

U.S. Seafood Exports and Trade Deficit Rise

United States seafood exports in 1981 totalled a record \$1.2 billion, but imports reached \$4 billion, creating an approximate \$3 billion fishery trade deficit, the National Oceanic and Atmospheric Administration has announced. Exports were up 15 percent from 1980. The deficit surpassed the previous high of \$2.7 billion, set in 1979, the Commerce Department agency said.

Shrimp from Central and South America; groundfish fillets, blocks, and slabs from Canada; and lobsters from Australia accounted for most of the edible imports.

It was the third consecutive year when exports exceeded \$1 billion. Exports have shown a steady increase from the \$300 million in 1975, the year before the Magnuson Fishery Conservation and Management Act was passed. The Act gave the United States control of all fishery resources within 200 miles of its

coasts and limited foreign fishing within U.S. waters.

Edible seafood valued at more than

\$1 billion accounted for the majority of all exports. Nonedible exports, mostly fishmeal and oil, were valued at \$84 million. Japan remains this country's best customer, purchasing 48 percent of all fishery exports at a value of \$560 million. Fresh and frozen salmon, at \$252.6 million, was the most important export commodity. Japan, Canada, United Kingdom, France, and the Netherlands bought over 78 percent of all U.S. fishery products exported. A partial listing of U.S. fishery exports is given in Table 1.

Table 1.—Selected U.S. fishery exports for 1981 (cumulative monthly totals, January to December).

Country	Exports (t)		Percent difference	Value (\$1,000)		Percent difference
	1980	1981		1980	1981	
Japan	108,093	138,205	Up 28%	405,876	559,968	Up 38%
Canada	55,716	53,198	Down 5%	146,865	150,577	Up 3%
Netherlands Antilles	809	699	Down 14%	3,393	2,965	Down 13%
Sweden	7,892	10,004	Up 27%	14,928	14,245	Down 5%
Norway	162	3,458	Up 2,035%	768	3,945	Up 414%
Denmark ¹	1,196	870	Down 27%	4,209	3,361	Down 20%
United Kingdom ¹	58,012	65,632	Up 13%	104,302	106,301	Up 2%
Ireland ¹	247	330	Up 34%	957	1,378	Up 44%
Netherlands ¹	44,651	39,466	Down 12%	45,803	34,696	Down 24%
Belgium and Luxemburg ¹	17,316	12,599	Down 27%	25,944	20,023	Down 23%
France ¹	14,481	14,603	No change	52,812	59,289	Up 12%
West Germany ¹	70,392	28,980	Down 59%	43,977	22,996	Down 48%
Spain ²	5,558	1,582	Down 72%	6,650	3,111	Down 53%
Portugal	113	1,993	Up 1,664%	210	3,056	Up 1,355%
Italy ¹	9,931	1,135	Down 89%	14,381	5,419	Down 62%
Greece ^{1,3}	4,354	3,720	Down 15%	5,215	4,470	Down 14%
EEC totals	216,226	167,335	Down 23%	292,385	257,933	Down 12%

¹1980 European Community (EEC) comparisons do not include Greek membership.

²Includes Canary Islands, a province of Spain.

³1981 European Community (EEC) comparisons include Greek membership (adm. 1/1/81).

U.S. Herring Exports Listed for 1981

The United States exported 80,350,643 pounds of fresh, chilled or frozen, whole or eviscerated herring in 1981 valued at \$39,766,121. West Germany was the largest European purchaser importing 647,595 pounds worth \$187,839, followed by France with imports of 21,383 pounds and the United Kingdom with 8,800 pounds. The majority of the herring exported was purchased by Japan, 50,631,000 pounds; Canada, 15,467,914 pounds; and Korea, 13,448,130 pounds.

The United States exported 19,865,444 pounds of fresh, chilled or frozen herring fillets, steaks, and por-

tions worth \$11,544,142 in 1981. West Germany was the largest importer with 6,622,814 pounds worth \$2,195,896 while other EEC member countries, Greece, Belgium, and Luxemburg, imported 75,716 pounds valued at \$33,573.

U.S. Eel Exports Noted for 1981

Total U.S. exports of fresh, chilled, or frozen eels for all of 1981 were 979,849 pounds valued at \$1,389,771 with 5 EEC member countries purchasing 723,926 pounds or 74 percent of this total. West Germany imported 230,097 pounds, Belgium and Luxemburg imported 180,606 pounds. Italy imported 164,456

pounds, the Netherlands imported 147,527 pounds, and France imported 1,240 pounds.

The United States exported 42,630 pounds of live eels in December 1981 worth \$68,441. Three EEC member countries purchased all but 2 percent of the live eels exported during the month: Italy imported 22,359 pounds, the Netherlands imported 11,960 pounds, and West Germany purchased 7,326 pounds. Live eel exports for all of 1981 totaled 936,917 pounds worth \$1,328,478 with 6 EEC member countries purchasing 852,656 pounds or 91 percent of this total. Belgium and Luxemburg imported 320,232 pounds, Italy imported 245,364 pounds, the Netherlands imported 150,004 pounds, West Germany im-

ported 123,094 pounds, Denmark imported 11,950 pounds, and the United Kingdom imported 2,012 pounds.

The United States exported 137,321 pounds of fresh, chilled, or frozen eels (except live) in December valued at \$199,694. Four EEC member countries purchased all but 3 percent of the fresh, chilled, or frozen eels exported during December: West Germany purchased 48,900 pounds, Italy imported 37,500 pounds, the Netherlands imported 29,300 pounds, and Belgium and Luxembourg purchased 17,500 pounds.

Salmonid Botulism in Rearing Facilities

Type E botulism was first recognized as a major cause of fish mortality in the United States in 1979 by Mel Eklund and his research group at the NMFS Northwest and Alaska Fisheries Center's Utilization Research Division. This outbreak caused an estimated loss of 1 million juvenile coho salmon reared in earth bottom ponds at the Washington State Elokomin Hatchery.

In the years 1979-81, botulism has been confirmed as a major cause of fish mortality in five salmon and three steelhead hatcheries in Washington and one salmon hatchery in Oregon. These outbreaks have resulted in losses of over 2 million juvenile salmon and steelhead. Earlier records indicate that botulism may have caused major fish mortality in some of these hatcheries as early as 1960.

Results from laboratory and field studies indicate that *Clostridium botulinum* type E, the bacteria causing type E botulism, grows and produces toxin in dead fish that remain on the bottom of the rearing ponds. Live fish cannibalize the decomposing fish and consume lethal levels of type E toxin. Fish with botulism die and become additional substrates for type E organisms and sources of toxin for other live fish.

During the summer of 1981, Eklund and his group worked closely with the State hatchery personnel in diagnosing the disease, helping save over 3 million fish, and preventing the employees of the hatcheries from introducing botulism to themselves or members of their fami-

lies.

The practices used during the past summer to stop botulism outbreaks were to move the fish to other ponds away from the toxin source and to continually remove dead fish from the rearing ponds. In some rearing ponds, the daily removal of dead fish is often impossible because of the cloudiness and depth of the water. Further research is in progress to develop a more permanent overall solution to the botulism problems. The first publication describing these outbreaks will be published in *Aquaculture* during the first quarter of 1982.

Mel W. Eklund

Thermally Processed Products May Be a Potential Use for Alaska Pollock

Utilization of the Alaska pollock resource in the Bering Sea poses an interesting challenge for the U.S. fishing industry. Although pollock can be easily caught by U.S. fishermen and delivered in large volume, the processing sector is faced with several obstacles that must be overcome before it can economically handle and process the pollock. To develop a diversified large volume fishery for pollock, the industry needs processing alternatives for fresh, frozen, canned, cured, and fabricated products that can utilize pollock in various forms and grades.

Canning, or thermal processing, pollock may be one approach to solve some of these obstacles, according to the Utilization Research Division, NMFS Northwest and Alaska Fisheries Center, Seattle, Wash. Preliminary trials to prepare salmon-style canned products from pollock were very disappointing. Thermal processing resulted in severe shrinkage of the flesh as well as excessive cook drip and a pronounced pollock flavor and odor in the canned pollock. Precooking the pollock prior to thermal processing overcame these undesirable changes.

When the thermally processed pollock was evaluated as a fish spread by taste

panelists, they found it to have a flaky texture, mild flavor and odor, and a white and pleasing appearance. From these initial trials, it appears that nutritious and highly acceptable products can be prepared from thermally processed pollock. However, experience has taught us that further work is needed to determine the effects of handling and processing on the quality changes in pollock. Further work is also needed to determine the effects of the chemical changes occurring during thermal processing on the shelf-life of the canned pollock. Economic feasibility will be an essential phase of the work by others if our technological studies demonstrate a good potential for canned pollock products.

Jerry Babbitt

Brawner Directs NMFS Southeast Region

Jack T. Brawner has been named Director of the National Marine Fisheries Service's Southeast Region, it was recently announced by William G. Gordon, Assistant Administrator for Fisheries, National Oceanic and Atmospheric Administration.

Brawner's career with NMFS (and its predecessor agency, the Bureau of Commercial Fisheries) includes various positions in management, industry and consumer marketing services, and fishery development programs. He has served as Chief of the Southeast Region's Fisheries Management Division since April 1977.

NOAA's Office of Fisheries manages and conserves the fishery resources within 200 miles of the U.S. coast; protects vital habitats, and whales, other marine mammals, and endangered species; oversees programs to assist the economic development of the U.S. fishing industry; and conducts research to support these activities.

A native of Florida, Brawner holds an A.B. and an M.A. degree in economics from Stetson University in Deland, Fla. In addition to fisheries experience in the federal sector, he has fished commercially and is an enthusiastic recreational fisherman.