



ATLANTIC OCEAN FISHERY RESOURCES

"Report of the ACMRR/ICES Working Party of the Fishery Resources of the Eastern Central and Southeast Atlantic," FAO Fisheries Reports, No. 56, Supplement 1, Food and Agriculture Organization of the United Nations, Rome, 1968, 56 pp.

This is a summary of Working Party Studies of stocks in 3 regions--from Straits of Gibraltar to Cape Blanco; from Cape Blanco to mouth of Congo River; and from Congo southwards. It reports the present state of the stocks, fishing effort, proposals for improved reporting of fishery statistics, observations on problems of mesh regulation--and recommends areas of future research.

BRITISH ISLES

"British Freshwater Fishes--Factors Affecting Their Distribution," by Margaret E. Varley, Fishing News (Books) Ltd., London, 1967, 148 pp., illus.

Some British freshwater fishes have an economic value as food, notably salmon and trout and, to a lesser extent, eels. Their real value, however, is recreational--the provision of raw material for angling. Methods of fishing vary with the species, and anglers want to know what sort of fish to expect at a given location. Dr. Varley has answered their questions in this comprehensive treatment of the origins, environmental factors, distribution, feeding and commercial aspects of the freshwater fishes.

ESTIMATING ABUNDANCE

"The Abundance of Hake off South Africa," by D. H. Cushing, Fishery Investigations, Series II, Vol. XXV, No. 10, Ministry of Agriculture, Fisheries and Food, 1968, Her Majesty's Stationery Office, London, 20 pp., illus.

An echo sounder that resolves signals from fish into individual traces was used in

a survey for hake within 4 fathoms of the bottom, between Cape Town and Walvis Bay in February 1966. With a statistical treatment of the results, it was possible to estimate the sizes of fish and density in numbers per cubic meter. The true power of this new technique may lie in the capacity to estimate absolute abundance acoustically.

In this paper, D.H. Cushing describes the method for estimating the absolute abundance of fish targets in size groups by acoustic methods. As the fish cannot be identified acoustically, he suggests that such surveys be supported by catches. In an exploited area, catches of the commercial fleet can be used for identification. In an unexploited area, the acoustic method endows the research vessel with the sampling power of a commercial fleet.

FRESHWATER RESEARCH

"Freshwater Fisheries Field Techniques--Tagging, Transportation, Mortality, and Drift Sampling," by C. J. Hardy, Fisheries Technical Report No. 27, New Zealand Marine Department, Wellington, 1968, 35 pp., illus.

This report describes a preformed wire loop for tagging trout; a thermally insulated lightweight livebox for holding and transporting trout; handling mortalities in trout sampling; and a simple lightweight drift sampler for streams. It also includes sections on electric fishing, anesthetics and sedation, fin clipping, and water temperature changes.

GEAR

"The Seine Net--Its Origin, Evolution and Use," by D. B. Thomson, Fishing News (Books) Ltd., London, 1969, 192 pp., illus.

In the past 50 years, commercial fishing has progressed from the state of a highly skilled but primitive art to a science. Documentation of fishing gear and methods is extremely important in a world of rapidly expanding technology. In the past, a fisherman

gathered his vast store of information from experience, observation, word of mouth, and ancient folklore. Today, a far greater and much faster dissemination of information is required. The fish-catching side has been the most poorly documented of all sections of the fishing industry.

D. B. Thomson, an expert mariner, fisherman, and teacher, provides a comprehensive and authoritative review of the seine net. He traces its history, evolution, and adaptation to the needs of various fisheries and he provides an exhaustive record of its practical use in different parts of the world.

MEDICAL GUIDE

"Handy Medical Guide for Seafarers, Fishermen, Trawlermen, Yachtsmen," by R. W. Scott, Fishing News (Books) Ltd., London, 1969, 86 pp., illus.

This is a simple handbook suitable for ready reference in dealing with medical problems at sea. It is a practical aid designed primarily for conditions in distant-water trawlers. But it should be of value to other fishermen, seamen, yachtsmen, oil-rig crews, and to landmen in isolated situations.



The following publications are available free from Division of Publications, BCF, 1801 N. Moore St., Arlington, Va. 22209:

HATCHERY OPERATIONS

"Recent Advances in Artificial Culture of Salmon and Steelhead Trout of the Columbia River," by Fred Cleaver, Fishery Leaflet 623, Fish & Wildlife Service, Department of the Interior, 1969, 5 pp., illus.

Between 1948 and 1962, 21 hatcheries were constructed or remodeled on tributaries to the lower 180 miles of the Columbia River. By 1962, there was some doubt that the hatcheries contributed enough salmon and steelhead trout to justify their costs. Further construction was deferred until the value of hatchery production could be measured.

This is a report on the results and methods of a cost-benefit study. The catches from fish reared in the hatcheries were found to have increased rapidly, beginning in 1964. By 1967, the benefits from operation of the hatcheries appeared well in excess of their costs. The Oregon moist pellet diet seemed

to be the greatest single factor in providing an economically favorable operation.

PESTICIDES

"Some Effects of DDT on the Ecology of Salmon Streams in Southeastern Alaska," by Roger J. Reed, SSR-Fisheries No. 542, Fish & Wildlife Service, Department of the Interior, 1966, 15 pp., illus.

Most watersheds in southeastern Alaska have valuable stands of Sitka spruce and western hemlock. Many of these watersheds contain streams with significant populations of trout and salmon. Concern about timber losses from infestations of black-headed budworm and hemlock sawfly caused U.S. Forest Service, in 1960, to propose a pilot study to evaluate effect on fish and wildlife of DDT in forested watersheds.

This paper describes a 4-year study of DDT's effects in 2 Alaska salmon streams. Direct harmful effects on fishes from DDT sprayed at a relatively low rate were not demonstrated, but the accompanying drastic reduction of aquatic insects may have reduced growth and survival of salmon and trout significantly.

LAKE MICHIGAN

"Bottom Trawl Explorations in Southern Lake Michigan, 1962-65," by Norman J. Reigle, Jr., Circular 301, Fish & Wildlife Service, Department of the Interior, 1969, 33 pp., illus.

The fish population of Lake Michigan has changed dramatically since the sea lamprey became plentiful--and the valuable food species subsequently declined. The recent explosive invasion by the alewife has had additional effects on the fauna. To survive, fishermen must now turn to the abundant low value species, such as alewives and bloaters. In 1965, a limited trawl fishery landed over 12 million pounds of fish, primarily alewife and chubs.

This paper summarizes bottom trawl explorations from 1962 to 1965. Their purpose was to gather information on the seasonal depth and geographic distribution of abundant unutilized species in relation to their availability to a growing trawl fishery.

"Bottom Trawl Explorations in Green Bay of Lake Michigan, 1963-65," by Norman J.

Beigle, Jr., Circular 297, Fish & Wildlife Service, Department of the Interior, 14 pp., illus.

The commercial fishery in Green Bay was formerly a gill net and pound net fishery based primarily on common whitefish, lake herring, and yellow pike or walleye. If commercial fishing in Green Bay is to survive, fishermen will have to turn to the efficient harvesting of large volumes of low-priced industrial fish. Trawling is one way to accomplish this goal.

The aim of this study was to obtain the basic seasonal and bathymetric data needed to establish more effective and efficient methods of harvesting the existing fish resources. The paper reports the results of 179 exploratory drags, made during 11 cruises, to determine if bottom trawling in Green Bay is commercially feasible.

SHRIMP

"Length-Weight Relation and Conversion of 'Whole' and 'Headless' Weights of Royal-Red Shrimp, *Hymenopenaeus robustus* (Smith)," by Edward F. Klima, SSR-Fisheries No. 585, Fish & Wildlife Service, Department of the Interior, May 1969, 5 pp.

Over 70,000 pounds of headless (heads off) royal-red shrimp, worth more than \$55,000, were landed during 1967. It has been estimated that the 3 commercial fishing areas off the southern U.S. could produce 1.6 million pounds of 20-count whole shrimp annually.

The development of a royal red shrimp fishery demands biological studies. Information on length-weight relation is required for studies of condition, growth, sexual maturity, and equilibrium yield in terms of weight. This paper gives the length-weight relation of royal-red shrimp for each of the 3 commercial fishing areas.

--Barbara Lundy



WHAT IS THE GREATEST DEPTH OF THE OCEAN AND WHERE IS IT?

According to the latest records, the greatest depth of 37,782 feet was observed in 1962 by the British survey ship COOK in the Mindanao Trench near the Philippines. This spot is now known as the Cook Deep. As long ago as 1927, depths in excess of 35,000 feet in the same area were reported by the German cruiser EMDEN.

In recent years, many other deeps have been measured by oceanographers. Some of those reported by British, Soviet, and U.S. ships follow:

In 1952, the British survey ship CHALLENGER located a depth of 35,640 feet in the Marianas Trench off Guam (the Challenger Deep). This depth was measured by an echosounder; it took $7\frac{1}{4}$ seconds for the sound to reach the bottom. To confirm the sounding, a weighted cable was lowered to the bottom; this lowering required 90 minutes.

In 1959, the Soviet vessel VITYAZ reported a depth of 36,200 feet near the Challenger Deep. The Marianas Trench had been sounded in 1927 by the Japanese survey ship MANSHU, which recorded a depth of 32,190 feet.

On January 23, 1960, the bathyscape TRIESTE descended into the Marianas Trench to a depth of 35,800 feet.

Although most publicity has been given to the Marianas and Mindanao Trenches, very deep soundings have also been recorded in the Southern Hemisphere. In 1952, the U.S. research vessel HORIZON recorded a depth of 34,884 feet in the Tonga Trench, south of Samoa Islands. ("Questions About the Oceans," U.S. Naval Oceanographic Office.)