

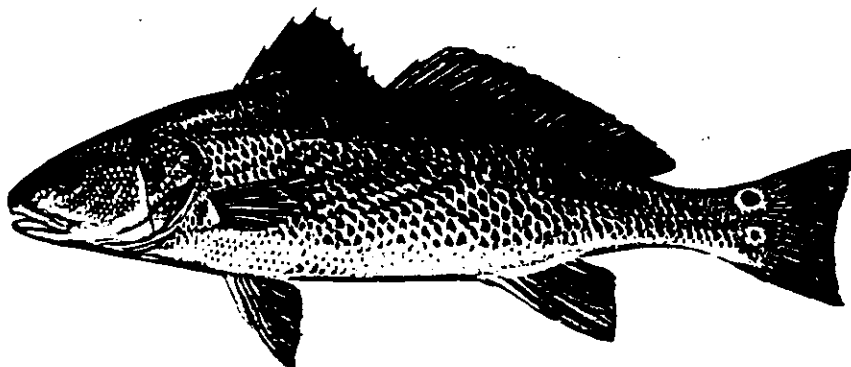


Louisiana State University  
**Agricultural Center**  
Louisiana Cooperative Extension Service

**Jefferson Parish Office**  
1855 Ames Blvd.  
Marrero, LA 70072  
(504) 349-5644  
Fax: (504) 349-8817

October 1, 1997  
Volume 21, No.10

## SEA GRANT PROGRAM

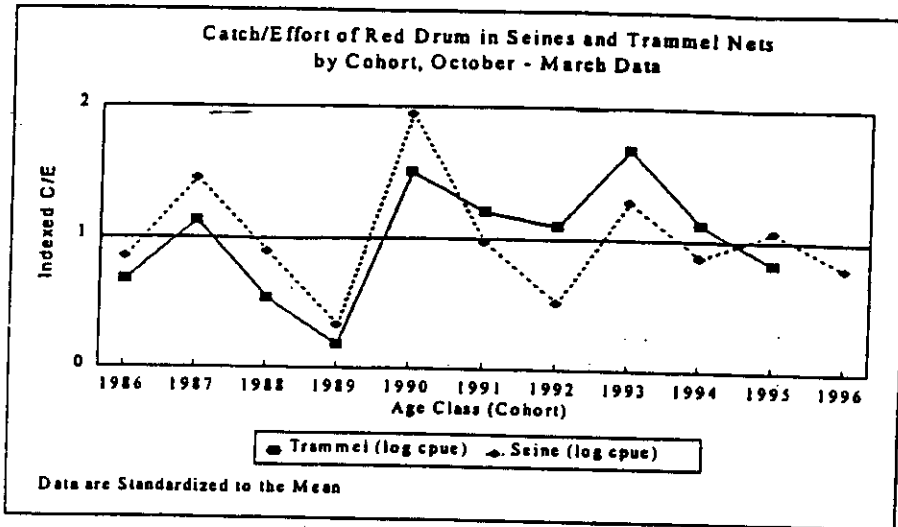


### LAGNIAPPE

#### 1997 REDFISH STOCK STATUS REPORT

The Louisiana Department of Wildlife and Fisheries has released its latest stock status report on redfish. Included in the report are biological, socioeconomic and enforcement sections.

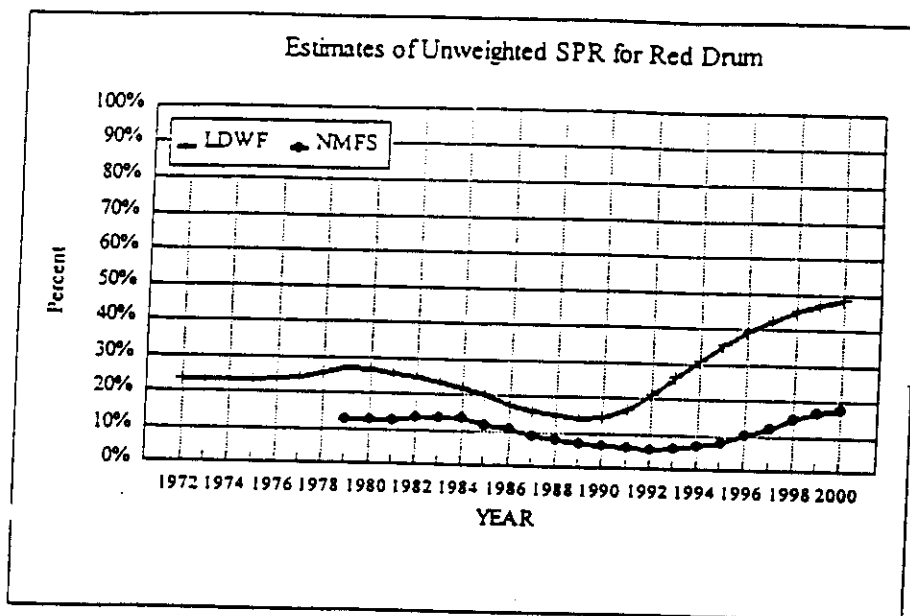
Department biologists regularly monitor redfish populations with seines and trammel nets to determine the success of each year's spawn. Seine sampling is used in the fall to sample young-of-the-year (1-4-inch) fish. Trammel nets are used to sample fish that are just over 1 year old (12-18 inches). This is around the age at which they are large enough to meet the minimum size limit. The figure on the next page shows the results of this monitoring since 1986.



The straight line across the figure is the average. As can be seen, seine samples indicated above-average year classes (cohorts) in 1987, 1990-91, and 1993-95. Trammel net samples indicated strong year classes for 1987, 1990 and 1993-94. During 1992-94, trammel net estimates were higher than what was expected from the seine samples. This may be due to strong survival between the young-of-the-year stage and the one year old stage. Seine samples from the fall of 1996 provide the first estimate of the 1996 year class strength as being below average, but not as low as 1989 or 1992.

The biological health of the redfish stock is measured by its spawning potential ratio (SPR). This measure compares the egg-producing ability female fish in a stock as compared to what the estimated ability would be in an unfished stock.

According to the report, Louisiana redfish stocks are in much better shape than redfish stocks gulfwide, which includes all five states. The 1996 National Marine Fisheries Service (NMFS) gulfwide assessment estimated an SPR of only 12% and projected that an SPR of 18% would not be reached until the year 2000. Louisiana Department of Wildlife and Fisheries (LDWF) projections are of a current SPR of near 40%.



More important than the current SPR estimates are the trend lines on the SPR estimates. Both the NMFS gulfwide and LDWF state trend lines are strongly upward, showing significant increases in the amount of spawning-size female redfish.

The conservation standard for redfish is set at 20% SPR by the Gulf of Mexico Fishery Management Council. The council has requested each state to provide for 30% escapement from inshore to offshore waters in order to reach the 20% SPR.

Louisiana's estimated SPR is well over 20% and escapement is between 51 and 71%. These figures mean that the harvest of redfish in Louisiana can be safely increased above its current level. While there are an endless number of possible allocation possibilities, the report listed the ones below as examples.

#### EXAMPLE OF COMMERCIAL QUOTAS (POUNDS) AT GIVEN RECREATIONAL BAG LIMITS AND ESCAPEMENT RATES

	<u>RECREATIONAL BAG HARVEST ADDED</u>		<u>ESCAPEMENT RATE<sup>c</sup></u>		
			<u>30%</u>	<u>40%</u>	<u>50%</u>
			<u>COMMERCIAL QUOTA</u>		
5	4,667,534		2,959,552	2,255,892	1,431,060
6	4,989,852	322,318	2,608,084	1,922,117	1,106,107
7	5,270,792	603,258	2,306,096	1,631,191	822,871
8	5,515,664	848,130	2,042,876	1,377,614	575,996
9	5,729,101	1,061,567	1,813,448	1,156,591	360,815
10	5,915,137	1,247,603	1,613,474	963,943	173,258
11	6,077,290	1,409,756	1,439,172	796,026	9,780
12	6,218,625	1,551,091	1,287,246	649,666	0
13	6,341,817	1,674,283	1,154,825	522,096	0
14	6,449,193	1,781,659	1,039,404	410,903	0
15	6,542,785	1,875,251	938,800	313,985	0
16	6,624,361	1,956,827	851,111	229,509	0
17	6,695,465	2,027,931	774,680	155,878	0
18	6,757,440	2,089,906	708,061	91,699	0

The columns on the left give possible recreational daily limits, what the harvest would likely be, and the amount of added harvest as a result of the change in daily limit. The columns on the right show possible commercial harvests that could be allowed to go with each increase in the recreational limits. Three possible commercial quotas are presented, depending on what target escapement goal, 30%, 40%, or 50%, that is

desired. As the recreational daily limit is increased, the possible amount that could be allocated to the commercial fishery decreases.

The report did recommend that if regulations are changed to allow for more harvest, that they be done so gradually. This would allow better assessment of the impacts, and would reduce the possibility of overshooting the conservation standard of 20% SPR.

The socioeconomic section of the report was also very interesting. Estimates are that between 413,000 and 454,000 residents recreationally fish in saltwater in Louisiana. This is a 45.5% increase in 5 years. Since people under 16 and over 59 do not have to purchase a license, the exact number is hard to pin down.

One change in saltwater anglers is a real trend for them to fish for a specific species rather than just for anything that is biting. The number of sport fishermen fishing specifically for redfish went from 16% in 1981-85, to 23% in 1986-90, to 30% in 1991-96.

Surveys taken in 1991 and 1993 showed that over 50% of the fishermen who targeted redfish lived in 5 parishes.

<u>Parish</u>	<u>% of Redfish Anglers</u>
Jefferson	16.16%
Terrebonne	12.85%
Calcasieu	9.30%
E. Baton Rouge	8.08%
Lafourche	6.85%

The same surveys showed that redfish fishermen come from families that earned more money than the average household. Median Louisiana household annual income is \$26,312. The median for redfish anglers was in the \$35,000-\$39,999 range.

While 68% of the redfish anglers in the latest survey were satisfied with current regulations, a 5 to 1 majority of the remaining fishermen preferred a management change for more, smaller fish rather than fewer, larger fish.

A strong majority of anglers supported minimum size limits, creel limits and fish stocking. A slight majority supported closed seasons, gear prohibitions, season closures for certain species, and voluntary catch-and-release programs. Slim support was shown for maximum size limits and restricted areas. More people opposed than favored prohibitions of certain types of bait and mandatory catch-and-release programs.

Source: 1997 Report on the Status of Red Drum. Louisiana Department of Wildlife and Fisheries. 1997.

*Note: This report and the one on speckled trout which I will summarize next month are very easy to read and educational. I would strongly encourage anyone interested in either or both species to read the entire reports.*

## **KING MACKEREL MERCURY CONSUMPTION ADVISORY**

Based on fish sampling in the Gulf of Mexico off of the coast of Louisiana, unacceptable levels of mercury have been detected in king mackerel. Elevated levels of mercury have also been found in king mackerel taken from gulf coast waters off of Florida, Alabama, Mississippi and Texas. Florida, Alabama and Texas have recently issued similar fish consumption advisories. The Louisiana Department of Health and Hospitals, Department of Environmental Quality, and Department of Wildlife and Fisheries advise that the following precautions be taken when eating king mackerel taken off the coast of Louisiana. Please note that a different advisory exists for different sizes of the fish.

For king mackerel 39 inches or less in total length:

- \* Pregnant women, breast-feeding women and children less than 7 years of age should limit consumption to one meal per month. (A meal is considered to be a half a pound of fish for adults and children).
- \* Non-pregnant women, men, and children 7 years of age or older should limit consumption to four meals per month.

For king mackerel greater than 39 inches in total length:

- \* No consumption (all individuals)

Mercury is an element that occurs naturally in the environment. It is released into the atmosphere through natural processes and human activities. Consequently, there are small amounts of mercury in lakes, rivers and oceans. Nearly all fish contain trace amounts of mercury. They absorb mercury from the water and sediment as they feed on aquatic organisms. Larger predator fish contain more mercury than smaller fish. Therefore, it is recommended that smaller fish be eaten instead of larger ones.

People are exposed throughout their lives to low levels of mercury. One way they can be exposed to mercury is from eating contaminated fish. Health effects from harmful levels of mercury can include nervous system and kidney damage. Developing fetuses are more sensitive to the toxic effects of mercury, especially in the first trimester. In addition to developing fetuses, infants and children are more sensitive to the effects of mercury, therefore, consumption advisories are issued at lower tissue concentration levels for these groups.

This advisory is issued as a precaution. Further sampling will be carried out to determine the need for modifications to this advisory. If you have consumed king mackerel from these waters, it is not likely that there is an immediate need to be concerned about the effect of mercury. For specific symptoms, through, your own physician should be consulted.

### MORE ON MERCURY

The Louisiana Department of Environmental Quality is actively testing more of our fish in various parts of the state for mercury in their flesh. Listed below are the results of preliminary sampling in Lake Ponchartrain and Lake Salvador.

Generally speaking, when mercury levels reach the 0.5 part per million (ppm) level, the state considers issuing consumption advisories for pregnant or breast-feeding women and young children. At 1.0 ppm they consider an advisory for all people. **It is important to note that the test results below are on a limited number of fish samples, and that more samples are planned to be conducted before any fish consumption advisories are issued.**

**Lake Pontchartrain @ Rigolets (1996 Sampling)**

Sample No.	Species	No. of Fish In Sample	Avg. Wgt. (lbs. & oz.)	Avg. Lgth (inches)	Concentrations (ppm)
063-960703-03	Sediment				0.555
063-960619-11-2	Largemouth Bass	4	11.3 oz.	11.1	0.752
063-960619-13-2	Largemouth Bass	1	1 lb. 7 oz.	14.5	1.061
063-960619-15-2	Largemouth Bass	1	2 lbs. 4 oz.	18.3	1.190
063-960619-17-2	Spotted Bass	4	7.8 oz.	9.8	0.290
063-960619-19-2	Sheepshead	1	2 lbs. 14 oz	16.6	0.572
063-960619-22-2	Red Drum	1	8 lbs. 6 oz.	27.1	0.697
063-960619-23-2	Speckled Trout	6	1 lb. 15 oz.	17.4	0.595
063-969619-25-2	Speckled Trout	4	2 lbs. 6.8 oz	19.1	0.300
063-960619-28-2	Speckled Trout	2	3 lbs. 4.5 oz	21.9	0.635
063-960619-29-2	Sheepshead	4	2 lbs. 10.8 oz	15.6	0.677

## LAKE PONTCHARTRAIN @ RIGOLETS (2ND 1986 SAMPLING)

Sample No.	Species	No. of Fish In Sample	Avg. Weight (lbs. & oz.)	Avg. Length (Inches)	Concentration (ppm)
063-960905-11-2	Largemouth Bass	6	6 oz.	9.1	0.204
063-960905-13-2	Largemouth Bass	6	8 oz.	9.7	0.476
063-960905-16-2	Largemouth Bass	3	9.3 oz	10.7	0.553
063-960905-17-2	Largemouth Bass	2	14 oz.	11.9	0.219

## LAKE PONTCHARTRAIN NEAR BAYOU LACOMBE (1987 SAMPLING)

Sample No.	Species	No. of Fish In Sample	Avg. Weight (lbs. & oz.)	Avg. Length (Inches)	Concentration (ppm)
063-970304-01-A	Alligator Gar	1	40 lbs.	55.0	0.681
075-970304-01-D	Alligator Gar	1	40 lbs.	55.0	0.648
063-970304-02-A	Blue Catfish	1	7 lbs. 13 oz.	25.0	0.823
075-970304-02-D	Blue Catfish	1	7 lbs. 13 oz.	25.0	0.775
063-970304-03-A	Sheepshead	3	3 lbs. 4.7 oz	16.5	0.799
075-970304-03-D	Sheepshead	3	3 lbs. 4.7 oz	16.5	0.598
063-970304-04-A	Sheepshead	3	4 lbs. 6.3 oz	18.3	1.010
075-970304-04-D	Sheepshead	3	4 lbs. 6.3 oz.	18.3	0.881
063-970304-05-A	Red Drum	1	10 lbs. 2 oz.	30.0	1.035
075-970304-05-A	Red Drum	1	10 lbs. 2 oz	30.0	1.191
063-970304-06-A	Red Drum	2	7 lbs. 7 oz	27.5	1.027
075-970304-06-D	Red Drum	2	7 lbs 7 oz	27.5	0.754

## LAKE SALVADOR (1986 SAMPLING)

Sample No.	Species	No of Fish In Sample	Avg. Weight (lbs. & oz.)	Avg. Length (Inches)	Concentration (ppm)
060-961017-02-B	Sediment				0.363
060-961017-07-A	Largemouth Bass	5	10.4 oz	11.1	0.276
060-961017-08-A	Largemouth Bass	1	1 lb. 3 oz.	13.4	0.686
060-961017-09-A	Black Crappie	1	1 lb. 2 oz	11.9	0.376
060-961017-10-A	Bluegill Sunfish	4	3 oz.	6.8	0.258
060-961017-11-A	Redfish	1	5 lbs. 9 oz.	23.6	0.117
060-961017-12-A	Redfish	1	3 lbs. 14 oz.	20.9	0.044
060-961017-13-A	Redfish	1	2 lbs. 10 oz.	18.9	0.101
060-961017-14-A	Sheepshead	3	3 lbs. 4.3 oz	16.0	0.053

060-961017-15-A	Freshwater Drum	3	4 lbs. 0.7 oz	18.9	0.103
060-961017-16-A	Freshwater Drum	4	2 lbs. 12.5 oz.	17.5	0.101
060-961017-18-A	Blue Catfish	2	3 lbs. 6 oz	20.8	0.001

## LAKE SALVADOR - EAST (1997 SAMPLING)

Sample No.	Species	No. of Fish in Sample	Avg. Weight (lbs. & oz.)	Avg. Length (inches)	Concentration (ppm)
063-970415-02-B	Sediment				0.280
063-970415-07	Largemouth Bass	4	9.5 oz	11.5	0.681
063-970415-08	Largemouth Bass	3	1 lb. 1 oz.	13.6	0.645
063-970415-09	Largemouth Bass	1	1 lb. 13 oz.	15.0	0.684
063-970415-10-A	Largemouth Bass	2	2 lbs. 12 oz.	16.6	0.894
063-970415-10-D	Largemouth Bass	2	2 lbs. 12 oz	16.6	0.856
063-970415-11-A	Largemouth Bass	2	3 lbs. 2.5 oz	17.0	0.525
063-970415-12-A	Freshwater Drum	4	1 lb. 14.3 oz.	15.4	0.630
063-970415-13-A	Freshwater Drum	4	2 lbs. 14 oz.	16.9	0.775
063-970415-14-A	Bowfin	1	4 lbs. 14 oz	21.3	0.790
063-970415-15-A	Bowfin	2	4 lbs. 14.5 oz	23.9	0.692
063-970415-16-A	Southern Flounder	3	1 lb. 15 oz.	16.9	0.688
063-970415-17-A	Redfish	3	6 lbs. 15 oz.	25.0	0.696
063-970415-18-A	Redfish	1	15 lbs. 8 oz	34.8	0.690
063-970415-19-A	Blue Catfish	2	5 lbs. 2 oz.	22.9	1.098
063-970415-20-A	Flathead Catfish	1	22 lbs. 3 oz	36.4	0.516
063-970415-21-A	Flathead Catfish	1	32 lbs. 3 oz.	38.2	1.010

## CAERNARVON DIVERSION WETLAND IMPACTS

Diversion of Mississippi River waters into the marshes is one tool in the coastal restoration tool box. One major diversion, at Caernarvon on the eastbank of the Mississippi River, has been in operation since August of 1991. Impacts on wetlands and fisheries resources from this project can be used as a gauge to model other freshwater diversion projects.

In August, the Coastal Restoration Division of the Louisiana Department of Natural Resources sent me a large aerial photography analysis of land loss/gain between 1990 and 1995 for the area impacted by the Caernarvon Diversion. The map is too large to



print here and the photocopy would not duplicate well, but I will try to summarize the results.

Researchers monitored by aerial photography, 9213 acres at 9 different sites located north, south and west of Lake Lery. In this area they noted a 405 acre gain in land over the four year period. The researchers are not sure whether the increase is due to sediments or increased plant growth, or both, but are continuing to look into the change.

Anyone wishing to inspect this large map may do so at my office in Marrero. It would be a good idea to call me at 349-4544 before you come in to make sure that I'm here.

### WHUT DA HECK IS DAT?

Those were my first words, as my eyes focused the stars out of my head enough to see the fish laying in the bottom of the boat that just seconds before had beamed me on the side of my head during a night-time frogging trip in the Atchafalaya Basin in August. It was about a 5 pound silver carp.

Actually, this wasn't my very first exposure to the fish. In July, Benny Champlin from Jonesville, Louisiana sent me the photograph of a 65 pounder, about 5 feet long. From the picture, I was able to identify it either as a silver carp or its first cousin, the bighead carp. I wrote that fish off as a freak occurrence, figuring I would never see another one.

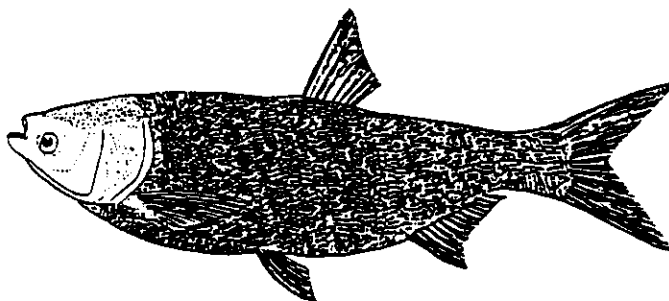
And earlier on the same night that I got clobbered, one even larger than the one that hit me jumped into the boat, ricocheted off of the gunnels 6 or 7 times like a silver bullet, and jumped back overboard. I guess that my head is harder than the boat, because the one that hit me was stunned enough not to jump overboard.



When I got back to my office, I called Gary Tilyou, Biologist Program Manager, with Inland Division of the Department of Wildlife and Fisheries. Tilyou said that his office has received many reports this year about these fish. Recently, Champlin told me that fishermen on the Boeuf River north of Jonesville have become cautious about fishing and traveling on the river at night, because of these fishes' tendency to jump towards lights in the dark.

It looks like the silver carp and the bighead carp are here to stay, joining two other introduced carp, the grass carp and the common (German) carp in Louisiana waters.

Most biologists feel that these fish reached Louisiana waters by escaping from Arkansas or Missouri aquaculture operations.



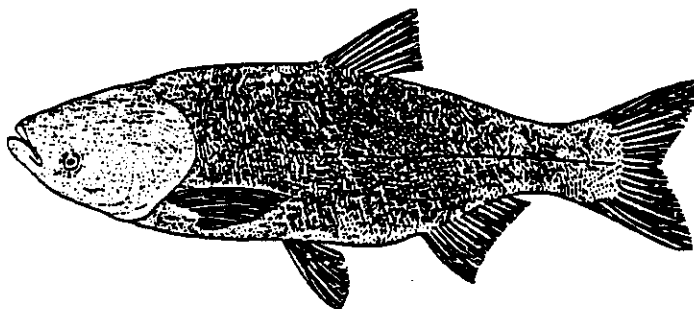
Silver Carp  
*Hypophthalmichthys molitrix*

The silver carp seems to presently be the more common of the two fish in Louisiana. The fish is an overall silver color and has small scales for its size. Its native habitat is the Amur River in Russia, and the lowland rivers of China.

The silver carp grows to over 50 pounds on a diet of phytoplankton (microscopic plants) and zooplankton (microscopic animals) that it strains from the water. It will eat 1/5 of its weight in plankton per day. Its diet may put it in competition with larvae or juveniles of native fish.

It is an April to August spawner and spawns when rivers are in flood stage. It may tolerate low salinities up to 8 parts per thousand.

The silver carp is a much more excitable fish than the quieter bighead carp, and may jump wildly when stimulated.



Bighead Carp  
*Hypophthalmichthys nobilis*

The bighead carp has a dark blotchy coloration as compared to the silver color of the silver carp. The two species may definitely be identified by the location of the fleshy keel (ridge) on the belly of the fish. Both species have a keel behind the paired pelvic (belly) fins, but only the silver carp has a keel all the way from the pelvic fins to the throat.

Bighead carp are native to eastern and southern China and can grow at least as large as 90 pounds. Like the silver carp, it eats plankton that it strains from the water with its gill rakers.

It spawns from April to June, typically when rivers are high. Females become mature in 6 to 9 years at between 11 and 22 pounds. The bighead carp seems to be less tolerant of salinity than the silver carp.

### **SHRIMP PROCESSING ECONOMICS**

Shrimp are a billion dollar industry in the southeastern United States. The most commonly used management tool in the shrimp fishery are season and area harvest closures. Changes in shrimp management would more than likely use season or area closures. Two LSU fisheries economists have completed a study on the shrimp processing industry and how it may be affected by closures.

For the purposes of the study they grouped processors into three groups, small (under \$5 million in sales), medium (\$5-\$15 million), and large (over \$15 million). Shrimp processing companies in 1991, the year of the study, purchased 251 million pounds (headless equivalent weight) of shrimp in the southeastern U. S. Of the total, 147 million pounds were domestic production and 104 million pounds were imported.

Small companies purchased 31 million pounds of domestic shrimp and slightly less than 4 million pounds of imports. Medium-sized companies purchased 61 million pounds domestic and 15 million pounds of imports. Large companies bought 55 million pounds of domestic shrimp and 85 million pounds of imports.

Shrimp products produced by the processors fell into five categories: raw headless, peeled raw, peeled cooked, breaded, and other (such as dried or canned). Raw headless shrimp product was 77 million pounds and was produced from 70 million pounds purchased as headless and 12 million pounds purchased head-on. About 41% of raw headless shrimp production was comprised of 30 count per pound or larger shrimp, 50% was 30 to 70 count, and only 9% was smaller than 70 count. Domestic shrimp made up 78% of production and Imports 22%.

About 118 million pounds of heads-on and 15 million pounds of headless shrimp were purchased to produce 78 million pounds of peeled raw shrimp. Almost 60% of the peeled raw product was produced from shrimp smaller than 70 count (headless equivalent) and only 4% from shrimp larger than 30 count.

Domestic shrimp supplied 85% of the product for raw peeled shrimp and imports 15%. Almost 60% of this product used shrimp smaller than 70 count (headless equivalent) and only 4% used shrimp larger than 30 count.

Peeled cooked production was 13 million pounds and over 95% of the total production was from raw imports.

Almost all of the 86 million pounds of breaded shrimp production came from imports, and 90% of the production came from shrimp counting 30 to 70 count and 70 count or smaller.

The category labeled "other" produced 4 million pounds of products.

Two conclusions came from the study:

- 1) Small and medium-sized companies would be affected more than large companies by any management measure that reduces domestic shrimp supply.
- 2) Management measures that would increase the average size of shrimp harvested would likely benefit raw headless producers and harm peeled raw shrimp producers.

Source: Shrimp Closures and Their Impact on the Gulf Region Processing and Wholesaling Sector (Expanded to Include South Atlantic). Walter Keithly and Kenneth Roberts. Revised Final Report to National Marine Fisheries Service, Contract Number NA 17FF0376-01. 1994

## **FRESHWATER GEAR/SALTWATER FISH**

Since the passage of Act 1316 (the gill net law) by the 1995 legislature, there have been a lot of questions about how saltwater fish can be harvested. Many of the questions are about the use of gear traditionally or legally considered as freshwater gear. Much of the confusion occurs because fish considered to be saltwater species are often found in areas of the state legally defined as being in the freshwater zone.

After consulting with Department of Wildlife and Fisheries Enforcement Division administrators, I've gotten answers to some of the most commonly asked questions.

**Q.** Can saltwater fish be taken with a trotline?

**A.** Yes. Trotlines (with proper licenses and permits) are considered a legal gear for harvesting of saltwater fish both in the freshwater and saltwater zones of the state. This applies to both recreational and commercial fishermen. Commercial trotliners

must remember, however, that redfish are considered gamefish and cannot be kept when fishing trotlines to catch other species to sell. Redfish within the legal size and creel limits may be kept by recreational trotliners.

- Q.** Can saltwater fish be taken with a hoop net in the saltwater zone?
- A.** Yes. Fishermen possessing a commercial or a recreational hoop net license may keep saltwater fish caught in the saltwater zone of the state. Redfish, as a gamefish, may not be taken by either commercial or recreational fishermen with hoop nets. Species such as black drum, sheepshead, and flounders may be kept if caught, and the same size and daily limits apply here as with other methods of fishing.
- Q.** Can saltwater fish caught with hoop nets, freshwater gill nets, trammel nets and seines in the freshwater zone of the state be kept.
- A.** No. This also applies to both recreational and commercial fishermen. This may seem odd after the answers to the first two questions. Provisions in Act 1316 provide that the act and its associated provisions do not apply to freshwater.

The exact description of the boundary line is in Title 56, Section 322 of the Louisiana Revised Statutes and reads as follows:

*The area south of the above-described boundary line, plus the salt water lakes known as Sabine Lake; Calcasieu Lake, including that portion of the Calcasieu Ship Channel which actually adjoins Calcasieu Lake; West and East Pass of the Calcasieu River and Oyster Bayou in Cameron Parish; Lake Maurepas; Lake Pontchartrain; Lake St. Catherine; Chef Menteur Pass, except that seven-tenths of a mile section from Bayou Sauvage south to the Intracoastal waterway; the Rigolets; Unknown Pass; Pass Manchac; and that portion of the Calcasieu Ship Channel from the Intracoastal Waterway south to the Gulf of Mexico, shall be designated as salt water areas.*

Fishermen should also be aware that none of this gear can be used to harvest striped mullet. Only mullet strike nets can be used commercially, and cast nets recreationally, for mullet harvest. Also, the only legal method of commercially harvesting speckled trout is with a commercial rod and reel license by holders of a speckled trout permit. Finally, black drum over 27 inches in length may be sold only by fishermen holding a "bull drum permit". This permit is only available from the Baton Rouge office of the Department of Wildlife and Fisheries.

## **NONRESIDENT COMMERCIAL GEAR LICENSES**

Because of Louisiana's large fisheries resource, we get many nonresident commercial fishermen that visit the state to fish. Louisiana fishermen often ask if nonresident fishermen can be prevented from fishing in Louisiana.

Louisiana has no law on the books preventing nonresidents from fishing. Passage of such a law **may** result in a legal challenge on constitutional grounds. Louisiana law does provide that no commercial gear license can be issued to a nonresident whose state does not allow the use of similar commercial gear in that state. For example, Texas residents cannot purchase nonresident gear licenses in Louisiana for butterfly nets, skimmer nets, hoop nets, strike nets, or freshwater gill nets. Their state does not allow the use of similar gear to these in their waters.

Arkansas residents cannot purchase any nonresident commercial gear licenses in Louisiana because their state does not issue such licenses to nonresidents. On the other hand, no gear licenses have been denied to Mississippi residents based upon this law.

Source: Personal communication with Nancy Hunter, Louisiana Department of Wildlife and Fisheries.

## **WHY RECYCLE USED OIL?**

Used engine oil is the single largest source of water pollution in the United States. Besides reducing pollution, recycling used engine oil reduces the amount of oil we need to import or drill for.

Presently, about 80% of recycled engine oil is used as industrial heating oil. Used oil can also be processed into usable engine oil. It only takes one gallon of used oil to produce 2 ½ quarts of "new engine oil". It takes **42 gallons** of crude oil to produce the same amount of engine oil.

Re-refined oil performs as well in engines as oil refined from crude oil, since motor oil doesn't "wear out". Re-refining replaces additives that prevent rust and corrosion and removes water, dirt, metals, sulphur and ash from the oil.



\*\*\*\*\*

## THE GUMBO PÔT

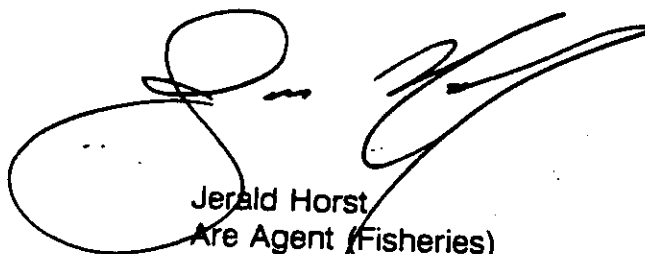
### Curried Fish Roll-ups

You can use any white-flesh fish in this month's dish. Since you will have to roll up the fillets, very small ones won't work well. I found that 3 to 5 ounce fillets are about the best size.

2	lbs fish fillets	½	cup dry white wine
	salt	2	cloves garlic, minced
1	6-oz pack mozzarella cheese slices	½	tsp creole seasoning
2	10-oz packages broccoli spears, cooked and drained	½	tsp white pepper
	toothpicks	1	tbsp cornstarch
1	cup boiling water	1½	tsp curry powder
1	chicken bouillon cube	2	tbsp water

Spread fillets on wax paper and sprinkle with salt. Cut mozzarella cheese in thirds lengthwise. Place strip of cheese and equal amounts of broccoli spears on each fillet. Roll up fillets. Secure with toothpicks. Pour boiling water in a 10-inch saucepan or deep-sided skillet and dissolve bouillon cube. Add wine, garlic and creole seasoning. Add roll-ups to liquid and bring back to a boil. Cover and cook over a medium heat for 10 to 12 minutes or until fish flakes easily with a fork. Carefully remove rolls to a hot platter. Combine cornstarch, curry powder and 2 tbsp. water. Mix well and gradually add to remaining liquid in the pan. Cook until thick and smooth, stirring constantly. Pour sauce over rolls. Serves 6,

Sincerely,



Jerald Horst  
Are Agent (Fisheries)  
Jefferson, Orleans, St. Charles, St. John

LOUISIANA COOPERATIVE EXTENSION SERVICE  
LSU AGRICULTURAL CENTER  
U.S. DEPARTMENT OF AGRICULTURE  
KEAFF HALL  
P.O. BOX 25100  
BATON ROUGE, LA 70894-5100

OFFICIAL BUSINESS

Penalty for Private Use, \$300