

and terms of the credits have not been determined, they will be used for the construction of Senegalese boats in Italy and to assist Senegalese fish processing companies. A joint commission will be convened to work out the details, the U.S. Embassy in Dakar reports.

According to the NMFS Office of International Activities, until October 1975, Senegal had refused to ratify the fisheries agreement due to the unresolved question of an Italian loan. In order to pressure the Italians, Senegal

had denied permission for vessels in excess of 700 GRT to operate in the 110 mile exclusive fishing zone which it claimed in 1972. This prevented the larger, more efficient Italian vessels from operating in Senegalese waters. Italy's negotiations with Mauritania have been suspended. According to press reports, however, Mauritania has indicated an interest in concluding a fisheries agreement in exchange for Italian investments in Mauritanian industries. Italian shipowners have declared themselves willing to contri-

bute by purchasing fishing licenses. The Italian Fisheries Federation (Federpesca) has asked the Minister of the Treasury to take the necessary steps to resume the negotiations. (Source: *Pesca Italiana*.)

The Governments of Italy and Tunisia reached agreement on the licensing of Italian fishers operating in Tunisian waters. Italy has agreed to pay approximately \$4 million for the licenses, and has also agreed to loan Tunisia \$64 million to purchase Italian goods.

## Colombian Shrimp Catch and Exports Reviewed

The 1975 Colombian shrimp catch may increase slightly over the 1974 level of 5,300 metric tons, early reports indicate. For the entire year, it is believed that the 1975 catch should approach 5,400 metric tons. After a sharp increase in 1967 and 1968, the Colombian shrimp catch declined precipitously in 1969 (Fig. 1 and Table 1). All subsequent annual catches have

Table 1.—Colombia's shrimp catch, 1961-75, and shrimp exports to the United States, 1960-74, in thousands of metric tons.

Year	Shrimp catch <sup>1</sup>	U.S. imports <sup>2</sup>	Year	Shrimp catch <sup>1</sup>	U.S. imports <sup>2</sup>
1960	—	0.9	1968	6.8	1.4
1961	1.8	0.8	1969	2.9	1.7
1962	1.8	1.0	1970	5.2	2.2
1963	1.8	0.8	1971	4.2	2.2
1964	1.9	0.8	1972	3.8	2.7
1965	2.7	0.8	1973	3.8	2.7
1966	2.1	1.0	1974	5.3	2.8
1967	6.2	1.2	1975 est.	5.4	—

<sup>1</sup>Catch data for 1961-73 are from FAO's "Yearbook of Fishery Statistics"; 1974-75 data are from the U.S. Embassy, Bogota.

<sup>2</sup>U.S. import data are from "Fisheries of the United States," U.S. Department of Commerce, NOAA, NMFS.

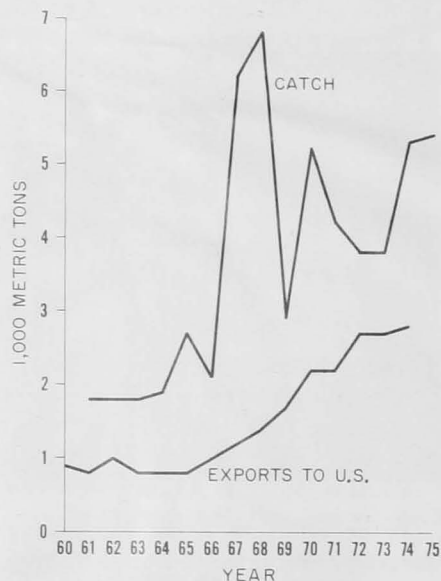


Figure 1.—Colombia's shrimp catch, 1961-75, and shrimp exports to the United States, 1960-74, in thousands of metric tons.

been significantly below the record catch of 6,800 metric tons in 1968.

Of the estimated 1975 catch, current projections indicate that about 4,600 metric tons will be caught in the Pacific and 800 metric tons in the Caribbean (see map). The principal port for Pacific shrimp operations is Buena Ventura, where over 100 shrimp vessels are based. Most of the catch is

white shrimp ("camaron blanco" or "langostino"). In all fishing areas and seasons *Penaeus occidentalis* constitutes over 80 percent of the landings. Trawling is carried out at 3-15 fathoms, but mostly in less than 8 fathoms. All Colombian shrimping operations in the Caribbean are conducted by the Vikingos Company, which uses Japanese vessels and crews.

New techniques in shrimp cultivation and harvesting are now being developed in Colombia and should increase future shrimp catches. Since 1973, the Marine Research Center in Cartagena has been studying the possibilities of shrimp farming and has reportedly obtained excellent results.

U.S. imports of Colombian shrimp

Table 2.—Colombian shrimp imports to the United States, January-June, 1974 and 1975, in metric tons.

	1974	1975
January	240	70
February	180	70
March	202	138
April	243	283
May	336	180
June	297	292
Total	1,498	1,033

Source: U.S. Department of Commerce, Bureau of the Census, "Imports for Consumption."

have increased steadily since 1965, but began to level off in 1972 (Fig. 1 and Table 1). Current import figures are significantly below comparable 1974 import levels (Table 2). At present virtually all Colombian shrimp exports are shipped to the U.S. market<sup>1</sup> and this situation is likely to continue.

<sup>1</sup>Only 0.6 ton of shrimp was exported to Curacao in 1974.

### Publications

## Fishery Economists Initiate Newsletter

Publication of a new **Fisheries Economics Newsletter** has been announced by its U.S. correspondent, J.G. Sutinen of the Department of Resource Economics, University of Rhode Island, Kingston, RI 02881. Secretary of the newsletter is Neil McKellar, Chief Economist, White Fish Authority, Edinburgh, Scotland.

Published twice a year in The Hague, Netherlands, the newsletter has two purposes: 1) Compile and publish an international list of fishery economists,

and 2) publish abstracts of studies in fisheries economics. Subscription information and abstracting instructions are available from Sutinen, who is also seeking names and addresses of persons working in fisheries economics. Abstracted publications should involve some aspects of fisheries and economics, says Sutinen, and they can be purely theoretical, applied, or both, or contain an economic analysis of fisheries policy.

Abstracts may be submitted to Sutinen directly, with the following data: 1) Name of the publication in English and the original language; 2) name, address, and affiliation of the author(s); 3) number of pages; 4) original language of the publication; 5) summary in English, French, or German, not exceeding 10 typewritten lines (about 100 words); 6) name and volume of the journal or other periodical where the publication appeared, the year it appeared, and the page numbers. If a book or monograph, give the name and location of the publisher as well as the date published. The first two issues of the newsletter contain abstracts of 1974 and 1975 publications and the first copy was issued in February 1976.

## UNITED KINGDOM FISHERIES REPORTED

Three annual fishery reports from the United Kingdom have recently been published and are briefly summarized. **Herring Industry Board Fortieth Annual Report, 1974.** Total landings of fresh herring by U.K. vessels in 1974 were 147,900 metric tons, 6 percent lower than in 1973, when 157,300 metric tons were landed. The value of the 1974 catch, however, was 13,220,000 pounds (US\$27.3 million) up 39 percent from the previous year. The report discusses the depletion of herring stocks, U.K. conservation methods, and catch quotas imposed by the Northeast Atlantic Fisheries Commission (NEAFC). The report also includes sections on marketing, research, catch and fisheries development, and several tables on the herring fishery. For a copy of the 50-page report, write to: Herring Industry Board, 10 Young Street, Edinburgh, EH2 4JQ, United Kingdom.

**White Fish Authority Annual Report**

**and Accounts, 1974-75.** This 32-page report summarizes U.K. white fish landings and the status of the industry from April 1974 to March 1975. During this period, prices for cod and cod-related fish for each month were lower than those of the corresponding month a year before and, because of increased costs and inflation, the entire industry has had financial problems. There was a decline in landings by all sectors of the fleet in 1974, except by the Scottish inshore fleet, whose catch of industrial species increased. Total British landings were 745,000 tons in 1974, compared with 773,000 tons in 1973, and value dropped almost 1 million British pounds sterling to 128,750,000 pounds (US\$266 million). The report also has sections on vessels, government subsidies, training, and other subjects, as well as tables and graphs on trade, prices, vessels, landings, and most aspects of the U.K. white fish industry. For a copy, write to: White Fish Authority, Sea Fisheries House, 10 Young Street, Edinburgh EH2 4JQ.

**Fisheries of Scotland Report for 1974.** The Scottish fishing industry experienced the problems of higher fuel costs, oversupply in some species, and slackening demand in the last half of 1974. Approximately 258,000 metric tons were landed by Scottish fishermen in 1974, almost the same amount as in 1973. Shellfish and herring landings both declined in 1974. This 53-page report also examines the conservation of stocks, financial assistance to industry, surveillance and enforcement programs, and fisheries research. For a copy, write to: The Department of Agriculture and Fisheries for Scotland, Edinburgh, United Kingdom.

## Salmon Culture Facility Described

An economic study has found that an aquaculture system developed at the University of Rhode Island could raise salmon for stocking purposes for about half the cost of many currently used systems and in about one-half the time. Charles R. MacDonald, research assistant in aquaculture management, John M. Gates, assistant professor of resource economics, and Thomas L. Meade, associate professor of animal science, reported their findings in a publication entitled, **A Production Cost**

**Analysis of Closed System Culture of Salmonids**, which was sponsored by URI's Sea Grant Program. Studies which led to development of the unique closed aquaculture system at Kingston, R.I. were also funded by Sea Grant.

According to the report, about one million salmon "smolts," which are 6- to 7-inch salmon suitable for stocking streams or aquaculture operations, could be produced yearly for about a dime each with a scaled-up version of the URI aquaculture facility. An initial investment of about \$250,000 would cover construction costs and the first year's operating expenses, they said. The production costs would be about half that of traditional open raceway systems, they said, because complete environmental control can be maintained in the URI system.

The proposed aquaculture facility, designed by MacDonald, would consist of two culture systems, one for hatching eggs and growing fingerlings to a size suitable for stocking into the other, where they would grow to smolt size. Both fingerlings and smolts would be held in large tanks.

The URI aquaculture operation employs a water reuse system which eliminates the need to discharge polluted water from the facility into coastal waters and enables siting of the smolt production facility miles from water sources and costly shoreline land. URI's facility is located at Kingston, about six miles from the ocean.

The study considered projected annual costs of operating the facility, costs of construction, landscaping, materials and equipment, which included tanks, pipes and fittings, pumps, valves, and laboratory equipment. Also considered were depreciation and repairs, projected salaries, wages and fringe benefits, and electricity requirements. MacDonald said, however, that inflation which has occurred since the study was completed would have to be considered in future estimates of costs of smolt production facilities.

The report also contains diagrams of the smolt production facility. It may be obtained free of charge by requesting report number P456 from the Marine Advisory Service, University of Rhode Island, Narragansett Bay Campus, Narragansett, RI 02882.