## NOAA TECHNICAL MEMORANDUM

## NMFS-SEFSC-354

## FISHING TRENDS AND CONDITIONS IN THE SOUTHEAST REGION 1993

Kim Newlin, Editor


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Contributors
Ken Harris, Nelson Johnson, Glenwood Montgomery, John Devane, Dick Dumas, Claudia Dennis, Howard Schaefer, Guy Davenport, Josh Bennett, Ed Little, Tom Herbert, Guy Pizzuti, Debbie Fable, Ted Flowers, Gary Rousse, Kathleen IIebert, Linda Picou, Lee Usie, Rene Labadens, Margaret Bourgeios, Billy Tucker, Karen Swank, Linda Trahan, Margot Hightower, Tom Mauermann, Tom Scott, Roy Spears, Kit Doncaster, Edie Lopez, Beany Slater, Steve Meyers and Daniel Matos.

U. S. DEPARTMENT OF COMMERCE Ronald H. Brown, Secretary<br>National Oceanic and Atmospheric Administration<br>D. James Baker, Administrator<br>National Marine Fisheries Service<br>Rolland A. Schmitten,<br>Assistant Administrator for Fisheries<br>Southeast Fisheries Science Center<br>Bradford E. Brown, Science Director<br>Miami, Florida 33149

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ABSTRACT: This report provides first-hand information on the fishing trends and conditions in the commercial and recreational fisheries of the southeastern United States during 1993. The information and text were provided by Federal and State fishery reporting specialists that are located in major fishing ports in the southeastern region.

Copies may be obtained by writing:
Mr. Kim Newlin
National Marine Fisheries Service
Southeast Fisheries Science Center or
75 Virginia Beach Drive
Miami, FL 33149

National Technical Information Service
5258 Port Royal Road
Springfield, VA 22161

This report provides first-hand information on the trends and conditions in the commercial and recreational fisheries of the southeastern United States during 1993. The information and text are by Federal and State fishery reporting specialists that are located in major fishing ports in the southeast region. The statements on trends and conditions in this report are based on anecdotal information and do not represent analyzed data. The report also includes preliminary data on the commercial and recreational fishery landings for 1993.

The Southeast Fisheries Science Center gratefully acknowledges the exemplary work of the fishery reporting specialists in collecting fishery statistics for conservation and management purposes. These individuals are the NMFS's liaison with rank-and-file fishermen and seafood dealers. Their willingness to work with the industry and their efforts in collecting the data necessary for a better understanding of the fisheries are greatly appreciated.

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Please address all comments or questions to:
Research Management Division
Southeast Fisheries Science Center
National Marine Fisheries Service
75 Virginia Beach Drive
Miami, Florida 33149

## 1993 FISHING TRENDS AND CONDITIONS IN THE SOUTHEAST REGION

This report contains information on conditions and developments in the fishing industries in the southeastern United States during 1993. The landings and value data in the report are preliminary and subject to change.

## Southeast Regional Summary

Commercial landings of fish and shellfish in the southeastern region of the United States in 1993 increased 336.1 million pounds $(21 \%)$ from 1992. This was mainly due to an increase in menhaden catch of 279.8 million pounds. The 1993 ex-vessel value of the total landings was $\$ 792.1$ million, down $1 \%$ from 1992. Louisiana led the other southeast states with total landings of $1,292.9$ million pounds valued at $\$ 261.8$ million. Louisiana this year had the highest shrimp landings ( 87.8 million pounds) worth $\$ 144.4$ million in ex-vessel value. The most valuable fishery in the southeastern region was the shrimp fishery with 206.4 million pounds and an ex-vessel value of $\$ 335.4$ million.

As in past years, menhaden led other species in volume with $1,135.8$ million pounds landed. The Spanish mackerel fishery experienced the most dramatic increase in landings, a $45 \%$ increase in landings (to 4.8 million pounds) with a value of $\$ 2.0$ million( a $111 \%$ increase). The next most dramatic increase in poundage was in the Florida spiny lobster fishery whose landings increased $42 \%$ (to 5.6 million pounds) and whose value increased $24 \%$ (to $\$ 18.1$ million). It should be noted that the Florida spiny lobster landings account for $92 \%$ of the total U. S. catch. The overall average ex-vessel price per pound was $\$ 3.45$ in 1993 compared with $\$ 4.13$ in 1992. It is believed this decrease in average price/lb was due to the large increase in landings. The next largest increase in landings was the grouper fishery whose landings increased $28 \%$ (to 14.1 million pounds) and whose value increased $30 \%$ to $\$ 28.1$ million. The sharpest decline in landings was for tuna which were down $30 \%$ to 8.6 million pounds. The 1993 shrimp landings were down for the second year in a row, $7 \%$ by weight, but down $14 \%$ in exvessel value to $\$ 335.4$ million. Stone crab landings were up $23 \%$. Georgia recorded the largest percentage decrease in landings in $1993(11 \%)$ and a corresponding decrease in value of $\$ 1.7$ million, or approximately $8 \%$. Louisiana recorded the largest percentage increase in landings of $32 \%$ (mostly menhaden) but had an overall decrease in value of $5 \%$.

Recreational landings of fish in the southeastern region of the United States in 1993 decreased from 1992. The decrease from 184.7 to 179.6 million fish was $2.8 \%$. The primary species caught were spotted seatrout, scaled sardine, pinfish, hardhead catfish, red drum, Atlantic croaker, sheepshead, white grunt, gray snapper, Spanish mackerel, striped mullet, black sea bass, spot, crevalle jack, sand seatrout, ladyfish, bluefish and red grouper. The Gulf led the Southeast with 135.5 million fish of the 179.6 million fish
caught.

Table 1. Change in the preliminary commercial landings and values of fish and shellfish in the southeastern states from 1992 to 1993.

| State | 1993 |  | CHANGE (1992 to 1993) |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | THOUSAND POUNDS | THOUSAND DOLLARS | THOUSAND POUNDS | THOUSAND DOLLARS | $\begin{gathered} \text { POUNDS } \\ \% \end{gathered}$ | $\begin{gathered} \text { DOLLARS } \\ \% \end{gathered}$ |
| NC | 164,883 | \$57,890 | 10,848 | \$ 432 | 7 | 1 |
| SC | 18,843 | \$25,843 | (429) | \$222 | (2) | 1 |
| GA | 15,743 | \$21,231 | $(1,877)$ | (\$1,726) | (11) | (8) |
| FL-EC | 50,877 | \$56,350 | 4,084 | \$10,349 | 9 | 22 |
| S.A. REGION | 250,346 | \$161,314 | 12,626 | \$9,277 | 5 | 6 |
| FL-WC | 127,874 | \$152,483 | 22,498 | \$43,595 | 21 | 40 |
| AL | 22,093 | \$34,242 | $(1,596)$ | (\$1,324) | (7) | (4) |
| MS | 181,339 | \$29,436 | $(6,295)$ | $(\$ 1,912)$ | (3) | (6) |
| LA | 1,292,893 | \$261,822 | 314,380 | (\$14,609) | 32 | (5) |
| TX | 90,573 | \$152,755 | $(5,552)$ | $(\$ 28,598)$ | (6) | (16) |
| gULF REGION | 1,714,772 | \$630,738 | 323,435 | (\$2,848) | 23 | (0) |
| S. E. REGION | 1,965,118 | \$792,052 | 336,061) | \$6,429 | 21 | 1 |

Note: ( ) indicates a pound, dollar or percentage decrease when compared to 1991.

Table 2. Change in the preliminary commercial landings and values of fish and shellfish species in the southeastern region of the United States from 1991 to 1992.

| SPECIES | 1993 |  | CHANGE (1992 to 1993) |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | THOUSAND POUNDS | THOUSAND DOLLARS | THOUSAND pounds | D THOUSAND DOLLARS | POUNDS \% | $\begin{gathered} \text { DOLLARS } \\ \% \end{gathered}$ |
| GROUPERS | 14,093 | \$28,089 | 3,101 | \$6,515 | 28 | 30 |
| SNAPPERS | 11,063 | \$21,111 | 1,643 | \$3,152 | 17 | 18 |
| KING MACKEREL | 5,395 | \$6,842 | 940 | \$1,158 | 21 | 20 |
| SPANISH MACKER | REL 4,791 | \$1,964 | 1,480 | \$1,032 | 45 | 111 |
| MENHADEN 1 | 1,135,848 | \$54,309 | 279,786 | \$10,793 | 33 | 25 |
| SHARKS | 17,670 | \$4,562 | $(1,616)$ | (\$1,353) | (8) | (23) |
| SWORDFISH | 3,209 | \$12,470 | 112 | \$1,144 | 4 | 10 |
| TUNA | 8,607 | \$19,237 | $(3,671)$ | $(\$ 6,445)$ | (30) | (25) |
| OYSTERS | 20,868 | \$35,236 | 1,378 | (\$9,432) | 7 | (21) |
| SHRIMP | 232,900 | \$384,893 | (13,871) | (\$55,336) | (6) | (13) |
| SPINY LOBSTER | 5,618 | \$18,064 | 1,667 | \$3,453 | 42 | 24 |
| STONE CRAB | 5,827 | \$15,436 | 1,071 | \$4,627 | 23 | 43 |

Note: Landings of fish, lobster and shrimp in live weight; oysters in meat weight.
( ) indicates a pound, dollar or percentage decrease when compared to 1991.

Table 3. Change in the preliminary commercial landings and value of shrimp in the southeastern states from 1992 to 1993.

| State | 1993 |  | CHANGE (1992 to 1993) |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | THOUSAND POUNDS | THOUSAND DOLLARS | THOUSAND POUNDS | THOUSAND DOLLARS | PERCENT POUNDS | CHANGE DOLLARS |
| NC | 4,707 | \$9,469 | (448) | (\$768) | (9) | (8) |
| sc | 7,418 | \$14,279 | 261 | \$248) | 4 | (2) |
| GA | 7,557 | \$17,331 | (48) | $(\$ 1,223)$ | (1) | (7) |
| FL-EC | 6,817 | \$ 8,404 | 2,029 | \$340 | 42 | 4 |
| S.A. REGION | 26,499 | \$49,483 | 1,794 | (\$1,899) | 7 | (4) |
| FL-WC | 16,011 | \$33,256 | 63 | \$6,214 | 7 | 23 |
| AL | 14,391 | \$30,185 | 892 | \$5 | 7 | 0 |
| MS | 10,509 | \$18,431 | 359 | $(\$ 1,408)$ | 4 | (7) |
| LA | 87,842 | \$114,382 | (9,559) | ( $\$ 30,170)$ | (10) | (21) |
| TX | 77,648 | \$139,156 | (7,420) | (\$28,078) | (9) | (17) |
| GULF REGION | 206,401 | \$335,410 | $(15,665)$ | (\$53,437) | (7) | (14) |
| S. E. REGION | 246,771 | \$440,229 | $(18,739)$ | \$38,140 | (7) | (8) |

Note: Shrimp landings in heads-on weight.
( ) indicates a pound, dollar, or percentage decrease when compared to 1992.

## NORTH CAROLINA

## TOTAL LANDINGS:

Commercial landings for 1993 totaled 165 million pounds with an ex-vessel value of 57.8 million dollars. Landings were $7 \%$ higher than in 1992. Average ex-vessel prices were down $8 \%$ for 1993.

## FISH:

Total edible fish landings were up $9 \%$. Average ex-vessel prices decreased $8 \%$. Landings increased for dolphin ( $89 \%$ ), shark ( $103 \%$ ), striped bass ( $50 \%$ ), red snapper ( $270 \%$ ), and blackfin tuna ( $50 \%$ ). Decreased landings were reported for alewife ( $47 \%$ ), flounder ( $2 \%$ ), grouper ( $1 \%$ ), grey seatrout ( $8 \%$ ), swordfish ( $52 \%$ ), and porgy ( $23 \%$ ). The water bodies in North Carolina that showed increased landings were Atlantic Ocean ( $18 \%$ ), Albemarle Sound ( $11 \%$ ), Pamlico River ( $37 \%$ ), Pasquotank River ( $46 \%$ ), and Croatan Sound (39\%). Decreased landings were reported for Core Sound (45\%), Pamlico Sound (10\%), Alligator River (41\%), and North River (52\%). Decreased landings were reported for long haul seines ( $25 \%$ ), pound nets ( $32 \%$ ), and gill nets ( $1 \%$ ). The gears that reported increases were fish trawls (6\%), and shark longlines (118\%).

## INDUSTRIAL,FISH:

Total industrial fish landings for 1993 increased $19 \%$ over 1992. Average ex-vessel prices increased $23 \%$.

## CRABS:

Hard blue crab landings increased $5 \%$ for the year. This was another record year for blue crab landings. Average ex-vessel prices increased 6\%.

## CLAMS:

Hard clam landings decreased $1 \%$ from 1992. Average ex-vessel prices increased $3 \%$.

## SCALLOPS:

Bay scallop landings increased $600 \%$. Average ex-vessel prices increased 4\%. Sea scallop landings decreased $60 \%$. Average ex-vessel prices increased 4\%. No calico scallop landings were reported.

## SHRIMP:

Shrimp landings were $17 \%$ lower than in 1992. Average ex-vessel prices increased $1 \%$. The species composition was $59 \%$ brown shrimp, $22 \%$ pink shrimp and $19 \%$ white shrimp.

## OYSTERS:

Landings of oysters decreased $19 \%$ from the 1992 landings to the lowest point on record. Oyster production in North Carolina has reached a crisis. Bed closures due to water quality problems were one of the main factors affecting oyster landings.

## SOUTH CAROLINA

## TOTAL LANDINGS:

Preliminary commercial landings of fish and shellfish in South Carolina for 1993 were 18.8 million pounds, down $3 \%$ from the 19.4 million pounds landed during 1992. There were significant decreases in the landings of swordfish, sharks, king mackerel, shad and crabs. Increases in landings were recorded for mullet, spot and clams.

## SHRIMP:

Landings of shrimp were 7.4 million pounds, up $3 \%$ over the 7.2 million pounds landed during 1992. A very good brown shrimp crop (landings up 103\%) more than offset the drop in white shrimp landings (down $9 \%$ ).

## HARD BLUE CRABS:

Crab landings were 6.1 million pounds, down $15 \%$ from the 7.2 million pounds landed during 1992.

## CLAMS AND OYSTERS:

Landings of clams increased $88 \%$ and oysters increased $1 \%$ over the 1992 landings.

## FISH:

Overall, fish production decreased $12 \%$ from that of 1992. Swordfish landings continued to drop and were $21 \%$ below those of 1992. Shark landings dropped $39 \%$ from those of 1992. Landings of king mackerel decreased $37 \%$.

## GEORGIA

## GENERAL:

As during the Springs of 1991 and 1992, this area of the Atlantic Coast received several inches of heavy rain and sustained high winds during the "Storm of the Century" on March 13 and 14, 1993. Total seafood harvest was $2 \%$ below that of 1992.

## SHRIMP:

Total shrimp landings for 1993 increased $2 \%$ over 1992. White shrimp continue to be the primary species. Rock shrimp harvest decreased $25 \%$, pinks decreased $33 \%$, but brown shrimp harvest was more than double that of 1992.

## CRABS:

Blue crab landings, ending a three year rise, decreased $5 \%$ but the value was $2 \%$ higher than 1992, partially due to the scarcity of blue crabs in other areas.

## FISH:

Landings of offshore demersal species increased $9 \%$ and the value increased $18 \%$. Pelagic landings increased $105 \%$, as more vessels entered the shark fisheries, but the value of the landings climbed only $44 \%$.

## STURGEON:

Landings of this historically important species declined to 118 pounds in 1993.

## CLAMS, OYSTERS \& WHELKS:

Clams, whelks, and oyster landings decreased drastically.

## FLORIDA

## DUVAL-- BREVARD COUNTIES

## SHRIMP:

Shrimp landings in northeast Florida were $20 \%$ higher than in 1992. Total landings of all species was 4.95 million pounds of (tail weight). Landings for brown, pink and rock shrimp tails increased $63 \%, 138 \%$, and $59 \%$ respectively. Decreased landings were registered for white $\operatorname{shrimp}(30 \%)$, royal red $\operatorname{shrimp}(70 \%)$, and seabobs $(53 \%)$. The number of shrimp trips in Northeast Florida remained relatively constant.

The number of river shrimp trips in Duval County increased 53\% (from 1000 to 1500); however, the landings did not reflect the increased activity. The ocean shrimpers recorded declines both in the number of trips and the landings. St. Johns County really suffered this year. White and brown shrimp landings decreased $54 \%$ to 100 thousand pounds (tail weight). The number of trips was 113 fewer (a $28 \%$ decline). One dealer closed during the year and another closed for seven months. Brevard County had a very good year. The combined landings of white and brown shrimp increased $30 \%$ to 158 thousand pounds (tail weight), while the number of trips increased slightly. Rock shrimp and pink shrimp also registered increases, $59 \%$ and $138 \%$, respectively. Rock shrimp catches started in July, peaked in October with over one million pounds and faded in November. A total of 2.9 million pounds of rock shrimp tails were landed in Brevard County. The good rock shrimp season and the high price received had a lot of fishermen feeling that regulations were not needed. There were no royal red shrimp landed in

Brevard County in 1993, as fishermen were able to keep busy with more popular shrimp.

## SCALLOPS:

The scallop industry continued to be depressed. Scallop vessels fished the area until February 20. The vessels returned from the Gulf in the middle of May to try their luck, but unfortunately the scallop fishery lasted only 20 days due to lack of scallops to catch. Roughly 79 thousand gallons were offloaded by twelve vessels. Count size varied from 90 to $250 / \mathrm{gal}$.

## FISH:

## WRECKFISH:

Another season under the ITQ program and a few more changes occurred. Northeast Florida wreckfish fishermen landed 476.5 thousand pounds (an $8 \%$ decrease) in 122 trips (a $2 \%$ decrease). Duval County's participation dropped off significantly as their landings, numbers of trips and vessels declined by $75 \%$. Seven vessels landed wreckfish in Duval County in 1992, while only two fished in 1993. One vessel made one trip and the other completed four trips. Volusia County's participation increased $11 \%$ ( 12 additional trips); however, landings only increased 5.3 thousand pounds ( $1 \%$ ). Three vessels entered the fishery this season. Of the eleven vessels that fished in Volusia County, five are owned by the sole wreckfish dealer. Trip landings varied throughout the season from a mere 233 pounds to 11.6 thousand pounds. Only one trip broke 10 thousand pounds and there were four trips between 8 and 10 thousand pounds. Weather, tide and currents were once again limiting factors for 1993. The highlight of the season occurred during the middle of December when a vessel landed large (average 48 pound) wreckfish from a completely different area. One other vessel became involved and a total of four trips were landed. These vessels were also doing well catching barrelfish.

## REEF FISH:

The hook and line fleet continued to see changes in directed effort. Vermilion snapper, amberjack and porgies comprised most of the reef trips in the northernmost area. Catches were supplemented with groupers and snappers. The tilefish fishery saw a few new entries but otherwise remained relatively stable. Quite a bit of small tilefish continued to be landed.

## COASTAL PELAGICS:

The king mackerel hook and line fleet had another poor year in 1993. Total landings
were 105 thousand pounds, registering a $48 \%$ decline. Adverse weather had a major impact on the landings. Boats in this area did not participate in the 25 fish/day reopening fishing season, as it was not economically feasible.

## SHARKS:

The shark fishery was placed on a semiannual quota of 1,218 metric tons in 1993. The season for large coastal sharks lasted from January 1 through May 15 and then from July 1 until July 31. Shark landings decreased drastically in this area and several dealers had a rough time hanging on financially. Landings in Northeast Florida totalled 496 thousand pounds, compared to 958 thousand pounds in 1992. Hardest hit were fish dealers whose ability to obtain shark products for sale due to the semiannual quota. Some shark vessels converted to tilefish fishing, tuna fishing, and/or swordfish fishing. A couple of shark boats pursued the small coastal sharks.

## INDIAN RIVER - PALM BEACH

## WEATHER:

With the exception of consistent northeast winds, the winter of 1992-93 could be characterized as relatively mild. Temperatures rarely fell below freezing and no inshore fish kills were reported from cold water temperatures. A rainy spring lowered the salinity and raised turbidity in the estuaries. Fishermen blamed warm water temperatures in the summer for smaller inshore gillnet landings. The fall and early winter were breezy and cool, but fishing conditions improved in early December just in time for harvest of the unlimited portion of the Spanish mackerel quota. Some cold water upwelling, in conjunction with westerly winds, occurred throughout the year, sometimes stunning bottom-dwelling fish.

## ENVIRONMENT AND ECOLOGY:

Spring flood waters from the Mississippi River were charted by NOAA all the way into the Gulf Stream, causing a temporary lowering of salinity and increased turbidity along the Florida east coast. In July, massive quantities of so called "slime algae" that affected gill net production were reported in inshore waters from Fort Pierce to Palm Beach. In September, an unusually high number of jellyfish interfered with the gill net fishery and even caused a temporary shutdown of the Hutchinson Island nuclear power plant, due to clogged water intakes.

## FISH:

King mackerel landings increased more than $20 \%$ from 1992, helped by an emergency reopening of the commercial winter fishery in February and March, under a 25 fish bag limit and 259 thousand pound allocation. King mackerel landings in early winter were slowed by a 50 fish bag limit imposed in November. Spanish mackerel landings increased from the previous year, due primarily to an increase in the quota allotment. Major Spanish mackerel production occurred in December, during the unlimited portion of the mackerel quota, when about two million pounds were landed in less than three weeks. Unlike the last several years, most of the Spanish mackerel landings in 1993 came from state waters. Overall, reef fish landings changed little from the previous year. Gag grouper landings decreased about $20 \%$, but mutton snapper landings nearly doubled, perhaps helped by the second year without fish traps. Amberjack landings were slightly less than half those of 1992, affected by the April spawning closure. Effort and landings increased in Indian River County and decreased in Palm Beach County. Shark landings, boosted somewhat by gill net landings in the spring, increased $15 \%$ even though the fishery was closed for about six months. The high ex-vessel price of shark fins (over $\$ 20 / \mathrm{lb}$ ) balanced the relatively low price of carcass meat (down to $\$ 0.20 / \mathrm{lb}$ in July). Eight shark gillnet boats left this area in early July to fish off Fernandina Beach, but returned shortly following the shark closure at the end of that month. Swordfish landings remained stable, but tuna landings decreased about $50 \%$, with the largest decline in bigeye tuna. Tilefish landings also remained stable, but deep water grouper landings declined about $40 \%$. Overall, gillnet landings, from species other than mackerel, decreased about $20 \%$ from the previous year. Baitfish landings also decreased from 1992. Menhaden landings declined about $38 \%$ and bigeye scad landings declined $50 \%$. A market for ladyfish was developed this year, and several purse seine vessels landed over 250 thousand pounds in the fall.

## SHELLFISH:

Shellfish landings represented about $3 \%$ of total commercial landings (about the same as in 1992). Production of spiny lobster remained stable, but blue crab landings declined $58 \%$. Hard clam production in Indian River County increased from 1992, boosted by harvest from several aquaculture ventures.

## GEAR:

In response to green sea turtle strandings along Florida's east coast, the state of Florida imposed new restrictions on the gill net fishery in the fall in an area from Sebastian to Jupiter. Although night time gill net fishing was not banned, as originally proposed, trammel nets were banned and gill nets were limited to a maximum length of 600 yards within state waters, with a zero soak time for the net. In April, NMFS imposed an emergency 30 -day rule, which required gill netters in this area to register their vessels
and carry an observer aboard if requested. Several observer trips were made in April and additional trips were planned for the next fishing season. The number of vessels participating in both the gill net and hook and line fisheries remained relatively stable. Bag limits imposed on winter king mackerel harvest this year helped to spread out production and thus provide fishermen with a longer fishing season and hopefully a better ex-vessel price. Initial reports from hook and line fishermen were favorable toward this management strategy. Several of the large roller rig gill net boats switched temporarily to longline gear, during spring and summer months, to harvest tilefish, shark, or swordfish. Swordfish captains and dealers continued to complain this year about the injustices of current size restrictions on swordfish.

## RECREATIONAL FISHERIES:

The number of charterboats operating in this area remained relatively unchanged from 1992. Charterboat captains reported good catches of dolphin and sailfish, especially in the winter. The actual number of recreational boats and fishermen seems to be ever increasing along the east coast of Florida.

## ECONOMIC CONDITIONS:

Although many dealers complained about decreased production, due to increased fishery regulations, most agree that certain fisheries within Florida need to be managed to assure future production. Rising property values and decreasing profit margins make it less attractive for the large waterfront fish houses to stay in business, but thankfully none closed their doors in this area during 1993.

## BROWARD-DADE

## SWORDFISH:

Approximately $90 \%$ of the swordfish landings are from catches made in the Windward Passage between Cuba and Haiti and the Yucatan Channel between Cuba and Mexico. Dealers feel that local production in the Florida Straits has been severely curtailed due to implementation of the Lacey Act. The line dividing U.S. and Bahamian waters runs through the middle of the Gulf Stream. Since U.S. fishermen are restricted to the U.S. side of the line, their fishing area is very limited with respect to their gear which typically is from 10-20 miles long in this area. Longliners tend to avoid fishing off the Southeast Florida Coast because they maintain that it is difficult to assure that their gear will not drift into Bahamian waters once it has been set. There were approximately 15 vessels fishing for swordfish out of Dade and Broward Counties in 1993. Two vessels
left for Hawaii at the end of the year.

## SPINY LOBSTERS AND STONE CRABS:

Local spiny lobster production was down slightly from 1991. Due to Hurricane Andrew in 1992 and the subsequent disruption of fishing during the height of the lobster season, it is difficult to fairly compare 1993 with 1992. According to sources, the Japanese stopped buying spiny lobster from this area in 1993, and thus, the price had to adjust down to a local market. Although prices to the boat increased to around $\$ 4.50 / \mathrm{lb}$ in 1991, they were from $\$ 3.00$ to $\$ 3.50 / \mathrm{lb}$ in 1993 . Despite Andrew, the full time fleet has remained steady. One bright spot is the increased stone crab production from Dade County waters, which was reported to be as much as three times the production of 1991. More local fishermen are planning to target stone crabs in 1994.

## REEF FISH:

Overall, reef fish production has apparently not been hurt by the ban on fish traps, Although landings decreased substantially in 1992, the hook and line fishery has adjusted in 1993 to obtain $92 \%$ of the landings compared to 1991, the last year for fish traps. Traps had accounted for $58 \%$ of all reef fish from this area in 1991. Preliminary exvessel value of the overall reef fish catch is roughly $10 \%$ higher in 1993 compared to 1991. Reef fish caught in Dade waters now tend to be sold to dealers in Dade, rather than to the dealers in Broward, which previously purchased the trap caught fish. One dealer in Broward still handles some trap caught fish from the Gulf, but now buys them from only two fishermen.

## COASTAL PELAGICS:

Local king mackerel fishermen got a boost from the emergency hook and line allocation for Southeast Florida in March 1993. Consequently, local landings increased 50\% from 1992 and $16 \%$ from 1991, when the season had already been closed prior to March. Amberjack landings have decreased for the second year in a row since the season was closed for the month of April. Weather may have been a factor, given the distance from Dade to the fishing grounds off Islamorada and the time limitations imposed by the closed season coupled with the seasonal availability of the fish which is approximately three months in this area. Dolphin (mahi mahi) landings have rebounded slightly from 1992, but still are less than half that of 1991 which was a banner year for dolphin in this area.

## SPONGES:

Production remains steady despite the ban on sponging in Biscayne Bay. Sponges were harvested outside the bay area and from the upper Florida Keys.

## MONROE COUNTY

## WEATHER:

It was not until late February that the first severe cold fronts of the season reached the Keys. Prior to this, the winter had been exceptionally mild. After a succession of strong fronts, the "storm of the century" hit the Keys on March 13. This gale packed winds in excess of 100 mph , as measured at the Dry Tortugas. Several boats were sunk, and large numbers of traps were destroyed in the resulting rough seas. Afterwards, cold fronts continued to pass through the Keys, which limited fishing, well into May. For most of the summer and autumn, winds and seas were calm, and temperatures very warm. Although the first front of winter hit on October 31, subsequent fronts were mild, and seldom limited fishing.

## ENVIRONMENT AND MARINE ECOLOGY:

The March 13 gale undoubtedly had a major influence on the marine ecology of the Keys. Vast amounts of seabed vegetation were uprooted, and large amounts of sediment were suspended. As evidenced by the displacement and abrasion of wooden lobster traps, effects of the gale extended even to depths of 200 feet or more. Another major factor acting on the fisheries of the Keys was the degraded conditions in Florida Bay. Massive blooms of phytoplankton were reported, and some even menaced the coral reef tract. Widespread die-offs of sponges were also noted. Even in areas far removed from Florida Bay, waters were murkier than normal. Such conditions sparked an outcry from Keys residents to "Save the Everglades" before it was too late. One group even started a statewide petition to levy a tax on Florida sugar growers to fund restoration of the Everglades.

## SHRIMP:

Early in 1993 pink shrimp catch rates on most portions of the Tortugas grounds were generally just above average. By late February, large numbers of small shrimp were being landed. Favorable catch rates ( 700 pounds of heads-on shrimp/night/vessel) continued into June. However, unlike in the past two years, shrimp catches during July through September were "spotty" and lower than expected. Afterwards, shrimp catch rates gradually increased, and reached exceptionally high levels ( $1,000 \mathrm{lbs} / \mathrm{night} / \mathrm{vessel}$ ) by mid-November. These high shrimp catch rates continued for the remainder of the
year, and attracted a large number of vessels to the area. Ex-vessel prices were strong and increasing for most of the year. Average shrimp prices were $\$ 0.20$ to $\$ 0.30$ higher per pound than in 1992 for most types and "counts" of shrimp.

## COASTAL PELAGICS:

At the start of 1993 a change in the legal interpretation of Florida's landing laws allowed a more extensive (and intensive) fishery for king mackerel here than in recent years. Large numbers of king mackerel were taken by both nets and troll gear from newly discovered grounds 30 miles NW of Key West. By January 14 at least 934 thousand pounds of king mackerel had been landed in Monroe County and the quota was filled and the fishery was closed. The gillnet fleet (approximately 14 vessels) accounted for almost 650 thousand pounds of the total catch. When the fishery for "South Atlantic" king mackerel opened on April 1, a large number of troll boats ventured out, but virtually all of them caught few if any king mackerel.

By mid-January some local gillnetters switched over to Spanish mackerel fishing. They were joined by six vessels from the Ft. Pierce area. Although over 250 thousand pounds of Spanish mackerel were netted within a week, catches soon declined. Part of the problem was that hordes of sharks began following the Spanish mackerel schools. The sharks made short work of any nets that were set on the mackerel. The fishermen also had to contend with a protracted period of adverse/marginal weather that limited fishing during most of February. When weather conditions improved, the mackerel seemed to have moved on, so the Ft. Pierce fleet did likewise and ceased operations here. The local netters also gave up by late February.

It was not until mid-December that king mackerel fishing renewed in earnest. Most fishing was again done on the "shrimp grounds" 30 miles NW of Key West. The first large catches were made on December 20, when nine net boats landed approximately 113 thousand pounds. Although a large fleet of troll boats chased the king mackerel, they tended to have only "so-so" catches. The crews said conditions were not "right" for the fish to bite as well as desired. After being idled a few days by bad weather, the netters landed over 200 thousand pounds of king mackerel on December 28. This, plus large hook and line catches, forced the closure of the "unlimited" portion of the fishery effective December 29.

## SPINY LOBSTERS:

At the start of 1993 spiny lobster catches decreased throughout the fishery. But, during February, very good catches were made from the Dry Tortugas westward. This might have continued had it not been for the gale of March 13 that destroyed or damaged vast
numbers of traps in that area. After April 1 it took several extensions of the "closed season grace period" before most of the lost traps could be collected and brought ashore. During April fish traps set in 200-300 feet of water southwest of Tortugas reportedly caught high numbers of spiny lobster. This was cited as evidence of a mass migration of the crustaceans into fishing areas from parts unknown.

When the lobster fishery reopened in August 1993, fishermen reported difficulties. Catch rates were far less than expected, and ex-vessel prices were at $\$ 3.00 / \mathrm{lb}$. In addition, there had been confusion and delays in distribution of identity tags/certificates for traps. As the season progressed, conditions improved a little, but overall, the season was only "fair". By late October many lobster fishermen had already written the season off and were bringing in their lobster traps. Some fishermen were lucky, however. In November excellent catches were made from traps set in deep water outside the reef. Those lobster fishermen working the Dry Tortugas generally did better than expected.

## STONE CRABS:

In early 1993 stone crab catch rates were far less than normal. Rather unexpectedly, the best catches came from grounds west of Marquesas, which has not been normally considered "stone crab territory". In April, several crabbers lost large numbers of traps when shrimp trawlers began working grounds opened inside the Tortugas Shrimp Sanctuary. Ordinarily, the traps would not have been set that far offshore. When crabbing resumed in October, catch rates were again less than expected. But, as the season progressed, ex-vessel prices rose to offset the lower stone crab catches.

FISH:

Perhaps owing to the "late" spring, spawning "bites" of yellowtail snapper (and other snappers as well) were reportedly behind "schedule" during 1993. By May, snapper catches began to rise, and ex-vessel prices dropped. A new factor, however, was the increased catches of yellowtail snapper taken in fish traps baited with "shrimp trawl bycatch". The trappers began to land large catches of yellowtail snapper this way, and friction developed when several handline fishermen alleged this caused market gluts and reduced ex-vessel prices for their catches.

As the year progressed, catches tended to be less predictable than in the past. The peak of mutton snapper spawning (and fishing effort) did not occur until June. And, in July, yellowtail snapper catches were so "spotty" that the dealers actually increased ex-vessel prices. This trend of "feast or famine" snapper abundance continued throughout the remainder of the year.

## RECREATIONAL FISHERIES:

In the spring of 1993 the tarpon run was among the best in recent years. Not so for the dolphin run offshore. Like 1992, 1993 was memorable for the overall scarcity of dolphin. Although dolphin did "show" this past summer, most soon left the area. The remainder tended to "hold" well offshore. However, on the bonus side for offshore anglers, there were good runs of wahoo, tunas, and sailfish in the autumn of 1993.

## COLLIER TO PINELLAS/MANATEE COUNTIES

## WEATHER:

While there were no significant tropical storms affecting the area in 1993, the quiet tropical storm season was made up for by the March 1993 "Superstorm." This storm brought seas of $25-30$ feet and winds of up to 100 mph at sea, resulting in severe damage to some fishing vessels that were caught at sea, and to many others at the docks. Also, many stone crabbers lost significant numbers of their traps to this storm, and had to file for disaster relief. Otherwise, a wet summer counteracted the effects of some long dry spells at other times in the year, resulting in a somewhat average year for rainfall.

## REEF FISH:

Landings of reef fish were not especially strong in 1993, and once again the annual quota on Gulf groupers was not met, allowing fishermen to work through the end of the year. Both effort and landings were highest in the summer, including deep-water species. Prices fluctuated as usual, but stayed within the same range as in recent years. Gear types and distribution remained stable, with a continued concentration of mostly longliners in Manatee County, mostly fish trappers in Collier County, and mostly hook-and-line fishing in Lee County, although hook-and-line gear was also spread throughout the area.

Fish trappers battled proposals pushed by Keys tropical fish collectors to shut them down entirely in the Gulf; trappers in this area allege that they catch few tropicals this far north. Trappers offered to take observers, and a NMFS observer program was being set up at the end of the year. A Reef fish Plan Amendment passed in December established a moratorium on new trap permits, allowed permits only for those who fished traps in 1991 or 1992, and required the trappers to bring in their traps at the end of each trip. Trappers proposed moving the shoreward limit of legal fishing from the 10 -fathom curve to the 5 -fathom curve, but this amendment failed. There were reports of gear conflict between trappers and shrimpers.

Longliners also tried to get their legal minimum fishing depth moved in from 20 fathoms to 15 fathoms, but this amendment did not pass. Often suggested by fishermen was a spawning season closure for groupers, or at least a fishing year that begins around May, just after the spawning season. With the latter suggestion, if the quota is filled, the fishery would close during spawning, which is also when fishing is generally the least productive (weather problems, etc.) Fishermen were also asking for a reduction in the red grouper size limit, even in exchange for a smaller quota, due to the waste of undersized groupers, especially by the longliners.

## MULLET/SMALL BOAT NET FISHERY:

Mullet production was strong overall, as usual in this area, but decreased somewhat from past years due to ever-increasing state regulations for the mullet fishery. The 1992-93 roe season continued into February, and roe-mullet prices reached $\$ 1.80 / 1 \mathrm{~b}$ for whole mullet. The 1993-94 roe mullet season was not a very good one due to increased closures and restrictions, especially in Collier County, where a new 10-day closure in late December came when the roe season was just beginning to peak. Mullet netters and dealers worried about their future in light of a proposed ban on nets in state waters that may be passed in 1994. The Florida Marine Fisheries Commission(FMFC) worked on a proposal for compensation to displaced net fishermen. Even other types of fishermen, such as reef fish and stone crab fishermen, wondered what they will use for bait, since their favorite baits of mullet and baitfish are caught by nets, mostly in state waters.

## SPOTTED SEATROUT:

Besides the net bycatch of trout, a hook-and-line/troll fishery continued in the area for spotted seatrout. However, since most of these fishermen are part-time or seasonal, their numbers continued to decrease from past years due to a commercial-fishing income requirement that must be met to get the necessary state license to sell these fish. Directed net fishing for spotted seatrout remained few and far between compared to past years.

## COASTAL PELAGICS:

The year 1993 was characterized by the first strong run of Spanish mackerel to be fished in many years in this area, especially in the area offshore of Collier County. Dealers in some areas of Collier County said that it was like a return to the past of 15 to 20 years ago. Some larger gillnetters came to Collier County from other areas to work the schools. The run lasted for parts of January through March, then moved north and was fished out of Sarasota and Manatee Counties until it was over in early April. There was no similar big run in the fall of 1993. There were also some king mackerel landings,
mainly in Collier County from a few trollers, both in January before fishing closed for the fishing year, and again between October and December.

## SWORDFISH:

Landings continued to occur almost exclusively in Collier County, from a half-dozen vessels that worked the Gulf out of Naples off and on, when not in the Caribbean or Atlantic. Most of the landings continue to be sold to buyers elsewhere, although they were unloaded locally.

## BAITFISH:

Spanish sardines remained severely restricted by the state. Thread herring continued to be the main target of the purse seiners in Manatee County. Many restrictions were proposed by the state fisheries commission to ban fishing by purse seines of many baitfish species traditionally caught by this gear, such as ladyfish, jack crevalle, shad, and others. However, this proposal was later changed to establish quotas instead for jack crevalle, ladyfish, and blue runner.

## AQUACULTURE:

Aquaculture by a few firms continues mainly for tilapia, and for tilapia fingerlings to sell to other fish farms. A new fish was attempted by one fish farm, the "pacu," a relative of the piranha from South America. This fish was sold either live or whole, fresh on ice.

## SHRIMP:

1993 was a turn-around year in the apparently cyclical Tortugas pink shrimp fishery, after depressed landings and catches during the past seven years. Total shrimp landings in this area for 1993 were 2.58 million pounds (heads-off), the highest yearly total since 1985, which was the last "good" year before things started going downhill. This total is $52 \%$ above last year's total of 1.70 million pounds. News of good catches brought an increased number of migratory shrimp vessels to the area in 1993, including some that had not been to this area in many years. Consequently, there were 1,033 shrimp trips out of this area in 1993, up $11 \%$ from the 1992 total of 931 trips. There were strong landings in April, and even more so in May, possibly due to the effects of the March "Superstorm" and a strong recruitment of relatively "small" shrimp into the grounds. After leaving for the summer "off-season," many more of the shrimp vessels than usual were back from Texas by August due to a poor start to the Texas shrimp season. The vessels initially made only mediocre catches, but by November shrimp catches were back
up, skyrocketing in December when 458 thousand pounds (heads-off) were landed for the month (the highest November and December totals since 1985). Another apparent strong recruitment of "small" shrimp onto the grounds was noted in these last two months, as catches swelled.

At least five shrimp vessels were lost to the shrimp fishery for various reasons (sunk, burned, etc.). Several vessels continued to fish for royal red shrimp, selling them mainly to buyers on Florida's upper east coast. At least one of these royal red shrimpers reported that he switched from the pink shrimp fishery because of TEDs. There was not much new on the TED front, with virtually all shrimpers using TEDs, although most still reluctantly. There were several types of Teds being used, mostly soft TEDs. A small, seasonal bay shrimp fishery continued in the Charlotte Harbor bay system, with most of these shrimp still being "peddled," to the chagrin of Pine Island dealers.

Shrimp prices were relatively stable in 1993, with only two adjustments during the year, both increases. After falling at the end of 1992, prices rebounded during 1993 on 46/50 and larger tails, ending the year $3-10 \%$ higher than at the beginning.

## STONE CRABS:

Stone crabbers had a rough year, thanks to the "Superstorm" in March; this storm caused a temporary overall loss to the fishery of around $30-35 \%$ of traps, with individual fishermen losing from 20 to $50 \%$ of their traps in the storm. Some crabbers filed for emergency disaster aid. Reduced effort after the storm, due to trap loss and fishermen quitting the season early, had prices quite high by the end of the 1992-93 season in May, when prices for large claws went well over $\$ 8.00 / \mathrm{lb}$. After trap replacement during the summer, effort was quite strong, even up slightly from the past season, when the 199394 season opened on October 15, 1993. However, catches were only mediocre at that time, possibly due to settled weather, and there was no opening-season glut as often happens. Landings finally picked up in November in the northern half of the area, where catches hit near-record levels, but remained mediocre in the south, where the vast majority of effort is located off of Collier County. Prices in the northern half of the area plunged to $\$ 2.00$ to $\$ 4.00 / \mathrm{lb}$ for medium/large claws by December, due to heavy landings.

## SPINY LOBSTERS:

Effort decreased slightly from 1992; there were still only a few vessels lobstering out of Collier County, most vessels unloading in the Keys. Bycatch by shrimpers, along with the Collier County trap effort, accounted for the relatively light landings of spiny lobster in this area. At the end of the year, most of the trap landings of lobster were "large"
tails, which are actually less desirable and bring a lower price.

## BLUE CRABS:

Blue crab landings were unusually low at the beginning of 1993, and fishermen were continually trying new areas in search of decent catches. Prices often hit $\$ 0.70$ to $\$ 0.80 / \mathrm{lb}$. A couple of new firms were dealing in shedders/soft shell crabs.

## PINELLAS - WAKULLA COUNTIES

## WEATHER:

The weather in 1993 compared to 1992, was fairly calm. There were only five weather fronts that hampered fishing activity. Unfortunately, one of the fronts turned out to be the "Storm of the Century." The Storm caused severe damage, crippling some in the industry for several months. Most dealers in Dixie and Taylor Counties saw their businesses completely leveled. A major environmental disaster was averted in August when three tankers collided in Tampa Bay, spilling a heavy grade crude oil. A quick response, combined with some helpful wind, aided in a successful cleanup.

## REEF FISH:

1993 was a banner year for reef fishing. Landings of all major reef fish species increased $13 \%$. Shallow water grouper landings increased $18 \%$, led by red grouper, which increased $24 \%$. Deep water grouper landings declined $7 \%$. Boats typically fish in deep waters when shallow waters are not productive. Since the shallow water remained productive most of the year, reef fish activity in deep water was down.

Fish trappers in the northern counties had a great year; their landings increased $31 \%$. While seabass landings declined more than $50 \%$, grunt landings doubled. The increase of $31 \%$ came from shallow water grouper, which have became abundant over the last few years. Most of the fish were just over the size limit. Another reason for the successful trap season was that many new boats entered the fishery following the Storm. Netting in the northern counties has declined over the last few years, with fishermen turning to stone crabbing, which contained a large bycatch of reef fish in their traps. As a result of the Storm, many fishermen lost their boats. Those that did lose their boats were able to obtain loans, but rather than use the money to get back into stone crabbing and netting, they turned to reef fish trapping.

The year started with very strong landings. Following the Storm, landings declined, as
fish moved into isolated areas. Once these areas were located, the fish were easy pickings, as they were apparently "stacked" by the Storm. Landings peaked in the early summer. Following a slow August, landings increased in September and leveled off for the remainder of the year. All gear types saw an increase in average trip landings. Grouper longliners averaged $4,800 \mathrm{lbs} /$ trip(shallow water) and $4,300 \mathrm{lbs} /$ trip(deep water). Bandit boats brought home an average of $1,600 \mathrm{lbs} /$ trip.

Prices remained stable most of the year. Typically slow summer sales combined with heavy landings dropped the price on red grouper to $\$ 1.40 / \mathrm{lb}$. By September the price had rebounded to the year-end average of $\$ 1.90 / \mathrm{lb}$.

A proposal to allow longliners to move into 15 fathoms was brought to public hearing. The industry emphatically rejected the proposal, saying it would result in a collapse of the fishery.

## SHARKS:

Shark landings decreased $47 \%$ in 1993. The decrease was due to the implementation of the shark quota. After the closure of the first half of the season in May, many boats moved into the grouper and tuna fisheries. The season reopened July 1 and, following a flurry of activity with large landings, it closed just 28 days later. Once again the boats moved into grouper and tuna fisheries with very little effect on total grouper landings. But, those boats that entered the swordfish/tuna fisheries had a very large impact, with landings of these species being increased $26 \%$ and $44 \%$, respectively. Much of the shark landings came from larger boats to the west that were reportedly landing 25 thousand $\mathrm{lbs} /$ trip. The smaller boats in this area averaged $4,900 \mathrm{lbs} /$ trip.

## NET FISHING:

Overall, net fishing declined $12 \%$. The only species to see an increase were jack crevalle, up $11 \%$. The increase was due to new sales of the larger jacks as bait. Previously, large jacks were discarded. Mullet landings declined $9 \%$, but the typical busy summer never occurred. Normally landings pick up in May and peak in June. This year the landings did not begin to pick up until September but. gradually leveled off. The extra 24 -hour closure on mullet netting and the 10 -day closure during roe season contributed to the decrease in landings. Spanish mackerel and seatrout saw the biggest decreases in landings, $44 \%$ and $38 \%$ respectively. New mesh size regulations may be partly responsible for the decrease. New mesh sizes for netting seemed to affect landings in the northern counties the most. The fish in northern counties, on average, are smaller than the net restrictions, so landings were limited to a few large fish. As regulations continue to make it harder to earn a living and the "ban the net" campaign pushes
forward, many netters are switching fisheries and gear.
Cast netting for tilapia and mojarra continued to increase as gill netters turned to cast netting during the weekend closures. Tilapia landings increased $14 \%$ and mojarra $18 \%$.

Purse seiners took a big hit as seining was banned off all counties north of Manatee County. As a result, landings of bait fish declined $52 \%$, led by an $84 \%$ decrease in thread herring. Many fishermen in Dixie and Taylor counties switched to haul seining and began to pick up large numbers of shad. Shad landings increased $73 \%$ over 1992. Ladyfish also saw an increase, up $18 \%$. As bait supplies became tight and the price for ladyfish increased, net and frame shrimpers began to bring the fish home.

## SHRIMP:

Net and frame shrimping activity was up $8 \%$, while the average trip catch decreased $13 \%$. The increased activity helped shrimp landings to climb to levels equal to those of 1992. The larger otter trawl boats had a poor 1993 season. Activity was down just $3 \%$; however, landings and average trip catches decreased $22 \%$ and $25 \%$, respectively. The summer months are normally slow, but this year they were much slower than usual. Most of the larger shrimp boats went to Texas for the reopening of Texas waters, but after two weeks of slow shrimping they returned to fish the Keys.

## CRABS:

Blue crab landings were similar to 1992 , but the Storm of the Century did cause some damage to the industry, mainly trap loss. Increased activity in Dixie County did result in a substantial increase of landings for that county with the other counties showing crabbing decreases.

Stone crab landings decreased $10 \%$, due to loss of traps following the Storm. Upon recovery, the stone crab boats were able to land a good number of crabs. As in other fisheries, Citrus County saw the largest decrease in stone crab landings, while other counties showed increases. Those with increased landings attribute it to the crabs moved to their areas by the Storm. The ratio of medium to large crabs remained unchanged. Stone crabbing was the only fishery to be affected by the oil spill. The crude oil spilled was of a heavy grade, thus it sank and was trapped in the sediment. As a result, many of the stone crabs being caught in traps were covered with oil.

OYSTERS:

Farm-raised oysters continue to increase compared to the traditional wild oysters. Total
oyster landings declined $38 \%$. The only county to have increased oyster landings was Citrus County. As dealers turned to oyster farming, many set up oyster aquaculture facilities in Citrus County because of better water quality. Damaging news coverage on seafood safety and poor water quality continue to hamper the oyster industry.

## SPONGES:

Total sponge landings increased $16 \%$. Grass and wool sponges increased $67 \%$ and $20 \%$, respectively. Yellow sponge landings decreased slightly. Prices decreased $\$ 0.20 / \mathrm{lb}$ on both the grass and wool sponges, and were $\$ 0.03 / \mathrm{lb}$ higher on yellow sponges.

## RECREATIONAL FISHING:

Fishing was strong for recreational anglers. The king mackerel came through on their migrations and fishing activity soared. The king mackerel runs seem to be stronger each year. King mackerel tournaments continue to pop up all over the coast. Seasonal favorites, amberjack, grouper, snook, redfish, and tarpon, were all abundant. Mangrove snapper also became a popular fish, as anglers were able to pick up plenty during the evening hours.

## FRANKLIN COUNTY

## WEATHER:

The winter of 1992-93 was mild until the end of March when the storm of the century blew through, packing 60 mph winds and pushing snow flurries as far south as the Gulf coast. Weather remained cool until the end of April. The summer was within normal parameters in both temperature and rainfall.

## OYSTERS:

Preliminary data indicate that oyster production decreased 7.5\% from 1992's poor performance. Dealers say oysters were plentiful, as prior to hurricane Kate in 1985. Production was unaffected by bay closing but demand was so low, as a result of negative seafood safety in the press, that prices were the lowest they had been for the last ten years. A $60-\mathrm{lb}$ bag of oysters in the shell was selling for $\$ 9.00$.

## CRABS:

More dealers were handling crabs in 1993; production was up $33.8 \%$ and prices
increased \$0.10/lb.

## SCALLOPS:

The big news in 1993 was the bumper crop of scallops. Production was 4.2 million pounds of meats from 1024 trips which was $90 \%$ above $90 \%$ above the production of 1992. Many shrimpers went out for scallops since the gear is essentially the same. By the end of the season a market glut has decreased the price to $\$ 2.00 / \mathrm{gal}$, a third of the price at the beginning of the season.

## SHRIMP:

Total shrimp landings were $28.7 \%$ lower than in 1992, largely due to rock shrimp production returning to normal levels after the huge catch in 1992. In 1993, 21.7\% of total shrimp landings was rock shrimp compared to $45.2 \%$ of the total 1992 shrimp landings.

## GILLNET:

It was a good year for mullet. Landings increased $27.7 \%$, and the price was steady at $\$ 0.30 / \mathrm{lb}$. Spanish mackerel landings increased $25.2 \%$, and the price increased $\$ 0.11$ to $\$ 0.41 / \mathrm{lb}$. Since regulations were enacted, shark landings decreased $86.9 \%$, but shark fishing was never was a major activity in Franklin County. Several fishermen are drying shark fins for the overseas market. Shark fins are bringing $\$ 12.76 / \mathrm{lb}$, but total landings were less than 1,000 in 1993.

## HOOK \& LINE:

Shallow water grouper landings increased $64.9 \%$. Red grouper accounted for most of the increase in production, but prices went down $\$ 0.12$ to $\$ 1.92 / \mathrm{lb}$. Deep water grouper landings were stable and prices increased $\$ 0.14 / \mathrm{lb}$. Amberjack were larger in size and prices increased $\$ 0.07 / \mathrm{lb}$. Furthermore, amberjack landings increased $27.8 \%$, bringing total landings of this species to 88,100 pounds. Red snapper landings decreased $63.5 \%$, but demand forced prices up $\$ 0.68$ to $\$ 2.55 / \mathrm{lb}$. Landings of other snappers combined increased $39.6 \%$ and prices increased $\$ 0.22 / \mathrm{lb}$.

## GULF - ESCAMBIA COUNTIES

## WEATHER:

The weather was relatively normal in 1993 with the exception of the March "storm of the century" with its high winds and unusually cold temperatures. It appeared to have an impact on the grouper fishery off this area.

## NET FISHERIES:

The net fisheries remained strong in 1993. There were approximately 16 large and 2 smaller purse seiners fishing. There was also the usual assortment of small gill netters and beach seiners. The year kicked off in April for the beach seiners and gill netters with the arrival of Spanish mackerel. Preliminary landings indicate a $10 \%$ decrease from 1992. By May, the ladyfish, blue runners, cigarfish, Spanish sardines and chub mackerel showed up for the purse seiners. The blue runners and cigarfish were so plentiful that in July the boats were put on trip limits by the dealers because the fish houses couldn't handle that many fish. As always, fishing slowed in August when the water warmed, but picked up again in September with the arrival of large roe ladyfish. The beach seiners didn't get many ladyfish in the fall because they couldn't compete with the purse seiners who have more range and use airplanes. Fortunately for them, roe mullet and returning Spanish mackerel gave them something to work on.

Overall, preliminary landings data show that catches of cigarfish and blue runners increased $16 \%$ and $28 \%$, respectively. Landings decreased slightly for Spanish sardines and ladyfish. By the end of the season, the ex-vessel price for ladyfish was up to $\$ 0.40 / \mathrm{lb}$. Mullet landings decreased slightly in 1993, but due to new regulations; the fishermen couldn't fish as much this year as in the past. The roe season began in late September, was in full swing by mid-November, and over by the end of December.

## KING MACKEREL:

King mackerel landings increased $43 \%$ from 1992. There were 19 large troll boats and numerous smaller ones fishing full or part time. The best fishing occurred from October through November.

## REEF FISH:

There were approximately 142 full or part time vessels involved in the handline fishery in 1993, down from 148 in 1992. The number of bottom longliners decreased by one boat from 1992 to 21 in 1993. The red snapper fishermen, those with endorsements, began the year fishing for vermilion snapper, amberjack and red porgy. Once the red snapper season opened in February, the local boats moved to Pensacola and Louisiana to fish. There were many snapper on the market and the price declined from $\$ 2.00$ to $\$ 1.75 / \mathrm{lb}$. After the red snapper fishery closed in May, fishermen with spools on their
boats went longlining for grouper. Other fishermen went back to fishing for vermilion snapper and porgies. There was tension between the fishermen with endorsements and those without.

Fishing for other reef fish species intensified in 1993. Landings of vermilion snapper increased $11 \%$, amberjack $3 \%$ and red porgy $55 \%$. The ex-vessel price for vermilion snapper was strong except during the red snapper season when red snapper were so cheap that dealers bought them instead.

Grouper fishing changed the most in 1993. After the big storm in mid-March, catches of red grouper and gag almost doubled for the handliners and bottom longliners. Overall, landings increased $24 \%$ for gag and $311 \%$ for red grouper. The price declined at first and then stabilized by summer's end. Red grouper and gag were so easy to catch that effort for yellowedge grouper declined and landings decreased $71 \%$.

## YELLOWFIN TUNA:

Thirty-four longline vessels unloaded tuna in this area in 1993, up from 21 in 1992. Reported landings of yellowfin tuna decreased $32 \%$ from 1992. The data received from the local tuna buyers who bought fish across the gulf (representing 629 trips from Florida to Texas) showed the average size of yellowfin in 1993 was 66.7 pounds, about the same as in 1992. The average catch of tuna per trip was 3,574 pounds compared to 4,579 pounds in 1992. Fishing was fairly slow throughout the year.

The handline tuna fishery on the 33 -fathom lump off of Louisiana became more developed in 1993, as word spread to idled snapper fishermen. The tuna come to that area from January through March. The fishing technique was simple enough - just anchor up, chum and wait. There were at least 16 boats from this region that went to Louisiana for the tuna fishery in 1993.

## SHARKS:

There were eight longline boats fishing for sharks from here in 1993, down from 11 in 1992. Shark landings were lower as well.

## SHRIMP:

Overall, shrimp landings decreased $7 \%$ in 1993. There were wide fluctuations in landings by species. Rock shrimp landings decreased considerably to the east but that
was offset by an increase in pink shrimp landings to the west. Many offshore shrimpers converted to scalloping during the year.

## SCALLOPS:

Offshore, scallops were very plentiful in 1993 as they were in 1989. There were at least 18 vessels fishing off Apalachicola and Carrabelle. A couple of shucking facilities sprang up to handle them. The beds were most productive in the spring and again in the fall and winter.

## CRAB:

Reported landings of blue crabs increased $78 \%$ in 1993. This was probably the result of a combination of more crabs, more dealers handling them, and better reporting.

## OYSTERS:

Preliminary data show oyster production decreased $10 \%$. Demand was still down in 1993 because of health warnings.

## ALABAMA

## SUMMARY:

Total commercial landings for the year were 22.2 million pounds valued at 34.3 million dollars. Poundage declined $7 \%$ and value declined $4 \%$ from 1992.

## SHRIMP:

Shrimp landings increased $7 \%$ from 1992, but declined $3 \%$ over the last five years' average. During January through May, Alabama vessels fishing Florida returned with good catches of pink shrimp, mostly in the $41 / 50$ count range. During this same period the vessels that worked the Alabama to Texas offshore waters made only poor to fair catches of large-sized brown shrimp. Vessels fishing closer to shore picked up some large white shrimp mixed in their catch. Alabama boats fishing the opening of Louisiana inshore waters reported good initial catches of shrimp of about 35 boxes (61/70s)/trip before falling to 10 boxes or less for their second trip.

Mississippi and Alabama opened their inshore shrimp season during the latter half of June. Catches were poor ( 3 to 4 boxes/day) with sizes smaller than in previous years.

The usual contingent of Alabama vessels worked the Texas Season opening, but catches were poor. Most vessels started fishing their way back to Alabama a few days after the Texas opening. Several vessels made fair shrimp catches off Louisiana. Fall offshore catches ranged from poor to only fair amounts of large-sized brown and white shrimp; however, good prices made up the difference. Inshore catches picked up in October, especially in Mobile Bay, where boats made good catches of large white shrimp. The number of boats using skimmer rigs remained small compared to the total number of boats; however, the number of boats switching to them for the fall season increased again this year. Overnight trips by boats using skimmer rigs produced 1 to 2 boxes of shrimp, mostly $16 / 20$ count. Royal red shrimp landings increased in 1993 and approached the quota which was set in 1991. Increased landings of royal red shrimp were due to an increase in fishing activity caused by new vessels entering the fishery. A virtually unknown species of "megalops" shrimp (tentatively identified as Penaeopsis serrata) was also landed in an attempt to create a market for this species.

Shrimp tail prices at the beginning of 1993 were about $\$ 0.30 / \mathrm{lb}$ higher compared to the same period in 1992; prices held steady until summer and then declined. Prices increased again in October about $\$ 0.30 / \mathrm{lb}$. The inshore brown shrimp season, which produces the most heads-on landings, began with prices about $\$ 0.10 / \mathrm{lb}$ lower than in 1992. Head-on prices moved up in September and had increased $\$ 0.40 / \mathrm{lb}$ by year's end.

## FISH:

Fish landings were 4.2 million pounds, a $23 \%$ decline from 1992. Menhaden (bait) remained the volume leader even though landings declined $21 \%$. Mullet catches were second in volume and increased $8 \%$. Roe mullet prices increased slightly over 1992. Trawl catches were mixed; ground mullet (whiting) and sheepshead landings declined, while white seatrout landings increased and flounder landings were unchanged. Trawl catch prices were slightly higher during the year, except for brief periods of overabundance. Other fisheries with decreased landings were Spanish mackerel ( $-20 \%$ ), red snapper ( $-27 \%$ ) and shark ( $-89 \%$ ).

## OYSTERS:

Oyster landings in 1993 were 920 thousand pounds of meats, the equivalent of just over 150 thousand sacks. This was a $23 \%$ decline from a year ago. Public reefs accounted for $97 \%$ of the landings; slightly more than half came from the Mississippi Sound. Production from private beds totaled $3 \%$ of all landings but continued to lag due to poor prices. Sack prices from the public reefs averaged $\$ 0.11 / \mathrm{lb}$, a decline from the $\$ 0.14 / \mathrm{lb}$ paid in 1992. Waters were closed to harvesting on three brief occasions between January and May. During the remaining periods, waters were open to harvesting but limited to

12 sacks/catcher. An oyster-related illness eroded the market and slowed production during the fall at a time when landings would normally be reaching their peak. Dealers were forced to limit their catchers to one three-day trip/week to offset poor sales.

## CRABS:

Blue crab landings were 2.6 million pounds, a decline of $27 \%$ from 1992. Landings from February through September declined from $23 \%$ to $50 \%$ compared to similar pounds in 1992, before rebounding with double digit increases the last three months of the year. Overall, prices increased to a weighted average of $\$ 0.46 / \mathrm{lb}$, up $\$ 0.05 / \mathrm{lb}$ from 1992. Prices ranged from a low of $\$ 0.30 / \mathrm{lb}$ in July to a high of $\$ 0.80 / \mathrm{lb}$ in February.

## RECREATIONAL FISHERIES:

Charter boats had a good year; red snapper was the preferred catch. As usual, a few red snapper in the $30+$ pound range were landed, but most fish were five pounds or less. Cobia catches were better than usual in 1993 and their sizes were larger. White trout catches have been particularly good for several years. Good catches came from the lower bay and Mississippi Sound, however the larger sized fish (1-to-2 pounds) were caught off the gas rigs. Anglers rated red drum, spotted seatrout, flounder, triggerfish, amberjack and mackerel fishing at about average.

## ECONOMIC CONDITIONS:

Diesel fuel prices at the beginning of the year ranged from $\$ 0.62$ to $\$ 0.65 / \mathrm{gal}$; prices slowly edged down to $\$ 0.58-\$ 0.60 / \mathrm{gal}$ by year's end. There were no seasonal ice shortages and prices were steady at $\$ 6.50 /$ block.

## WEATHER:

Weather conditions were mostly seasonably normal, with a few exceptions: a mid-March snow storm up north, a wet spring and, a dry summer. Overall, precipitation was normal for the year.

## MISSISSIPPI

## SUMMARY:

Total landings of all species in 1993 was approximately 13.2 million pounds, compared to 13.1 million pounds in 1992. Only one local menhaden plant operated, so the total landings figures given above do not include menhaden. The value for all species, including menhaden, decreased approximately $7 \%$ ( $\$ 2.1$ million).

## SHRIMP:

Landings of 10.5 million pounds (heads-on weight) increased $4 \%$ from 1992; their total value was $\$ 18.4$ million. Average price per pound declined from $\$ 1.95 / \mathrm{lb}$ in 1992 to $\$ 1.75$ in 1993. Brown shrimp comprised $78 \%$ of the landings, with most caught during the summer. White shrimp made up $19 \%$ of the catch, with pink shrimp, seabobs and rock shrimp rounding out the other $3 \%$.

Some inshore Mississippi boats worked the special pink shrimp season in the Breton/Chandeleur Sounds beginning March 8 and ending April 2 with restrictions to night trawling only. Mississippi inside waters, for the brown shrimp season, opened the 2nd full week of June and remained open to December 31.

## FISH:

Total landings decreased $40 \%$ due to reduced landings of industrial fish and menhaden. The one pet food plant processing underutilized "trash fish" closed down in November 1993. No future activity is foreseen at this plant.

Food fish landings decreased 5\% compared to 1992. Landings for several major species were lower than in 1992. Exceptions were the increased landings of sheepshead (up $13 \%$ ), blue runner (up $10 \%$ ), and spotted seatrout (up $41 \%$ ) from 1992.

Demand for roe mullet was fair, with landings of 176 thousand pounds down $63 \%$ from 1992. The value was $\$ 128$ thousand. The average price per pound (\$0.78) was only \$0.02 lower than in 1992.

Snapper fleet operations were good, even with the season quota 3.06 million pounds. The red snapper fishery began February 15 and closed May 21. Catches of red snapper were $3 \%$ less than in 1992 but increased $2 \%$ in value. The landings of vermilion snapper, the other main snapper species unloaded in this area, decreased $30 \%$ compared to 1992.

Closure of the commercial fishery for large coastal sharks was effective May 15.
The annual commercial season on red drum, with a quota of 35 thousand pounds for the
state, was opened by the Department of Wildlife and Parks (DWL\&P) October 1 and remained open into 1994.

## OYSTERS:

Landings of approximately 1.45 million pounds of oyster meats were reported, double that of 1992 , and were valued at $\$ 1.591$ million. The average price for meats was $\$ 1.10 / \mathrm{lb}$ compared to $\$ 1.14 / \mathrm{lb}$ in 1992 . Processors met market demands with slightly increased landings of sack oysters. Oysters trucked in, mostly from Louisiana, were used to meet the demands of consumers, predominantly from the increased tourism along the Gulf coast. The commercial season is regulated by the Department of Wildlife and Parks, with oysters allowed to be taken only during daylight hours. The usual harvesting methods by hand (cooning), hand tongs or by a dredge were permitted.

## CRABS:

Landings of 252 thousand pounds of blue crabs were valued at $\$ 133$ thousand. These landings were approximately $50 \%$ lower than in 1992, but average price per pound was up $\$ 0.05$ to $\$ 0.53$. As usual, most crabbing came to a halt when the shrimp season opened.

## MISCELLANEOUS:

A move by the membership of the state's Gulf Coast Conservation Association (GCCA) to "ban fish nets" and elevate red drum to game fish status in Mississippi was turned down in 1993.

## LOUISIANA

## SUMMARY:

Total 1993 Louisiana fish and shellfish landings increased $28 \%$ to $1,296.3$ million pounds, but decreased $8 \%$ in value to $\$ 265.6$ million, compared to 1992 . Shrimp and crab production decreased, while all other fisheries increased. A delay in the opening of the spring brown shrimp season was partly to blame for the decline in shrimp landings.

In May and June the rising Mississippi River caused by heavy rainfall in the northern states, necessitated the opening of spillways to relieve pressure on the river levees. This excess fresh water from the river affected certain fisheries. Some inshore fisheries
flourished. Offshore, this fresh water caused a larger than ever "dead zone" (no oxygen) that was tracked from the Mississippi River to the east coast of Florida.

An incident occurred the weekend of May 21-23 when thousands of dead thread herring washed ashore in Grand Isle, LA. The nets on a couple of menhaden boats burst and released 300-350 tons of fish. (See Miscellaneous section under Lafourche Parish for details.)

The following weekend, May 27-29, 100 juvenile sea turtles washed up on Grand Isle beaches from Pass Fourchon to Grand Terre. A couple of the less decomposed turtles were taken to the Aquarium of the Americas in New Orleans for autopsies. The cause of dead was unable to be determined. See Miscellaneous section under Lafourche Parish for more details.

A 292-foot oil platform was relocated south of Grand Isle on April 17. This brings to 25 the total of such structures placed in federal waters as part of an aggressive fish habitat enhancement program. The platform owner also donated $\$ 105$ thousand to the Louisiana Artificial Reef Program. Hard-bottom habitat, such as oil and gas platforms and sunken vessels, are known to support concentrations of fish 20 to 50 times greater than neighboring soft-bottom areas.

## SHRIMP:

Shrimp landings decreased $10 \%$ overall to 87.6 million pounds, heads-on weight, and value also decreased $21 \%$ to $\$ 113.8$ million. Brown and white shrimp production were both down considerably, but the lower-value seabob production doubled compared to 1992.

There was a 10-day delay in the opening of the spring inshore brown shrimp season.
The fall inshore white shrimp season opened statewide on August 16 and remained open until December 20.

The TED regulations changed in 1992 to require TED use by all vessels shrimping inshore, as well as offshore, with a few exceptions to this rule.

## MENHADEN:

Menhaden landings increased $35 \%$ to $1,058.5$ million pounds and the value increased
$28 \%$, compared to 1992.

## FISH:

Overall, fish landings increased $33 \%$ to $1,102.7$ million pounds. Total value was $11 \%$ higher than in 1992. This increase seemed to be due mainly to the increases in menhaden production, mullet and roe mullet landings, and landings of other inshore species.

Decreases were experienced in many offshore fisheries. King mackerel (under quota) landings decreased $27 \%$ (down 291.4 thousand pounds). Shark (under quota) decreased $29 \%$ (down $1,087.3$ million pounds).

Red snapper landings (under quota) increased $7 \%$ (up 89.9 thousand pounds). The season for the red snapper fishery this year lasted from February 15 until May 21, (96 days) as compared to the quota being reached by the end of February in 1992. Landings of other snappers decreased $13 \%$ (down 108.0 thousand pounds). Yellowfin tuna decreased $54 \%$ (down 1,649.7 thousand pounds); groupers decreased $28 \%$ (down 153.9 thousand pounds); swordfish decreased $35 \%$ (down 333.6 thousand pounds).

Inshore fisheries fared better with major increases in landings. Roe mullet increased $108 \%$ (up $1,574.2$ million pounds), and black mullet was up $69 \%$ by more than 3 million pounds. Black drum increased $5 \%$ (up 164.1 thousand pounds); sheepshead up $16 \%$ (up 581.3 thousand pounds); and spotted seatrout (under state quota) increased $17 \%$ (up 166.6 thousand pounds). Red drum retained its game fish status.

## CRABS:

Blue crab production decreased $12 \%$ to 45.9 million pounds. The value was comparatively down also by $10 \%, \$ 245$ million.

## OYSTERS:

Production of oysters increased $12 \%$ to 10.3 million pounds, with the value down $5 \%$ to $\$ 17.1$ million.

## CRAWFISH:

The states crawfish landings increased $86 \%$ to 49.7 million pounds, with value up $25 \%$
to $\$ 19.9$ million.

## ST. BERNARD, ORLEANS, and ST. TAMMANY PARISHES

## SHRIMP:

Total landings for this area increased $32 \%$. Landings of 4.6 million pounds heads-on shrimp were reported from 12,927 trips, an increased effort of $35 \%$, or 3,376 more trips. Brown shrimp accounted for $68 \%$ of the total landings. Brown and white shrimp sizes were mostly mid-size throughout the season. Ex-vessel shrimp prices started lower and stayed fairly steady throughout both seasons, compared to 1992 prices. Prices were mostly within the following ranges: $31 / 35$ count, $\$ 1.70-1.80 / \mathrm{lb} ; 36 / 40, \$ 1.50-\$ 1.60$; 41/50, \$1.30-\$1.40; 51/60, \$0.85-\$1.00; 71/80, \$0.75-\$0.90. The 1993 prices increased as much as $\$ 0.20$ to $\$ 0.30 / \mathrm{lb}$ to the boats. The wholesale dealers' commission from processors was better this year, $\$ 0.15$ or more to the pound compared to the $\$ 0.05$ to $\$ 0.10 / \mathrm{lb}$ they got in 1992. The shrimping effort for the most part stopped very early this year and most docks were closed by Thanksgiving. The docks that remained open had very little shrimp activity and were mainly open for the mullet season and other fisheries. All but one shrimp dock in this area was closed by the end of November and the last closed during the first part of December.

All dealers in this area operated in 1993, including one crab/oyster dock that purchased shrimp for the first time this season. Also, a couple of small retail outlets bought directly from boats this year.

## CRABS:

Landings of 5.4 million pounds of blue crabs decreased $39 \%$; the average price was up $14 \%$ compared to 1992 . Number 1 crabs sold for $\$ 0.45$ to $\$ 0.55$ each, but others were $\$ 0.25$ to $\$ 0.35$ each.

Soft crab production was 57 thousand pounds; this was 17.3 thousand pounds ( $23 \%$ ), less than in 1992, but the value was $42 \%$ higher.

## OYSTERS:

Production of 6.7 million pounds of oyster meats was 42.4 thousand pounds higher than in 1992. P\rices decreased $25 \%$.

## FISH:

Landings of 4.6 million pounds and prices were both up compared to 1992. Black mullet was the major species landed with 3,574 thousand pounds, or $78 \%$ of the total landings. Black drum and sheepshead landings of 649 thousand pounds made up most of the rest of the total catch for this area.

## ICE:

Supplies of ice were adequate. The price of ice was $\$ 8.00$ for a 300 -pound block, with a range of $\$ 8.00-8.50 /$ block.

## FUEL:

Fuel supplies was adequate; diesel prices ranged from $\$ 0.69 / \mathrm{gal}$ to $\$ 0.83 / \mathrm{gal}$. Regular gasoline was around $\$ 1.03 / \mathrm{gal}$.

## WEATHER:

Weather conditions were mostly good, which accounted for the greater fishing effort and higher landings.

## PLAQUEMINES PARISH

## SUMMARY:

Total pounds of seafood landed in 1993 increased $22 \%$ from 1992, but the total value decreased $12 \%$. Excluding the increase of menhaden landings by one plant, fish landings ( 17.6 million pounds) were about the same as in 1992; as was the value ( $\$ 12.3$ million) of the landings. All species of shellfish decreased 1.5 million pounds ( $7 \%$ ), and the total value of shellfish decreased $\$ 6.7$ million ( $20 \%$ ).

## SHRIMP:

The number of shrimping trips declined from 27 thousand in 1992 to 21 thousand in 1993. This $22 \%$ reduction of effort was the most significant statistic of the year. A contributing factor was a 10 -day delay in the normal inshore brown shrimp season startup date, when there were 3 thousand fewer trips in that ten days than in the comparable 1992 period. Brown shrimp landings increased $23 \%$ to 8.625 million pounds, but were down $9 \%$ in value to $\$ 8.5$ million. White shrimp landings declined $41 \%$ to 4.7 million pounds, and $39 \%$ in value to $\$ 9.3$ million. Seabob landings increased $38 \%$.

## CRABS:

Hard blue crab landings fell $35 \%$ to 1.4 million pounds, with a corresponding drop in value to $\$ 7.5$ million ( $32 \%$ decrease).

## OYSTERS:

Oysters landings increased slightly (13\%) to four million pounds, and value increased to $\$ 8.2$ million (4\%).

## FISH:

King mackerel landings and value decreased over $50 \%$. Vermilion snapper landings increased $169 \%$, and their value increased $\$ 219$ thousand ( $153 \%$ ). Sharks decreased by a third to 1.2 million pounds, but higher prices held the loss in value to $\$ 190$ thousand $(-20 \%)$. Tuna fell 800 thousand pounds to 1.5 million ( $-35 \%$ ), with a resulting loss of $\$ 2.1$ million ( $-40 \%$ ). Swordfish decreased by half, as did their value. Mullet landings doubled to seven million pounds, with a corresponding $67 \%$ increase in value.

## WEATHER:

In 1992 Hurricane Andrew was blamed for deteriorated fishing conditions. In 1993, however, there were no significant extremes in weather.

## ENVIRONMENTAL ECOLOGY:

The rising Mississippi River in May and June, caused by heavy rainfall in northern states, necessitated the opening of spillways to relieve pressure on the levees. This allowed fresh water into brackish waters and "chased" shrimp out to sea. One dealer closed one week into the brown shrimp season, when the spillway near him opened, effectively terminating his entire shrimping season.

## UPPER JEFFERSON PARISH (Lafitte/Barataria Areas)

## SHRIMP:

Shrimp landings decreased about $12 \%$ from 1992 and were down about $13.5 \%$ compared to a 5-year period.

## CRABS:

Production of hard blue crabs decreased approximately $33 \%$ in 1993, with the 5 -year average down between $30 \%$ and $35 \%$. Dealers bought mostly culled crabs, with exvessel prices decreasing about $\$ 0.05 / \mathrm{lb}$. Crabbing decreased considerably between May and November, but after the shrimp season a few fishermen went back to crabbing.

## OYSTERS:

The number of sacks of oysters landed during 1993 increased considerably. Oyster meat yield production doubled in 1993. With this increased production, prices were $25 \%$ to $35 \%$ lower than in 1992.

## FISH:

During the winter months, a few Lafitte/Barataria Gulf vessels went trawling for fish. The bulk of the landings were black drum, flounder, king whiting and sheepshead, with moderate catches per trip reported. Inshore gill netters landed mostly mullet, sheepshead, and spotted seatrout. Freshwater catfish and garfish were the predominant species caught by inshore troutliners.

## FUEL:

The price of gasoline ranged from \$1.11 to $1.28 / \mathrm{gal}$, a slight increase compared to 1992. The price of diesel fuel ranged from $\$ 0.61$ to $\$ 0.75 / \mathrm{gal}$, down approximately $\$ 0.03 / \mathrm{gal}$.

## ICE:

The price of ice was about $\$ 0.25$ lower for a 300 pound block, compared to last year's average of $\$ 6.25 /$ block.

## LAFOURCHE PARISH and LOWER JEFFERSON PARISH (Grand Isle)

## SUMMARY:

Total landings in Lafourche Parish decreased slightly from 21.9 million pounds in 1992 to 20.7 million pounds in 1993. At Grand Isle, on the other hand, landings increased from 21.2 million pounds to 27.8 million pounds, mostly due to increased oyster production.

SHRIMP:

Shrimp landings decreased slightly in both ports, coming off a poor 1992 year. The Grand Isle area failed to produce in the spring off the beach and in the passes, as in previous years. Inside waters did not open for shrimpers until May 31, and most of the shrimp landings were small, probably due to the cool spring. Offshore shrimp vessels did not fare much better and then had a poor season in Texas. A colder than normal fall put an already poor shrimp season to an early close.

## CRABS:

Combined landings of blue crabs for the two ports decreased a little over 2.0 million pounds. This increased the demand for crabs, and consequently prices, toward the end of 1993.

## FISH:

Total landings of fish increased slightly in both ports for 1993. King mackerel landings were down in Lafourche Parish from 410 thousand to 243 thousand pounds and at Grand Isle from 453 thousand pounds to 386 thousand pounds.

Snapper and grouper landings decreased about 86 thousand pounds in Lafourche Parish, but increased about 92 thousand pounds in Grand Isle. The red snapper quota was reached May 21, with Lafourche Parish landings about $40 \%$ of the red snapper in the two areas.

Shark landings decreased from 8 thousand pounds to 2 thousand pounds in Grand Isle and took a big drop in Lafourche Parish from 140 thousand pounds to just over 11 thousand pounds.

Swordfish landings decreased markedly from 1992 to 1993. At Lafourche, landings declined from 12,500 pounds to 175 pounds, while Grand Isle landings declined from 17,850 pounds to zero.

Tuna landings declined in Grand Isle from 177 thousand pounds to 64.5 thousand pounds while in Lafourche parish the total pounds increased from 255 thousand pounds to 431 thousand pounds. Prices for tuna were somewhat lower than in 1992.

For the inside waters of Grand Isle, landings of black drum and sheepshead declined sharply, landings of spotted seatrout increased slightly and landings of flounder were about the same as in 1992. Landings of black drum and sheepshead in Lafourche Parish also declined, although not nearly as dramatically as in Jefferson Parish. Seatrout landings in Lafourche Parish were virtually unchanged, while flounder landings increased
about 34 thousand pounds. Mullet landings increased from 0 to 115 thousand in Grand Isle, and decreased slightly in Lafourche.

## WEATHER:

There was unusually high rainfall through the first quarter of 1993, with an extremely mild winter. By mid-March, rains continued and winter decided to pay a visit with strong northern winds and some of the lowest tides in many years. This had a double whammy on the fishermen, keeping them in port and disrupting the incoming shrimp crop. On April 8, a tornado struck the Port Fourchon area causing minor damage to vessels and dockside facilities. Very little rain fell in April, May, and June, and temperatures were cooler than usual. The cool temperatures forced the Louisiana Department of Wildlife and Fisheries (LDWF) to recommend a late inside shrimp season opening. Heavy rains and windy weather returned in July, August, and September. The last quarter of the year brought unusually cold weather, with record cold temperatures during November. This hampered fishing due to the strong northerly winds and "chased" the remaining white shrimp out into the gulf and all but finished inshore shrimping for 1993.

## MISCELLANEOUS:

Around May 25, a net being fished by two menhaden boats off the coast of Grand Isle broke, causing them to lose their catch consisting of about 300 tons of thread herring. The fish started to wash up on Grand Isle beaches just before their first big tourist weekend of the year, Memorial Day. Crews came in to bury the fish and the situation improved. Agents with the LDWF enforcement division said they doubted if any state law was broken and there was no investigation of the incident.

Perhaps the biggest story of the year was when approximately 100 Kemp's ridley turtles washed up on the beaches at Fourchon, Elmer's Island, Grand Isle and Grand Terre Islands just before the opening of the inshore waters shrimp season. Alleged causes ranged from disease, oil spills, or shrimp trawlers to the menhaden incident.

As a result of a two-year undercover operation, 47 people, including 18 locals were charged with selling illegal fish and game to fictitious seafood dealers. Most of the locals were charged with selling red drum.

During the month of August the No. 1, No. 3, and No. 10 state record tarpon were caught. The change, according to veterans, is due to better techniques - circle hooks, newly-developed jigs, and the use of sonar to find and reach the deep-running fish.

## TERREBONNE PARISH

## SHRIMP:

In 1993 shrimp production was 1.338 million pounds lower than in 1992. The total number of trips decreased 2,501 from 1992. June was the most productive month. In November over one million pounds of seabobs were landed.

Shrimp sizes were small for most of 1993. Most small shrimp and seabobs were peeled or dried by local processing plants.

Shrimp prices were relatively high during all of 1993, with stiff competition among dealers.

The TED controversy quieted down during 1993, except for the vessels that were given citations for not using one. Most people in the industry were just tired of hearing about all the new regulations being implemented. This has not helped port agents in getting interviews; shrimpers feel like NMFS is trying to put them out of business.

Three shrimp plants closed and one plant opened during 1993.

## CRABS:

Blue crab production was good to poor during 1993. Prices ranged from $\$ 0.20$ to $\$ 0.85 / \mathrm{lb}$. This crab fishery has been slow since the middle of 1993. Processing plants and restaurants have trouble getting the crabs they need to fill orders. The number of fishermen in this fishery increased during 1993. Because the inshore shrimp season was poor, many shrimp fishermen turned crabbing to make financial ends meet.

## OYSTERS:

Oyster production was steady during most of 1993. Prices ranged from $\$ 7.00$ to $10.00 /$ sack for local oysters. Bad publicity about oysters making people sick has hurt the oyster fishery.

## FISH:

Trammel and gillnet fishermen are almost a thing of the past in this port. Red drum was
declared a game fish, again for 1993 and the quota on spotted seatrout didn't help either. Longliners had a fair year; three dealers unloaded the longliners in this port. Another dealer rented out dock space for a longliner to unload its catch for trucking to another plant in Louisiana.

## WEATHER:

September was the only dry month, with the rest of the year being wet and windy. This weather hampered the fishermen.

## ENVIRONMENTAL/MARINE ECOLOGY:

Periodic "dead" zones in the Gulf of Mexico and lack of oxygen in state waters are a major concern to all fisheries.

## ST. MARY, IBERIA and VERMILION PARISHES

## SHRIMP:

Shrimp production decreased 36\% in Iberia Parish, 76\% in St. Mary Parish, and 19\% in Vermilion Parish. Effort decreased $36 \%$ in Iberia and Vermilion Parishes and $56 \%$ in St. Mary Parish, with an overall reduction of 3,929 trips for the three parishes. The late brown shrimp season opening contributed to the low production and effort, as did the new TED regulations for small inshore boats, and the lower catch rates.

Seabob landings were down but "blood shrimp" (Trachypenaeus) landings increased, since a few trawlers targeted this more profitable species.

Besides having to use TEDs year-round, trawlers also had to contend with heavy concentrations of seaweed, which have clogged TEDs, and caused damage to nets and loss of shrimp, time, and money. Mandatory TED usage also caused many small boat owners to give up trawling because of the expense, loss of shrimp, and its cumbersome features.

Trawlers claim that since the red drum has been made a game fish, shrimp catch rates have declined dramatically. Red drum are voracious predators of shrimp, crabs, and oysters.

Two new dealers opened for business, one in St. Mary Parish, and the other in Vermilion Parish. One dealer in Vermilion Parish closed.


#### Abstract

A bycatch seminar was held in Lafayette at the University of Southwestern Louisiana for members of the industry, gear developers, and other interested parties.


## FISH:

Freshwater fish production declined 7\%, due to a slow recovery of the Atchafalaya basin from hurricane Andrew in August 1992. Restocking of the great overflow swamp has been successful through efforts of the Louisiana Wildlife and Fisheries Department, sports fishing groups, private industry and universities.

Complaints from crabbers and shrimpers about the abundance of red drum have fallen on deaf ears, as red drum was again designated a game fish by the Louisiana Wildlife and Fisheries Commission. Sports fishermen enjoyed the bounty of keepers as many anglers easily filled bag limits.

The red snapper season opened February 15, with vessels reaching the 2000 pound/trip limit every 24 hours causing a derby-like fishing spree. The red snapper season closed May 21, amid many complaints about trip limits, quotas, and prices.

## CRABS:

Production of live hard blue crabs decreased $26 \%$, but prices averaged $\$ 0.46 / \mathrm{lb}$, up $\$ 0.04 / \mathrm{lb}$ from 1992. Processed peeled crabs yielded an average of $13 \%$ meat. Soft crab production decreased $25 \%$; prices averaged $\$ 1.66 / \mathrm{lb}$.

Attempts made by crabbers to end game fish status for red drum in order to reduce crab predation were unsuccessful.

## OYSTERS:

Oyster production remained low as local oyster beds have not fully recovered from hurricane Andrew. Prices averaged $\$ 1.57 / \mathrm{lb}$ and yield was $4 \%$ to $7 \%$.

Publicity about illnesses from eating contaminated raw oysters dealt a damaging blow to the oyster industry. A study by Louisiana State University reported that using hot pepper sauce on raw oysters destroys many of the organisms which cause illness, but the results are preliminary.

## CRAWFISH:

Crawfish production increased $54 \%$. Production was up because of a lack of predators
which were killed during hurricane Andrew, and a higher water level in the Atchafalaya basin due to the heavy flooding of the Mississippi River from the Missouri floods. Prices averaged $\$ 0.38 / \mathrm{lb}$, compared to $\$ 0.54 / \mathrm{lb}$ in 1992 . Prices were so low that fishermen went on strike. Imports from China may have contributed to the lower prices.

Labor problems are still affecting the crawfish industry, as peeling plants continue to have trouble getting enough people to work.

## MENHADEN:

Menhaden production increased, with meal production up $17 \%$, oil up $33 \%$, and solubles up $20 \%$. Bait production remained steady. Prices rose $15 \%$ for meal, $37 \%$ for oil, and $30 \%$ for solubles.

## WEATHER:

Weather conditions were fair to good for most of 1993, with the exception of a severe cold front in mid March. Temperatures plummeted below freezing, causing a halt in all fishing activity.

## CAMERON PARISH

## SHRIMP:

The 1993 shrimp production of 7.8 million pounds was 1.4 million less than 1992 , a $15 \%$ decrease.

The TED controversy continued to flare up periodically.

## CRABS:

Hard blue crab production decreased $23 \%$.

## OYSTERS:

Oyster production decreased $64 \%$. The poisoning scare from oysters harvested elsewhere in Louisiana early in the oyster season pretty well killed sales here, although no illness was ever tied to oysters from Cameron. Prices were also kept down by a scarcity of buyers in Cameron. The daily take and possession limit of oysters from Calcasieu Lake was raised from 10 to 15 sacks/day for part of the season.

## FISH:

Red snapper production decreased $1 \%$.
Production of flounder decreased 7\%, sheepshead increased 37\% (after being up in 1992 by $21 \%$ ), and spotted seatrout production (at 168 thousand pounds) was essentially the same as in 1992.

## MENHADEN:

Menhaden production was up $25 \%$.

## TEXAS

Preliminary data suggest that 1993 Texas landings were 88.8 million pounds, a $7 \%$ decrease from 1992, and the value was about \$155.3 million, a $14 \%$ decrease from 1992.

## FISH:

Fish landings decreased to 4.3 million pounds in 1993. Swordfish landings were 218 thousand pounds (a $12 \%$ increase) with a value of $\$ 613$ thousand (an $11 \%$ increase).

Yellowfin tuna landings declined $49 \%$ to 709 thousand pounds, with a $\$ 1.4$ million exvessel value, a $42 \%$ decrease.

Bluefin tuna landings totalled 36 thousand pounds, less than half of the 1992 landings, with a value of $\$ 236$ thousand.

Reef fish landings increased again in 1993. Red snapper landings (almost 1.1 million pounds) rose $17 \%$, grouper ( 144 thousand pounds) was up $14 \%$, and tilefish increased to 38 thousand pounds. Average prices increased $\$ 0.22 / \mathrm{lb}$ for red snapper (total value $\$ 2.0$ million), rose $\$ 0.05 / \mathrm{lb}$ for grouper (total value $\$ 237$ thousand), but decreased $\$ 0.20 / \mathrm{lb}$ for tilefish (total value $\$ 37$ thousand).

## SHRIMP:

Total shrimp landings were 75.9 million pounds (heads-on), an $8 \%$ decrease from 1992. Shrimp value decreased $10 \%$ to $\$ 141.8$ million. Total shrimp landings in the bays were about 18.5 million pounds, an $11 \%$ decrease from 1992. Texas shrimp landings from Gulf waters decreased $6 \%$ to 57.4 million pounds. Most of the catches occurred off the central and northern Texas coasts.

The Gulf closure off Texas in May, June and July 1993 extended from the beach to 200 miles; this prohibited all shrimping outside the bays during the closure. The Texas brown shrimp season got off to a slow start, with catches in July and August much lower ( 1 to 7 boxes/night) and shrimp smaller than normal, but catches remained steady into the winter months.

Shrimpers, along with environmentalists and sports fishermen, questioned allowing shrimp farms to dump 100 million gal/day of waste water into the Arroyo Colorado. In addition to potential releases of exotic species, their concerns were increases in salinity and turbidity in the Laguna Madre that possibly were contributing factors to the brown tide that has plagued the area every year in recent history.

## FUEL:

Fuel prices declined slightly, ranging from $\$ 0.49$ to $\$ 0.72 / \mathrm{gal}$.

## OYSTERS:

Preliminary 1993 oyster landings totalled 2.6 million pounds of meats, a $4 \%$ decrease from 1992. Once again, oyster beds were closed periodically during the season. Increased health concerns over the safety of oysters hampered sales.

## CRABS:

Preliminary blue crab landings in 1993 were 6.0 million pounds, about the same as in 1992.

Stone crab landings declined to 23 thousand pounds, a $74 \%$ decrease from 1992 landings.

## REGULATIONS:

Regulations mandating year-around use of TEDs were implemented in December 1, 1992. U. S. Coast Guard personnel routinely boarded vessels engaged in shrimp fishing to enforce TED regulations. Although TED compliance increased, many vessels were cited for violations. A few vessels were caught fishing during the Texas shrimp season closure, and some were cited for Lacey Act violations. The U. S. Coast Guard also enforced MARPOL, OSPREY, and new safety regulations requiring captains to pass first-aid/CPR classes by September 1993.

NMFS port agents continued to encounter hostility on the docks because of the TED regulations, making it difficult in some areas to obtain shrimp interviews. 1993 was the
first year for the red snapper endorsement program. Beginning February 15, permitted reef fishermen with endorsements were allowed to catch 2,000 pounds of red snapper/trip, while those without endorsements were limited to 200 pounds/trip. At the same time, the 1993 commercial red snapper quota was increased to 3.1 million pounds. The combination of trip limits and higher quota extended the red snapper season to 96 days; the season closed May 20, 1993.

## FINANCIAL:

1993 was marked by a continuing trend of repossessions of vessels by lending institutions and a growing reluctance to loan money to finance fishing vessels and seafood businesses. The shrimping fleet is in poor financial condition due to the tight economy. As a consequence, many craft left the shrimp fishing industry or were offered for sale. A number of shrimp vessels were sold and moved to Central American countries. Numerous shrimp dealers sold their businesses, closed their doors, or went bankrupt; others are just barely making a living and a few new shrimp businesses opened.

## WEATHER:

Although the heavy spring floods along the coast which affected landings in the previous years were not repeated, the spring of 1993 continued the trend of wetter than usual weather, with heavy rains flushing out the bays.

A late winter storm in March reduced water temperatures and may have affected juvenile brown shrimp growth.

Tropical storm Arlene dumped heavy rains in June, but the fall months were mild and dry.

## PORT ARTHUR:

## SHRIMP:

Shrimp production for the area was 8.7 million pounds (heads-on weight), about $4 \%$ less than in 1992.

## FISH:

Fish landings decreased to 132 thousand pounds, less than half of last year's landings. Red snapper landings increased $1 \%$ to 44 thousand pounds, whereas yellowfin tuna
landings declined to 40 thousand pounds, a $75 \%$ decrease. Bluefin tuna landings totalled 23 thousand pounds, down $29 \%$ from 1992, but still more than $60 \%$ of the total bluefin tuna landed in the state.

## Crabs:

Blue crab landings in 1993 increased $36 \%$ to 890 thousand pounds.

## GALVESTON AREA

## SHRIMP:

Total shrimp production for the Galveston area was 11.9 million pounds (heads-on weight), an $11 \%$ decrease from 1992. Gulf vessels landed 6.1 million pounds, about $16 \%$ less than in 1992; while bay landings decreased $5 \%$ to 5.8 million pounds.

Galveston Bay catches of brown shrimp were small, but brown shrimp continued to be caught at a steady rate throughout the summer. Mild fall weather may have contributed to increased white shrimp catches in the bay.

## FISH:

Total fish production for Galveston was about two million pounds, a $5 \%$ decrease from 1992. Galveston remains a major longline landing port; over 483 thousand pounds of yellowfin tuna (a $34 \%$ decrease), 10 thousand pounds of bluefin tuna (a $75 \%$ decrease), 150 thousand pounds of amberjack, 219 thousand pounds of vermilion snapper, and about 466 thousand pounds of red snapper were landed during 1993.

## OYSTERS:

Total oyster production in Galveston Bay was 2.5 million pounds, a $4 \%$ decrease from 1992. Value decreased $22 \%$ to $\$ 3.9$ million.

## CRABS:

Blue crab landings declined $24 \%$ to 2.0 million pounds, and stone crab landings declined $37 \%$ to about 13 thousand pounds.

FREEPORT-PALACIOS-MATAGORDA
SHRTMP:

Total shrimp production for this area was 17.6 million pounds (heads-on weight), about the same as in 1992.

## FISH:

Fish landings increased $5 \%$ to 206 thousand pounds with a value of $\$ 377$ thousand. Red snapper landings almost doubled to 140 thousand pounds. Flounder ( 10 thousand pounds) and vermilion snapper ( 34 thousand pounds) were the other major species landed.

## CRABS:

Blue crab landings continued to be extremely low, dropping to less than 1,000 pounds.

## ROCKPORT-ARANSAS PASS-PORT LAVACA

## SHRIMP:

Total shrimp landings for the area were approximately 19.8 million pounds (heads-on weight), a $14 \%$ decrease from 1992. Offshore catches fell $11 \%$ to 9.6 million pounds and bay catches decreased $17 \%$ to 10.2 million pounds heads-on weight.

The first quarter of 1993 saw a continuation of weather patterns of 1992, which had one of the highest watershed rainfalls in the last 100 years. San Antonio Bay and Nueces Bay waters were completely fresh and the other bay systems had very low salinity during this period. Prolonged heavy spring flooding definitely had an adverse affect on the shrimp fishery in this area. Shrimp catches were extremely poor during these months. A subsequent dry spell from April through September raised salinity values in all bay systems.

## FISH:

Fish landings increased slightly to 1.0 million pounds. This included more than 165 thousand pounds of red snapper (up $24 \%$ ), 46 thousand pounds of swordfish (more than three times the 1992 landings), and 32 thousand pounds of yellowfin tuna.

## OYSTERS:

Due to heavy flooding, oyster die-offs (San Antonio Bay experienced a $99 \%$ die-off) and frequent reef closures in the bays, oyster production declined to 48 thousand pounds.

## CRABS:

Blue crab production remained stable at 3.1 million pounds.

## BROWNSVILLE-PORT ISABEL

## SHRIMP:

Shrimp landings totalled 17.8 million pounds (heads-on weight), a $7 \%$ decrease from 1992. The size of the fleet decreased slightly; some vessels sank, some were sold, and some were replaced.

## FISH:

Total fish landings for the area decreased $29 \%$ to 1.0 million pounds in 1993. Longline activity continued, mainly for swordfish ( 127 thousand pounds), red snapper ( 240 thousand pounds) and yellowfin tuna (153 thousand pounds).

## PUERTO RICO

The fisheries of Puerto Rico are predominantly artisanal, multigear and multispecies. Most fishermen concentrate their efforts on shallow water reef fish and on a variety of shellfish; mainly spiny lobster and queen conch.

Landingssof fish and shellfish were voluntarily reported by fishermen, fish buyers, and fishing associations around the 42 coastal municipalities and 92 fishing centers (landing areas).

In 1993, total reported landings of fish and shellfish were 2.5 million pounds. These are the highest reported landings since 1986. Actual landings are estimated to have been in the vicinity of 3.9 million pounds. This estimate is reached by using a correction factor of $64 \% \pm 11 \%$ to cover unreported or under-reported landings. All data provided herein relate to reported data only.

## FISH:

The most important fish in terms of percentage of total pounds landed in 1993 was silk snapper (mainly Lutjanus vivanus), $9.7 \%$; yellowtail snapper (Ocyurus chrysurus), $7.3 \%$; various species of groupers, mainly red hind (Epinephelus guttatus), $5.3 \%$; various
species of grunt, mainly white grunt (Haemulon plumieri), $6.4 \%$; various species of parrotfish, $6.4 \%$; lane snapper (Lutjanus synagris), $3.6 \%$; dolphinfish, $3.0 \%$; various species of tuna, $3.5 \%$; and mackerels and wahoo (Scomberomorus cavalla and Acanthocybium solanderi), $4.7 \%$.

## SHELLFISH:

The most important shellfish in terms of percentage of total landed reported pounds for 1993 were spiny lobster (Panulirus argus), $6.8 \%$, and queen conch (Strombus gigas), $6.6 \%$.

## MUNICIPALITIES:

The most productive municipality was Cabo Rojo reporting 790,687 pounds ( $32 \%$ ), followed by Mayaguez reporting 166,079 pounds ( $6.6 \%$ ), Aguadilla reporting 134,444 pounds ( $5.4 \%$ ), Guánica reporting 129,675 pounds ( $5.2 \%$ ) Guayama reporting 113,190 pounds (4.5\%) and Aguada reporting 96,507 pounds (3.8\%).

## GEARS:

The top five gears reporting landings in Puerto Rico during 1993 were: hand lines with 766,103 pounds ( $31 \%$ ), fish pots with 609,897 pounds ( $24 \%$ ), SCUBA divers with 333,522 pounds ( $13 \%$ ), trammel nets with 267,463 pounds ( $11 \%$ ) and gill nets with 248,460 pounds ( $10 \%$ ).

## Virgin Islands

Commercial fisheries in the U. S. Virgin Islands are best described as multi-species, multi-method fisheries. Typical of this description is the shallow water reef fishery, involving as many as 180 species and many harvesting methods which include traps, hook and line, nets, and spear fishing. Commercial fishermen introduced scuba gear in the 1970s and monofilament gill nets in the 1980s. These gears have had a tremendous impact on the inshore stocks of reef fish, conch and spiny lobster. Inshore resources have been further limited by water quality, environmental health, and availability of suitable habitat on the relatively narrow insular shelf platforms. Inshore fishermen also harvest pelagic resources from the same vessel as a result of the close proximity of deep water close to shore.

From July 1992 through June 1993, 409 commercial fishermen in the U.S. Virgin Islands harvested 1.101 million pounds of marine products, valued at $\$ 4,406,010$. Catch per unit of effort (CPUE), as measured as pounds/fish harvested/fishermen/year, equaled

4,179 pounds for St.Thomas-St. John, 1,897 pounds for St. Croix, and 3,099 pounds for the Territory.

Port samplers estimate that the number of full time commercial fishermen appears to be approximately $50 \%$ of the total number of licensed fishermen. The number of part time commercial fishermen fluctuates according to the economic conditions in the islands. Better economic times reflect fewer part-time fishermen in the fishery. The number of fishermen submitting reports has increased greatly, due to the monthly reporting requirement, rather than annually at the time of license renewal. Increased fish and lobster landings are believed to be due to the greater percentage of fishermen reporting and the harvesting techniques currently employed (i.e., monofilament gill and trammel nets and scuba diving) as opposed to a general increase in fishery resources.

## FISH:

Fish traps (or pots) remain the most important method for harvesting reef fish in St. Thomas-St. John and account for $53.5 \%$ of the total catch. Line fishing is the second most important commercial harvesting technique in St. Thomas-St. John (accounting for $19.3 \%$ of the total catch) and the most important fishing gear in St. Croix (accounting for $47.8 \%$ of the total catch). Significant amounts of offshore pelagic species enter into the hookfish category; however, inshore and offshore harvests can not be differentiated on present catch forms.

During July 1, 1992 to June 30, 1993, approximately 9,000 fish pots were used in the fishery. Census landings information from 1917 indicates that there were 356 fish pots in the St. Thomas-St. John fishery which caught 350,482 pounds of fish or $9,845 \mathrm{lbs} /$ pot. Fish traps during 1992-93 from the same fishery ( 6,000 pots) caught 455,852 pounds of reef fish or $76 \mathrm{lbs} /$ pot. From July 1992 through June 1993, 416,090 pounds of pot fish were harvested from St. Thomas and St. John and 90,525 pounds were harvested from St. Croix, totaling 506,615 pounds for the Territory.

## CONCH AND WHELK:

Minimal amounts of whelk were reported harvested from both island groups. Only 1,088 pounds of queen conch were reported harvested from the St. Thomas-St. John area. A total of 10,663 pounds of conch was reported on catch records for St. Croix.

## SPINY LOBSTERS:

Landings of spiny lobster for St. Thomas and St. John were 92,398 pounds. Landings of spiny lobster for St. Croix were 12,828 pounds.

1993 REPORTED LANDINGS

NATIONAL MARINE FISHERIES SERVICE
FISHERIE STATISTICS DIVISION
DATE OF RUN
6/06/94
PAGE $\dagger$

## 1993 Landings for the state of north carolina <br> in the south atlantic region



1993 LANDINGS FOR THE STATE OF NORTH CAROLINA
IN THE SOUTH ATLANTIC REGION


1993 LaNdings for the state of north carolina in the south atlantic region


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## 1993 LANDINGS FOR THE STATE OF SOUTH CAROLINA <br> IN THE SOUTH ATLANTIC REGION

| SPECies | FROM O TO $\frac{\text { THOUSAND }}{\text { POUNDS }}$ | $\begin{aligned} & \text { DISTANCE } \\ & \text { 3 MILES } \\ & \text { THOUSAD } \\ & \hline \text { DOLLARS } \end{aligned}$ | from | U.S.SHORES BETWEEN 3 AN THOUSAND POUNDS | ND 200 MILES THOUSAND DOLLARS |  | HIGH SEAS OR OFF FOREIGN SHORE THOUSAND $\begin{aligned} & \text { THOUSND } \\ & \text { POUNDS } \\ & \text { DOLLARS }\end{aligned}$ |  | $\frac{\text { THOUSAND }}{\text { POUNDS }}$ | $\begin{aligned} & \text { TOTAL } \\ & \text { THOUSAND } \\ & \hline \text { DOLLARS } \end{aligned}$ | PR/LB |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Bluefish |  |  | : |  |  | : |  | : |  |  | \$.00 |
| Croaker |  |  | : |  |  |  |  | : |  |  | \$.00 |
| Fi-Fluke | 14 | 15 |  | (2) | 1 |  |  | : | 14 | 16 | \$1.14 |
| Groupers |  |  | : | 636 | 1,412 |  |  | : | 636 | 1.412 | \$2.22 |
| Mckri-King/Cero: |  |  | : | 162 | 246 |  |  | : | 162 | 246 | \$1.51 |
| Mullet-(B.\&S.) | 159 | 40 |  |  |  |  |  | :- | 159 | 40 | \$. 25 |
| Scup or Porgy |  |  |  | 138 | 166 |  |  | : | 138 | 166 | \$1.20 |
| Sea Bass-Bk.-A. |  |  | --- | 183 | 253 |  |  |  | 183 | 253 | \$1.38 |
| Shark-Dogf ish |  |  | : |  |  |  |  |  |  |  | \$.00 |
| Sharks-Unc | 34 | 11 | : | 329 | 122 |  |  | : | 363 | 133 | \$.36 |
| Snapper-Red |  |  |  | 82 | 230 |  |  | : | 82 | 230 | \$2.80 |
| Snapper-Other |  |  | : | 261 | 546 |  |  | : | 261 | 546 | \$2.09 |
| Mackerel-Span |  |  |  |  |  |  |  |  |  |  | \$.00 |
| Swordfish |  |  | : | 170 | 561 |  |  | : | 170 | 561 | \$3.30 |
| Tilefish |  |  | : | 247 | 320 |  |  | : | 247 | 320 | \$1.29 |
| Tuna-Albacore |  |  | ! | 5 | 6 |  |  |  | 5 | 6 | \$1.20 |
| Tuna-Bluefin |  |  | : | 1 | 8 |  |  | : | 1 | 8 | \$8.00 |
| Tuna-yellowf in |  |  |  | 48 | 90 |  |  |  | 48 | 90 | \$1.87 |
| Tuna-Unclass. |  |  | , | 8 | 6 |  |  |  | 8 | 6 | \$.75 |
| Tuna-Bigeye |  |  | : | 6 | 14 |  |  | : | 6 | 14 | \$2.33 |
| Fish-Marine-o. | 601 | 806 | : | 1,144 | 1,-782 |  |  | : | 1.745 | 2. 188 | \$1.25 |

1993 LANDINGS FOR THE STATE OF SOUTH CAROLINA
in the south atlantic region

(2) POUNDS LESS THAN 500


## 1993 LANDINGS FOR THE STATE OF GEORGIA

IN THE SOUTH ATLANTIC REGION

(1) VALUE LESS THAN $\$ 500$

FISHERIE STATISTICS DIVISION

## 1993 LANDINGS FOR THE STATE OF FLORIDA EAST COAST <br> in the south atlantic region



1993 LANDINGS for the state of florida east coast in the south atlantic region


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1993 LANDINGS FOR THE STATE OF FLORIDA INLAND LAKES IN THE SOUTH ATLANTIC REGION


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1993 LANDINGS FOR THE STATE OF FLORIDA WEST COAST
IN THE GULF REGION


1993 LANDINGS FOR THE STATE OF FLORIDA WEST COAST. IN THE GULF REGION


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1993 LANDINGS FOR THE STATE OF ALABAMA IN THE GULF REGION


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1993 LANDINGS FOR THE STATE OF ALABAMA
IN THE GULF REGION

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1993 LANDINGS FOR THE STATE OF MISSISSIPPI


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1993 LANDINGS FOR THE STATE OF LOUISIANA

PAGE 1
IN THE GULF REGION


(1) Value less than $\$ 500$


1993 LANDINGS FOR THE STATE OF TEXAS
IN THE GULF REGION


1993 LaNDings for the south atlantic region

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## FISHERIES STATISTICS DIVISION

1993 LANDINGS FOR THE SOUTH ATLANTIC REGION


## 1993 LANDINGS FOR THE SOUTH ATLANTIC REGION


(1) Value less than $\$ 500$

## NATIONAL MARINE FISHERIES SERVICE

fisheries statistics division

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1993 LANDINGS FOR THE GULF REGION

| SPECIES | $\begin{aligned} & \text { FROM O TO } \\ & \text { THOUSAND } \\ & \hline \text { POUNDS } \end{aligned}$ | DISTANCE 3 MILES THOUSAND DOLLARS | FROM $\vdots$ $\vdots$ $\vdots$ | U.S. SHORES BETWEEN 3 THOUSAND | AND 200 MILES $\frac{\text { THOUSAND }}{\text { DOLLARS }}$ | $\begin{aligned} & \text { HIGH SEAS OR OFF } \\ & \text { FOREIGN SHORES } \\ & \text { THOUSAND THOUSAND } \\ & \hline \text { POUNDS DOLLARS } \end{aligned}$ | : | $\frac{\text { THOUSAND }}{\text { POUNDS }}$ | $\begin{aligned} & \text { TOTAL } \\ & \text { THOUSAND } \\ & \hline \text { DOLLARS } \end{aligned}$ | PR/LB |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Alewives | 54 | 5 | : |  |  |  | : | 54 | 5 | \$.09 |
| Bluefish | 184 | 52 | : | 10 | 3 |  | : | 194 | 55 | \$. 28 |
| Bonito | 385 | 71 | : | 228 | 42 |  | : | 613 | 113 | \$. 18 |
| Butterfish |  |  | : | 4 | 2 |  | : | 4 | 2 | \$.50 |
| Croaker | 99 | 42 | : | 1 | 1 |  | : | 100 | 43 | \$. 43 |
| Cusk |  |  | : |  |  |  | : |  |  | \$.00 |
| F1-Fluke | 167 | 195 | : |  |  |  |  | 167 | 195 | \$1. 16 |
| F1-A./Gulf | 1,207 | 1,657 | : | 75 | 72 |  | : | 1.282 | 1,729 | \$1.34 |
| Groupers | 337 | 666 | : | 11,476 | 22,575 |  |  | 11.813 | 23,24 1 | \$1.96 |
| Mckrl-King/Cero: | 378 | 326 | : | 2,080 | 1,793 |  |  | 2,458 | 2,119 | \$.86 |
| Menhaden | 806,647 | 39,474 | : | 261,080 | 12,587 |  |  | 067,727 | 52,061 | \$. 04 |
| Mullet-(B.\&S.) : | 27,288 | 11,114 | : | 21 | 3 |  | : | 27,309 | 11,117 | \$. 40 |
| Scup Or Porgy | 55 | 49 | : | 703 | 612 |  | : | 758 | 661 | \$. 87 |
| Sea Bass-Bk.-A.: | 48 | 23 | : | 179 | 85 |  | : | 227 | 108 | \$. 47 |
| Sea Trout-Spot : | 1,579 | 1,873 | : |  |  |  | : | 1.579 | 1,873 | \$1.18 |
| Sea Trout-White: | 246 | 136 | : | 63 | 32 |  | : | 309 | 168 | \$. 54 |
| Sharks-Unc | 412 | 178 | : | 3,846 | 1,745 |  | : | 4,258 | 1,923 | \$. 45 |
| Snapper-Red : |  |  | : | 2,992 | 5,864 |  | : | 2.992 | 5,864 | \$1.95 |
| Snapper-Other : | 616 | 1. 150 | . | 5,631 | 10,327 |  | : | 6.247 | 11,477 | \$1.83 |



THE NATIONAL MARINE FISHERIES SERVICE ESTIMATED THE DISTANCE FROM SHORE FOR TEXAS LANDINGS DATA COLLECTED BY THE TEXAS PARKS AND WILDLIFE DEPART

## 1993 LANDINGS FOR THE UNITED STATES



# 1993 STATISTICAL HIGHLIGHTS SOUTHEASTERN REGION 

## COMMERCIAL FISHERIES

A. Total Landings
1.97 billion pounds (round weight) valued at 792.1 million dollars - ex-vessel value

Of 1.97 billion pounds
1.42 billion pounds were fish
0.45 billion pounds were shellfish

Of 1.97 billion pounds
0.83 billion pounds for food
1.14 billion pounds for industrial purposes
B. Catch by Distance from Shore

| $\frac{\text { Distance }}{\text { Miles }}$ | Billion pounds | $\underline{x}$ |
| :---: | :---: | :---: |
| 0-3 | 1.496 | 75.8 |
| 3-200 | 0.478 | 24.2 |

C. Landings by Major Species

| SPECIES | 1993 |  |
| :---: | :---: | :---: |
|  | THOUSAND POUNDS | THOUSAND DOLLARS |
| GROUPERS | 14,093 | \$28,089 |
| SNAPPERS | 11,063 | \$21,111 |
| King mackerel | 5,395 | \$6,842 |
| SPANISH MACKER | REL 4,791 | \$1,964 |
| MENHADEN 1 | 1,135,848 | \$54,309 |
| SHARKS | 17,670 | \$4,562 |
| SWORDFISH | 3,209 | \$12,470 |
| TUNA | 8,607 | \$19,237 |
| OYSTERS | 20,868 | \$35,236 |
| SHRIMP. | 232,900 | \$384,893 |
| SPINY LOBSTER | 5,618 | \$18,064 |
| Stone crab | 5,827 | \$15,436 |
| Note: Landi shrimp in live weight. | ngs of fish weight; | lobster a sters in m |

## MARINE RECREATIONAL FISHERIES

Atlantic \& Gulf 266.7 million fish*
140.5 million pounds**
Southeast
(South Atlantic \& Gulf)
179.6 million fish*
85.9 million pounds**
MAJOR SPECIES:
Spotted Seatrout
Scaled Sardine
Pinfish
Hardhead Catfish
Red Drum
Atlantic Croaker
Sheepshead
White Grunt
Gray Snapper
Spanish Mackerel
Stripped Mullet
Black sea bass
Spot
Crevalle Jack
Sand Seatrout
Ladyfish
Bluefish
Red grouper
Round scad
Atlantic thread herring
Pigfish
Blue runner
False pilchard
Gafftopsail catfish
Southern kingfish
Sand Perch
Yellowtail Snapper
Grunts
Dolphin
King Mackerel
Snook
Southern Flounder
Gag grouper
Black Drum

* Total number of fish caught
**Estimated weight of catch available for identification(Type A)
Source: Preliminary Marine Recreational Fishery Statistics Survey, Atlantic and Gulf Coasts, 1994. Current Fisheries Statistics, National Marine Fisheries Service, NOAA, DOC, Silver Spring, MD.

TABLE 1 - PUERTO RICO LANDINGS REPORTED BY SPECIES AND BY COAST FOR 1993.

| Species | North |  | East |  | South |  | West |  | TOTAL |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Pounds | Price per Pound | Pounds | Price per Pound | Pounds | Price per Pound | Pounds | Price per Pound | Pounds | Price per Pound |
| Tuna | 10,901 | 1.47 | 1,436 | 1.33 | 2,138 | 1.02 | 73,312 | 0.95 | 87,787 | 1.19 |
| Bally hoo | 4,434 | 0.85 | 816 | 1.60 | 8,858 | 1.19 | 15,856 | 1.15 | 29,964 | 1.20 |
| Grunt | 8,712 | 1.74 | 19,705 | 1.38 | 34,867 | 1.24 | 97,963 | 0.92 | 161,247 | 1.32 |
| Hogfish | 1,864 | 2.33 | 2,407 | 1.81 | 9,603 | 1.89 | 7,340 | 1.94 | 21,214 | 1.99 |
| Croacker | 10 | 2.00 | 0 | 0.00 | 161 | 2.00 | 0 | 0.00 | 171 | 1.00 |
| Trunkfish | 655 | 2.11 | 8,914 | 1.24 | 10,876 | 1.58 | 35,390 | 1.85 | 55,835 | 1.70 |
| Dolphin | 7,058 | 2.03 | 890 | 1.86 | 21,401 | 1.54 | 45,872 | 1.14 | 75,221 | 1.64 |
| Swordfish | 0 | 0.00 | 25 | 1.00 | 0 | 0.00 | 0 | 0.00 | 25 | 0.25 |
| Squirrelfish | 2,875 | 0.96 | 2,006 | 1.77 | 1,842 | 1.28 | 744 | 0.89 | 7,467 | 1.23 |
| Mullet | 13,833 | 1.26 | 299 | 1.79 | 5,663 | 1.22 | 6,756 | 0.73 | 26,551 | 1.25 |
| Jack | 13,500 | 1.52 | 3,284 | 1.30 | 945 | 1.25 | 21,692 | 0.94 | 39,421 | 1.25 |
| Parrotfish | 1,426 | 1.86 | 3,730 | 1.74 | 12,728 | 1.47 | 142,336 | 1.05 | 160,220 | 1.53 |
| Marlin | 4,004 | 1.08 | 0 | 0.00 | 2,200 | 1.27 | 189 | 1.46 | 6,393 | 0.95 |
| Amberjack | 21 | 1.00 | 0 | 0.00 | 0 | 0.00 | 577 | 0.72 | 598 | 0.43 |
| Grouper | 6,284 | 2.23 | 23,413 | 1.81 | 16,814 | 1.75 | 40,889 | 1.52 | 87,400 | 1.83 |
| Red Hind | 2,882 | 2.15 | 6,252 | 1.60 | 9,657 | 1.54 | 21,620 | 1.42 | 40,411 | 1.68 |
| Nassau | 519 | 2.11 | 3,179 | 1.49 | 198 | 1.61 | 1,182 | 1.65 | 5,078 | 1.72 |
| Mojarra | 10,308 | 1.39 | 2,458 | 1.79 | 1,108 | 1.39 | 5,696 | 0.94 | 19,570 | 1.38 |
| Snapper |  |  |  |  |  |  |  |  |  |  |
| Lane | 10,870 | 2.34 | 19,052 | 1.68 | 33,694 | 1.58 | 27,394 | 1.77 | 91,010 | 1.84 |
| Yellowtail | 31,512 | 2.29 | 39,333 | 1.81 | 36,880 | 1.67 | 75,539 | 1.60 | 183,264 | 1.84 |
| Silk | 26,642 | 2.68 | 13,227 | 2.17 | 36,586 | 2.54 | 167,805 | 2.42 | 244,260 | 2.45 |
| Mutton | 5,031 | 2.25 | 5,570 | 1.82 | 9,496 | 1.74 | 9,283 | 1.80 | 29,380 | 1.90 |
| Other Snapper | 9,654 | 2.36 | 7,662 | 1.93 | 6,258 | 1.74 | 29,104 | 1.54 | 52,678 | 1.89 |
| Triggerfish | 5,402 | 1.72 | 6,701 | 1.41 | 12,296 | 1.38 | 13,848 | 1.00 | 38,247 | 1.38 |
| Barracuda | 6,196 | 1.43 | 893 | 1.43 | 1,983 | 1.24 | 2,888 | 0.78 | 11,960 | 1.22 |
| Porgy | 762 | 1.63 | 3,438 | 1.46 | 3,748 | 1.51 | 3,041 | 1.12 | 10,989 | 1.43 |
| Snook | 18,957 | 1.78 | 946 | 1.74 | 1,215 | 1.47 | 7,300 | 1.22 | 28,418 | 1.55 |
| Tarpon | 2,279 | 1.10 | 119 | 2.88 | 0 | 0.00 | 2,334 | 0.27 | 4,732 | 1.06 |
| Goatfish | 545 | 2.19 | 2,328 | 1.83 | 3,045 | 1.62 | 2,272 | 1.18 | 8,190 | 1.71 |
| Sardine | 12,050 | 1.05 | 141 | 1.40 | 832 | 0.98 | 4,097 | 0.71 | 17,120 | 1.04 |
| Mackererl | 22,775 | 2.08 | 28,886 | 1.73 | 34,408 | 1.57 | 31,869 | 1.57 | 117,938 | 1.74 |
| Shark | 5,751 | 1.65 | 4,846 | 1.37 | 7,122 | 1.39 | 19,726 | 1.12 | 37,445 | 1.38 |
| Margate | 178 | 1.95 | 88 | 1.31 | 200 | 1.45 | 35 | 1.25 | 501 | 1.49 |
| Classified |  |  |  |  |  |  |  |  |  |  |
| First Class | 238 | 1.87 | 68,442 | 1.71 | 92,288 | 1.25 | 25,814 | 1.67 | 186,782 | 1.63 |
| Second Class | 35 | 1.00 | 436 | 1.35 | 16,561 | 0.66 | 76,206 | 0.99 | 93,238 | 1.00 |
| Third Class | 136 | 1.10 | 53,519 | 1.17 | 16,092 | 0.73 | 78 | 1.00 | 69,825 | 1.00 |
| Trash | 0 | 0.00 | 1,115 | 1.05 | 9 | 1.00 | 3,317 | 0.33 | 4,441 | 0.60 |
| Other Fish | 14,962 |  | 3,725 |  | 11,173 |  | 62,970 |  | 92,830 |  |
| Total Fish | 263,261 | 1.91 | 339,281 | 1.58 | 462,945 | 1.51 | 1,082,334 | 1.44 | 2,147,821 | 1.61 |
| Conch | 2,303 | 2.95 | 14,716 | 2.15 | 45,112 | 2.14 | 103,005 | 2.05 | 165,136 | 2.32 |
| Land Crab | 1,178 | 13.50 | 183 | 13.50 | 218 | 4.75 | 214 | 1.24 | 1,793 | 8.25 |
| Lobster | 5,897 | 5.45 | 31,619 | 4.95 | 73,144 | 4.39 | 59,152 | 4.61 | 169,812 | 4.85 |
| Oyster | 0 | 0.00 | 45 | 6.50 | 84 | 2.25 | 0 | 0.00 | 129 | 2.19 |
| Octopus | 576 | 2.59 | 1,462 | 2.43 | 15,306 | 2.30 | 3,396 | 2.13 | 20,740 | 2.36 |
| Other Shellfish | 1,929 | 5.55 | 401 | 5.37 | 1,329 | 1.89 | 351 | 1.21 | 4,010 | 3.51 |
| Total Shellfish | 11,883 | 6.09 | 48,426 | 4.52 | 135,193 | 3.58 | 166,118 | 3.73 | 361,620 | 4.48 |
| Total | 275,144 | 2.13 | 387,707 | 2.06 | 598,138 | 2.12 | 1,248,452 | 1.80 | 2,509,441 | 2.03 |

TABLE 2 - LANDINGS BY MUNICIPALITY AND BY COAST FOR 1993.

| LOCATION | POUNDS | VALUE (US DOLLAR) | AVERAGE PRICE PER POUND |
| :---: | :---: | :---: | :---: |
| NORTH | 275,144 | 544,729 | 2.13 |
| Isabela | 8,319 | 13,511 | 1.66 |
| Quebradillas | 0 | 0 | 0.00 |
| Camuy | 618 | 1,647 | 2.57 |
| Hatillo | 4,270 | 6,779 | 1.75 |
| Arecibo | 22,668 | 43,879 | 2.21 |
| Barceloneta | 16,970 | 26,310 | 1.89 |
| Manatí | 8,177 | 16,380 | 1.96 |
| Vega Baja | 2,826 | 7,475 | 2.83 |
| Vega Alta | 13,988 | 29,286 | 2.21 |
| Dorado | 7,842 | 18,220 | 2.41 |
| Toa Baja | 0 | . | 0.00 |
| Cataño | 57,983 | 109,385 | 2.26 |
| San Juan | 54,264 | 119,828 | 2.20 |
| Carolina | 13,528 | 35,196 | 2.21 |
| Loiza | 44,558 | 67,632 | 1.63 |
| Rio Grande | 8,826 | 23,686 | 2.14 |
| Luquillo | 10,307 | 25,513 | 3.46 |
| EAST | 387,707 | 748,878 | 2.07 |
| Fajardo | 85,628 | 188,092 | 2.23 |
| Ceiba | 46,727 | 89,371 | 2.10 |
| Naguabo | 97,352 | 194,387 | 2.16 |
| Humacao | 47,538 | 89,826 | 2.09 |
| Yabucoa | 41,119 | 71,380 | 1.74 |
| Maunabo | 5,556 | 7,394 | 1.58 |
| Culebra | 17,624 | 37,797 | 2.09 |
| Vieques | 46,163 | 70,631 | 1.66 |
| SOUTH | 598,138 | 1,148,532 | 2.12 |
| Patillas | 18,579 | 47,757 | 2.57 |
| Arroyo | 24,382 | 40,120 | 2.18 |
| Guayama | 113,190 | 245,149 | 2.15 |
| Salinas | 34,668 | 69,312 | 2.09 |
| Santa Isabel | 13,319 | 25,681 | 2.33 |
| Juana Díaz | 88,464 | 148,531 | 1.85 |
| Ponce | 18,794 | 31,684 | 1.88 |
| Peñuelas | 63,222 | 174,414 | 2.88 |
| Guayanilla | 272 | 281 | 1.05 |
| Guánica | 129,675 | 233,952 | 1.88 |
| Lajas | 93,573 | 131,652 | 1.60 |
| WEST | 1,248,452 | 2,022,075 | 1.80 |
| Cabo Rojo | 790,687 | 1,340,770 | 2.04 |
| Mayaguez | 166,079 | 289,010 | 1.89 |
| Añasco | 11,840 | 23,423 | 1.74 |
| Rincón | 48,895 | 104,008 | 2.43 |
| Aguada | 96,507 | 106,688 | 1.17 |
| Aguadilla | 134,444 | 158,176 | 1.35 |
| TOTAL | 2,509,441 | 4,464,312 | 1.99 |

table 3. Landings of sPECies by gear for 1993.

| Species | Beach Seine <br> (Pounds) | Fish Pot (Pounds) | Lobster Pot <br> (Pounds) | Gill Net <br> (Pounds) | Hand Line <br> (Pounds) | Troll Line (Pounds) | Long Line <br> (Pounds) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Tuna | 9,772 | 738 | 0 | 1,835 | 37,135 | 37,833 | 337 |
| Ballyhoo | 2,280 | 3,174 | 0 | 18,356 | 592 | 56 | 35 |
| White Grunt | 3,566 | 38,624 | 0 | 40,072 | 17,302 | 112 | 191 |
| Hogfish | 150 | 4,283 | 20 | 2,288 | 676 | 48 | 0 |
| Croaker | 0 | 0 | 0 | 161 | 10 | 0 | 0 |
| Trunkfish | 1,282 | 34,660 | 122 | 2,142 | 1,133 | 2 | 38 |
| Dolphin | 480 | 0 | 0 | 555 | 26,679 | 45,684 | 30 |
| Swordfish | 0 | 0 | 0 | 0 | 25 | 0 | 0 |
| Squirrelfish | 522 | 3,069 | 0 | 579 | 3,029 | 98 | 18 |
| Mullet | 2,695 | 619 | 0 | 21,301 | 882 | 341 | 91 |
| Jack | 14,023 | 1,821 | 0 | 8,116 | 10,887 | 3,342 | 101 |
| Parrotfish | 653 | 9,454 | 7 | 46,293 | 2,107 | 102 | 34 |
| Marlin | 0 | 0 | 0 | 64 | 2,465 | 3,808 | 56 |
| Amber jack | 37 | 29 | 0 | 0 | 472 | 60 | 0 |
| Grouper | 95 | 24,116 | 0 | 758 | 42,809 | 501 | 1,068 |
| Red Hind | 103 | 18,262 | 0 | 238 | 14,954 | 374 | 914 |
| Nassau | 2 | 1,900 | 0 | 124 | 2,688 | 110 | 20 |
| Mojarra | 4,064 | 1,034 | 0 | 10,722 | 3,346 | 13 | 15 |
| Snapper |  |  |  |  |  |  |  |
| Lane Snapper | 2,376 | 35,583 | 0 | 7.694 | 36,436 | 241 | 6,730 |
| Yellowtail Snapper | 11,012 | 18,141 | 0 | 5,852 | 140,038 | 1,015 | 986 |
| Silk Snapper | 0 | 54,589 | 0 | 0 | 189,292 | 0 | 379 |
| Mutton Snapper | 1.964 | 8,703 | 0 | 2,282 | 12,166 | 453 | 138 |
| Other Snapper | 2.518 | 7,513 | 4 | 5,652 | 14,680 | 289 | 319 |
| Triggerfish | 129 | 20,442 | 6 | 816 | 6,851 | 43 | 1,252 |
| Barracuda | 7,059 | 291 | 0 | 1,448 | 918 | 1,704 | 14 |
| Porgy | 1,499 | 5,896 | 0 | 1,479 | 1,336 | 74. | 160 |
| Snook | 7,529 | 401 | 0 | 16,597 | 2,110 | 631 | 0 |
| Tarpon | 1,714 | 0 | 0 | 2,450 | 245 | 316 | 0 |
| Goatfish | 228 | 6,727 | 0 | 462 | 637 | 16 | 0 |
| Sardine | 4,545 | 196 | 0 | 2,422 | 1,096 | 54 | 0 |
| Mackerel | 6,680 | 3,465 | 0 | 5,054 | 83,415 | 18,529 | 70 |
| Shark | 212 | 0 | 0 | 8,093 | 13,619 | 1,738 | 6,581 |
| Margate | 0 | 188 | 0 | 130 | 136 | 6 | 0 |
| Classified |  |  |  |  |  |  |  |
| First class | 3,092 | 97,237 | 102 | 17,204 | 38,128 | 0 | 8,100 |
| Second Class | 759 | 63,189 | 20 | 1,569 | 638 | 0 | 0 |
| Third Class | 166 | 38,839 | 442 | 2,884 | 19,861 | 28 | 10 |
| Trash | 60 | 4,246 | 0 | 0 | 117 | 0 | 0 |
| Other Fish | 9,978 | 19,380 | 0 | 8,816 | 37,051 | 832 | 259 |
| Total Fish | 101,244 | 526,809 | 723 | 244,508 | 765,961 | 118,453 | 27,946 |
| Shellfish |  |  |  |  |  |  |  |
| Conch | 26 | 3,406 | 0 | 26 | 0 | 0 | 0 |
| Land Crab | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lobster | 318 | 76,533 | 6,356 | 2,037 | 101 | 0 | 0 |
| Oyster | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Octopus | 0 | 1,914 | 134 | 6 | 21 | 0 | 0 |
| Other Shellfish | 235 | 1,235 | 0 | 1,883 | 20 | 0 | 0 |
| Total Shellfish | 579 | 83,088 | 6,490 | 3,952 | 142 | 0 | 0 |
| TOTAL | 101,823 | 609,897 | 7,213 | 248,460 | 766,103 | 118,453 | 27,946 |

table 3. Landings of species by gear for 1993.

| Species | Land Crab Trap (Pounds) | Cast Net <br> (Pounds) | Rod and Line <br> (Pounds) | Skin Diving <br> (Pounds) | By Hand <br> (Pounds) |  |  | tOTAL <br> (Pounds) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Tuna | 0 | 24 | 0 | 0 | 0 | 83 | 30 | 87,787 |
| Ballyhoo | 0 | 209 | 0 | 0 | 0 | 190 | 5,072 | 29,964 |
| White Grunt | 0 | 119 | 0 | 28 | 0 | 688 | 60,545 | 161,247 |
| Hogfish i | 0 | 0 | 0 | 289 | 0 | 12,564 | 896 | 21,214 |
| Croaker | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 171 |
| Trunkfish | 0 | 20 | 0 | 8 | 0 | 4,417 | 12,011 | 55,835 |
| Dolphin | 0 | 0 | 119 | 28 | 0 | 3 | 1,643 | 75,221 |
| Swordfish | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25 |
| Squirrelfish | 0 | 61 | 0 | 2 | 0 | 36 | 53 | 7,467 |
| Mullet | 0 | 439 | 0 | 0 | 0 | 49 | 134 | 26,551 |
| Jack | 0 | 253 | 0 | 25 | 0 | 720 | 133 | 39,421 |
| Parrotfish | 0 | 5 | 0 | 206 | 0 | 4,724 | 96,635 | 160,220 |
| Marlin | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6,393 |
| Amber jack | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 598 |
| Grouper | 0 | 169 | 0 | 521 | 0 | 16,718 | 645 | 87,400 |
| Red Hind | 0 | 0 | 0 | 0 | 0 | 5,512 | 54 | 40,411 |
| Nassau | 0 | 0 | 0 | 0 | 0 | 234 | 0 | 5,078 |
| Mojarra | 0 | 376 | 0 | 0 | 0 | 0 | 0 | 19,570 |
| Snapper |  |  |  |  |  |  |  | 0 |
| Lane Snapper | 0 | 198 | 0 | 8 | 0 | 466 | 1.278 | 91,010 |
| Yell owtail Snapper | 0 | 420 | 0 | 0 | 0 | 1,423 | 4,377 | 183,264 |
| Silk Snapper | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 244,260 |
| Mutton Snapper | 0 | 126 | 0 | 47 | 0 | 3,189 | 312 | 29,380 |
| Other Snapper | 0 | 232 | 0 | 212 | 0 | 6,531 | 14,728 | 52,678 |
| Triggerfish | 0 | 54 | 0 | 47 | 0 | 8,017 | 590 | 38,247 |
| Barracuda | 0 | 6 | 0 | 40 | 0 | 413 | 67 | 11,960 |
| Porgy | 0 | 14 | 0 | 3 | 0 | 100 | 428 | 10,989 |
| Snook | 0 | 516 | 0 | 112 | 0 | 493 | 29 | 28,418 |
| Tarpon | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 4,732 |
| Goatfish | 0 | 0 | 0 | 0 | 0 | 6 | 114 | 8,190 |
| Sardine | 0 | 8,802 | 0 | 0 | 0 | 0 | 5 | 17,120 |
| Mackerel | 0 | 260 | 0 | 0 | 0 | 404 | 61 | 117,938 |
| Shark | 0 | 147 | 0 | 39 | 0 | 796 | 6,220 | 37,445 |
| Margate | 0 | 0 | 0 | 0 | 0 | 36 | 5 | 501 |
| Classified |  |  |  |  |  |  |  |  |
| First class | 0 | 0 | 0 | 156 | 0 | 13,684 | 9,079 | 186,782 |
| Second Class | 0 | 0 | 0 | 0 | 0 | 538 | 26,525 | 93,238 |
| Third Class | 0 | 0 | 0 | 15 | 0 | 7,565 | 15 | 69,825 |
| Trash | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 4,441 |
| Other Fish | 0 | 560 | 0 | 50 | 0 | 1,465 | 14,439 | 92,830 |
| Total Fish | 0 | 13,010 | 119 | 1,836 | 0 | 91,089 | 256,123 | 2,147,821 |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| Conch | 0 | 0 | 0 | 1,448 | 0 | 159,615 | 615 | 165,136 |
| Land Crab | 1,793 | 0 | 0 | 0 | 0 | 0 | 0 | 1,793 |
| Lobster | 0 | 16 | 0 | 1,956 | 0 | 72,095 | 10,400 | 169,812 |
| Oyster | 0 | 0 | 0 | 0 | 129 | 0 | 0 | 129 |
| Octopus | 0 | 0 | 0 | 8,249 | 0 | 10,353 | 63 | 20,740 |
| Other Shellfish | 0 | 5 | 0 | 0 | 0 | 370 | 262 | 4,010 |
| Total Shellfish | 1,793 | 21 | 0 | 11,653 | 129 | 242,433 | 11,340 | 361,620 |
| TOTAL | 1,793 | 13,031 | 119 | 13,489 | 129 | 333,522 | 267,463 | 2,509,441 |

Table 1 Reported pounds landed by island and fishing mode and associated values for the U.S. Virgin Islands, from July 1992 through July 1993.

| Island | Fishing <br> Mode | Pounds <br> Landed | Percent <br> Landed | Price/Pound | Value <br> Landed |
| :---: | :---: | :---: | :---: | :---: | :---: |
| St. Croix | Potfish | 90.525 | 28.06\% | \$3.50 | \$316.838 |
|  | Hookfish | 154.148 | 47.78\% | \$4.00 | \$616.592 |
|  | Netfish | 49,132 | 15.23\% | \$4.00 | \$196.528 |
|  | Lobster/Pot | 1,066 | 0.33\% | \$7.00 | \$7,462 |
|  | Lobster/Dive | 11,762 | 3.65\% | \$7.00 | \$82.334 |
|  | Spearfish | 5.082 | 1.58\% | \$4.00 | \$20,328 |
|  | Conch | 10,663 | 3.30\% | \$4.00 | \$42.652 |
|  | Whelk | 0 | 0.00\% | \$10.00 | \$0 |
|  | Baitfish | 264 | 0.08\% | $\$ 3.00$ | \$792 |
|  | Island Totals | 322,642 |  |  | \$1,283.526 |
| St. Thomas/ | Potfish | 416,090 | 53.46\% | \$3.50 | \$1,456,315 |
| St. John | Hookfish | 150,149 | 19.29\% | \$4.00 | \$600.596 |
|  | Netfish | 94.352 | 12.12\% | \$4.00 | \$377.408 |
|  | Lobster/Pot | 88.682 | 11.39\% | \$6.50 | \$576,433 |
|  | Lobster/Dive | 3,716 | 0.48\% | \$6.50 | \$24,154 |
|  | Spearfish | 7.186 | 0.92\% | \$4.00 | \$28.744 |
|  | Conch | 1,088 | 0.14\% | \$5.00 | \$5.440 |
|  | Whelk | 405 | 0.05\% | \$8.00 | \$3.240 |
|  | Baitfish | 16.718 | 2.15\% | \$3.00 | \$50,154 |
|  | Isiand Totals | 778,386 |  |  | \$3.122.484 |
|  | Grand Totals | 1,101,028 |  |  | \$4,406,010 |

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## 1993 LANDINGS FOR THE UNITED STATES




NATIONAL MARINE FISHERIES SERVICE
DATE OF RUN 6/06/94
FISHERIES STATISTICS DIVISION

## 1993 LANDINGS FOR THE UNITED STATES



1993 LANDINGS FOR THE UNITED STATES

| SPECIES | $\begin{aligned} & \text { FROM O T } \\ & \text { THOUSAN } \\ & \text { POUNDS } \end{aligned}$ | $\begin{aligned} & \text { DISTANCE } \\ & 3 \text { MILES } \\ & \text { THOUSAND } \\ & \hline \text { DOLLARS } \end{aligned}$ | FROM | U.S.SHORES BETWEEN 3 THOUSAND | AND 200 MILES $\frac{\text { THOUSAND }}{\text { DOLLARS }}$ | $\begin{aligned} & \text { HIGH SEA } \\ & \text { FOREIGN } \\ & \text { THOUSAND } \\ & \hline \text { POUNDS } \end{aligned}$ | $\begin{aligned} & \text { OR OFF } \\ & \text { SHORES } \\ & \text { THOUSAND } \\ & \hline \text { DOLLARS } \end{aligned}$ |  | $\begin{array}{r} \text { TO } \\ \text { THOUSAND } \\ \hline \text { POUNDS } \end{array}$ | $\begin{aligned} & \text { TAL } \\ & \text { THOUSAND } \\ & \text { DOLLARS } \end{aligned}$ | PR/LB |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Squid | 71,490 | 8,137 | : | 1,741 | 534 |  |  | : | 73.231 | 8.671 | \$. 11 |
| Squid-I1lex | 166 | 94 | : | 40,020 | 8,560 |  |  | : | 40,186 | 8,654 | \$. 21 |
| Squid-Loligo | 4, 118 | 2,782 | : | 44,824 | 26,295 |  |  | : | 48,942 | 29,077 | \$. 59 |
| Shellfish-Other: | 136,510 | 95,479 | : | 3,784 | 4,038 |  |  | : | 140,294 | 99,517 | \$.70 |
| TOTAL SHELLFISH: | 832,460 | 932,530 | : | 635,288 | 654,777 | $5 \quad 32$ | 32 | $:: 1,467,7531,587,339$ |  |  |  |



(1) VALUE LESS THAN $\$ 500$ (2) POUNDS LESS THAN 500

## Statistical Highlights <br> Fisheries of the United States, 1993

## U.S. COMMERCIAL FISHERIES

World-wide catch by U.S. Vessels (1):
10.9 billion pounds ( 5.0 million metric tons) round weight Valued at $\$ 3.7$ billion - exvessel value
U.S. Landings in the 50 United States (2):
10.5 billion pounds ( 4.7 million metric tons) round weight

Valued at $\$ 3.5$ billion
Of 10.5 billion pounds:
9.0 billion pounds ( 4.1 million metric tons) of finfish
1.5 billion pounds ( 665.800 metric tons) of shellfish

Of 10.5 billion pounds:
8.2 billion pounds ( 3.7 million metric tons) for food
2.3 billion pounds ( 1.2 million metric tons) for industrial purposes (including bait and animal food)

Total supply (landings + imports) of edible fishery products:
13.8 billion pounds ( 6.3 million metric tons) round weight
8.2 billion pounds ( 3.7 million metric tons) domestic production
5.6 billion pounds ( 2.5 million metric tons) imported ( 41 percent)

Per capita consumption: 15.0 pounds ( 6.8 kilograms) edible meat

## FOREIGN TRADE

Imports - edible
2.9 billion pounds ( 1.3 million metric tons) product weight Valued at $\$ 5.8$ billion

Exports - edible
2.0 billion pounds ( 900,800 metric tons) product weight Valued at $\$ 3.1$ billion

## CATCH IN THE EEZ

Total - 6.3 billion pounds ( 2.9 million metric tons)
No foreign catch took place in the U.S. EEZ for 1993.

## U. S. CATCH BY DISTANCE FROM SHORE (1)

| Distance | Billion <br> pounds | Million <br> mt | Percent | Billion <br> dollars | Percent |
| :--- | :---: | :---: | :---: | :---: | :---: |
| 0-3 miles | 4.1 | 1.9 | 38 | 1.6 | 44 |
| 3-200 miles | 6.3 | 2.9 | 58 | 1.8 | 50 |
| International | 0.5 | 0.2 | 4 | 0.2 | 6 |
| TOTAL | 10.9 | 5.0 | 100 | 3.7 | 100 |

## U.S. DOMESTIC LANDINGS

| Rank | Volume | Percent |  | Value | Percent |
| :---: | :--- | ---: | :--- | ---: | ---: |
|  | AK Pollock | 31 |  | Crabs | 15 |
| 2 | Menhaden | 19 |  | Salmon | 12 |
| 3 | Salmon | 8 |  | Shrimp | 12 |
| 4 | Crabs | 6 |  | AK Pollock | 10 |
| 5 | Flounders | 6 |  | Cods | 5 |

## WORLD FISHERIES (Live weight, 1992)

Total catch $\quad 216.3$ billion pounds ( 98.1 million metric tons) U.S. catch $\quad 12.4$ billion pounds ( 5.6 million metric tons) (including weight of mollusk shells)
U.S. catch is 5.7 percent of world catch

## COMMERCIAL FISHERIES CONTRIBUTION TO GNP

U.S. consumers spent an estimated $\$ 38.1$ billion for fishery products.

In producing and marketing these items, the commercial fishing industry contributed $\$ 19.8$ billion in value added to the U.S. GNP.

## MARINE RECREATIONAL FISHERIES

U.S. total fishermen

Expenditures for fishing

17 million
$\$ 5-7$ billion dollars

Major species groups:

| Drums | Bluefish | Dophins |
| :--- | :--- | :--- |
| Cods / Hakes | Mackerels / Tunas | Rockfishes |
| Porgies | Sea basses | Jacks |
| Flounders | Mullets | Surfperches |

1993 Atlantic and Gulf Coasts (excluding Texas) catch: 153.6 million pounds

1993 Pacific Coast (excluding Washington) catch: 19.5 million pounds

## FOOTNOTES

(1) Catch data includes all catches by U.S.-flag vessels which are landed in the continental United States and Hawaii, Puerto Rico and other foreign ports, and catches transferred to internal water processing vessels (IWPs) in U.S. waters.
(2) Commercial landings by U.S. fishermen at ports in the 50 United States, excluding catches by U.S.-flag vessels which are landed in Puerto Rico and other foreign ports, and catches transferred to internal water processing vessels (IWPs) in U.S. waters.

For further information contact:

Fisheries Statistics Division
National Marine Fisheries Service
1335 East West Highway, F/RE1
Silver Spring, MD 20910-3226
(301) 713-2328

## EMPLOYMENT, CRAFT, AND PLANTS

ESTIMATED NUMBER OF COMMERCIAL FISHANG VESSELS (1) AND FISHING BOATS (2) BY RECION AND STATE, 1991-1992

|  | 1991 |  |  | 1992 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| REGIONS | VEspex | Boans | momaL | VEssels | Bomrs | Tomal |
| Northeast Fisherieas: |  |  |  |  |  |  |
| Connecticut. . . . . . . . | 130 | 507 | 637 | 128 | 142 | 570 |
| Delaware. | 26 | 278 | 304 | 25 | 349 | 374 |
| yana................. | 1.742 | 5,221 | 6,963 | 1.761 | 5,598 | 7.359 |
| Maryland (3)......... | 65 | - | 65 | 68 | - | 68 |
| Massachusetts. . . . . . . | 878 | 3,864 | 4.742 | 858 | 4.634 | 5.492 |
| New Hampshire........ | 134 | 427 | 561 | 139 | 474 | 613 |
| New Jersey........... | 447 | 1,408 | 2.855 | 487 | 1.392 | 1.879 |
| New York. . . . . . . . . . . | 602 | 2.059 | 2.661 | 692 | 2,931 | 3,623 |
| Rhode Island.......... | 258 | 1.847 | 2.105 | 253 | 2,751 | 3,004 |
| Virginia (3)......... | 242 | 6 | 248 | 245 | 6 | 251 |
| South Atlantic and Culf Pisheries: |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| North Carolina....... | 961 | 5.772 | 6,733 | 960 | 5,257 | 6.217 |
| Bouth Carolina........ | 370 | 946 | 1,316 | 376 | 969 | 1,345 |
| Georgia............... | 372 | 483 | 855 | 326 | 398 | 724 |
| Florida. ............. | 2,394 | 6,609 | 9.003 | 2,264 | 9.409 | 11.673 |
| Alabma............... | 411 | 531 | 942 | 409 | 694 | 1,103 |
| Mimeissippi. . . . . . . . . | 761 | 1.145 | 1,906 | 885 | 1.003 | 1,888 |
| Louidiana. . . . . . . . . . . | 2.945 | 9.786 | 12,731 | 2,824 | 8.917 | 11.741 |
| Texas. . . . . . . . . . . . . . | 2.548 | 2,862 | 5.410 | 2,501 | 2,592 | 5.093 |
| West Const Fisherienz |  |  |  |  |  |  |
| Washington. . . . . . . . . | 2,609 | 2,627 | 5,236 | 2,609 | 2,607 | 5,216 |
| Oregon. . . . . . . . . . . . . . | 1.613 | 1.346 | 2,959 | 1.090 | 1.005 | 2.095 |
| Alaska................ | 7.416 | 10,164 | 17,580 | 7.433 | 9.761 | 27.194 |
| Callfornia............ | 3.556 | 3.136 | 6.692 | 3.460 | 3.110 | 6.570 |
| Havali. . . . . . . . . . . . | En | 10. | 14 | N/ | nn | NA |
| Great Lakes |  |  |  |  |  |  |
| Fleherieg: (4) |  |  |  |  |  |  |
| Inlinols.............. | 5 | 0 | 5 | 5 | 0 | 5 |
| Indiana............... | 10 | 0 | 10 | 10 | 0 | 10 |
| Michigan. . . . . . . . . . . . | 62 | 74 | 136 | 61 | 75 | 136 |
| Minnesota. . . . . . . . . . . | 2 | 29 | 31 | 2 | 32 | 34 |
| New York. . . . . . . . . . . . | 4 | 13 | 17 | 4 | 14 | 18 |
| Ohio.................. | 30 | 25 | 55 | 33 | 21 | 54 |
| Panneylvania. . . . . . . . | 8 m | m | 4 | 31 | 1 m | M |
| Wimconsin. . . . . . . . . . . | 86 | 33 | 119 | 94 | 16 | 110 |

(1) Voameis are documanted craft greater than 5 net registered tons.
(2) Boats are cratt leas than 5 net regietered tons.
(3). Only Federal collected data are available. Inshore data not avaliable.
(4) Comercial fishing fleet sizes for the Great Lakes states repregent only the number of ilcenses issued by the tate; therefore, may not be an accurate total. Tribal data are not included in this table.
NU -- Not available.

## U.S. MARINE RECREATIONAL FISHERIES

DATA COLECTION. While data on commercial fisheries have been collected for many years, detalled statistical information on marine recreational fishing is also required to support a varlety of fishery management and development purposes. These include the objectlves of the Magnuson Fishery Conservation and Management Act, Publlc Law 94265, as amended. However, prlor to 1979, the lack of a continuous and systematic collection of marine recreational fishery data prevented the accompllshment of these goals. Therefore, NMFS began a new comprehensive Marine Recreatlonal Fishery Statistical Survey (MRFSS) In 1979. Data collected through the MRFSS show that recreational fisherles can have a tremendous impact on fish stocks. For several important management species recreational landings surpass commercial landings. Surveys have been conducted in the following areas and years:

> Atlantic and Gulf, 1979 through 1993;
> Pacific, mid-1979 through 1989, 1993: Western Pacific, 1979 through 1981; Caribbean, 1979, 1981.

Preliminary estimates of catch and tips from the MRFSS for the Atlantic/Gulf and Paclicic coasts for 1993 are presented in the following tables. Summary graphs for 1983-1993 (Atlantic/Guli) and 1981-1993 (Pacific) catch and trips are also shown. The survey is being conducted in 1994 along the coast of the entire continental United States except the states of Washington and Texas.

The MRFSS data collection consists of an Intercept survey of anglers in the fleld and an independent telephone survey of coastal county households. These independent components, along with census information, are comblned to produce estimates of recreational catch, fishing effort, and partlcipation. Estimates are generated by subregion. state, specles, mode and area of fishing. In addition, information on catch rates and measurements of fish lengths and welghts are obtalned.

The MRFSS is only one of several NMFS programs which collect data on recreatlonal fisherles. speciallzed surveys which target important management specles are also conducted. A major effort to collect economic data on recreational fisherles in the Northeast reglon is planned for 1994.

DATA TABLES. The total number of fish caught is presented for twenty commonly caught specles groups on the Atiantic. Gulf, and Pacific coasts. Total number caught includes those fish which were brought ashore In whole form and were avallable for identification, welghing, and measuring as well as those fish which were not avallable for Identificatlon. This latter category includes those fish which were used for balt, discarded, filleted or released allve. Each species group may contain one or more specles, genera, or familles.

Total catch is distributed by subregion, fishing area and mode. The fishing areas are; ocean 3 miles or less from land, ocean more than 3 miles from land, and inland (sounds, tivers, bays). However, ocean data for the Gulf coast of Florida are reported as 10 miles or less from land and more than 10 miles from land.

The fishing modes are; shore (man-made structures and beach/bank from previous surveys), party/charter boat, and private/rental boat. In 1993 partyboats were not sampled by the MRFSS In the South Attantic and Gulf subregions; therefore estimated catches are glven for charterboats only for these subregions.

Trip estimates and participation estimates are presented for coastal residents (generally residing within 25 miles of the coast), non-cocastal restdents, and nonresidents fishing outside of their home state. Estimated number of trips are also shown by fishing mode.

The 1993 survey did not include the states of Texas or Washington. Sampling was not conducted during January/February in the Atlantic coast states north of Florida, or in November/December in states north of Massachusetts. More detalled Information will be avallable in a separate MRFSS report to be published later.

PRELIMINARY 1993 MRFSS DATA. The U.S. marine recreational infish catch in 1993 (excluding Alaska, Hawall. Washington, Texas, and Pacific coast salmon) was an estimated 293.0 million fish. Approximately onehalf of these fish were released allve. The total marine recreational finfish havest (excluding fish released allve) was an estimated 146.0 million fish welghing an estimated 194.6 million pounds. These fish were taken on an estimated 53.4 million fishing trips. Seventy-elght percent of these trips were taken by restients of the state the fishing trip was made from.

## U.S. MARINE RECREATIONAL FISHERIES

The Attantic and Gulf coasts accounted for over 90 percent of the total U.S. marine recreational finfish catch by number and for 88 percent of the fishing trips.

The private/rental boat mode accounted for 57 percent of the total U.S. marine recreational finfish catch by number while shore and party/charter modes made up 29 and 14 percent, respectively.

Attantic and Gulf. Commonly caught species in 1993 were herrings (primarily used for bait), spotted seatrout, summer flounder, Atlantic croaker, spot, piniish, and black sea bass. Top-ranked non-balt species by subregion were scup in the North Atiantic, summer fiounder in the Mld-Atlantlc, spot in the South Atlantic, and spotted seatrout in the Gulf of Mextco. By subregion the Gulf of Mexico accounted for the highest numbers of fish caught (51\%) followed by the Mid-Atlantic (27\%).

Approximately one-third of the recreational fishing trips were made in the Gulf of Mexico and another one-third in the South Atlantic. The MldAttantic and North Atlantic combined made up the final one-third of the total trips taken. Fifty-six percent of all Atlantic and Gulf trips were made from boat modes while 44 percent were shore based trips.

The most commonly caught non-balt species in 1993 by mode were spot from shore mode, red snapper from charterboat mode (South Atlantic and Gulf only), black sea bass from party/charterboat mode (North and Mid- Attantlc subregions only), and spotted seatrout from prlvate/rental boat mode. Private/rental boat trips accounted for 58 percent of all fish caught recreattonally on the Attantic and Gulf coasts.

Seventeen percent of the total marine recreational catch on the Attantic and Gulf coasts came from the EEZ. The most commonly caught species in federally managed waters were red snapper, black sea bass. Atlantic cod, and bluefish.

Pacific. Commonly caught specles in 1993 were Pacific mackerel, kelp bass, white croaker, blue rockfish, and surf smelt. Top-ranked specles by subregion were Pacific mackerel In Southem California, surf smelt in Northem Califomia, and black rockfish in Oregon. By subregion Southem Callfomla accounted for the highest numbers of fish caught (63\%) followed by Northem Callfornla (33\%) and Oregon (4\%).

Sixty-three percent of the Paclicic coast recreational ifshing trips (excluding Washington and salmon trips) were made in Southem Calliornia. Nearly two-thirds of all Paciflc coast trips were taken from boat modes while 35 percent were from the shore.

The top ranked species in 1993 by mode were surf smelt from the shore mode, kelp bass from the party/charterboat mode, and Paclific mackerel from the private/rental boat mode. Pilvate/rental boat trips accounted for 51 percent of all fish caught recreationally on the Pacific coast.

Elghteen percent of the total marine recreational catch on the Pacific coast came from the EEZ. The most commonly caught Paclific coast species In federally managed waters for 1993 were Pacific mackerel, kelp bass, and barred sand bass. Two-thirds of the Paclic coast marine recreational catch came from the ocean within three miles from shore (state waters).

## ESTIMATED NUMBER OF PARTICIPANTS IN MARINE RECREATIONAL FISHING BY SUBREGION AND AREA OF RESIDENCE: ATLANTIC, GULF AND PACIFIC COASTS, JANUARY 1993 - DECEMBER 1993

| Subregion | Coastal resident participants | Non-coastal resident participants | out of state participants |
| :---: | :---: | :---: | :---: |
| North Atlantic. | 502 | housands----- 65 | 328 |
| Mid-Atlantic.. | 1,550 | 60 | 773 |
| South Atlantic | 1,619 | 312 | 1,671 |
| Gulf of Mexico | 1,459 | 264 | 1,620 |
| Total. | 5130 | 701 | +,392 |
| Southern Californi | 806 | 17 | 166 |
| Northern Californi | 431 | 1 | 115 |
| Oregon... | 120 | 8 | 32 |
| Total. | 1.357 | 26 | 313 |
| Grand Total.... | 6,487 | 727 | 4705 |

Note:--Estimates for the Gulf of Mexico exclude Texas. Pacific coast estimates exclude
Washington. "Out of state" subregion and region totals are over-estimates as one
angler can be counted as "Out of State" for more than one state.

## U.S. MARINE RECREATIONAL FISHERIES

## ESTIMATED TOTAL NUMBER OF FISH CAUGHT BY MARINE RECREATIONAL ANGLERS BY SPECIES GROUP AND SUBREGION: <br> ATLANTIC AND GULF COASTS, JANUARY 1993 - DECEMBER 1993

| Species group | North Atlantic | MidAtlantic | South Atlantic | Gulf of Mexico | Total |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |
| Herrings.. | 371 | 274 | 3,568 | 23,750 | 27,963 |
| Saltwater catfishes... | * | ${ }^{*}$ | 2,044 | 9,115 | 11, 160 |
| Black sea bass........ | 40 | 6,783 | 1,363 | 2,078 | 10,264 |
| Bluefish.............. | 1,453 | 3,516 | 2,535 | 332 | 7,837 |
| Red snapper........... |  |  | 103 | 5,119 | 5,222 |
| Scup................... | 2,807 | 2,110 | - ${ }^{-}$ | * | 4,928 |
| Pinfish................ | * | - | 2,505 | 8,674 | 11,184 |
| Sheepshead. . . . . . . . . . | * | - | 1,151 | 3,763 | 4,915 |
| spotted seatrout. . . . . | * | 137 | 2,131 | 15,651 | 17,919 |
| Weakfish. . . . . . . . . . . | - | 1,236 | 323 |  | 1,561 |
| Sand seatrout. . . . . . . . | * |  | * | 3,520 | 3,520 |
| Spot . . . . . . . . . . . . . . . . | * | 5,798 | 4,629 | 825 | 11,252 |
| Kingfishes. . . . . . . . . . | * | 683 | 1,513 | 743 | 2,939 |
| Atlantic croaker...... | * | 9,853 | 2,022 | 3,293 | 15,168 |
| Red drum. . . . . . . . . . . . | * | 48 | 1,145 | 4,993 | 6,186 |
| Mullets.. | 40 | 823 | 1,218 | 1,164 | 3,245 |
| King mackerel......... | * | - | 558 | 666 | 1,237 |
| Summer flounder....... | 343 | 15,984 | 351 | * | 16,678 |
| Winter flounder. | 483 | 1,990 | * | * | 2,473 |
| Atlantic cod.......... | 1,686 | 411 | * | * | 2,097 |
| Striped bass.......... | 1,220 | 2,475 | - | - | 3,719 |
| Other fishes.......... | 6,311 | 20,243 | 16,890 | 51,764 | 95,207 |
| Total.............. | 14,756 | 72, 38 | 4,07\% | 3s3,46\% | 266,872 |

Note:-- A dash ( - ) denotes an estimate of less than thirty thousand which is included in row and column totals. An asterisk (*) denotes none reported. Figures for the Gulf of Mexico do not include the recreational catch for Texas. Figures for the South Atlantic and Gulf of Mexico do not include catches for partyboats. Row and column totals may not add due to rounding.

## ESTIMATED TOTAL NUMBER OF FISH CAUGHT BY MARINE RECREATIONAL ANGLERS BY SPECIES GROUP AND SUBREGION: <br> PACIFIC COAST, JANUARY 1993 - DECEMBER 1993

| Species Group | Southern California | Northern California | Oregon | Total |
| :---: | :---: | :---: | :---: | :---: |
|  |  | -Tho |  |  |
| Pacific herrings | - | 8 | 221 | 223 |
| Surf smelt. | - | 1,498 | - | 1,498 |
| Smelt, other | 34 | - | - | 63 |
| Walleye pollock. | - | * | * | 1 |
| Jacksmelt. | 276 | 715 | - | 991 |
| Kelp bass. | 2,268 | - | * | 2,269 |
| Barred sand bass | 1,417 | * | * | 1,417 |
| White croaker. | 1,014 | 700 | * | 1,714 |
| Queenfish. | 156 | - | * | 156 |
| Walleye surfperch...................... | 61 | 117 | - | 180 |
| Redtail surfperch | * | 43 | - | 52 |
| Barred surfperch. | 345 | 162 | * | 506 |
| Pacific bonito. | 539 | * | * | 539 |
| Pacific mackerel | 3,882 | 146 | - | 4,030 |
| Black rockfish. | - | 359 | 273 | 658 |
| Blue rockfish. | 496 | 1,000 | 110 | 1,606 |
| Boccacio. | 142 | - | - | 157 |
| Olive rockfish. | 111 | 82 | * | 193 |
| Rockfishes, other | 1,476 | 1,035 | 201 | 2,712 |
| Other fishes. | 4,226 | 2,787 | 311 | 7,324 |
| Total............................... | 1, \% 13 | 8, 679 |  | 20,200 |

[^0]
## U.S. MARINE RECREATIONAL FISHERIES

## ESTIMATED NUMBER OF FISH CAUGHT BY MARINE RECREATIONAL ANGLERS BY SPECIES GROUP AND AREA OF FISHING: <br> ATLANTIC AND GULF COASTS, JANUARY 1993 - DECEMBER 1993

| Species group | Ocean |  |  |  | Inland | Total |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 3 Miles or less | Over <br> 3 miles | $\begin{aligned} & 10 \text { Miles } \\ & \text { or less } \end{aligned}$ | Over <br> 10 Miles |  |  |
|  | - |  | -Tho | s |  |  |
| Herrings. . . . . . . . . . | 2,176 | 268 | 1,271 | 519 | 23,730 | 27,963 |
| Saltwater catfishes. | 1,842 | 782 | 1,260 | 51 | 7,225 | 11,160 |
| Black sea sass...... | 2,421 | 3,860 | 1,033 | 731 | 2,219 | 10,264 |
| Bluefish............ | 2,790 | 882 | 126 | - | 4,032 | 7,837 |
| Red snapper......... | 39 | 4,257 | 209 | 681 | 36 | 5,222 |
| Scup.... | 881 | 578 |  | * | 3,470 | 4,928 |
| Pinfish. | 1,282 | 222 | 3,139 | 427 | 6,114 | 11,184 |
| Sheepshead.. . . . . . . . | 450 | 118 | 341 | - | 3,990 | 4,915 |
| Spotted seatrout.... | 1,684 | 222 | 2,857 | 78 | 13,078 | 17,919 |
| Weakfish............ | . 255 | 89 |  | * | 1,216 | 1,561 |
| Sand seatrout....... | 1,179 | 409 | 228 | * | 1,704 | 3,520 |
| Spot................ | 3,260 | 71 | 31 | * | 7,945 | 11,252 |
| Kingfishes.......... | 1,193 | 71 | 88 | - | 1,586 | 2,939 |
| Atlantic croaker.... | 1,681 | 507 | 267 | * | 12,713 | 15,168 |
| Red drum. | 821 | 223 | 312 | 44 | 4,786 | 6,186 |
| Mullets. | 479 | 188 | 357 | * | 2,221 | 3,245 |
| King mackerel. . . . . | 327 | 338 | 381 | 163 |  | 1,237 |
| Summer flounder. | 5,466 | 387 | * | * | 10,825 | 16,678 |
| Winter flounder..... | 332 | 54 | * | * | 2,087 | 2,473 |
| Atlantic cod....... | 227 | 1,805 | * | * |  | 2,097 |
| striped bass. | 909 | 184 | - | * | 2,625 | 3,719 |
| Other fishes | 13,050 | 11,085 | 22,308 | 9,956 | 38,807 | 95,207 |
| Total............. | 42\% 74 | 26,544 | 3, 209 | 32\% 076 | 150,500. | 260,672 |

Note:--"Ocean 10 mi or less" and "ocean over 10 mi refer only to the Florida Gulf coast where state jurisdiction extends to three marine leagues, approximately ten nautical miles. The total estimate is additive across four areas. A dash (-) denotes an estimate of less than thirty thousand which is included in row and column totals. An asterisk (*) denotes none reported. Row and column totals may not add due to rounding. Figures do not include any recreational catches for Texas or partyboat catches for the South Atlantic and Gulf of Mexico.

## ESTIMATED NUMBER OF FISH CAUGHT BY MARINE RECREATIONAL ANGLERS BY SPECIES GROUP AND AREA OF FISHING: PACIFIC COAST, JANUARY 1993 - DECEMBER 1993

| Species group | Ocean |  | Inland | All areas |
| :---: | :---: | :---: | :---: | :---: |
|  | 3 Miles or less | $\begin{aligned} & \text { Over } \\ & 3 \text { miles } \end{aligned}$ |  |  |
|  | -------- | --Thous | 221 |  |
| Pacific herring...................................... <br> Surf smelt | 1,491 | * | 221 | 223 1,498 |
| Smelts, other....................... . . . . . . . . . . . . . | 1. 36 | * | - | , 63 |
| Walleye pollock. | - | * | * | 1 |
| Jacksmelt.. | 405 | - | 585 | 991 |
| Kelp bass. | 1,642 | 500 | 127 | 2,269 |
| Barred sand bass | 665 | 487 | 265 | 1,417 |
| White croaker. | 1,160 | 167 | 387 | 1,714 |
| Queenfish.. | 107 | - | 44 | 156 |
| Walleye surfperch. | 164 | - | - | 180 |
| Redtail surfperch | 52 | * | - | 52 |
| Barred surfperch.. | 485 | * | - | 506 |
| Pacific bonito. | 378 | 157 | $\stackrel{-}{-}$ | 539 |
| Pacific mackerel | 2,368 | 1,334 | 328 | 4,030 |
| Black rockfish. | + 579 | 62 | - | . 658 |
| Blue rockfish. | 1,553 | 52 | - | 1,606 |
| Boccacio. |  | 129 | - | 157 |
| Olive rockfish. | 178 | - | - | 192 |
| Rockfishes, other | 2,063 | 608 | 41 | 2,712 |
| Other fishes. | 4,165 | 1,198 | 1,961 | 7,324 |
| Total.......................................... | 1\%es\% | \%, \%1s\% | \%,05\% | 26.269 |

Note:--A dash (-) denotes an estimate of less than thirty thousand which is included in row and column totals. An asterisk (*) denotes none reported. Row and column totals may not add due to rounding. Recreational catches for Washington and all salmon catches not included here.

## U.S. MARINE RECREATIONAL FISHERIES

## ESTIMATED TOTAL NUMBER OF FISH CAUGHT BY MARINE RECREATIONAL ANGLERS BY SPECIES GROUP AND FISHING MODE: <br> ATLANTIC AND GULF COASTS, JANUARY 1993 - DECEMBER 1993.

| Species Group | Shore | Charter Boats | Party/ <br> Charter Boats | Private/ <br> Rental Boats | Total |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Herrings. | 9,623 | 398 | Thousands--- | 17,940 | 27,963 |
| Saltwater catfishes.. | 3,392 | 582 | * | 7,185 | 11,160 |
| Black sea bass........ | 645 | 326 | 4,124 | 5,169 | 10,264 |
| Bluefish............. . . . . | 2,839 | 90 | 1,001 | 3,906 | 7,837 |
| Red snapper.............. |  | 4,007 |  | 1,208 | 5,222 |
| Scup. . . . . . . . . . . . . . . . . . | 339 |  | 1,326 | 3,263 | 4,928 |
| Pinfish. | 5,673 | 283 |  | 5,229 | 11,184 |
| Sheepshead. | 1,721 | 70 | * | 3,124 | 4,915 |
| Spotted seatrout | 1,996 | 838 | * | 15,085 | 17,919 |
| Weakfish.. | 148 | - | 156 | 1,254 | 1,561 |
| Sand seatrout | 1,226 | 152 | * | 2,141 | 3,520 |
| Spot. . . . . | 6,926 | 2 | 404 | 3,899 | 11,252 |
| Kingfishes. | 2,000 | - |  | 931 | 2,939 |
| Atlantic croaker........ | 4,678 | $\overline{7}$ | 652 | 9,828 | 15,168 |
| Red drum. . . . . . . . . . . . . . | 919 | 337 | 0 | 4,929 |  |
| Mullets....................... | 1,923 | * | 0 | 1,321 | 3,245 |
| King mackerel. . . . . . . . . . . | +71 | 737 | ${ }^{0}$ | 429 | 1,237 |
| Summer flounder. | 1,237 |  | 2,415. | 13,026 | 16,678 |
| Winter flounder. | 537 $*$ | * | 396 1.430 | 1,540 | 2,473 |
| Atlantic cod............ |  |  | $\begin{array}{r}1,430 \\ \hline 320\end{array}$ | 668 | 2,097 3,719 |
| Striped bass............ | 908 | * | 320 | 2,491 | 3,719 |
| Other fishes. | 30,431 | 11,140 | 3,398 | 50,239 | 95,207 |
| Total................ | 77,240 | 19,005 | 15,624 | 154,804 | 266,672 |

Note:-- A dash (-) denotes an estimate of less than thirty thousand which is included in row and column totals. An asterisk (*) denotes none reported. Figures for Charter Boats include only catches in the South Atlantic and Gulf of Mexico excluding Texas. Figures for partyboats are only for the North Atlantic and Mid-Atlantic subregions. Row and colmun totals may not add due to rounding.

## ESTIMATED TOTAL NUMBER OF FISH CAUGHT BY MARINE RECREATIONAL ANGLERS BY SPECIES GROUP AND FISHING MODE: <br> PACIFIC COAST, JANUARY 1993 - DECEMBER 1993

| Species Group | Shore | Party/ <br> Charter Boats | Private/ <br> rental boats | Total |
| :---: | :---: | :---: | :---: | :---: |
|  |  | Tho | nds--- |  |
| Pacific herrings. | 218 | * | - | 223 |
| Surf smelt. | 1,498 | * | - | 1,499 |
| Smelt, other.. | 59 | * | - | 63 |
| Walleye pollock. | - | * | * | 1 |
| Jacksmelt. . . | 793 | - | 197 | 991 |
| Kelp bass.. | 121 | 1,283 | 865 | 2,269 |
| Barred sand bass | 32 | 673 | 712 | 1,417 |
| White croaker. | 440 | 160 | 1,114 | 1,714 |
| Queenfish.. | 138 |  | - | 156 |
| Walleye surfperch. | 168 |  | - | 180 |
| Redtail surfperch | 52 | * |  | 52 |
| Barred surfperch. | 503 | * | - | 506 |
| Pacific bonito.. | 44 | 236 | 260 | 539 |
| Pacific mackerel. | 462 | 1,251. | 2,316 | 4;030 |
| Black rockfish. | - | 144 | 488 | 658 |
| Blue rockfish. | - | 228 | 1,359 | 1,606 |
| Boccacio. | - | 84 | 62 | 157 |
| Olive rockfish. | - | 50 | 141 | 193 |
| Rockfishes, othe |  | 633 | 1,987 | 2,712 |
| Other fishes.. | 2,127 | 1,346 | 3,851 | 7,324 |
| Total............. | 6,808 | 6,088 | 13.394 | 26,290 |

[^1]
## U.S. MARINE RECREATIONAL FISHERIES

## ESTIMATED TOTAL NUMBER OF FISHING TRIPS BY MARINE RECREATIONAL ANGLERS BY SUBREGION AND AREA OF RESIDENCE: ATLANTIC, GULF AND PACIFIC COASTS, JANUARY 1993 - DECEMBER 1993

| Subregion | $\begin{aligned} & \text { Trips by } \\ & \text { coastal } \\ & \text { residents } \\ & \hline \end{aligned}$ | $\begin{gathered} \text { Trips by } \\ \text { non-Coastal } \\ \text { residents } \\ \hline \end{gathered}$ | Non- resident trips | All Trips |
| :---: | :---: | :---: | :---: | :---: |
|  | 3,0929,39010,38910,933 | Thousands-----------10 |  |  |
| North Atlantic. |  | $234$ | 1,110 | 4,436 |
| Mid-Atlantic. |  | 221 | 2,120 | 11,731 |
| South Atlantic. |  | 1,009 | 3,674 | 15,072 |
| Gulf of Mexico. |  | 547 | 4,457 | 15,937 |
| Total. | 33, 804 | 2,04 | 4iksan | 4\%1/6 |
| Southern California | 3,582 | 44 | 285 | 3,911 |
| Northern California | 1,624 | 3 | 274 | 1,901 |
| Oregon.... | 314 | 13 | 52 | 379 |
| Total. | 5,540 | 60\% | 6, 4. | 6,12 |
| Grand Total..... | 3934\% | 2,074 | He, 12 | 53,367 |

Note:--Estimates for the Gulf of Mexico exclude Texas. Estimates for the South Atlantic and Gulf of Mexico subregions exclude partyboat trips. Estimates also exclude January/February trips in the North Atlantic subregion and the South Atlantic states north of Florida, as well as November/ December trips in the North Atlantic states north of Massachusetts. Pacific coasts estimates do not include salmon fishing trips or Washington trips.

## ESTIMATED TOTAL NUMBER OF FISHING TRIPS BY MARINE RECREATIONAL ANGLERS BY SUBREGION AND MODE OF FISHING: <br> ATLANTIC, GULF AND PACIFIC COASTS, JANUARY 1993 - DECEMBER 1993

| Subregion | Shore | $\begin{gathered} \text { Party/ } \\ \text { Charter Boat } \\ \hline \end{gathered}$ | Private/ Rental Boat | All Trips |
| :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |
| North Atlantic. | 2,019 | 326 | 2,092 | 4,437 |
| Mid-Atlantic. | 3,692 | 1,665 | 6,374 | 11,731 |
| South Atlantic. Gulf of Mexico. | $\begin{aligned} & 8,077 \\ & 6,929 \end{aligned}$ | $\begin{array}{r} 904 \\ 1,495 \end{array}$ | $\begin{aligned} & 6,092 \\ & 7,513 \end{aligned}$ | $\begin{aligned} & 15,073 \\ & 15,937 \end{aligned}$ |
| Total. | 20, \%137. | 4,390 | 22, 074 | 17.178 |
| Southern California | 1,233 | 1,192 | 1,486 | 3,911 |
| Northern California | 781 | 209 | 910 | 1,900 |
| Oregon. | 121 | 43 | 215 | 379 |
| Total. | 2,135 | 1, 444. | 2, 614 | 6,150 |
| Grand Total...... | 22, 852 | 5,834 | 24.602 | 53, 368 |

Note:--Estimates for the Gulf of Mexico exclude Texas. Estimates for the South Atlantic and Gulf of Mexico subregions exclude partyboat trips. Estimates also exclude January/February trips in the North At lantic subregion in the South Atlantic states north of Florida, as well as November/ December trips in the North Atlantic states north of Massachusetts. Pacific coasts estimates do not include salmon fishing trips or Washington trips.

## U.S. MARINE RECREATIONAL FISHERIES

MARINE RECREATIONAL FISHERIES CATCH ATLANTIC AND GULF COASTS, VARIOUS YEARS


MARINE RECREATIONAL FISHING TRIPS ATLANTIC AND GULF COASTS, VARIOUS YEARS


Note: 1993 data are prellminary.


[^0]:    Note:-- A dash (-) denotes an estimate of less than thirty thousand which is included in row and column totals. An asterisk.(*) denotes none reported. Row and column totals may not add due to rounding. Figures do not include salmon catches estimated by state recreational surveys. Recreational catches for Washington also not included here.

[^1]:    Note:-- A dash ( -1 denotes an estimate of less than thirty thousand which is included in row and column totals. An asterisk (*) denotes none reported. Row and column totals may not add due to rounding. Figures do not include salmoñ catches estimated by state recreational surveys.
    Recreational catches for Washington also not included here.

