper (warsaw, speckled hind, misty, snowy, and yellowedge) quota of 1.02 million pounds is set.
- A commercial tilefish quota of 0.44 million pounds is set.

While few red groupers are caught off of Louisiana, the new regulations have already had an impact, with the commercial deep-water grouper fishery closing almost immediately after the new rules went into effect.

Commercial grouper fishermen have expressed concern that long closed seasons will disrupt markets. Commercial trip limits have been suggested as a way to stretch out grouper harvests over a longer period of time. The Council will take public testimony on the issue of commercial grouper quotas and trip limits beginning at 1 p.m. on Tuesday, September 14 at its September Council meeting at Edgewater Beach Resort, 11212 Front Beach Road in Panama City Beach, Florida.

WHAT'S FOR SUPPER, FLIPPER?

Bottlenose dolphins, *Tursiops truncatus*, are the common porpoise of the coastal waters of the Gulf of Mexico and south Atlantic. With what seem to be a permanent smiles etched on their faces and their playful ways, everyone enjoys seeing them on the water. But, fishermen often wonder whether dolphins are competitors for the fish they like to catch. A relatively recent 653-page book, *The Bottlenose Dolphin*, published by Academic Press Inc. has an entire chapter on food habitats of the bottlenose dolphin.

Scientists collected 234 stomachs from dead stranded dolphins in the Gulf and Florida east coast. Of these stomachs, 108 had food in them and 76 were analyzed for contents. The dolphins ranged in size from 6 feet, 6 inches long to 9 feet, 6 inches long. The sex ratio was about half males and half females.

Seventy-five of the 76 dolphins had finfish in them. In 28 of these stomachs, squid (and one octopus) were found. Shrimp were found in 11 stomachs. A total of 7,454 food items were found. Of these, 7,027 (94.3%) were fish, 387 (5.2%) were squid, 39 (0.5%) were shrimp, and one was a horseshoe crab.

Forty-three different species of fish were identified. The most important food items, by number, were silver perch, croaker, sand seatrout (white trout), mullet, squid, and spot. All were found in 20% or more of the stomachs. This is in contrast to other studies that have found as much as 40 – 80% of dolphins' diets to be made up of mullet. Most of the fish eaten were 2-12 inches long, and young dolphin ate smaller fish than adults did. Male and female dolphin appeared to feed on the same species.

Fishes of the drum family were found in 60.5% of the stomachs and represented 78.4% of all identified fish. Most fish eaten were bottom dwellers (drums, croakers, seatrout, toadfishes, midshipmen), but surface dwellers (mullets, herrings), and open-water fish (jacks, bluefish, cutlassfish) were also eaten. Only 37 speckled trout and 15 redfish were found.

Bottlenose dolphin in the northern Gulf of Mexico ate less finfish and more squid and shrimp than dolphins on either coast of Florida. The authors of the chapter speculated that this difference might be due to dolphin in Texas scavenging on

discarded bycatch from shrimp trawlers. Another researcher concluded that dolphins in Florida spend much more of their time and energy feeding than did the dolphins in Texas.

The researchers did note near the end of the chapter that since the food items were taken from stranded animals, some of which were likely to be sick, that it is possible that healthy dolphins feed on somewhat different food items.

Source: *Food Habits of Bottlenose Dolphins in the Southeastern United States.* Nelio B. Barros and Daniel K. Odell. The Bottlenose Dolphin. Academic Press, Inc. 1990.

FOLK MANAGEMENT IN FISHERIES

In simpler times, before fishing equipment became so good, and before the development of a huge demand for fish, most fisheries seemed to manage themselves fairly well without becoming overfished. In modern times, overfishing seems to occur in spite of the best efforts of experts and fisheries managers.

These failures in modern management have prompted some people to ponder the possibility of returning to folk management in fisheries, where small-scale fishermen manage their own fisheries, using their traditional knowledge, customs, and local rules. Whole books have been written on the subject.

Many of the South Pacific island nations of Polynesia, Micronesia and Melanesia are considering doing just that. Allowing their citizens to reclaim legal control over their local waters would admit that centralized, western-style fishing regulations have not worked.

In March, Melanesian government representatives met with scientists, environmentalists, and lawyers at the International Marine Project Activities Centre in Australia to discuss the subject. They drew up a list of principles for how to best protect the fisheries environment using traditional laws, which give villages ownership of the stretch of sea next to them. These principles are not law yet, but will be presented to each Melanesian government. If adopted, they will become a regional action plan.

The delegates to the meeting believed that national laws will still be the best way to regulate new fishing technologies and fisheries in highly populated areas, where traditional laws no longer exist. But they believed that local laws and traditions can show unique results.

One such custom is the concept of taboo, which villages can use to create "no-take" areas, were fishing isn't allowed. The idea is already being tried in the Papua New Guinean community of Kimbe Bay. Working with the Nature Conservancy, eight villages in the region have set up local marine area committees and have established fishing quotas and no-take-zones.

Other Pacific regions are considering doing the same. In May, Micronesian nations met in Palau for their own workshop on how to protect the environment with traditional law. Polynesian countries have similar plans.

Source: *Taboos Could Save the Seas.* Emma Young. New Scientist, Vol. 182, Issue 2443. April 17, 2004.

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THE GUMBO POT

Deano's Dago Blackened Redfish

Time to break out the old cast iron blackening pan. It's hard to believe that it has been 18 years since blackening fish became all the rage in Louisiana cooking. Some people never quit doing it. Deano Bonano of Metairie is one such guy. He is an avid fisherman and a pretty fair chef. Deano says that this dish is also excellent when large headless, shell-on shrimp are used instead of fish fillets. Remember this is a dish to cook outside because of the large amount of smoke produced. Deano is very specific about the kind of dressing used. And yes, he insists that is the name of his recipe.

- 8 medium redfish fillets
- 1 tbsp of garlic salt
- 1 tbsp onion salt
- 2 tbsp of Italian Seasoning
- 2 tbsp Cajun Seasoning
- ½ cup of Ken's Steakhouse Light Northern Italian Dressing
- 1 cup of melted butter or margarine
- 2 tbsp of lemon juice

Sprinkle each fillet on both sides liberally with all of the dry seasoning above. Place the fillets in a baking dish. Pour a little of the Ken's dressing on each and rub it all over on both sides. Pour all but ¼ cup of the dressing over the top of the fillets and set the dish in the refrigerator for thirty minutes. Place a heavy pan such as a black cast iron skillet over a medium-high to high flame on an outdoor burner. Mix the butter, lemon juice and remaining ¼ cup of Ken's dressing together. Once the skillet gets very hot, pour enough of the butter mixture into the bottom of the skillet to coat it thoroughly with a thick layer. Make sure the skillet is very hot before placing the butter mixture in it. Allow the butter to heat up for about thirty seconds, then place the fillets in, making sure that they do not touch each other. Cook the fillets for several minutes on each side, until they are a crispy dark brown (but not black) color. Remove the fillets. Wipe out the skillet and pour the remaining butter mixture in the hot skillet and let it sizzle for thirty seconds. Pour the mixture on top of the fillets and serve piping hot. Serves 4.

Sincerely,

Jerald Horst
Professor, Fisheries