The Louisiana Commercial Fishing Sector:
A Review of Commercial Landings, Fishermen and Craft, and Processing and Wholesaling, 1960-86

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ABSTRACT

This report reviews the commercial fishing sector in Louisiana. The report first discusses commercial fishery landings in Louisiana during 1960-86 and then the number of commercial fishermen and commercial fishing craft used in Louisiana from 1960-80. Finally, the report provides a review of the seafood processing sector in Louisiana during 1960-85.

Considerable growth has been observed in the volume of commercial landings in Louisiana during 1960-86. However, much of this growth is the result of substantial increases in the volume of nonedible finfish landings, which command a relatively low dockside value. Even though much of the increase in the volume of Louisiana's commercial landings is due to increases in the volume of lower-priced nonedible finfish, the value of Louisiana's commercial landings increased considerably more than the volume during 1960-86. The increased value of landings reflects both an increased volume of landings and an increased dockside price of aggregate landings.

The numbers of commercial fishermen and commercial fishing craft used by these fishermen to harvest fish and shellfish gradually increased throughout 1960-80. During the 1970s, approximately 25% more individuals employing about 20% more fishing craft were directly involved in the harvesting of Louisiana's marine resources than during the 1960s.

Louisiana's seafood processing and wholesaling sectors comprise almost 300 establishments employing more than 4,000 individuals. These sectors are potential providers of much-needed revenues and employment opportunities for the state and have been increasing in recent years. Furthermore, increases in the value of processed fishery products trail increases in the value of state landings, suggesting room for expansion.

INTRODUCTION

The commercial fishing sector of Louisiana is an important component of several parish economies and of the overall state economy. In addition, Louisiana's commercial finfish and shellfish harvest accounts for a large proportion of the total U.S. commercial landings in terms of both volume and value. Thus, changes in the condition of the Louisiana commercial fishing industry will affect the overall condition of the U.S. commercial fishing industry.

A comparison of the state's commercial fishing sector in 1986 with its agricultural sector illustrates the relative importance of Louisiana's marine fisheries (Table 1). The value of marine fisheries commodities exceeded that of all other animal commodities produced in the state in both raw and processed forms. Among all agricultural commodities, the 1986 value of marine fisheries commodities was exceeded only by the value of forestry products. Altogether, the value of commercial marine fisheries to the state accounted for approximately 40% of the total value (i.e., gross farm income plus value added) of all animal commodities and 10% of all agricultural commodities produced in the state during 1986.

The high value of Louisiana's marine fishery resources relative to most other agricultural commodities is attributable to two factors. First, the value of raw products from the marine fisheries is greater than the value of all but a few agricultural commodities produced in the state. Second, the value added to marine fisheries (as a percentage of the raw product and in total) is large compared to values added to most agricultural commodities.

The importance of the Louisiana commercial fishing sector relative to the total U.S. commercial fishing sector is evident when one considers that in 1986, commercial landings in Louisiana accounted for 28% of the volume of total U.S. commercial landings and approximately 12% of the value (Fisheries of the United States, 1986). Leading the nation in volume of commercial landings in 1986, Louisiana trailed only Alaska in value of landings (Fisheries of the United States, 1986). Furthermore, Louisiana's commercial fishing industry, which contributed 72% of the volume and 41% of the value of the landings from the Gulf of Mexico in 1986, is the major contributor among states in the Gulf region.

Although Louisiana's commercial landings exceed those of all other Gulf states in both volume and value and are consistently the largest in the nation in volume, the commercial fishing sector in Louisiana does have its share of problems. Increasing capitalization in the harvesting sector in conjunction with a declining catch per firm (any commercial boat or vessel) has reportedly hurt many fishermen financially, at least in certain fisheries. Furthermore, increased competition from out-of-state landings and imports has resulted in depressed prices for certain species. Depressed prices in conjunction with the increased costs associated with harvesting these species have reportedly left commercial fishermen in deeper financial trouble than would have resulted from only a declining catch. In addition, conflicts between commercial and recreational fishermen have intensified in recent years and will not

Table 1. Estimated value[a] of animal and plant commodities produced in Louisiana, 1986[a].

ANIMAL COMMODITIES-1986

Commodity	Gross Farm Income	Value Added	Total Value
Cattle and Calves	$ 155,317,152	$ 15,000,000	$ 170,317,152
Milk	115,823,133	170,000,000	285,823,133
Horses	39,904,350	0	39,904,350
Poultry	191,553,682	132,172,000	323,725,682
Sheep	1,073,910	53,663	1,127,573
Swine	12,223,243	22,491,097	34,714,340
Freshwater Fisheries	55,289,040	59,152,272	114,441,312
MARINE FISH	315,194,082	337,257,660	652,451,742
Fur	4,739,369	0	4,739,369
TOTAL	$ 891,117,961	$ 736,126,692	$1,627,244,653

PLANT COMMODITIES

Commodity	Gross Farm Income	Value Added	Total Value
Christmas Trees	$ 2,400,800	$ 2,400,800	$ 4,801,600
Cotton	201,339,840	20,133,984	221,473,824
Forestry, FOB Mill	441,390,830	3,294,834,779	3,736,225,609
Fruits Crops	4,320,938	509,281	4,830,219
Feed Grains Crops	126,329,946	13,950,699	140,280,645
Hay, Sold	17,098,625	---	17,098,625
Home Gardens	141,149,250	---	141,149,250
Nursery Stocks and Ornamentals	27,861,408	---	27,861,408
Peanuts	104,500	10,450	114,950
Pecans	9,589,445	958,945	10,548,390
Rice	151,520,714	51,409,989	202,930,703
Sod Production	8,660,734	6,282,845	14,943,579
Soybeans	168,391,605	16,839,161	185,230,766
Sugarcane	171,260,243	109,494,254	280,754,497
Sweet Potatoes	19,712,650	6,564,310	26,276,960
Tobacco	54,000	---	54,000
Vegetables, Commercial	40,888,650	13,615,916	54,504,566
TOTALS	$1,532,074,178	$3,537,005,413	$5,069,079,591

[a] The data contained in this table is unoffical and is used here only for general information purposes.

Source: Louisiana Summary: Agricultural and Natural Resources, 1986.

abate as the state's population and income of the population increases. Finally, the state's seafood processing and wholesaling industries could probably be improved and expanded, which would enhance the reputation of the Louisiana seafood industry and increase revenues and employment.

The next section of this report reviews the 1960-86 reported commercial landings in Louisiana and compares them with the Gulf region commercial landings and U.S. commercial landings. (Since reported landings include only catches going through traditional marketing channels, the quantities and dollar values discussed throughout this paper should be viewed as minimum estimates of the actual significance of Louisiana's commercial fisheries.) Following that, a review of the number of operating units (i.e., boats, fishermen, etc.) in the Louisiana commercial fishing sector is provided. Finally, the processing and wholesaling sectors and the value of processed products in the state are reviewed. The value of processed products in Louisiana is then compared to the values of processed products from the Gulf States and the United States.

LOUISIANA COMMERCIAL LANDINGS

Commercial landings in Louisiana are composed of numerous species, ranging from those used almost exclusively by the industrial sector, such as menhaden, to those generally considered preferred items among consumers, such as shrimp. The per-pound value of the different species varies greatly. In this section on Louisiana's commercial landings, (1) the aggregate landings, (2) landings of edible and nonedible species, (3) landings of major species, (4) seasonality of major species, and (5) landings by region are discussed.

Aggregate Landings

The volume of commercial landings in Louisiana gradually rose during 1960-86 (Figure 1). Averaging almost 686 million lb annually during 1960-64, the volume of landings increased about 160% to an average of 1,770 million lb annually during 1982-86 (see Appendix A for a listing of data used in the main text and Appendix B for selected trend analyses).

As with volume, the value of state landings rose during 1960-86, but at a much faster rate (Figure 2). Averaging $28.8 million annually during 1960-64, Louisiana landings increased in value to an average of $257 million annually during 1982-86. Thus, Louisiana landings increased almost eightfold in value between the 1960-64 and 1982-86 periods. This increase resulted from two factors. First, the increase in volume of landings during 1960-86 in turn increased the value of landings. Second, the dockside price of the aggregate landings has been gradually increasing. Averaging just over $0.042/lb during 1960-64, the average dockside price of commercial landings in Louisiana increased to about $0.145/lb during 1982-86, an increase of 245%.

To subtract the effect of a price increase caused solely by an increase in the relative cost of living (inflation), the value of state

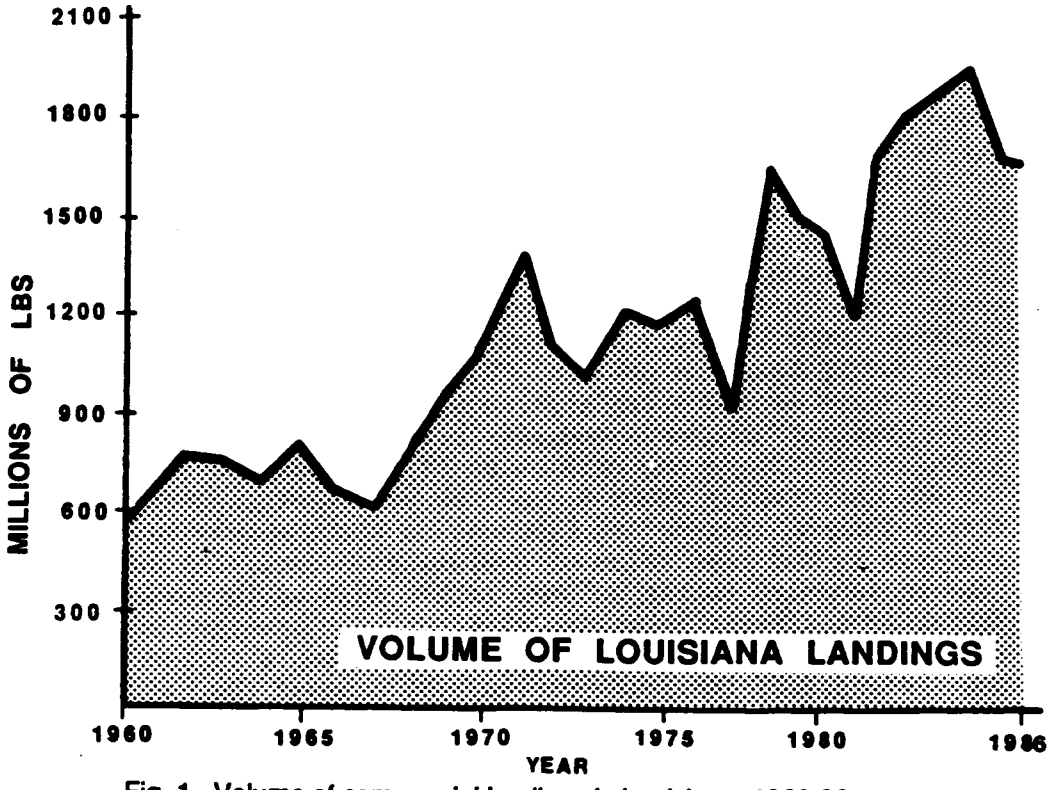

Fig. 1 . Volume of commercial landings in Louisiana, 1960-86.

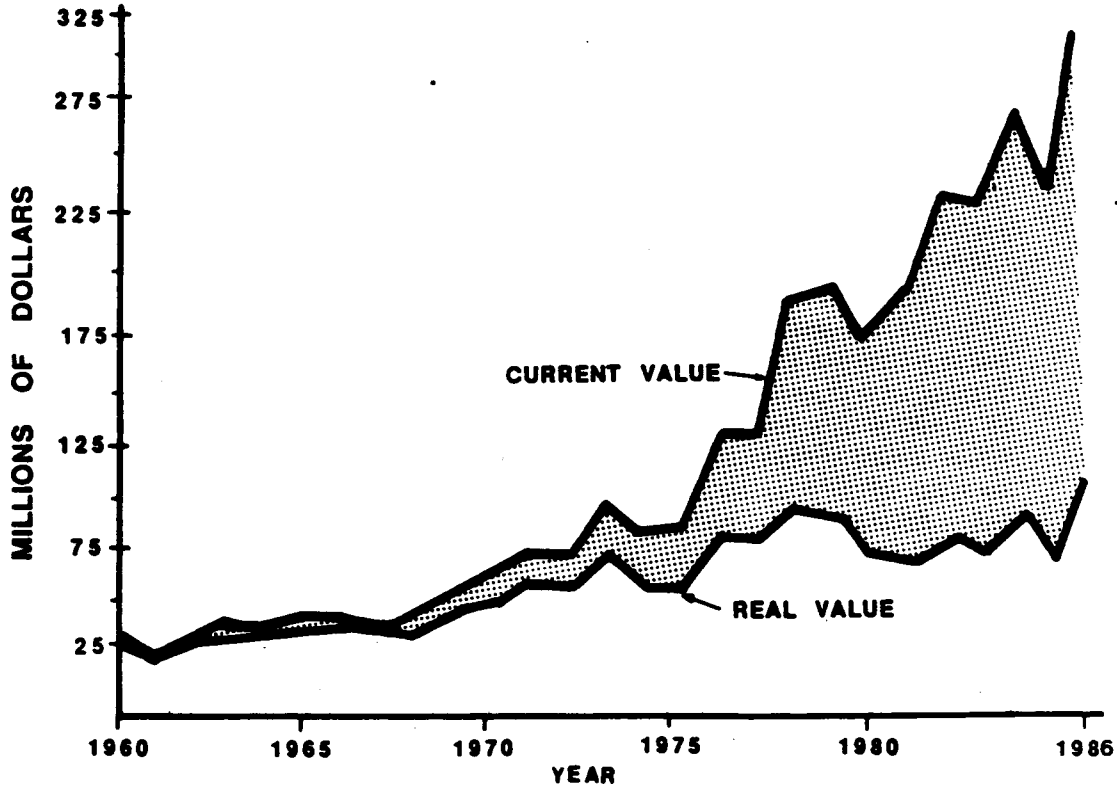

Fig. 2. Current and real value of commercial landings in Louisiana, 1960-86.

commercial landings from 1960-86 was deflated using the Consumer Price Index (the Consumer Price Index used in this study refers to all goods and services; 1967 = 100). Expressed in these terms, changes in the real value of Louisiana landings should reflect only changes in the absolute volume of landings and changes in the real price of the landings. A comparison of the growth in real value of Louisiana's commercial landings with the growth of the current value is provided in Figure 2. In 1982-86, there was a 164% increase over 1960-64 in real value of commercial landings, substantially less than the almost 800% increase in current value during the same period. This difference, representing an increase in the value of state landings caused only by an increase in the general price level of all goods and services is represented by the shaded area in Figure 2. Since the real value of landings was 164% higher during 1982-86 than during 1960-64, and the volume of landings was 158% more during 1982-86 than during 1960-64, it might appear that most of the increase in the real value of Louisiana's commercial landings results from an increase in the volume, rather than an increase in the real price, of Louisiana's commercial landings. However, much of the increase in the volume of state landings is attributable to increased catches of the lower-priced inedible species, which lower the average price per pound of the aggregate state landings, all other factors remaining constant.

A comparison of Louisiana landings with Gulf region landings shows that the overall growth in the volume of Louisiana's landings has exceeded that of the Gulf region (Figure 3). Louisiana's commercial landings averaged about 50% of the total volume of the Gulf region landings during 1960-64, increased to roughly 67% during 1970-74, and accounted for 72% of the total Gulf region landings during 1982-86. Similarly, growth in the volume of Louisiana landings has exceeded growth in volume of aggregate U.S. landings (Figure 3). The share of U.S. landings accounted for by Louisiana advanced from almost 14% in 1960-64 to 27% in 1982-86, an increase of almost 100%. However, the contrast between the 1970-74 and 1982-86 periods is small, with the volume of U.S. commercial landings accounted for by Louisiana increasing from 24% in 1970-74 to 27% in 1982-86.

Louisiana contributed just under 32% of the value of Gulf landings during 1960-64 (Figure 4). Since Louisiana contributed 50% of the volume during the same period, the dockside price of Louisiana's landings is evidently low compared with to prices in other Gulf States or in the total Gulf region. During 1982-86, 39% of the value of Gulf landings was accounted for by Louisiana, which was only slightly more than one-half of the percentage of volume of landings accounted for by Louisiana.

Though Louisiana accounted for 14% of the total volume of U.S. commercial landings during 1960-64, the state accounted for only 8% of the value of U.S. commercial landings during the same period (Figure 4). Similarly, during 1982-86, although Louisiana's commercial landings accounted for an average of 28% of the volume of U.S commercial landings, they accounted for only 10% of the value of U.S. commercial landings. Thus, while the proportion of the volume of U.S. landings accounted for by Louisiana was 103% more during 1982-86 than during 1960-64, the proportion of the value of U.S. landings accounted for by Louisiana

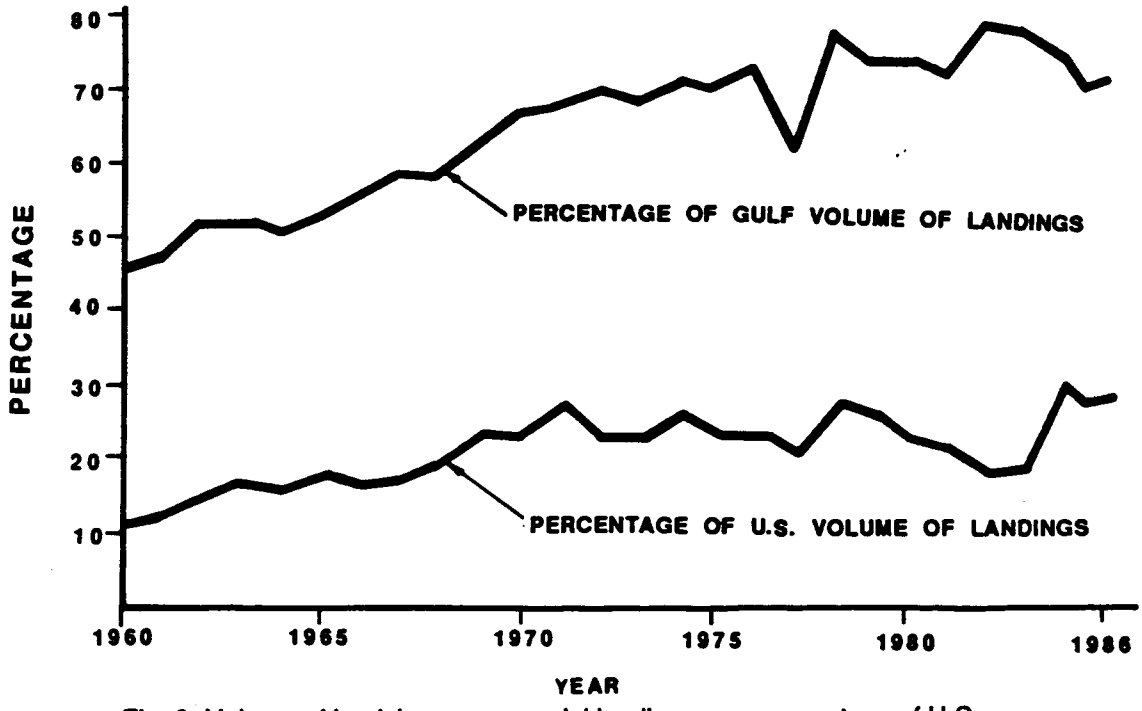

Fig. 3. Volume of Louisiana commercial landings as a percentage of U.S. and Gulf landings, 1960-86.

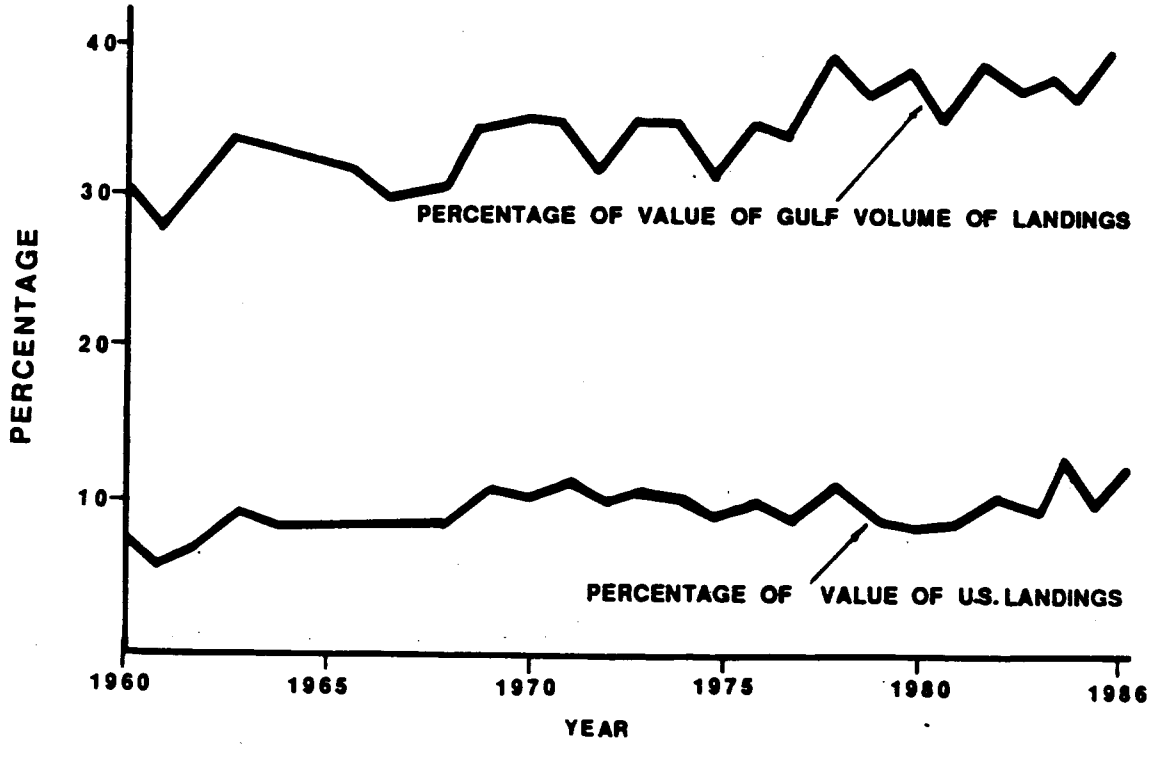

Fig. 4. Value of Louisiana commercial landings as a percentage of U.S. and Gulf landings, 1960-86.

increased only 35%. As shown in the next section, much of the disparity between the relative increases in the volume and value of Louisiana commercial landings compared to the Gulf region and U.S. landings has resulted from large increases in the state landings of nonedible fishery products relative to edible fishery products.

Landings of Edible and Nonedible Species

A wide range of species is commercially harvested in Louisiana, and one means of grouping these species is according to their edibility. Edible fishery products include both finfish and shellfish species; only certain finfish species are generally recognized as nonedible products (in this study, nonedible species landed in Louisiana include menhaden, carp, and shad).

While landings of edible finfish and shellfish averaged about 11% of the volume of commercial landings in the state during 1960-86 (Figure 5), landings of edible finfish and shellfish accounted for approximately 74% of the value of state landings during the same period (Figure 6). This suggests a sizable dockside price differential between edible and nonedible commercial landings. The dockside price of edible landings averaged $0.61 per pound during 1960-86 compared with $0.026 per pound for nonedible landings. Thus, landings of nonedible species in Louisiana commanded only about one-twentieth the average dockside price of edible species during 1960-86.

The volumes of both edible and nonedible commercial landings have increased throughout the 27-year period ending in 1986. Annual landings of edible finfish and shellfish doubled in volume, from an average of 86.5 million lb annually during 1960-64 to an average of 175.2 million lb annually during 1982-86 (Figure 5). Growth in the volume of landings of nonedible fish has greatly exceeded that of food fish, increasing in absolute terms from an average of 599.4 million lb annually during 1960-64 to 1,616 million lb annually during 1982-86. Though the volume of edible finfish and shellfish landings increased much less than the volume of landings of nonedible fish during 1960-64 through 1982-86 (in percentage terms), the value of edible landings increased more than nonedible fish landings (edible landings were 826% higher in value in 1982-86 than in 1960-64, nonedible 738%). This is because the average price per pound for food fish landings was 370% higher during 1982-86 than during 1960-64 and nonfood fish landings only 200% higher.

Landings of shellfish constitute the vast majority of the edible commercial landings in Louisiana in terms of both volume and value (Figures 5 and 6). During 1960-64, landings of shellfish averaged 88% of the volume and 92% of the value of edible products landed in Louisiana. During 1982-86, the proportions were approximately the same as those recorded during 1960-64. Shellfish species accounted for 87% of the volume of edible products landed in Louisiana during 1982-86 and approximately 93% of the value of edible products.

Louisiana's commercial landings of nonedible fish significantly contribute to the U.S. total. Throughout 1960-86, Louisiana landings of

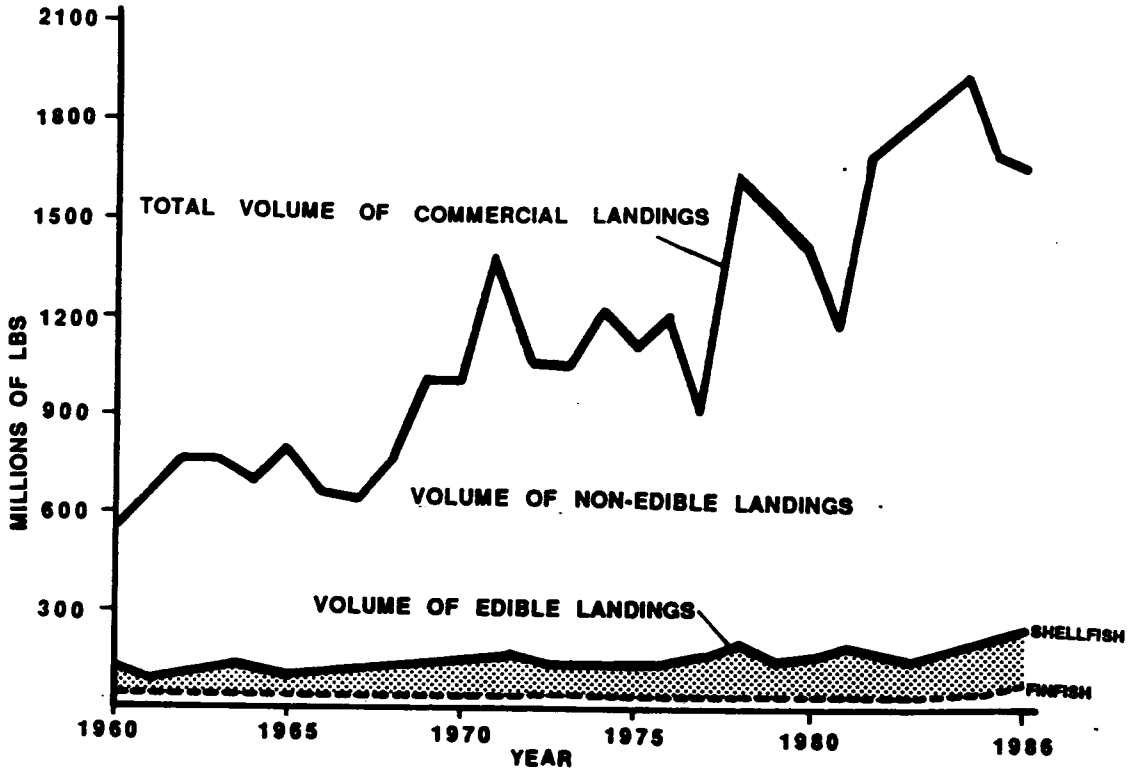

Fig. 5. Volume of edible and nonedible commercial landings in Louisiana, 1960-86.

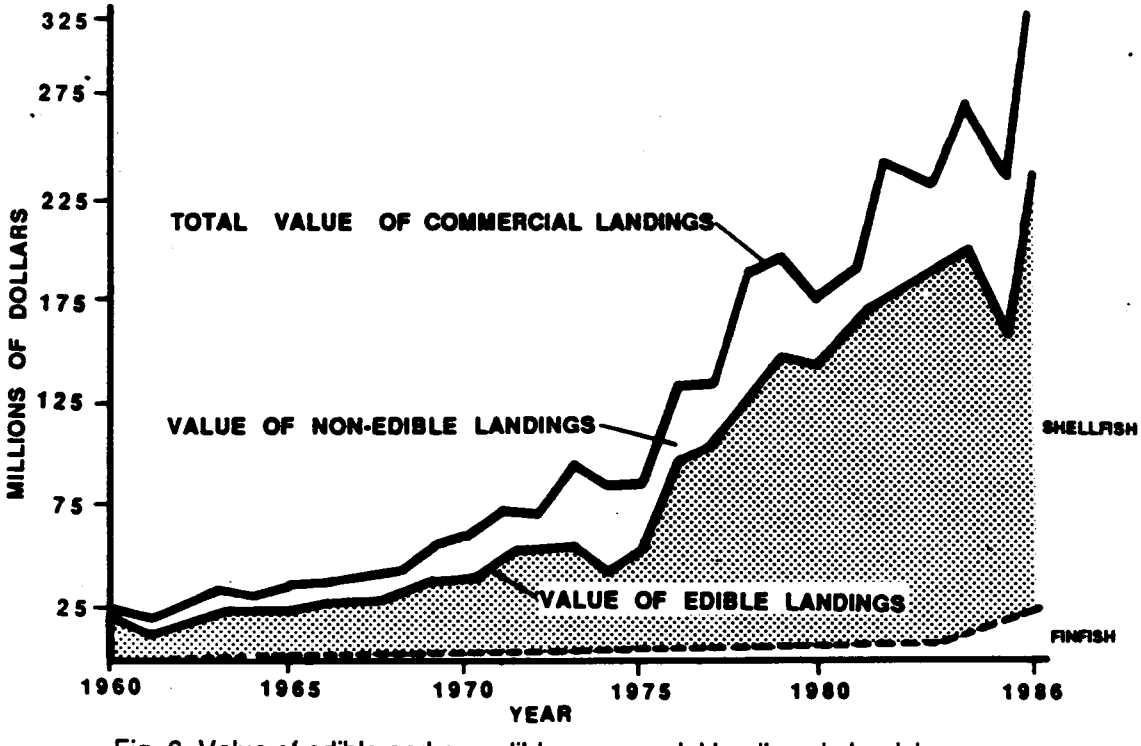

Fig. 6. Value of edible and nonedible commercial landings in Louisiana, 1960-86.

nonedible fish averaged about 40% of the total U.S. nonedible fish landings (Figure 7). Throughout this 27-year period, the percentage of U.S. landings of nonedible fish accounted for by Louisiana has increased significantly. During 1960-64, Louisiana accounted for an average of 30.7% of the volume of U.S. landings of nonedible fish. During 1982-86, Louisiana accounted for just under 60% of the volume of U.S. landings of nonedible fish.

Louisiana's contribution to the volume of landings of edible fish and shellfish in the United States has historically been relatively small, just over 4% during 1960-86 (Figure 7). However, because of the high value of some of the species landed in Louisiana, the state's landings accounted for slightly more than 7% of the value of landings of edible seafood products in the United States during 1965-86 (value of edible seafood products landed in the United States is not reported before 1965) (Figure 7).

Landings of Major Species

Twelve species, each having dockside values of over $1 million, were landed in Louisiana in 1986. These twelve species were shrimp, oysters, blue crabs, freshwater crawfish (refers only to those taken from certain public water bodies), menhaden, catfish and bullheads, red drum, black drum, yellowfin tuna, spotted seatrout, red snapper, and black mullet. Of these species, shrimp, oysters, and menhaden had dockside values of over $10 million in 1986.

Table 2 provides information on the relative growth (or decline) in the volume, value, and prices of the major commercial species landed in Louisiana during the 1960-64 and 1982-86 periods. Shrimp is undoubtedly Louisiana's most important commercial fishery. Though accounting for 6% of the volume of state commercial landings during 1982-86, shrimp accounted for 59% of the value of state commercial landings during the same period. The volume of shrimp landed in the state gradually increased throughout 1960-86 and was 94% greater during 1982-86 than during 1960-64 (Table 2; Figure 8). Though the volume of shrimp landings has trended upward during the past 27 years, year-to-year landings show considerable variation. The upward trend in the volume of state shrimp landings probably reflects an increase in the number of fishermen and/or boats targeting shrimp in the state as well as increased efficiency of effort. The year-to-year variation in landings, on the other hand, largely reflects variations in environmental conditions that determine the size of the shrimp stock.

In addition to the volume of shrimp landings being 94% greater in 1982-86 than in 1960-64, the associated value of shrimp landings increased almost 900% (Table 2; Figure 8). The increase in value reflects a combination of an increase in volume of landings and a large increase in the per-pound price of shrimp. Averaging about $0.28/lb during 1960-64, the dockside shrimp price increased more than 400% to $1.45/lb during 1982-86 (Table 2).

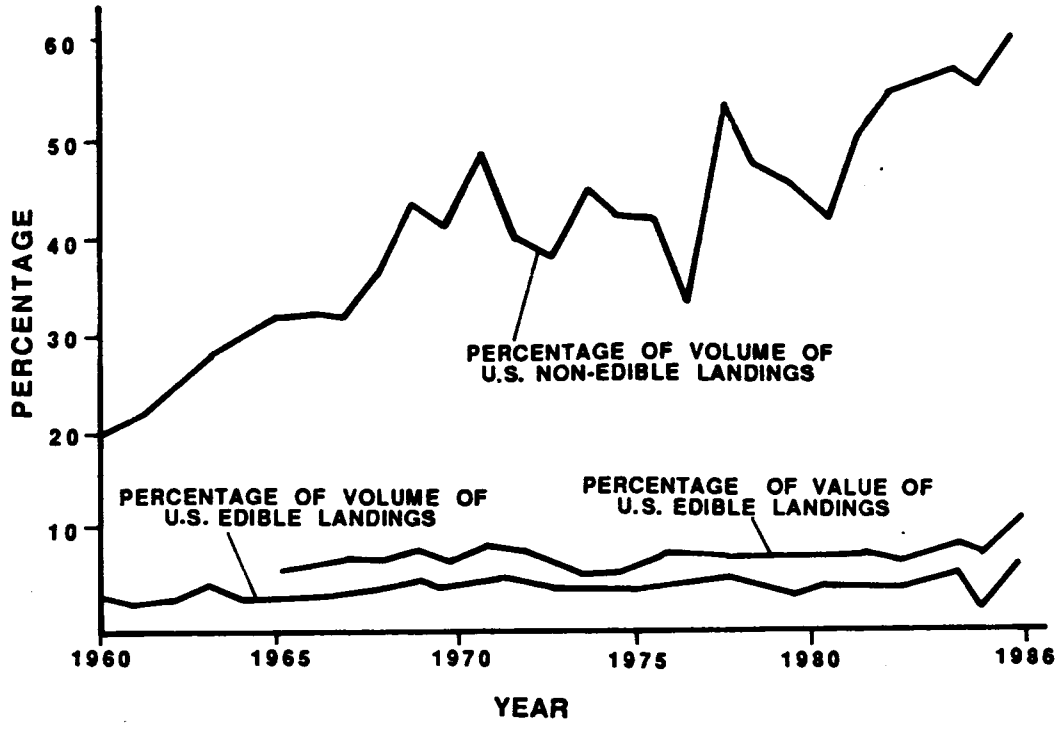

Fig. 7. Edible and nonedible commercial landings in Louisiana as a percentage of U.S. edible and nonedible landings, 1960-86.

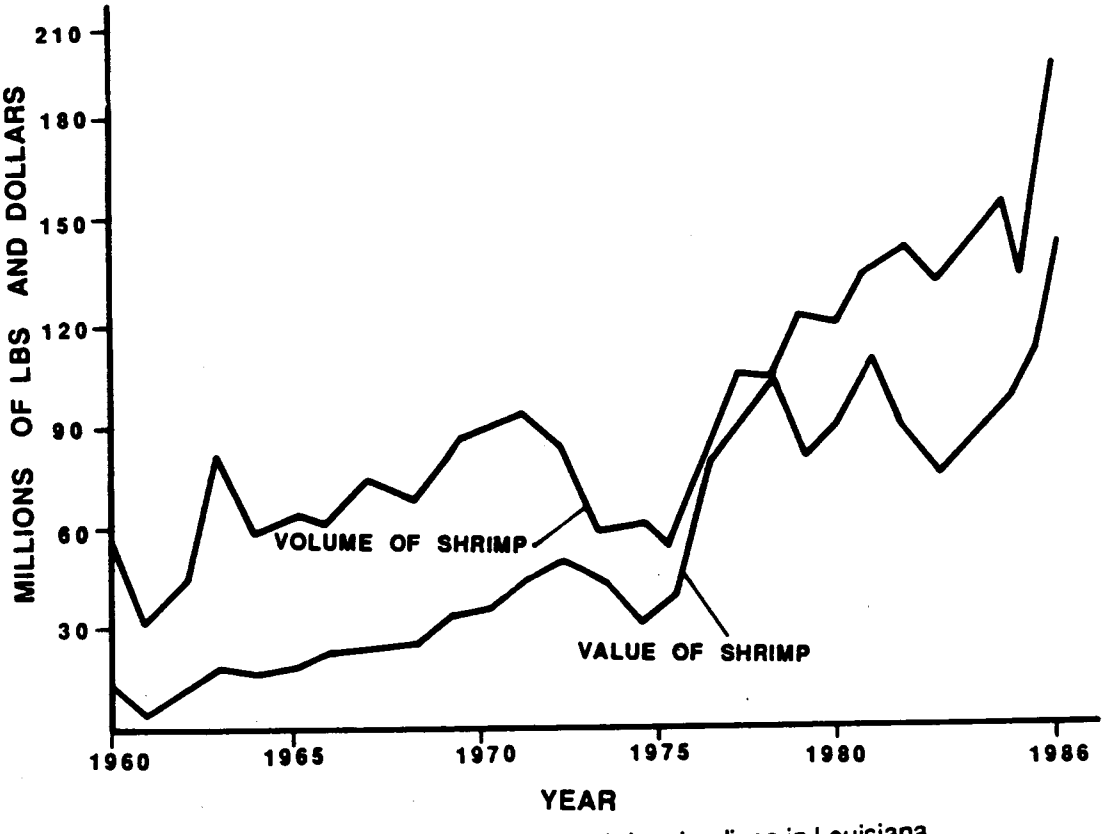

Fig. 8. Volume and value of commercial shrimp landings in Louisiana, 1960-86.

Table 2. Relative changes in volume, value, and price for major species landed in Louisiana.

Species	Average Volume (1,000 lb)		Percent Change	Average Value ($1,000)		Percent Change	Average Price ($/lb)		Percent Change
	1960-64	1982-86		1960-64	1982-86		1960-64	1982-86	
Shrimp (heads-on)	55,312	107,390	+94	15,672	153,835	+881	0.283	1.454	+414
Menhaden	594,794	1,615,505	+172	7,358	61,940	+742	0.012	0.037	+208
Oysters (meats)	10,315	13,266	+29	3,033	21,447	+607	0.294	1.61	+448
Blue Crabs (hard)	9,031	25,595	+183	460	7,417	+1,512	0.051	0.288	+465
Crawfish	959	11,381	+1,086	163	4,714	+2,792	0.170	0.416	+145
Catfish and Bullhead	6,124	6,006	-2	1,279	2,790	+118	0.209	0.46	+120
Seatrout (spotted)	387	1,236	+219	89	1,172	+1,217	0.230	0.96	+317
Red Drum	500	3,350	+570	75	2,606	+3,374	0.151	0.774	+412
Red Snapper	499	1,049	+110	117	1,980	+1,592	0.234	1.816	+676
Tuna[a]	0	1,450	--	0	2,096	--	--	1.49	--
Black drum	307	2,834	+823	19	1,034	+5,342	0.196	0.378	+93
Black Mullet	--	1,886	--	--	650	--	--	0.335	--

Sources: Values for 1960-77 taken from Fishery Statistics of the United States (various issues). Values for 1978-86 taken from unpublished data provided by the National Marine Fisheries Service.

[a]Based on 1985-86 data.

Though annual landings of menhaden accounted for an average of 91% of the volume of Louisiana's commercial landings during 1982-86, they accounted for only about 24% of the value of state landings during the same period because of the relatively low price associated with this species. The volume of menhaden landed in Louisiana has, for the most part, steadily increased throughout 1960-86. Annual landings of menhaden, averaging about 595 million lb during 1960-64, increased to an average of 1,615 million lb during 1982-86 (Table 2; Figure 9), an increase of 171%. The average annual value of state menhaden landings increased from just over $7 million in 1960-64 to more than $61 million in 1982-86, an increase of 742%. Much of the increase in value of menhaden landings is the result of an increase in volume rather than an increase in the price per pound. Menhaden prices were 208% higher in 1982-86 than in 1960-64. This increase is much less than the increase in shrimp prices.

Landings of shrimp and menhaden combined accounted for an average of 84% of the value of state commercial landings during 1982-86. The combined value of oyster, shrimp, and menhaden landings accounted for over 90% of the value of state landings during 1982-86. Oyster production in Louisiana differs from that of landings of most other species in Louisiana in that much of the product is harvested from privately leased grounds rather than public waters. Oyster landings averaged about 10.3 million lb annually during 1960-64 increasing to just over 13 million lb annually during 1982-86 (Table 2; Figure 10). While the volume of oyster landings was 28% higher during 1982-86 than during 1960-64, the value of oyster landings increased about 600% from an annual average of $3 million per year during 1960-64 to more than $21 million annually during 1982-86.

Seasonality of Major Species

Many of the species taken in Louisiana have distinct harvesting seasons. Shrimp, for instance, is primarily harvested in the months of May through December (Table 3). Over 90% of total annual catch is reported during this eight-month period. The paucity of landings during January-April reflects the closure of Louisiana's inside and outside waters to shrimping activities during much of this period due to the very small size-count of the shrimp.

Landings in the menhaden fishery are most prevalent between the months of May and September. An average of 88% of the total annual catch is reported during these months. No catch is reported during the months of November through March.

Oyster landings are greatest during the winter season. More than 40% of the total annual catch is landed between the months of January and April. In contrast, only 27% of the total annual catch occurs during the summer months of May through August.

In the blue crab fishery, landings peak during the summer months. About 45% of total blue crab landings are reported during the four month period ending in August. The months of March, April, May, and June

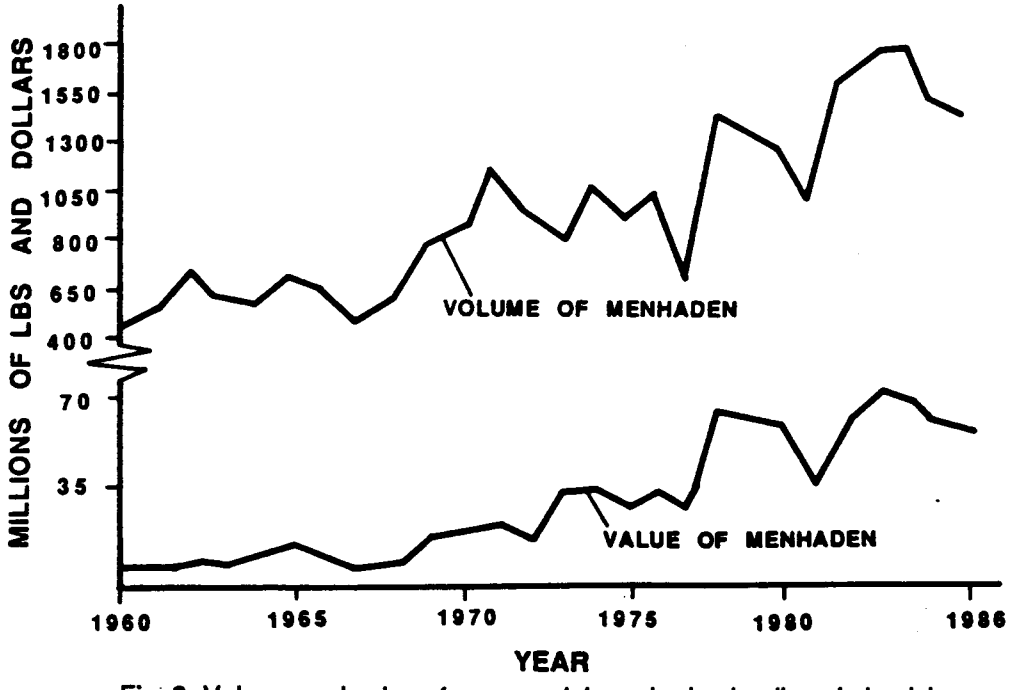

Fig. 9. Volume and value of commercial menhaden landings in Louisiana, 1960-86.

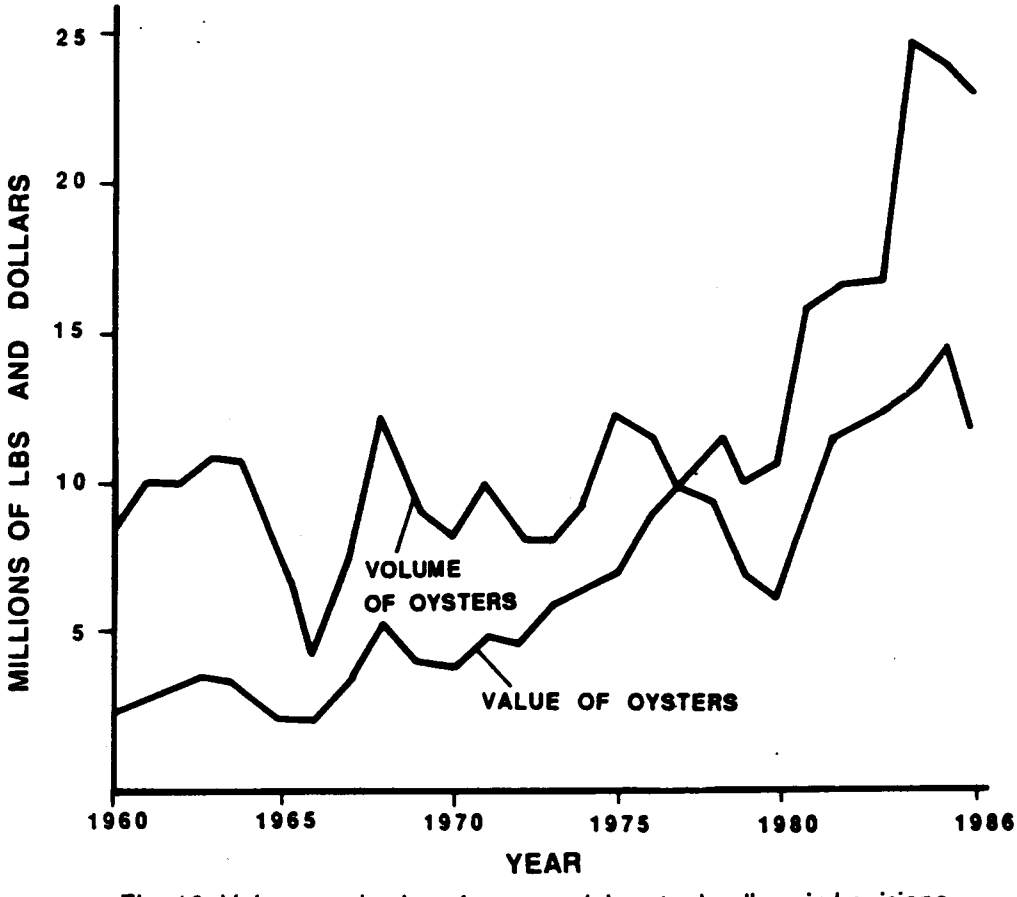

Fig. 10. Volume and value of commercial oyster landings in Louisiana, 1960-86.

Table 3. Monthly contribution of annual landings by species, 1982-85 average (in terms of pounds)[a].

	January	February	March	April	May	June	July	August	September	October	November	December
Shrimp	2.9	0.9	0.9	0.7	15.9	22.9	9.4	7.8	8.3	12.4	10.2	6.6
Menhaden	0	0	0	4.6	15.4	19.1	20.6	19.8	13.0	6.7	0	0
Oyster	8.7	10.8	12.6	9.7	9.5	7.4	5.5	5.0	7.3	7.9	7.2	7.3
Blue Crabs	3.3	4.1	5.9	7.1	10.2	12.9	11.9	10.0	7.8	9.1	8.7	7.8
Crawfish	1.5	2.4	13.2	29.7	28.8	15.7	6.4	0.1	0.1	0.2	0.4	0.7
Catfish and Bullhead	6.2	6.8	9.2	9.2	10.4	9.2	8.5	8.9	7.8	8.0	8.2	6.6
Seatrout	10.9	8.8	6.1	6.7	14.1	8.7	9.3	4.1	1.6	5.7	9.9	13.3
Red Drum	14.1	9.6	6.0	3.8	2.8	3.1	8.3	6.1	5.7	7.8	17.3	13.0
Red Snapper	6.7	7.0	6.1	6.2	7.6	7.7	7.8	9.8	6.5	14.4	12.7	6.5

[a] A monthly breakdown of black mullet, black drum, and tuna landings is not provided due to a lack of a sufficient time-series data base.

constitute the major season for wild crawfish production in Louisiana as 87% of the total annual catch is reported during these months.

Landings of finfish species such as red drum, red snapper, and spotted seatrout peak also tend to vary by time of year. Seasons for these species are shown in Table 3.

Landings by Region

Relative growth in the commercial fishing sectors in the various regions of the state was examined by differentiating volume and value of state landings according to the area of the state in which they were landed (because of confidentiality laws, menhaden and unclassified landings were not included). Landings in the state were divided into four regions based on data availability: (1) the eastern coastal region, which includes the parishes of Tangipahoa, St. Tammany, St. Bernard, Orleans, Plaquemines, Jefferson, St. Charles, as well as Grand Isle; (2) the central coastal region, which includes the parishes of Lafourche, Terrebonne, Assumption, St. Mary, and Iberia; (3) the western coastal region, which includes Vermilion, Cameron, Jefferson Davis, and Calcasieu parishes; and (4) the inland region, which includes all state parishes in the Red River and Mississippi drainage systems (see Figure 11). The volume and value of commercial landings are generally largest in the central coastal region of the state, followed by those of the eastern coastal region, western coastal region, and inland region (Figures 12 and 13). Sustained growth in the volume of landings is most apparent in the eastern and central coastal regions.

Dockside prices tended to vary among the four regions, largely as a result of variations in the composition of landings. Throughout the 1960s and most of the 1970s, dockside prices tended to be highest in the western coastal region of Louisiana and lowest in the inland region of the state. However, since 1979 the dockside prices in the eastern and central coastal regions have exceeded dockside prices in the western coastal region.

COMMERCIAL FISHERMEN AND CRAFT IN LOUISIANA

Substantial resources in terms of both manpower and craft are required to harvest the finfish and shellfish landed in Louisiana each year. This section reviews growth in these two segments of the commercial fishing sector.

Commercial Fishermen in Louisiana

The total reported number of commercial fishermen in Louisiana gradually increased from 1960-80 (although the National Marine Fisheries Service continues to collect data on numbers of fishermen and craft, only data through 1980 have been released) (Figure 14). Throughout the 1960s,

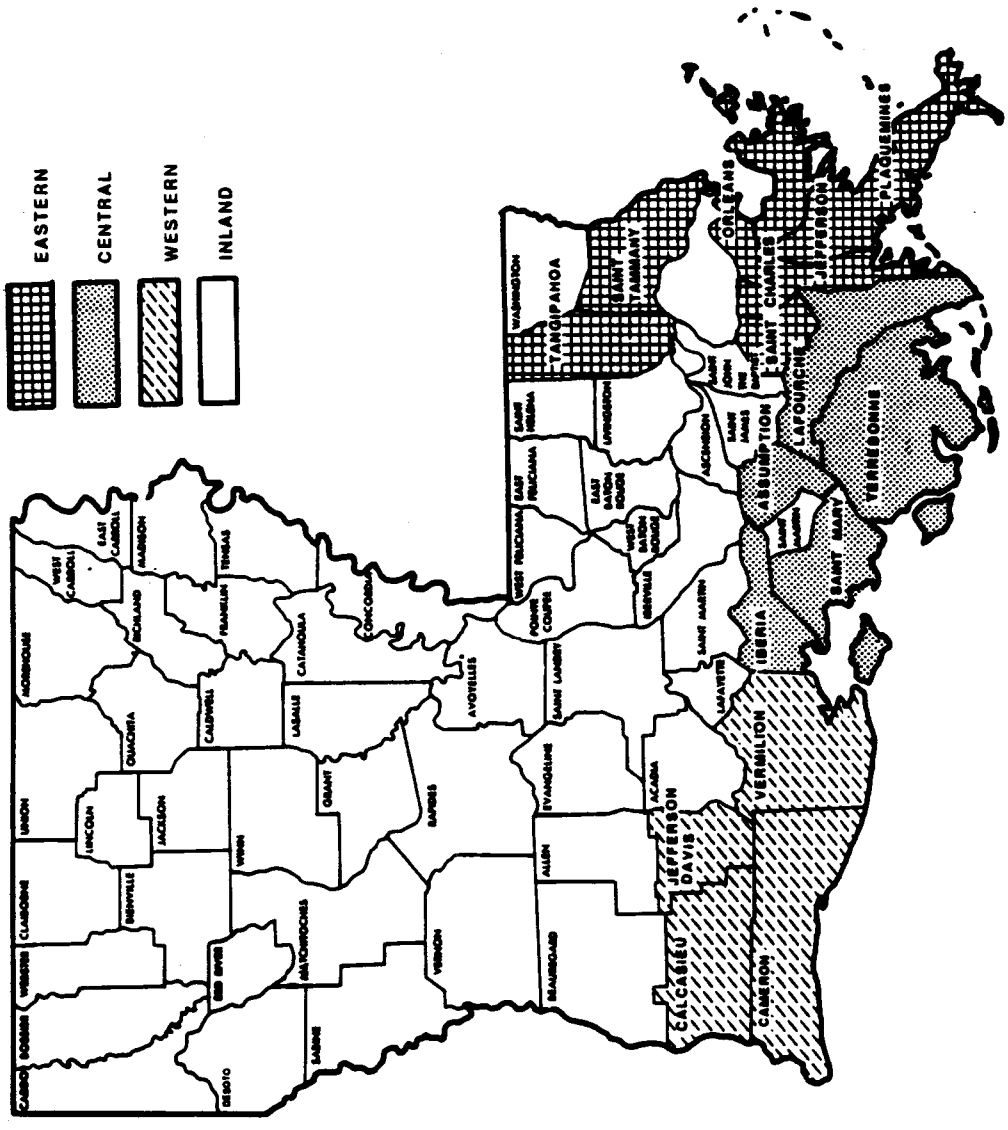

Fig.11. Louisiana commercial seafood landing districts.

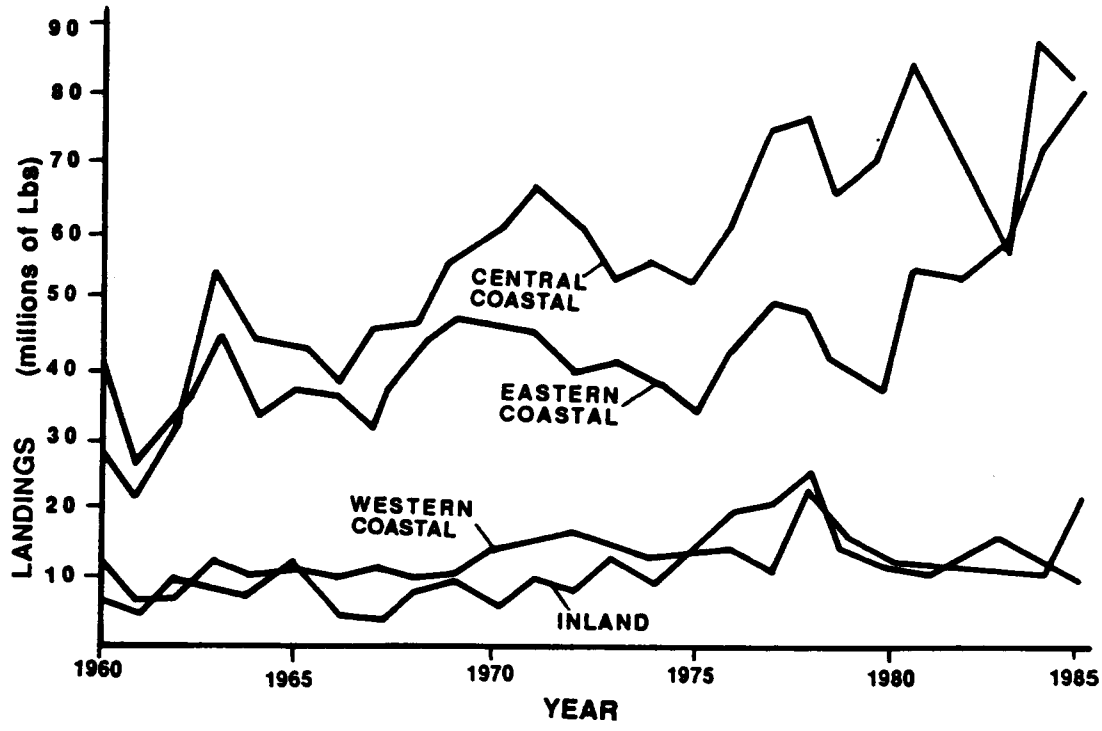

Fig. 12. Volume of Louisiana commercial landings by district (less menhaden and unclassified), 1960-85.

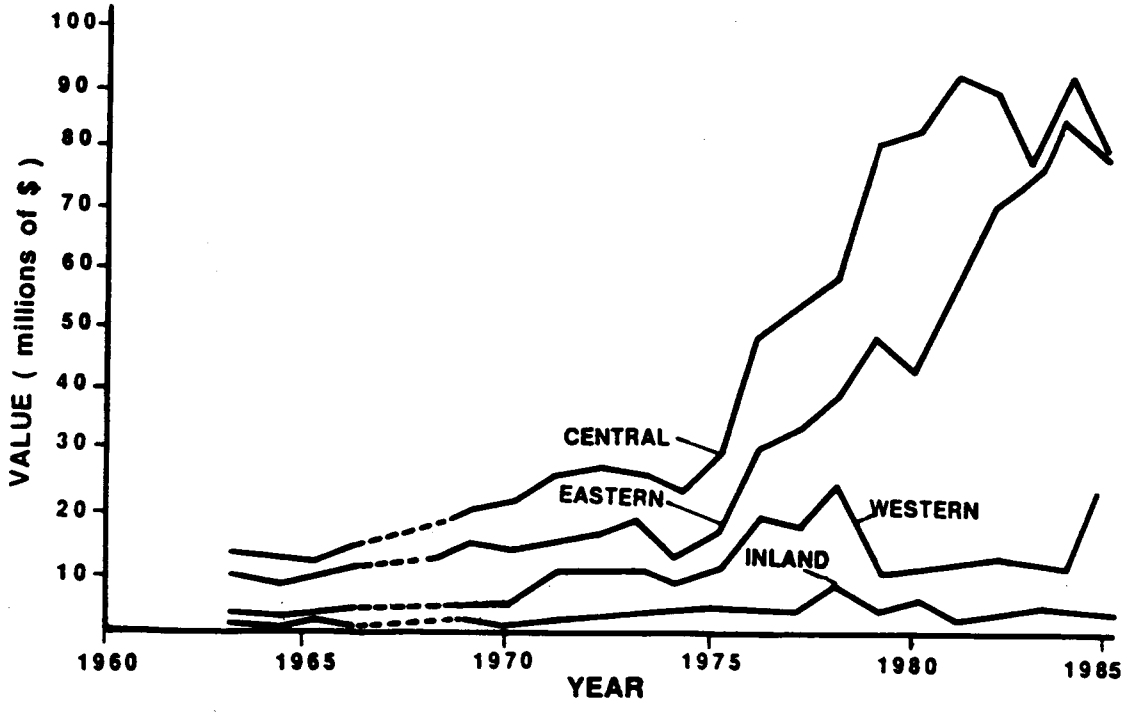

Fig. 13. Value of Louisiana commercial landings by district (less menhaden and unclassified), 1960-85.

an average of about 10,100 fishermen annually participated in the commercial harvesting of fish and shellfish in the state. During the 1970s, an average of about 12,186 commercial fishermen were active annually. Thus, about 20% more fishermen were directly employed in the harvesting of Louisiana's marine resources in the 1970s than during the 1960s[1].

Overall, the growth in the total number of commercial fishermen in the state was slow but consistent, except in 1980. In that year, the reported number of commercial fishermen increased to 15,039 from only 12,680 the previous year. Most of this expansion resulted from a large increase in the number of fishermen on boats and shore as opposed to an increase in the number of fishermen on vessels[2] (Figure 14). Throughout the 1960s and most of the 1970s, the number of fishermen on boats and shore approximated the number of fishermen on vessels. However, in 1980 8,063 commercial fishermen on boats and shore were reported, compared with only 6,976 commercial fishermen reported on vessels (Figure 14).

Commercial Fishing Craft in Louisiana

Commercial fishing craft in Louisiana also gradually increased throughout 1960-80 (Figure 15). Throughout the 1960s an average of 5,810 commercial craft were used annually to harvest the state's marine resources, and during the 1970s, an average of 6,804 craft were used annually. Thus, almost 17% more fishing craft were employed in the harvesting of Louisiana's marine resources during the 1970s than during the 1960s. The number of commercial fishermen per craft was vitually the same during the 1970s (1.78 per craft) as that observed in the 1960s (1.74 per craft).

Dividing the total number of fishing craft into boats and vessels shows that the number of commercial fishing vessels has traditionally averaged about 20%-30% of the total number of fishing craft in the state (Figure 15). However, because the fishing power of a vessel is greater than that of a boat, the value of state landings accounted for by vessels probably exceeds the value of those landed by boats, though this observation has not been documented.

LOUISIANA'S PROCESSING AND WHOLESALING INDUSTRY

Louisiana's seafood processing and wholesaling sectors perform many services. The main function of the seafood processor is taking the raw

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[1]Employment estimates provided by the National Marine Fisheries Service (NMFS) underestimate true employment because only those fishermen off-loading at traditional marketing channels (i.e., seafood wholesaling and processing establishments) will be included in NMFS official statistics.

[2]A vessel is defined as a craft with a gross weight of five or more tons. These craft must be Coast Guard-documented.

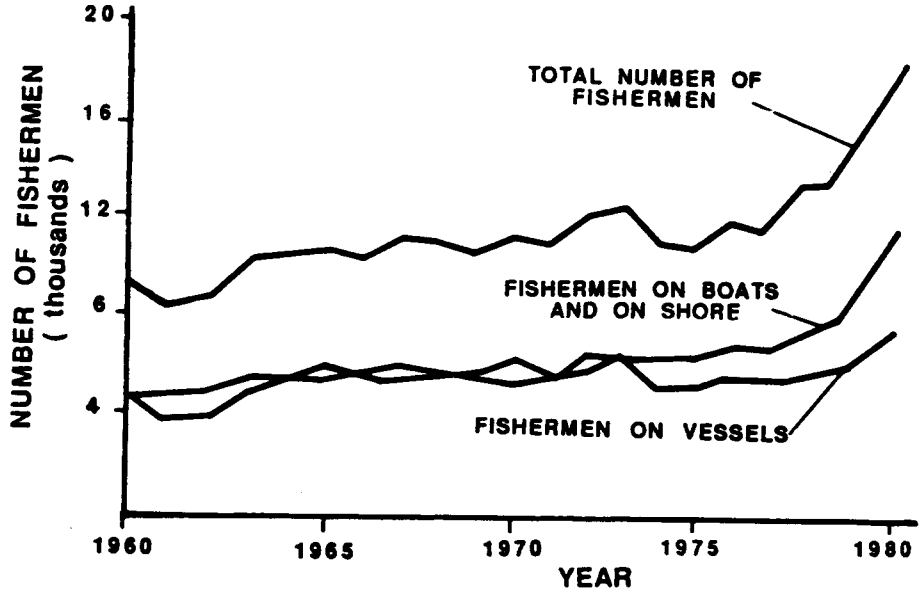

Fig. 14. Numbers of commercial fishermen on boats and shore and on vessels in Louisiana, 1960-80.

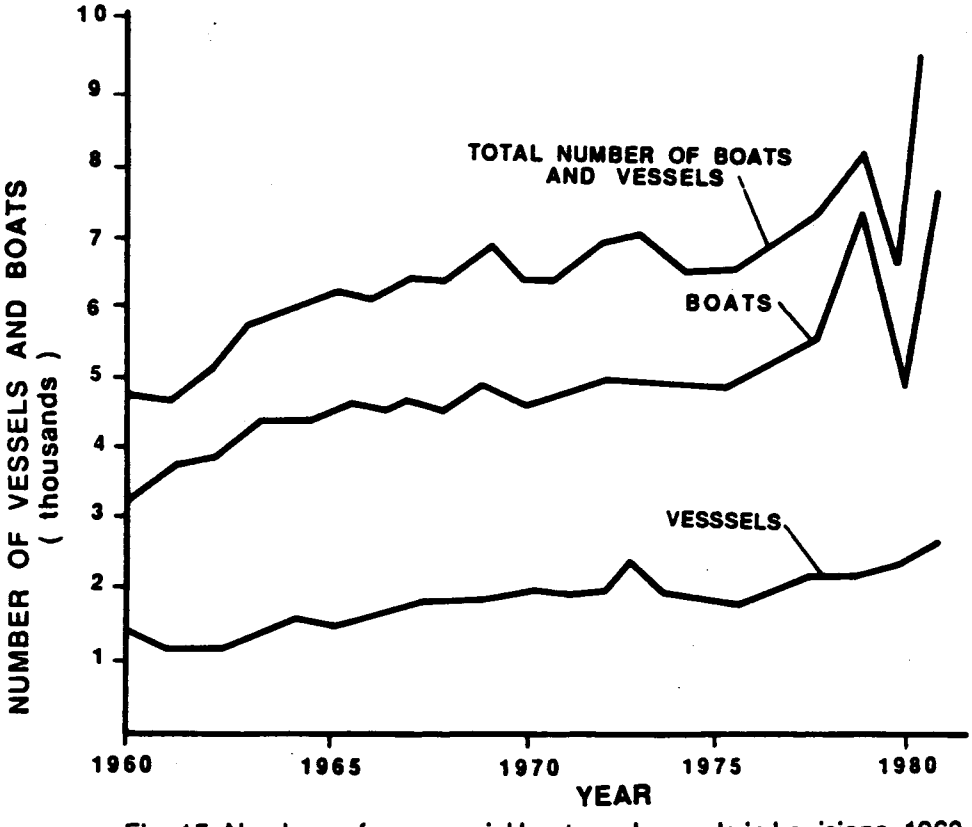

Fig. 15. Numbers of commercial boats and vessels in Louisiana, 1960-80.

seafood product (either landed in Louisiana or imported into the state) and transforming it into another product (i.e., fillets, steaks, canned seafood, etc.). The main function of the seafood wholesaler is distributing both the raw and transformed seafood products to the various seafood distributors and retail outlets in the state, country, and abroad. This section reviews aspects of the seafood processing and wholesaling sectors in Louisiana.

Seafood Processing and Wholesaling Establishments

More than 200 seafood processing and wholesaling establishments in Louisiana have annually provided employment for more than 3,000 individuals in recent years[3] (Figures 16 and 17). However, the seafood processing and wholesaling sectors, which provide the state with needed revenue and job opportunities, have grown only modestly in recent years. For example, during 1981-85, an annual average of 3,623 people were employed in the state's seafood processing and wholesaling sector, compared to 2,866 during 1960-64 (Figure 17). On a seasonal basis, employment has averaged more than 5,000 people during the most recent five year period. Furthermore, the number of seafood processing and wholesaling plants averaged 252 during 1981-85 compared to 207 during 1960-64 (Figure 16). Thus, yearly average employment in these sectors was 26% higher in 1981-85 than in 1960-64. The number of establishments increased 22%. These increases appear relatively small considering that the volume of state landings was 158% greater and the value 792% higher during 1982-86 than during 1960-64.

Although approximately as many seafood processing establishments as wholesaling establishments are reported in Louisiana (Figure 16), the seafood processing sector employs about 86% of the total labor force of these sectors (Figure 17). Whereas the seafood processing sector has typically employed an average of about 25 individuals per establishment, the wholesaling sector employs only about four (as noted, however, many establishments combining processing and wholesaling are classified as processors only). This is expected since much more labor is required in the processing than in the wholesaling of seafood.

The Value of Processed Seafood Products

The value of processed fishery products in Louisiana increased from an average of $47 million during 1960-64 to $254 million during 1981-85 (Figure 18). This 435% increase in the value of processed fishery

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[3] An establishment that processes and wholesales is classified only as a processor. Thus, the actual number of seafood wholesalers in Louisiana is larger than reported here. According to unpublished 1983 data, about 41% of the seafood establishments in Louisiana apparently combine processing and wholesaling.

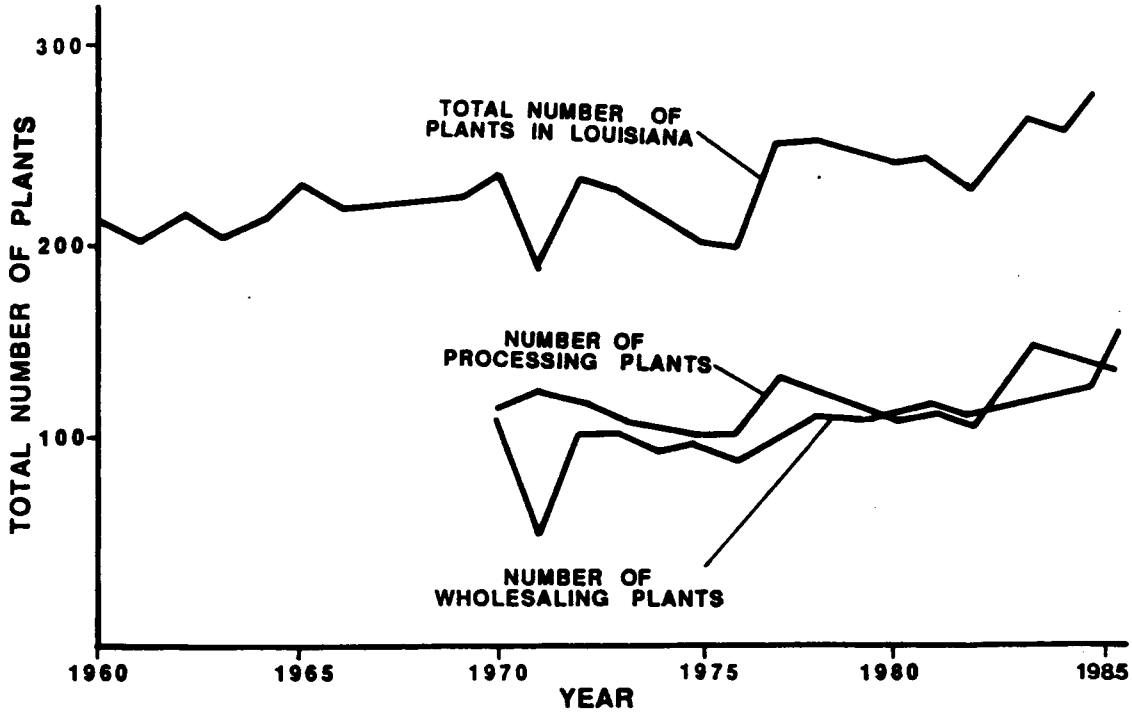

Fig. 16. Numbers of seafood processing and wholesaling plants in Louisiana, 1960-85.

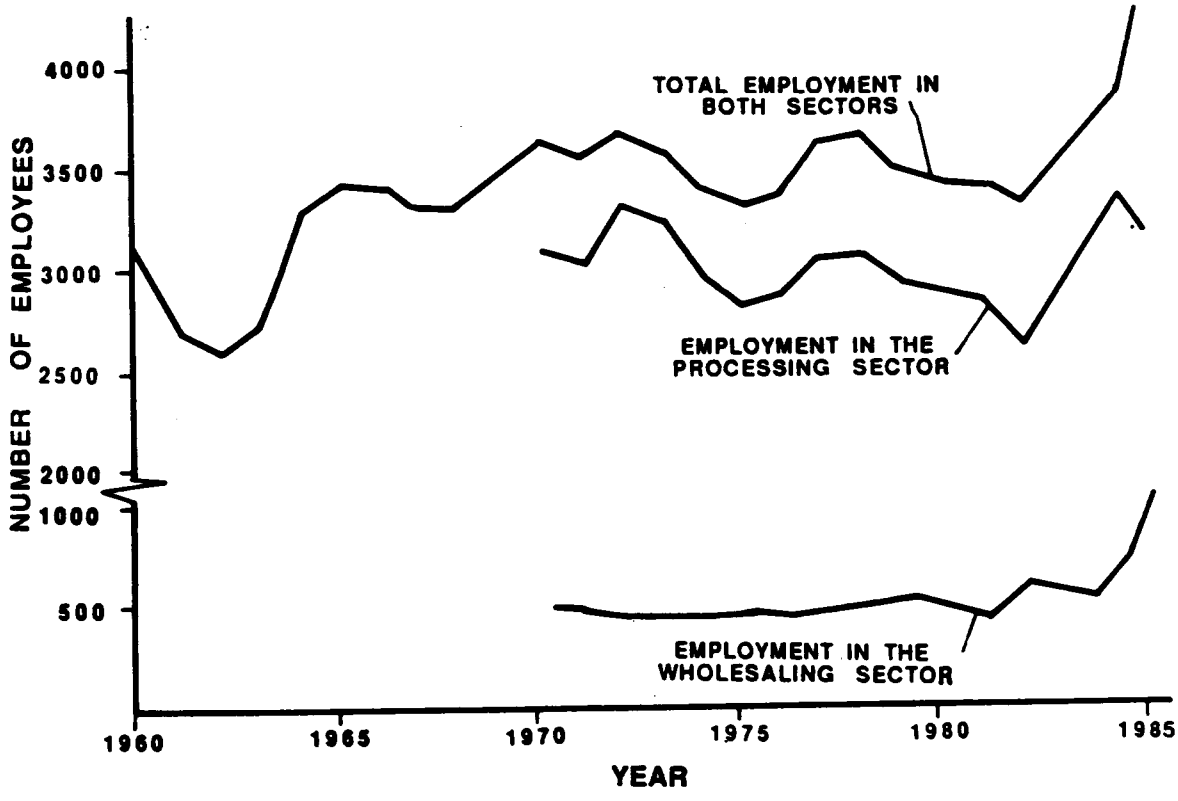

Fig. 17. Employment in the seafood processing and wholesaling sectors in Louisiana, 1960-85.

Table 4. Average value of landings and processed fishery products in Gulf States, 1982-85.

State	Value of landings ($1,000)	Value of processed products ($1,000)	Ratio of processed value to landings value
Florida west coast	118,621	367,141	3.10
Alabama	43,704	180,202	4.12
Mississippi	35,321	260,228	7.36
Louisiana	231,650	253,925	1.09
Texas	183,865	200,207	1.08

products is substantially less than the 792% increase in the value of state landings during the same period. During 1960-64 Louisiana contributed about 5% and 29% of the value of seafood products processed in the United States and Gulf region, respectively (Figure 19). During 1981-85, Louisiana accounted for about 5% of the total value of seafood products processed in the United States, and almost 20% of the value of processed fishery products produced in the Gulf region. The decline in Louisiana's contribution to the total value of Gulf region landings may indicate a corresponding decline in significance of Louisiana's seafood processing sector relative to those in other Gulf States.

The annual value of processed fishery products in Louisiana averaged $254 million during 1981-85. This value ranks Louisiana third when compared with the value of processed fishery products in the other Gulf States (Table 4). The west coast of Florida, on the other hand, processed $367 million in seafood annually during 1981-85 while Mississippi processed $260 million worth of fishery products. Alabama and Texas processed $180 and $200 million worth of processed fishery products, respectively.

Comparing the ratios of the value of processed fishery products with the value of seafood landings for each state in the Gulf region gives an indication of the strength of the processing sector in each state (Table 4). As indicated, the value of processed fishery products in Louisiana is only 1.09 times greater than the value of seafood landings in the state. On the other hand, the state of Mississippi processes seafood valued seven times greater than the value of its landings and has the highest processing-landings ratio among states in the Gulf region. The ratio of the value of the processed fishery products to the value of seafood landings is also comparatively high in Alabama and the west coast of Florida: Alabama processes seafood valued four times the value of its fishery landings while the west coast of Florida processes three times the value of its landings (Table 4). Only Texas has a lower processing-landings ratio than Louisiana among states in the Gulf region.

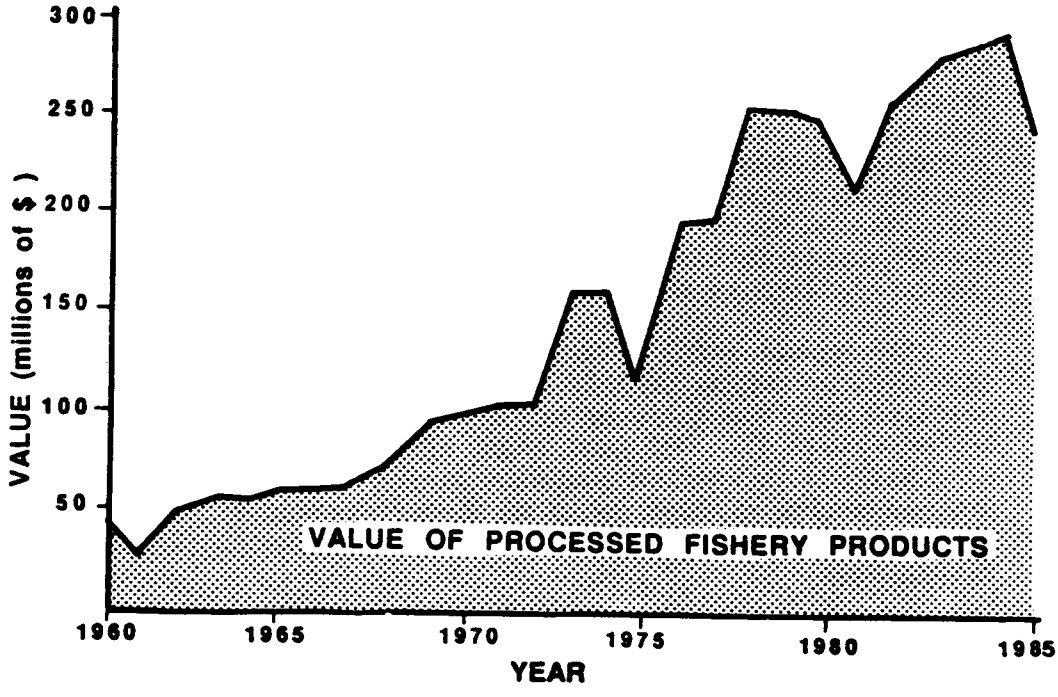

Fig. 18. Value of Louisiana's processed fishery products, 1960-85.

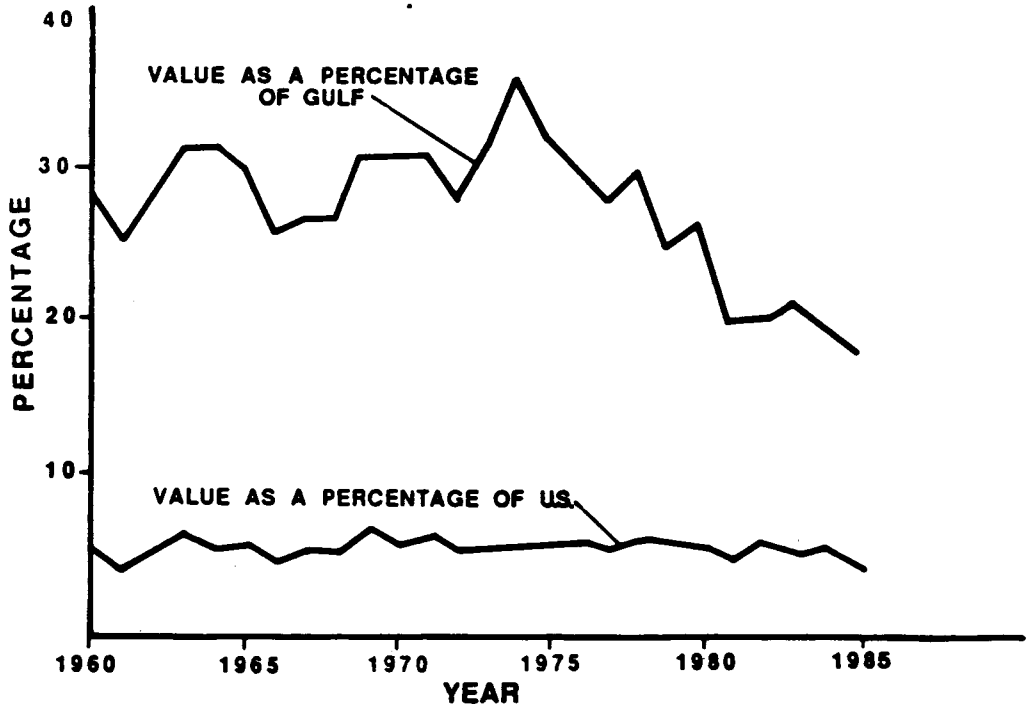

Fig. 19. Value of Louisiana's processed fishery products as a percentage of U.S. and Gulf value, 1960-85.

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Note: Various issues between 1960 and 1986 used for all references.

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APPENDIX A

DATA LISTINGS

Table 1A. Louisiana, Gulf region, and U.S. volume and value of commercial landings, 1960-86.

Year	Louisiana Landings		Gulf Landings		U.S. Landings	
	Quantity (1,000 lb)	Value ($1,000)	Quantity (1,000 lb)	Value ($1,000)	Quantity (1,000 lb)	Value ($1,000)
1960	566,411	25,949	1,265,950	85,459	4,942,229	353,565
1961	648,334	21,432	1,377,112	75,521	5,186,709	362,210
1962	766,540	28,923	1,437,410	94,504	5,354,185	396,428
1963	752,284	33,941	1,399,512	98,790	4,847,109	377,162
1964	696,140	33,585	1,317,834	99,298	4,540,622	389,498
1965	787,087	36,852	1,463,475	113,542	4,776,766	445,679
1966	656,834	38,979	1,196,168	122,581	4,365,894	472,354
1967	639,675	37,280	1,180,781	127,406	4,054,557	439,579
1968	754,502	42,125	1,288,908	138,968	4,159,702	497,257
1969	1,003,160	54,426	1,614,506	152,320	4,336,803	526,518
1970	1,107,251	61,072	1,698,104	166,581	4,917,220	613,145
1971	1,390,832	71,945	2,096,641	199,416	5,017,999	650,913
1972	1,072,255	71,693	1,587,908	224,462	4,805,682	747,973
1973	1,028,563	94,626	1,543,736	266,634	4,858,389	937,244
1974	1,223,444	85,841	1,775,799	242,226	4,966,529	932,464
1975	1,114,898	86,028	1,654,036	270,581	4,877,443	976,623
1976	1,218,579	135,188	1,742,620	386,432	5,387,727	1,349,371
1977	910,004	136,169	1,482,432	408,380	5,270,559	1,553,556
1978	1,673,922	190,167	2,286,998	473,227	6,027,700	1,854,500
1979	1,529,081	198,508	2,128,903	530,145	6,267,152	2,233,679
1980	1,423,374	177,994	1,979,115	463,205	6,482,354	2,237,202
1981	1,168,597	193,549	1,699,821	553,730	5,977,069	2,387,739
1982	1,718,668	239,883	2,300,414	613,942	6,367,310	2,389,993
1983	1,800,183	230,285	2,442,991	615,574	6,438,724	2,355,446
1984	1,931,027	265,402	2,643,571	655,771	6,437,783	2,350,462
1985	1,704,498	229,134	2,412,485	596,806	6,257,642	2,326,237
1986	1,699,321	321,514	2,367,870	781,235	6,030,634	2,762,823

Sources: Values for 1960-77 taken from Fishery Statistics of the United States (various issues). Values for 1978-86 taken from Fisheries of the United States (various issues).

Table 2A. Volume and value of Louisiana commercial landings of edible and nonedible species, 1960-86.

	Edible Landings						Nonedible Landings[a]	
	Volume (1,000 lb)			Value ($1,000)			Volume	Value
	Shellfish	Finfish	Total	Shellfish	Finfish	Total	(1,000 lb)	($1,000)
1960	81,400	9,626	91,026	19,145	1,617	20,762	475,385	5,187
1961	54,743	11,312	66,055	12,743	1,933	14,676	582,279	6,756
1962	64,478	10,686	75,164	19,079	1,821	20,900	691,376	8,023
1963	101,612	10,193	111,805	24,262	1,729	25,991	640,479	7,950
1964	78,060	10,354	88,414	22,552	1,884	24,436	607,726	9,149
1965	82,242	9,213	91,455	23,035	1,860	24,895	695,632	11,957
1966	76,519	9,038	85,557	27,398	1,807	29,205	571,277	9,774
1967	92,420	10,703	103,123	28,923	1,699	30,622	536,552	6,658
1968	92,750	8,154	100,904	32,310	1,619	33,929	653,598	8,196
1969	106,929	10,063	116,992	39,178	2,030	41,208	886,168	13,218
1970	111,306	10,023	121,329	39,664	2,084	41,748	985,922	19,324
1971	116,889	12,573	129,462	49,641	1,880	51,521	1,262,370	20,424
1972	109,536	9,628	119,164	53,983	2,051	56,034	953,091	15,659
1973	95,358	11,339	106,697	53,863	2,785	56,648	921,866	37,978
1974	93,861	11,616	105,477	42,557	2,977	45,534	1,117,967	40,307
1975	88,717	12,500	101,217	52,355	3,588	55,943	1,013,681	30,085
1976	111,856	14,374	126,230	92,653	4,289	96,942	1,092,349	38,246
1977	131,077	13,609	144,686	102,187	4,803	106,990	765,318	29,179
1978	148,046	22,010	170,056	122,362	6,423	128,785	1,510,013	64,578
1979	119,491	18,140	137,631	142,731	5,490	148,221	1,398,096	60,460
1980	121,067	16,203	137,270	139,308	6,528	145,836	1,283,935	57,811
1981	139,864	20,203	160,067	158,956	7,442	166,398	1,025,519	39,258
1982	128,418	19,642	148,060	170,197	7,870	178,067	1,581,910	61,938
1983	120,546	22,744	143,290	160,011	10,766	170,777	1,755,984	69,889
1984	144,872	22,562	167,434	181,627	12,812	194,439	1,756,617	68,812
1985	153,176	22,927	176,103	158,434	14,730	173,164	1,528,395	55,970
1986	204,882	36,261	241,143	245,849	24,835	270,684	1,459,448	53,561

Sources: Values for 1960-78 derived from Louisiana Landings, Annual Summary (various issues). Values for 1978-86 derived from unpublished data provided by the National Marine Fisheries Service.

[a]Includes menhaden, shad, and carp.

Table 3A. Louisiana commercial landings of major species, 1960-86.

Year	Shrimp (heads on)		Menhaden		Oysters (meat)		Blue Crabs (Hard)	
	Volume (1,000 lb)	Value ($1,000)	Volume (1,000 lb)	Value ($1,000)	Volume (1,000 lb)	Value ($1,000)	Volume (1,000 lb)	Value ($1,000)
1960	61,758	15,881	470,108	5,139	8,311	2,304	10,050	497
1961	31,027	8,913	581,682	6,748	10,139	2,849	11,910	514
1962	43,585	14,985	689,157	7,994	10,160	3,317	9,523	463
1963	80,809	19,789	633,484	7,862	11,563	3,721	7,982	447
1964	59,382	18,794	599,538	9,046	11,401	2,976	5,692	379
1965	62,593	19,584	682,435	11,790	8,343	2,402	9,284	635
1966	62,269	24,388	555,852	9,558	4,764	2,156	7,986	537
1967	75,317	24,573	510,414	6,134	7,743	3,414	7,559	520
1968	67,768	25,623	622,291	7,740	13,122	5,305	9,551	807
1969	82,881	33,356	856,251	12,764	9,178	3,969	11,602	1,072
1970	90,939	34,612	959,810	18,931	8,639	3,631	10,254	928
1971	92,476	43,284	1,237,093	20,015	10,528	4,638	12,186	1,256
1972	83,032	47,064	928,252	15,279	8,805	4,457	15,083	1,777
1973	58,646	44,511	894,931	37,221	8,953	5,544	23,080	2,811
1974	59,581	32,202	1,079,304	39,539	9,972	6,348	20,640	2,701
1975	53,134	40,968	984,106	29,379	13,687	7,174	17,144	2,510
1976	82,355	79,688	1,057,077	37,104	12,334	9,092	15,211	3,061
1977	104,045	87,183	756,752	28,892	10,065	10,363	16,154	3,765
1978	104,385	100,847	1,508,744	64,504	9,661	12,163	15,074	3,189
1979	78,449	122,681	1,396,706	60,329	7,712	10,880	21,333	4,776
1980	90,102	120,977	1,283,418	57,766	6,946	11,298	18,182	4,327
1981	112,312	136,464	1,024,611	39,175	9,091	16,151	16,236	4,468
1982	90,531	143,697	1,580,150	61,774	12,621	17,009	17,284	4,843
1983	76,953	130,911	1,753,807	69,667	13,223	17,610	19,616	6,366
1984	106,354	153,230	1,756,285	68,779	13,488	24,476	29,617	8,191
1985	116,435	134,985	1,528,133	55,946	14,347	23,758	29,848	8,386
1986	146,681	206,355	1,459,153	53,536	12,653	24,384	31,611	9,301

(Continued)

Table 3A. (Continued)

Year	Freshwater Crawfish		Catfish and Bullheads		Seatrout (Spotted)		Red Drum	
	Volume	Value	Volume	Value	Volume	Value	Volume	Value
	(1,000 lb)	($1,000)	(1,000 lb)	($1,000)	(1,000 lb)	($1,000)	(1,000 lb)	($1,000)
1960	717	157	5,947	1,156	417	92	428	63
1961	1,018	148	6,412	1,314	537	123	666	97
1962	829	136	6,185	1,272	309	73	567	88
1963	892	134	6,006	1,229	380	88	466	79
1964	1,340	238	6,070	1,425	290	68	312	50
1965	1,785	254	5,055	1,339	398	100	471	83
1966	1,324	218	4,205	1,169	647	154	532	91
1967	1,619	282	3,730	1,040	621	131	654	109
1968	1,994	355	3,397	978	619	153	741	102
1969	3,027	600	4,313	1,215	720	215	782	114
1970	1,351	403	4,227	1,214	786	217	789	127
1971	1,542	329	3,351	952	1,122	297	724	137
1972	2,505	572	3,459	960	1,700	447	889	157
1973	4,553	860	4,248	1,279	2,528	775	1,184	229
1974	3,565	1,176	4,950	1,559	2,125	636	1,436	297
1975	4,637	1,545	6,041	2,047	1,897	696	1,362	330
1976	1,862	664	6,888	2,401	1,611	714	2,212	600
1977	572	295	8,447	3,190	1,086	528	1,436	497
1978	18,633	5,685	8,683	3,548	682	392	1,218	532
1979	11,717	3,958	5,983	2,618	798	566	1,056	563
1980	5,591	3,226	5,528	2,689	604	474	724	422
1981	1,985	1,517	5,231	2,693	586	567	898	646
1982	7,676	4,074	5,891	2,825	727	652	1,454	953
1983	10,568	4,747	6,059	2,633	1,340	1,219	1,938	1,403
1984	12,156	4,098	5,506	2,607	973	1,062	2,608	2,185
1985	9,824	3,582	5,665	2,674	1,161	1,255	2,933	2,785
1986	16,680	7,070	6,909	3,210	1,978	1,675	7,817	5,707

(Continued)

Table 3A. (Continued)

Year	Black Drum		Black Mullet	
	Volume (1,000 lb)	Value ($1,000)	Volume (1,000 lb)	Value ($1,000)
1960	190	11	22	1
1961	388	20	12	(1)
1962	309	19	8	(1)
1963	344	22	19	1
1964	306	23	22	1
1965	195	17	7	(1)
1966	247	20	10	(1)
1967	264	17	6	(1)
1968	360	25	74	3
1969	478	32	88	3
1970	434	33	38	2
1971	506	36	8	(1)
1972	540	38	16	1
1973	542	45	103	5
1974	440	42	50	3
1975	276	29	213	29
1976	579	69	57	4
1977	583	82	595	47
1978	580	116	1,991	144
1979	536	98	1,416	141
1980	471	93	204	24
1981	2,889	612	3,051	711
1982	1,690	573	1,533	306
1983	1,858	703	1,886	552
1984	1,975	1,042	3,157	1,000
1985	3,421	1,018	579	202
1986	5,225	1,837	2,277	1,192

(Continued)

Table 3A. (Continued)

Year	Tuna		Red Snapper	
	Volume (1,000 lb)	Value ($1,000)	Volume (1,000 lb)	Value ($1,000)
1960	---	---	426	104
1961	---	---	677	150
1962	---	---	694	157
1963	---	---	388	95
1964	---	---	310	78
1965	---	---	243	57
1966	---	---	208	59
1967	---	---	302	78
1968	---	---	277	73
1969	---	---	130	35
1970	---	---	225	71
1971	---	---	162	54
1972	---	---	259	97
1973	---	---	354	144
1974	---	---	286	139
1975	---	---	151	74
1976	---	---	58	39
1977	---	---	99	70
1978	---	---	71	59
1979	---	---	176	199
1980	---	---	201	272
1981	---	---	421	645
1982	---	---	468	685
1983	---	---	718	1,207
1984	---[a]	---[a]	1,487	2,480
1985	283	442	1,214	2,524
1986	2,618	3,750	1,358	3,007

Sources: Values for 1960-77 taken from Fishery Statistics of the United States (various issues). Values for 1978-86 taken from unpublished data provided by the National Marine Fisheries Service.

[a]Catch is less than 500 lbs and value is less than $500.

Table 4A. Volume and value of landings by region (less menhaden and unclassified), 1960-85.[a]

Year	Eastern Coastal		Central Coastal		Western Coastal		Inland	
	Volume (1,000 lb)	Value ($1,000)	Volume (1,000 lb)	Value ($1,000)	Volume (1,000 lb)	Value ($1,000)	Volume (1,000 lb)	Value ($1,000)
1960	30,242	-	44,841	-	12,670	-	7,030	-
1961	21,392	-	26,887	-	6,498	-	5,998	-
1962	33,701	-	33,967	-	7,741	-	9,854	-
1963	45,473	9,906	54,323	12,423	12,033	3,663	8,378	1,254
1964	34,641	8,803	43,581	12,390	10,214	3,244	7,445	1,100
1965	37,038	9,693	42,671	11,692	11,727	3,507	11,888	1,532
1966	36,168	10,931	38,790	14,010	10,634	4,265	5,971	902
1967	34,633	---	47,703	---	11,389	---	3,232	---
1968	44,411	13,138	45,778	16,094	10,750	4,698	8,316	1,458
1969	49,242	15,277	55,945	20,278	11,822	5,654	9,580	1,734
1970	47,569	14,065	59,586	21,012	14,211	6,673	6,869	1,412
1971	45,618	15,050	65,891	26,457	17,947	10,015	10,464	1,881
1972	39,750	16,383	61,146	28,340	18,266	11,272	8,987	1,616
1973	40,246	18,637	52,202	26,577	14,139	11,400	12,234	2,251
1974	37,770	13,826	54,849	23,551	12,878	8,159	9,976	2,269
1975	34,770	16,114	52,588	28,755	13,920	11,078	13,378	2,957
1976	45,272	28,988	61,996	48,378	19,113	19,585	13,749	3,208
1977	51,408	33,904	73,090	54,744	21,596	18,447	10,082	2,615
1978	48,303	39,037	73,988	58,602	25,770	24,969	23,155	6,165
1979	42,643	52,967	66,141	80,225	16,381	10,579	13,329	4,743
1980	38,685	44,417	72,652	82,855	13,439	11,147	12,780	7,460
1981	54,649	58,715	84,223	92,064	12,718	12,587	9,360	3,112
1982	54,368	70,514	70,031	89,703	12,442	13,759	12,962	4,252
1983	59,824	76,108	58,700	77,154	11,487	12,369	15,289	5,351
1984	74,152	84,712	88,490	92,850	11,438	12,223	11,634	3,726
1985	77,748	76,473	82,829	77,668	22,983	28,409	10,298	3,266

Sources: Values for 1960-78 taken from Louisiana Landings, Annual Summary (various issues). Values for 1979-85 derived from unpublished data provided by the National Marine Fisheries Service.

[a]Summation of regional poundage and value may not equal total edible landings due to use of different data sources and exclusion of inland landings in other data sources.

Table 5A. Number of commercial fishermen and commercial craft in Louisiana, 1960-80.

Year	Fishermen				Craft		
	On Vessels	On Boats and Shore		Total	Boats[a]	Vessels	Total
		Regular	Casual				
1960	4,888	3,665	826	9,379	3,357	1,415	4,772
1961	3,787	3,540	1,090	8,417	3,623	1,131	4,754
1962	3,803	3,514	1,296	8,613	3,926	1,117	5,043
1963	4,840	3,812	1,553	10,205	4,326	1,498	5,824
1964	5,072	3,752	1,583	10,407	4,417	1,602	6,019
1965	5,028	3,705	1,823	10,556	4,639	1,585	6,224
1966	5,151	3,605	1,767	10,523	4,544	1,616	6,160
1967	5,445	3,633	1,984	11,062	4,666	1,698	6,364
1968	5,476	3,566	1,958	11,000	4,560	1,734	6,294
1969	5,538	3,421	1,970	10,929	4,881	1,766	6,647
1970	6,094	3,384	1,744	11,222	4,381	1,955	6,336
1971	5,838	3,382	1,868	11,088	4,462	1,808	6,270
1972	5,839	3,860	2,315	12,014	4,880	1,908	6,788
1973	6,494	3,861	2,293	12,648	4,862	2,185	7,047
1974	5,294	3,820	2,266	11,380	4,864	1,724	6,588
1975	5,186	3,915	2,247	11,348	4,851	1,670	6,521
1976	5,639	4,094	2,427	12,160	4,987	1,837	6,824
1977	5,674	3,994	2,424	12,092	5,193	1,930	7,123
1978	5,784	4,156	2,440	12,380	5,547	1,909	7,456
1979	6,361	4,149	2,170	12,680	4,369	2,142	6,511
1980	6,976	5,153	2,910	15,039	5,029	2,357	7,386

Sources: Values for 1960-77 taken from Fisheries Statistics of the United States (various issues). Data for 1978-80 is taken from unpublished data provided by the National Marine Fisheries Service.

[a]Includes both motor and other boats.

Table 6A. Numbers of seafood processing and wholesaling plants with yearly and seasonal employment averages in Louisiana, 1960-85.

Year	Processing Sector			Wholesaling Sector			Total		
	Plants	Season	Employment Average (yearly)	Plants	Season	Employment Average (yearly)	Plants	Season	Employment Average (yearly)
1960	---	---	---	---	---	---	205	---	3,071
1961	---	---	---	---	---	---	201	---	2,677
1962	---	---	---	---	---	---	213	---	2,577
1963	---	---	---	---	---	---	202	---	2,717
1964	---	---	---	---	---	---	212	---	3,290
1965	---	---	---	---	---	---	228	---	3,430
1966	---	---	---	---	---	---	218	---	3,412
1967	---	---	---	---	---	---	216	---	3,367
1968	---	---	---	---	---	---	218	---	3,357
1969	---	---	---	---	---	---	223	---	3,439
1970	122	4,612	3,177	113	643	491	235	5,255	3,668
1971	128	4,699	3,112	51	607	468	179	5,306	3,580
1972	124	4,775	3,262	105	538	410	229	5,313	3,672
1973	118	4,807	3,233	108	489	391	226	5,296	3,624
1974	112	4,242	2,953	99	443	358	211	4,685	3,311
1975	104	3,780	2,733	101	460	396	205	4,240	3,129
1976	109	3,958	2,865	91	503	397	200	4,461	3,262
1977	139	4,676	3,103	111	566	457	250	5,242	3,560
1978	136	4,611	2,979	115	617	498	251	5,228	3,638
1979	127	4,266	2,979	115	662	515	242	4,928	3,494
1980	117	4,228	2,853	121	580	478	238	4,808	3,331
1981	121	4,362	2,813	123	571	470	244	4,933	3,283
1982	113	3,955	2,648	115	645	524	228	4,600	3,172
1983	142	4,727	3,163	119	601	488	261	5,328	3,651
1984	132	4,687	3,222	118	628	509	250	5,315	3,731
1985	130	4,504	3,180	148	1,274	1,098	278	5,778	4,278

Sources: Values for 1960-77 taken from Fisheries Statistics of the United States (various issues). Values for 1978-85 taken from Processed Fishery Products (various issues).

Table 7A. Value of processed fishery products in Louisiana, the Gulf States, and the United States,[a] 1960-85.

Year	Louisiana	Gulf States	United States
		$1,000's	
1960	41,832	149,193	812,847
1961	35,432	143,870	876,659
1962	48,202	169,853	958,825
1963	56,127	174,201	914,492
1964	55,173	173,233	964,720
1965	62,890	207,990	1,117,958
1966	58,253	219,582	1,231,316
1967	68,211	249,981	1,219,711
1968	74,776	274,780	1,389,879
1969	95,838	309,610	1,487,900
1970	102,417	325,716	1,726,514
1971	113,254	361,812	1,852,031
1972	105,296	382,572	2,268,641
1973	160,243	507,589	2,754,411
1974	156,526	434,050	2,756,348
1975	133,514	418,221	2,650,973
1976	191,316	661,897	3,488,841
1977	198,671	737,788	3,965,236
1978	257,932	899,052	4,467,311
1979	250,670	1,042,141	4,479,486
1980	244,406	921,674	4,456,476
1981	208,599	1,044,274	4,887,728
1982	262,987	1,207,320	4,509,190
1983	273,324	1,295,349	5,070,518
1984	280,500	1,403,407	5,210,897
1985	244,215	1,357,167	5,000,000

Sources: Values for 1960-77 taken from Fishery Statistics of the United States (various issues). Data for 1978-85 taken from Processed Fishery Products (various issues).

[a]Includes American Samoa and Puerto Rico.

APPENDIX B

TREND ANALYSES

A. Total Louisiana commercial landings

$$TL = 477{,}079 + 48{,}246T \qquad (R^2 = 0.82)$$
$$(73{,}642) \quad (4{,}597)$$

where,

TL = total commercial landings (1,000 lb)

T = trend variable (T = 1, 2, ..., 27)

B. Louisiana edible and nonedible commercial landings

1. edible landings

$$EL = 67{,}756 + 4{,}065T \qquad (R^2 = 0.75)$$
$$(7{,}693) \quad (480)$$

where,

EL = edible commercial landings (1,000 lb)

T = trend variable (T = 1, 2, ..., 27)

2. nonedible landings

$$NEL = 409{,}292 + 44{,}183 \qquad (R^2 = 0.79)$$
$$(73{,}465) \quad (4{,}586)$$

where,

NEL = nonedible commercial landings (1,000 lb)

T = trend variable (T = 1, 2, ..., 27)

C. Louisiana commercial landings of specific species

1. shrimp landings

$SL = 47{,}927 + 2{,}327T \qquad (R^2 = 0.55)$

$\qquad\quad (6{,}715) \quad (419)$

where,

SL = commercial shrimp landings (1,000 lb)

T = trend variable (T = 1, 2, ..., 27)

2. menhaden landings

$ML = 389{,}629 + 44{,}628T \qquad (R^2 = 0.79)$

$\qquad\quad (74{,}556) \quad (4{,}654)$

where,

ML = commercial menhaden landings (1,000 lb)

T = trend variable (T = 1, 2, ..., 27)

3. oyster landings

$OL = 8{,}650 + 114T \quad (R^2 = 0.15)$

$\qquad\quad (871) \quad (54)$

where,

OL = commercial oyster landings (1,000 lb)

T = trend variable (T = 1, 2, ..., 27)