

Fishery Technology: Reviews and Advances

To herald 50 years of research and development, the Torry Research Station hosted an international conference on fish science and technology from 23 to 27 July 1979. The result is a huge 528-page (8¼x11¾-inch) tome entitled "**Advances in Fish Science and Technology.**" Edited by J. J. Connell, Director of the Aberdeen, Scotland, facility, it is published by Fishing News Books Ltd., 1 Long Garden Walk, Farnham, Surrey, England.

The first, or "Review Section", of the volume (p. 1-191) is devoted to 18 articles exploring the past, present, and future of both fish technology and fish science by recognized authorities. The second section (p. 192-507) is given to 62 papers describing recent advances and ideas.

In the review segment on fish technology, K. C. Lucas has discussed how changes in fish resources and extended fishery jurisdictions are affecting the fishery management, development, and utilization. G. H. O. Furgess then traces the origins and influence of scientific and technical ideas on fish industries. G. C. Eddie reviewed past, present, and future fish handling methods while Poul Hanses did the same for fish preservation methods. In addition, Maynard O. Steinberg delivered a comprehensive statistical analysis of world fish utilization. Methods of marketing, distribution, and quality assurance are discussed by E. Graham Bligh.

The second part, fishery science, contains reviews on sensory and non-sensory assessment of fish by J. J. Connell and J. M. Shewan, structure and proteins of fish and shellfish by June N. Olley and Z. E. Sikorski, fish lipids by R. G. Ackman and R. Hardy, other organic

and inorganic components by S. Ikeda, fish in human and animal nutrition by Kenneth J. Carpenter, biological factors affecting processing and utilization by R. Malcolm Love, microbiology in fishery science by J. Liston, physical properties and processes by A. C. Jason and M. Kent, and the application of engineering science to fish preservation by M. R. Hewitt and S. Forbes Pearson.

Section II, "Recent advances," is divided into 14 parts, leading off with six papers in minced fish developments. "Process and new product investigations" presents papers on canned fish behavior during storage, technology of Spanish canned mussels, H₂O₂ to whiten fish flesh, auto-oxidation of sardine oil, and others. Another section discusses recent advances in fish smoking; yet another presents papers on chilled and frozen storage of hakes, cod, and scad.

Krill developments are treated in six papers (quality and shelf-life, composition and properties of krill fingers, economics of krill fishing, krill sausage, and nutritional experiments).

Two papers deal with fish technology and its transfer while six discuss fish by-products. Seasonal changes in blue whiting, stored mackerel, and lipids of manid, *Pimelodus clarias*, are reported. Another five papers deal with methods of quality assessment while eight protein studies are presented. Other papers deal with microbiology, low molecular weight compounds, water in fish, and histology of blue whiting.

The immense volume with 400 illustrations and 279 tables, covers a wide range of subjects in presenting a valuable account of the current status of fisheries technology. Indexed the hard-

bound edition is available from the publisher for £39.50 plus £3.90 postage and packing.

Pollution and Physiology of Marine Organisms

"**Marine Pollution: Functional Responses,**" edited by Winona B. Vernberg, Frederick P. Thurberg, Anthony Calabrese, and F. John Vernberg, has been published by Academic Press, Inc., 111 Fifth Ave., New York, NY 10003.

Part I, "Petroleum Hydrocarbons," begins with a review of these chemicals in the marine environment. Other articles discuss the detoxification system in polychaete worms, temperatures and respiratory rates of pink salmon fry exposed to hydrocarbons, effect of naphthalene on Bering Sea sculpins, free amino acid content of *Macoma inquinata* exposed to oil, and differential sensitivity of fish embryonic stages to oil.

Part II, "Metals," includes papers on toxic cations and marine biota, heavy metals and regeneration in estuarine fish and crabs, hematological effects of long-term mercury exposure on winter flounder, bivalve mollusks in heavy metal pollution research, cytopathological effects of CuSO₄ of the chemoreceptors of blue crab, and copper and cadmium induced changes in molluscan gill tissue.

Part III, "Pesticides and PCB's," presents an overview of pesticides on the estuarine environment, effect of PCB's on fatty acid composition of phospholipids in sculpins, parathion metabolism by intertidal invertebrates, and PCP toxicity to crustaceans.

Part IV, "Multiple Factor Interactions," contains papers on the effect of Dimilin on stone and blue crab larvae, seasonal modulation of thermal acclimation and behavioral thermoregulation in aquatic animals, multiple factor interactions and stress in coastal systems, seasonal effects of chlorine produced oxidants on the American oyster, and beyond the LC₅₀: an opinion about research activities and needs concerning physiological effects of pollutants in the environment.

Typed for rapid reproduction, the 454-page hardbound volume sells for \$26.00.