

Lagniappe



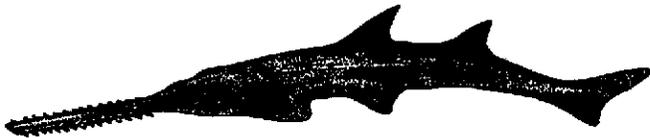
EXTENSION PROGRAMS

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

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SMALLTOOTH SAWFISH DECLARED ENDANGERED

On April 1, 2003, the National Marine Fisheries Service (NMFS) announced that it made a final determination to list the smalltooth sawfish as an endangered species. This will give the fish the same measure of protection as the Kemp's ridley or leatherback sea turtles, with a fine of up to \$25,000 for anyone who captures, harms or possesses the fish.



NMFS originally put the fish on the candidate species list in 1991, removed it in 1997, and then placed it back on the list in June 1999.

In November 1999, the Center for Marine Conservation (now the Ocean Conservancy) filed a petition with NMFS requesting that the species be listed. A whole website, www.floridasawfish.com, is devoted to this species.

Smalltooth sawfish were at one time found in coastal and bay waters from North Carolina, through the Gulf of Mexico, to Texas. Its population is now so reduced that it is found only in southern Florida in the Everglades and Florida Keys. They seemed to be more common in the Gulf than the south Atlantic, with many records of the fish in the 1950s and 1960s.

A search of NMFS data on commercial landings for the species shows landings every year from 1950 through 1978, with all the landings being in Louisiana except that Florida in 1950, and Texas in 1953 and 1985, also had some landings. No sawfish were recorded as being commercially landed after 1978. The largest amount landed was in 1956, with 14,600 pounds, worth \$800. It is unlikely the fish were targeted, since most records of that period described them as being a nuisance because they became very entangled in nets and were large and difficult to handle. The fish can reach lengths of 18 feet. Most of the gear that the landings came from were trawls, although haul seines and trammel nets were also listed. Data from the *1945-1978 Fisheries Statistics of the United States* also shows sawfish landings by Louisiana trawlers, with a peak of 34,900 pounds in 1949. Landings after 1967 were usually under 1,500 annually.



Smalltooth sawfish were also historically taken as bycatch by recreational fishermen. Texas records from before the 1960s indicate regular catches by anglers. Although some were kept as trophies, most were released, although the saws were almost always removed from the fish before release.

Today, recreational catches are rare except in the Everglades National Park. Between 1991 and 1999, during the annual June Gulf Coast Shark Census, five sawfish were recorded, two of which already had their saws removed by other fishermen. Between 1989-98, the U.S. Park Service, in their surveys in Everglades National Park, recorded 76 smalltooth sawfish caught by private boat anglers and 133 on guide boats. No studies have been conducted on release survival.

Sawfish are also popular in public aquariums, with their large size and unusual shape. Their slow-moving habits make them easy to care for and their survival is good. NMFS has identified five aquariums that currently have them on display and seven more that had them in the recent past. They are also valuable, with one report in 2000 being of \$11,500 paid for a specimen. An aquarium curator said that the current value is about one thousand dollars per foot. With an average size of 8 feet, smalltooth sawfish are valuable fish. Both NMFS and the state of Florida have experienced an increase in demand for collecting permits.

Smalltooth sawfish are about 2 feet long at birth and can grow to at least 18 feet long. They are ovoviviparous, which means that a female keeps her eggs inside her body until they hatch. The saw is soft and flexible and the teeth are soft and enclosed in skin until birth. If the smalltooth sawfish is similar to the more tropical largetooth sawfish, it has litters of 1-13 pups every second year after a 5-month gestation. Smalltooth sawfish feed by stirring smaller organisms out of the mud with their saw or by using the saw to slash into schools of smaller fish, then eating the wounded fish.

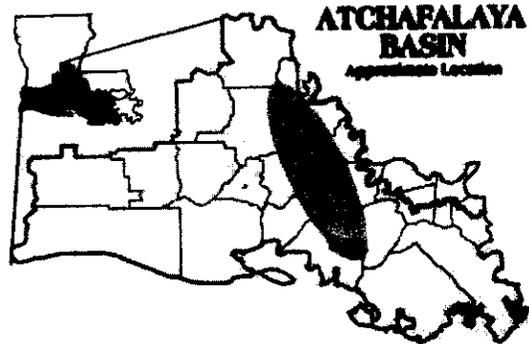
NMFS lists bycatch in various fisheries as the reason for the decline in numbers of the fish, followed by habitat degradation. "They are sort of a magnet for nets" says Colin Simpfendorfer, a senior scientist at Mote Marine Laboratory in Florida. "Then they roll around and get really tangled up."

Listing of the fish as an endangered species requires that a recovery plan be developed, hopefully involving the fishing industries, as well as regulators and researchers. Estimates are that it may take decades for the population to recover to where the risk of extinction is low and that recovery to pre-European numbers may take several centuries.

Sources: *Smalltooth Sawfish Status Review Team – 2000. Status Review of Smalltooth Sawfish (Pristis pectinada)*. Report to the National Marine Fisheries. *List Adds Smalltooth Sawfish*. Kevin O'Horan. Bradenton Herald Newspaper. April 2, 2003.

THE FUTURE OF THE ATCHAFALAYA BASIN

The Atchafalaya Basin is one of the environmental jewels of Louisiana. The 838,000-acre river floodplain and overflow swamp is located in south-central Louisiana. Between the levees on its east and west sides it is about 15 miles wide and runs the length of the 135-mile long Atchafalaya River from Simmesport, Louisiana to its mouth in Atchafalaya Bay.



Besides holding vast tracts of cypress and tupelo gum swamps, the area produces the majority of Louisiana's wild (non-farmed) crawfish harvest. It also provides a commercial fishery for freshwater finfish species and a strong recreational fishery for bass, bream, crappie (sac-a-lait), catfish, and other species. Hunting for deer, waterfowl and small game is also excellent. Fur trapping and alligator hunting have been important economic activities. An entire human culture has grown around the commercial and recreational harvest of the Basin's fish and wildlife resources.

Beginning in 1928, the U.S. Army Corps of Engineers (hereafter called the Corps) confined the Basin between the guide levees that exist today and did massive dredging. The Basin became a floodway for passing excess waters from the Mississippi and Red Rivers during flood periods, to protect the levees and human populations along the lower Mississippi River. Farming was abandoned within the levees as well as were settlements and towns such as Bayou Chene, as the Basin became increasingly "wet." With time, it also became "wild."

For decades, a debate has raged over how to manage the future of this jewel. The Corps continued to view the Basin as an engineering floodway; hunters and fishermen valued it for its fish and wildlife resources; landowners wanted to get value from the oil, gas and timber resources on their privately-owned lands, which made up about half of the Basin.

Recently, the Atchafalaya Basin Program published the results of an analysis of the history of the conflict, and interviews with representatives of Basin interest groups. According to the paper, the modern history of the conflict began in the early 1960s, when the Corps proposed upgrades in the Basin's flood control capabilities. Some of these measures would have drained much of the swamp. They were surprised by a challenge from the traditional users that wanted to maintain the swamp's recreational and commercial fishing, crawfishing, trapping, and hunting in a "wet and wild" condition.

In 1963, the Louisiana Wildlife and Fisheries Commission recommended that the federal government consider purchasing Basin lands for maximum public use. In 1968, the Louisiana Legislature established a committee to try to make the Atchafalaya Basin a National Recreational Area to stimulate tourism. Oil and gas, timber, and landowner

interests resisted these efforts, fearing a reduction in their ability to get income from their lands.

The Corps worked to develop a compromise, but new federal legislation was passed in 1970 that required the Corps to develop an environmental impact statement (EIS). Before the EIS could be prepared, parties only lukewarm to a compromise again began to call for complete federal ownership. In 1978, the U.S. Fish and Wildlife Service (USFWS) proposed public ownership of the 443,000 acres of private land to establish the Atchafalaya Fish, Wildlife, and Multi-use Area. Landowners reacted strongly against the idea, fearing that federal control would prevent oil and gas drilling and production.

Finally, in 1981 Louisiana Governor David C. Treen announced what is now known as the "Treen Plan". The three key parts of the plan were as follows:

- Donation of 46,000 acres of Basin lands to the State of Louisiana by Dow Chemical Company.
- Purchase by the state of 50,000 acres of Basin lands from willing sellers
- A federal easement on the remaining 338,000 acres of private land to prevent its conversion to agriculture, industrial or residential use, while allowing the landowners to keep mineral, timber and access rights.

U.S. Congress adopted the Treen Plan except that Corps, not the state, was to purchase the land. But that figure was a cap as well as a goal. With the November, 2001 purchase of a tract including the northern half of Henderson Lake, federal purchases have reached 47,500 acres, essentially reaching the cap. In spite of the successes of the Treen Plan, conflicts have gotten worse rather than better.

The authors of the paper identified four key interest groups, and representatives of them to interview. For private landowners and landholding companies, they chose an attorney representing the Louisiana Landowners Association. For extractors of Basin resources, such as oil, gas and timber, they interviewed the president of the Louisiana Independent Oil and Gas Association. Other users and consumers of natural resources were represented by a commercial fisherman and an individual who is a commercial crawfisherman, nature photographer, author, and conservationist. Finally, to represent regulatory agencies, a member of the Corps who deals with land purchases was selected. Two main areas of interest were identified:

- Access to the lands and waters of the back swamps
- Land use and regulation on federally owned lands.

Access

Access is passionately important to Basin users. With the abandonment of agriculture in the Basin, local people turned to hunting, fishing, trapping, and timbering to live. One of the interviewed persons said that who owned the land was not an issue

until the last 15 or 20 years. People hunted, trapped and fished where they wanted and a tradition of tolerance developed among the landowners that would be unthinkable outside the Basin. Even though much of the land was privately owned, the fish and wildlife harvesters did not see themselves as trespassers. The public has been using the land for so long that they feel they have a right to use it, even though they may not own it, said one of the interviewed people. However, the landowner interviewee said that even though landowners have tolerated public use, they have always posted or marked their lands, even if only with a system of blazes.

Many swamp users have only recently had their traditional use challenged. As older landowners have died, younger relatives have been more business-minded and interested in making a profit from the land. Friction has developed. The landowner interviewee said, "The crawfishermen think that if a boat floats, they should have the right to go where they want — but their nets are tied to trees and are laid on land that belongs to other people."

Each year large areas of the Basin are flooded by the spring rise of waters from the Mississippi and Red Rivers, allowing boats into large areas. The annual flood fills in some areas with sediment and carries away land in other areas. Boundary lines and benchmarks are difficult to find and maintain under these circumstances and disputes often occur. Two of the interviewees said that landowners often now post lands and waterbottoms that are public.

Oil and gas interests are also concerned about access. Their representative said that their business is increasingly being shut out of areas, citing an active oil field being shut down in the Florida Everglades, and loss of access in the Rocky Mountains, Florida offshore waters, and the Arctic National Wildlife Refuge. He did say though, that the Corps has not had a policy of non-access. Continued use of Basin lands was the key to the oil and gas industry accepting the Treen Plan.

Overall, the authors did not see a lot of objection to more federal ownership of Basin lands, although the landowner interviewee said that land should only be purchased from willing sellers. In fact, some interviewees saw public ownership as a way to reduce conflict.

Federal Land Use and Regulation

The authors found an uneasy balance between hopes that federal land ownership can preserve present uses, and fears that federal ownership will prevent traditional uses of the Basin. Interviewees recalled auditoriums in the past with hundreds of people vocally expressing conflicting opinions on how the Basin should be managed.

Fears about federal ownership restricting access, the authors said, are reinforced by events such as those in 2001. When the Corps purchased lands in the northern Basin in November, it closed the area to hunting during the deer and duck seasons, enraging hunters, especially members of four hunting clubs that formerly leased the

land. The Corps said the reason for the closure was to determine boundaries, set trails, and provide for public safety. The angry hunters raised political pressure which forced the Corps to back down and reopen the seasons. They do point out that in spite of such events, the people that they interviewed were comfortable with present Corps regulations in the Basin. The most important issue in federal regulation seemed to be involving people in the process rather than leaving them out.

Recommendations

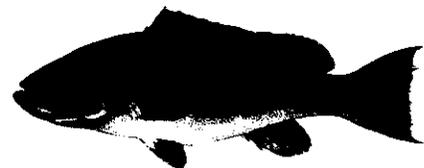
The report said that issues and concerns about federal purchase of Basin lands are not as intense as in the past, but concerns still remain. They made four recommendations:

- 1) Congress should remove the cap on federal purchase of land from willing sellers in the Basin.
- 2) The Corps should reach for the USFWS goal of cooperation with other agencies to achieve flood control, environmental protection and water quality preservation. The ultimate goal is to keep the Basin environment productive for traditional uses such as crawfishing, while allowing for tourism.
- 3) The conflicts over public access must be solved. Courts and the law should be used to determine boundary and access issues. Legislation may be passed to relieve landowners' liability from other people using their land. Further efforts to mark boundaries of public land and waterbottoms in the Basin should be made. Finally, voluntary discussion, under a neutral third party, may help solve some conflicts.
- 4) The Corps should continue to look for ways to involve all Basin users in regulatory and management decisions that affect them. Including people seems to build acceptance of regulation; excluding people results in lawsuits. The authors considered this the most important factor in reducing conflict.

Source: *Recommendations for Federal Land Purchase in the Atchafalaya Basin – Complexities of Federal Land Ownership and Conflict Among Stakeholders.* Maura Wood and Richard Condrey. Atchafalaya Basin Program. August, 2002.

YELLOW EDGES, FINS & MOUTHS

The grouper family is a diverse bunch. About a dozen species can be found off of Louisiana's coast with another four or five species occurring as stragglers from the Caribbean. One of the most common deepwater species off of Louisiana is the yellowedge grouper, *Epinephelus flavolimbatus*.



The yellowedge grouper is an entirely different species than the yellowfin grouper or the yellowmouth grouper. Except for young fish, which have scattered coin-sized, white spots, the yellowedge grouper has a grayish-brown body and all of its fins have bright yellow margins. The yellowfin grouper, *Mycteroperca venenosa*, has yellow margins on its pectoral and pelvic fins, as well as the spiny part of the dorsal fin, but never has an evenly-colored body. It comes in many body colors, but most common are gray or pinkish, heavily marked with darker "kiss-shaped" spots. Also fairly common are fish boldly marked with black sides and a bright red back and belly. The yellowmouth grouper, *Mycteroperca interstitialis*, resembles the scamp. It can be distinguished from the scamp by having more yellow pigment splashed in and around its mouth, and by the fact that its front and rear nostrils are the same size, while in the scamp, the rear nostril is larger than the front nostril.

The yellowedge grouper was the mainstay species of Louisiana's bottom longline fishery, which began in 1984. The Gulf of Mexico bottom longline fishery began in 1978-79 and had tripled by 1982, ahead of the fishery off of Louisiana. The table on the right shows commercial yellowedge grouper landings since 1986. Before then, grouper landings were not broken down by species. Louisiana grouper landings, which are predominantly yellowedge, peaked in 1986. The grouper longline fishery was staggered after 1995 by a federal rule prohibiting the use of bottom longlines in waters shallower than 50 fathoms. After the ban, many longline vessels were forced to leave the Gulf or convert to other gear/fisheries because it was uneconomical to work outside of 50 fathoms on deepwater grouper and tilefish year round. Louisiana's share of Gulfwide yellowedge grouper commercial landings ranged from a high of 51.7% in a low of 4.3% in 1989.

Year	LA	Gulf
1986	233,200	451,347
1987	117,611	444,234
1988	149,673	642,737
1989	10,479	241,169
1990	80,808	366,731
1991	91,447	331,290
1992	126,935	392,577
1993	100,657	327,879
1994	116,105	489,773
1995	109,266	350,996
1996	66,908	235,745
1997	31,743	315,436
1998	40,634	276,195
1999	54,805	417,763
2000	61,838	475,993
2001	30,436	334,414
Total	1,422,542	6,094,279

It should be pointed out that major discrepancies exist between the Louisiana commercial yellowedge grouper landings figures in the recent National Marine Fisheries Service stock status report and the "official" landings figures released each year by the Louisiana Department of Wildlife and Fisheries. The latter commercial landings figures by year are as follows: 1986 — 561,338 lbs, 1987 — 304,906 lbs, 1988 — 384,669 lbs, 1989 — 15,102 lbs, 1990 — 190,758 lbs, 1991 — 218,702 lbs, 1992 — 310,598 lbs, 1993 — 241,577 lbs, 1994 — 289,311 lbs, 1995 — 277,799 lbs, 1996 — 163,616 lbs, 1998 — 79,152 lbs, 1999 — 101,835 lbs, 2000 — 142,570 lbs, 2001 — 160,868 lbs. No reason was offered in the stock report for the discrepancy. Recreational landings of yellowedge grouper in the Gulf have been modest, totaling about 413 thousand pounds since 1981.

Unlike most grouper, which prefer reefs and high-profile bottom, the yellowedge grouper prefers relatively flat or low-profile bottoms. Largest numbers are found on rocky bottoms, especially those with coral-like growths (live bottom). However, they are

also found on clay, mud, sand, and sand-shell bottoms. Adult yellowedge grouper are found at depths of 300 to 900 feet, although young fish may be found as shallow as 100 feet.

Yellowedge grouper reach 46 inches in length and over 30 pounds in weight. They live to at least 35 years, with some research indicating a lifespan as long as 85 years. Females outnumber males by almost two to one. They are protogynous hermaphrodites, which means that they all start their lives as females, and when older and larger, they convert to males. Females begin turning into males at about 23 inches in length and 13 years of age. Significant numbers of sex conversions do not occur until 32-34 inches of length. Females mature at about 16 inches of length and 2 years old, at the earliest. By 24 inches in length, all females are mature. Some spawning occurs from January through October, with most activity occurring from May through September, with a peak in August.

The Gulf of Mexico Fishery Management Council reviewed last year what is known of this fish to determine the biological health of the stock. Some evidence exists that the average size of yellowedge grouper harvested has declined since the early days of the fishery in the late 1970s, however, the report to the council concluded that not enough data on the fish and the fishery exists to draw conclusions.

The report did offer some management advice. First, since these are long-lived fish that are fairly slow to mature, they may be easy to overfish. Second, since they are protogynous hermaphrodites and males are found only in the larger size classes, heavy fishing pressure on larger fish may take enough males to lower spawning success in this species.

Source: *Status of the Yellowedge Grouper Fishery in the Gulf of Mexico*. Shannon L. Cass-Calay and Melissa Bahnick. Southeast Fisheries Science Center, NMFS. August, 2002

A CAT'S TALE

On May 13, 2002, the Farm Security and Rural Investment Act of 2002 became law. Section 10806 of the law provided that a fish in the market place is mislabeled "if it purports to be or is represented as catfish, unless it is fish classified within the family Ictaluridae". This North American fish family includes channel catfish, blue catfish, flathead catfish, and bullheads (known in Louisiana as polywogs or mud cats).



Commercial fishermen in the southern U.S. built a strong market for channel, blue and flathead catfish in the first half of the 20th century. Southern catfish farmers, after the mid-1960s, built an even larger market on that base with farmed channel

catfish, and largely pushed the wild catfish caught by commercial fishermen into the shadows.

Then, in the late 1990s, the U.S. market was invaded by Vietnamese exports of fish distantly related to catfish, but labeled as catfish. By 1999, around 2 million pounds of these fish, called basa and tra, entered the U.S. Imports increased dramatically each year, reaching 36.6 million pounds of fillets in the first 11 months of 2002.

The result was a taxonomist's delight. U.S. catfish farmers and commercial fishermen said that tra and basa were not really catfish, and that the fish were mislabeled to take advantage of a hard-earned market identity. Exporters maintained that the name "catfish" was appropriate, citing the relationship of their fish to North American catfish.

A taxonomist is a biologist who studies the relationships of groups of animals to each other. The concept of what a species is, is relatively easy to understand. A blue catfish looks and is different than a channel catfish. After that it gets tougher. Taxonomists put what they think are closely related species into families. The family for bullheads, and channel, blue and flathead catfishes is Ictaluridae. Basa and tra belong to a different family, Pangasiidae.

Related families are then grouped into orders and related orders are grouped into classes. It is not until the order level that the paths of our fishes come together. North American catfish and basa/tra belong to the order Siluriformes. The class that they belong to is Osteichthyes, also known as Bony Fishes. Of all the fish on the face of the earth, well over 20,000 species, only hagfish, lampreys, sawfish, sharks, rays, and skates do not belong to the class Osteichthyes.

To put these relationships into perspective, let's shift gears to species easier for us to understand – domesticated dogs and cats. They are obviously very different animals and no one would confuse the two species. Dogs belong to the family Canidae, along with wolves, foxes and other obviously similar animals of different species. Cats are in the family Felidae, the family of bobcats, pumas, lions, and tigers.

Both families belong to the order Carnivora, which includes all the flesh-eating land mammals on earth. Dogs and cats are as closely related to each other as are basa/tra and blue/channel/flathead catfish. Would a person feel misled or defrauded if he or she ordered a rottweiler and got a Siamese cat?

Looking at it another way, would a person ordering fish from a menu be happy to get bluefish when they ordered a grouper sandwich, mullet instead of seatrout almandine, or spadefish when they ordered broiled snapper. All are members of the same order, Perciformes. Even fish species in the same family, which are much more closely related than species in the same order, can be dramatically different tablefare. Would it be acceptable to sell crevalle jacks under the same name as pompano? Both

are members of the same family, and of course, the same order. As tablefare they are very different.

The U.S. Food & Drug Administration maintains *The Seafood List: FDA's Guide to Acceptable Market Names for Seafood Sold in Interstate Commerce*, just for the purpose of preventing consumers from being defrauded by name substitution. The guide can be found on the web at <http://www.cfsan.fda.gov/~frf/seaintro.html>.

COUNCIL REQUESTS SHRIMP PERMIT CONTROL DATE

The Gulf of Mexico Fishery Management Council has requested that the National Marine Fisheries Service set a control date of December 6, 2003 for shrimp vessel permits in federal waters. If the control date is set, anyone who did not have a permit before that date may not be eligible for one after that date and may not be eligible to stay in the fishery if a limited entry program is put in place.

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:

<u>Loran Sites</u>			<u>Lat. & Long. Sites</u>		
26864	46970	CAMERON	29 36.244	89 46.563	PLAQUEMINES
27620	46966	IBERIA	29 47.128	89 27.265	ST BERNARD
27935	46844	LAFOURCHE	29 49.933	89 24.613	ST BERNARD
27936	46855	TERREBONNE	29 03.312	89 20.996	PLAQUEMINES
27987	46835	TERREBONNE	29 04.670	89 06.560	PLAQUEMINES
28360	46829	LAFOURCHE	29 11.458	90 55.353	TERREBONNE
28522	46354	JEFFERSON	29 12.091	90 54.594	TERREBONNE
28573	46898	JEFFERSON	29 15.669	90 20.037	LAFOURCHE
27622	46917	JEFFERSON	29 19.927	89 57.140	JEFFERSON
28556	46881	JEFFERSON	29 20.761	89 58.465	JEFFERSON
28703	46864	JEFFERSON	29 21.767	90 48.135	TERREBONNE
			29 24.178	90 02.579	JEFFERSON
			29 24.614	90 02.783	JEFFERSON
			29 31.062	89 46.186	PLAQUEMINES
			29 31.473	90 07.587	JEFFERSON
			29 41.299	89 23.347	ST BERNARD
			29 46.956	91 52.883	IBERIA
			29 48.048	91 55.638	VERMILION
			29 48.798	91 55.640	VERMILION
			29 50.303	89 32.876	ST BERNARD
			29 58.785	89 36.354	ST BERNARD
			30 03.060	89 46.600	ORLEANS
			29 07.730	90 15.840	LAFOURCHE
			29 15.560	89 55.585	JEFFERSON
			29 18.508	90 01.101	JEFFERSON
			29 23.067	90 39.566	TERREBONNE
			29 25.513	90 32.842	TERREBONNE

SEA LICE

Occasionally, fishermen notice small, hard-shelled critters on the outside of the bodies of the fish they catch. Usually, these are one species or another of the genus *Argulus*, commonly known as "sea lice". These parasites are crustaceans, like shrimp, crabs and lobsters. Each is equipped with a tube-shaped mouth with a needle-like stylet in the tube. They feed by rapidly piercing the skin of the fish they are on, releasing chemicals to keep the blood of the fish from clotting. Heavy infestations of sea lice can injure or kill the host fish, because of the repeated piercing of its skin and loss of body fluids to the parasites.



Adult sea lice lay eggs on hard surfaces, where they can survive for a length of time, even under harsh conditions. As soon as they hatch, they seek out a host fish, usually of a certain species. Once on the host fish, they go through a series of molts, like a crab, until they reach the adult stage, and the cycle starts all over again. Sea lice of different species can be found on a wide variety of estuarine and saltwater fish species.

THE GUMBO POT

Lemon-Soy Barbequed Shrimp

Nothing against what are called barbequed shrimp in New Orleans, in fact they are delicious, but nowhere else would shrimp swimming in butter and black pepper and cooked in the oven pass for barbeque. This recipe is for real barbequed shrimp, the kind on a grill. And it is real good. One hint, the larger shrimp that are used, are less likely they are to become overcooked, the only real no-no with this dish.

- | | | | |
|---|-------------------------|---|----------------------------|
| 2 | lbs large peeled shrimp | ½ | cup lemon juice |
| 2 | cloves garlic, minced | 3 | tbsp parsley, chopped fine |
| ½ | tsp salt | 2 | tbsp onion, minced |
| ½ | cup soy sauce | ½ | tsp pepper |

Rinse shrimp and set aside. Mash garlic with salt and put in a medium-sized bowl. Add other ingredients and mix. Add shrimp and marinade for 30 minutes. Thread shrimp on skewers and grill 5 to 10 minutes, turning and basting with remaining marinade twice. Do not overcook. Serves 4.

Sincerely,

Jerald Horst
Associate Professor, Fisheries