NMFS, Coast Guard Strengthen Lacey Act Enforcement

The U.S. Coast Guard and the National Marine Fisheries Service are continuing their vigorous enforcement of the Lacey Act Amendments of 1981 in the Gulf of Mexico. Between October 1982 and June 1983, 50 criminal misdemeanor warrants and six felony arrest warrants were issued by the Federal court in Brownsville, Tex., for masters of vessels charged with violating the Lacey Act Amendments of 1981 (see box).

But despite these enforcement efforts, there have been continuing violations of the Lacey Act. In addition, many shrimp vessels are obscuring or removing their vessel documentation numbers which is a violation of the Magnuson Fishery Conservation and Management Act and the regulations governing the Gulf of Mexico shrimp fishery.

The Coast Guard and NMFS are concerned that past efforts to enforce U.S. laws in the Gulf of Mexico have not had a deterrent effect, and as a result, put a more stringent enforcement policy into effect. Both owners and masters of vessels cited for a violation of the Lacey Act will face a civil penalty of $10,000 and forfeiture of the entire catch on board the vessel. For aggravated circumstances, criminal sanctions of up to $20,000 plus 5 years in prison may be applied. Owners and masters of vessels which are not displaying properly the vessel documentation numbers will be subjected to a civil penalty of up to $25,000.

Later in June, Federal and Texas law enforcement agents boarded more than 45 U.S. shrimp vessels off the south Texas coast, seizing about 16,000 pounds of an allegedly illegal catch worth over $60,000, according to Jack Brawner, NMFS Southeast Regional Director.

The boardings, which took place between 23 and 26 June, revealed over 30 vessels illegally fishing in Mexican waters and about 20 vessels which were apparently trying to avoid identification by blocking out the vessel documentation numbers. In addition, agents allegedly found illegal aliens aboard the shrimp vessels.

The enforcement operation was a coordinated effort by the U.S. Coast Guard, Texas Parks and Wildlife Department. National Marine Fisheries Service, U.S. Fish and Wildlife Service, and U.S. Customs Border Patrol, to enforce the Texas shrimp closure and implement the new Lacey Act enforcement policy which holds the owner and operator of a vessel responsible under the Lacey Act.

The Lacey Act

In part, the Lacey Act, as amended by Congress in 1981, provides that it is illegal to possess, transport, or acquire any fish or wildlife taken in violation of the laws of another state or country. If fish or shrimp are caught in foreign waters in violation of foreign law, it is illegal to possess that catch on board a U.S. vessel, to bring it back to the United States, or to buy or sell that catch in the United States. Lacey Act violations may result in civil penalties up to $11,000 and forfeiture of the catch.

The Gulf of Mexico shrimp fishery regulations, implemented under the Magnuson Fishery Conservation and Management Act, require that:

1) All U.S. vessels' documentation numbers must be displayed on the port and starboard sides of the deckhouse or hull and on an appropriate weather deck to be clearly visible from enforcement vessels and aircraft.

2) The numbers must be in block arabic numerals in contrasting color to the background.

3) For fishing vessels over 65 feet in length, the numbers must be at least 18 inches high.

4) For smaller vessels, the numbers must be at least 10 inches high.

5) The numbers must be permanently affixed (welded or painted) to the vessel.

6) The operator of each vessel must insure that no part of the fishing vessel, its rigging, or gear obscures the official number in any way.

King Mackerel Commercial Fishery Violations Eyed

A number of search warrants were served on 14 June 1983 by Special Agents of the National Marine Fisheries Service (NMFS) to seafood businesses located from Miami to Ft. Pierce, Fla. The agents collected thousands of records indicating the sale of hundreds of thousands of pounds of king mackerel by commercial fishermen after the 6 May closure of the commercial hook-and-line king mackerel fishery.

The U.S. Magistrate, Southern District of Florida, issued the warrants after federal law enforcement agents documented numerous fishermen violating the closure earlier that month. Fish dealers or processors who purchase, sell, or possess king mackerel illegally taken may be fined up to $25,000.

The king mackerel closure was implemented 6 May when the commercial hook-and-line quota established by the Gulf and South Atlantic Coastal Migratory Pelagic Resources Fishery Management Plan was reached. The closure was effective until 30 June, the end of that fishery season.

Mid-Atlantic, New England Council Members Named

Malcolm Baldrige, Secretary of Commerce, has appointed seven people to the New England and Mid-Atlantic Fishery Management Councils, reports Allen E. Peterson, Jr., Northeast Regional Director of the National Marine Fisheries Service. The appointments became effective on 11 August.

Newly named to the New England Fishery Management Council are: Herbert R. Drake, owner of Drake's Harborside Fish Market, Rye, N.H.; and a member of the State Legislature; Alan D. Guimond, President, Stonington Seafood Products, Point Judith, R.I.; and William A. Lund, Jr., Associate Professor, Department of Marine Sciences, University of Connecticut, Noank, Conn.

The new Mid-Atlantic Fishery Management Council members are: Alfred J. Hurlock, Jr., owner and President, Hurlock Roofing Co., Wilmington, Del.; David H. Hart, retired commercial fisherman, Cape May, N.J.; Harry M. Keene, owner, Bay County Industrial Supply Co., Easton, Md.; and James F. McHugh, consultant, Hampton, Va.

The Fishery Management Councils, established by the Magnuson Fishery Conservation and Management Act of 1976, prepare management plans for the fishery resources within their geographic area. The New England and Mid-Atlantic Fishery Management Councils are two of the nation's eight such councils. Council members are selected from nominees submitted by the governors of the states served by each council.

Embargo on Spanish Yellowfin Tuna Lifted

The embargo on yellowfin tuna products from Spain, imposed by the United States in 1975, was lifted as of 19 July 1983. The 1975 action was taken in accordance with the Tuna Conventions Act of 1950.

The U.S. embargo was imposed 1 November 1975 pursuant to a finding that Spanish fishing vessels were conducting activities contrary to the conservation recommendations of the Inter-American Tropical Tuna Commission (IATTC). The Tuna Conventions Act provides that such embargoes, once imposed, "shall continue until the Secretary of Commerce is satisfied that the condition warranting the prohibition no longer exists..." Since 1 January 1980, the IATTC has had no conservation program in effect for member countries in the eastern Pacific Ocean. Therefore, since that time, Spain's activities have not been contrary to any effective IATTC recommendations. A 1-year transition period and certification referred to in the last sentence of 50 CFR 281.8 does not apply because the species is no longer "under regulation." And, because the action relieved a restriction, the 30-day delayed effectiveness provision of the Administrative Procedure Act does not apply. (Source: Federal Register.)

Pacific Seamount Resources Investigated

Ending a 55-day mid-summer cruise to several central North Pacific seamounts, the NOAA ship *Townsend Cromwell* returned with samples of alfonsin, pelagic armorhead, rudderfish, and orange rockfish for market testing, reports Richard S. Shomura, Director of the NMFS Southwest Fisheries Center's Honolulu Laboratory.

The *Cromwell*'s primary mission involved the collection of biological, bathymetric, and oceanographic data from waters over and surrounding several seamounts. Secondary missions, according to Shomura, involved experimental squid fishing with jigging machines and providing logistic support for scientific field camps at several islands within the Northwestern Hawaiian Islands.

The pelagic armorhead trawl fishery—by foreign vessels—over the seamount summits is primarily a night fishery (day catches are typically poor). "This situation held true during trawling operations over the summits of NW and SE Hancock, each of which yielded a good trawl catch of pelagic armorhead," said Robert L. Humphreys, Jr., chief scientist.

Since the inception of the seamount trawl fishery, interest has been primarily focused on the summits. "During this cruise we expanded our exploratory efforts down into the slope area off the edges of the seamount summit. These seamounts typically have slope areas which extend some 6,000 feet or more below summit level," Humphreys noted. Exploratory efforts during the cruise involved handlining down to 3,100 feet and fish trap sets to 3,000 feet.

Humphreys reported that pelagic armorhead were found along the slope areas down to 1,380 feet at NW Hancock and 1,650 feet at SE Hancock. The summits of these seamounts are 840 feet deep. In addition, large alfonsin were found at both seamounts from the summit edge and down over the slope areas to 1,650 feet. "Typically only small alfonsin are caught on top of these summits by bottom trawling," said Humphreys.

Fishery resources on the seamounts were first discovered in 1967 when a Soviet trawler caught large quantities of pelagic armorhead and smaller amounts of alfonsin over the seamount summits. Neither the pelagic armorhead nor the alfonsin are known to occur around the main Hawaiian Islands.

Soon after the 1967 discovery, a Soviet trawl fishery began and in 1969 Japanese trawlers entered into this fishery. During the past 7 years, trawl catches of pelagic armorhead have generally declined. U.S. commercial fishermen have not yet entered this fishery.

During this cruise, investigations were conducted at Nero, SE Hancock, and NW Hancock Seamounts and at two unnamed seamounts designated Seamounts 10 and 11. All are located in the extreme northern region of the Hawaiian Ridge and are included within the U.S. 200-mile Fishery Conservation Zone. Also investigated were the Colshan and Yuryaku Seamounts in international waters.

Humphreys also reported that large alfonsin were found for the first time at unnamed Seamounts 10 and 11 and at

Nero Seamount. Pelagic armorhead were also collected for the first time at Seamount 11.

Darryl T. Tagami, chief scientist during the latter part of the cruise, reported the capture of a large pelagic armorhead specimen at the French Frigate Shoals and a large specimen of a different species of alfonsin at Necker Island.

Seafood Preservation and Sodium Labeling

In 1982, the Food and Drug Administration (FDA) proposed regulations that would require the sodium content of food to be included on the nutritional label, if used on a specific product. In June 1983, at the 43rd meeting of the Institute of Food Technologists, one of the best attended sessions was on the "Implications of Reduced Sodium Usage in Muscle Foods." The session was in response to the increased public and regulatory interest in the sodium/salt consumption in the American diet.

John Wekell of the NMFS Northwest and Alaska Fisheries Center's Utilization Research Division (URD) presented a paper at the session titled "Implications of Reduced Sodium Usage and Problems in Fish and Shellfish," discussing two aspects of the proposed FDA regulations that would severely impact the fishing industry: 1) Variability and 2) proposed labeling descriptions under the proposed regulation—the sodium content declared on the label could not be exceeded by more than 20 percent. The URD survey of sodium content in canned fishery products found that about 25-30 percent of the canned tuna and salmon would fail to meet this requirement if the mean of the lot were used. Coefficients of variability were very high (e.g., 45 percent). The industry could overcome this by declaring higher sodium levels, but this would probably lead to depressed sales. In addition, the regulations would provide definitions for terms such as "low sodium," "moderately low sodium," and "sodium free." Using these definitions, fresh fillets could only be labeled as a "moderately low sodium" product. Such a description would overshadow other positive aspects of fish (i.e., high quality protein, low fat, excellent source of trace minerals, vitamins, and essential fatty acids).

While variability of sodium content can be tightened by careful control of salt to the can, the major source of the variation (up to 50 percent) is caused by the use of refrigerated seawater (RSW) systems and the use of high salt brine (23 percent) freezing. Since these processes contribute significant sodium to the final product, any reduction of added salt to the canned fishery product will exacerbate the apparent sodium variability. Reverting back to the ice-chilling systems in place of these two processes is not practical in our current long-distance fisheries such as tuna and salmon.

The proposed new regulations present a dilemma to the fishing industry. If the industry were to abandon its current RSW and brine freezing methods and either adopt new refrigeration methods or revert back to a traditional ice technique, substantially increased costs of operation could be encountered. On the other hand, if the industry does nothing, it risks compliance with the new regulations and consumer resistance to its products.

John C. Wekell

Sorbate Preservation of Cod Is Studied

A preliminary experiment to determine the shelf life of fresh-caught and drawn cod dipped in potassium sorbate is underway at the Northeast Fisheries Center's Gloucester Laboratory. For this work, 200 pounds of market cod, all caught in the same tow of a Gloucester, Mass., fishing boat, were eviscerated and washed. Half was dipped in 5 percent potassium sorbate in seawater and the other half was designated the nondipped control. Both lots were then iced down in boxes and transported to the laboratory at the end of the trip.

Organoleptic tests were conducted on both lots of iced fish, both whole and cooked fillets, to determine their acceptable shelf life. Acceptable shelf life ended when any quality attribute average fell below 5.0 (borderline) on a raw or cooked evaluation 9-point scale.

The acceptable shelf life of whole iced, nondipped cod was 8-9 days while that of the dipped-at-sea (KS) cod was 16-17 days. The acceptable shelf life of the fillets cut from the nondipped cod was 13-15 days while the fillets from the dipped fish lasted 17-18 days. Our panelists commented that the odor of the gill cavity of the sorbate dipped fish was unfamiliar to them; it was not like the usual fish spoilage odor.

This preliminary experiment showed that dipping whole fish in potassium sorbate immediately after being caught and eviscerated did have a beneficial effect on extending shelf life. The experiment will be repeated at least twice.

Burton L. Tinker

Oxidizing Agents Tested With Frozen Red Hake

A new study to test the effects of some oxidizing agents on stabilizing the texture of frozen red hake, *Urophycis chuss*, has been initiated by the NMFS Northeast Fisheries Center's Gloucester Laboratory. They had previously determined that gaseous oxygen, hydrogen peroxide, and sodium hypochlorite were all effective in inhibiting the enzymatic degradation of trimethylamine oxide to dimethylamine and formaldehyde. In this latest experiment, either hydrogen peroxide, sodium hypochlorite, or potassium bromate was added to minced red hake muscle at four different concentrations ranging from 0.01 to 0.25 percent by weight.

After four weekly sampling periods at 10°F storage, a clear trend began to develop. All oxidizing agents were inhibiting the production of dimethylamine and formaldehyde, but samples treated with either hypochlorite or bromate seemed to be tougher (higher shear force) than the control sample. Samples treated with peroxide were not significantly tougher than the control, but they did have lower contents of dimethylamine and formaldehyde. An additional study has been initiated to examine the efficacy of hydrogen peroxide in greater detail.

Joseph J. Licciardello

Fish Product Exports to Korea, 1978-82

Korea (ROK) is the second most important Asian market, after Japan, for U.S. fishery products. U.S. fishery exports to Korea increased from 5,500 metric tons (t) in 1978 to 11,100 t in 1982, an increase in quantity of over 100 percent.

Fishery exports to the ROK increased in value from US$7 million in 1978 to $21 million in 1982, an increase of 192 percent. Most of the increase in the quantity exported occurred in 1981, while a substantial increase in the value of exports occurred in 1980.

Major commodities which the U.S. exported to Korea in 1982 were frozen fish, fish roe, and cured fish. Frozen fish exports, mostly herring and salmon, were worth $15 million, or over 70 percent of the total 1982 U.S. fishery exports to Korea. Fish roe shipments totaled over $3 million (16 percent of 1982 shipments), and consisted largely of herring roe. Cured fish exports to Korea were $2 million, 10 percent of 1982 shipments.

While U.S. fishery exports have increased significantly since 1978, such exports decreased in quantity and value during 1982. Fishery exports to Korea in 1982 declined by 10 and 18 percent respectively from 1981 shipments. Declining U.S. frozen sockeye salmon shipments to Korea accounted for most of the decrease in 1982. Observers believe that the decrease in salmon shipments to Korea in 1982 resulted from the strong U.S. dollar and an economic recession in Korea.

The value of U.S. fishery exports to Korea was an all-time record high $27 million in 1980 due to large 1980 shipments of high-priced fish roe. The all-time record in terms of quantity was set in 1981, when 12,300 t, mostly frozen fish, were exported to Korea.

Korean Importers

The National Marine Fisheries Service's Southeast Regional Office has done considerable work assessing the Korean market. A list of Korean companies which have recently expressed an interest in U.S. fishery products can be obtained from: Jim Ayers, NMFS, NOAA, 11215 Hermitage Road, Little Rock, AR 77211.

Marketing Reports

Several marketing reports have also included an assessment of the Korean market. These include:

1) Handbook for Exporting Seafoods to the Orient, 1979: DIB 80-07-016, $10.

2) Buyer Contacts Made at USDA Red Meat, Poultry, and Fish Exhibit held in Japan, Korea (ROK), and Hong Kong: DIB 80-07-402, $7.

3) Gateway to Oriental Markets: DIB 80-10-011, $10.

4) Market Brief (ROK): Fishing Equipment, 1978: DIB 78-11-012, $7.

5) Recent Trends in Fisheries in Korea, 1978: DIB 79-03-007, $7.

6) Harbor, Dockside, and Marine Equipment, 1979: DIB 80-05-504, $11.

These reports can be obtained by order number for the above prices from the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161.

Marketing Assistance

U.S. companies wishing assistance in exporting fishery products should contact the following NMFS Regional Marketing Offices: Northeast Region, Paul Earl, Chief, Utilization and Development Branch, NMFS, P.O. Box 1109, Gloucester, MA 01930-5309. Telephone (617) 281-3600 ext. 249; Southeast Region, Henry McAvoy, Chief, Commercial Development Services Branch, NMFS, 9450 Koger Blvd., Duval Bldg., St. Petersburg, FL 33702. Telephone (813) 893-3272; Northwest Region, Linda Chaves-Michael, Marketing and Development Branch, NMFS, 7600 Sand Point Way, N.E., Bin C15700, Seattle, WA 98115. Telephone (206) 527-6117; Alaska Region, Carl Rosier, Chief, Fishery Development and Marketing Services, NMFS, P.O. Box 1668, Juneau, AK 99802. Telephone (907) 586-7224.

U.S. Shark Markets Listed

A study of U.S. shark markets has been completed at the Southeast Region of the National Marine Fisheries Service. Copies are available from: Virginia Slosser, National Marine Fisheries Service, NOAA, 9450 Koger Boulevard, St. Petersburg, FL 33702 or telephone (813) 893-3384.

Part of Tortugas Area Opened to Shrimping

Part of the Tortugas Shrimp Sanctuary north of Key West, Fla., was temporarily opened to shrimp trawling between 15 April and 14 August. Scientists studied shrimp migrations through the area while the 44-mile section near Smith Shoal was open.

Some shrimp fishermen claim that many of the shrimp in the sanctuary are permanently lost to the fishery because they move out of the sanctuary to untrawlable bottoms and thus cannot be harvested. However, other fishermen and biologists say there is strong evidence that the shrimp in the sanctuary are too small to harvest, but, as they grow to harvestable size, they migrate and eventually enter the fishing grounds outside the sanctuary.

To determine the facts of the issue, the Gulf of Mexico Fishery Management Council requested that the National Marine Fisheries Service open a section of the sanctuary temporarily to shrimping under a provision of the Council's shrimp fishery management plan.

NMFS biologists conducted shrimp tagging studies in the sanctuary and gathered information on tagged shrimp recovered by commercial shrimpers in the newly opened area to help map the movement of the shrimp.

Reward for Tagged Lobsters

The National Marine Fisheries Service is offering a $5 reward, plus the current landed value, for specially tagged lobsters in the Gulf of Maine. The NMFS began tagging on 5 July within a 40 n.mi. radius of Truxton

Swell in the central Gulf of Maine. The tagged lobsters could be recaught anywhere in the Gulf.

Each tag is a short length of bright orange tubing attached to the base of the lobster's back. One side of each tag has a tag number and the word "REWARD"; the other side has the words "NMFS, WOODS HOLE, MA." Fishermen who catch any of these tagged lobster should: 1) Record the tag number, catch date, and catch location; 2) keep the lobster alive or frozen with the tag intact; and 3) upon returning to port, notify the nearest NMFS port agent for immediate payment.

This tagging study is a joint effort between the State of Maine's Department of Marine Resources and the NMFS's Northeast Fisheries Center. The study will last 3 years, release 1,000 tagged lobsters each year, and yield information on lobster abundance, health, growth, reproduction, and migration.

The Department of Marine Resources and the NMFS Northeast Fisheries Center have begun this study because central Gulf of Maine lobsters are not yet fished as heavily as those along the coast, and because they may be an important source of larvae, or "seed," for replenishing the coastal population. The results of this study should reveal any potential effects of increased fishing for the central Gulf population upon the valuable coastal fishery. For more information contact Thomas L. Meyer at (617) 548-5123.

Butterfish Harvests Could Increase

The butterfish, *Peprilus triacanthus*, is currently one of the most interesting and important species in the southern New England area. Increased abundance and strong markets in Japan stimulated the U.S. fishing industry to take the highest catch of butterfish ever in 1982 (over 8,000 metric tons (t)). The catch would have been even higher if U.S. fishermen had located more concentrations of butterfish.

Butterfish distribution is related to temperature and they are more spread out when temperatures are warm. In addition, butterfish concentrations are found in deep waters off the mid-Atlantic at depths often greater than 100 fathoms in winter. Recent assessments indicate that the butterfish population has just reached record abundance levels and is now beginning to decline.

From 1920 to 1962 butterfish were harvested only by the United States, but in very small amounts. The Soviet Union began harvesting butterfish in 1963 and Japan entered the fishery in 1967, taking butterfish as a by-catch in their squid fishery. From 1968 to 1976, the reported landings averaged nearly 12,000 t per year. In 1973, butterfish landings peaked at slightly less than 20,000 t with over 90 percent taken by foreign nations, primarily by Japan in connection with its squid fishery. The U.S. catch increased over 70 percent from 1981 to 1982, and it is believed that a great deal more butterfish could be taken in 1983 and 1984 without overfishing.

New Export Brochures

The U.S. Department of Commerce's International Trade Administration has prepared two brochures of interest to U.S. fishery exporters. These brochures contain descriptions of services available to help U.S. exporters and a guide to various publications on the mechanics of exporting.

Single copies of these brochures may be obtained by requesting the "Export Bibliography" and the "Commerce Export Assistance Programs: USA Exports" in writing from: International Trade Publications, Room 1617, ITA, DOC, Washington, DC 20230.

Seafood Seasonality Chart Available

A seafood seasonality chart has been developed in a joint effort by the West Coast Fisheries Development Foundation and the National Marine Fisheries Service in Seattle, Wash. The chart, 18 × 24 inches, lists the month-by-month availability of all the major finfish and shellfish off the coasts of California, Oregon, Washington, and Alaska, and designates the harvesting areas and the common market forms for each species.

This information, displayed in a colorful graph format, is printed on a special moisture- and tear-resistant polypropylene material. Copies of the chart ($1.00 each or 10 for $7.50) may be ordered from the West Coast Fisheries Development Foundation, 812 Washington, S.W., Suite 900, Portland, OR 97205.

Top Buyers of U.S. Seafood Products

Early figures indicate that Japan ranked first as a buyer of U.S. seafood products in 1983 (January-April), spending $75,866,000, distantly followed by Canada at $31,520,000 and the United Kingdom at $22,337,000. The top 15 purchasers for that period (in millions of dollars) are as follows:

1.	Japan	$75.9
2.	Canada	31.5
3.	U.K.	22.3
4.	France	11.9
5.	Rep. of Korea	11.3
6.	Netherlands	9.2
7.	Mexico	8.0
8.	Australia	4.1
9.	China (Peking)	4.0
10.	Belgium and Luxembourg	3.8
11.	Portugal	3.3
12.	China (Taiwan)	3.3
13.	West Germany	3.0
14.	Sweden	2.4
15.	Italy	2.2

Food Show Report Out

The NMFS Northeast Region's Utilization and Development Branch participated in two Middle East food shows early this year: In Manama, Bahrain, and in Riyadh, Saudi Arabia. The results of these seafood missions, indicating export opportunities in these areas, may be requested by U.S. firms. Ask for the Saudi-83 Report from the Branch at P.O. Box 1109, Gloucester, MA 01930 or telephone (617) 281-3600, ext. 212.