

by man advancing the concepts of continental drift and the scientific theories of plate tectonics. The scientific data acquired will be analyzed, and a bilingual report prepared.

New exchange activities have been initiated in marine pollution investigation. The nations will examine techniques for controlling oil discharges from ships. Another joint effort will study remote surveillance systems for response and enforcement against ships discharging oil, as prohibited by national and international

conventions. Working with CNECO to develop technical symposia and demonstrations in airborne surveillance systems will be the U.S. Coast Guard.

A new area of cooperation initiated at Brest provides for research in coastal processes. Industrial development along the coasts has accelerated greatly in recent years, and the U.S.-French research will be designed to help assure environmentally acceptable patterns of development.

Other significant continuing efforts

concern the development of buoys and associated sensors for monitoring the ocean environment, aquaculture, instrumentation standardization and comparability, and such vital aspects of man-in-the-sea as diving safety and physiology.

White and LaPrairie also agreed to examine possibilities for cooperation in additional plate tectonics studies involving further use of submersibles, and methods of converting wind and temperature differences, currents and tides to useful energy.

Foreign Fishery Developments

Japanese Foreign-Based Skipjack Fishery Develops in South Pacific

Japanese fishery firms conducting skipjack tuna fishing in the South Pacific jointly with foreign partners had good catches last year.¹ Taiyo's vessels based in the British Solomons, and the Papua New Guinea-based fishing fleets, operated by Kyokuyo (which was having Daido Suisan manage the operations), Hokoku Suisan and Kaigai Gyogyo, were expected to attain their catch targets set for 1974. The good fishing experienced brightened the outlook for establishing a skipjack fishery in the southwest Pacific. The Papua New Guinea-based fishing operations were conducted experimentally in accordance with the plan to establish a fish cannery at Madang, for which the Papua New Guinea Canning Company was formed in 1972 jointly by the Japanese fishery firms, a U.S. tuna packer, and an investment firm in Papua New Guinea.

Solomon Taiyo is a jointly operated fishing venture based in the British Solomons. This company, formed one and one-half years ago, operated ten pole-and-line vessels (mostly of wooden construction). The fleet, based in Tulagi, fared well, as can be seen from its catch of 1,200 tons in June, 1,500 tons in July, and 1,200 tons in August. The catch goal for 1974, set at 10,000 tons, was expected to be easily surpassed. Most of the catch was frozen for export to the United States. Two ferro-concrete boats of

50 gross ton size were scheduled to be added to the fleet by March 1975. These boats, being built in Japan at a cost of 50 million yen (US\$166,700 at 300 yen = US\$1) each, will be the first Japanese-built fishing boats of ferro-concrete construction.

At Tulagi, the joint company operates an 800-ton capacity cold storage, built in August 1973, and a tuna cannery with production capacity of 1,300 cases/day, constructed in October that year. While the cannery was packing 500 cases a day in mid-1974, production was expected to increase as the local employees gained experience. "Katsuobushi" (dried skipjack loin) production, temporarily suspended earlier in 1974, was resumed in July and the daily output in September was 5 tons (converted to raw fish).

Gollin Kyokuyo was established in Kavieng jointly by Kyokuyo and Australian interests. This venture operated 11 Okinawan pole-and-line boats (39 gross ton in size) which, as in 1973, experienced good fishing. Their combined three-month catch to 31 July was over 5,000 tons. At that rate, it was expected that they would soon reach their catch goal of 10,000 tons set for 1974. Fifteen percent of the landings were processed into "katsuobushi," and 85 percent were frozen and exported to the United States.

New Guinea Marine Products is a joint skipjack fishing venture formed in Madang by the Japanese fishery firm Hokoku Suisan and an Austra-

lian firm. Fishing by this venture was reported to be good in 1974 compared with 1972 and 1973, when results were unfavorable. Fish landings by two motherships and nine catcher vessels had reached 5,200 tons in September and the catch goal for 1974 was 6,000 tons.

Carpentaria Kaigai is a joint venture company based in Rabaul. This company was operating 14 skipjack vessels (mostly 39-ton Okinawan pole-and-line vessels) in September 1974. Favored by good fishing conditions, the fleet, which began fishing in April, was catching 1,200-1,300 tons/month. The skipjack landings were frozen and exported to the United States. Until the cannery planned for construction in Madang is completed, all the skipjack catch will be frozen for export to the United States.

Source: *Suisan Keizai Shimbun*, 18 Sept. 1974.

VIBRIOSIS HITS NORWEGIAN FISH

Many thousands of young saithe were found dead or dying along the coast of western and central Norway in mid-October 1974 reports Norinform. The fish, most of which belong to the 1973 class, are victims of the bacterial disease vibriosis. It is reported to be too early to say what effect these deaths will have on the stocks of saithe, an important fishery in Norway. Although the 1973 class is large, it is feared that considerable losses may nevertheless be recorded. There have also been reports that other fish species have been hit by the disease, but the Institute of Marine Research in Bergen has so far been unable to confirm this. Species

¹See also, Kearney, R. E., "Skipjack Tuna Fishing in Papua New Guinea, 1970-73," page 5.

reputed to be affected include cod, plaice and eels, though only in small numbers if at all. If the disease spreads to the whole of northern Norway, the effect on stocks could be serious.

No cause is known for the sudden outbreak, though the Institute of Marine Research has suggested in a statement to the press that the size of the class itself, as well as special environmental factors such as pollution, may be responsible. Vibriosis, one of the earliest diseases of fish to be recorded, is endemic among saithe, and mass deaths such as the present have been recorded from time to time, the last being in 1967.

USSR Holds Meeting on Commercial Fish

In March 1974, a nationwide conference of Soviet scientists was held in Murmansk to discuss the biology of commercial fish and invertebrates at early stages of development. It was organized by the N. M. Knipovich Memorial Polar Scientific-Research Institute of Marine Fisheries and Oceanography (PINRO), the Northern Fisheries Administration Department of the Ichthyological Commission, and the Murmansk Department of the All-Union Hydrobiological Society.

Participating in the conference were 115 specialists from research institutes of the USSR Ministry of Fisheries, the USSR Academy of Sciences, and various universities. About 150 papers were presented on such topics as: composition year-classes of commercial fish stocks, factors determining survival at early stages of ontogenesis, and the effect of the age and the condition of spawners on the viability of gametes and young fish. Many reports dealt with various aspects of artificial reproduction of fish in inland waters, as well as problems in a new field—marine aquaculture.

There has been a noticeable increase in both the number and the complexity of investigations into the early life of commercial fish and invertebrates, in particular physiological-biochemical investigations into the early stages of ontogenesis of marine and freshwater fish. Knowing these stages is extremely important

for long-term forecasting of fish populations.

The conference revealed the practical problems that must be solved by further investigations into the early stages of fish development such as: perfecting existing methods and finding new methods for forecasting the status of fish stocks; developing methods for regulating fisheries on the basis of determining and quantitatively expressing the link between the stock and recruitment; working out the principles of marine aquaculture and perfecting freshwater aquaculture; and determining the necessary recruitment parameters for utilization in automatic control systems by the fishing industry.

Considering the enormous scientific and practical importance of investigations in this field, the conference passed a resolution stressing the need for specialized ichthyoplankton laboratories within the research institutes of the Ministry of Fisheries.

Participants in the conference also suggested creating a council attached to the Ichthyological Commission to coordinate investigations into the early stages of ontogenesis of commercial fish and invertebrates.

Source: *Rybnoe Khoziaistvo*, June 1974.

Experimental Cuban Boats Seek Shrimp and Lobster

A flotilla of experimental vessels built in Cuban shipyards for catching shrimp and lobster has set out on its first fishing expedition. The 20-meter vessels are constructed of steel-reinforced concrete and are intended for coastal fishing in the region of the Gulf of Guacanayabo and south of Camaguey province. The nine fishing vessels are equipped with modern navigation and fishing gear. Such Cuban-built vessels, as well as vessels bought from Peru, will soon begin to catch shrimp and lobster in other coastal waters of Cuba. Ships of this flotilla, which are capable of cruising on the high seas and of operating in conjunction with special refrigerated trawlers, characterize a qualitatively new stage in the development of the Cuban fishing fleet. In time they will fully supplant the inefficient fishing craft.

Source: *Ostsee Zeitung*, 18-19 May 1974, East Germany.

Japan and Russia Agree to International Observation for 1974-75 Whale Season

Japan and the Soviet Union, on 13 September 1974, signed an agreement in Tokyo to continue, as in the previous season, the international observer scheme for the 1974-75 Antarctic whaling operations. The agreement, to be effective until 31 August 1975, provides that the two governments will designate international observers (to be formally appointed by the International Whaling Commission), one for each factoryship of the other country. The observers will be maintained to ensure compliance with the terms of the International Whaling Convention.

Boarding costs will be paid by the country dispatching the observers. The Japanese and Soviet representatives, at the same meeting, also signed the agreement initiated earlier concerning allocations of the international whale catch quotas by regions established by the International Whaling Commission for the 1974-75 Antarctic whaling season.

Sources: *Minato Shimun* and *Susan Tsushin*.

Japan-USSR catch quota allocations for 1974-75 whaling season.

Whale species	Number of whales			
	Japan	USSR	Total	
Antarctic Ocean (1974-75)				
Fin	598	¹ (867)	402 (583)	1,000
Sei	2,392	(2,632)	1,608 (1,768)	4,000
Minke	3,500	(4,000)	3,500 (4,000)	7,000
Sperm				
Male	1,196	(1,200)	4,985 (5,000)	28,000
Female	683	(690)	2,871 (2,900)	25,000
North Pacific Ocean (1974-75)				
Fin	134	(246)	166 (304)	300
Sei	1,345	(2,017)	655 (983)	2,000
Sperm				
Male	2,565	(2,565)	3,435 (3,435)	6,000
Female	1,710	(1,710)	2,290 (2,290)	4,000

¹Figures within parentheses denote 1974 allocations.

²Includes allocations to Australia, South Africa, and Brazil.

Canada's Fishermen Get Ice Damage Compensation

Details of a compensation program to share in the cost of reimbursing Newfoundland fishermen for destroyed or damaged fishing gear and equipment caused by abnormal ice conditions in 1974 were announced jointly by the Federal Minister of State (Fisheries) Roméo LeBlanc and Newfoundland Fisheries Minister Harold Collins.

The Federal cabinet approved use of the peacetime disaster formula to compensate for the gear loss and damage, estimated at \$3 million. Under this formula, the estimated Federal share will amount to 53.9 percent, or \$1.62 million, and the Provincial contribution will be 46.1 percent, or \$1.38 million.

So severe were ice conditions off the coasts of Newfoundland and Labrador last year that normal fishing operations were delayed 2 months or more. When conditions improved and fishermen finally were able to set their nets and traps, constantly shifting ice wreaked havoc with the gear. All of the fishing gear used off the coast of Newfoundland was fixed (i.e. anchored) rather than towed, and was particularly vulnerable to damage or loss by shifting ice.

Estimated losses include 80,700 lob-

ster traps, 1,800 salmon gill nets, and 300 cod traps. Other gear lost or damaged included lumpfish nets, cod and herring gill nets, anchors, buoys and radar reflectors. The situation has been declared a disaster by the Government of Newfoundland.

Administration of the joint compensation program will be handled by the Province, which will also be responsible for enumerating and evaluating the claims. Under the Federal Government's peacetime disaster formula, Federal participation occurs when losses exceed \$1 per capita of provincial populations. As losses increase the Federal share applies on an increasing percentage basis, as follows:

Losses per Province Eligible for Sharing (per capita)	Federal Share
First \$1	0
Next \$2	50%
Next \$2	75%
Remainder	90%

fisheries limits questions, Jens Evensen, at a press conference in Oslo. Evensen explained that the zones chosen are ones in which there have been a large number of collisions between trawlers and passive fishing gear (such as long lines or drifting nets) put out by coastal fishermen, or where coastal fishermen have been driven off traditional fishing banks by trawlers. The zones are intended primarily to protect the coastal fisherman and his gear from loss, rather than to conserve fish stocks. They are regarded as a first step towards an extension of the fisheries limits to 50 nautical miles and the eventual establishment of an economic zone stretching out 200 miles from the coast.

The proposed zones cover a total area of 5,300 nautical square miles, or about 20 percent of the area between the present 12-mile fisheries limit and a future 50-mile limit off northern Norway between Skomvær in Lofoten and the boundary with the Soviet Union.

The zones are to be created on a nondiscriminatory basis. In other words, both Norwegian and foreign trawlers are to be excluded. Only trawling for cod is involved. Trawling for other species, including, for instance, the capelin fishery off Finnmark, is not to be covered by the ban, the Ministry of Fisheries has made clear.

Evensen has recently been on a tour of Western European capitals and Moscow to explain the Norwegian proposals with regard to the fisheries limits and the no-trawling zones. On the map of northern Norway left the broken line shows the existing 12-mile fisheries limits, and the solid lines enclose the four proposed no-trawling zones.

NORWAY'S 1973 WINTER COD CATCH DECLINES

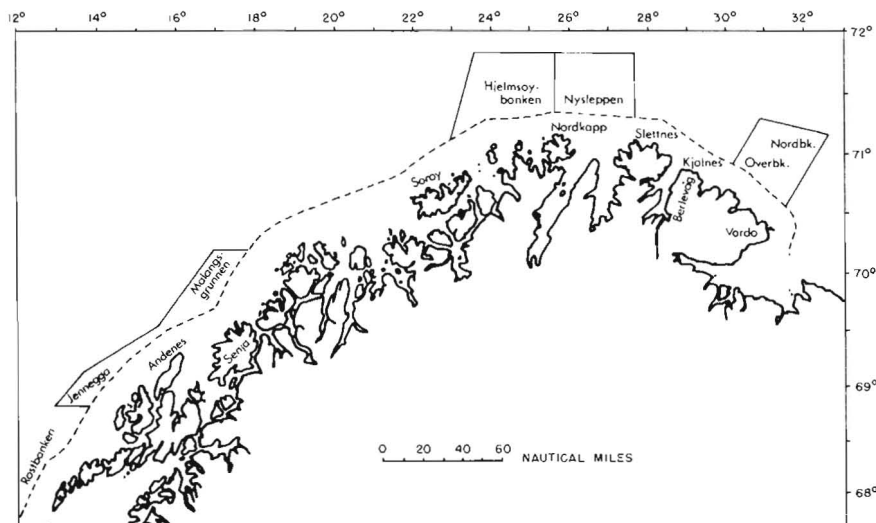
Norway's 1973 catch of spawning cod amounted to only 113,000 metric tons, a decline of 41 percent from the 1972 figure of 193,000 tons reports the NMFS International Fisheries Analysis Division. Between 1970 and 1974 the annual take of capelin had been between 1.3 and 1.5 million tons, but this year a reduced quota of 700,000 tons was established to pre-

Norway Seeks Partial Cod Trawling Ban

Norway will seek the establishment of four zones in the waters beyond the 12-mile fisheries limit off northern Norway from which trawling for cod will be banned for part of the year, reports Norinform. The four areas in question cover Jennegga and Malangsrunden off Vesterålen, Hjelmsøybanken off West Finnmark, Nyslepen off West Finnmark and Nordbanken and Østbanken off East Finnmark. The zone off Vesterålen, where the ban is to operate from 1 October to 30 April, extends from

4 to 19 nautical miles beyond the 12-mile limit. The two adjacent zones off West Finnmark extend from 27 to 33 nautical miles from the 12-mile limit, while that off East Finnmark extends from 27 to 42 nautical miles beyond the 12-mile limit—which means that it reaches out beyond a future 50-mile fisheries limit in places. The ban on trawling in the latter three zones is to last from 1 October to 31 March.

This was announced 24 October 1974 by the Minister responsible for



vent a serious depletion of the resource. Scientists accurately predicted catch declines by analyzing each species by year classes since the early 1960's, but Norwegian fishermen tended to reject such dire predictions.

Overfishing of young cod and capelin is generally blamed for the current shortages, but some recovery in these fisheries is predicted by 1976 or 1977, unless heavy fishing of the Barents Sea by Soviet, British, and other trawlers continues unabated.

In the mid-1960's Norway's herring

fishery also slumped badly due to overfishing, so a switch was made to the capelin resource. Both species were used primarily for reduction to meal, but recently Norway has joined other nations in proclaiming that herring is too important for human consumption to be used for reduction purposes.

As the capelin resource has declined, research interest in the catch of blue whiting has increased greatly. It is estimated that this resource could provide an annual yield of 500,000 to 1,000,000 metric tons, most of which

would be used for reduction purposes or for minced products. Currently blue whiting accounts for about 20 percent of the catch listed under the generalized category of "Norway pout."

According to the NMFS International Fisheries Analysis Division, Norway currently appears to be predisposed toward acceptance of a 200-mile Fishing Zone, and unrestricted trawling off her coastline will do nothing to lessen her conviction that such an extension is absolutely necessary to preserve her fishery resources.

Publications

Polish, Yugoslavian, Russian, German, and Italian Fishery Translations Are Available

A limited number of the following Polish, Russian and Yugoslav publications translated and printed for the National Marine Fisheries Service (NMFS) under the Special Foreign Currency Science Information Program (financed with Public Law 480 funds) are available for free distribution from the Language Services Division, F43, Office of International Fisheries, NMFS, NOAA, U.S. Department of Commerce, Washington, DC 20235. Please request by translation (TT) number.

Translation numbers, titles, and authors include: TT 66-57049, Technological and chemical characteristics of the North Atlantic redfish, Hryniewcka, K.; TT 66-57050, Statistics of Polish fisheries in 1961, Kazmierski, K., et al.; TT 66-57054, Economic foundations of Polish sea fisheries development, Lasczynski, S.; TT 66-57055, Polish fishery statistics in 1920-1960, Lasczynski, S.; TT 66-57056, Separation of fish flesh amines by the modified Steiner-Kamienski method, Minakowski, W., and O. Rzewuski.; TT 66-57058, Trawler operation in the North Sea, Noetzel, B.; TT 66-57059, Method of examination of yield of catches of a fishing fleet on distant fishing grounds, Orłowski, J.; TT 66-57060, Psychosociological problems of work in the fisherman's occupation, Polanska, A.; TT 66-57063, Preliminary examination of the operation of B-23 trawlers on fishing grounds of the northwest Atlantic shelf, Swiniarski, J.; TT 66-57064, Effect of ther-

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building, Vol. 15, Nos. 11, 12; TT 60-21144, State of Stocks and means of increasing the number of Amur pink salmon, Abramov, V.V.; TT 60-21150, Age of pink salmon and the pattern of their fluctuations in abundance, Vedenskiy, A.P.; TT 60-21865, Technology of fish processing, Styr, J.; TT 60-51041, Population dynamics and the state of the chum and pink salmon stocks in the Amur River basin, Birman, I.B.; TT 60-51129, Some suggestions on the standardization of Far Eastern trawls, Lestev, A. V., and G. Ye. Grishchenko; TT 61-11367, Thrusting implements for fishing (archeological study), Znamierowska-Pruffer, M.; TT 64-11101, Bibliography of literature on fisheries of the Far East, 1923-1956, Romanov, N.S.; TT 65-50097, Annotated bibliography on fisheries of the southern basins of the U.S.S.R., 1918-1953, Romanov, N.S.; TT 65-50365, Chlorophyll in the seston of certain Polish lakes as an indicator of productivity, Solski, A.; TT 65-50368, Hydrographic observations in the southern Baltic in 1953-1955, Filarski, J.; TT 65-50503, Selected translations from *Roczniki Nauk Rolniczych* (Polish publication); TT 66-51047, Parasites of the fishes of the Barents Sea, Polyanskii, Yu. I.; TT 66-57048, Sprat freezing with the use ascorbic acid and alginian gel, Gora, A., and P. Trzesinski.

ICCAT PAPERS TRANSLATED

"Albacore populations in the north-east Atlantic," by H. Aloncle and F. Delaporte, 78p.; "Some data on bluefin tuna (*Thunnus thynnus* L.) fishing