

## NMFS Scientific Reports Published

NOAA Technical Report NMFS SSRF-720. Squire, James L., Jr. "Sea surface temperature distributions obtained off San Diego, California, using an airborne infrared radiometer." March 1978. 30 p. For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

### ABSTRACT

Sea surface temperature surveys were conducted weekly off San Diego, Calif., using an airborne infrared radiometer from April through October 1972-74. A total of 90 surveys were made over the 320-mile flight track. The analog chart record of temperature was keyed to a "ground truth" temperature measurement and read to determine 1 min average temperatures which were plotted on the flight track and 1°F (0.56°C) isotherms were contoured from the data. The trend of sea surface temperatures during the 3-year period showed warmer temperatures in 1972, which was an "el Niño" year, cooler in 1973, warmer than 1973 in 1974, but not as warm as 1972. In early July 1974, an anomalous warming period occurred and highest average temperatures of 73°F (22.7°C) were recorded in 19 July 1974. Lowest average temperature of 54°F (12.2°C) was recorded on 2 April 1973.

The 1972-74 survey temperatures taken over the "ground truth" calibration site were compared with a time series of temperature observations taken during the same months from 1963 to 1968. The average temperature during 1963-68 was 63.4°F (17.4°C) and for 1972-74,

64.1°F (17.8°C), a difference of less than 1°F (0.56°C). Average monthly temperature differences, 1963-68 compared with 1972-74, shows April the same, warmer 2°F (1.12°C) for May, 3°F (1.68°C) for June, 1°F (0.56°C) for July, same for August, 1°F (0.56°C) less for September, and 2°F (1.12°C) less for October.

NOAA Technical Report NMFS SSRF-725. Davis, Clarence W. "Seasonal bottom-water temperature trends in the Gulf of Maine and on Georges Bank, 1963-75." May 1978. 17 p.

### ABSTRACT

Spring (1968-75) and autumn (1963-75) bottom-water temperature temperatures in the Gulf of Maine and on Georges Bank were analyzed to investigate a suspected warming trend in the region. During the spring the mean temperature in the Gulf of Maine increased rather steadily from a low of 5.4°C in 1968 to a high of 6.4°C in 1974. Various subareas of the Gulf had more frequent and greater oscillations but exhibited the same overall warming trend. Mean spring temperatures on Georges Bank fluctuated from 3.8°C in 1968 to 6.3°C in 1974 and declined by nearly 2°C in 1975 with similar characteristics in eastern, central, and western subareas of the Bank.

During the autumn in the Gulf, bottom-water temperatures reached a minimum of 5.4°C in 1966, increased to a maximum of 8.4°C in 1973 and 1974, but declined to 8.0°C in 1975. Subareas of the Gulf

generally showed the same temperature trends from 1963 to 1968; especially notable are the cooling trend west of long. 69°W which commenced in 1971, and a decrease in all five subareas in 1975. Georges Bank temperatures in autumn declined from a maximum of 13.1°C in 1965 to a minimum of 10.4°C in 1969, reached another peak of 12.6°C in both 1973 and 1974, but declined to 11.6°C in 1975. Subareas of Georges Bank generally followed the same pattern with the eastern third of the Bank usually 2°C or colder than either of the other subareas in the autumn.

The average bottom-water temperatures during spring were 5.0°C on Georges Bank and 6.1°C in the Gulf of Maine; temperatures in the autumn were 11.7°C and 7.2°C, respectively, for these areas.

NOAA Technical Report NMFS Circular 411. Dooley, James K. "Systematics and biology of the tilefishes (Perciformes: Branchiostegidae and Malacanthidae), with descriptions of two new species." April 1978. 78 p.

### ABSTRACT

Tilefishes have been examined on a world basis with the following conclusions: 1) Tilefishes belong to two distinct phyletic lines here designated as the family Branchiostegidae and the resurrected family Malacanthidae. 2) The Branchiostegidae include 3 genera and 21 species. 3) The Malacanthidae include 2 genera, 2 subgenera, and 8 species. 4) A new species, *Caulolatilus hubbsi*, is described from off southern California, the Gulf of California, the Galapagos Islands, and from Callao, Peru; it is generally found sympatrically with the other two eastern Pacific species of *Caulolatilus*. 5) A second new species, *Branchiostegus albus*, is described from off central Honshu, Japan; Pusan, Korea; along the coast of the East China Sea including Shanghai and Taiwan; and the coasts of the South China Sea including Hong Kong and Macao. *Branchiostegus albus* was formerly confused with *B. argentatus* Cuvier 1830. 6) Branchiostegids are generally relatively deep dwelling (20-600 m;

usually deeper than 50 m) fishes found along the edges of continental margins, near the upper slope of islands, or at the heads of deep-sea canyons. These fishes are deep bodied and have prominent skull crests. 7) Malacanthids are relatively shallow-water (10-150 m, usually shallower than 50 m), burrow-dwelling or mound-building fishes with elongate bodies and rounded or flat skulls with no prominent crests. 8) Tilefishes appear to have basal percoid affinities, having a number of larval and osteological characters found among beryciform fishes (considered antecedent to perciforms) and characters considered primitive among perciform fishes.

NOAA Technical Report NMFS SSRF-721. Hall, R. A., E. G. Zook, and G. M. Meaburn. "National Marine Fisheries Service survey of trace elements in the fishery resource." March 1978. 313 p.

#### ABSTRACT

Trace element levels have been determined in tissues of 204 species of finfish, Mollusca, and Crustacea taken from 198 sites around the coastal United States, including Alaska and Hawaii. The survey was undertaken as part of the Microconstituents Program of the National Marine Fisheries Service, and covers the occurrence of 15 elements: antimony, arsenic, cadmium, chromium, copper, lead, manganese, mercury, molybdenum, nickel, selenium, silver, tin, vanadium, and zinc. Total concentrations of each element were determined without regard to chemical form. The species analyzed represent approximately 93 percent of the volume of the U.S. commercial and sportfish catch. The analytical data are summarized in several ways in order to emphasize different aspects of the trace element distributions. Mean levels of each element are presented in relation to the number of species examined, the U.S. (commercial and sportfish) catch, and the U.S. catch intended for consumption. More detailed analytical data on all 15 elements are given for individual species with reference to tissue analyzed, length and weight of fish,

and location of catch. For the most part, experimental results are presented without interpretive comment. Mean levels of mercury, the only element for which a regulatory

action level is in force, were found to exceed 0.5 ppm Hg in species representing less than 2 percent of the U.S. catch intended for consumption.

## Marine Recreational Fishing Symposium Proceedings Printed

**Marine Recreational Fisheries 2** contains the proceedings of the Second Annual Marine Recreational Fisheries Symposium and was published by the Sport Fishing Institute in Washington, D.C. Objectives of the symposia series are to identify major recreational marine fisheries problems—biological, economic, and social—and to promote effective management practices, based on scientific principles, for the conservation of living marine resources.

The book's 20 chapters (symposium presentations plus discussions) were delivered by leading national and international authorities, many with the National Marine Fisheries Service. A talk on NMFS mission and goals and the 200-mile zone law was given by then-NMFS Director Robert Schoning. Richard Hennemuth contributed a talk on "Some Biological Aspects of Optimum Yield"; Grant Beardsley and Wesley Parks presented "Management of Western North Atlantic Bluefin Tuna Fisheries"; and Brian Rothschild, J. M. Gates, and A. M. Carlson coauthored "Management of Marine Recreational Fisheries." "Protection of

Coastal Wetlands" was explained by Richard Gardner, acting director of NOAA's Office of Coastal Zone Management.

Other chapters discuss marine angling perspectives in both Canada and Mexico, the U.S. 200-mile zone law, criteria for collecting marine recreational fisheries data, attaining "clean water", effects of water development on striped bass, the tarpon's unusual biology and man's impact on its future, economic losses to marine recreational fisheries from habitat destruction, a model for determining optimum yield, human perspectives in optimum sustainable yield fisheries management, and "menhaden, sport fish and fishermen."

Symposium chairman was Richard H. Stroud of the Sport Fishing Institute; proceedings editor was Henry Clepper. The 220-page hardbound volume is available at \$15 per copy from the International Game Fish Association, 3000 E. Las Olas Blvd., Fort Lauderdale, FL 33316. It will be a valuable addition to the marine recreational angling literature.

## NEKTON VOLUME IS TRANSLATED

**Nekton**, by Yu. G. Aleyev, has been translated from the Russian by B. M. Meerovich and published by Dr. W. Junk b.v. — Publishers, P.O. Box 13713, 2501 ES The Hague, The Netherlands. The book is divided into three parts: 1) Systematics and geographical distribution of nekton; 2) fundamental nektonic adaptations; and 3) origins and ecological divergence of nekton. It provides a good review of Russian studies on the topic.

In the introduction, the author defines his terms, presents the history and

task of nektonology, and describes nektonological investigation methods. Other chapters discuss maintaining the body suspended in the water, locomotion, reducing resistance to movement, controlling movement, camouflage and defense, other adaptations, classes of nekton and their origins, and nekton and the body of water. The 435-page book has 247 figures, contains an extensive literature cited section, indexes of author's names and animal latin names, plus a subject index. The listed price is 120.00 Dutch guilders.