U.S. 1983 Shrimp Catch Down, Imports Up

U.S. landings of shrimp in 1983 were down from the previous year, while imports and consumption reached record levels (Table 1). Prices averaged slightly lower to slightly higher in 1983 compared with a year earlier but most were 10-24 percent lower in December 1983 than a year earlier. Prices of the largest sizes were strongest, and prices of middle sizes were weakest.

Gulf and South Atlantic landings were 141 million pounds (heads off) in 1983, down 5 percent from 1982, and 12 percent below the 1978-82 average. The value was $485 million, down 0.1 percent, according to preliminary estimates. The largest drop occurred in Louisiana. Among species, browns were down significantly, while whites and pinks were up somewhat.

U.S. imports of fresh and frozen shrimp were a record 388 million pounds (heads off) in 1983, up 28 percent from a year earlier and 50 percent above the 1978-82 average. Imports of all shrimp totaled 341 million pounds (product weight), valued at $1,224 billion. Imports from Mexico were up 5 percent to 84.6 million pounds ($384 million). Imports from Ecuador advanced sharply—up 42 percent—to 51.4 million pounds ($219 million). Based primarily on shrimp farming, imports from Ecuador grew from averages of 6.7 million pounds in 1968-72 and 21.1 million pounds in 1978-82. Counting Ecuador alone, aquaculture represented perhaps 13 percent of U.S. imports of shrimp in 1983, and future supplies from shrimp farms will be much larger.

Consumption of fresh and frozen shrimp in 1983 reached a record 481 million pounds, 16 percent above 1982, and 30 percent above the 1978-82 average. Meanwhile, inventories of frozen shrimp were 57 million pounds (heads off) at the end of 1983, 15 percent above a year earlier, but 5 percent below the 1978-82 average. The Gulf pack of canned shrimp rose 27 percent to 12 million pounds (heads off).

Ex-vessel and wholesale prices of most Gulf shrimp trended downward in the second half of 1983. Although prices of larger shrimp began turning upward in the last quarter, most prices closed lower in 1983 than in 1982. Wholesale prices of Gulf browns at New York were 4-18 percent lower in December 1983 than a year earlier, except for under 15's, which were 0.5 percent higher. Ex-vessel prices of western Gulf shrimp were 10-22 percent lower. The greatest declines were in the middle sizes. For the year, ex-vessel and wholesale prices averaged 5.7 percent higher and 1.8 percent lower.

Table 1.—U.S. supply and use of fresh and frozen shrimp, 1982-83[1].

Item	Supply[2] 1982	1983
Beginning inventory	52.4	49.2
Landings[3]	149.2	141.2
Imports	302.4	388.0
Total supply	504.0	578.4
Ending inventory	49.2	56.8
Exports	31.1	28.3
Canned pack[4]	9.6	12.2
Apparent consumption	414.1	481.1

[1]Some data preliminary; totals from unrounded data.
[2]Million pounds (heads off).
[3]Gulf and South Atlantic only.
[4]Gulf only.

Southeast Region Tops U.S. Fisheries Landings

Commercial fish landings in the U.S. Southeast Region for 1983 resulted in more fish worth more money than any other part of the United States, according to Jack T. Brawner, Director, NMFS Southeast Regional Office, St. Petersburg, Fla. The Southeast landings were 3.2 billion pounds, representing 42 percent of the total U.S. landings of 7.7 billion pounds, according to NMFS figures. Southeast Region landings were valued at $940 million, representing 36 percent of the total $2.6 billion in U.S. commercial landings. The Southeast Region commercial landings figures cover the states of Texas, Louisiana, Mississippi, Alabama, Florida, Georgia, North and South Carolina, Puerto Rico, and the U.S. Virgin Islands.

Landings reported from the Gulf of Mexico were 2.4 billion pounds valued at $616 million, representing 31 percent of the U.S. landings and 24 percent of the total U.S. value. These figures reflect the gradual and continued increase in Gulf landings. Menhaden, an industrially important fish used mainly for fish meal, was the Gulf leader in volume of landings, yielding a record 2 billion pounds in 1983. Shrimp was the king in value, with a price tag of $417 million. Although substantial, shrimp landings of 198 million pounds were lower in 1983 than the previous 2 years.

Cameron, La., was the leading U.S. fish port in volume of landings, followed by Pascagoula-Moss Point, Miss.; Empire-Venice and Dulac-Chauvin, La.; and Los Angeles, Calif. Shrimp and menhaden were the principal species landed in these ports, except for Los Angeles, where tuna was the principal species.

Louisiana led all states in volume with record landings of 1.8 billion pounds; second was Alaska, with 964 million; followed by Virginia, 751 million.

New England 1983 Fishery Landings and Values Told

Atlantic cod, *Gadus morhua*, was again in 1983 the most landed fish in the five coastal New England states, according to preliminary National Marine Fisheries Service (NMFS) data. Commercial fisherman landed 112 million pounds of the species last year (Table 1). The large cod landings "stem from a redirection of effort by fisherman to catch cod—mostly due to a large decrease in the amount of haddock available to fisherman," according to Frederic Serchuk, NMFS cod biologist.

Haddock, *Melanogrammus aeglefinus*, landings have dropped from 55 million pounds in 1981 to 45 million pounds in 1982, and to 33 million pounds in 1983. According to William Overholtz, NMFS haddock biologist, the outlook for haddock is "continued declines until 1986, with no signs yet of any recovery after that."

Other major species showing increased landings last year were yellowtail flounder, *Limanda ferruginea*, up from 44 million pounds in 1982 to 69 million pounds in 1983, and American lobster, *Homarus americanus*, up from 38 million pounds to 42 million pounds in 1983.

Major species showing decreased landings were Atlantic herring, *Clupea harengus harengus*, down from 73 million pounds in 1982 to 51 million pounds in 1983, and sea scallops, down from 16 million pounds of meats in 1982 to 14 million pounds of meats in 1983. Even though scallop landings decreased, the dockside value increased from $57 million to $78 million due to much higher prices. Overall, total landings increased from 687 to 711 million pounds, with their value also increasing from $374 million to $435 million.

Table 1.—Species landings (in million pounds) and values (in million dollars) data for New England.

	1982		1983	
Species	Landings	Value	Landings	Value
Atlantic cod	104	$37	112	$38
Yellowtail founder	44	25	69	34
Atlantic herring	73	4	51	3
American lobster	37	85	42	101
Haddock	45	22	33	19
Sea scallops[1]	16	57	14	78
All others	368	144	390	162
Total	687	$374	711	$435

[1]Data for meats only.

Table 2.—Port landings (in million pounds) and values (in million dollars) data for New England.

	1982		1983	
Port	Landings	Value	Landings	Value
Gloucester, MA	147	$44	151	$ 38
New Bedford, MA	95	83	112	109
Pt. Judith, RI	64	21	62	26
Rockland, ME	50	11	55	12
Portland, ME	66	15	54	16
Boston, MA	28	13	24	11

Table 3.—State landings (in million pounds) and values (in million dollars) data for New England.

	1982		1983	
State	Landings	Value	Landings	Value
Massachusetts	344	$204	377	$245
Maine	217	101	203	108
Rhode Island	113	55	114	66
New Hampshire	8	4	10	4
Connecticut	6	10	8	12

Port Landings, Values

Gloucester, Mass., again landed the most fish of any New England port (Table 2). Its 151 million pounds in 1983 (up from 147 million pounds in 1982) also ranked it seventh nationally. The value of Gloucester's 1983 landings, 38 million dollars, was a drop from 44 million in 1982, but still placed it eighth nationally in that category.

New Bedford, Mass., benefactor of the much higher prices being paid for scallop meats last year, again had the highest valued landings of any New England port. Its $109 million value in 1983 (up from 83 million dollars in 1982) also ranked it first nationally. It easily outdistanced runner-up Los Angeles, Calif., which had an $85 million value. (Los Angeles mostly lands tuna, another high-valued species.) New Bedford's 112 million pounds of landings in 1983 also placed it eighth nationally in that category.

The rankings among six major New England ports in 1983 landings and values, respectively, were Gloucester (1st, 2nd); New Bedford (2nd, 1st); Pt. Judith, R.I. (3rd, 3rd); Rockland, ME (4th, 5th); Portland, ME (5th, 4th); and Boston (6th, 6th).

State Landings, Values

Massachusetts continued to lead New England states in 1983 with 344 million pounds (Table 3), 53 percent of the landings and 56 percent of the value. The rankings of other New England states in 1983 landings and values, respectively, were Maine (2nd, 2nd), Rhode Island (3rd, 3rd), New Hampshire (4th, 5th), and Connecticut (5th, 4th).

Maine was the only state to show a landings decrease—14 million pounds—which was due in part to the 22 million-pound decrease in Atlantic herring landingss off New England last year. According to Vaughn Anthony, NMFS herring biologist, the "failure of herring to move inshore as much as usual during the summer reduced the catch in the coastal weirs and seines." Anthony also pointed to "reduced demand for herring by foreign importers" as another reason for the decreased herring landings.

U.S. East Coast Squid Landings Set New Records

U.S. 1983 commercial landings of squid were a record 61.4 million pounds valued at $14.4 million—an increase of 1.8 million pounds and up 3 percent from the record set in 1982. The value increased $5.3 million (59 percent) compared with 1982. Record landings by the Atlantic Coast fleet offset a 31.5 million pound (88 percent) drop in the west coast squid landings; the climatic effects of the El Niño greatly disrupted the California fishery.

The record Atlantic Coast catch totaled 57 million pounds, as 33.5 million pounds were landed at east coast ports and 23.5 million pounds were sold to foreign processing vessels operating within the U.S. waters under approved joint ventures. The more desirable east coast loligo squid

brought higher ex-vessel prices causing the 59 percent increase in the total value. Strong export markets during 1983 consumed most of the production.

Scientists at the NMFS Northeast Fisheries Center, Woods Hole, Mass., report research vessel abundance indices for Atlantic loligo squid indicated good yields could be expected in 1984 if fishing efforts remained similar to 1983. This is contrasted by the low abundance index for Atlantic illex squid which indicates its current abundance is significantly reduced from its former high levels.

Hard Blue Crab Leads Mid-Atlantic Landings

Hard blue crabs, *Callinectes sapidus*, were again the most-landed seafood in 1983 in the Mid-Atlantic states, according to NMFS preliminary data (Table 1). Commercial fisherman landed 98 million pounds of the species valued at $29 million, during 1983. That was 2 million pounds and $3 million more than in 1982.

Atlantic menhaden were still the most landed finfish in the Mid-Atlantic states; however, that species is not consumed as seafood, but processed into fish meal, oil, and solubles which, in turn, are used in a variety of industrial and commercial applications. Mid-Atlantic landings contributed to the 927 million pounds and $37 million in menhaden landings along the U.S. Altantic coast.

The highest valued seafood species landed in Mid-Atlantic states last year was the sea scallop. Even though landings of scallop meats dropped from 6 to 4 million pounds between 1982 and 1983, the value jumped from $16 million to $32 million, due to the much higher prices being paid for scallop meats.

The only species to decline significantly in landings and value last year was the American oyster. From 1982 to 1983, oyster landings dropped from 20 to 13 million pounds of meats, and value dropped from $33 million to $22 million.

Table 1.—Species landings (in million pounds) and values (in million dollars) for Mid-Atlantic states.

	1982		1983	
Species	Landings	Value	Landings	Value
Hard blue crab	96	$26	98	$29
Surf clam	47	24	52	23
Ocean quahog	31	10	32	10
Summer flounder	11	8	15	10
Squids	11	2	14	4
American oyster	20	32	13	22
Silver hake	10	3	11	3
Scup	9	4	9	4
Weakfish	7	3	7	3
Sea scallop	4	16	6	32

Nineteen Named to Regional Fishery Management Councils

Nineteen individuals have been appointed to the nation's eight Regional Fishery Management Councils by Commerce Secretary Malcolm Baldrige from nominees submitted by the Governors of the States served by each Council. The 3-year appointments took effect in August.

Named to the Caribbean Fishery Management Council was Jose Luis Campos, Insurance Broker, John Hancock Mutual Life Insurance Co., Hato Rey, Puerto Rico. Appointed to the Gulf of Mexico Fishery Management Council were Julius Collins, President, J. Collins Trawler-Gulf Shrimp Co., Brownsville, Tex.; William D. Chauvin, Executive Director, American Shrimp Canners and Producers Association, New Orleans, La.; and Frank J. Barhanovich, owner, Latitude Gifts, Biloxi, Miss.

New to the Mid-Atlantic Fishery Management Council are Warren F. Hader, owner and operator, fishing vessel *Devilfish*, Montauk, N.Y.; Robert L. Martin, Attorney, Bellefonte, Pa.; Ricks Savage, Offshore Surf Clam Fisherman, Berlin, Md.; and Joseph J. MacMillan, retired Business Manager from White Cap Seafoods, West Sayville, N.Y. Named to the New England Fishery Management Council were James W. Salisbury, owner and operator, Petit Manan Fisheries, Inc., Milbridge, Maine; James L. Warren, Executive Director, Maine Sardine Council, Brewer, Maine; and Anthony J. Verga, Executive Director, Gloucester Fisheries Commission, Gloucester, Mass.

For the North Pacific Fishery Management Council, new appointees are Henry V. Mitchell, Executive Director, Bering Sea Fishermen's Association, Anchorage, Alaska; and John G. Peterson, Vice Chairman of the Board, Ocean Beauty Seafoods, Inc., Seattle, Wash. New Pacific Fishery Management Council members include James A. Crutchfield, Jr., Professor, Department of Economics, University of Washington, Seattle; and George J. Easley, Administrator, Otter Trawl Commission of Oregon, Astoria.

South Atlantic Fishery Management Council members are Kenneth B. McGovern, Jr., Executive Director, Humane Society of Greater Miami, Inc., Miami, Fla.; and Belton O'Neil Sanders, President, Sanders Transport, Inc., Allendale, S.C. And, appointed to the Western Pacific Fishery Management Council were Wadsworth Yee, President, Grand Pacific Life Insurance Co., Honolulu, Hawaii; and Alika Cooper, Manager, Cooper & Sons, Inc., Hilo, Hawaii.

Yellowfin Tuna Tracked Near Hawaiian FAD's

Richard W. Brill, Leader, Experimental Ecology of Tunas Program at the Honolulu Laboratory of the NMFS Southwest Fisheries Center reports that Kim Holland, Hawaii Institute of Marine Biology; Scott Ferguson, NOAA Corps; Randolph K. C. Chang, Fishery Biologist; and research assistant Lance S. Asagi participated in a highly successful track of a 70 cm fork length (FL) yellowfin tuna, *Thunnus albacares*, off Waianae, Oahu, on the Honolulu Laboratory's research vessel, *Kaahele'ale*. This work is part of a project to determine the short term horizontal and vertical movements of tunas around fish aggregating devices (FAD's).

The fish was caught near the 91 m (50 fm) isobath a few miles off the coast at 9:55 a.m. on 7 October. An ultrasonic depth sensitive transmitter with a 12-day battery was attached to the fish, and on the initial track the fish was followed for 26 hours until it was lost directly off Kaena Point. After returning to Waianae Boat Harbor for refueling and to allow the crew to rest, the *Kaahele'ale* returned to Kaena Point about 12 noon on 9 October. The fish was relocated and tracked until the following morning (10 October) when it returned to the vicinity where it was originally caught.

After the *Kaahele'ale* returned to the Waianae Boat Harbor to refuel and exchange crews, a search for the fish was resumed late in the afternoon of 12 October. The fish was again relocated near the Kaena Point-Makus vicinity and was tracked until the following morning when it again returned to the inshore area near the 91 m isobath where it was originally caught.

The vessel was forced to return to Kewalo Basin on 13 October because of the threat of hurricane Raymond. An attempt to relocate the fish was made on 19 October. Unfortunately, the transmitter had apparently been shed and was lying on the bottom near the 109 m (60 fm) isobath in an area off the coast between Keaau and Kepuli Points.

This very successful mission resulted in three prolonged tracks spanning 6 days. Unprecedented data on yellowfin tuna's horizontal and vertical movements were acquired, and the information obtained has significant implications for the placement and effects of FAD's. This yellowfin tuna showed a predictable behavior pattern that allowed it to be repeatedly relocated for several days after it was originally caught. The fish appeared to have a definite "home range" that included the inshore 91 m isobath. It made significant excursions offshore (well offshore of the present leeward Oahu FAD locations) but returned to the 91 m isobath area at about the same time every day. Also, rapid dives to over 700 m were recorded. These behavior patterns revealed motor, physiological, and nagivational abilities that were previously suspected but undocumented.

The tracking equipment worked extremely well. In particular, the newly installed hydrophone fairing reduced water movement noise so excellent signal reception was possible at boat speeds of 6-7 knots.

Another yellowfin tuna was successfully tracked for 24 hours when a 55 cm FL fish was caught at 7:00 a.m., 17 November, immediately adjacent to fish aggregating buoy S which is located off the Waianae coast of Oahu. The fish remained in the vicinity of buoy S for only a short period and then proceeded via a relatively direct course to fish aggregating buoy V, about 10 miles north of buoy S. The fish remained in the immediate vicinity of buoy V for about 7 hours, until it moved rapidly offshore (west) just before sunset. The fish was followed until about 7:00 a.m. the following day when the tag was shed.

This track conclusively shows that yellowfin tuna will successfully visit fish aggregating buoys that are up to 10 miles apart and that they apparently have the ability to learn buoy locations and directly navigate from one buoy to another. More attempts to track yellowfin tuna for up to 48 hours will continue.

Gulf of Maine Lobster Tagging Program Advances

Results from the first 6 months of a 3-year joint State of Maine-National Marine Fisheries Service lobster tagging and undersea (submersible) research program have been compiled by the NMFS Northeast Fisheries Center. The purpose of this program is to provide information on abundance, migration, growth, and stock interaction between inshore and offshore lobsters in the Gulf of Maine and to better understand the effects of the expanding offshore fishery on the inshore stocks of lobsters. Of primary interest is the role of the central Gulf of Maine lobster stock in providing recruitment to the coastal areas. Does the offshore Gulf of Maine lobster population represent an important part of the broodstock for the inshore population? Do the offshore Gulf of Main deep water basins provide important habitats for a potential broodstock?

In July 1983, 1,002 lobsters were tagged and released in Jordan Basin and Crowell Basin in the central Gulf of Maine. Lobsters ranged in size from 3¼ inches (carapace length) to 6⅝ inches; 65 percent were females and 35 percent were males. The average size of lobsters tagged was 4½ inches. Since July 1983, 319 tagged lobsters have been recaptured, of which 24 were removed from the population (returned to NMFS) and 295 were recaptured between 1 and 4 times.

The 24 lobsters removed from the population had shown extensive migrations both northwest (into the coast of Maine from Pleasant Bay to Cape Elizabeth) and southwest to the Great South Channel and the continental slope near Veatch Canyon. The maximum distance traveled was by a female lobster which covered 198 n.mi. in about 164 days. The average distance traversed by these 24 recaptures was 8 n.mi. averaging 0.20 n.mi. per day.

The remaining 295 recaptures, all released by a single offshore fisherman from Maine, were made in relatively close proximity to the original area of capture and tagging. However, since 30 October, no recaptures were made within a 10 n.mi. radius of the release sites, even though the distribution of fishing effort by this fisherman remained the same.

Of the 651 female lobsters tagged and released in July, 51 percent were berried. The average size of these females was 4¾ inches, ⅜ inch above the average size of all females. Recaptured females had both released eggs and extruded eggs between the times of tagging and recapture.

These preliminary results indicate a high removal rate in the vicinity of the tag and release areas with either an apparent tendency of tagged lobsters

to remain in areas where there are large numbers of lobster traps or a slow rate of migration through tagging areas. Of the 319 lobsters recaptured to date, only 24 were captured outside of a 10 n.mi. radius from the release locations. It is evident from the decline in the recapture rate in the vicinity of the release areas and the distribution of recapture locations that the original stock of tagged lobsters has now dispersed over a very broad area.

In August 1983, a research submersible diving operation was conducted from the R. V. *Johnson*, support vessel for submarine *Johnson-Sea-Link II*. A total of 17 dives were conducted from Georges Basin and the Northeast (Fundian Channel) northward to Jordan Basin. The most significant findings of this exploratory survey were that few lobsters, virtually no classical lobster habitat, and no temporary or permanent shelters (lobster-excavated) were seen in areas known to support, at least seasonally, commercial concentrations of lobsters. The presence of a successful trap fishery would indicate that more lobsters should have been seen. Therefore, it was tentatively concluded that the central Gulf of Maine lobster stock is transient, and it appears that the offshore fishery does not depend on a resident stock.

NEFC Expands Sea Sampling Programs

The NMFS Northeast Fisheries Center (NEFC) initiated an expanded commercial sea sampling program in the Northeast Region in January. This program provides detailed information on catches rather than the landings information normally collected at the dock. The data on discards by species and size are especially valuable. A minimum of 26 trips were proposed for the year covering the fisheries from Maine to Virginia.

The Center has historically been involved in sea sampling on a limited basis. From 1977 through 1983, 53 trips aboard commercial vessels were completed from 20 different ports within the region covering otter trawls for groundfish, gill netters, scallopers, surf clam dredges, the offshore lobster fishery, the red crab fishery, and handliners. The present program represents partial implementation of the third-tier data collection system which was developed by the Northeast Fisheries Task Force in cooperation with the fishing industry.

The first tier of the system corresponds to landings and value data collected from dealers; the second tier corresponds to collection of data from vessel captains on areas fished and fishing efforts for a fishing trip; and the third tier corresponds to the collection of detailed data (catch-effort, discards, lengths-frequencies, samples for ageing, etc.) on a tow-by-tow basis aboard commercial fishing vessels, using NMFS personnel and selected fishermen who agree to keep detailed record books.

Vessel captains and/or owners were contacted and informed of the program through NMFS port agents stationed in the major ports, or through the program coordinator in Woods Hole, and invited to participate. Scientific personnel from the NEFC and port agents have been placed aboard cooperating commercial vessels to collect information during fishing operations.

Sampling of catches from the different vessels, sizes, and gears is expected and various types of fisheries will be included such as mixed groundfish, whiting, shrimp, spiny dogfish, squid, yellowtail, scallops, surf clams, ocean quahogs, swordfish, etc. The program will also provide the opportunity for fisherman and sea samplers to exchange information and views.

Information obtained during the trips will be confidential and the data collected will be integrated into the NEFC data base for fish stock assessments. The assessments are in turn used by the New England and Mid-Atlantic Fishery Management Councils to manage the region's principal fisheries such as haddock, Atlantic mackerel, sea scallops, etc. In addition, the data obtained can be used to quantify fisherman's observations. For example, if the fishermen say that they are discarding a lot of small yellowtail flounder in a certain area, by placing a sea sampler aboard the vessel, NMFS can obtain the data necessary to quantify the percentage of discard.

The first sea sampling off the New England states focussed on the northern shrimp fishery in the Gulf of Maine. The first sea sampling off the Mid-Atlantic states focussed on the squid, silver hake, black sea bass, and scup fisheries.

How Much Squid Do Tunas Eat?

A review of food habit studies of eastern tropical Pacific tunas has been completed by biological aid Lisa Ankenbrandt of the NMFS Southwest Fisheries Center's La Jolla Laboratory, emphasizing information on cephalopod forage and their importance to the predator. Ankenbrandt reports that cephalopods do not appear to be a predominant prey for tunas in the eastern tropical Pacific. Volumetric percentages of prey from all studies consisted of 65.4 percent fishes, 18.1 percent crustaceans, and 16.5 percent cephalopods.

The predominant cephalopod families captured by tunas included Ommastrephidae (*Ommastrephes bartramii*, *Dosidicus gigas*, and *Symplectoteuthis oulaniensis*), Loliginidae, Argonautidae, Octopodidae, Onychoteuthidae, and Enoploteuthidae. Ankendrandt examined variations in the diet, comparing cephalopod importance with that of fishes and crustaceans in terms of volume, numbers, and frequency of occurrence. The percentage of squids to octopods was also compared.

The multiplicity of prey indicates that tunas are nonselective feeders and that stomach contents are probably determined by prey availability in any given area. Tunas and other higher trophic level predators could serve as more efficient samplers of fast swimming epipelagic fauna than conventional sampling gear. Comprehensive food investigations of

these predators provide an alternative method of assessing cephalopod populations in the eastern tropical Pacific Ocean.

Enforcement Officials Seize Spiny Lobsters

More than 5 tons of undersized spiny lobster tails valued at about $100,000 were seized earlier this year in southern Florida during searches conducted by state and Federal authorities following an undercover investigation begun more than a year ago. Officers of the Florida Marine Patrol, National Marine Fisheries Service (NMFS), and the U.S. Fish and Wildlife Service seized the illegal lobster tails when ten Federal warrants were executed in a variety of facilities, residences, and vehicles along the gold coast from Ft. Lauderdale through Miami to Key West. The Florida Marine Patrol also confiscated 1,000 pounds of undersized spiny lobsters coming in from the Bahamas through the Miami airport. The searches and seizures began on 29 March.

Also seized in the searches were a pound of cocaine and two illegal firearms. The persons associated with the cocaine and firearms were arrested and will be prosecuted by the state of Florida. Material seized in the searches were to be examined by Federal authorities for purposes of possible prosecution, according to Elton J. Gissendanner, Executive Director of Florida's Department of Natural Resources, and Jack T. Brawner, Director of NMFS's Southeast Region. Both directors termed the illegal fishery activities broadscaled.

Preliminary review of documents seized under the warrants indicates additional suppliers, processors, and distributors will be investigated for illicit trade in undersized spiny lobsters and for excessive glazing of lobster tails in violation of U.S. Food and Drug Administration's (FDA) regulations relating to net weight. Glazing involves dipping or spraying water on the lobster tails and then freezing to provide a protective coating for storage. State and Federal agents say they have seen some lobster tails in which 30 percent of the weight consisted of ice. Brawner indicated that consumers are being cheated by excessive glazing and this information will be turned over to the FDA for action.

The illicit activities violate both state and Federal laws. Florida exercises jurisdiction over waters from the shoreline out to 9 n.mi. on the west coast and out to to 3 n.mi. on the east coast. Federal waters extend from the outer boundary of state waters to 200 n.mi.

The Gulf and South Atlantic Spiny Lobster Fishery Management Plan, developed by the Gulf of Mexico and South Atlantic Fishery Management Councils under the Magnuson Fishery Conservation and Management Act, was implemented by NMFS on 30 June 1982. The plan, which is essentially compatible with regulations enacted by the State of Florida, is designed to prevent depletion of the lobster stocks and increase the yield from the fishery. The management measures set fishing seasons, impose harvesting and gear restrictions, require catch and fishing effort reporting, vessel and gear identification, and set minimum sizes for lobsters.

Spiny lobsters with a carapace length of 3.0 inches or less, or with a tail length of less than 5.5 inches, must be returned immediately to the water unharmed. Live lobsters under the minimum size may be held in a shaded live box aboard a vessel for use as attractants in traps. However, no more than three undersized lobsters for each trap carried on board, or 200 undersized lobsters, whichever is greater, may be retained for such use.

The Lacey Act Amendments of 1981, among other things prohibit the illegal importation of fish, wildlife, or plants as well as the interstate transportation of such illegally possessed or imported products. The Amendments represent an important Congressional mandate to gain control of the massive smuggling and trade in illegally taken fish and wildlife. Violators are subject to both civil and criminal penalties.

The spiny lobster fishery is a high-value fishery and over the years has attracted excessive fishing effort. Recent increases in the harvest and sale of undersized lobsters or "shorts" and the taking of lobsters during the peak spawning period, when there is a closed season, are major problems in the fishery. These activities reduce the yield that could be taken from the fishery and also threaten the ability of the lobster stock to reproduce adequately. Gissendanner and Brawner indicated their agencies will vigorously pursue any illegal spiny lobster operation and will take every action within their authority to protect this valuable resource.

Proximate Composition of Synthetic vs. Real King Crab Legs

Several inquiries concerning the proximate composition of synthetic king crab legs prompted the Utilization Research Division of the NMFS Northwest and Alaska Fisheries Center to analyze a sample of simulated crab legs prepared from pollock produced by Nippon Suisan[1].

[1]Mention of trade names or commercial firms does not imply endorsement by the National Marine Fisheries Service, NOAA.

The proximate composition of the imitation crab legs and the king crab meat is shown in Table 1.

Table 1.—Proximate composition of imitation crab legs and king crab meat.

Item	Proximate composition (%)	
	Imitation crab legs	King crab meat
Moisture	74.61	78.6
Protein (total N × 6.25)	12.35	18.0
Fat	0.06	2.0
Ash	2.68	1.8
Carbohydrate (by difference)	10.30	0

Source: Contributed by Jerry K. Babbitt.