NOAA Technical Report NMFS Circular 437
**Fishery Publication Index,
1975-79**

Lee C. Thorson

May 1981

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service

NOAA TECHNICAL REPORTS

National Marine Fisheries Service, Circulars

The major responsibilities of the National Marine Fisheries Service (NMFS) are to monitor and assess the abundance and geographic distribution of fishery resources, to understand and predict fluctuations in the quantity and distribution of these resources, and to establish levels for optimum use of the resources. NMFS is also charged with the development and implementation of policies for managing national fishing grounds, development and enforcement of domestic fisheries regulations, surveillance of foreign fishing off United States coastal waters, and the development and enforcement of international fishery agreements and policies. NMFS also assists the fishing industry through marketing service and economic analysis programs, and mortgage insurance and vessel construction subsidies. It collects, analyzes, and publishes statistics on various phases of the industry.

The NOAA Technical Report NMFS Circular series continues a series that has been in existence since 1941. The Circulars are technical publications of general interest intended to aid conservation and management. Publications that review in considerable detail and at a high technical level certain broad areas of research appear in this series. Technical papers originating in economics studies and from management investigations appear in the Circular series.

NOAA Technical Report NMFS Circulars are available free in limited numbers to governmental agencies, both Federal and State. They are also available in exchange for other scientific and technical publications in the marine sciences. Individual copies may be obtained (unless otherwise noted) from D822, User Services Branch, Environmental Science Information Center, NOAA, Rockville, MD 20852. Recent Circulars are:

418. Annotated bibliography of four Atlantic scombrids: *Scomberomorus brasiliensis*, *S. cavalla*, *S. maculatus*, and *S. regalis*. By Charles S. Manooch III, Eugene L. Nakamura, and Ann Bowman Hall. December 1978, iii + 166 p.
419. Marine flora and fauna of the northeastern United States. Protozoa: Sarcodina: Amoeboae. By Eugene C. Bovee and Thomas K. Sawyer. January 1979, iii + 56 p., 77 figs. For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, Stock No. 003-017-00433-3.
420. Preliminary keys to otoliths of some adult fishes of the Gulf of Alaska, Bering Sea, and Beaufort Sea. By James E. Morrow. February 1979, iii + 32 p., 9 pl.
421. Larval development of shallow water barnacles of the Carolinas (Cirripedia: Thoracica) with keys to naupliar stages. By William H. Lang. February 1979, iv + 39 p., 36 figs., 17 tables.
422. A revision of the catsharks, family Scyliorhinidae. By Stewart Springer. April 1979, v + 142 p., 97 figs. For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, Stock No. 003-020-00147-5.
423. Marine flora and fauna of the northeastern United States. Crustacea: Cumacea. By Les Watling. April 1979, iii + 23 p., 35 figs. For sale by the Superintendent of Documents, Washington, D.C. 20402, Stock No. 003-017-00446-5.
424. Guide to the leptocephali (Elopiformes, Anguilliformes, and Notacanthiformes). By David G. Smith. July 1979, iv + 39 p., 54 figs.
425. Marine flora and fauna of the northeastern United States. Arthropoda: Cirripedia. By Victor A. Zullo. April 1979, iii + 29 p., 40 figs. For sale by the Superintendent of Documents, Washington, D.C. 20402, Stock No. 003-017-00453-8.
426. Synopsis of biological data on the rock crab, *Cancer irroratus* Say. By Thomas E. Bigford. May 1979, v + 26 p., 11 figs., 21 tables.
427. Ocean variability in the U.S. Fishery Conservation Zone, 1976. By Julien R. Goulet, Jr., and Elizabeth D. Haynes, editors. July 1979, iii + 362 p.
- (427.) Introduction. By Julien R. Goulet, Jr. July 1979, p. 1-2.
- (427.) Summary. By Julien R. Goulet, Jr. July 1979, p. 3-10.
- (427.) Atmospheric circulation in 1976. By Elizabeth D. Haynes. July 1979, p. 11-18, 2 figs.
- (427.) Atmospheric climatology and its effect on sea surface temperature—1976. By Robert R. Dickson and Jerome Namias. July 1979, p. 19-33, 6 figs.
- (427.) Eastern Pacific sea surface conditions in 1976. By Elizabeth D. Haynes. July 1979, p. 35-42.
- (427.) Sea surface conditions in the western North Atlantic in 1976. By Julien R. Goulet, Jr., and Elizabeth D. Haynes. July 1976, p. 43-50.
- (427.) Anomalies of monthly mean sea level along the west coasts of North and South America. By Dale E. Bretschneider and Douglas R. McLain. July 1979, p. 51-64, 6 figs.
- (427.) Coastal upwelling off western North America, 1976. By Craig S. Nelson. July 1979, p. 65-75, 2 figs., 2 tables.
- (427.) Oceanic conditions during 1976 between San Francisco and Honolulu as observed from Ships of Opportunity. By J. F. T. Saur and D. R. McLain. July 1979, p. 77-92, 5 figs., 2 tables.
- (427.) The 1976 El Nino and recent progress in monitoring and prediction. By William H. Quinn. July 1979, p. 93-110, 7 figs., 4 tables.
- (427.) Sea surface temperature anomalies. By Douglas R. McLain. July 1979, p. 111-149, app. 1.
- (427.) Fluctuations of sea surface temperature and density at coastal stations during 1976. By Douglas R. McLain. July 1979, p. 151-166, 7 figs., app. 1.
- (427.) Data on cold weather conditions along the Atlantic and Gulf coasts during the fall and winter of 1976-77. By J. Lockwood Chamberlin and Reed S. Armstrong. July 1979, p. 167-174, 1 fig., 1 table.
- (427.) Wind driven transport Atlantic coast and Gulf of Mexico. By Merton C. Ingraham. July 1979, p. 175-208, 4 figs., 1 table, app. 1.
- (427.) Sea surface temperature distribution from Cape Cod, Massachusetts, to Miami, Florida - 1976. By Joseph W. Deaver III. July 1979, p. 209-229, 3 figs., 2 tables, app. 1.
- (427.) Water column thermal structure across the shelf and slope southeast of Sandy Hook, New Jersey, in 1976. By Steven K. Cook. July 1979, p. 231-257, 19 figs.
- (427.) Anticyclonic Gulf Stream eddies off the Northeastern United States during 1976. By David Mizenko and J. Lockwood Chamberlin. July 1979, p. 259-280, 16 figs., 2 tables.
- (427.) River runoff along the Middle Atlantic coast in 1976. By Elizabeth D. Haynes. July 1979, p. 281-287, 1 fig., 1 table, app. 1.
- (427.) Climatic conditions related to the fish kill and anoxia off New Jersey during the summer of 1976. By Reed S. Armstrong. July 1979, p. 289-300, 5 figs.
- (427.) Variations in the position of the shelf water front off the Atlantic coast between Georges Bank and Cape Romain in 1976. By John T. Gunn. July 1979, p. 301-314, 8 figs., 1 table.
- (427.) Temperature structure on the continental shelf and slope south of New England during 1976. By R. Wylie Crist and J. Lockwood Chamberlin. July 1979, p. 315-335, 2 figs., app. 1.
- (427.) Continuous plankton records: Zooplankton and net phytoplankton in the Mid-Atlantic Bight, 1976. By Daniel E. Smith and Jack W. Jossi. July 1979, p. 337-348, 7 figs.
- (427.) Siphonophore ("lipo") swarming in New England coastal waters—update, 1976. By Carolyn A. Rogers. July 1979, p. 349-352, 1 fig.
- (427.) Bottom-water temperatures in the Gulf of Maine and on Georges Bank during spring and autumn, 1976. By Clarence W. Davis. July 1979, p. 353-362, 6 figs., 3 tables.

NOAA Technical Report NMFS Circular 437

**Fishery Publication Index,
1975-79**

Lee C. Thorson

May 1981

U.S. DEPARTMENT OF COMMERCE

Malcolm Baldrige, Secretary

National Oceanic and Atmospheric Administration

National Marine Fisheries Service

Terry Leitzell, Assistant Administrator for Fisheries

The National Marine Fisheries Service (NMFS) does not approve, recommend or endorse any proprietary product or proprietary material mentioned in this publication. No reference shall be made to NMFS, or to this publication furnished by NMFS, in any advertising or sales promotion which would indicate or imply that NMFS approves, recommends or endorses any proprietary product or proprietary material mentioned herein, or which has as its purpose an intent to cause directly or indirectly the advertised product to be used or purchased because of this NMFS publication.

CONTENTS

Introduction	1
Publication distribution	1
Reference symbols	1
Publication series	1
Circular	1
Data Report	4
Fishery Bulletin	4
Marine Fisheries Review	16
Special Scientific Report — Fisheries	23
Author index	26
Subject index	39

Fishery Publication Index, 1975-79

LEE C. THORSON¹

ABSTRACT

The following series of fishery publications put out by the Scientific Publications Office of the National Marine Fisheries Service (National Oceanic and Atmospheric Administration) in calendar years 1975-79 are listed numerically and indexed by author and subject: Circular, Data Report, Fishery Bulletin, Marine Fisheries Review, and Special Scientific Report—Fisheries.

INTRODUCTION

This index includes those publication series put out by the Scientific Publications Office of the National Marine Fisheries Service, NOAA, issued from 1975 through 1979.

The index comprises a list of each publication series in numerical order and alphabetical indexes of authors and subjects.

This index is a continuation of the following: Fishery Publication Index, 1965-74, NOAA Technical Report NMFS Circular 400; Fishery Publication Index 1955-64, U.S. Fish and Wildlife Service Circular 296; Fishery Publication Index 1920-54, U.S. Fish and Wildlife Service Circular 36; and Publications of the United States Bureau of Fisheries 1871-1940, U.S. Fish and Wildlife Service Special Scientific Report—Fisheries 284.

PUBLICATION DISTRIBUTION

Copies of these publications, when available, may be obtained from D822, User Services Branch, Environmental Science Information Center, NOAA, Rockville, MD 20852.

Most publications are distributed free to libraries that have been designated depository libraries for Government publications; a list of depository libraries may be obtained from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

REFERENCE SYMBOLS

The series are abbreviated as follows:

Circular	C
Data Report	D
Fishery Bulletin	FB
Marine Fisheries Review	MFR
Special Scientific Report—Fisheries	S

¹Scientific Publications Office, National Marine Fisheries Service, NOAA, 1700 Westlake Ave. N., Room 336, Seattle, WA 98109.

PUBLICATION SERIES

Circular

Popular and semitechnical publications of general and regional interest intended to aid conservation and management. They are distributed free to libraries, research institutions both in this country and in foreign countries, and Federal and State agencies.

Circular

330. EASTROPAC atlas. Volume 9—Physical oceanographic and meteorological data from principal participating ships, third survey cruise, February-March 1968, by Cuthbert M. Love (editor). February 1975, vii + 95 p., 132 figs.
330. EASTROPAC atlas. Volume 10—Biological and nutrient chemistry data from principal participating ships, third survey cruise, February-March 1968, by Cuthbert M. Love and Roy M. Allen (editors). December 1975, viii + 80 p., 144 figs.
330. EASTROPAC atlas. Volume 11—Physical oceanographic and meteorological data from Latin American ships and ships of opportunity, February 1967—March 1968, by Cuthbert M. Love and Roy M. Allen (editors). July 1977, xv + 129 p., 402 figs.
- 331-390. Published prior to 1975.

NOAA Technical Report NMFS CIRC

391. Calanoid copepods of the genera *Spinocalanus* and *Mimocalanus* from the central Arctic Ocean, with a review of the Spinocalanidae, by David M. Damkaer. June 1975, x + 88 p., 225 figs., 4 tables.
392. Fishery publications, calendar year 1974: Lists and indexes, by Lee C. Thorson and Mary Ellen Engett. June 1975, iv + 27 p., 1 fig.
393. Cooperative Gulf of Mexico estuarine inventory and study—Texas: Area description, by Richard A. Diener. September 1975, vi + 129 p., 55 figs., 66 tables.
394. Marine flora and fauna of the northeastern United States. Tardigrada, by Leland W. Pollock. May 1976, iii + 25 p., 1 fig.

395. Report of a colloquium on larval fish mortality studies and their relation to fishery research, January 1975, by John R. Hunter (editor). May 1976, iii + 5 p.
396. Whales, dolphins, and porpoises of the western North Atlantic. A guide to their identification, by Stephen Leatherwood, David K. Caldwell, and Howard E. Winn. August 1976, iv + 176 p., 168 figs., 1 table, 14 app. figs.
397. Marine flora and fauna of the northeastern United States. Cnidaria: Scyphozoa, by Ronald J. Larson. August 1976, iii + 18 p., 28 figs.
398. Marine flora and fauna of the northeastern United States. Higher fungi: Ascomycetes, Deuteromycetes, and Basidiomycetes, by A. R. Cavaliere. March 1977, iii + 49 p., 24 figs.
399. Marine flora and fauna of the northeastern United States. Copepoda: Harpacticoida, by Bruce C. Coull. March 1977, iii + 48 p., 100 figs.
400. Fishery publication index, 1965-74, by Mary Ellen Engett and Lee C. Thorson. March 1977, iii + 220 p.
401. Fisheries and fishery resources of New York Bight, by J. L. McHugh. March 1977, v + 50 p., 43 figs., 49 tables.
402. Guide to the identification of scorpionfish larvae (Family Scorpaenidae) in the eastern Pacific with comparative notes on species of *Sebastes* and *Helicolenus* from other oceans, by H. Geoffrey Moser, Elbert H. Ahlstrom, and Elaine M. Sandknop. April 1977, v + 71 p., 40 figs., 38 tables.
403. Marine flora and fauna of the northeastern United States. Sipuncula, by Edward B. Cutler. July 1977, iii + 7 p., 6 figs.
404. Revision of the sea basses of the genus *Diplectrum* (Pisces: Serranidae), by Stephen A. Bortone. September 1977, v + 49 p., 15 figs., 9 tables.
405. Marine flora and fauna of the northeastern United States. Echinodermata: Holothuroidea, by David L. Pawson. September 1977, iii + 15 p., 3 figs.
406. Marine flora and fauna of the northeastern United States. Copepoda: Lernaepodidae and Sphyriidae, by Ju-Shey Ho. December 1977, iii + 14 p., 16 figs.
407. Distribution of decapod Crustacea off northeastern United States based on specimens at the Northeast Fisheries Center, Woods Hole, Massachusetts, by Austin B. Williams and Roland L. Wigley. December 1977, iii + 44 p., 2 figs., 1 table, 57 unnumbered figs.
408. Collection of tuna baitfish papers, by Richard S. Shomura (editor). December 1977, iii + 167 p.
- (408.) A summary of the tuna baitfish workshop, by Richard S. Shomura. December 1977, p. 1-7.
- (408.) A review on the use of live baitfishes to capture skipjack tuna, *Katsuwonus pelamis*, in the tropical Pacific Ocean with emphasis on their behavior, survival, and availability, by Wayne J. Baldwin. December 1977, p. 8-35.
- (408.) The Pacific tuna pole-and-line and live-bait fisheries, by Howard O. Yoshida, Richard N. Uchida, and Tamio Otsu. December 1977, p. 36-51.
- (408.) Desired characteristics of a bait for skipjack tuna, *Katsuwonus pelamis*, by Heeny S. H. Yuen. December 1977, p. 52-54.
- (408.) Estimates of the amount of nehu, *Stolephorus purpureus*, per bucket of bait in the Hawaiian fishery for skipjack tuna, *Katsuwonus pelamis*, by Thomas S. Hida and Jerry A. Wetherall. December 1977, p. 55-56.
- (408.) The fishery for nehu, *Stolephorus purpureus*, a live bait used for skipjack tuna, *Katsuwonus pelamis*, fishing in Hawaii, by Richard N. Uchida. December 1977, p. 57-62.
- (408.) Biology of the baitfishes *Herklotsichthys punctatus* and *Pranesus pinguis* in Majuro, Marshall Islands, by Thomas S. Hida and James H. Uchiyama. December 1977, p. 63-68.
- (408.) Observations of tuna bait species and their habitats in the Palau Islands, by Peter T. Wilson. December 1977, p. 69-74.
- (408.) Ponape live-bait observations, by Peter T. Wilson. December 1977, p. 75-80.
- (408.) Japanese skipjack tuna, *Katsuwonus pelamis*, baitfish surveys in the western and southwestern Pacific Ocean, by Shoji Kikawa. December 1977, p. 81-88.
- (408.) Distribution and abundance of baitfish resources in Papua New Guinea waters, by A. D. Lewis. December 1977, p. 89-94.
- (408.) Appraisal of the live-bait potential and handling characteristics of the common tuna bait species in Papua New Guinea, by B. R. Smith. December 1977, p. 95-103.
- (408.) Relationships amongst skipjack tuna, *Katsuwonus pelamis*, catch, bait catch, and the lunar cycle in Papua New Guinea skipjack tuna fishery, by R. E. Kearney. December 1977, p. 104-113.
- (408.) Catch statistics and abundance of nehu, *Stolephorus purpureus*, in Kaneohe Bay, by Jerry A. Wetherall. December 1977, p. 114-118.
- (408.) Some aspects of the population biology of *Stolephorus heterolobus* from Palau, by Robert G. Muller. December 1977, p. 119-126.
- (408.) Capture, transportation, and pumping of threadfin shad, *Dorosoma petenense*, by Robert T. B. Iversen and Jay O. Puffinburger. December 1977, p. 127-136.
- (408.) A commercial tilapia, *Tilapia mossambica*, hatchery for Hawaiian skipjack tuna, *Katsuwonus pelamis*, fishery—cost analysis and problematical study, by Bruce L. Crumley. December 1977, p. 137-148.
- (408.) Suitability of cultured topminnow *Poecilia vittata*, family Poeciliidae, as a live baitfish for skipjack tuna, *Katsuwonus pelamis*, in the tropical Pacific, by Wayne J. Baldwin. December 1977, p. 149-155.
- (408.) Some economic and technological aspects related to commercial production of the topminnow *Poecilia vittata*, by Samuel F. Herrick, Jr. December 1977, p. 156-159.
- (408.) Evaluation of bait substitution schemes in Hawaiian fishery for skipjack tuna, *Katsuwonus pelamis*, by Jerry A. Wetherall. December 1977, p. 160-167.
409. Marine flora and fauna of the northeastern United States. Copepoda: Cyclopoids parasitic on fishes, by Ju-Shey Ho. February 1978, iii + 12 p., 17 figs.
410. The 1976 *Ceratium tripos* bloom in the New York Bight: Causes and consequences, by Thomas C. Malone. May 1978, iv + 14 p., 17 figs., 1 table.
411. Systematics and biology of the tilefishes (Perciformes: Branchiostegidae and Malacanthidae), with descriptions of two new species, by James K. Dooley. April 1978, v + 78 p., 44 figs., 26 tables.
412. Synopsis of biological data on the red porgy, *Pagrus pagrus* (Linnaeus), by Charles S. Manooch III and William W. Hassler. May 1978, iii + 19 p., 12 figs., 7 tables.

413. Marine flora and fauna of the northeastern United States. Crustacea: Branchiura, by Roger F. Cressey. May 1978, iii + 10 p., 15 figs.
414. Synopsis of biological data for the winter flounder, *Pseudopleuronectes americanus* (Walbaum), by Grace Klein-MacPhee. November 1978, iii + 43 p., 21 figs., 28 tables.
415. A basis for classifying western Atlantic Sciaenidae (Teleostei: Perciformes), by Labbish Ning Chao. September 1978, v + 64 p., 41 figs., 1 table.
416. Ocean variability: Effects on U.S. marine fishery resources — 1975, by Julien R. Goulet, Jr. and Elizabeth D. Haynes (editors). December 1978, iii + 350 p.
- (416.) Summary, by Julien R. Goulet, Jr. December 1978, p. 3-87.
- (416.) Atmospheric climatology and its effect on sea surface temperature — 1975, by Robert R. Dickson and Jerome Namias. December 1978, p. 89-101.
- (416.) Climatic change in the Pacific Ocean—an update through 1975, by James H. Johnson, Douglas R. McLain, and Craig S. Nelson. December 1978, p. 103-125.
- (416.) Anomalies of coastal sea surface temperatures along the west coast of North America, by Douglas R. McLain. December 1978, p. 127-140.
- (416.) Coastal upwelling off western North America, 1975, by Andrew Bakun. December 1978, p. 141-149.
- (416.) Oceanic conditions between the Hawaiian Islands and the U.S. west coast as monitored by ships of opportunity — 1975, by J. F. T. Saur. December 1978, p. 151-168.
- (416.) The tuna fishery in the eastern tropical Pacific and its relationship to sea surface temperatures during 1975, by Forrest R. Miller. December 1978, p. 169-178.
- (416.) Equatorial Pacific anomalies and El Nino, by William H. Quinn. December 1978, p. 179-190.
- (416.) Sunspot activity and oceanic conditions in the northern North Pacific Ocean, by Felix Favorite and W. James Ingraham, Jr. December 1978, p. 191-196.
- (416.) A single-layer hydrodynamical-numerical model of the eastern Bering Sea shelf, by James R. Hastings. December 1978, p. 197-212.
- (416.) Variations in the position of the shelf water front off the Atlantic coast between Cape Romain and Georges Bank in 1975, by John T. Gunn. December 1978, p. 213-228.
- (416.) Wind-driven transport in 1975, Atlantic coast and Gulf of Mexico, by John T. Gunn. December 1978, p. 229-239.
- (416.) Spring and autumn bottom-water temperatures in the Gulf of Maine and Georges Bank, 1968-75, by Clarence W. Davis. December 1978, p. 241-256.
- (416.) Initiation of monthly temperature transects across the northern Gulf of Maine, by J. Lockwood Chamberlin, John J. Kosmark, and Steven K. Cook. December 1978, p. 257-269.
- (416.) Temperature structure on the continental shelf and slope south of New England during 1975, by J. Lockwood Chamberlin. December 1978, p. 271-292.
- (416.) Passage of anticyclonic Gulf Stream eddies through Deepwater Dumpsite 106 during 1974 and 1975, by James J. Bisagni. December 1978, p. 293-298.
- (416.) Surface water drift south of Cape Lookout, North Carolina, by C. A. Barans and W. A. Roumillat. December 1978, p. 299-308.
- (416.) The distribution and abundance, growth, and mortality of Georges Bank-Nantucket Shoals herring larvae during the 1975-76 winter period, by R. Gregory Lough. December 1978, p. 309-331.
- (416.) Impact of autumn-winter swarming of a siphonophore ("Lipo") on fishing in coastal waters of New England, by Carolyn A. Rogers. December 1978, p. 333-350.
417. Guide to the identification of genera of the fish order Ophidiiformes with a tentative classification of the order, by Daniel M. Cohen and Jørgen G. Nielsen. December 1978, vii + 72 p., 103 figs., 2 tables.
418. Annotated bibliography of four Atlantic scombrids: *Scomberomorus brasiliensis*, *S. cavalla*, *S. maculatus*, and *S. regalis*, by Charles S. Manooch III, Eugene L. Nakamura, and Ann Bowman Hall. December 1978, iii + 166 p.
419. Marine flora and fauna of the northeastern United States. Protozoa: Sarcodina: Amoeboae, by Eugene C. Bovee and Thomas K. Sawyer. January 1979, iii + 56 p., 77 figs.
420. Preliminary keys to otoliths of some adult fishes of the Gulf of Alaska, Bering Sea, and Beaufort Sea, by James E. Morrow. February 1979, iii + 32 p., 11 plates.
421. Larval development of shallow water barnacles of the Carolinas (Cirripedia: Thoracica) with keys to naupliar stages, by William H. Lang. February 1979, iv + 39 p., 36 figs., 17 tables.
422. A revision of the catsharks, family Scyliorhinidae, by Stewart Springer. April 1979, v + 152 p., 97 figs., 3 tables.
423. Marine flora and fauna of the northeastern United States. Crustacea: Cumacea, by Les Watling. April 1979, iii + 23 p., 35 figs., 1 table.
424. Guide to the Leptocephali (Elopiformes, Anguilliformes, and Notacanthiformes), by David G. Smith. July 1979, iv + 39 p., 54 figs.
425. Marine flora and fauna of the northeastern United States. Arthropoda: Cirripedia, by Victor A. Zullo. April 1979, iii + 29 p., 40 figs., 1 table.
426. Synopsis of biological data on the rock crab, *Cancer irroratus* Say, by Thomas E. Bigford. May 1979, v + 26 p., 11 figs., 21 tables.
427. Ocean variability in the U.S. fishery conservation zone, 1976, by Julien R. Goulet, Jr. and Elizabeth D. Haynes (editors). July 1979, 362 p.
- (427.) Atmospheric circulation in 1976, by Elizabeth D. Haynes. July 1979, p. 11-18.
- (427.) Atmospheric climatology and its effect on sea surface temperature — 1976, by Robert R. Dickson and Jerome Namias. July 1979, p. 19-33.
- (427.) Eastern Pacific sea surface conditions in 1976, by Elizabeth D. Haynes. July 1979, p. 35-42.
- (427.) Sea surface conditions in the western North Atlantic in 1976, by Julien R. Goulet, Jr. and Elizabeth D. Haynes. July 1979, p. 43-50.
- (427.) Anomalies of monthly mean sea level along the west coasts of North and South America, by Dale E. Bretschneider and Douglas R. McLain. July 1979, p. 51-64.
- (427.) Coastal upwelling off western North America, 1976, by Craig S. Nelson. July 1979, p. 65-75.
- (427.) Oceanic conditions during 1976 between San Francisco and Honolulu as observed from ships of opportunity, by J. F. T. Saur and D. R. McLain. July 1979, p. 77-92.
- (427.) The 1976 El Nino and recent progress in monitoring and prediction, by William H. Quinn. July 1979, p. 93-110.

- (427.) Sea surface temperature anomalies, by Douglas R. McLain. July 1979, p. 111-149.
- (427.) Fluctuations of sea surface temperature and density at coastal stations during 1976, by Douglas R. McLain. July 1979, p. 151-166.
- (427.) Data on cold weather conditions along the Atlantic and Gulf coasts during the fall and winter of 1976-77, by J. Lockwood Chamberlin and Reed S. Armstrong. July 1979, p. 167-174.
- (427.) Wind driven transport Atlantic coast and Gulf of Mexico, by Merton C. Ingham. July 1979, p. 175-208.
- (427.) Sea surface temperature distribution from Cape Cod, Massachusetts, to Miami, Florida — 1976, by Joseph W. Deaver III. July 1979, p. 209-229.
- (427.) Water column thermal structure across the shelf and slope southeast of Sandy Hook, New Jersey, in 1976, by Steven K. Cook. July 1979, p. 231-257.
- (427.) Anticyclonic Gulf Stream eddies off the northeastern United States during 1976, by David Mizenko and J. Lockwood Chamberlin. July 1979, p. 259-280.
- (427.) River runoff along the middle Atlantic coast in 1976, by Elizabeth D. Haynes. July 1979, p. 281-287.
- (427.) Climatic conditions related to the fish kill and anoxia off New Jersey during the summer of 1976, by Reed S. Armstrong. July 1979, p. 289-300.
- (427.) Variations in the position of the shelf water front off the Atlantic coast between Georges Bank and Cape Romain in 1976, by John T. Gunn. July 1979, p. 301-314.
- (427.) Temperature structure on the continental shelf and slope south of New England during 1976, by R. Wylie Crist and J. Lockwood Chamberlin. July 1979, p. 315-335.
- (427.) Continuous plankton records: Zooplankton and net phytoplankton in the Mid-Atlantic Bight, 1976, by Daniel E. Smith and Jack W. Jossi. July 1979, p. 337-348.
- (427.) Siphonophore ("Lipo") swarming in New England coastal waters—update, 1976, by Carolyn A. Rogers. July 1979, p. 349-352.
- (427.) Bottom-water temperatures in the Gulf of Maine and on Georges Bank during spring and autumn, 1976, by Clarence W. Davis. July 1979, p. 353-362.
428. Morphological comparisons of North American sea bass larvae (Pisces: Serranidae), by Arthur W. Kendall, Jr. August 1979, iv + 50 p., 43 figs., 9 tables.
429. Synopsis of biological data on tunas of the genus *Euthynnus*, by Howard O. Yoshida. October 1979, iv + 57 p., 40 figs., 30 tables.

Data Report

Reports that include compilations of unanalyzed or partially analyzed data collected during biological, limnological, or oceanographic investigations. The reports are printed on microfiches and are distributed free to a restricted mailing list of laboratories, libraries, State fishery agencies, research institutions, and research scientists. This series was terminated after number 102.

98. Trawl catches and oceanographic data from NMFS surveys of the Gulf of Alaska pandalid shrimp resources, 1973, by Duane H. Petersen. February 1975, 206 p. on 3 microfiches.

99. Raritan Bay macrobenthos survey, 1957-1960, by David Dean. February 1975, 51 p. on 1 microfiche.
100. Distribution and abundance of macroinvertebrate species of six phyla in Tampa Bay, Florida, 1963-64 and 1969, by John R. Hall and Carl H. Saloman. March 1975, 505 p. on 8 microfiches.
101. Releases of anadromous salmon and trout from Pacific Coast rearing facilities, 1960 to 1973, by Roy J. Wahle, William D. Parente, Paula J. Jurich, and Robert R. Vreeland. April 1975, 443 p. on 7 microfiches.
102. Concentration of dissolved gases in the Willamette, Cowlitz, and Boise rivers, 1970-72, by Bruce H. Monk, Earl Dawley, and Kirk Beiningen. June 1975, 19 p. on 1 microfiche.

Fishery Bulletin

This series includes original research reports and technical notes on investigations in fishery science, engineering, and economics. Beginning in 1963 with volume 63, papers were bound together in a single issue of the bulletin instead of being issued individually. Beginning with volume 70, number 1, January 1972, the *Fishery Bulletin* became a periodical, issued quarterly.

Vol. 73, no. 1, 1975.

Effects of temperature and salinity on fertilization, embryonic development, and hatching in *Bairdiella icistia* (Pisces: Sciaenidae), and the effect of parental salinity acclimation on embryonic and larval salinity tolerance, by Robert C. May, p. 1-22.

Fitting the generalized stock production model by least-squares and the equilibrium approximation, by William W. Fox, Jr., p. 23-37.

Net phytoplankton and the greater than 20-micron phytoplankton size fraction in upwelling waters off Baja California, by Theodore J. Smayda, p. 38-50.

Optimum economic yield of an internationally utilized common property resource, by Lee G. Anderson, p. 51-66.

Impact of thermal effluent from a steam-electric station on a marshland nursery area during the hot season, by William E. S. Carr and James T. Giesel, p. 67-80.

Additional studies of the fishes, macroinvertebrates, and hydrological conditions of upland canals in Tampa Bay, Florida, by William N. Lindall, Jr., William A. Fable, Jr., and L. Alan Collins, p. 81-85.

A reevaluation of the combined effects of temperature and salinity on survival and growth of bivalve larvae using response surface techniques, by Gregory R. Lough, p. 86-94.

Swim-bladder state and structure in relation to behavior and mode of life in stromateoid fishes, by Michael H. Horn, p. 95-109.

Distribution and relative abundance of seven species of skates (Pisces: Rajidae) which occur between Nova Scotia and Cape Hatteras, by John D. McEachran and J. A. Musick, p. 110-137.

The general feeding ecology of postlarval fishes in the Newport River estuary, by Martin A. Kjelson, David S. Peters, Gordon W. Thayer, and George N. Johnson, p. 137-144.

- The larval development of Pacific *Euphausia gibboides* (Euphausiacea), by Margaret D. Knight, p. 145-168.
- New records of Ellobiopsidae (Protista (*incertae sedis*)) from the North Pacific with a description of *Thalassomyces albatrossi* n. sp., a parasite of the mysid *Stilomysis major*, by Bruce L. Wing, p. 169-185.
- A description of the Atlantic mackerel, *Scomber scombrus*, eggs and early larvae, by Peter L. Berrien, p. 186-192.
- The concentration of mercury, copper, nickel, silver, cadmium, and lead in the northern Adriatic anchovy, *Engraulis encrasicolus*, and sardine, *Sardina pilchardus*, by Malvern Gilmartin and Noelia Revelante, p. 193-210.
- The correlation between numbers of vertebrae and lateral-line scales in western Atlantic lizardfishes (Synodontidae), by William W. Anderson, Jack W. Gehringer, and Frederick H. Berry, p. 202-206.
- Acute toxicity of ammonia to several developmental stages of rainbow trout, *Salmo gairdneri*, by Stanley D. Rice and Robert M. Stokes, p. 207-211.
- Additional evidence substantiating existence of northern subpopulation of northern anchovy, *Engraulis mordax*, by Michael F. Tillman, p. 212-215.
- Comment. Introduction of *Codium* in New England waters, by Victor L. Loosanoff, p. 215-218.
- Vol. 73, no. 2, 1975.
- Heat exchange in the yellowfin tuna, *Thunnus albacares*, and skipjack tuna, *Katsuwonus pelamis*, and the adaptive significance of elevated body temperatures in scombrid fishes, by Jeffrey B. Graham, p. 219-229.
- Experimental studies of algal canopy interactions in a sea otter-dominated kelp community at Amchitka Island, Alaska, by Paul K. Dayton, p. 230-237.
- Production of two planktonic carnivores (chaetognath and ctenophore) in south Florida inshore waters, by M. R. Reeve and L. D. Baker, p. 238-248.
- Effects of acclimation on the temperature and salinity tolerance of the yolk-sac larvae of *Bairdiella icistia* (Pisces: Sciaenidae), by Robert C. May, p. 249-255.
- The interaction of economic, biological, and legal forces in the Middle Atlantic oyster industry, by Richard J. Agnello and Lawrence P. Donnelley, p. 256-261.
- The reproductive biology of the protogynous hermaphrodite *Pimelometopon pulchrum* (Pisces: Labridae), by Robert R. Warner, p. 262-283.
- An inverse correlation between meristic characters and food supply in mid-water fishes: Evidence and possible explanations, by Robert Karl Johnson and Michael A. Barnett, p. 284-298.
- Spin-labeling techniques for studying mode of action of petroleum hydrocarbons on marine organisms, by William T. Roubal and Tracy K. Collier, p. 299-305.
- Teleconnections between northeastern Pacific Ocean and the Gulf of Mexico and northwestern Atlantic Ocean, by James H. Johnson and Douglas R. McLain, p. 306-316.
- Geographic and hydrographic distribution of Atlantic menhaden eggs and larvae along the Middle Atlantic coast from RV *Dolphin* cruises, 1965-66, by Arthur W. Kendall, Jr. and John W. Reintjes, p. 317-335.
- Age and growth of Pacific hake, *Merluccius productus*, by Thomas A. Dark, p. 336-355.
- Evaluation of the return of adult chinook salmon to the Abernathy incubation channel, by Allen E. Thomas, p. 356-359.
- Ecological studies of the puerulus larval stage of the California spiny lobster, *Panulirus interruptus*, by Steven A. Serfling and Richard F. Ford, p. 360-377.
- A theoretical treatment of unstructured food webs, by G. D. Lange and A. C. Hurley, p. 378-381.
- Distribution and ecology of skipjack tuna, *Katsuwonus pelamis*, in an offshore area of the eastern tropical Pacific Ocean, by Maurice Blackburn and Francis Williams, p. 382-411.
- Reproduction and recruitment of the brackish water clam *Rangia cuneata* in the James River, Virginia, by Thomas D. Cain, p. 412-430.
- Hormonal-induced ovulation of the winter flounder, *Pseudopleuronectes americanus*, by Alphonse S. Smigielski, p. 431-438.
- Distribution of melanin in the color pattern of *Delphinus delphis* (Cetacea; Delphinidae), by Sharon Gwinn and William F. Perrin, p. 439-444.
- Occurrence of two Congridae leptocephali in an estuary, by William J. Hauser, p. 444-445.
- Chlorinated hydrocarbons in sea-surface films and sub-surface waters at nearshore stations and in the North Central Pacific Gyre, by P. M. Williams and K. J. Robertson, p. 445-447.
- Hatching survival of hybrids of *Oncorhynchus masou* with *Salmo gairdneri* and with North American species of *Oncorhynchus*, by James L. Mighell and James R. Dangel, p. 447-449.
- Trap contributions to losses in the American lobster fishery, by William W. Sheldon and Robert L. Dow, p. 449-451.
- Vol. 73, no. 3, 1975.
- Field criteria for survival of anchovy larvae: The relation between inshore chlorophyll maximum layers and successful first feeding, by Reuben Lasker, p. 453-462.
- Spermatophores and thelyca of the American white shrimps, genus *Penaeus*, subgenus *Litopenaeus*, by Isabel Pérez Farfante, p. 463-486.
- Dynamics of American shad, *Alosa sapidissima*, runs in the Delaware River, by Mark E. Chittenden, Jr., p. 487-494.
- Selective and unselective exploitation of experimental populations of *Tilapia mossambica*, by Ralph P. Silliman, p. 495-507.
- Uptake and loss of petroleum hydrocarbons by the mussel, *Mytilus edulis*, in laboratory experiments, by Robert C. Clark, Jr. and John S. Finley, p. 508-515.
- Systematics and morphology of the bonitos (*Sarda*) and their relatives (Scombridae, Sardini), by Bruce B. Collette and Labbish N. Chao, p. 516-625.
- Velocity and transport of the Antilles Current northeast of the Bahama Islands, by Merton C. Ingham, p. 626-632.
- The distribution of myctophid fishes across the central equatorial Pacific, by A. Rucker Hartmann and Thomas A. Clarke, p. 633-641.

- Year-to-year variations in the planktology of the Oregon upwelling zone, by William T. Peterson and Charles B. Miller, p. 642-653.
- Use of otoliths to separate juvenile steelhead trout from juvenile rainbow trout, by J. T. Rybock, H. F. Horton, and J. L. Fessler, p. 654-659.
- Description of eggs and larvae of yellowfin menhaden, *Brevoortia smithi*, by Edward D. Houde and L. J. Swanson, Jr., p. 660-673.
- Two blooms of *Gymnodinium splendens*, an unarmored dinoflagellate, by Dale A. Kiefer and Reuben Lasker, p. 675-678.
- Enhanced survival of larval grass shrimp in dilute solutions of the synthetic polymer, polyethylene oxide, by Paul A. Sandifer, Paul B. Zielinski, and Walter E. Castro, p. 678-680.
- A computer program for analysis of polymodal frequency distributions (ENORMSEP), FORTRAN IV, by Marian Y. Y. Yong and Robert A. Skillman, p. 681.
- Records of larval, transforming, and adult specimens of the quillfish, *Ptilichthys goodei*, from waters off Oregon, by Sally L. Richardson and Douglas A. DeHart, p. 681-685.
- Effect of crowding on stock and catch in *Tilapia mossambica*, by Ralph P. Silliman, p. 685-686.
- The occurrence of elvers of *Synaphobranchus affinis* on the continental slope off North Carolina, by Charles A. Wenner, p. 687-691.
- Catches of albacore at different times of the day, by William G. Percy, Daniel A. Panshin, and Donald F. Keene, p. 691-693.
- Vol. 73, no. 4, 1975.
- Marine trophic interactions by dynamic simulation of fish species, by James D. Parrish, p. 695-716.
- Homing behavior and contribution to Columbia River fisheries of marked coho salmon released at two locations, by Robert R. Vreeland, Roy J. Wahle, and Arthur H. Arp, p. 717-725.
- Mesopelagic micronekton in Hawaiian waters: Faunal composition, standing stock, and diel vertical migration, by Sherwood D. Maynard, Fletcher V. Riggs, and John F. Walters, p. 726-736.
- Description and biology of a new species of pelagic penaeid shrimp, *Bentheogennema burkenroadi*, from the northeastern Pacific, by Earl E. Krygier and Robert A. Wasmer, p. 737-746.
- The American Samoa longline fishery, 1966-71, by Howard O. Yoshida, p. 747-765.
- Effects of photoperiod-temperature regimes and pinealectomy on body fat reserves in the golden shiner, *Notemigonus crysoleucas*, by Victor L. de Vlaming, p. 766-776.
- Relationships between zooplankton displacement volume, wet weight, dry weight, and carbon, by Peter H. Wiebe, Steven Boyd, and James L. Cox, p. 777-786.
- Effects of various concentrations of dissolved atmospheric gas on juvenile chinook salmon and steelhead trout, by Earl M. Dawley and Wesley J. Ebel, p. 787-796.
- Biology and taxonomy of the genus *Nematoscelis* (Crustacea, Euphausiacea), by K. Gopalakrishnan, p. 797-814.
- Food, activity, and habitat of three "picker-type" microcarnivorous fishes in the kelp forests off Santa Barbara, California, by Richard N. Bray and Alfred W. Ebeling, p. 815-829.
- Fishery regulation via optimal control theory, by William J. Palm, p. 830-837.
- Differentiation of freshwater characteristics of fatty acids in marine specimens of the Atlantic sturgeon, *Acipenser oxyrhynchus*, by R. G. Ackman, C. A. Eaton, and B. A. Linke, p. 838-845.
- Zooplankton abundance and feeding habits of fry of pink salmon, *Oncorhynchus gorbuscha*, and chum salmon, *Oncorhynchus keta*, in Traitors Cove, Alaska, with speculations on the carrying capacity of the area, by Jack E. Bailey, Bruce L. Wing, and Chester R. Mattson, p. 846-861.
- Effects of trap selectivity and some population parameters on size composition of the American lobster, *Homarus americanus*, catch along the Maine coast, by Jay S. Krouse and James C. Thomas, p. 862-871.
- Experimental exploitation of competing fish populations, by Ralph P. Silliman, p. 872-888.
- Pheromonal stimulation and metabolite inhibition of ovulation in the zebrafish, *Brachydanio rerio*, by Lo-Chai Chen and Robert L. Martinich, p. 889-894.
- Activity, movements, and feeding behavior of the cunner, *Tautoglabrus adspersus*, and comparison of food habits with young tautog, *Tautoga onitis*, off Long Island, New York, by Bori L. Olla, Allen J. Bejda, and A. Dale Martin, p. 895-900.
- Correlation of upwelling index and Dungeness crab catch, by Louis W. Botsford and Daniel E. Wickham, p. 901-907.
- Net feeding in mesopelagic fishes, by Thomas L. Hopkins and Ronald C. Baird, p. 908-914.
- Gas-bubble disease: Mortalities of coho salmon, *Oncorhynchus kisutch*, in water with constant total gas pressure and different oxygen-nitrogen ratios, by Robert R. Rucker, p. 915-918.
- Age-length-weight and distribution of Alaska plaice, rock sole, and yellowfin sole collected from the southeastern Bering Sea in 1961, by Douglas D. Weber and Herbert H. Shippen, p. 919-924.
- Further studies regarding effects of transportation on survival and homing on Snake River chinook salmon and steelhead trout, by Emil Slatick, Donn L. Park, and Wesley J. Ebel, p. 925-931.
- Comparative vulnerability of fry of Pacific salmon and steelhead trout to predation by torrent sculpin in stream aquaria, by Benjamin G. Patten, p. 931-934.
- Heritable resistance to gas bubble disease in fall chinook salmon, *Oncorhynchus tshawytscha*, by S. P. Cramer and J. D. McIntyre, p. 934-938.
- Vol. 74, no. 1, 1976.
- Daily growth increments in otoliths from larval and adult fishes, by Edward B. Brothers, Christopher P. Mathews, and Reuben Lasker, p. 1-8.

- Age and growth of the nehu, *Stolephorus purpureus*, (Pisces: Engraulidae), from the Hawaiian Islands as indicated by daily growth increments of sagittae, by Paul Struhsaker and James H. Uchiyama, p. 9-17.
- Aspects of the reproductive biology of the weakfish, *Cynoscion regalis* (Sciaenidae), in North Carolina, by John V. Merriner, p. 18-26.
- DDT and its metabolites in the sediments off southern California, by John S. MacGregor, p. 27-35.
- An energetics model for the exploited yellowfin tuna, *Thunnus albacares*, population in the eastern Pacific Ocean, by Gary D. Sharp and Robert C. Francis, p. 36-51.
- Effects of temperature and salinity on the survival of winter flounder embryos, by Carolyn A. Rogers, p. 52-58.
- Reevaluation of fishing effort and apparent abundance in the Hawaiian fishery for skipjack tuna, *Katsuwonus pelamis*, 1948-70, by Richard N. Uchida, p. 59-69.
- Seasonal and inshore-offshore variations in the standing stocks of micronekton and macrozooplankton off Oregon, by William G. Percy, p. 70-80.
- Culture and growth of northern anchovy, *Engraulis mordax*, larvae, by John R. Hunter, p. 81-88.
- Effects of cooking in air or in nitrogen on the development of fishy flavor in the breast meat of turkeys fed tuna oil with and without α -tocopherol supplement or injection, by L. Crawford and M. J. Kretsch, p. 89-92.
- Biology of five species of searobins (Pisces, Triglidae) from the northeastern Gulf of Mexico, by Thomas C. Lewis and Ralph W. Yerger, p. 93-103.
- An acoustic method for the high-seas assessment of migrating salmon, by Gary Lord, William C. Acker, Allan C. Hartt, and Brian J. Rothschild, p. 104-111.
- Analysis of returns of tagged Gulf menhaden, by Paul J. Pristas, Eldon J. Levi, and Robert L. Dryfoos, p. 112-117.
- Development and example application of a simulation model of the northern anchovy fishery, by Michael F. Tillman and Donald Stadelman, p. 118-130.
- Populations of sympatric sculpins, *Cottus aleuticus* and *Cottus asper*, in four adjacent salmon-producing coastal streams on Vancouver Island, B.C., by J. C. Mason and S. Machidori, p. 131-141.
- Review of the deep-sea fish genus *Scopelogadus* (Neoscopelidae) with a description of a new species, *Scopelogadus clarkei*, from the central Pacific, by John L. Butler and Elbert H. Ahlstrom, p. 142-150.
- Weight loss, mortality, feeding, and duration of residence of adult American shad, *Alosa sapidissima*, in fresh water, by Mark E. Chittenden, Jr., p. 151-157.
- Distribution, abundance, and size of penaeid shrimps in the St. Andrew Bay system, Florida, by Harold A. Brusher and Larry H. Ogren, p. 158-166.
- Some features of coho salmon, *Oncorhynchus kisutch*, fry emerging from simulated redds and concurrent changes in photobehavior, by J. C. Mason, p. 167-175.
- Feeding behavior, food consumption, growth, and respiration of the squid *Loligo opalescens* raised in the laboratory, by Ann C. Hurley, p. 176-182.
- Contribution of the net plankton and nanoplankton to the standing stocks and primary productivity in Monterey Bay, California during the upwelling season, by David L. Garrison, p. 183-194.
- Abundance of macrocrustaceans in a natural marsh and a marsh altered by dredging, bulkheading, and filling, by Lee Trent, Edward J. Pullen, and Raphael Proctor, p. 195-200.
- Mortalities and epibiotic fouling of eggs from wild populations of the Dungeness crab, *Cancer magister*, by William S. Fisher and Daniel E. Wickham, p. 201-207.
- Second record of black skipjack, *Euthynnus lineatus*, from the Hawaiian Islands, by Walter M. Matsumoto, p. 207.
- Optical malformations induced by insecticides in embryos of the Atlantic silverside, *Menidia menidia*, by Judith S. Weis and Peddrick Weis, p. 208-211.
- Goose barnacles (Cirripedia: Thoracica) on flotsam beached at La Jolla, California, by Lanna Cheng and Ralph A. Lewin, p. 212-217.
- Caloric values of some North Atlantic calanoid copepods, by Geoffrey C. Laurence, p. 218-220.
- Method for restraining living planktonic crustaceans, by Loren R. Haury, p. 220-221.
- Observations on the bigeye thresher shark, *Alopias superciliosus*, in the western North Atlantic, by Charles E. Stillwell and John G. Casey, p. 221-225.
- Epizoots associated with *Bathynectes superbis* (Decapoda: Portunidae), by Elizabeth G. Lewis, p. 225-227.

Vol. 74, no. 2, 1976.

- Growth and reproduction of the spotted porpoise, *Stenella attenuata*, in the offshore eastern tropical Pacific, by William F. Perrin, James M. Coe, and James R. Zweifel, p. 229-269.
- Growth of laboratory-reared northern anchovy, *Engraulis mordax*, from southern California, by Gary T. Sakagawa and Makoto Kimura, p. 271-279.
- Development and use of sonar mapping for pelagic stock assessment in the California Current area, by Roger P. Hewitt, Paul E. Smith, and John C. Brown, p. 281-300.
- Economic and financial analysis of increasing costs in the Gulf shrimp fleet, by Wade L. Griffin, Newton J. Wardlaw, and John P. Nichols, p. 301-309.
- Long-term fluctuations of epibenthic fish and invertebrate populations in Apalachicola Bay, Florida, by Robert J. Livingston, Gerard J. Kobylinski, Frank G. Lewis, III, and Peter F. Sheridan, p. 311-321.
- Description of zoeae of coonstripe shrimp, *Pandalus hypsinotus*, reared in the laboratory, by Evan Haynes, p. 323-342.
- Present and historical spawning grounds and nurseries of American shad, *Alosa sapidissima*, in the Delaware River, by Mark E. Chittenden, Jr., p. 343-352.
- Larval dynamics of the Dungeness crab, *Cancer magister*, off the central Oregon coast, 1970-71, by R. Gregory Lough, p. 353-376.
- Subtidal and intertidal marine fouling on artificial substrata in northern Puget Sound, Washington, by Charles H. Hanson and Jonathan Bell, p. 377-385.

- Observations on the fish fauna associated with offshore platforms in the northeastern Gulf of Mexico, by Robert W. Hastings, Larry H. Ogren, and Michael T. Mabry, p. 387-402.
- Effects of increased water temperature on *Daphnia pulex*, by Donovan R. Craddock, p. 403-408.
- Life history, ecology, and behavior of *Liparis inquilinus* (Pisces: Cyclopteridae) associated with the sea scallop, *Placopecten magellanicus*, by K. W. Able and J. A. Musick, p. 409-421.
- Further observations of the feeding ecology of postlarval pinfish, *Lagodon rhomboides*, and spot, *Leiostomus xanthurus*, by Martin A. Kjelson and George N. Johnson, p. 423-432.
- Thermal tolerance and resistance of the northern anchovy, *Engraulis mordax*, by Gary D. Brewer, p. 433-445.
- Isolation and description of two vibrios pathogenic to Pacific salmon in Puget Sound, Washington, by Lee W. Harrell, Anthony J. Novotny, Michael H. Schiewe, and Harold O. Hodgins, p. 447-449.
- Relation of fish catches in gill nets to frontal periods, by Nelson May, Lee Trent, and Paul J. Pristas, p. 449-453.
- Phosphoglucomutase polymorphism in two penaeid shrimps, *Penaeus brasiliensis* and *Penaeus aztecus subtilis*, by Lawrence M. Lansford, Charles W. Caillouet, and Kenneth T. Marvin, p. 453-457.
- First record of the melon-headed whale, *Peponocephala electra*, in the eastern Pacific, with a summary of world distribution, by William F. Perrin, p. 457-458.
- Foods of juvenile sockeye salmon, *Oncorhynchus nerka*, in the inshore coastal waters of Bristol Bay, Alaska, 1966-67, by H. Richard Carlson, p. 458-462.
- Occurrence of two galatheid crustaceans, *Munida forceps* and *Munidopsis bermudezi*, in the Chesapeake Bight of the western North Atlantic Ocean, by Chae E. Laird, Elizabeth G. Lewis, and Paul A. Haefner, Jr., p. 462-463.
- Effects of mercury, cadmium, and lead salts on regeneration and ecdysis in the fiddler crab, *Uca pugilator*, by Judith S. Weis, p. 464-467.
- Notes on the early development of the sea raven, *Hemirhamphus intermedius*, by Lee A. Fuiman, p. 467-470.
- Vol. 74, no. 3, 1976.
- Fish schools as operational structures, by Charles M. Breder, Jr., p. 471-502.
- Estimation of fishing effort in the western North Atlantic from aerial search data, by M. L. Parrack, p. 503-515.
- Food and feeding of larvae of three fishes occurring in the California Current, *Sardinops sagax*, *Engraulis mordax*, and *Trachurus symmetricus*, by David K. Arthur, p. 517-530.
- Observations on the commercial fishery and reproductive biology of the totoaba, *Cynoscion macdonaldi*, in the northern Gulf of California, by Christine A. Flanagan and John R. Hendrickson, p. 531-544.
- Uptake, distribution, and depuration of ^{14}C -benzene in northern anchovy, *Engraulis mordax*, and striped bass, *Morone saxatilis*, by Sid Korn, Nina Hirsch, and Jeanette W. Strusaker, p. 545-551.
- Von Bertalanffy growth curves for striped marlin, *Tetrapturus audax*, and blue marlin, *Makaira nigricans*, in the central North Pacific Ocean, by Robert A. Skillman and Marian Y. Y. Yong, p. 553-566.
- Trophic interactions among fishes and zooplankters near shore at Santa Catalina Island, California, by Edmund S. Hobson and James R. Chess, p. 567-598.
- Protein taxonomy of the Gulf of Mexico and Atlantic Ocean seatrouts, genus *Cynoscion*, by Michael P. Weinstein and Ralph W. Yerger, p. 599-607.
- Prehatch and posthatch growth of fishes—a general model, by James R. Zweifel and Reuben Lasker, p. 609-621.
- North American crab fisheries: Regulations and their rationales, by R. J. Miller, p. 623-633.
- Vertical distribution and other aspects of the ecology of certain mesopelagic fishes taken near Hawaii, by Thomas A. Clarke and Patricia J. Wagner, p. 635-645.
- Distribution, food, and feeding of the threespine stickleback, *Gasterosteus aculeatus*, in Great Central Lake, Vancouver Island, with comments on competition for food with juvenile sockeye salmon, *Oncorhynchus nerka*, by J. I. Manzer, p. 647-668.
- Predator-prey relationship between Pacific herring, *Clupea harengus pallasii*, larvae and a predatory hyperiid amphipod, *Hyperoche medusarum*, by Hein von Westernhagen and Harald Rosenthal, p. 669-674.
- Estimates of rates of tag shedding by North Pacific albacore, *Thunnus alalunga*, by R. Michael Laurs, William H. Lenarz, and Robert N. Nishimoto, p. 675-678.
- Paralytic shellfish poisoning in Tenakee, southeastern Alaska: A possible cause, by Steven T. Zimmerman and Robert S. McMahon, p. 679-680.
- Oil and grease: A proposed analytical method for fishery waste effluents, by Jeff Collins, p. 681-683.
- Occurrence of volatile N-nitrosamines in Japanese salmon roe, by D. F. Gadbois, E. M. Ravesi, and R. C. Lundstrom, p. 683-686.
- Underwater paint marking of porpoises, by William A. Watkins and William E. Schevill, p. 687-689.
- Grazing of freshwater and estuarine, benthic diatoms by adult Atlantic menhaden, *Brevoortia tyrannus*, by Robert K. Edgar and James G. Hoff, p. 689-693.
- Electrophoretic evidence of hybrid snow crab, *Chionoecetes bairdi* $\times$ *opilio*, by Allyn G. Johnson, p. 693-694.
- Effects of benzene on growth, fat content, and caloric content of striped bass, *Morone saxatilis*, by Sid Korn, Jeanette W. Strusaker, and Pete Benville, Jr., p. 694-698.
- Fertilization method quantifying gamete concentrations and maximizing larvae production in *Crassostrea gigas*, by William H. Staeger and Howard F. Horton, p. 698-701.
- Vol. 74, no. 4, 1976.
- Day versus night activity of reef fishes in a kelp forest off Santa Barbara, California, by Alfred W. Ebeling and Richard N. Bray, p. 703-717.
- Incidence of cull lobsters, *Homarus americanus*, in commercial and research catches off the Maine coast, by Jay S. Krouse, p. 719-724.

- Fishery waste effluents: A method to determine relationships between chemical oxygen demand and residue, by Jeff Collins and Richard D. Tenney, p. 725-731.
- Population biology of *Euphausia pacifica* off southern California, by Edward Brinton, p. 733-762.
- Production of juvenile chinook salmon, *Oncorhynchus tshawytscha*, in a heated model stream, by Peter A. Bisson and Gerald E. Davis, p. 763-774.
- Reproductive cycle, fecundity, and sex ratios of the red porgy, *Pagrus pagrus* (Pisces: Sparidae) in North Carolina, by Charles S. Manooch, III, p. 775-781.
- Mercury in fish and shellfish of the northeast Pacific. I. Pacific halibut, *Hippoglossus stenolepis*, by Alice S. Hall, Fuad M. Teeny, Laura G. Lewis, William H. Hardman, and Erich J. Gauglitz, Jr., p. 783-789.
- Mercury in fish and shellfish of the northeast Pacific. II. Sablefish, *Anoplopoma fimbria*, by Alice S. Hall, Fuad M. Teeny, and Erich J. Gauglitz, Jr., p. 791-797.
- Ecology of Hawaiian sergestid shrimps (Penaeidea: Sergestidae), by John F. Walters, p. 799-836.
- Decision theory applied to the simulated data acquisition and management of a salmon fishery, by Gary E. Lord, p. 837-846.
- Diel changes in swim bladder inflation of the larvae of the northern anchovy, *Engraulis mordax*, by John R. Hunter and Carol Sanchez, p. 847-855.
- Ceriantharia, Zoanthidea, Corallimorpharia, and Actiniaria from the continental shelf and slope off the eastern coast of the United States, by Bernt Widersten, p. 857-878.
- Dual structural equilibrium in the Florida shrimp processing industry, by Jose Alvarez, Chris O. Andrew, and Fred J. Prochaska, p. 879-883.
- Distribution and ecology of pelagic fishes studied from eggs and larvae in an upwelling area off Spanish Sahara, by Maurice Blackburn and Walter Nellen, p. 885-896.
- Life history of coho salmon, *Oncorhynchus kisutch*, in Sashin Creek, southeastern Alaska, by Richard A. Crone and Carl E. Bond, p. 897-923.
- Vertical distribution and diel migration of euphausiids in the central region of the California Current, by Marsh J. Youngbluth, p. 925-936.
- The application of systematic sampling to a study of infauna variation in a soft substrate environment, by Stephen Scherba, Jr. and Vincent F. Gallucci, p. 937-948.
- Size composition and growth of young rock crab, *Cancer irroratus*, on a rocky beach in Maine, by Jay S. Krouse, p. 949-954.
- Minimum swimming speed of albacore, *Thunnus alalunga*, by Ronald C. Dotson, p. 955-960.
- Production of fry and adults of the 1972 brood of pink salmon, *Oncorhynchus gorbuscha*, from gravel incubators and natural spawning at Auke Creek, Alaska, by Jack E. Bailey, Jerome J. Pella, and Sidney G. Taylor, p. 961-971.
- Comparison of the most successful and least successful west coast albacore troll fishermen, by Donald F. Keene and William G. Percy, p. 973-982.
- Seasonal spawning cycles of the sciaenid fishes *Geryonemus lineatus* and *Seriphus politus*, by Stephen R. Goldberg, p. 983-984.
- Food of five species of cooccurring flatfishes on Oregon's continental shelf, by Michael J. Kravitz, William G. Percy, and M. P. Guin, p. 984-990.
- Age determination of a tropical reef butterflyfish utilizing daily growth rings of otoliths, by Stephen Ralston, p. 990-994.
- An epibenthic sampler used to study the ontogeny of vertical migration of *Pandalus jordani* (Decapoda, Caridea), by Peter C. Rothlisberg and William G. Percy, p. 994-997.
- Harness for attachment of an ultrasonic transmitter to the red drum, *Sciaenops ocellata*, by William E. S. Carr and Thomas B. Chaney, p. 998-1000.
- Vol. 75, no. 1, 1977.
- Changes in biomass of finfishes and squids from the Gulf of Maine to Cape Hatteras, 1963-74, as determined from research vessel survey data, by Stephen H. Clark and Bradford E. Brown, p. 1-21.
- Larval transport and year-class strength of Atlantic menhaden, *Brevoortia tyrannus*, by Walter R. Nelson, Merton C. Ingham, and William E. Schaaf, p. 23-41.
- Effects of benzene (a toxic component of petroleum) on spawning Pacific herring, *Clupea harengus pallasii*, by Jeannette W. Struhsaker, p. 43-49.
- Biology of the rex sole, *Glyptocephalus zachirus*, in waters off Oregon, by Michael J. Hosie and Howard F. Horton, p. 51-60.
- Abundance and potential yield of the round herring, *Etrumeus teres*, and aspects of its early life history in the eastern Gulf of Mexico, by Edward D. Houde, p. 61-89.
- Reproductive biology of the female deep-sea red crab, *Geryon quinquedens*, from the Chesapeake Bight, by Paul A. Haefner, Jr., p. 91-102.
- Comparisons of catches of fishes in gill nets in relation to webbing material, time of day, and water depth in St. Andrew Bay, Florida, by Paul J. Pristas and Lee Trent, p. 103-108.
- Age determination, reproduction, and population dynamics of the Atlantic croaker, *Micropogonias undulatus*, by Michael L. White and Mark E. Chittenden, Jr., p. 109-123.
- Coastal and oceanic fish larvae in an area of upwelling off Yaquina Bay, Oregon, by Sally L. Richardson and William G. Percy, p. 125-145.
- Biology of offshore hake, *Merluccius albidus*, in the Gulf of Mexico, by Bennie A. Rohr and Elmer J. Guthertz, p. 147-158.
- Behavior of California gray whale, *Eschrichtius robustus*, in southern Baja California, Mexico, by Kenneth S. Norris, Robert M. Goodman, Bernardo Villa-Ramirez, and Larry Hobbs, p. 159-172.
- Distribution and duration of pelagic life of larvae of Dover sole, *Microstomus pacificus*; rex sole, *Glyptocephalus zachirus*; and petrale sole, *Eopsetta jordani*, in water off Oregon, by William G. Percy, Michael J. Hosie, and Sally L. Richardson, p. 173-183.
- Selectivity of gill nets on estuarine and coastal fishes from St. Andrew Bay, Florida, by Lee Trent and Paul J. Pristas, p. 185-198.

- Long-term cadmium stress in the cunner, *Tautoglabrus adspersus*, by J. R. MacInnes, F. P. Thurberg, R. A. Greig, and E. Gould, p. 199-203.
- Maturation and induced spawning of captive Pacific mackerel, *Scomber japonicus*, by Roderick Leong, p. 205-211.
- Incorporating soak time into measurement of fishing effort in trap fisheries, by C. Bruce Austin, p. 213-218.
- Species composition and relative abundance of larval and post-larval fishes in the Columbia River estuary, 1973, by David A. Misitano, p. 218-222.
- A note on: "Velocity and transport of the Antilles Current northeast of the Bahama Islands," by John T. Gunn and Merton C. Ingham, p. 222-225.
- Salinity acclimation in the soft-shell clam, *Mya arenaria*, by Edwin P. Creaser, Jr. and David A. Clifford, p. 225-229.
- Photographic method for measuring spacing and density within pelagic fish schools at sea, by John Graves, p. 230-234.
- Feeding by Alaska whitefish, *Coregonus nelsoni*, during the spawning run, by James E. Morrow, Eldor W. Schallack, and Glenn E. Bergtold, p. 234-235.
- Egg mortalities in wild populations of the Dungeness crab in central and northern California, by William S. Fisher and Daniel E. Wickham, p. 235-237.
- Vol. 75, no. 2, 1977.
- Intensity regulation of bioluminescence during counter-shading in living midwater animals, by Richard Edward Young and Clyde F. E. Roper, p. 239-252.
- Fishery waste effluents: A suggested system for determining and calculating pollutant parameters, by Jeff Collins and Richard D. Tenney, p. 253-259.
- American solenocerid shrimps of the genera *Hymenopenaeus*, *Haliporoides*, *Pleoticus*, *Hadropenaeus* new genus, and *Mesopenaeus* new genus, by Isabel Pérez Farfante, p. 261-346.
- Small-scale movements of albacore, *Thunnus alalunga*, in relation to ocean features as indicated by ultrasonic tracking and oceanographic sampling, by R. Michael Laurs, Heeny S. H. Yuen, and James H. Johnson, p. 347-355.
- Annual fluctuations in biomass of taxonomic groups of zooplankton in the California Current, 1955-59, by J. M. Colebrook, p. 357-368.
- Population biology of Pacific ocean perch, *Sebastes alutus*, stocks in the Washington-Queen Charlotte Sound region and their response to fishing, by Donald R. Gunderson, p. 369-403.
- Analysis of age determination methods for yellowtail rockfish, canary rockfish, and black rockfish off Oregon, by Lawrence D. Six and Howard F. Horton, p. 405-414.
- Predator-prey interactions in schooling fishes during periods of twilight: A study of the silverside *Pranesus insularum* in Hawaii, by Peter F. Major, p. 415-426.
- Fishes, macroinvertebrates, and their ecological interrelationships with a calico scallop bed off North Carolina, by Frank J. Schwartz and Hugh H. Porter, p. 427-446.
- Energy for migration in albacore, *Thunnus alalunga*, by Gary D. Sharp and Ronald C. Dotson, p. 447-450.
- Underwater sounds from ribbon seal, *Phoca (Histriophoca) fasciata*, by William A. Watkins and G. Carleton Ray, p. 450-453.
- Observations on feeding, growth, locomotor behavior, and buoyancy of a pelagic stromateoid fish, *Icichthys lockingtoni*, by Michael H. Horn, p. 453-456.
- Body size and learned avoidance as factors affecting predation on coho salmon, *Oncorhynchus kisutch*, fry by torrent sculpin, *Cottus rhotheus*, by Benjamin G. Patten, p. 457-459.
- Description of megalopa of snow crab, *Chionoecetes bairdi* (Majidae, subfamily Oregoniinae), by Stephen C. Jewett and Richard E. Haight, p. 459-463.
- Vol. 75, no. 3, 1977.
- A compartmentalized simulation model of the Southern New England yellowtail flounder, *Limanda ferruginea*, fishery, by Michael P. Sissenwine, p. 465-482.
- Income estimates and reasonable returns in Alaska's salmon fisheries, by James E. Owers, p. 483-492.
- Abundance and potential yield of the Atlantic thread herring, *Opisthonema oglinum*, and aspects of its early life history in the eastern Gulf of Mexico, by Edward D. Houde, p. 493-512.
- Chlorinated hydrocarbons in Dover sole, *Microstomus pacificus*: Local migrations and fin erosion, by D. J. McDermott-Ehrlich, M. J. Sherwood, T. C. Heesen, D. R. Young, and A. J. Mearns, p. 513-517.
- Diel behavior of the blue shark, *Prionace glauca*, near Santa Catalina Island, California, by Terry C. Sciarrotta and Donald R. Nelson, p. 519-528.
- A bioenergetic model for the analysis of feeding and survival potential of winter flounder, *Pseudopleuronectes americanus*, larvae during the period from hatching to metamorphosis, by Geoffrey C. Laurence, p. 529-546.
- Description of larval and early juvenile vermilion snapper, *Rhomboplites aurorubens*, by Wayne A. Laroche, p. 547-554.
- Short-term thermal resistance of zoeae of 10 species of crabs from Puget Sound, Washington, by Benjamin G. Patten, p. 555-559.
- A simplification for the study of fish populations by capture data, by Samir S. Rafail, p. 561-569.
- Identification of fish species by thin-layer polyacrylamide gel isoelectric focusing, by Ronald C. Lundstrom, p. 571-576.
- Various species of phytoplankton as food for larval northern anchovy, *Engraulis mordax*, and relative nutritional value of the dinoflagellates *Gymnodinium splendens* and *Gonyaulax polyedra*, by Edward D. Scura and Charles W. Jerde, p. 577-583.
- Courtship and spawning behavior of the tautog, *Tautoga onitis* (Pisces: Labridae), under laboratory conditions, by Bori L. Olla and Carol Samet, p. 585-599.
- Distribution, size, and abundance of microcopepods in the California Current system and their possible influence on survival of marine teleost larvae, by David K. Arthur, p. 601-611.
- Abundance and potential yield of the scaled sardine, *Harengula jaguana*, and aspects of its early life history in the eastern Gulf of Mexico, by Edward D. Houde, p. 613-628.

- Reproductive parameters of the offshore spotted dolphin, a geographical form of *Stenella attenuata*, in the eastern tropical Pacific, 1973-75, by William F. Perrin, Ruth B. Miller, and Priscilla A. Sloan, p. 629-633.
- The uptake, distribution, and depuration of ^{14}C benzene and ^{14}C toluene in Pacific herring, *Clupea harengus pallasi*, by Sid Korn, Nina Hirsch, and Jeannette W. Struhsaker, p. 633-636.
- Food habits and feeding chronology of rainbow smelt, *Osmerus mordax*, in Lake Michigan, by Jeffrey W. Foltz and Carroll R. Norden, p. 637-640.
- Useable meat yields in the Virginia surf clam fishery, by Joseph G. Loesch, p. 640-642.
- Mercury in fish and shellfish of the northeast Pacific. III. Spiny dogfish, *Squalus acanthias*, by Alice S. Hall, Fuad M. Teeny, and Erich J. Gauglitz, Jr., p. 642-645.
- Localized mass mortality of red sea urchin, *Strongylocentrotus franciscanus*, near Santa Cruz, California, by John S. Pearse, Daniel P. Costa, Marc B. Yellin, and Catherine R. Agegian, p. 645-648.
- First record of a second mating and spawning of the spot prawn, *Pandalus platyceros*, in captivity, by John E. Rensel and Earl F. Prentice, p. 648-649.
- Effect of dissolved oxygen concentration and salinity on swimming speed of two species of tunas, by Andrew E. Dizon, p. 649-653.
- A nonlethal lavage device for sampling stomach contents of small marine mammals, by John D. Hall, p. 653-656.
- Vol. 75, no. 4, 1977.
- Life history, feeding habits, and functional morphology of juvenile sciaenid fishes in the York River Estuary, Virginia, by Labbish N. Chao and John A. Musick, p. 657-702.
- The United States shrimp fishery off northeastern South America (1972-74), by Albert C. Jones and Alexander Dragovich, p. 703-716.
- Seasonal cycle of zooplankton abundance and species composition along the central Oregon coast, by William T. Peterson and Charles B. Miller, p. 717-724.
- Growth and reproduction of the eastern spinner dolphin, a geographical form of *Stenella longirostris* in the eastern tropical Pacific, by William F. Perrin, David B. Holts, and Ruth B. Miller, p. 725-750.
- Production by three populations of wild brook trout with emphasis on influence of recruitment rates, by Robert F. Carline, p. 751-765.
- Koko Head, Oahu, sea-surface temperatures and salinities, 1965-73, Christmas Island sea-surface temperatures, 1954-73, by Gunter R. Seckel and Marian Y. Y. Yong, p. 767-787.
- A new genus and species of eelpout (Pisces: Zoarcidae) from the Gulf of Mexico, by Hugh H. DeWitt, p. 789-793.
- Seasonal migration of North Pacific albacore, *Thunnus alalunga*, into North American coastal waters: Distribution, relative abundance, and association with transition zone waters, by R. Michael Laurs and Ronald J. Lynn, p. 795-822.
- Biology of the summer flounder, *Paralichthys dentatus*, in Delaware Bay, by Ronal W. Smith and Franklin C. Daiber, p. 823-830.
- Larval development of the spider crab, *Libinia emarginata* (Majidae), by D. Michael Johns and William H. Lang, p. 831-841.
- The ribbonfish genus *Desmodema*, with the description of a new species (Pisces, Trachipteridae), by Richard H. Rosenblatt and John L. Butler, p. 843-855.
- Oxycline characteristics and skipjack tuna distribution in the southeastern tropical Atlantic, by Merton C. Ingham, Steven K. Cook, and Keith A. Hausknecht, p. 857-865.
- The source of cobalt-60 and migrations of albacore off the west coast of North America, by Earl E. Krygier and William G. Percy, p. 867-870.
- Length-width-weight relationships for mature male snow crab, *Chionochoetes bairdi*, by Duane E. Phinney, p. 870-871.
- Temporal aspects of calling behavior in the oyster toadfish, *Opsanus tau*, by Michael L. Fine, Howard E. Winn, Linda Joest, and Paul J. Perkins, p. 871-874.
- Biology and host-parasite relationships of *Cymothoa excisa* (Isopoda, Cymothoidae) with three species of snappers (Lutjanidae) on the Caribbean coast of Panama, by Michael P. Weinstein and Kenneth L. Heck, Jr., p. 875-877.
- Fecundity of the southern New England stock of yellow-tail flounder, *Limanda ferruginea*, by W. Huntting Howell and David H. Kesler, p. 877-880.
- "Mock fish" method for studying microbial inhibiting agents, by John H. Green and Louis J. Ronsivalli, p. 880-882.
- Reproductive cycle of the pink surfperch, *Zalembius rosaceus* (Embiotocidae), by Stephen R. Goldberg and William C. Ticknor, Jr., p. 882-884.
- Gallbladder lesions in cultured Pacific salmon, by Lee W. Harrell, p. 884-887.
- Timing of the surface-to-benthic migration in juvenile rockfish, *Sebastes diploproa*, off southern California, by George W. Boehlert, p. 887-890.
- Vol. 76, no. 1, 1978.
- Diseases, parasites, and toxic responses of commercial penaeid shrimps of the Gulf of Mexico and South Atlantic coasts of North America, by John A. Couch, p. 1-44.
- Estimating natural and fishing mortalities of chinook salmon, *Oncorhynchus tshawytscha*, in the ocean, based on recoveries of marked fish, by Kenneth A. Henry, p. 45-57.
- Effect of several diets on survival, development time, and growth of laboratory-reared spider crab, *Libinia emarginata*, larvae, by Thomas E. Bigford, p. 59-64.
- Description of reared eggs and young larvae of the spotted seatrout, *Cynoscion nebulosus*, by William A. Fable, Jr., Theodore D. Williams, and C. R. Arnold, p. 65-71.
- Physical and chemical changes of pink shrimp, *Pandalus borealis*, held in carbon dioxide modified refrigerated seawater compared with pink shrimp held in ice, by Fern A. Bullard and Jeff Collins, p. 73-78.
- Taxonomy and distribution of *Rouleina attrita* and *Rouleina maderensis* (Pisces: Alepocephalidae), by Douglas F. Markle, p. 79-87.

- Food and feeding habits of juvenile Atlantic tomcod, *Microgadus tomcod*, from Haverstraw Bay, Hudson River, by Stephen A. Grabe, p. 89-94.
- Eggs and larvae of *Scomber scombrus* and *Scomber japonicus* in continental shelf waters between Massachusetts and Florida, by Peter L. Berrien, p. 95-115.
- Daily and summer-winter variation in mass spawning of striped parrotfish, *Scarus croicensis*, by Patrick L. Colin, p. 117-124.
- Feeding behavior and major prey species of the sea otter, *Enhydra lutris*, in Montague Strait, Prince William Sound, Alaska, by Donald G. Calkins, p. 125-131.
- Trophic relationships among fishes and plankton in the lagoon at Enewetak Atoll, Marshall Islands, by Edmund S. Hobson and James R. Chess, p. 133-153.
- Spawning cycle, fecundity, and recruitment in a population of soft-shell clam, *Mya arenaria*, from Cape Ann, Massachusetts, by Diane J. Brousseau, p. 155-166.
- Diel movements of larval yellowtail flounder, *Limanda ferruginea*, determined from discrete depth sampling, by W. G. Smith, J. D. Sibunka, and A. Wells, p. 167-178.
- Bioeconomic contribution of Columbia River hatchery fall chinook salmon, 1961 through 1964 broods, to the Pacific salmon fisheries, by Roy J. Wahle and Robert R. Vreeland, p. 179-208.
- Polychaetous annelids of the Delaware Bay region, by Peter Kinner and Don Maurer, p. 209-224.
- Trophic ontogeny of the leopard searobin, *Prionotus scitulus* (Pisces: Triglidae), by Stephen T. Ross, p. 225-234.
- Description of larvae of the humpy shrimp, *Pandalus goniurus*, reared in situ in Kachemak Bay, Alaska, by Evan Haynes, p. 235-248.
- Immigration of fishes through the Suez Canal, by Adam Ben-Tuvia, p. 249-255.
- Food and habitat of three switch-feeding fishes in the kelp forests off Santa Barbara, California, by Milton S. Love and Alfred W. Ebeling, p. 257-271.
- Scomberomorus brasiliensis*, a new species of Spanish mackerel from the western Atlantic, by Bruce B. Collette, Joseph L. Russo, and Luis Alberto Zavala-Camin, p. 273-280.
- Aggregation of the siphonophore *Nanomia cara* in the Gulf of Maine: Observations from a submersible, by Carolyn A. Rogers, Douglas C. Biggs, and Richard A. Cooper, p. 281-284.
- Computer program for analysis of the homogeneity and goodness of fit of frequency distributions, FORTRAN IV, by Michael L. Dahlberg, p. 285.
- Portable tripod drop net for estuarine fish studies, by R. Grant Gilmore, John K. Holt, Robert S. Jones, George R. Kulczycki, Louis G. MacDowell III, and Wayne C. Magley, p. 285-289.
- Surface feeding by a juvenile gray whale, *Eschrichtius robustus*, by G. M. Wellington and Shane Anderson, p. 290-293.
- Homing of morpholine-imprinted brown trout, *Salmo trutta*, by Allan T. Scholz, Jon C. Cooper, Ross M. Horrall, and Arthur D. Hasler, p. 293-295.
- Diurnal variations in catches of selected species of ichthyoneuston by the Boothbay neuston net off Charleston, South Carolina, by Peter J. Eldridge, Frederick H. Berry, and M. Clinton Miller III, p. 295-297.

Vol. 76, no. 2, 1978.

- Aspects of estuarine intertidal ecology of juvenile striped mullet, *Mugil cephalus*, in Hawaii, by Peter F. Major, p. 299-314.
- Aging of Gulf menhaden, *Brevoortia patronus*, by William R. Nicholson and William E. Schaaf, p. 315-322.
- Variability in zooplankton biomass distribution in the northern Sargasso Sea: The contribution of Gulf Stream cold core rings, by Peter B. Ortner, Peter H. Wiebe, Loren Hauray, and Steven Boyd, p. 323-334.
- Relative contribution of Hudson, Chesapeake, and Roanoke striped bass, *Morone saxatilis*, stocks to the Atlantic coast fishery, by Thomas J. Berggren and Joel T. Lieberman, p. 335-345.
- Copper sensitivity of Pacific herring, *Clupea harengus pallasii*, during its early life history, by D. W. Rice, Jr. and F. L. Harrison, p. 347-356.
- Estimated zooplankton production and their ammonia excretion in the Kuroshio and adjacent seas, by Tsutomu Ikeda and Sigeru Motoda, p. 357-367.
- Growth rate of the sand crab, *Emerita analoga*, (Hippidae) in two different environments, by Craig Fusaro, p. 369-375.
- Time-dependent solutions and efficient parameters for stock-production models, by R. Ian Fletcher, p. 377-388.
- Trophic relationships in juveniles of three species of sparid fishes in the South African marine littoral, by M. S. Christensen, p. 389-401.
- Effect of starvation on the histological and morphological characteristics of jack mackerel, *Trachurus symmetricus*, larvae, by Gail H. Theilacker, p. 403-414.
- Identification of stocks of Bristol Bay sockeye salmon, *Oncorhynchus nerka*, by evaluating scale patterns with a polynomial discriminant method, by Rodney C. Cook and Gary E. Lord, p. 415-423.
- Effectiveness of escape vent shape in traps for catching legal-sized lobster, *Homarus americanus*, and harvestable-sized crabs, *Cancer borealis* and *Cancer irroratus*, by Jay S. Krouse, p. 425-432.
- School structure of the squid *Loligo opalescens*, by Ann C. Hurley, p. 433-442.
- Northern anchovy school shapes as related to problems in school size estimation, by James L. Squire, Jr., p. 443-448.
- Synergistic effects of environmental variables on the metabolism of the copepod *Euterpina acutifrons* from two different areas off the coast of São Paulo, Brazil, by G. Soares Moreira and W. B. Vernberg, p. 449-455.
- Description of larvae of a hippolytid shrimp, *Lebbeus groenlandicus*, reared in situ in Kachemak Bay, Alaska, by Evan Haynes, p. 457-465.
- Predicting abundance of striped bass, *Morone saxatilis*, in New York waters from modal lengths, by Herbert M. Austin and Clarence R. Hickey, Jr., p. 467-473.

- Observations on a white-sided dolphin, *Lagenorhynchus acutus*, probably killed in gill nets in the Gulf of Maine, by Steven K. Katona, Salvatore A. Testaverde, and Bradley Barr, p. 475-476.
- Reciprocal hybridization between the California and Gulf of California grunions, *Leuresthes tenuis* and *Leuresthes sardina* (Atherinidae), by Nancy M. Moffatt and Donald A. Thomson, p. 476-480.
- Tychoplanktonic bloodworm, *Glycera dibranchiata*, in Sullivan Harbor, Maine, by Joseph J. Graham and Edwin P. Creaser, Jr., p. 480-483.
- Simulated food patches and survival of larval bay anchovy, *Anchoa mitchilli*, and sea bream, *Archosargus rhomboidalis*, by Edward D. Houde and Richard C. Schekter, p. 483-487.
- Discovery of juvenile Pacific salmon (coho) in a small coastal stream of New Brunswick, by Philip E. K. Symons and James D. Martin, p. 487-489.
- Subsampler for estimating the number and length frequency of small preserved nektonic organisms, by William H. Herke, p. 490-494.

Vol. 76, no. 3, 1978.

- Diel feeding patterns of 16 species of mesopelagic fishes from Hawaiian waters, by Thomas A. Clarke, p. 495-513.
- On the restructuring of the Pella-Tomlinson system, by R. Ian Fletcher, p. 515-521.
- Parameter estimation for the Pella-Tomlinson stock production model under nonequilibrium conditions, by D. Rivard and L. J. Bledsoe, p. 523-534.
- Systematics and zoogeography of the porcupinefishes (*Diodon*, Diodontidae, Tetraodontiformes), with comments on egg and larval development, by Jeffrey M. Leis, p. 535-567.
- Probable case of streambed overseeding—1967 pink salmon, *Oncorhynchus gorbuscha*, spawners and survival of their progeny in Sashin Creek, southeastern Alaska, by William R. Heard, p. 569-582.
- Vertical distribution and photosensitive vesicles of pelagic cephalopods from Hawaiian waters, by Richard Edward Young, p. 583-615.
- Systematic sampling in a planktonic ecosystem, by E. L. Venrick, p. 617-627.
- Distribution and abundance of small flatfishes and other demersal fishes in a region of diverse sediments and bathymetry off Oregon, by William G. Percy, p. 629-640.
- Feeding habits of Dover sole, *Microstomus pacificus*; rex sole, *Glyptocephalus zachirus*; slender sole, *Lyopsetta exilis*; and Pacific sanddab, *Citharichthys sordidus*, in a region of diverse sediments and bathymetry off Oregon, by William G. Percy and Danil Hancock, p. 641-651.
- Skipjack tuna, *Katsuwonus pelamis*, habitat based on temperature and oxygen requirements, by Richard A. Barkley, William H. Neill, and Reginald M. Gooding, p. 653-662.
- Historical trends and statistics of the southern oscillation, El Niño, and Indonesian droughts, by William H. Quinn, David O. Zopf, Kent S. Short, and Richard T. W. Kuo Yang, p. 663-678.

The precision of simulated transect surveys of northern anchovy, *Engraulis mordax*, school groups, by Paul C. Fiedler, p. 679-685.

Intersex anomalies in shrimp of the genus *Penaeopsis* (Crustacea: Penaeidae), by Isabel Pérez Farfante, p. 687-691.

On the role of the different fibre types in fish myotomes at intermediate swimming speeds, by Quentin Bone, Joe Kiceniuk, and David R. Jones, p. 691-699.

Summer food of the Pacific cod, *Gadus macrocephalus*, near Kodiak Island, Alaska, by Stephen C. Jewett, p. 700-706.

A computer software system for optimizing survey cruise tracks, by Thomas D. Leming and Hillman J. Holley, p. 706-714.

Vol. 76, no. 4, 1978.

Pollution-associated diseases and abnormalities of fish and shellfish: A review, by Carl J. Sindermann, p. 717-749.

Vertical distribution, diel vertical migration, and abundance of some mesopelagic fishes in the eastern subarctic Pacific Ocean in summer, by Bruce W. Frost and Lawrence E. McCrone, p. 751-770.

Analysis of a simple model for estimating historical population sizes, by T. D. Smith and T. Polacheck, p. 771-779.

Larval development of *Galathea rostrata* under laboratory conditions, with a discussion of larval development in the Galatheididae (Crustacea Anomura), by Robert H. Gore, p. 781-806.

A theoretical examination of some aspects of the interaction between longline and surface fisheries for yellowfin tuna, *Thunnus albacares*, by William H. Lenarz and James R. Zweifel, p. 807-825.

Aspects of brown shrimp, *Penaeus aztecus*, growth in the northern Gulf of Mexico, by Michael L. Parrack, p. 827-836.

Thermal behavioral responses of selected California littoral fishes, by Karl F. Ehrlich, J. Myron Hood, Gerald Muszynsky, and Gerald E. McGowen, p. 837-849.

Linear programming simulation of the effects of bycatch in the management of mixed species fisheries off the northeastern coast of the United States, by B. E. Brown, J. A. Brennan, and J. E. Palmer, p. 851-860.

Effect of swimming speed on the excess temperatures and activities of heart and red and white muscles in the mackerel, *Scomber japonicus*, by John L. Roberts and Jeffrey B. Graham, p. 861-867.

Thermal behavioral responses of the speckled sanddab, *Citharichthys stigmaeus*: Laboratory and field investigations, by Karl F. Ehrlich, John S. Stephens, Gerald Muszynski, and J. Myron Hood, p. 867-872.

Mercury and selenium in blue marlin, *Makaira nigricans*, from the Hawaiian Islands, by Cynthia D. Shultz and Bernard M. Ito, p. 872-879.

Recent records of *Callinectes danae* and *Callinectes marginatus* (Decapoda: Portunidae) from North Carolina with environmental notes, by Peter W. Perschbacher and Frank J. Schwartz, p. 879-880.

Analysis of chlorinated hydrocarbon pollutants: A simplified extraction and cleanup procedure for fishery prod-

- ucts, by Virginia F. Stout and F. Lee Beezhold, p. 880-886.
- Growth of juvenile spot prawn, *Pandalus platyceros*, in the laboratory and in net pens using different diets, by John E. Rensel and Earl F. Prentice, p. 886-890.
- Larval length-weight relations for seven species of north-west Atlantic fishes reared in the laboratory, by Geoffrey C. Laurence, p. 890-895.
- Effect of thermal increases of short duration on survival of *Euphausia pacifica*, by Donovan R. Craddock, p. 895-900.
- Lunar spawning of the threadfin, *Polydactylus sexfilis*, in Hawaii, by Robert C. May, Gerald S. Akiyama, and Michael T. Santerre, p. 900-904.
- The roles of prior residence and relative size in competition for shelter by the Malaysian prawn, *Macrobrachium rosenbergii*, by John B. Peebles, p. 905-911.
- Principal spawning areas and times of marine fishes, Cape Sable to Cape Hatteras, by John B. Colton, Jr., Wallace G. Smith, Arthur W. Kendall, Jr., Peter L. Berrien, and Michael P. Fahay, p. 911-915.
- Recent sightings of the blue whale, *Balenoptera musculus*, in the northeastern tropical Pacific, by Lawrence S. Wade and Gary L. Friedrichsen, p. 915-919.
- Sex composition, length-weight relationship, and reproduction of the white marlin, *Tetrapturus albidus*, in the western North Atlantic Ocean, by Raymond E. Baglin, Jr., p. 919-926.
- Records of piscivorous leeches (Hirudinea) from the central Columbia River, Washington State, by C. Dale Becker and Dennis D. Dauble, p. 926-931.
- Induced spawning and larval rearing of the yellowtail flounder, *Limanda ferruginea*, by Alphonse S. Smigiel-ski, p. 931-936.
- Trace metal contamination of the rock scallop, *Hinnites giganteus*, near a large southern California municipal outfall, by David R. Young and Tsu-Kai Jan, p. 936-939.
- Vol. 77, no. 1, 1979.
- Development and occurrence of larvae and juveniles of the rockfishes *Sebastes crameri*, *Sebastes pinniger*, and *Sebastes halvomaculatus* (Family Scorpaenidae) off Oregon, by Sally L. Richardson and Wayne A. Laroche, p. 1-46.
- Aerial survey of the bottlenosed dolphin, *Tursiops truncatus*, and the West Indian manatee, *Trichechus manatus*, in the Indian and Banana Rivers, Florida, by Stephen Leatherwood, p. 47-59.
- Development of pelagic larvae and postlarva of *Squilla empusa* (Crustacea, Stomatopoda) with an assessment of larval characters within the Squillidae, by Steven G. Morgan and Anthony J. Provenzano, Jr., p. 61-90.
- Variation in the fourbeard rockling, *Enchelyopus cimbrius*, a North Atlantic gadid fish, with comments on the genera of rocklings, by Daniel M. Cohen and Joseph L. Russo, p. 91-104.
- Early development of seven flatfishes of the eastern North Pacific with heavily pigmented larvae (Pisces, Pleuro-nectiformes), by B. Y. Sumida, E. H. Ahlstrom, and H. G. Moser, p. 105-145.
- Associations of tuna with flotsam in the eastern tropical Pacific, by Paul R. Greenblatt, p. 147-155.
- Description of larvae of the northern shrimp, *Pandalus borealis*, reared in situ in Kachemak Bay, Alaska, by Evan Haynes, p. 157-173.
- Relationships of the blue shark, *Prionace glauca*, and its prey species near Santa Catalina Island, California, by Timothy C. Tricas, p. 175-182.
- Life history and vertical migration of the pelagic shrimp *Sergestes similis* off the southern California coast, by Makoto Omori and David Gluck, p. 183-198.
- The oceanic migration of American shad, *Alosa sapidissima*, along the Atlantic coast, by Richard J. Neves and Linda Depres, p. 199-212.
- Sources and distribution of bluefish, *Pomatomus saltatrix*, larvae and juveniles off the east coast of the United States, by Arthur W. Kendall, Jr. and Lionel A. Walford, p. 213-227.
- Contribution of 1960-63 brood hatchery-reared sockeye salmon, *Oncorhynchus nerka*, to the Columbia River commercial fishery, by Roy J. Wahle, Reino O. Koski, and Robert Z. Smith, p. 229-242.
- Relative abundance, behavior, and food habits of the American sand lance, *Ammodytes americanus*, from the Gulf of Maine, by Thomas L. Meyer, Richard A. Cooper, and Richard W. Langton, p. 243-253.
- Seasonal dispersal and habitat selection of cunner, *Tautoglabrus adspersus*, and young tautog, *Tautoga onitis*, in Fire Island Inlet, Long Island, New York, by Bori L. Olla, Allen J. Bejda, and A. Dale Martin, p. 255-261.
- Biology of walleye pollock, *Theraga chalcogramma*, in the western Gulf of Alaska, 1973-75, by Steven E. Hughes and George Hirschhorn, p. 263-274.
- Zooplankters that emerge from the lagoon floor at night at Kure and Midway Atolls, Hawaii, by Edmund S. Hobson and James R. Chess, p. 275-280.
- A survey of heavy metals in the surf clam, *Spisula solidissima*, and the ocean quahog, *Arctica islandica*, of the mid-Atlantic coast of the United States, by D. R. Wenzloff, R. A. Greig, A. S. Merrill, and J. W. Ropes, p. 280-285.
- Apparent feeding by the fin whale, *Balaenoptera physalus*, and humpback whale, *Megaptera novaeangliae*, on the American sand lance, *Ammodytes americanus*, in the northwest Atlantic, by William J. Overholtz and John R. Nicolas, p. 285-287.
- Estimation of intertidal harvest of Dungeness crab, *Cancer magister*, on Puget Sound, Washington, beaches, by John G. Williams, p. 287-292.
- A contribution to the biology of the puffers *Sphoeroides testudineus* and *Sphoeroides spengleri* from Biscayne Bay, Florida, by Timothy E. Targett, p. 292-295.
- Correlates of maturity in the common dolphin, *Delphinus delphis*, by Clifford A. Hui, p. 295-300.
- Larval development of *Gobiesox rhessodon* (Gobieso-cidae) with notes on the larva of *Rimicola muscarum*, by Larry G. Allen, p. 300-304.
- Spring and summer foods of walleye pollock, *Theragra chalcogramma*, in the eastern Bering Sea, by Kevin Bailey and Jean Dunn, p. 304-308.

- Fecundity of the Atlantic menhaden, *Brevoortia tyrannus*, by Charles S. Dietrich, Jr., p. 308-311.
- Role of land and ocean mortality in yield of male Alaskan fur seal, *Callorhinus ursinus*, by Robert H. Lander, p. 311-314.
- Vol. 77, no. 2, 1979.
- Aggregation and fishery dynamics: A theoretical study of schooling and the purse seine tuna fisheries, by Colin W. Clark and Marc Mangel, p. 317-337.
- Shallow marsh habitats as primary nurseries for fishes and shellfish, Cape Fear River, North Carolina, by Michael P. Weinstein, p. 339-357.
- Larval development of the Cuban stone crab, *Menippe nodifrons* (Branchiura, Xanthidae) under laboratory conditions with notes on the status of the family Menippidae, by Liberta E. Scotto, p. 359-386.
- Assessment of composition of stock mixtures, by Jerome J. Pella and Timothy L. Robertson, p. 387-398.
- Behavior and ecology of the bottlenose dolphin, *Tursiops truncatus*, in the South Atlantic, by Bernd Würsig and Melany Würsig, p. 399-412.
- Growth of northern anchovy, *Engraulis mordax*, larvae in the sea, by Richard D. Methot, Jr. and David Kramer, p. 413-423.
- A linear programming approach to determining harvesting capacity: A multiple species fishery, by Robert A. Siegel, Joseph J. Mueller, and Brian J. Rothschild, p. 425-433.
- Some aspects of the biology of deep-sea lobsters of the family Polychelidae (Crustacea, Decapoda) from the western North Atlantic, by Elizabeth Lewis Wenner, p. 435-444.
- Reproduction in the blue shark, *Prionace glauca*, by Harold L. Pratt, Jr., p. 445-470.
- Mortality estimates for the New Zealand rock lobster, *Jasus edwardsii*, by John H. Annala, p. 471-480.
- Walleye pollock, *Theragra chalcogramma*: Physical, chemical, and sensory changes when held in ice and in carbon dioxide modified refrigerated seawater, by Kermit D. Reppond, Fern A. Bullard, and Jeff Collins, p. 481-488.
- Thickness and depth distributions of some epipelagic fish schools off southern California, by D. V. Holliday and H. L. Larsen, p. 489-494.
- The effect of body size on the standard metabolic rate of skipjack tuna, *Katsuwonus pelamis*, by Richard W. Brill, p. 494-498.
- Effects of a thermal discharge on reproductive cycles in *Mytilus edulis* and *Mytilus californianus* (Mollusca, Bivalvia), by Anson H. Hines, p. 498-503.
- Incidence and distribution of piscine erythrocytic necrosis and the microsporidian, *Glugea hertwigi*, in rainbow smelt, *Osmerus mordax*, from Massachusetts to the Canadian Maritimes, by Stuart W. Sherburne and Laurie L. Bean, p. 503-509.
- A simple method to obtain serum from small fish by James T. Winstead, p. 509-511.
- Stranding of the pilot whale, *Globicephala macrorhynchus*, in Florida and South Carolina, by A. Blair Irvine, Michael D. Scott, Randall S. Wells, and James G. Mead, p. 511-513.
- First records of a giant pelagic tunicate, *Bathochordaeus charon* (Urochordata, Larvacea), from the eastern Pacific Ocean, with notes on its biology, by Charles P. Galt, p. 514-519.
- Vol. 77, no. 3, 1979.
- Revision of the sauries (Pisces, Scomberesocidae) with descriptions of two new genera and one new species, by Carl L. Hubbs and Robert L. Wisner, p. 521-566.
- Effects of temperature and salinity on production and hatching of dormant eggs of *Acartia californiensis* (Copepoda) in an Oregon estuary, by John Kenneth Johnson, p. 567-584.
- Aerial census of the bottlenose dolphin, *Tursiops truncatus*, in a region of the Texas coast, by Eric G. Barham, Jay C. Sweeney, Stephen Leatherwood, Robert K. Beggs, and Cecilia L. Barham, p. 585-595.
- Energetic significance of changes in swimming modes during growth of larval anchovy, *Engraulis mordax*, by Daniel Weihs, p. 597-604.
- An antipredation mechanism of the polychaete *Phyllodoce mucosa* with notes on similar mechanisms in other potential prey, by Robert S. Prezant, p. 605-616.
- Contribution of wild and hatchery-reared coho salmon, *Oncorhynchus kisutch*, to the Oregon ocean sport fishery, by Dennis L. Scarnecchia and Harry H. Wagner, p. 617-623.
- Larval morphology of *Pandalus tridens* and a summary of the principal morphological characteristics of North Pacific panalid shrimp larvae, by Evan Haynes, p. 625-640.
- Spawning incidence and batch fecundity in northern anchovy, *Engraulis mordax*, by J. Roe Hunter and Stephen R. Goldberg, p. 641-652.
- Utilization of the Nanaimo River estuary by juvenile chinook salmon, *Oncorhynchus tshawytscha*, by M. C. Healey, p. 653-668.
- Composition, abundance, and distribution of zooplankton in the New York Bight, September 1974-September 1975, by David C. Judkins, Creighton D. Wirick, and Wayne E. Esaias, p. 669-683.
- Distribution and catch composition of Jonah crab, *Cancer irroratus*, near Boothbay Harbor, Maine, by Jay S. Krouse, p. 685-693.
- Effects of desiccation and autospasy on egg hatching success in stone crab, *Menippe mercenaria*, by Rodric A. Schlieder, p. 695-700.
- First records off Oregon of the pelagic fishes *Paralepis atlantica*, *Gonostoma atlanticum*, and *Aphanopus carbo*, with notes on the anatomy of *Aphanopus carbo*, by Kevin M. Howe, David L. Stein, and Carl E. Bond, p. 700-703.
- Changes in ribonucleic acid, deoxyribonucleic acid, and protein content during ontogenesis in winter flounder, *Pseudopleuronectes americanus*, and effect of starvation, by L. J. Buckley, p. 703-708.
- Eggs and early larvae of smallmouth flounder, *Etropus microstomus*, by Michael D. Scherer and Donald W. Bourne, p. 708-712.
- Evidence of postcapture ingestion by midwater fishes in trawl nets, by Thomas M. Lancraft and Bruce H. Robison, p. 713-715.

Inhibitory effect of the alga *Pavlova lutherii* on growth of mussel, *Mytilus edulis*, larvae, by G. F. Newkirk and D. L. Waugh, p. 715-718.

Vol. 77, no. 4, 1979.

Revision of the penaeid shrimp genus *Penaeopsis* (Crustacea: Decapoda), by Isabel Pérez Farfante, p. 721-763.

Likelihood methods for the von Bertalanffy growth curve, by Daniel K. Kimura, p. 765-776.

Vertical distribution and development of larval fishes in the North Pacific central gyre during summer, by Valerie J. Loeb, p. 777-793.

Resistance of different stocks and transferrin genotypes of coho salmon, *Oncorhynchus kisutch*, and steelhead trout, *Salmo gairdneri*, to bacterial kidney disease and vibriosis, by Gary W. Winter, Carl B. Schreck, and John D. McIntyre, p. 795-802.

Remarks on systematics, development, and distribution of the hatchetfish genus *Sternoptyx* (Pisces, Stomiatoidei), by Julian Badcock and Ronald C. Baird, p. 803-820.

Behavior of the Hawaiian spinner dolphin, *Stenella longirostris*, by Kenneth S. Norris and Thomas P. Dohl, p. 821-849.

Larval development of *Hypoconcha sabulosa* (Decapoda: Dromiidae), by William H. Lang and Alan M. Young, p. 851-863.

Black rockfish, *Sebastes melanops*: Changes in physical, chemical, and sensory properties when held in ice and in carbon dioxide modified refrigerated seawater, by Jeff Collins, Kermit D. Reppond, and Fern A. Bullard, p. 865-870.

Behavior and ecology of the dusky dolphin, *Lagenorhynchus obscurus*, in the South Atlantic, by Bernd Würsig and Melany Würsig, p. 871-890.

Growth and survival in newly settled spat of the Manila clam, *Tapes japonica*, by John G. Williams, p. 891-900.

Development and occurrence of larvae and juveniles of the rockfishes *Sebastes flavidus* and *Sebastes melanops* (Scorpaenidae) off Oregon, by Wayne A. Laroche and Sally L. Richardson, p. 901-924.

Effects of trap venting on gear selectivity in the inshore Rhode Island American lobster, *Homarus americanus*, fishery, by Michael J. Fogarty and David V. D. Borden, p. 925-933.

Acoustic measurements of a migrating layer of the Mexican lampfish, *Triphoturus mexicanus*, at 102 kilohertz, by R. E. Pieper and B. G. Bargo, p. 935-942.

Embryonic development of Atlantic menhaden, *Brevoortia tyrannus*, and a fish embryo age estimation method, by Steven P. Ferraro, p. 943-949.

Distribution and movements of Risso's dolphin, *Grampus griseus*, in the eastern North Pacific, by Stephen Leatherwood, William F. Perrin, Vicky L. Kirby, Carl L. Hubbs, and Marilyn Dahlheim, p. 951-963.

Description of larval and juvenile red snapper, *Lutjanus campechanus*, by L. Alan Collins, John H. Finucane, and Lyman E. Barger, p. 965-974.

Isolation of olive rockfish, *Sebastes serranoides*, populations off southern California, by Milton S. Love, p. 975-983.

Trends toward decreasing size of brown shrimp, *Penaeus aztecus*, and white shrimp, *Penaeus setiferus*, in reported annual catches from Texas and Louisiana, by Charles W. Caillouet, Frank J. Patella, and William B. Jackson, p. 985-989.

Stage I zoeae of a crangonid shrimp, *Crangon franciscorum angustimana*, hatched from ovigerous females collected in Kachemak Bay, Alaska, by Evan Haynes, p. 991-995.

Length-weight relationships of western Atlantic bluefin tuna, *Thunnus thynnus*, by Raymond E. Baglin, Jr., p. 995-1000.

Developmental anatomy and inflation of the gas bladder in striped bass, *Morone saxatilis*, by James S. Bulak and Roy C. Heidinger, p. 1000-1003.

Food of age 1 and 2 Atlantic tomcod, *Microgadus tomcod*, from Haverstraw Bay, Hudson River, New York, by Stephen A. Grabe, p. 1003-1006.

Marine Fisheries Review

Marine Fisheries Review contains review articles, original research reports, significant progress reports, and technical notes on fisheries science, engineering, and economics; commercial and recreational fisheries; marine mammal studies; and aquaculture. Emphasis is on in-depth review articles and practical or applied aspects of marine fisheries rather than pure research.

Vol. 37, no. 1, 1975.

Seaweed aquaculture, by Arthur C. Mathieson, p. 2-14.

The culture of the mussel, *Perna perna*, and the mangrove oyster, *Crassostrea rhizophorae*, in Venezuela, by Enrique F. Mandelli and Amado Acuña C., p. 15-18.

Culture of the bay scallop, *Argopecten irradians*, in Virginia, by Michael Castagna, p. 19-24.

Crustacean aquaculture in Middle America, by Harold H. Webber, p. 24-30.

Institutional constraints to the development of aquaculture, by Fernando Fournier, p. 31-32.

Constraints on aquaculture projects, by Burton A. Landy, p. 33-35.

Net-pen culture of Pacific salmon in marine waters, by Anthony J. Novotny, p. 36-47.

Conflict of interest and its resolution as factors in the commercialization of aquaculture in the Americas, by Simon Williams, p. 48-51.

Vol. 37, no. 2, 1975.

Trends in catch-effort relationships with economic implications: Gulf of Mexico shrimp fishery, by John P. Nichols and Wade L. Griffin, p. 1-4.

Skipjack tuna fishing in Papua New Guinea, 1970-73, by R. E. Kearney, p. 5-8.

Electronic tags and related tracking techniques aid in study of migrating salmon and steelhead trout in the Columbia River Basin, by Gerald E. Monan, James H. Johnson, and Gordon F. Esterberg, p. 9-15.

Selected information on recreational boats in the United States, by John Ridgely, p. 16-18.

- Edible seaweeds—a survey of the industry and prospects for farming the Pacific Northwest, by Charles J. Hunter, p. 19-26.
- Attitudinal and demographic characteristics for regular and irregular users of fresh shellfish, by Peter M. Sanchez, p. 27-30.
- Bypass and collection system for protection of juvenile salmon and trout at Little Goose Dam, by Jim Ross Smith and Winston E. Farr, p. 31-35.
- Vol. 37, no. 3, 1975.
- The purse-seine fishery for bluefin tuna in the northwestern Atlantic Ocean, by Gary T. Sakagawa, p. 1-8.
- An assessment of the South Pacific albacore, *Thunnus alalunga*, fishery, 1953-72, by Robert A. Skillman, p. 9-17.
- Experiments on some possible effects of tire reefs on pinfish (*Lagodon rhomboides*) and black sea bass (*Centropristis striata*), by R. B. Stone, L. C. Coston, D. E. Hoss, and F. A. Cross, p. 18-20.
- Development of a program to rehabilitate the oyster industry of Prince Edward Island, by Clyde L. MacKenzie, Jr., p. 21-35.
- An analysis of prices paid to fishermen before and after the establishment of a fishery cooperative, by Charles W. Lamb, Jr., p. 36-38.
- Vol. 37, no. 4, 1975.
- Fishing fleet activities revealed by night-time data from the Defense Meteorological Satellite Program (DMSP), by Robert W. Fett, p. 1-4.
- Toward a planetary aquaculture—the seas as range and cropland, by Timothy Joyner, p. 5-10.
- An economic analysis of Georgia's marine charter boat fishing industry, by E. Evan Brown and Fred J. Holemo, p. 11-12.
- Observed and perceived impacts of distant water fishing: Oregon otter trawl case, by Courtland L. Smith, p. 13-15.
- Low level ionizing radiation and spice treatment of raw, headless, white shrimp, by A. N. Roy and J. D. Kaylor, p. 16-20.
- Energy efficiency comparison between the Washington and Japanese otter trawl fisheries of the Northeast Pacific, by Douglas J. Wiviott and Stephen B. Mathews, p. 21-24.
- Costs and earnings in the spiny lobster fishery, Florida Keys, by Bruno G. Noetzel and Mikolaj G. Wojnowski, p. 25-31.
- Spoilage and shelf life prediction of refrigerated fish, by Louis J. Ronsivalli and Stanley E. Charm, p. 32-34.
- Vol. 37, no. 5-6, 1975.
- Introductory remarks on diseases of crustaceans, by Gilbert B. Pauley, p. 2-3.
- Cellular response to injury in penaeid shrimp, by C. T. Fontaine and D. V. Lightner, p. 4-10.
- The immunological mechanisms of the horseshoe crab, *Limulus polyphemus*, by John I. Stagner and James R. Redmond, p. 11-19.
- Gaffkemia, the fatal infection of lobsters (genus *Homarus*) caused by *Aerococcus viridans* (var.) *homari*: A review, by James E. Stewart, p. 20-24.
- A septicemic bacterial disease syndrome of penaeid shrimp, by Donald V. Lightner and Donald H. Lewis, p. 25-28.
- A comparative study of the bacterial flora of the hemolymph of *Callinectes sapidus*, by R. R. Colwell, T. C. Wicks, and H. S. Tubiash, p. 29-33.
- Serum changes in the blue crab, *Callinectes sapidus*, associated with *Paramoeba pernicioso*, the causative agent of gray crab disease, by Gilbert B. Pauley, Martin W. Newman, and Edith Gould, p. 34-38.
- Microsporidian infections of amphipods with special reference to host-parasite relationships: A review, by H.-P. Bulnheim, p. 39-45.
- Fine structure of *Minchinia* sp. (Haplosporida) sporulation in the mud crab, *Panopeus herbstii*, by Frank O. Perkins, p. 46-60.
- A brief review of the involvements of *Lagenidium*, an aquatic fungus parasite, with arthropods, by Clyde J. Umphlett and E. M. McCray, Jr., p. 61-64.
- Vol. 37, no. 7, 1975.
- Synopsis of the northern Gulf of Mexico industrial and foodfish industries, by Elmer J. Gutherz, Gary M. Russell, Anthony F. Serra, and Bennie A. Rohr, p. 1-11.
- Economic impact of commercial shrimp landings on the economy of Texas, by Wade L. Griffin and Lonnie L. Jones, p. 12-14.
- Vacuum cooling and thawing fishery products, by Joseph H. Carver, p. 15-21.
- An empirical study of limited entry in Alaska's salmon fisheries, by James E. Owers, p. 22-25.
- A new incubator for salmonids designed by Alaska laboratory, by Frederick H. Salter, p. 26-29.
- Vol. 37, no. 8, 1975.
- Deep-sea red crab, *Geryon quinquedens*, survey off northeastern United States, by Roland L. Wigley, Roger B. Theroux, and Harriett E. Murray, p. 1-21.
- The Atlantic coast surf clam fishery—1972, by John W. Ropes, Allan M. Barker, and George E. Ward, Jr., p. 22-27.
- Vol. 37, no. 9, 1975.
- Status of the Gulf and Atlantic menhaden fisheries and implications for resource management, by William E. Schaaf, p. 1-9.
- Some observations of feeding behavior of bottle-nosed dolphins (*Tursiops truncatus*) in the northern Gulf of Mexico and (*Tursiops* cf. *T. gilli*) off southern California, Baja California, and Nayarit, Mexico, by Stephen Leatherwood, p. 10-16.
- Laboratory evaluation of a Denil-type steep pass fishway with various entrance and exit conditions for passage of adult salmonids and American shad, by Emil Slatick, p. 17-26.
- Night stalking flounder in the ocean surf, by Stanley M. Warlen, p. 27-30.

Vol. 37, no. 10, 1975.

- Assessment of North Pacific stocks of whales, by Michael F. Tillman, p. 1-4.
- Forecasts of Atlantic and Gulf menhaden catches based on the historical relation of catch and fishing effort, by William E. Schaaf, James E. Sykes, and Robert B. Chapoton, p. 5-9.
- Blue gold: Mariculture of the edible blue mussel (*Mytilus edulis*), by C. Graham Hurlburt and Sarah W. Hurlburt, p. 10-18.
- Housing development canals in the coastal zone of the Gulf of Mexico: Ecological consequences, regulations, and recommendations, by William N. Lindall, Jr. and Lee Trent, p. 19-24.
- High school students' perceptions of fish as a menu item, by Charles W. Lamb, Jr., p. 25-27.

Vol. 37, no. 11, 1975.

- Japan's fisheries, 1975, by Tamio Otsu, p. 1-13.
- A uniform U.S. west coast logbook for albacore, *Thunnus alalunga* (Bonnaterre), and coastwide albacore fishery data system, by R. Michael Laurs, Charles Hooker, Larry Hreha, and Richard Lincoln, p. 14-21.
- Fish prices: Historical trends in southern California commercial fisheries, by Gary Stauffer, Alec MacCall, and Bruce Wahlen, p. 22-30.

Vol. 37, no. 12, 1975.

- Possible anomalies of giant bluefin tuna, by Howard A. Schuck, p. 1-12.
- Exploratory shrimp trawling in the Hawaiian Islands, by Paul Struhsaker and Howard O. Yoshida, p. 13-21.
- Water surface area within statistical subareas used in reporting Gulf Coast Shrimp Data, by Frank Patella, p. 22-24.
- Thermal and microwave energy for shrimp processing, by M. R. R. Rao and A. F. Novak, p. 25-30.
- The Atlantic coast surf clam fishery—1973, by John W. Ropes, Arthur S. Merrill, and George E. Ward, p. 31-34.

Vol. 38, no. 1, 1976.

- Southern California recreational and commercial marine fisheries, by Alec D. MacCall, Gary D. Stauffer, and Jean-Paul Troadec, p. 1-32.

Vol. 38, no. 2, 1976.

- Monitoring the ocean environment, by L. E. Eber, p. 1-9.
- Recreational shark fishing on the Texas Gulf coast: An exploratory study of behavior and attitudes, by Alan R. Graefe and Robert B. Ditton, p. 10-20.
- An automated unmanned fishing system to harvest coastal pelagic fish, by Wilber R. Seidel and Thomas M. Vanselous, p. 21-26.

Vol. 38, no. 3, 1976.

- A system for monitoring the location of harvestable coho salmon stocks, by David J. Wright, Bruce M. Woodworth, and James J. O'Brien, p. 1-7.
- An analysis of increasing costs to Gulf of Mexico shrimp vessel owners: 1971-75, by Wade L. Griffin and John P. Nichols, p. 8-12.

Offshore headboat fishing in North Carolina and South Carolina, by Gene R. Huntsman, p. 13-23.

A mobile laboratory with flow-through capability for thermal tolerance studies of aquatic organisms, by John R. Hughes, Theodore H. Blahm, and Donovan R. Craddock, p. 24-27.

Vol. 38, no. 4, 1976.

- U.S. observers board Japanese trawl vessels in Bering Sea, by Mark Miller, Larry Nelson, Robert French, and Stephen Hoag, p. 1-10.
- Profitability and productivity analysis for the southeastern Alaska salmon fishery, by David S. Liao, p. 11-14.
- Status of giant clam stocks (Tridacnidae) on Helen Reef, Palau, Western Caroline Islands, April 1975, by Patrick G. Bryan and Daniel B. McConnell, p. 15-18.
- Escape of Dungeness crabs from pots, by William L. High, p. 19-23.
- Nitrite additives—harmful or necessary?, by Elinor M. Ravesi, p. 24-30.

Vol. 38, no. 5, 1976.

- Nominal catch-per-unit effort of albacore, *Thunnus alalunga* (Bonnaterre), caught by U.S. jig vessels during 1961-70, by R. Michael Laurs, Harold B. Clemens, and Larry H. Hreha, p. 1-32.

Vol. 38, no. 6, 1976.

- The role of fish in meeting the world's food needs, by L. J. Ronsivalli, p. 1-3.
- Dockside price analysis in the Florida mullet fishery, by James C. Cato, p. 4-13.
- Distribution, age, and size of tagged adult steelhead trout in the Snake River drainage, by Lyle G. Gilbreath, Larry R. Basham, and Emil Slatick, p. 14-18.
- Understanding radiation energy and its use in the preservation of seafoods, by L. J. Ronsivalli, p. 19-24.

Vol. 38, no. 7, 1976.

- Effect of atmospheric gas supersaturation on salmon and steelhead trout of the Snake and Columbia Rivers, by Wesley J. Ebel and Howard L. Raymond, p. 1-14.
- Scuba diving methods for fishing systems evaluation, by Donald A. Wickham and John W. Watson, Jr., p. 15-23.
- Comparative retention of dart and jaw tags on chinook salmon and steelhead trout during their spawning migration, by Emil Slatick, p. 24-26.

Vol. 38, no. 8, 1976.

- Coho salmon farming in France, by Yves Harache and Anthony J. Novotny, p. 1-8.
- Bowhead whale field studies in Alaska, 1975, by Willman M. Marquette, p. 9-17.
- Utilization of the bowhead whale, by Geoffry M. Carroll, p. 18-21.
- Resource ecology data analysis at the Northwest Fisheries Center (NWFC), by F. Favorite, D. J. Brown, and W. J. Ingraham, Jr., p. 22-25.

Vol. 38, no. 9, 1976.

- Chemical characteristics of fish caught in the northeast

- Pacific Ocean, by Maurice E. Stansby, p. 1-11.
 Seasonal variations in chemical composition and protein quality of menhaden, by David Dubrow, Malcolm Hale, and Anthony Bimbo, p. 12-16.
 The giant Pacific octopus, by William L. High, p. 17-22.
- Vol. 38, no. 10, 1976.
- Inflammation and wound repair in oysters, by Albert K. Sparks, p. 2-4.
 Identification of proliferative lesions in mollusks, by Thomas C. Cheng, p. 5-6.
 Parasitic encapsulation in a marine prosobranch: The role of agranular hemolymph cells, by Timothy P. Yoshino, p. 7-9.
 Effects of phenol on clams, by C. Fries and M. R. Tripp, p. 10-11.
 A review of the histopathological effects of ionizing radiation on the Pacific oyster, *Crassostrea gigas*, by Michael C. Mix, p. 12-15.
 A proteomyxan amoeba stage in the development of *Labyrinthomyxa patuxent* (Hogue) Mackin and Schlicht, with remarks on the relation of the proteomyxids to the neoplastic diseases of oysters and clams, by J. G. Mackin and Frank G. Schlicht, p. 16-18.
Dermocystidium marinum infection in oysters, by Frank O. Perkins, p. 19-21.
Minchinia nelsoni (MSX) disease of the American oyster, by Fred G. Kern, p. 22-24.
 Descriptions of polyps and epidermal papillomas in three bivalve mollusk species, by John C. Harshbarger, p. 25-29.
 Proliferative disorders in bivalve mollusks, by C. Austin Farley, p. 30-33.
 Occurrence of hematopoietic neoplasms in Virginia oysters (*Crassostrea virginica*), by E. Michael Frierman, p. 34-36.
 A general model for leucocyte cell renewal in bivalve mollusks, by Michael C. Mix, p. 37-41.
 Gonadal and hematopoietic neoplasms in *Mya arenaria*, by Paul P. Yevich and Carolyn A. Barszcz, p. 42-43.
 Dermal lesions and amobocytic accumulations in snails, by Charles S. Richards, p. 44-45.
 Some observations on comparative vertebrate and invertebrate pathology: A summary discussion of the workshop, by Harold L. Stewart, p. 46-48.
 The workshop on molluscan pathology: Closing comments, by Dante G. Scarpelli, p. 49-50.
- Vol. 38, no. 11, 1976.
- Environmental change and the northeast Pacific Ocean fisheries: Introductory remarks, by Maurice E. Stansby, p. 1-2.
 Pollution in the northeast Pacific Ocean, by Neva L. Karrick and Edward H. Gruger, Jr., p. 2-19.
 Impact of the transportation of petroleum on the waters of the northeastern Pacific Ocean, by Robert C. Clark, Jr., p. 20-26.
 Impact of cooling waters on the aquatic resources of the Pacific Northwest, by Donovan R. Craddock, p. 27-34.
 Effects of dredging on aquatic organisms—with special application to areas adjacent to the northeastern Pacific Ocean, by George R. Snyder, p. 34-38.
- Effects of dams on Pacific salmon and steelhead trout, by Gerald B. Collins, p. 39-46.
 Effects of water diversions on fishery resources of the west coast, particularly the Pacific Northwest, by Theodore H. Blahm, p. 46-51.
 Concluding remarks, by Maurice E. Stansby, p. 51.
- Vol. 38, no. 12, 1976.
- Soviet fisheries for bottomfish and herring off the Pacific and Bering Sea coasts of the United States, by A. T. Pruter, p. 1-14.
 The evolution of fisheries management philosophy, by Larry A. Nielsen, p. 15-23.
 Foreign direct investment in the U.S. commercial fisheries industry, by Robert A. Siegel, p. 23-25.
- Vol. 39, no. 1, 1977.
- Composition of the edible portion of raw (fresh or frozen) crustaceans, finfish, and mollusks. II. Macroelements: Sodium, potassium, chlorine, calcium, phosphorus, and magnesium, by Virginia D. Sidwell, David H. Buzzell, Pauline R. Foncannon, and Audrey L. Smith, p. 1-11.
 Red snappers of the Carolina coast, by Churchill B. Grimes, Charles S. Manooch III, Gene R. Huntsman, and Robert L. Dixon, p. 12-15.
 Finding fish with satellites, by Andrew J. Kemmerer and Johnny A. Butler, p. 16-21.
- Vol. 39, no. 2, 1977.
- Fisheries development in New England—a perspective, by W. F. Rathjen, p. 1-6.
 Technology in fisheries development, by Louis J. Ronsivalli, p. 7-10.
 A machine for heading and eviscerating small fish, by J. M. Mendelsohn, T. J. Connors, and J. G. Callan, p. 11-18.
 Development of a color measuring system for minced fish blocks, by F. J. King and J. J. Ryan, p. 18-23.
 Some recent examples of fishing gear technology development or transfer in New England, by Robert E. Taber, p. 24-25.
 Export opportunities for New England fishery products, by Henry R. McAvoy and Paul M. Earl, p. 26-29.
- Vol. 39, no. 3, 1977.
- Mixed species utilization, by Daniel W. Baker and Steven E. Hulme, p. 1-3.
 Chilled seawater system for bulkholding sea herring, by Steven E. Hulme and Daniel W. Baker, p. 4-9.
 The southeastern Alaska herring fishery, by Howard O. Ness, p. 10-14.
 The recent development of the southeastern Alaska herring fishery, by Howard O. Ness, p. 15-18.
 Observations on the birth of a southeastern Alaska fishery, by Howard O. Ness, p. 19-22.
 Seasonal changes in spatial distribution and activity of two species of Pacific rockfishes, *Sebastes flavidus* and *S. ciliatus*, in Lynn Canal, southeastern Alaska, by H. Richard Carlson and Louis Barr, p. 23-24.

Vol. 39, no. 4, 1977.

- Past, present, and future uses of minced fish, by Frederick J. King, p. 1-4.
Effects of cadmium, mercury, and silver on marine animals, by Anthony Calabrese, Frederick P. Thurberg, and Edith Gould, p. 5-11.
Fishery engineering advancements: A 5-year SEFC progress report, by Thomas M. Vanselow, p. 12-24.

Vol. 39, no. 5, 1977.

- Porpoise rescue methods in the yellowfin purse seine fishery and the importance of Medina panel mesh size, by Eric G. Barham, Warren K. Taguchi, and Stephen B. Reilly, p. 1-10.
Effect of processing variables on storage characteristics of frozen minced Alaska pollock, by D. Miyauchi, G. Kudo, and M. Patashnik, p. 11-14.
Response of costs and returns to alternative feed prices and conversions in aquaculture systems, by J. E. Easley, Jr., p. 15-17.
The Atlantic coast surf clam fishery—1974, by John W. Ropes and George E. Ward, Jr., p. 18-23.
The right package for frozen fish, by L. J. Ronsivalli, p. 24.

Vol. 39, no. 6, 1977.

- Modified tuna purse seine net achieves record low porpoise kill rate, by James M. Coe and Philippe J. Vergne, p. 1-4.
The ocean pout: An example of underutilized fisheries resource development, by Daniel J. Sheehy, Soliman Y. K. Shenouda, Aaron J. Alton, Saul B. Saila, and Spiros M. Constantinides, p. 5-15.
Performance of trawls used in resource assessment, by Fred Wathne, p. 16-23.

Vol. 39, no. 7, 1977.

- Humpback whales in Hawaii: Vessel census, 1976, by Allen A. Wolman and Charles M. Jurasz, p. 1-5.
Use of salt (NaCl) water to reduce mortality of chinook salmon smolts, *Oncorhynchus tshawytscha*, during handling and hauling, by Clifford W. Long, Jerry R. McComas, and Bruce H. Monk, p. 6-9.
Improved bypass and collection system for protection of juvenile salmon and steelhead trout at Lower Granite Dam, by Gene M. Matthews, George A. Swan, and Jim Ross Smith, p. 10-14.
Care and maintenance of squid quality, by R. J. Learson and V. G. Ampola, p. 15-16.
Oysters in the Pacific Northwest, by W. P. Breese, p. 17.

Vol. 39, no. 8, 1977.

- Development of an aquacultural program for rehabilitation of damaged oyster reefs in Mississippi, by Clyde L. MacKenzie, Jr., p. 1-13.
Ciguatera in the U.S. Virgin Islands, by J. R. Sylvester, A. E. Dammann, and Richard A. Dewey, p. 14-16.
The economic performance of Oregon's commercial fishermen in 1972, by David S. Liao and Joe B. Stevens, p. 17-22.

Vol. 39, no. 9, 1977.

- Alteration and destruction of estuaries affecting fishery resources of the Gulf of Mexico, by William N. Lindall, Jr. and Carl H. Saloman, p. 1-7.
Report of a colloquium on the multispecies fisheries problem, June 1976, by Edmund S. Hobson and William H. Lenarz, p. 8-13.
Innovations in harvest of pelagic resources, by Mitsuo Yesaki, p. 14-23.

Vol. 39, no. 10, 1977.

- The Cuban grouper and snapper fishery in the Gulf of Mexico, by Joseph E. Tashiro and Susan E. Coleman, p. 1-6.
Entrapment and impingement of fishes by power plant cooling-water intakes: An overview, by Charles H. Hanson, James R. White, and Hiram W. Li, p. 7-17.
Development of a selective shrimp trawl for the southeastern United States penaeid shrimp fisheries, by John W. Watson, Jr. and Charles McVea, Jr., p. 18-24.

Vol. 39, no. 11, 1977.

- What is a tuna?, by W. L. Klawe, p. 1-5.
A statistical and budgetary economic analysis of Florida-based Gulf of Mexico red snapper-grouper vessels by size and location, 1974-75, by James C. Cato and Fred J. Prochaska, p. 6-14.
Loggerhead sea turtles, *Caretta caretta*, encountering shrimp trawls, by Larry H. Ogren, John W. Watson, Jr., and Donald A. Wickham, p. 15-17.
Importance of eelgrass beds in Puget Sound, by Gordon W. Thayer and Ronald C. Phillips, p. 18-22.

Vol. 39, no. 12, 1977.

- A review of the yellowfin-skipjack tuna fishery of the Atlantic Ocean and American participation, 1956-75, by Gary T. Sakagawa, Atilio L. Coan, and Ted C. Murphy, p. 1-10.
Synoptic comparison of three sampling techniques for estimating abundance and distribution of selected megafauna: Submersible vs camera sled vs otter trawl, by Joseph R. Uzzmann, Richard A. Cooper, Roger B. Theroux, and Roland L. Wigley, p. 11-19.
The sea-run cutthroat trout resource and sport fishery, by Percy Washington, p. 20-22.
Shortfin squid, *Illex illecebrosus*, attacks on trawl-captured fish, by Salvatore A. Testaverde, p. 23.

Vol. 40, no. 1, 1978.

- A concept for assuring the quality of seafoods to consumers, by L. J. Ronsivalli, C. Gorga, J. D. Kaylor, and J. H. Carver, p. 1-4.
Preparation of fish fillet blocks, by John J. Ryan, p. 5-12.
Flavors in fish from petroleum pickup, by Maurice E. Stansby, p. 13-17.
The Pacific Northwest commercial fishery for striped bass, 1922-74, by Norman B. Parks, p. 18-20.
Strandings of shortfin squid, *Illex illecebrosus*, in New England in fall 1976, by F. E. Lux, J. R. Uzzmann, and H. F. Lind, p. 21-26.

Vol. 40, no. 2, 1978.

- Sharks and their utilization, by Louis J. Ronsivalli, p. 1-13.
- Relationship between size composition and ex-vessel value of reported shrimp catches from two Gulf Coast States with different harvesting strategies, by Charles W. Caillouet and Frank J. Patella, p. 14-18.
- Sea scallop resources off the northeastern U.S. coast, 1975, by Clyde L. MacKenzie, Jr., Arthur S. Merrill, and Fredric M. Serchuk, p. 19-23.
- Oceanographic conditions off California to Vancouver Island in the summer of 1977, by W. James Ingraham, Jr. and Cuthbert M. Love, p. 24-28.
- The Pacific Northwest commercial fishery for American shad, by Norman B. Parks, p. 29-31.

Vol. 40, no. 3, 1978.

- Immunity and practical vaccine development, by Albert L. Brown, p. 1-5.
- Cellular immunity in fish as measured by lymphocyte stimulation, by M. Michael Sigel, John C. Lee, E. Churchill McKinney, and Diana M. Lopez, p. 6-11.
- Immunization of fish with bacterins of *Aeromonas salmonicida*, by L. R. Udey and J. L. Fryer, p. 12-17.
- Immunization of channel catfish, *Ictalurus punctatus*, against two bacterial diseases, by John H. Schachte, Jr., p. 18-19.
- Immunization of salmonids for control of vibriosis, by J. L. Fryer, J. S. Rohovec, and R. L. Garrison, p. 20-23.
- Vibriosis and current salmon vaccination procedures in Puget Sound, Washington, by Lee W. Harrell, p. 24-25.
- Epizootiology of channel catfish virus disease, by John A. Plumb, p. 26-29.
- Serological screening of channel catfish virus, by Stewart McConnell and Jack D. Austen, p. 30-32.
- A herpesvirus disease of green sea turtles in aquaculture, by Harold Haines, p. 33-37.
- Incidence of disease in warmwater fish farms in the south-central United States, by F. P. Meyer, p. 38-41.
- Enteric red mouth disease (Hagerman strain), by R. A. Busch, p. 42-51.
- Vibriosis and furunculosis in marine cultured salmon in Puget Sound, Washington, by Anthony J. Novotny, p. 52-55.
- Parasitic diseases of freshwater fishes, by W. A. Rogers, p. 56-57.
- Ornamental fish: Diseases and problems, by John B. Gratzek, Emmett B. Shotts, and Jack L. Blue, p. 58-60.
- Shellfish diseases, by Louis Leibovitz, p. 61-64.
- Control of fish diseases, by S. F. Snieszko, p. 65-68.
- Fish disease inspection and certification, by Diane Elliott, p. 69-71.

Vol. 40, no. 4, 1978.

- Eels and their utilization, by J. Perry Lane, p. 1-20.
- Status of the herring stocks fished by the Federal Republic of Germany fleet, by Holger Dornheim, p. 21-24.
- Economic aspects of the development of the herring roe gillnet fishery, southeastern Alaska, 1976, by Howard O. Ness, p. 25-30.

Vol. 40, no. 5-6, 1978.

- Trap design and ghost fishing: An overview, by Ronald Joel Smolowitz, p. 2-8.
- Ghost fishing of vented and unvented lobster, *Homarus americanus*, traps, by K. J. Pecci, R. A. Cooper, C. D. Newell, R. A. Clifford, and R. J. Smolowitz, p. 9-43.
- A preliminary study of timed release mechanisms for lobster traps, by Alan J. Blott, p. 44-49.
- The effects of different escape vents on the selectivity of lobster traps, by Vernon E. Nulk, p. 50-58.
- Trap design and ghost fishing: Discussion, by Ronald Joel Smolowitz, p. 59-67.
- Annotated bibliography on lobster trapping and related subjects, by Ronald Joel Smolowitz, p. 68-77.

Vol. 40, no. 7, 1978.

- Charles Woods, pioneer scientist on chemical composition of fish, by Maurice E. Stansby, p. 1-4.
- The San Diego tuna industry and its employment impact on the local economy, by Steven Rockland, p. 5-11.
- Portunus spinimanus* Latreille, a portunid crab with resource potential in the U.S. Virgin Islands, by David A. Olsen, Arthur E. Dammann, and Joseph A. LaPlace, p. 12-14.
- Mesh selectivity of West Indian fish traps, by David A. Olsen, Arthur E. Dammann, and Joseph A. LaPlace, p. 15-16.
- The Pacific Northwest commercial fishery for sturgeon, by Norman B. Parks, p. 17-20.
- The Atlantic halibut and its utilization, by J. T. R. Nickerson, p. 21-25.

Vol. 40, no. 8, 1978.

- An analysis of the charter boat fishing industry on the Texas Gulf Coast, by Robert B. Ditton, Richard N. Jarman, and Steve A. Woods, p. 1-7.
- Characteristics, participation, and motivations of Texas charter boat fishermen, by Robert B. Ditton, Thomas J. Mertens, and Martin P. Schwartz, p. 8-13.
- Preparation of a menhaden hydrolysate for possible use in a milk replacer, by Malcolm B. Hale and Paul E. Bauersfeld, Jr., p. 14-17.
- Seasonal effect on yield, proximate composition, and quality of blue mussel, *Mytilus edulis*, meats obtained from cultivated and natural stock, by Bohdan M. Slabyj, Donn L. Creamer, and Ruth H. True, p. 18-23.
- Catch-effort and price-cost trends in the Gulf of Mexico shrimp fishery: Implications on Mexico's extended jurisdiction, by Vito Blomo, Wade L. Griffin, and John P. Nichols, p. 24-28.
- Estimating the structure of capacity utilization in the fishing industry, by Kenneth Ballard and Vito Blomo, p. 29-34.

Vol. 40, no. 9, 1978.

- Composition of the edible portion of raw (fresh or frozen) crustaceans, finfish, and mollusks. III. Microelements, by Virginia D. Sidwell, Audrey L. Loomis, Karen J. Loomis, Pauline R. Foncannon, and David H. Buzzell, p. 1-20.
- A trawl design: Employing electricity to selectively cap-

- ture shrimp, by Wilber R. Seidel and John W. Watson, Jr., p. 21-23.
- Use of carbon dioxide dissolved in refrigerated brine for the preservation of pink shrimp (*Pandalus* spp.), by Harold J. Barnett, Richard W. Nelson, Patrick J. Hunter, and Herman Groninger, p. 24-28.
- Status and problems of the American shrimp industry, by Roger W. Hutchinson, p. 29-31.
- Vol. 40, no. 10, 1978.
- Bacterial diseases of fishes and their control, by S. F. Snieszko, p. 2-3.
- Diseases and defense mechanisms of the lobster, *Homarus americanus*, by James E. Stewart, p. 4-5.
- A new bacterium (presumptive *Vibrio* species) causing ulcers in flatfish, by R. A. Robohm and C. Brown, p. 5-7.
- Bacteriologic studies of Long Island shellfish hatcheries: An abstract, by Louis Leibovitz, p. 8.
- Vibriosis in Maine and New Hampshire salmonids, by Evelyn S. Sawyer, p. 9-10.
- Anaerobic bacteria as possible disease agents in fish, by Lanny R. Udey, p. 10-12.
- Recent developments in channel catfish virus research, by J. A. Plumb and P. R. Bowser, p. 12-13.
- Viral diseases of the blue crab, *Callinectes sapidus*, by Phyllis T. Johnson, p. 13-15.
- Piscine erythrocytic necrosis (PEN): A viral infection of the Atlantic cod and other marine fishes, by Paul Reno, Marie Philippon-Fried, Bruce L. Nicholson, and Stuart Sherburne, p. 16-18.
- Viruses and viruslike lesions in marine mollusks, by C. Austin Farley, p. 18-20.
- Viruses and virus diseases of salmonid fishes, by Philip E. McAllister, p. 21-23.
- Phosphonoacetic acid inhibition of channel catfish virus replication, by Roger W. Koment, p. 24-25.
- Comments on trends in research on parasitic diseases of shellfish and fish, by Victor Sprague, p. 26-30.
- Susceptibility studies of various salmonids to whirling disease: Histological staining and spore concentration procedures, by Joseph O'Grodnick, p. 30-31.
- Some protozoan diseases of decapod crustaceans, by Thomas K. Sawyer and Sharon A. MacLean, p. 32-35.
- The principal parasitic diseases of warm-water fishes, by W. A. Rogers, p. 36.
- Trypanorhynch infections in the flesh of sciaenid fishes, by Robin M. Overstreet, p. 37-38.
- Larval nematodes parasitic in shellfish, by Thomas C. Cheng, p. 39-42.
- Environmentally related diseases of marine fish and shellfish, by Carl J. Sindermann, p. 43.
- Nutrient requirement of the lobster and nutrition pathology, by Robert C. Bayer, Margie Lee Gallagher, and Dale F. Leavitt, p. 44.
- Nutritionally induced cataracts in salmonids fed purified and practical diets, by Hugh A. Poston, Ronald C. Riis, Gary L. Rumsey, and H. George Ketola, p. 45-46.
- Environmental parameters affecting fish physiology in water reuse systems, by Thomas L. Meade, p. 46-47.
- PCB-induced alterations in teleost liver: A model for environmental disease in fish, by David E. Hinton, James E. Klaunig, and Michael M. Lipsky, p. 47-50.
- A review of histopathological effects of selected contaminants on some marine organisms, by George R. Gardner, p. 51-52.
- Vol. 40, no. 11, 1978.
- Scallops and their utilization, by John A. Peters, p. 1-9.
- Blue crab larval culture: Methods and management, by Mark R. Millikin, p. 10-17.
- The 1976 catch of bowhead whales, *Balaena mysticetus*, by Alaskan Eskimos, by Willman M. Marquette, p. 18-27.
- Vol. 40, no. 12, 1978.
- Composition of the edible portion of raw (fresh or frozen) crustaceans, finfish, and mollusks. IV. Vitamins, by Virginia D. Sidwell, Audrey L. Loomis, Pauline R. Foncannon, and David H. Buzzell, p. 1-16.
- Review of oxygen depletion and associated mass mortalities of shellfish in the Middle Atlantic Bight in 1976, by Frank W. Steimle and Carl J. Sindermann, p. 17-26.
- Vol. 41, no. 1-2, 1979.
- Structure and biology of *Marteilia* sp. in the amphipod, *Orchestia gammarellus*, by Thomas Ginsburger-Vogel and Isabelle Desportes, p. 3-7.
- Haplosporidian diseases of imported oysters, *Ostrea edulis*, in Dutch estuaries, by Paul van Banning, p. 8-18.
- Marteilia refringens* and *Crassostrea gigas*, by Ann Cahour, p. 19-20.
- Occurrence of *Minchinia* sp. in species of the molluscan borer, *Teredo*, by Robert E. Hillman, p. 21-24.
- Cell structure of shellfish pathogens and hyperparasites in the genera *Minchinia*, *Urosporidium*, *Haplosporidium*, and *Marteilia*—taxonomic implications, by Frank O. Perkins, p. 25-37.
- Marteilia refringens* and oyster disease—recent observations, by Henri Grizel, p. 38-39.
- Classification of the Haplosporidia, by Victor Sprague, p. 40-44.
- Oyster diseases in Chesapeake Bay, by J. D. Andrews, p. 45-53.
- Development of resistance to *Minchinia nelsoni* (MSX) mortality in laboratory-reared and native oyster stocks in Delaware Bay, by Harold H. Haskin and Susan E. Ford, p. 54-63.
- Marteilia refringens*—considerations of the life cycle and development of Abers disease in *Ostrea edulis*, by Georges Balouet, p. 64-66.
- Epizootiology of *Marteilia refringens* in Europe, by David J. Alderman, p. 67-69.
- Life cycle and ecology of *Marteilia sydneyi* in the Australian oyster, *Crassostrea commercialis*, by Peter H. Wolf, p. 70-72.
- Vol. 41, no. 3, 1979.
- A review of survival rates of fish eggs and larvae in relation to impact assessments, by Michael D. Dahlberg, p. 1-12.

- Geographic and monthly variation in composition of oysters, *Crassostrea virginica*, by Virginia D. Sidwell, Audrey L. Loomis, and Robert M. Grodner, p. 13-17.
- Floating horizontal and vertical raceways used in freshwater and estuarine culture of juvenile salmon, *Oncorhynchus* spp., by William R. Heard and Roy M. Martin, p. 18-23.
- Vol. 41, no. 4, 1979.
- High quality frozen seafoods: The need and the potential in the United States, by J. T. R. Nickerson and L. J. Ronsivalli, p. 1-7.
- Productivity and profitability of South Carolina shrimp vessels, 1971-75, by T. M. Jones, J. W. Hubbard, and K. J. Roberts, p. 8-14.
- Survey of the charter boat troll fishery in North Carolina, 1977, by Charles S. Manooch III and Stuart T. Laws, p. 15-27.
- Vol. 41, no. 5-6, 1979.
- Relationship between marketing category (count) composition and ex-vessel value of reported annual catches of shrimp in the eastern Gulf of Mexico, by Charles W. Caillouet, Frank J. Patella, and William B. Jackson, p. 1-7.
- The anomalous surface salinity minima area across the northern Gulf of Alaska and its relation to fisheries, by W. J. Ingraham, Jr., p. 8-19.
- Atmospheric climatology and its effect on sea surface temperature—winter 1977 to winter 1978, by Robert R. Dickson and Jerome Namias, p. 20-30.
- Marine environmental conditions off the coasts of the United States, January 1977-March 1978—introduction, by Robert A. Pedrick, p. 32-34.
- Marine environmental conditions off the Atlantic and Gulf coasts of the United States, January 1977-March 1978, by Merton C. Ingham, p. 35-47.
- Marine environmental conditions off the Pacific coast of the United States, January 1977-March 1978, by D. R. McLain, F. Favorite, and R. J. Lynn, p. 48-69.
- Vol. 41, no. 7, 1979.
- The foreign squid fishery off the northeast United States coast, by David J. Kolator and Douglas P. Long, p. 1-15.
- Optimal fish shipments from Kuala Trengganu, Malaysia, by Nik Hashim Nik Mustapha and Hiroshi Yamauchi, p. 16-19.
- The economic feasibility of assuring U.S. Grade A quality of fresh seafoods to the consumer, by Carmine Gorga, John D. Kaylor, Joseph H. Carver, Joseph M. Mendelsohn, and Louis J. Ronsivalli, p. 20-27.
- Barge transportation of juvenile salmonids on the Columbia and Snake Rivers, 1977, by George T. McCabe, Jr., Clifford W. Long, and Donn L. Park, p. 28-34.
- Vol. 41, no. 8, 1979.
- Rainbow runner: A latent oceanic resource?, by Mitsuo Yesaki, p. 1-6.
- A night handline fishery for tunas in Hawaii, by Heeny S. H. Yuen, p. 7-14.
- Groundfish trawler profitability, northern Gulf of Mexico, by John P. Warren and Wade L. Griffin, p. 15-22.
- Estimates of bottom temperature from fish captured in lobster traps, by Steven K. Cook and R. Wylie Crist, p. 23-25.
- Vol. 41, no. 9, 1979.
- A comparison of fish populations on an artificial and natural reef in the Florida Keys, by R. B. Stone, H. L. Pratt, R. O. Parker, Jr., and G. E. Davis, p. 1-11.
- Artificial reefs off Murrells Inlet, South Carolina, by R. O. Parker, Jr., R. B. Stone, and C. C. Buchanan, p. 12-24.
- Access to and usage of offshore Liberty Ship reefs in Texas, by Robert B. Ditton, Alan R. Graefe, Anthony J. Fedler, and John D. Schwartz, p. 25-31.
- Changes in saltwater angling methods and gear in California, by Susan E. Smith, p. 32-44.
- Vol. 41, no. 10, 1979.
- Interactions of marine mammals and Pacific hake, by Clifford H. Fiscus, p. 1-9.
- Management for increasing clam abundance, by Clyde L. MacKenzie, Jr., p. 10-22.
- The Japanese longline fishery in the Gulf of Mexico, 1978, by Allyn M. Lopez, David B. McClellan, Angelo R. Bertolino, and Mark D. Lange, p. 23-28.
- Boston Fish Pier landings, 1978: A review, by Donald A. Jerpi, p. 29-34.
- Vol. 41, no. 11, 1979.
- The groundfish resources of the eastern Bering Sea and Aleutian Islands regions, by Richard Bakkala, Wendy Hirschberger, and Katherine King, p. 1-24.
- The cod family and its utilization, by John J. Ryan, p. 25-36.
- Vol. 41, no. 12, 1979.
- Value added, margins, and consumer expenditures for edible fishery products in the United States, 1976-78, by Erwin S. Penn and Wenona J. Crews, p. 1-9.
- Oyster seed hatcheries on the U.S. west coast: An overview, by Jerry E. Clark and R. Donald Langmo, p. 10-16.
- A mechanical escalator harvester for live oysters and shell, by D. S. Haven, J. P. Whitcomb, and Q. C. Davis, p. 17-20.
- Development of a self-culling blue crab pot, by Peter J. Eldridge, V. G. Burrell, Jr., and George Steele, p. 21-27.
- Composition of catches made by anglers fishing for summer flounder, *Paralichthys dentatus*, from New Jersey party boats in 1978, by Darryl J. Christensen and Walter J. Clifford, p. 28-30.

Special Scientific Report—Fisheries

Special scientific reports on fishery subjects, which document long-term or continuing scientific investigations of NMFS or which provide an intensive report on a study of restricted scope. Bibliographies of a specialized nature may also be published in this series.

675. Proceedings of the International Billfish Symposium, Kailua-Kona, Hawaii, 9-12 August 1972. Part 1. Report of the symposium, by Richard S. Shomura and Francis Williams (editors). March 1975, iii + 33 p., 1 fig.
675. Proceedings of the International Billfish Symposium, Kailua-Kona, Hawaii, 9-12 August 1975. Part 3. Species synopses, by Richard S. Shomura and Francis Williams (editors). June 1975, iii + 159 p.
- (675.) Synopsis of biological data on blue marlin, *Makaira nigricans* Lacépède, 1802, by L. R. Rivas. June 1975, p. 1-16.
- (675.) Synopsis of the biology of the black marlin, *Makaira indica* (Cuvier), 1831, by Izumi Nakamura. June 1975, p. 17-27.
- (675.) Synopsis of biological data on the longbill spearfish, *Tetrapturus pfluegeri* Robins and de Sylva, by C. Richard Robins. June 1975, p. 28-38.
- (675.) Synopsis on the biology of the shortbill spearfish, *Tetrapturus angustirostris* Tanaka, 1914 in the Indo-Pacific areas, by Shoji Kikawa. June 1975, p. 39-54.
- (675.) Synopsis of the biology of the white marlin, *Tetrapturus albidus* Poey (1861), by F. J. Mather III, H. L. Clark, and J. M. Mason, Jr. June 1975, p. 55-94.
- (675.) Synopsis of the biology of the sailfish, *Istiophorus platypterus* (Shaw and Nodder, 1791), by G. L. Beardsley, Jr., N. R. Merrett, and W. J. Richards. June 1975, p. 95-120.
- (675.) Synopsis of biological data on the Mediterranean spearfish, *Tetrapturus belone* Rafinesque, by Donald P. de Sylva. June 1975, p. 121-131.
- (675.) Synopsis of biological data on striped marlin, *Tetrapturus audax* (Philippi), 1887, by Shoji Ueyanagi and Paul G. Wares, June 1975, p. 132-159.
- 676-682. Published prior to 1975.
683. Bioeconomic relationships for the Maine lobster fishery with consideration of alternative management schemes, by Robert L. Dow, Frederick W. Bell, and Donald M. Harri-man. March 1975, v + 44 p., 20 figs., 25 tables, 6 app.
684. Age and size composition of the Atlantic menhaden, *Brevoortia tyrannus*, purse seine catch, 1963-71, with a brief discussion of the fishery, by William R. Nicholson. June 1975, iv + 28 p., 1 fig., 12 tables, 18 app. tables.
685. An annotated list of larval and juvenile fishes captured with surface-towed meter net in the South Atlantic bight during four RV *Dolphin* cruises between May 1967 and February 1968, by Michael P. Fahay. March 1975, iv + 39 p., 19 figs., 9 tables, 1 app. table.
686. Pink salmon, *Oncorhynchus gorbuscha*, tagging experiments in southeastern Alaska, 1938-42 and 1945, by Roy E. Nakatani, Gerald J. Paulik, and Richard Van Cleve. April 1975, iv + 39 p., 24 figs., 16 tables.
687. Annotated bibliography on the biology of the menhadens, genus *Brevoortia*, 1963-1973, by John W. Reintjes and Peggy M. Keney. April 1975, 92 p.
688. Effect of gas supersaturated Columbia River water on the survival of juvenile chinook and coho salmon, by Theodore H. Blahm, Robert J. McConnell, and George R. Snyder. April 1975, iii + 22 p., 8 figs., 5 tables, 4 app. tables.
689. Ocean distribution of stocks of Pacific salmon, *Oncorhynchus* spp., and steelhead trout, *Salmo gairdnerii*, as shown by tagging experiments. Charts of tag recoveries by Canada, Japan, and the United States, 1956-69, by Robert R. French, Richard G. Bakkala, and Doyle F. Sutherland. June 1975, viii + 89 p., 117 figs., 2 tables.
690. Migratory routes of adult sockeye salmon, *Oncorhynchus nerka*, in the eastern Bering Sea and Bristol Bay, by Richard R. Straty. April 1975, iv + 32 p., 22 figs., 3 tables, 7 app. tables.
691. Seasonal distributions of larval flatfishes (Pleuronectiformes) on the continental shelf between Cape Cod, Massachusetts, and Cape Lookout, North Carolina, 1965-66, by W. G. Smith, J. D. Sibunka, and A. Wells. June 1975, iv + 68 p., 72 figs., 16 tables.
692. Expendable bathythermograph observations from the NMFS/MARAD Ship of Opportunity Program for 1972, by Steven K. Cook. June 1975, iv + 81 p., 81 figs.
693. Daily and weekly upwelling indices, west coast of North America, 1967-73, by Andrew Bakun. August 1975, iii + 114 p., 3 figs., 6 tables, 1 app.
694. Semiclosed seawater system with automatic salinity, temperature, and turbidity control, by Sid Korn. September 1975, iii + 5 p., 7 figs., 1 table.
695. Distribution, relative abundance, and movement of skipjack tuna, *Katsuwonus pelamis*, in the Pacific Ocean based on Japanese tuna long-line catches, 1964-67, by Walter M. Matsumoto. October 1975, iii + 30 p., 15 figs., 4 tables.
696. Large-scale air-sea interactions at Ocean Weather Station V, 1951-71, by David M. Husby and Gunter R. Seckel. November 1975, iv + 44 p., 11 figs., 4 tables, 3 app.
697. Fish and hydrographic collections made by the research vessels *Dolphin* and *Delaware II* during 1968-72 from New York to Florida, by S. J. Wilk and M. J. Silverman. January 1976, iii + 159 p., 1 table, 2 app. tables.
698. Summer benthic fish fauna of Sandy Hook Bay, New Jersey, by Stuart J. Wilk and Myron J. Silverman. January 1976, iv + 16 p., 21 figs., 1 table, 2 app. tables.
699. Seasonal surface currents off the coasts of Vancouver Island and Washington as shown by drift bottle experiments, 1964-65, by W. James Ingraham, Jr. and James R. Hastings. May 1976, iii + 9 p., 4 figs., 4 tables.
700. Expendable bathythermograph observations from the NMFS/MARAD Ship of Opportunity Program for 1973, by Steven K. Cook. June 1976, iii + 13 p., 10 figs.
701. Seasonal abundance and distribution of zooplankton, fish eggs, and fish larvae in the eastern Gulf of Mexico, 1972-74, by Edward D. Houde and Nicholas Chitty. August 1976, iii + 18 p., 14 figs., 5 tables.
702. Length composition of yellowfin, skipjack, and bigeye tunas caught in the eastern tropical Atlantic by American purse seiners, by Gary T. Sakagawa, Atilio L. Coan, and Eugene P. Holzapfel. August 1976, iv + 22 p., 7 figs., 7 tables, 15 app. tables.
703. Aquacultural economics bibliography, by John Vondruska. October 1976, 123 p.
704. The macrofauna of the surf zone off Folly Beach, South Carolina, by William D. Anderson, Jr., James K. Dias, Robert K. Dias, David M. Cupka, and Norman A. Chamberlain. January 1977, iv + 23 p., 2 figs., 31 tables.
705. Migration and dispersion of tagged American lobsters, *Homarus americanus*, on the southern New England continental shelf, by Joseph R. Uzman, Richard A. Cooper, and Kenneth J. Pecci. January 1977, v + 92 p., 45 figs., 2 tables, 29 app. tables.

706. Food of western North Atlantic tunas (*Thunnus*) and lancetfishes (*Alepisaurus*), by Frances D. Matthews, David M. Damkaer, Leslie W. Knapp, and Bruce B. Collette. January 1977, iii + 19 p., 4 figs., 1 table, 11 app. tables.
707. Monthly temperature and salinity measurements of continental shelf waters of the northwestern Gulf of Mexico, 1963-65, by Robert F. Temple, David L. Harrington, and John A. Martin. February 1977, iii + 26 p., 5 figs., 10 tables.
708. Catch and catch rates of fishes caught by anglers in the St. Andrew Bay system, Florida, and adjacent coastal waters, 1973, by Doyle F. Sutherland. March 1977, iii + 9 p., 2 figs., 9 tables.
709. Expendable bathythermograph observations from the NMFS/MARAD Ship of Opportunity Program for 1974, by Steven K. Cook and Keith A. Hausknecht. April 1977, iv + 45 p., 10 figs., 9 tables, 35 app. figs.
710. Midwater invertebrates from the southeastern Chukchi Sea: Species and abundance in catches incidental to mid-water trawling survey of fishes, September-October 1970, by Bruce L. Wing and Nancy Barr. April 1977, iii + 43 p., 1 fig., 2 tables, 2 app. tables.
711. A list of the marine mammals of the world, by Dale W. Rice. April 1977, iii + 15 p.
712. Annual physical and chemical oceanographic cycles of Auke Bay, southeastern Alaska, by Herbert E. Bruce, Douglas R. McLain, and Bruce L. Wing. May 1977, iii + 11 p., 16 figs., 1 table.
713. Current patterns and distribution of river waters in inner Bristol Bay, Alaska, by Richard R. Straty. June 1977, iii + 13 p., 16 figs., 1 table.
714. Wind stress and wind stress curl over the California Current, by Craig S. Nelson. August 1977, iii + 87 p., 18 figs., 1 table, 3 app.
715. Bottom obstructions in the southwestern North Atlantic, Gulf of Mexico, and Caribbean Sea, by G. Michael Russell, Abraham J. Barrett, L. Steve Sarbeck, and John H. Wordlaw. September 1977, iii + 21 p., 1 fig., 1 app. table.
716. Fishes and associated environmental data collected in New York Bight, June 1974-June 1975, by Stuart J. Wilk, Wallace W. Morse, Daniel E. Ralph, and Thomas R. Azarovitz. September 1977, iii + 53 p., 3 figs., 3 tables.
717. Gulf of Maine-Georges Bank ichthyoplankton collected on ICNAF larval herring surveys September 1971-February 1975, by John B. Colton, Jr. and Ruth R. Byron. November 1977, iii + 35 p., 9 figs., 14 tables.
718. Surface currents as determined by drift card releases over the continental shelf off central and southern California, by James L. Squire, Jr. December 1977, iii + 12 p., 2 figs.
719. Seasonal description of winds and surface and bottom salinities and temperatures in the northern Gulf of Mexico, October 1972 to January 1976, by Perry A. Thompson, Jr. and Thomas D. Leming. February 1978, iv + 44 p., 43 figs., 2 tables.
720. Sea surface temperature distributions obtained off San Diego, California, using an airborne infrared radiometer, by James L. Squire, Jr. March 1978, iii + 30 p., 15 figs., 1 table.
721. National Marine Fisheries Service survey of trace elements in the fishery resource, by R. A. Hall, E. G. Zook, and G. M. Meaburn. March 1978, iii + 313 p., 5 tables, 3 app. figs., 1 app. table.
722. Gulf menhaden, *Brevoortia patronus*, purse seine fishery: Catch, fishing activity, and age and size composition, 1964-73, by William R. Nicholson. March 1978, iii + 8 p., 1 fig., 12 tables.
723. Ichthyoplankton composition and plankton volumes from inland coastal waters of southeastern Alaska, April-November 1972, by Chester R. Mattson and Bruce L. Wing. April 1978, iii + 11 p., 1 fig., 4 tables, 1 app. table.
724. Estimated average daily instantaneous numbers of recreational and commercial fishermen and boaters in the St. Andrew Bay system, Florida, and adjacent coastal waters, 1973, by Doyle F. Sutherland. May 1978, iv + 23 p., 31 figs., 11 tables.
725. Seasonal bottom-water temperature trends in the Gulf of Maine and on Georges Bank, 1963-75, by Clarence W. Davis. May 1978, iv + 17 p., 22 figs., 5 tables.
726. The Gulf of Maine temperature structure between Bar Harbor, Maine, and Yarmouth, Nova Scotia, June 1975-November 1976, by Robert J. Pawlowski. December 1978, iii + 10 p., 14 figs., 1 table.
727. Expendable bathythermograph observations from the NMFS/MARAD Ship of Opportunity Program for 1975, by Steven K. Cook, Barclay P. Collins, and Christine S. Carty. January 1979, v + 93 p., 2 figs., 13 tables, 82 app. figs.
728. Vertical sections of semimonthly mean temperature on the San Francisco-Honolulu route: From expendable bathythermograph observations, June 1966-December 1974, by J. F. T. Saur, L. E. Eber, D. R. McLain, and C. E. Dorman. January 1979, iii + 35 p., 4 figs., 1 table.
729. References for the identification of marine invertebrates on the southern Atlantic coast of the United States, by Richard E. Dowds. April 1979, iv + 37 p.
730. Surface circulation in the northwestern Gulf of Mexico as deduced from drift bottles, by Robert F. Temple and John A. Martin. May 1979, iii + 13 p., 8 figs., 4 tables.
731. Annotated bibliography and subject index on the short-nose sturgeon, *Acipenser brevirostrum*, by James G. Hoff. April 1979, iii + 16 p.
732. Assessment of the northwest Atlantic mackerel, *Scomber scombrus*, stock, by Emory D. Anderson. April 1979, iv + 13 p., 9 figs., 15 tables.
733. Possible management procedures for increasing production of sockeye salmon smolts in the Naknek River system, Bristol Bay, Alaska, by Robert J. Ellis and William J. McNeil. April 1979, iii + 9 p., 4 figs., 11 tables.
734. Escape of king crab, *Paralithodes camtschatica*, from derelict pots, by William L. High and Donald D. Worlund. May 1979, iii + 11 p., 5 figs., 6 tables.
735. History of the fishery and summary statistics of the sockeye salmon, *Oncorhynchus nerka*, runs to the Chignik Lakes, Alaska, 1888-1966, by Michael L. Dahlberg. August 1979, iv + 16 p., 15 figs., 11 tables.
736. A historical and descriptive account of Pacific coast anadromous salmonid rearing facilities and a summary of their releases by region, 1960-76, by Roy J. Wahle and Robert Z. Smith. September 1979, iv + 40 p., 15 figs., 25 tables.
737. Movements of pelagic dolphins (*Stenella* spp.) in the eastern tropical Pacific as indicated by results of tagging, with summary of tagging operations, 1969-76, by W. F. Perrin, W. E. Evans, and D. B. Holts. September 1979, iii + 14 p., 9 figs., 8 tables.

738. Environmental baselines in Long Island Sound, 1972-73, by R. N. Reid, A. B. Frame, and A. F. Draxler. December 1979, iv + 31 p., 40 figs., 6 tables.

739. Bottom-water temperature trends in the Middle Atlantic Bight during spring and autumn, 1964-76, by Clarence W. Davis. December 1979, iii + 13 p., 10 figs., 9 tables.

AUTHOR INDEX

A

Able, K. W., and J. A. Musick, FB 74:409
 Acker, William C. — see Lord et al.
 Ackman, R. G., C. A. Eaton, and B. A. Linke, FB 73:838
 Acuña C., Amado — see Mandelli and Acuña C.
 Agegian, Catherine R. — see Pearse et al.
 Agnello, Richard J., and Lawrence P. Donnelley, FB 73:256
 Ahlstrom, Elbert H. — see Butler and Ahlstrom
 — see Moser et al.
 — see Sumida et al.
 Akiyama, Gerald S. — see May et al.
 Alderman, David J., MFR 41(1-2):67
 Allen, Larry G., FB 77:300
 Allen, Roy M. — see Love and Allen
 Alton, Aaron J. — see Sheehy et al.
 Alvarez, Jose, Chris O. Andrew, and Fred J. Prochaska, FB 74:879
 Ampola, V. G. — see Learson and Ampola
 Anderson, Emory D., S 732
 Anderson, Lee G., FB 73:51
 Anderson, Shane — see Wellington and Anderson
 Anderson, William D., Jr., James K. Dias, Robert K. Dias, David M. Cupka, and Norman A. Chamberlain, S 704
 Anderson, William W., Jack W. Gehringer, and Frederick H. Berry, FB 73:202
 Andrew, Chris O. — see Alvarez et al.
 Andrews, J. D., MFR 41(1-2):45
 Annala, John H., FB 77:471
 Armstrong, Reed S., C 427:289
 — see Chamberlin and Armstrong
 Arnold, C. R. — see Fable et al.
 Arp, Arthur H. — see Vreeland et al.
 Arthur, David K., FB 74:517, 75:601
 Austen, Jack D. — see McConnell and Austen
 Austin, C. Bruce, FB 75:213
 Austin, Herbert M., and Clarence R. Hickey, Jr., FB 76:467
 Azarovitz, Thomas R. — see Wilk et al.

B

Badcock, Julian, and Ronald C. Baird, FB 77:803
 Baglin, Raymond, Jr., FB 76:919, 77:995
 Bailey, Jack E., Jerome J. Pella, and Sidney G. Taylor, FB 74:961

—, Bruce L. Wing, and Chester R. Mattson, FB 73:846
 Bailey, Kevin, and Jean Dunn, FB 77:304
 Baird, Ronald C. — see Badcock and Baird
 — see Hopkins and Baird
 Baker, Daniel W. — see Hulme and Baker
 —, and Steven E. Hulme, MFR 39(3):1
 Baker, L. D. — see Reeve and Baker
 Bakkala, Richard G. — see French et al.
 —, Wendy Hirschberger, and Katherine King, MFR 41(11):1
 Bakun, Andrew, C 416:141; S 693
 Baldwin, Wayne J., C 408:8, 149
 Ballard, Kenneth, and Vito Blomo, MFR 40(8):29
 Balouet, Georges, MFR 41(1-2):64
 Banning, Paul van, MFR 41(1-2):8
 Barans, C. A., and W. A. Roumillat, C 416:299
 Bargo, B. G. — see Pieper and Bargo
 Barham, Cecilia L. — see Barham et al.
 Barham, Eric G., Jay C. Sweeney, Stephen Leatherwood, Robert K. Beggs, and Cecilia L. Barham, FB 77:585
 —, Warren K. Taguchi, and Stephen B. Reilly, MFR 39(5):1
 Barker, Allan M. — see Ropes et al.
 Barkley, Richard A., William H. Neill, and Reginald M. Gooding, FB 76:653
 Barnett, Harold J., Richard W. Nelson, Patrick J. Hunter, and Herman Groninger, MFR 40(9):24
 Barnett, Michael A. — see Johnson and Barnett
 Barr, Bradley — see Katona et al.
 Barr, Louis — see Carlson and Barr
 Barr, Nancy — see Wing and Barr
 Barrett, Abraham J. — see Russell et al.
 Barszcz, Carolyn A. — see Yevich and Barszcz
 Basham, Larry R. — see Gilbreath et al.
 Bauersfeld, Paul E., Jr. — see Hale and Bauersfeld
 Bayer, Robert C., Margie Lee Gallagher, and Dale F. Leavitt, MFR 40(10):44
 Bean, Laurie L. — see Sherburne and Bean
 Beardsley, G. L., Jr., N. R. Merrett, and W. J. Richards, S 675-3:95
 Becker, Dale, and Dennis D. Dauble, FB 76:926
 Beezhold, F. Lee — see Stout and Beezhold
 Beggs, Robert K. — see Barham et al.
 Beiningen, Kirk — see Monk et al.
 Bejda, Allen J. — see Olla et al.

Bell, Frederick W. — see Dow et al.
 Bell, Jonathan — see Hanson and Bell
 Ben-Tuvia, Adam, FB 76:249
 Benville, Pete, Jr. — see Korn et al.
 Berggren, Thomas, and Joel T. Lieberman, FB 76:335
 Bergtold, Glenn E. — see Morrow et al.
 Berrien, Peter L., FB 73:186, 76:95
 — see Colton et al.
 Berry, Frederick H. — see Anderson et al.
 — see Eldridge et al.
 Bertolino, Angelo R. — see Lopez et al.
 Bigford, Thomas E., C 426; FB 76:59
 Biggs, Douglas C. — see Rogers et al.
 Bimbo, Anthony — see Dubrow et al.
 Bisagni, James J., C 416:293
 Bisson, Peter A., and Gerald E. Davis, FB 74:763
 Blackburn, Maurice, and Walter Nellen, FB 74:885
 —, and Francis Williams, FB 73:382
 Blahm, Theodore H., MFR 38(11):46
 — see Hughes et al.
 —, Robert J. McConnell, and George R. Snyder, S 688
 Bledsoe, L. J. — see Rivard and Bledsoe
 Blomo, Vito — see Ballard and Blomo
 —, Wade L. Griffin, and John P. Nichols, MFR 40(8):24
 Blott, Alan J., MFR 40(5-6):44
 Blue, Jack L. — see Gratzek et al.
 Boehlert, George W., FB 75:887
 Bond, Carl E. — see Crone and Bond
 — see Howe et al.
 Bone, Quentin, Joe Kiceniuk, and David R. Jones, FB 76:691
 Borden, David V. D. — see Fogarty and Borden
 Bortone, Stephen A., C 404
 Botsford, Louis W., and Daniel E. Wickham, FB 73:901
 Bourne, Donald W. — see Scherer and Bourne
 Bovee, Eugene C., and Thomas K. Sawyer, C 419
 Bowser, P. R. — see Plumb and Bowser
 Boyd, Steven — see Ortner et al.
 — see Wiebe et al.
 Bray, Richard N. — see Ebeling and Bray
 —, and Alfred W. Ebeling, FB 73:815
 Breder, Charles M., Jr., FB 74:471
 Breese, W. P., MFR 39(7):17
 Brennan, J. A. — see Brown et al.
 Bretschneider, Dale E., and Douglas R. McLain, C 427:51
 Brewer, Gary D., FB 74:433
 Brill, Richard W., FB 77:494
 Brinton, Edward, FB 74:733
 Brothers, Edward B., Christopher P. Mathews, and Reuben Lasker, FB 74:1
 Brousseau, Diane J., FB 76:155
 Brown, Albert L., MFR 40(3):2
 Brown, B. E., J. A. Brennan, and J. E. Palmer, FB 76:851
 Brown, Bradford E. — see Clark and Brown
 Brown, C. — see Robohm and Brown
 Brown, D. J. — see Favorite et al.
 Brown, E. Evan, and Fred J. Holemo, MFR 37(4):11
 Brown, John C. — see Hewitt et al.
 Bruce, Herbert E., Douglas R. McLain, and Bruce L. Wing, S 712
 Brusher, Harold A., and Larry H. Ogren, FB 74:158

Bryan, Patrick G., and Daniel B. McConnell, MFR 38(4):15
 Buchanan, C. C. — see Parker et al.
 Buckley, L. J., FB 77:703
 Bulak, James S., and Roy C. Heidinger, FB 77:1000
 Bullard, Fern A. — see Collins et al.
 — see Reppond et al.
 —, and Jeff Collins, FB 76:73
 Bulnheim, H.-P., MFR 37(5-6):39
 Burrell, V. G., Jr. — see Eldridge et al.
 Busch, R. A., MFR 40(3):42
 Butler, John L. — see Rosenblatt and Butler
 —, and Elbert H. Ahlstrom, FB 74:142
 Butler, Johnny A. — see Kemmerer and Butler
 Buzzell, David H. — see Sidwell et al.
 Byron, Ruth R. — see Colton and Byron

C

Cahour, Ann, MFR 41(1-2):19
 Caillouet, Charles W. — see Lansford et al.
 —, and Frank J. Patella, MFR 40(2):14
 —, —, and William B. Jackson, MFR 41(5-6):1;
 FB 77:985
 Cain, Thomas D., FB 73:412
 Calabrese, Anthony, Frederick P. Thurberg, and Edith Gould, MFR 39(4):5
 Caldwell, David K. — see Leatherwood et al.
 Calkins, Donald G., FB 76:125
 Callan, J. G. — see Mendelsohn et al.
 Carline, Robert F., FB 75:751
 Carlson, H. Richard, FB 74:458
 —, and Louis Barr, MFR 39(3):23
 Carr, William E. S., and Thomas B. Chaney, FB 74:998
 —, and James T. Giesel, FB 73:67
 Carroll, Geoffry M., MFR 38(8):18
 Carty, Christine S. — see Cook et al.
 Carver, Joseph H., MFR 37(7):15
 — see Gorga et al.
 — see Ronsivalli et al.
 Casey, John G. — see Stillwell and Casey
 Castagna, Michael, MFR 37(1):19
 Castro, Walter E. — see Sandifer et al.
 Cato, James C., MFR 38(6):4
 —, and Fred J. Prochaska, MFR 39(11):6
 Cavaliere, A. R., C 398
 Chamberlain, Norman A. — see Anderson et al.
 Chamberlin, J. Lockwood, C 416:271
 — see Crist and Chamberlin
 — see Mizenko and Chamberlin
 —, and Reed S. Armstrong, C 427:167
 —, John J. Kosmark, and Steven K. Cook, C 416:257
 Chaney, Thomas B. — see Carr and Chaney
 Chao, Labbish Ning, C 415
 — see Collette and Chao
 —, and John A. Musick, FB 75:657
 Chapoton, Robert B. — see Schaaf et al.
 Charm, Stanley E. — see Ronsivalli and Charm
 Chen, Lo-Chai, and Robert L. Martinich, FB 73:889
 Cheng, Lanna, and Ralph A. Lewin, FB 74:212
 Cheng, Thomas C., MFR 38(10):5, 40(10):39
 Chess, James R. — see Hobson and Chess

Chittenden, Mark E., Jr., FB 73:487, 74:151, 343
 — see White and Chittenden
 Chitty, Nicholas — see Houde and Chitty
 Christensen, Darryl J., and Walter J. Clifford, MFR 41(12):28
 Christensen, M. S., FB 76:389
 Clark, Colin W., and Marc Mangel, FB 77:317
 Clark, H. L. — see Mather et al.
 Clark, Jerry E., and R. Donald Langmo, MFR 41(12):10
 Clark, Robert C., Jr., MFR 38(11):20
 —, and John S. Finley, FB 73:508
 Clark, Stephen H., and Bradford E. Brown, FB 75:1
 Clarke, Thomas A., FB 76:495
 — see Hartmann and Clarke
 —, and Patricia J. Wagner, FB 74:635
 Clemens, Harold B. — see Laurs et al.
 Clifford, David A. — see Creaser and Clifford
 Clifford, R. A. — see Pecci et al.
 Clifford, Walter J. — see Christensen and Clifford
 Coan, Atilio L. — see Sakagawa et al.
 Coe, James M. — see Perrin et al.
 —, and Philippe J. Vergne, MFR 39(6):1
 Cohen, Daniel M., and Jørgen G. Nielson, C 417
 —, and Joseph L. Russo, FB 77:91
 Colebrook, J. M., FB 75:357
 Coleman, Susan E. — see Tashiro and Coleman
 Colin, Patrick L., FB 76:117
 Collette, Bruce B. — see Matthews et al.
 —, and Labbish N. Chao, FB 73:516
 —, Joseph L. Russo, and Luis Alberto Zavala-Camin,
 FB 76:273
 Collier, Tracy K. — see Roubal and Collier
 Collins, Barclay P. — see Cook et al.
 Collins, Gerald B., MFR 38(11):39
 Collins, Jeff, FB 74:681
 — see Bullard and Collins
 — see Reppond et al.
 —, Kermit D. Reppond, and Fern A. Bullard, FB
 77:865
 —, and Richard D. Tenney, FB 74:725, 75:253
 Collins, L. Alan — see Lindall et al.
 Colton, John B., Jr., and Ruth R. Byron, S 717
 —, Wallace G. Smith, Arthur W. Kendall, Jr., Peter L.
 Berrien, and Michael P. Fahay, FB 76:911
 Colwell, R. R., T. C. Wicks, and H. S. Tubiash, MFR 37
 (5-6):29
 Connors, T. J. — see Mendelsohn et al.
 Constantinides, Spiros M. — see Sheehy et al.
 Cook, Rodney C., and Gary E. Lord, FB 76:415
 Cook, Steven K., C 427:231; S 692, 700
 — see Chamberlin et al.
 — see Ingham et al.
 —, Barclay P. Collins, and Christine S. Carty, S 727
 —, and R. Wylie Crist, MFR 41(8):23
 —, and Keith A. Hausknecht, S 709
 Cooper, Jon C. — see Scholz et al.
 Cooper, Richard A. — see Meyer et al.
 — see Pecci et al.
 — see Rogers et al.
 — see Uzman et al.
 Costa, Daniel P. — see Pearse et al.
 Coston, L. C. — see Stone et al.
 Couch, John A., FB 76:1

Coull, Bruce C., C 399
 Cox, James L. — see Wiebe et al.
 Craddock, Donovan R., FB 74:403, 76:895; MFR 38(11):27
 — see Hughes et al.
 Cramer, S. P., and J. D. McIntyre, FB 73:934
 Crawford, L., and M. J. Kretsch, FB 74:89
 Creamer, Donn L. — see Slaby et al.
 Creaser, Edwin P., Jr. — see Graham and Creaser
 —, and David A. Clifford, FB 75:225
 Cressey, Roger F., C 413
 Crews, Wenona J. — see Penn and Crews
 Crist, R. Wylie — see Cook and Crist
 —, and J. Lockwood Chamberlin, C 427:315
 Crone, Richard A., and Carl E. Bond, FB 74:897
 Cross, F. A. — see Stone et al.
 Crumley, Bruce L., C 408:137
 Cupka, David M. — see Anderson et al.
 Cutler, Edward B., C 403

D

Dahlberg, Michael D., MFR 41(3):1
 Dahlberg, Michael L., FB 76:285; S 735
 Daiber, Franklin C. — see Smith and Daiber
 Damkaer, David M., C 391
 — see Mathews et al.
 Dammann, Arthur E. — see Olsen et al.
 — see Sylvester et al.
 Dangel, James R. — see Mighell and Dangel
 Dark, Thomas A., FB 73:336
 Dauble, Dennis D. — see Becker and Dauble
 Davis, Clarence W., C 416:241, 427:353; S 725, 739
 Davis, Gerald E. — see Bisson and Davis
 — see Stone et al.
 Davis, Q. C. — see Haven et al.
 Dawley, Earl — see Monk et al.
 Dawley, Earl M., and Wesley J. Ebel, FB 73:787
 Dayton, Paul K., FB 73:230
 Dean, David, D 99
 Deaver, Joseph W., III, C 427:209
 DeHart, Douglas A. — see Richardson and DeHart
 Depres, Linda — see Neves and Depres
 Desportes, Isabelle — see Ginsburger-Vogel and Desportes
 de Sylva, Donald P., S 675-3:121
 De Vlaming, Victor L., FB 73:766
 Dewey, Richard A. — see Sylvester et al.
 DeWitt, Hugh H., FB 75:789
 Dias, James K. — see Anderson et al.
 Dias, Robert K. — see Anderson et al.
 Dickson, Robert R., and Jerome Namias, C 416:89, 427:19;
 MFR 41(5-6):20
 Diener, Richard A., C 393
 Dietrich, Charles S., Jr., FB 77:308
 Ditton, Robert B. — see Graefe and Ditton
 —, Alan R. Graefe, Anthony J. Fedler, and John D.
 Schwartz, MFR 41(9):25
 —, Richard N. Jarman, and Steve A. Woods, MFR 40
 (8):1
 —, Thomas J. Mertens, and Martin P. Schwartz, MFR
 40(8):8
 Dixon, Robert L. — see Grimes et al.
 Dizon, Andrew E., FB 75:649

Dohl, Thomas P.—see Norris and Dohl
 Donnelley, Lawrence P.—see Agnello and Donnelley
 Dooley, James K., C 411
 Dorman, C. E.—see Saur et al.
 Dornheim, Holger, MFR 40(4):21
 Dotson, Ronald C., FB 74:955
 ————see Sharp and Dotson
 Dow, Robert L.—see Sheldon and Dow
 ————, Frederick W. Bell, and Donald M. Harriman, S 683
 Dowds, Richard E., S 729
 Dragovich, Alexander—see Jones and Dragovich
 Draxler, A. F.—see Reid et al.
 Dryfoos, Robert L.—see Pristas et al.
 Dubrow, David, Malcolm Hale, and Anthony Bimbo, MFR 38(9):12
 Dunn, Jean—see Bailey and Dunn

E

Earl, Paul M.—see McAvoy and Earl
 Easley, J. E., Jr., MFR 39(5):15
 Eaton, C. A.—see Ackman et al.
 Ebel, Wesley J.—see Dawley and Ebel
 ————see Slatick et al.
 ————, and Howard L. Raymond, MFR 38(7):1
 Ebeling, Alfred W.—see Bray and Ebeling
 ————see Love and Ebeling
 ————, and Richard N. Bray, FB 74:703
 Eber, L. E., MFR 38(2):1
 ————see Saur et al.
 Edgar, Robert K., and James G. Hoff, FB 74:689
 Ehrlich, Karl F., J. Myron Hood, Gerald Muszynski, and Gerald E. McGowen, FB 76:837
 ————, John S. Stephens, Gerald Muszynski, and J. Myron Hood, FB 76:867
 Eldridge, Peter J., Frederick H. Berry, and M. Clinton Miller III, FB 76:295
 ————, V. G. Burrell, Jr., and George Steele, MFR 41 (12):21
 Elliott, Diane, MFR 40(3):69
 Ellis, Robert J., and William J. McNeil, S 733
 Engett, Mary Ellen—see Thorson and Engett
 Engett, Mary Ellen, and Lee C. Thorson, C 400
 Esaias, Wayne E.—see Judkins et al.
 Esterberg, Gordon F.—see Monan et al.
 Evans, W. E.—see Perrin et al.

F

Fable, William A., Jr.—see Lindall et al.
 ————, Theodore D. Williams, and C. R. Arnold, FB 76:65
 Fahay, Michael P., S 685
 ————see Colton et al.
 Farley, C. Austin, MFR 38(10):30, 40(10):18
 Farr, Winston E.—see Smith and Farr
 Favorite, F.—see McLain et al.
 ————, D. J. Brown, and W. J. Ingraham, Jr., MFR 38 (8):22
 ————, and W. James Ingraham, Jr., C 416:191
 Fedler, Anthony J.—see Ditton et al.
 Ferraro, Steven P., FB 77:943
 Fessler, J. L.—see Rybock et al.

Fett, Robert W., MFR 37(4):1
 Fiedler, Paul C., FB 76:679
 Fine, Michael L., Howard E. Winn, Linda Joest, and Paul J. Perkins, FB 75:871
 Finley, John S.—see Clark and Finley
 Fiscus, Clifford H., MFR 41(10):1
 Fisher, William S., and Daniel E. Wickham, FB 74:201, 75:235
 Flanagan, Christine A., and John R. Hendrickson, FB 74:531
 Fletcher, R. Ian, FB 76:377, 515
 Fogarty, Michael J., and David V. D. Borden, FB 77:925
 Foltz, Jeffrey W., and Carroll R. Norden, FB 75:637
 Foncannon, Pauline R.—see Sidwell et al.
 Fontaine, C. T., and D. V. Lightner, MFR 37(5-6):4
 Ford, Richard F.—see Serfling and Ford
 Ford, Susan E.—see Haskin and Ford
 Fournier, Fernando, MFR 37(1):31
 Fox, William W., Jr., FB 73:23
 Frame, A. B.—see Reid et al.
 Francis, Robert C.—see Sharp and Francis
 French, Robert—see Miller et al.
 ————, Richard G. Bakkala, and Doyle F. Sutherland, S 689
 Frierman, E. Michael, MFR 38(10):34
 Fries, C., and M. R. Tripp, MFR 38(10):10
 Frost, Bruce W., and Lawrence E. McCrone, FB 76:751
 Fryer, J. L.—see Udey and Fryer
 ————, J. S. Rohovec, and R. L. Garrison, MFR 40(3):20
 Fuiman, Lee A., FB 74:467
 Fusaro, Craig, FB 76:369

G

Gadbois, D. F., E. M. Ravesi, and R. C. Lundstrom, FB 74:683
 Gallagher, Margie Lee—see Bayer et al.
 Gallucci, Vincent F.—see Scherba and Gallucci
 Galt, Charles P., FB 77:514
 Gardner, George R., MFR 40(10):51
 Garrison, David L., FB 74:183
 Garrison, R. L.—see Fryer et al.
 Gauglitz, Erich J., Jr.—see Hall et al.
 Gehringer, Jack W.—see Anderson et al.
 Giesel, James T.—see Carr and Giesel
 Gilbreath, Lyle G., Larry R. Basham, and Emil Slatick, MFR 38(6):14
 Gilmartin, Malvern, and Noelia Revelante, FB 73:193
 Gilmore, R. Grant, John K. Holt, Robert S. Jones, George R. Kulczycki, Louis G. MacDowell III, and Wayne C. Magley, FB 76:285
 Ginsburger-Vogel, Thomas, and Isabelle Desportes, MFR 41 (1-2):3
 Gluck, David—see Omori and Gluck
 Goldberg, Stephen R., FB 74:983
 ————see Hunter and Goldberg
 ————, and William C. Ticknor, Jr., FB 75:882
 Gooding, Reginald M.—see Barkley et al.
 Goodman, Robert M.—see Norris et al.
 Gopalakrishnan, K., FB 73:797
 Gore, Robert H., FB 76:781
 Gorga, Carmine, John D. Kaylor, Joseph H. Carver, Joseph M. Mendelsohn, and Louis J. Ronsivalli, MFR 41(7):20

Gorga, L. J. — see Ronsivalli et al.
 Gould, Edith — see Calabrese et al.
 — see MacInnes et al.
 — see Pauley et al.
 Goulet, Julien R., Jr., C 416:3
 —, and Elizabeth D. Haynes, C 416, 427, 427:43
 Grabe, Stephen A., FB 76:89, 77:1003
 Graefe, Alan R. — see Ditton et al.
 —, and Robert B. Ditton, MFR 38(2):10
 Graham, Jeffrey B., FB 73:219
 — see Roberts and Graham
 Graham, Joseph J., and Edwin P. Creaser, Jr., FB 76:480
 Gratzek, John B., Emmett B. Shotts, and Jack L. Blue, MFR 40(3):58
 Graves, John, FB 75:230
 Green, John H., and Louis J. Ronsivalli, FB 75:880
 Greenblatt, Paul R., FB 77:147
 Greig, R. A. — see MacInnes et al.
 — see Wenzloff et al.
 Griffin, Wade L. — see Blomo et al.
 — see Nichols and Griffin
 — see Warren and Griffin
 —, and Lonnie L. Jones, MFR 37(7):12
 —, and John P. Nichols, MFR 38(3):8
 —, Newton J. Wardlaw, and John P. Nichols, FB 74:301
 Grimes, Churchill B., Charles S. Manooch III, Gene R. Huntsman, and Robert L. Dixon, MFR 39(1):12
 Grizel, Henri, MFR 41(1-2):38
 Grodner, Robert M. — see Sidwell et al.
 Groninger, Herman — see Barnett et al.
 Gruger, Edward H., Jr. — see Karrick and Gruger
 Gunderson, Donald R., FB 75:369
 Gunn, John T., C 416:213, 229, 427:301
 —, and Merton C. Ingham, FB 75:222
 Guthertz, Elmer J. — see Rohr and Guthertz
 —, Gary M. Russel, Anthony F. Serra, and Bennie A. Rohr, MFR 37(7):1
 Gwinn, Sharon, and William F. Perrin, FB 73:439

H

Haefner, Paul A., Jr., FB 75:91
 — see Laird et al.
 Haight, Richard E. — see Jewett and Haight
 Haines, Harold, MFR 40(3):33
 Hale, Malcolm — see Dubrow et al.
 —, and Paul E. Bauersfeld, Jr., MFR 40(8):14
 Hall, Alice S., Fuad M. Teeny, and Erich J. Gauglitz, Jr., FB 74:791, 75:642
 —, —, Laura G. Lewis, William H. Hardman, and Erich J. Gauglitz, Jr., FB 74:783
 Hall, Ann Bowman — see Manooch et al.
 Hall, John D., FB 75:653
 Hall, John R., and Carl H. Saloman, D 100
 Hall, R. A., E. G. Zook, and G. M. Meaburn, S 721
 Hancock, Danil — see Percy and Hancock
 Hanson, Charles H., and Jonathan Bell, FB 74:377
 —, James R. White, and Hiram W. Li, MFR 39(10):7
 Harache, Yves, and Anthony J. Novotny, MFR 38(8):1
 Hardman, William H. — see Hall et al.
 Harrell, Lee W., FB 75:884; MFR 40(3):24

—, Anthony J. Novotny, Michael H. Schiewe, and Harold O. Hodgins, FB 74:447
 Harriman, Donald M. — see Dow et al.
 Harrington, David L. — see Temple et al.
 Harrison, F. L. — see Rice and Harrison
 Harshbarger, John C., MFR 38(10):25
 Hartmann, A. Rucker, and Thomas A. Clarke, FB 73:633
 Hartt, Allan C. — see Lord et al.
 Haskin, Harold H., and Susan E. Ford, MFR 41(1-2):54
 Hasler, Arthur D. — see Scholz et al.
 Hassler, William W. — see Manooch and Hassler
 Hastings, James R., C 416:197
 — see Ingraham and Hastings
 Hastings, Robert W., Larry H. Ogren, and Michael T. Mabry, FB 74:387
 Haury, Loren R., FB 74:220
 — see Ortner et al.
 Hauser, William J., FB 73:444
 Hausknecht, Keith A. — see Cook and Hausknecht
 — see Ingham et al.
 Haven, D. S., J. P. Whitcomb, and Q. C. Davis, MFR 41(12):17
 Haynes, Elizabeth D., C 427:11, 35, 281
 — see Goulet and Haynes
 Haynes, Evan, FB 74:323, 76:235, 457, 77:157, 625, 991
 Healey, M. C., FB 77:653
 Heard, William R., FB 73:569
 —, and Roy M. Martin, MFR 41(3):18
 Heck, Kenneth L., Jr. — see Weinstein and Heck
 Heesen, T. C. — see McDermott-Ehrlich et al.
 Heidinger, Roy C. — see Bulak and Heidinger
 Hendrickson, John R. — see Flanagan and Hendrickson
 Herrick, Samuel, Jr., C 408:156
 Henry, Kenneth A., FB 76:45
 Herke, William H., FB 76:490
 Hewitt, Roger P., Paul E. Smith, and John C. Brown, FB 74:281
 Hickey, Clarence R., Jr. — see Austin and Hickey
 Hida, Thomas S., and James H. Uchiyama, C 408:63
 —, and Jerry A. Wetherall, C 408:55
 High, William L., MFR 38(4):19, (9):17
 —, and Donald D. Worlund, S 734
 Hillman, Robert E., MFR 41(1-2):21
 Hines, Anson H., FB 77:498
 Hinton, David E., James E. Klaunig, and Michael M. Lipsky, MFR 40(10):47
 Hirsch, Nina — see Korn et al.
 Hirschberger, Wendy — see Bakkala et al.
 Hirschhorn, George — see Hughes and Hirschhorn
 Ho, Ju-Shey, C 406, 409
 Hoag, Stephen — see Miller et al.
 Hobbs, Larry — see Norris et al.
 Hobson, Edmund S., and James R. Chess, FB 74:567, 76:133, 77:275
 —, and William H. Lenarz, MFR 39(9):8
 Hodgins, Harold O. — see Harrell et al.
 Hoff, James G., S 731
 — see Edgar and Hoff
 Holemo, Fred J. — see Brown and Holemo
 Holley, Hillman J. — see Leming and Holley
 Holliday, D. V., and H. L. Larsen, FB 77:489
 Holt, John K. — see Gilmore et al.

Holts, D. B.—see Perrin et al.
 Holzapfel, Eugene P.—see Sakagawa et al.
 Hood, J. Myron—see Ehrlich et al.
 Hooker, Charles—see Laurs et al.
 Hopkins, Thomas L., and Ronald C. Baird, FB 73:908
 Horn, Michael H., FB 73:95, 75:453
 Horrall, Ross M.—see Scholz et al.
 Horton, Howard F.—see Hosie and Horton
 ————see Rybock et al.
 ————see Six and Horton
 ————see Staeger and Horton
 Hosie, Michael J.—see Percy et al.
 ————, and Howard F. Horton, FB 75:51
 Hoss, D. E.—see Stone et al.
 Houde, Edward D., FB 75:61, 493, 613
 ————, and Nicholas Chitty, S 701
 ————, and Richard C. Schekter, FB 76:483
 ————, and J. Swanson, Jr., FB 73:660
 Howe, Kevin M., David L. Stein, and Carl E. Bond, FB 77:700
 Howell, W. Huntting, and David H. Kesler, FB 75:877
 Hreha, Larry—see Laurs et al.
 Hubbard, J. W.—see Jones et al.
 Hubbs, Carl L., and Robert L. Wisner, FB 77:521
 Hughes, John R., Theodore H. Blahm, and Donovan R. Craddock, MFR 38(3):24
 Hughes, Steven E., and George Hirschhorn, FB 77:263
 Hui, Clifford A., FB 77:295
 Hulme, Steven E.—see Baker and Hulme
 ————, and Daniel W. Baker, MFR 39(3):4
 Hunter, Charles J., MFR 37(2):19
 Hunter, John R., C 395; FB 74:81
 ————, and Stephen R. Goldberg, FB 77:641
 ————, and Carol Sanchez, FB 74:847
 Hunter, Patrick J.—see Barnett et al.
 Huntsman, Gene, MFR 38(3):13
 ————see Grimes et al.
 Hurlburt, C. Graham, and Sarah W. Hurlburt, MFR 37(10):10
 Hurlburt, Sarah W.—see Hurlburt and Hurlburt
 Hurley, Ann C., FB 74:176, 76:433
 ————see Lange and Hurley
 Husby, David M., and Gunter R. Seckel, S 696
 Hutchinson, Roger W., MFR 40(9):29

I

Ikeda, Tsutomu, and Sigeru Motoda, FB 76:357
 Ingham, Merton C., C 427; FB 73:626; MFR 41(5-6):35
 ————see Gunn and Ingham
 ————see Nelson et al.
 ————, Steven K. Cook, and Keith A. Hausknecht, FB 75:857
 Ingraham, W. J., Jr., MFR 41(5-6):8
 ————see Favorite and Ingraham
 ————see Favorite et al.
 ————, and James R. Hastings, S 699
 ————, and Cuthbert M. Love, MFR 40(2):24
 Irvine, A. Blair, Michael D. Scott, Randall S. Wells, and James G. Mead, FB 77:511
 Ito, Bernard M.—see Shultz and Ito
 Iversen, Robert T. B., and Jay O. Puffinburger, C 408:127

J

Jackson, William B.—see Caillouet et al.
 Jan, Tsu-Kai—see Young and Jan
 Jarman, Richard N.—see Ditton et al.
 Jerde, Charles W.—see Scura and Jerde
 Jerpi, Donald A., MFR 41(10):29
 Jewett, Stephen C., FB 76:700
 ————, and Richard E. Haight, FB 75:459
 Joest, Linda—see Fine et al.
 Johns, D. Michael, and William H. Lang, FB 75:831
 Johnson, Allyn G., FB 74:693
 Johnson, George N.—see Kjelson and Johnson
 ————see Kjelson et al.
 Johnson, James H.—see Laurs et al.
 ————see Monan et al.
 ————, and Douglas R. McLain, FB 73:306
 ————, ————, and Craig S. Nelson, C 416:103
 Johnson, John Kenneth, FB 77:567
 Johnson, Phyllis T., MFR 40(10):13
 Johnson, Robert Karl, and Michael A. Barnett, FB 73:284
 Jones, Albert C., and Alexander Dragovich, FB 75:703
 Jones, David R.—see Bone et al.
 Jones, Lonnie L.—see Griffin and Jones
 Jones, Robert S.—see Gilmore et al.
 Jones T. M., J. W. Hubbard, and K. J. Roberts, MFR 41(4):8
 Jossi, Jack W.—see Smith and Jossi
 Joyner, Timothy, MFR 37(4):5
 Judkins, David C., Creighton D. Wirick, and Wayne E. Esaias, FB 77:669
 Jurasz, Charles M.—see Wolman and Jurasz
 Jurich, Paula J.—see Wahle et al.

K

Karrick, Neva L., and Edward H. Gruger, Jr., MFR 38(11):2
 Katona, Steven K., Salvatore A. Testaverde, and Bradley Barr, FB 76:475
 Kaylor, John D.—see Gorga et al.
 ————see Ronsivalli et al.
 ————see Roy and Kaylor
 Kearney, R. E., C 408:104; MFR 37(2):5
 Keene, Donald F.—see Percy et al.
 ————, and William G. Percy, FB 74:973
 Kemmerer, Andrew J., and Johnny A. Butler, MFR 39(1):16
 Kendall, Arthur W., Jr., C 428
 ————see Colton et al.
 ————, and John W. Reintjes, FB 73:317
 ————, and Lionel A. Walford, FB 77:213
 Keney, Peggy M.—see Reintjes and Keney
 Kern, Fred G., MFR 38(10):22
 Kesler, David H.—see Howell and Kesler
 Kiceniuk, Joe—see Bone et al.
 Kiefer, Dale A., and Reuben Lasker, FB 73:675
 Kikawa, Shoji, C 408:81; S 675-3:39
 Kimura, Daniel K., FB 77:765
 Kimura, Makoto—see Sakagawa and Kimura
 King, Frederick J., MFR 39(4):1
 ————, and J. J. Ryan, MFR 39(2):18
 King, Kathrine—see Bakkala et al.
 Kinner, Peter, and Don Maurer, FB 76:209
 Kjelson, Martin A., and George N. Johnson, FB 74:423

_____, David S. Peters, Gordon W. Thayer, and George N. Johnson, FB 73:137
 Klaunig, James E. —see Hinton et al.
 Klawe, W. L., MFR 39(11):1
 Klein-MacPhee, Grace, C 414
 Knapp, Leslie W. —see Mathews et al.
 Knight, Margaret D., FB 73:145
 Kobylinski, Gerard J. —see Livingston et al.
 Kolator, David J., and Douglas P. Long, MFR 41(7):1
 Koment, Roger W., MFR 40(10):24
 Korn, Sid, S 694
 _____, Nina Hirsch, and Jeannette W. Struhsaker, FB 74:545, 75:633
 _____, Jeannette W. Struhsaker, and Pete Benville, Jr., FB 74:694
 Koski, Reino O. —see Wahle et al.
 Kosmark, John J. —see Chamberlin et al.
 Kramer, David —see Methot and Kramer
 Kravitz, Michael J., FB 74:984
 Kretsch, M. J. —see Crawford and Kretsch
 Krouse, Jay S., FB 74:719, 949, 76:425, 77:685
 _____, and James C. Thomas, FB 73:862
 Krygier, Earl E., and William G. Pearcy, FB 75:867
 _____, and Robert A. Wasmer, FB 73:737
 Kudo, G. —see Miyauchi et al.
 Kulczycki, George R. —see Gilmore et al.

L

Laird, Chae E., Elizabeth G. Lewis, and Paul A. Haefner, Jr., FB 74:462
 Lamb, Charles W., Jr., MFR 37(3):36, (10):25
 Lancraft, Thomas M., and Bruce H. Robison, FB 77:713
 Lander, Robert H., FB 77:311
 Landy, Burton, A., MFR 37(1):33
 Lane, J. Perry, MFR 40(4):1
 Lang, William H., C 421
 _____ —see Johns and Lang
 _____, and Alan M. Young, FB 77:851
 Lange, G. D., and A. C. Hurley, FB 73:378
 Lange, Mark D. —see Lopez et al.
 Langmo, R. Donald —see Clark and Langmo
 Langton, Richard W. —see Meyer et al.
 Lansford, Lawrence M., Charles W. Caillouet, and Kenneth T. Marvin, FB 74:453
 LaPlace, Joseph A. —see Olsen et al.
 Laroche, Wayne A., FB 75:547
 _____ —see Richardson and Laroche
 _____, and Sally L. Richardson, FB 77:901
 Larsen, H. L. —see Holliday and Larsen
 Larson, Ronald J., C 397
 Lasker, Reuben, FB 73:453
 _____ —see Brothers et al.
 _____ —see Kiefer and Lasker
 _____ —see Zweifel and Lasker
 Laurence, Geoffrey C., FB 74:218, 75:529, 76:890
 Laurs, R. Michael, Harold B. Clemens, and Larry H. Hreha, MFR 38(5):1
 _____, Charles Hooker, Larry Hreha, and Richard Lincoln, MFR 37(11):14
 _____, William H. Lenarz, and Robert N. Nishimoto, FB 74:675

_____, and Ronald J. Lynn, FB 75:795
 _____, Heeny S. H. Yuen, and James H. Johnson, FB 75:347
 Laws, Stuart T. —see Manooch and Laws
 Learson, R. J., and V. G. Ampola, MFR 39(7):15
 Leatherwood, Stephen, FB 77:47; MFR 37(9):10
 _____ —see Barham et al.
 _____, David K. Caldwell, and Howard E. Winn, C 396
 Leavitt, Dale F. —see Bayer et al.
 Lee, John C. —see Sigel et al.
 Leibovitz, Louis, MFR 40(3):61, (10):8
 Leis, Jeffrey M., FB 76:535
 Leming, Thomas D. —see Thompson and Leming
 _____, and Hillman J. Holley, FB 76:706
 Lenarz, William H. —see Hobson and Lenarz
 _____ —see Laurs et al.
 _____, and James R. Zweifel, FB 76:807
 Leong, Roderick, FB 75:205
 Levi, Eldon J. —see Pristas et al.
 Lewin, Ralph A. —see Cheng and Lewin
 Lewis, A. D., C 408:89
 Lewis, Donald H. —see Lightner and Lewis
 Lewis, Elizabeth G., FB 74:225
 _____ —see Laird et al.
 Lewis, Frank G., III —see Livingston et al.
 Lewis, Laura G. —see Hall et al.
 Lewis, Thomas C., and Ralph W. Yerger, FB 74:93
 Li, Hiram W. —see Hanson et al.
 Liao, David S., MFR 38(4):11
 _____, and Joe B. Stevens, MFR 39(8):17
 Lieberman, Joel T. —see Berggren and Lieberman
 Lightner, Donald V. —see Fontaine and Lightner
 _____, and Donald H. Lewis, MFR 37(5-6):25
 Lincoln, Richard —see Laurs et al.
 Lind, H. F. —see Lux et al.
 Lindall, William N., Jr., William A. Fable, Jr., and L. Alan Collins, FB 73:81
 _____, and Carl H. Saloman, MFR 39(9):1
 _____, and Lee Trent, MFR 37(10):19
 Linke, B. A. —see Ackman et al.
 Lipsky, Michael M. —see Hinton et al.
 Livingston, Robert J., Gerard J. Kobylinski, Frank G. Lewis III, and Peter F. Sheridan, FB 74:311
 Loeb, Valerie J., FB 77:777
 Loesch, Joseph G., FB 75:640
 Long, Clifford W. —see McCabe et al.
 _____, Jerry R. McComas, and Bruce H. Monk, MFR 39(7):6
 Long, Douglas P. —see Kolator and Long
 Loomis, Audrey L. —see Sidwell et al.
 Loomis, Karen J. —see Sidwell et al.
 Loosanoff, Victor L., FB 73:215
 Lopez, Allyn M., David B. McClellan, Angelo R. Bertolino, and Mark D. Lange, MFR 41(10):23
 Lopez, Diana M. —see Sigel et al.
 Lord, Gary E., FB 74:837
 _____ —see Cook and Lord
 _____, William C. Acker, Allan C. Hartt, and Brian J. Rothschild, FB 74:104
 Lough, R. Gregory, C 416; FB 73:86, 74:353
 Love, Cuthbert M. —see Ingraham and Love

_____, and Roy M. Allen, C 330, vols. 9, 10, 11

Love, Milton S., FB 77:975

_____, and Alfred W. Ebeling, FB 76:257

Lundstrom, Ronald C., FB 75:571

_____-see Gadbois et al.

Lux, F. E., J. R. Uzmman, and H. F. Lind, MFR 40(1):21

Lynn, Ronald J.—see Laurs and Lynn

_____-see McLain et al.

M

Mabry, Michael T.—see Hastings et al.

McAllister, Philip E., MFR 40(10):21

McAvoy, Henry R., and Paul M. Earl, MFR 39(2):26

McCabe, George T., Jr., Clifford W. Long, and Donn L.

Park, MFR 41(7):28

MacCall, Alec—see Stauffer et al.

_____, Gary D. Stauffer, and Jean-Paul Troadec, MFR 38(1):1

McClellan, David B.—see Lopez et al.

McComas, Jerry R.—see Long et al.

McConnell, Daniel B.—see Bryan and McConnell

McConnell, Robert J.—see Blahm et al.

McConnell, Stewart, and Jack D. Austen, MFR 40(3):30

McCray, E. M., Jr.—see Umphlett and McCray

McCrone, Lawrence E.—see Frost and McCrone

McDermott-Ehrlich, D. J., M. J. Sherwood, T. C. Heesen,

D. R. Young, and A. J. Mearns, FB 75:513

MacDowell, Louis, III—see Gilmore et al.

McEachran, John D., and J. A. Musick, FB 73:110

McGowen, Gerald E.—see Ehrlich et al.

MacGregor, John S., FB 74:27

Machidori, S.—see Mason and Machidori

McHugh, J.L., C 401

MacInnes, J. R., F. P. Thurberg, R. A. Greig, and E. Gould, FB 75:199

McIntyre, J. D.—see Cramer and McIntyre

_____-see Winter et al.

MacKenzie, Clyde L., Jr., MFR 37(3):21, 39(8):1, 41(10):10

_____, Arthur S. Merrill, and Frederic M. Serchuk, MFR 40(2):19

Mackin, J. G., and Frank G. Schlicht, MFR 38(10):16

McKinney, E. Churchill—see Sigel et al.

McLain, Douglas R., C 416:127, 427:111, 151

_____-see Bretschneider and McLain

_____-see Bruce et al.

_____-see Johnson and McLain

_____-see Johnson et al.

_____-see Saur and McLain

_____-see Saur et al.

_____, F. Favorite, and R. J. Lynn, MFR 41(5-6):48

MacLean, Sharon A.—see Sawyer and MacLean

McMahon, Robert S.—see Zimmerman and McMahon

McNeil, William J.—see Ellis and McNeil

McVea, Charles, Jr.—see Watson and McVea

Magley, Wayne C.—see Gilmore et al.

Major, Peter F., FB 75:415, 76:299

Malone, Thomas C., C 410

Mandelli, Enrique F., and Amado Acuña C., MFR 37(1):15

Mangel, Marc—see Clark and Mangel

Manooch, Charles S., III, FB 74:775

_____-see Grimes et al.

_____, and William W. Hassler, C 412

_____, and Stuart T. Laws, MFR 41(4):15

_____, Eugene L. Nakamura, and Ann Bowman Hall, C 418

Manzer, J. I., FB 74:647

Markle, Douglas F., FB 76:79

Marquette, Willman M., MFR 38(8):9, 40(11):18

Martin, A. Dale—see Olla et al.

Martin, James D.—see Symons and Martin

Martin, John A.—see Temple and Martin

_____-see Temple et al.

Martin, Roy M.—see Heard and Martin

Martinich, Robert L.—see Chen and Martinich

Marvin, Kenneth T.—see Lansford et al.

Mason, J. C., FB 74:167

_____, and S. Machidori, FB 74:131

Mason, J. M., Jr.—see Mather et al.

Mather, F. J., III, H. L. Clark, and J. M. Mason, Jr., S 675-3:55

Mathews, Christopher P.—see Brothers et al.

Mathews, Stephen B.—see Wiviott and Mathews

Mathieson, Arthur C., MFR 37(1):2

Matsumoto, Walter M., FB 74:207; S 695

Matthews, Frances D., David N. Damkaer, Leslie W. Knapp, and Bruce B. Collette, S 706

Matthews, Gene M., George A. Swan, and Jim Ross Smith, MFR 39(7):10

Mattson, Chester R.—see Bailey et al.

_____, and Bruce L. Wing, S 723

Maurer, Don—see Kinner and Maurer

May, Nelson, Lee Trent, and Paul J. Pristas, FB 74:449

May, Robert C., FB 73:1, 249

_____, Gerald S. Akiyama, and Michael T. Santerre, FB 76:900

Maynard, Sherwood D., Fletcher V. Riggs, and John F. Walters, FB 73:726

Meaburn, G. M.—see Hall et al.

Mead, James G.—see Irvine et al.

Meade, Thomas L.—MFR 40(10):46

Mearns, A. J.—see McDermott-Ehrlich et al.

Mendelsohn, Joseph M.—see Gorga et al.

_____, T. J. Connors, and J. G. Callan, MFR 39(2):11

Merrett, N. R.—see Beardsley et al.

Merrill, Arthur S.—see MacKenzie et al.

_____-see Ropes et al.

_____-see Wenzloff et al.

Merriner, John V., FB 74:18

Mertens, Thomas J.—see Ditton et al.

Methot, Richard D., Jr., and David Kramer, FB 77:413

Meyer, F. P., MFR 40(3):38

Meyer, Thomas L., Richard A. Cooper, and Richard W. Langton, FB 77:243

Mighell, James L., and James R. Dangel, FB 73:447

Miller, Charles B.—see Peterson and Miller

Miller, Forrest R., C 416:169

Miller, M. Clinton, III—see Eldridge et al.

Miller, Mark, Larry Nelson, Robert French, and Stephen Hoag, MFR 38(4):1

Miller, R. J., FB 74:623

Miller, Ruth B.—see Perrin et al.

Millikin, Mark R., MFR 40(11):10

Misitano, David A., FB 75:218

Mix, Michael C., MFR 38(10):12, 37
 Miyauchi, D., G. Kudo, and M. Patashnik, MFR 39(5):11
 Mizenko, David, and J. Lockwood Chamberlin, C 427:259
 Moffatt, Nancy M., and Donald A. Thomson, FB 76:476
 Monan, Gerald E., James H. Johnson, and Gordon F. Esterberg, MFR 37(2):9
 Monk, Bruce H. — see Long et al.
 —, Earl Dawley, and Kirk Beiningen, D 102
 Moreira, G. Soares, and W. B. Vernberg, FB 76:449
 Morgan, Steven G., and Anthony J. Provenzano, Jr., FB 77:61
 Morrow, James E., C 420
 —, Eldor W. Schallock, and Glenn E. Bergtold, FB 75:234
 Morse, Wallace W. — see Wilk et al.
 Moser, H. G. — see Sumida et al.
 —, Elbert H. Ahlstrom, and Elaine M. Sandknop, C 402
 Motoda, Sigeru — see Ikeda and Motoda
 Mueller, Joseph J. — see Siegel et al.
 Muller, Robert G., C 408:119
 Murphy, Ted C. — see Sakagawa et al.
 Murray, Harriett E. — see Wigley et al.
 Musick, J. A. — see Able and Musick
 — — see Chao and Musick
 — — see McEachran and Musick
 Mustapha, Nik Hashim Nik, and Hiroshi Yamauchi, MFR 41(7):16
 Muszynski, Gerald — see Ehrlich et al.

N

Nakamura, Eugene L. — see Manooch et al.
 Nakamura, Izumi, S 675-3:17
 Nakatani, Roy E., Gerald J. Paulik, and Richard Van Cleve, S 686
 Namias, Jerome — see Dickson and Namias
 Neill, William H. — see Barkley et al.
 Nellen, Walter — see Blackburn and Nellen
 Nelson, Craig S., C 427:65; S 714
 — — see Johnson et al.
 Nelson, Donald R. — see Sciarrotta and Nelson
 Nelson, Larry — see Miller et al.
 Nelson, Richard W. — see Barnett et al.
 Nelson, Walter R., Merton C. Ingham, and William E. Schaaf, FB 75:23
 Ness, Howard O., MFR 39(3):10, 15, 19; 40(4):25
 Neves, Richard J., and Linda Depres, FB 77:199
 Newell, C. D. — see Pecci et al.
 Newkirk, G. F., and D. L. Waugh, FB 77:715
 Newman, Martin W. — see Pauley et al.
 Nichols, John P. — see Blomo et al.
 — — see Griffin and Nichols
 — — see Griffin et al.
 —, and Wade L. Griffin, MFR 37(2):1
 Nicholson, Bruce L. — see Reno et al.
 Nicholson, William R., S 684, 722
 —, and William E. Schaaf, FB 76:315
 Nickerson, J. T. R., MFR 40(7):21
 —, and L. J. Ronsivalli, MFR 41(4):1
 Nicolas, John R. — see Overholtz and Nicolas

Nielsen, Jørgen G. — see Cohen and Nielsen
 Nielsen, Larry A., MFR 38(12):15
 Nishimoto, Robert N. — see Laurs et al.
 Noetzel, Bruno G., and Mikolaj G. Wojnowski, MFR 37(4):25
 Norden, Carroll R. — see Foltz and Norden
 Norris, Kenneth S., and Thomas P. Dohl, FB 77:821
 —, Robert M. Goodman, Bernardo Villa-Ramirez, and Larry Hobbs, FB 75:159
 Novak, A.F. — see Rao and Novak
 Novotny, Anthony J., MFR 37(1):36, 40(3):52
 — — see Harache and Novotny
 — — see Harrell et al.
 Nulk, Vernon E., MFR 40(5-6):50

O

O'Brien, James J. — see Wright et al.
 Ogren, Larry H. — see Brusher and Ogren
 — — see Hastings et al.
 —, John W. Watson, Jr., and Donald A. Wickham, MFR 39(11):15
 O'Grodnick, Joseph, MFR 40(10):30
 Olla, Bori L., Allen J. Bejda, and A. Dale Martin, FB 73:895, 77:255
 —, and Carol Samet, FB 75:585
 Olsen, David A., Arthur E. Dammann, and Joseph A. LaPlace, MFR 40(7):12, 15
 Omori, Makoto, and David Gluck, FB 77:183
 Ortnr, Peter B., Peter H. Wiebe, Loren Hauray, and Steven Boyd, FB 76:323
 Otsu, Tamio, MFR 37(11):1
 — — see Yoshida et al.
 Overholtz, William J., and John R. Nicholas, FB 77:285
 Overstreet, Robin M., MFR 40(10):37
 Owers, James E., FB 75:483; MFR 37(7):22

P

Palm, William J., FB 73:830
 Palmer, J. E. — see Brown et al.
 Panshin, Daniel A. — see Percy et al.
 Parente, William D. — see Wahle et al.
 Park, Donn L. — see McCabe et al.
 — — see Slatick et al.
 Parker, R. O., Jr. — see Stone et al.
 —, R. B. Stone, and C. C. Buchanan, MFR 41(9):12
 Parks, Norman B., MFR 40(1):18, (2):29, (7):17
 Parrack, M. L., FB 74:503, 76:827
 Parrish, James D., FB 73:695
 Patashnik, M. — see Miyauchi et al.
 Patella, Frank, MFR 37(12):22
 — — see Caillouet and Patella
 — — see Caillouet et al.
 Patten, Benjamin G., FB 73:931, 75:457, 555
 Pauley, Gilbert B., MFR 37(5-6):2
 —, Martin W. Newman, and Edith Gould, MFR 37(5-6):34
 Paulik, Gerald J. — see Nakatani et al.
 Pawlowski, Robert J., S 726
 Pawson, David L., C 405
 Percy, William G., FB 74:70, 76:629

_____—see Keene and Percy
 _____—see Krygier and Percy
 _____—see Richardson and Percy
 _____—see Rothlisberg and Percy
 _____, and Danil Hancock, FB 76:641
 _____, Michael J. Hosie, and Sally L. Richardson, FB 75:173
 _____, Daniel A. Panshin, and Donald F. Keene, FB 73:691
 Pearce, John S., Daniel P. Costa, Marc B. Yellin, and Catherine R. Agegian, FB 75:645
 Pecci, Kenneth H.—see Uzmman et al.
 Pecci, K. J., R. A. Cooper, C. D. Newell, R. A. Clifford, and R. J. Smolowitz, MFR 40(5-6):9
 Pedrick, Robert A., MFR 41(5-6):32
 Peebles, John B., FB 76:905
 Pella, Jerome J.—see Bailey et al.
 _____, and Timothy L. Robertson, FB 77:387
 Penn, Erwin S., and Wenona J. Crews, MFR 41(12):1
 Pérez Farfante, Isabel, FB 73:463, 75:261, 76:687, 77:721
 Perkins, Frank O., MFR 37(5-6):46, 38(10):19, 41(1-2):25
 Perkins, Paul J.—see Fine et al.
 Perrin, William F., FB 74:457
 _____—see Gwinn and Perrin
 _____, James M. Coe, and James R. Zweifel, FB 74:229
 _____, W. E. Evans, and D. B. Holts, S 737
 _____, David B. Holts, and Ruth B. Miller, FB 75:725
 _____, Ruth B. Miller, and Priscilla A. Sloan, FB 75:629
 Perschbacher, Peter W., and Frank J. Schwartz, FB 76:879
 Peters, David S.—see Kjelson et al.
 Peters, John A., MFR 40(11):1
 Petersen, Duane H., D 98
 Peterson, William T., and Charles B. Miller, FB 73:642, 75:717
 Philippon-Fried, Marie—see Reno et al.
 Phillips, Ronald C.—see Thayer and Phillips
 Phinney, Duane E., FB 75:870
 Pieper, R. E., and B. G. Bargo, FB 77:935
 Plumb, John A., MFR 40(3):26
 _____, and P. R. Bowser, MFR 40(10):12
 Polacheck, T.—see Smith and Polacheck
 Pollock, Leland W., C 394
 Porter, Hugh J.—see Schwartz and Porter
 Pratt, Harold L., Jr., FB 77:445
 _____—see Stone et al.
 Prentice, Earl F.—see Rensel and Prentice
 Prezant, Robert S., FB 77:605
 Pristas, Paul J.—see May et al.
 _____—see Trent and Pristas
 _____, Eldon J. Levi, and Robert L. Dryfoos, FB 74:112
 _____, and Lee Trent, FB 75:103
 Prochaska, Fred J.—see Alvarez et al.
 _____—see Cato and Prochaska
 Proctor, Raphael—see Trent et al.
 Provenzano, Anthony J., Jr.—see Morgan and Provenzano
 Pruter, A. T., MFR 38(12):1
 Puffinburger, Jay O.—see Iversen and Puffinburger
 Pullen, Edward J.—see Trent et al.

Q

Quinn, William H., C 416:179, 427:93

_____, David O. Zopf, Kent S. Short, and Richard T. W. Kuo Yang, FB 76:663

R

Rafail, Samir Z., FB 75:561
 Ralph, Daniel E.—see Wilk et al.
 Ralston, Stephen, FB 74:990
 Rao, M. R. R., and A. F. Novak, MFR 37(12):25
 Rathjen, W. F., MFR 39(2):1
 Ravesi, Elinor M., MFR 38(4):24
 _____—see Gadbois et al.
 Ray, G. Carleton—see Watkins and Ray
 Raymond, Howard L.—see Ebel and Raymond
 Redmond, James R.—see Stagner and Redmond
 Reeve, M. R., and L. D. Baker, FB 73:238
 Reid, R. N., A. B. Frame, and A. F. Draxler, S 738
 Reilly, Stephen B.—see Barham et al.
 Reintjes, John W.—see Kendall and Reintjes
 _____, and Peggy M. Keney, S 687
 Reno, Paul, Marie Philippon-Fried, Bruce L. Nicholson, and Stuart Sherburne, MFR 40(10):16
 Rensel, John E., and Earl F. Prentice, FB 75:648, 76:886
 Reppond, Kermit D.—see Collins et al.
 _____, Fern A. Bullard, and Jeff Collins, FB 77:481
 Revelante, Noelia—see Gilmartin and Revelante
 Rice, Dale W., S 711
 Rice, D. W., Jr., and F. L. Harrison, FB 76:347
 Rice, Stanley D., and Robert M. Stokes, FB 73:207
 Richards, Charles S., MFR 38(10):44
 Richards, W. J.—see Beardsley et al.
 Richardson, Sally L.—see Laroche and Richardson
 _____—see Percy et al.
 _____, and Douglas A. DeHart, FB 73:681
 _____, and Wayne A. Laroche, FB 77:1
 _____, and William G. Percy, FB 75:125
 Ridgely, John, MFR 37(2):16
 Riggs, Fletcher V.—see Maynard et al.
 Rivard, D., and L. J. Bledsoe, FB 76:523
 Rivas, L. R., S 675-3:1
 Roberts, John L., and Jeffrey B. Graham, FB 76:861
 Roberts, K. J.—see Jones et al.
 Robertson, K. J.—see Williams and Robertson
 Robertson, Timothy L.—see Pella and Robertson
 Robins, C. Richard, S 675-3:28
 Robison, Bruce H.—see Lancraft and Robison
 Robohm, R. A., and C. Brown, MFR 40(10):5
 Rockland, Steven, MFR 40(7):5
 Rogers, Carolyn A., C 416:333, 427:349; FB 74:52
 _____, Douglas C. Biggs, and Richard A. Cooper, FB 76:281
 Rogers, W. A., MFR 40(3):56, (10):36
 Rohovec, J. S.—see Fryer et al.
 Rohr, Bennie A.—see Gutherz et al.
 _____, and Elmer J. Gutherz, FB 75:147
 Ronsivalli, L. J., MFR 38(6):1, 19, 39(2):7, (5):24, 40(2):1
 _____—see Gorga et al.
 _____—see Green and Ronsivalli
 _____—see Nickerson and Ronsivalli
 _____, and Stanley E. Charm, MFR 37(4):32
 _____, C. Gorga, J. D. Kaylor, and J. H. Carver, MFR 40(1):1

Roper, Clyde F. E. —see Young and Roper
 Ropes, J. W. —see Wenzloff et al.
 ———, Allan M. Barker, and George E. Ward, Jr., MFR 37(8):22
 ———, Arthur S. Merrill, and George E. Ward, Jr., MFR 37(12):31
 ———, and George E. Ward, Jr., MFR 39(5):18
 Rosenblatt, Richard H., and John L. Butler, FB 75:843
 Rosenthal, Harald —see Westernhagen and Rosenthal
 Ross, Stephen T., FB 76:225
 Rothlisberg, Peter C., and William G. Pearcy, FB 74:994
 Rothschild, Brian J. —see Lord et al.
 ——— —see Siegel et al.
 Roubal, William T., and Tracy K. Collier, FB 73:299
 Roumillat, W. A. —see Barans and Roumillat
 Roy, A. N., and J. D. Kaylor, MFR 37(4):16
 Rucker, Robert R., FB 73:915
 Russel, Gary M. —see Guthertz et al.
 ———, Abraham J. Barrett, L. Steve Sarbeck, and John H. Wordlaw, S 715
 Russo, Joseph L. —see Cohen and Russo
 ——— —see Collette et al.
 Ryan, John J., MFR 40(1):5, 41(11):25
 ——— —see King and Ryan
 Rybock, J. T., H. F. Horton, and J. L. Fessler, FB 73:654

S

Saila, Saul B. —see Sheehy et al.
 Sakagawa, Gary T., MFR 37(3):1
 ———, Atilio L. Coan, and Eugene P. Holzapfel, S 702
 ———, ———, and Ted C. Murphy, MFR 39(12):1
 ———, and Makoto Kimura, FB 74:271
 Saloman, Carl H. —see Hall and Saloman
 ——— —see Lindall and Saloman
 Salter, Frederick, MFR 37(7):26
 Samet, Carol —see Olla and Samet
 Sanchez, Carol —see Hunter and Sanchez
 Sanchez, Peter M., MFR 37(2):27
 Sandifer, Paul A., Paul B. Zielinski, and Walter E. Castro, FB 73:678
 Sandknop, Elaine M. —see Moser et al.
 Santerre, Michael T. —see May et al.
 Sarbeck, L. Steve —see Russell et al.
 Saur, J. F. T., C 416:151
 ———, L. E. Eber, D. R. McLain, and C. E. Dorman, S 728
 ———, and D. R. McLain, C 427
 Sawyer, Evelyn S., MFR 40(10):9
 Sawyer, Thomas K. —see Bovee and Sawyer
 ———, and Sharon A. MacLean, MFR 40(10):32
 Scarnecchia, Dennis L., and Harry H. Wagner, FB 77:617
 Scarpelli, Dante G., MFR 38(10):49
 Schaaf, William E., MFR 37(9):1
 ——— —see Nelson et al.
 ——— —see Nicholson and Schaaf
 ———, James E. Sykes, and Robert B. Chapoton, MFR 37(10):5
 Schachte, John H., Jr., MFR 40(3):18
 Schallock, Eldor W. —see Morrow et al.
 Schekter, Richard C. —see Houde and Schekter
 Scherba, Stephen, Jr., and Vincent F. Gallucci, FB 74:937

Scherer, Michael D., and Donald W. Bourne, FB 77:708
 Schevill, William E. —see Watkins and Schevill
 Schiewe, Michael H. —see Harrell et al.
 Schlicht, Frank G. —see Mackin and Schlicht
 Schlieder, Rodric A., FB 77:695
 Scholz, Allan T., Jon C. Cooper, Ross M. Horrall, and Arthur D. Hasler, FB 76:293
 Schreck, Carl B. —see Winter et al.
 Schuck, Howard A., MFR 37(12):1
 Schwartz, Frank J. —see Perschbacher and Schwartz
 ———, and Hugh J. Porter, FB 75:427
 Schwartz, John D. —see Ditton et al.
 Schwartz, Martin P. —see Ditton et al.
 Sciarrotta, Terry C., and Donald R. Nelson, FB 75:519
 Scott, Michael D. —see Irvine et al.
 Scotto, Liberta E., FB 77:359
 Scura, Edward D., and Charles W. Jerde, FB 75:577
 Seckel, Gunter R. —see Husby and Seckel
 ———, and Marian Y. Y. Yong, FB 75:767
 Seidel, Wilber R., and Thomas M. Vanselow, MFR 38(2):21
 ———, and John W. Watson, Jr., MFR 40(9):21
 Serchuk, Fredric M. —see MacKenzie et al.
 Serfling, Steven A., and Richard F. Ford, FB 73:360
 Serra, Anthony F. —see Guthertz et al.
 Sharp, Gary D., and Ronald C. Dotson, FB 75:447
 ———, and Robert D. Francis, FB 74:36
 Sheehy, Daniel J., Soliman Y. K. Shenouda, Aaron J. Alton, Saul B. Saila, and Spiros M. Constantinides, MFR 39(6):5
 Sheldon, William W., and Robert L. Dow, FB 73:449
 Shenouda, Soliman Y. K. —see Sheehy et al.
 Sherburne, Stuart —see Reno et al.
 ———, and Laurie L. Bean, FB 77:503
 Sheridan, Peter F. —see Livingston et al.
 Sherwood, M. J. —see McDermott-Ehrlich et al.
 Shippen, Herbert H. —see Weber and Shippen
 Shomura, Richard S., C 408:1
 ———, and Francis Williams, S 675-1, -3
 Short, Kent S. —see Quinn et al.
 Shotts, Emmett B. —see Gratzek et al.
 Shultz, Cynthia D., and Bernard M. Ito, FB 76:872
 Sibunka, J. D. —see Smith et al.
 Sidwell, Virginia D., David H. Buzzell, Pauline R. Foncannon, and Audrey L. Smith, MFR 39(1):1
 ———, Audrey L. Loomis, Pauline R. Foncannon, and David H. Buzzell, MFR 40(12):1
 ———, ———, and Robert M. Grodner, MFR 41(3):13
 ———, ———, Karen J. Loomis, Pauline R. Foncannon, and David H. Buzzell, MFR 40(9):1
 Siegel, Robert A., MFR 38(12):23
 ———, Joseph J. Mueller, and Brian J. Rothschild, FB 77:425
 Sigel, M. Michael, John C. Lee, E. Churchill McKinney, and Diana M. Lopez, MFR 40(3):6
 Silliman, Ralph P., FB 73:495, 685, 872
 Silverman, Myron J. —see Wilk and Silverman
 Sindermann, Carl J., FB 76:717; MFR 40(10):43
 ——— —see Steimle and Sindermann
 Sissenwine, Michael P., FB 75:465
 Six, Lawrence D., and Howard F. Horton, FB 75:405
 Skillman, Robert A., MFR 37(3):9
 ——— —see Yong and Skillman
 ———, and Marian Y. Y. Yong, FB 74:553

Slabyj, Bohdan M., Donn L. Creamer, and Ruth H. True, MFR 40(8):18
 Slatick, Emil, MFR 37(9):17, 38(7):24
 ———— see Gilbreath et al.
 ————, Donn L. Park, and Wesley J. Ebel, FB 73:925
 Sloan, Priscilla—see Perrin et al.
 Smayda, Theodore J., FB 73:38
 Smigielski, Alphonse S., FB 73:431, 76:931
 Smith, Audrey L.—see Sidwell et al.
 Smith, B. R., C 408:95
 Smith, Courtland L., MFR 37(4):13
 Smith, Daniel E., and Jack W. Jossi, C 427:337
 Smith, David G., C 424
 Smith, Jim Ross—see Matthews et al.
 ————, and Winston E. Farr, MFR 37(2):31
 Smith, Paul E.—see Hewitt et al.
 Smith, Robert Z.—see Wahle and Smith
 ———— see Wahle et al.
 Smith, Ronal W., and Franklin C. Daiber, FB 75:823
 Smith, Susan E., MFR 41(9):32
 Smith, T. D., and T. Polacheck, FB 76:771
 Smith, Wallace G.—see Colton et al.
 ————, J. D. Sibuka, and A. Wells, FB 76:167; S 691
 Smolowitz, Ronald Joel, MFR 40(5-6):2, 59, 68
 ———— see Pecci et al.
 Snieszko, S. F., MFR 40(3):65, (10):2
 Snyder, George R., MFR 38(11):34
 ———— see Blahm et al.
 Sparks, Albert K., MFR 38(10):2
 Sprague, Victor, MFR 40(10):26, 41(1-2):40
 Springer, Stewart, C 422
 Squire, James L., Jr., FB 76:443; S 718, 720
 Stadelman, Donald—see Tillman and Stadelman
 Staeger, William H., and Howard F. Horton, FB 74:698
 Stagner, John I., and James R. Redmond, MFR 37(5-6):11
 Stansby, Maurice E., MFR 38(9):1, (11):1, 51, 40(1):13, (7):1
 Stauffer, Gary—see MacCall et al.
 ————, Alec MacCall, and Bruce Wahlen, MFR 37(11):22
 Steele, George—see Eldridge et al.
 Steimle, Frank W., and Carl J. Sindermann, MFR 40(12):17
 Stein, David L.—see Howe et al.
 Stephens, John S.—see Ehrlich et al.
 Stevens, Joe B.—see Liao and Stevens
 Stewart, Harold L., MFR 38(10):46
 Stewart, James E., MFR 37(5-6):20, 40(10):4
 Stillwell, Charles E., and John G. Casey, FB 74:221
 Stokes, Robert M.—see Rice and Stokes
 Stone, R. B.—see Parker et al.
 ————, L. C. Coston, D. E. Hoss, and F. A. Cross, MFR 37(3):18
 ————, H. L. Pratt, R. O. Parker, Jr., and G. E. Davis, MFR 41(9):1
 Stout, Virginia F., and F. Lee Beezhold, FB 76:880
 Straty, Richard R., S 690, 713
 Struhsaker, Jeannette W., FB 75:43
 ———— see Korn et al.
 Struhsaker, Paul, and James H. Uchiyama, FB 74:9
 ————, and Howard O. Yoshida, MFR 37(12):13
 Sumida, B. Y., E. H. Ahlstrom, and H. G. Moser, FB 77:105
 Sutherland, Doyle F., S 708, 724
 ———— see French et al.

Swan, George A.—see Matthews et al.
 Swanson, L. J., Jr.—see Houde and Swanson
 Sweeney, Jay C.—see Barham et al.
 Sykes, James E.—see Schaaf et al.
 Sylvester, J. R., A. E. Dammann, and Richard A. Dewey, MFR 39(8):14
 Symons, Philip E. K., and James D. Martin, FB 76:487

T

Taber, Robert E., MFR 39(2):24
 Taguchi, Warren K.—see Barham et al.
 Targett, Timothy E., FB 77:292
 Tashiro, Joseph E., and Susan E. Coleman, MFR 39(10):1
 Taylor, Sidney G.—see Bailey et al.
 Teeny, Fuad M.—see Hall et al.
 Temple, Robert F., David L. Harrington, and John A. Martin, S 707
 ————, and John A. Martin, S 730
 Tenney, Richard D.—see Collins and Tenney
 Testaverde, Salvatore A., MFR 39(12):23
 ———— see Katona et al.
 Thayer, Gordon W.—see Kjelson et al.
 ————, and Ronald C. Phillips, MFR 39(11):15
 Theilacker, Gail H., FB 76:403
 Theroux, Roger B.—see Uzmann et al.
 ———— see Wigley et al.
 Thomas, Allan E., FB 73:356
 Thomas, James C.—see Krouse and Thomas
 Thomson, Donald A.—see Moffatt and Thomson
 Thompson, Perry A., Jr., and Thomas D. Leming, S 719
 Thorson, Lee C.—see Engett and Thorson
 ————, and Mary Ellen Engett, C 392
 Thurberg, Frederick P.—see Calabrese et al.
 ———— see MacInnes et al.
 Ticknor, William C., Jr.—see Goldberg and Ticknor
 Tillman, Michael F., FB 73:212; MFR 37(10):1
 ————, and Donald Stadelman, FB 74:118
 Trent, Lee—see Lindall and Trent
 ———— see May et al.
 ———— see Pristas and Trent
 ————, and Paul J. Pristas, FB 75:185
 ————, Edward J. Pullen, and Raphael Proctor, FB 74:195
 Tricas, Timothy C., FB 77:175
 Tripp, M. R.—see Fries and Tripp
 Troadec, Jean-Paul—see MacCall et al.
 True, Ruth H.—see Slabyj et al.
 Tubiash, H. S.—see Colwell et al.

U

Uchida, Richard N., C 408:57; FB 74:59
 ———— see Yoshida et al.
 Uchiyama, James H.—see Hida and Uchiyama
 ———— see Struhsaker and Uchiyama
 Udey, Lanny R., MFR 40(10):10
 ————, and J. L. Fryer, MFR 40(3):12
 Ueyanagi, Shoji, and Paul G. Wares, S 675-3:132
 Umphlett, Clyde J., and E. M. McCray, Jr., MFR 37(5-6):61
 Uzmann, J. R.—see Lux et al.
 ————, Richard A. Cooper, and Kenneth J. Pecci, S 705

_____, _____, Roger B. Theroux, and Roland L. Wigley, MFR 39(12):11

V

Van Cleve, Richard—see Nakatani et al.
Vanselous, Thomas M., MFR 39(4):12
____—see Seidel and Vanselous
Venrick, E. L., FB 76:617
Vergne, Philipe J.—see Coe and Vergne
Vernberg, W. B.—see Moreira and Vernberg
Villa-Ramirez, Bernardo—see Norris et al.
Vondruska, John, S 703
Vreeland, Robert R.—see Wahle and Vreeland
____—see Wahle et al.
____, Roy J. Wahle, and Arthur H. Arp, FB 73:717

W

Wade, Lawrence S., and Gary L. Friedrichsen, FB 76:915
Wagner, Harry H.—see Scarnecchia and Wagner
Wagner, Patricia J.—see Clarke and Wagner
Wahle, Roy J.—see Vreeland et al.
____, Reino O. Koski, and Robert Z. Smith, FB 77:229
____, William D. Parente, Paula J. Jurich, and Robert R. Vreeland, D 101
____, and Robert Z. Smith, S 736
____, and Robert R. Vreeland, FB 76:179
Wahlen, Bruce—see Stauffer et al.
Walford, Lionel A.—see Kendall and Walford
Walters, John F., FB 74:799
____—see Maynard et al.
Ward, George E., Jr.—see Ropes and Ward
____—see Ropes et al.
Wardlaw, Newton J.—see Griffin et al.
Wares, Paul G.—see Ueyanagi and Wares
Warlen, Stanley M., MFR 37(9):27
Warner, Robert R., FB 73:262
Warren, John P., and Wade L. Griffin, MFR 41(8):15
Washington, Percy, MFR 39(12):20
Wasmer, Robert A.—see Krygier and Wasmer
Wathne, Fred, MFR 39(6):16
Watkins, William A., and G. Carleton Ray, FB 75:450
____, and William E. Schevill, FB 74:687
Watling, Les, C 423
Watson, John W., Jr.—see Ogren et al.
____—see Seidel and Watson
____—see Wickham and Watson
____, and Charles McVea, Jr., MFR 39(10):18
Vaugh, D. L.—see Newkirk and Vaugh
Webber, Harold H., MFR 37(1):24
Weber, Douglas D., and Herbert H. Shippen, FB 73:919
Weihs, Daniel, FB 77:597
Weinstein, Michael P., FB 77:339
____, and Kenneth L. Heck, Jr., FB 75:875
____, and Ralph W. Yerger, FB 74:599
Weis, Judith S., FB 74:464
____, and Peddrick Weis, FB 74:208
Weis, Peddrick—see Weis and Weis
Wellington, G. M., and Shane Anderson, FB 76:290
Wells, A.—see Smith et al.
Wells, Randall S.—see Irvine et al.

Wenner, Charles A., FB 73:687
Wenner, Elizabeth Lewis, FB 77:435
Wenzloff, D. R., R. A. Greig, A. S. Merrill, and J. W. Ropes, FB 77:280
Westernhagen, Hein von, and Harald Rosenthal, FB 74:669
Wetherall, Jerry A., C 408:114, 160
____—see Hida and Wetherall
Whitcomb, J. P.—see Haven et al.
White, James R.—see Hanson et al.
White, Michael L., and Mark E. Chittenden, Jr., FB 75:109
Wickham, Daniel E.—see Botsford and Wickham
____—see Fisher and Wickham
Wickham, Donald A.—see Ogren et al.
____, and John W. Watson, Jr., MFR 38(7):15
Wicks, T. C.—see Colwell et al.
Widersten, Bernt, FB 74:857
Wiebe, Peter H.—see Ortner et al.
____, Steven Boyd, and James L. Cox, FB 73:777
Wigley, Roland L.—see Uzmamn et al.
____—see Williams and Wigley
____, Roger B. Theroux, and Harriett E. Murray, MFR 37(8):1
Wilk, Stuart J., Wallace W. Morse, Daniel E. Ralph, and Thomas R. Azarovitz, S 716
____, and M. J. Silverman, S 697, 698
Williams, Austin B., and Roland L. Wigley, C 407
Williams, Francis—see Blackburn and Williams
____—see Shomura and Williams
Williams, John G., FB 77:287, 891
Williams, P. M., and K. J. Robertson, FB 73:445
Williams, Simon, MFR 37(1):48
Williams, Theodore D.—see Fable et al.
Wilson, Peter T., C 408:69, 75
Wing, Bruce L., FB 73:169
____—see Bailey et al.
____—see Bruce et al.
____—see Mattson and Wing
____, and Nancy Barr, S 710
Winn, Howard E.—see Fine et al.
____—see Leatherwood et al.
Winstead, James T., FB 77:509
Winter, Gary W., Carl B. Schreck, and John D. McIntyre, FB 77:795
Wirick, Creighton D.—see Judkins et al.
Wisner, Robert L.—see Hubbs and Wisner
Wiviott, Douglas J., and Stephen B. Mathews, MFR 37(4):21
Wojnowski, Mikolaj G.—see Noetzel and Wojnowski
Wolf, Peter, MFR 41(1-2):70
Wolman, Allen A., and Charles M. Jurasz, MFR 39(7):1
Woods, Steve A.—see Ditton et al.
Woodworth, Bruce M.—see Wright et al.
Wordlaw, John H.—see Russell et al.
Worlund, Donald D.—see High and Worlund
Wright, David J., Bruce M. Woodworth, and James J. O'Brien, MFR 38(3):1
Würsig, Bernd, and Melany Würsig, FB 77:399, 871
Würsig, Melany—see Würsig and Würsig

Y

Yamauchi, Hiroshi—see Mustapha and Yamauchi
Yang, Richard T. W. Kuo—see Quinn et al.

Yellin, Marc B. — see Pearse et al.
 Yerger, Ralph W. — see Lewis and Yerger
 — see Weinstein and Yerger
 Yesaki, Mitsuo, MFR 39(9):14, 41(8):1
 Yevich, Paul P., and Carolyn A. Barszcz, MFR 38(10):42
 Yong, Marian Y. Y. — see Seckel and Yong
 — see Skillman and Yong
 —, and Robert A. Skillman, FB 73:681
 Yoshida, Howard O., C 429; FB 73:747
 — see Struhsaker and Yoshida
 —, Richard N. Uchida, and Tamio Otsu, C 408:36
 Yoshino, Timothy P., MFR 38(10):7
 Young, Alan M. — see Lang and Young
 Young, D. R. — see McDermott-Ehrlich et al.
 —, and Tsu-Kai Jan, FB 76:936
 Young, Richard Edward, FB 76:583

—, and Clyde F. E. Roper, FB 75:239
 Youngbluth, Marsh J., FB 74:925
 Yuen, Heeny S. H., C 408:52; MFR 41(8):7
 — see Laurs et al.

Z

Zavala-Camin, Luis Alberto — see Collette et al.
 Zielinski, Paul B. — see Sandifer et al.
 Zimmerman, Steven T., and Robert S. McMahon, FB 74:679
 Zook, E. G. — see Hall et al.
 Zopf, David O. — see Quinn et al.
 Zullo, Victor A., C 425
 Zweifel, James R. — see Lenarz and Zweifel
 — see Perrin et al.
 —, and Reuben Lasker, FB 74:609

SUBJECT INDEX

A

Abers disease
 life cycle and development in *Ostrea edulis*, MFR 41(1-2):64
Abralia trigonura
 bioluminescence, intensity regulation of during counter-shading, FB 75:242
Abraliopsis sp.
 bioluminescence, intensity regulation of during counter-shading, FB 75:243
Acanthomysis pseudomacropsis
 invertebrates, midwater
 Chukchi Sea, southeastern, September-October 1970, S 710
Acanthonotozoma serratum
 invertebrates, midwater
 Chukchi Sea, southeastern, September-October 1970, S 710
Acanthostepheia behringiensis
 invertebrates, midwater
 Chukchi Sea, southeastern, September-October 1970, S 710
Acartia californiensis
 effects of temperature and salinity on production and hatching of dormant eggs
 diapause termination and population reappearance, FB 77:582
 environmental conditions resulting in egg dormancy, FB 77:580
 field population cycle, FB 77:571
 hatching of resting eggs collected in field, FB 77:570, 576
 resting egg production, FB 77:569, 573

Acartia clausii
 Oregon coast, central
 seasonal cycle of abundance, FB 75:717
Acartia longiremis
 Oregon coast, central
 seasonal cycle of abundance, FB 75:717
 Acids, fatty
 differentiation of freshwater characteristics of, in marine specimens of Atlantic sturgeon, FB 73:838
Acipenser brevirostrum — see Sturgeon, shortnose
Acipenser oxyrhynchus — see Sturgeon, Atlantic
 Actiniaria
 continental shelf and slope, U.S. east coast
 Actinauge verrilli, FB 74:872
 Actinostola callosa, FB 74:865
 Amphianthus nitidus, FB 74:873
 Antholoba perdix, FB 74:869
 Bolocera tuediae, FB 74:863
 Edwardsia sulcata, FB 74:860
 Haliplanella luciae, FB 74:870
 Haloclava producta, FB 74:863
 Hormathia nodosa, FB 74:871, 872
 Metridium senile fimbriatum, FB 74:870
 Paranthus rapiformis, FB 74:868
 Peachia parasitica, FB 74:863
 Phelliactis americana, FB 74:872
 Sagartiogeton verrilli, FB 74:870
 Stephanauge nexilis, FB 74:875
 Stephanauge (?) spongicola, FB 74:875
 Stomphia coccinea, FB 74:868
 Tealia crassicornis, FB 74:865
Aequipecten irradians — see Scallop, bay

- Aerococcus viridans* (var.) *homari*
cause of fatal infection in lobsters, MFR 37(5-6):20
- Aeromonas salmonicida*
bacterins
used in fish immunization, MFR 40(3):12
- Age determination
butterflyfish, tropical reef otoliths, daily growth rings,
FB 74:990
larval and adult fishes
otoliths, daily growth increments, FB 74:1
methods, analysis of for rockfish off Oregon
age composition, FB 75:410
age-length relationship, FB 75:411
consistency of readings, FB 75:407
otolith method, validity, FB 75:409
otolith sections, FB 75:410
suitability of structures, FB 75:407
survival, FB 75:411
nehu, Hawaiian Islands
sagittae, daily growth increments, FB 74:9
- Aglantha digitale*
invertebrates, midwater
Chukchi Sea, southeastern, September-October 1970,
S 710
- Air-sea interactions
large-scale, at Ocean Weather Station V, 1951-71, S 696
- Alabama
oyster
composition, geographic and monthly variation in, MFR
41(3):13
- Alaska
bowhead whale field studies, 1975, MFR 38(8):9
Bristol Bay, inner
current patterns and distribution of river waters, S 713
Kachemak Bay
Lebbeus groenlandicus, description of larvae, FB 76:457
salmon
income estimates and reasonable returns, FB 75:483
limited entry, empirical study of, MFR 37(7):22
salmon, juvenile
floating horizontal and vertical raceways, MFR 41(3):18
salmonids
new incubator, MFR 37(7):26
seal, fur
yield of male, role of land and ocean mortality in, FB
77:311
- Alaska, southeastern
Auke Bay
physical and chemical oceanographic cycles, S 712
herring fishery, MFR 39(3):10, 19
herring gill net fishery, opening of, MFR 39(3):19
herring roe gillnet fishery, 1976
economic aspect of development, MFR 40(4):25
ichthyoplankton composition and plankton volumes from
inland coastal waters, April-November 1972, S 723
rockfish, dusky
distribution and activity, seasonal changes, MFR 39(3):23
rockfish, yellowtail
distribution and activity, seasonal changes, MFR 39(3):23
salmon, pink
tagging experiments, 1938-42 and 1945, S 686
salmon fishery
profitability and productivity analysis, MFR 38(4):11
Sashin Creek
salmon, coho, life history, FB 74:897
salmon, pink, FB 76:569
Albacore—see Tuna, albacore
Aleutian Islands
groundfish resources, MFR 41(11):1
Alewife
New York Bight fishery resource, C 401
Algae
Amchitka Island, Alaska
experimental studies of canopy interactions in a sea otter-
dominated kelp community, FB 73:230
Alopias superciliosus—see Shark, bigeye thresher
Alosa pseudoharengus—see Alewife
Alosa sapidissima—see Shad, American
Amchitka Island, Alaska
experimental studies of algal canopy interactions in a sea
otter-dominated kelp community at, FB 73:230
Amerosporae
United States, northeastern
key to genera and species, C 398
Ammodytes americanus—see Lance, American sand
Ampelisca macrocephala
invertebrates, midwater
Chukchi Sea, southeastern, September-October 1970,
S 710
Amphipods
microsporidian infections of
influence on sex determination, MFR 37(5-6):43
pathogenicity, MFR 37(5-6):42
taxonomic survey, MFR 37(5-6):39
transmission, MFR 37(5-6):41
Anaerobic bacteria
disease agents in fish, MFR 40(10):10
Anchoa mitchilli—see Anchovy, bay
Anchovy, bay
larval
simulated food patches and survival of, FB 76:485
small preserved
number and length frequency, subsampler for estimating,
FB 76:490
Anchovy, northern
additional evidence substantiating existence of northern
subpopulation, FB 73:212
California current
larvae, food and feeding, FB 74:517
¹⁴C-benzene
uptake, distribution, and depuration, FB 74:545
energetic significance of changes in swimming modes during
growth, FB 77:597
field criteria for survival
criteria for successful first-feeding larvae, FB 73:460
laboratory-determined criteria for successful feeding,
FB 73:454
shipboard experiments with first-feeding larvae, FB
73:457
study area, FB 73:457
temperature effect on feeding, FB 73:459
vertical distribution of larvae, FB 73:460

- fishery, development and example application of simulation model, FB 74:118
- growth of laboratory-reared in southern California comparisons, FB 74:277
- growth curve, FB 74:274
- hatching to juvenile, FB 74:272
- juvenile to adult, FB 74:273
- weight-length relation, FB 74:276
- larvae, culture and growth
- laboratory cultured foods, FB 74:81
- survival at metamorphosis, FB 74:85
- larval
- relative nutritional value of the dinoflagellates *Gymnodinium splendens* and *Gonyaulax polyedra*, FB 75:577
- various species of phytoplankton as food for, FB 75:577
- larval growth in the sea, FB 77:413
- precision of simulated transect surveys of school groups, FB 76:697
- school shapes as related to problems in school size estimation, FB 76:443
- spawning incidence and batch fecundity
- batch fecundity, FB 77:649
- oocyte growth, FB 77:648
- ovary classification, FB 77:643
- sex ratio and spawning incidence, FB 77:647
- sexual maturity, FB 77:645
- spawning incidence, FB 77:646
- swim bladder inflation, diel changes
- adaptive advantages, FB 74:854
- diel rhythm, FB 74:849
- larval length, FB 74:850
- mechanism, FB 74:852
- relation between sinking speed, swim bladder volume, and larval length, FB 74:850
- vertical migration, FB 74:853
- thermal tolerance and resistance
- development and growth, FB 74:440
- embryos and larvae, FB 74:435
- juveniles and adults, FB 74:434
- Anchovy, northern Adriatic
- concentration of mercury, copper, nickel, silver, cadmium, and lead in, FB 73:193
- Ancylosetta quadrocellata*—see Flounder, ocellated
- Angling, saltwater
- California, changes in methods and gear in developments, MFR 41(9):32
- fishing technique and tackle changes, MFR 41(9):35
- live bait fishing, MFR 41(9):39
- ocean salmon fishing, MFR 41(9):38
- offshore bottomfishing, MFR 41(9):41
- striped bass fishery, MFR 41(9):35
- sturgeon fishery, MFR 41(9):36
- Anguilla rostrata*—see Eel, American
- Annelids, polychaetous
- Delaware Bay region, FB 76:209
- Anodonta californiensis*
- polyp, description of in foot, MFR 38(10):25
- Anonyx lilljeborgi*
- invertebrates, midwater
- Chukchi Sea, southeastern, September-October 1970, S 710
- Anonyx nugax*
- invertebrates, midwater
- Chukchi Sea, southeastern, September-October 1970, S 710
- Anoplopoma fimbria*—see Sablefish
- Antilles Current
- velocity and transport northeast of Bahama Islands, FB 73:626, 75:222
- Antinoe badia*
- invertebrates, midwater
- Chukchi Sea, southeastern, September-October 1970, S 710
- Antinoe sarsi*
- invertebrates, midwater
- Chukchi Sea, southeastern, September-October 1970, S 710
- Apalachicola Bay, Florida
- epibenthic fish and invertebrate populations
- long-term fluctuations, FB 74:311
- Aphanopus carbo*
- anatomy, notes on, FB 77:700
- Oregon, first records off, FB 77:700
- Apherusa glacialis*
- invertebrates, midwater
- Chukchi Sea, southeastern, September-October 1970, S 710
- Aquaculture
- constraints of projects
- cables and pipelines, MFR 37(1):34
- fishing rights, MFR 37(1):34
- navigational rights, MFR 37(1):33
- pollution and water quality, MFR 37(1):34
- recreational rights, MFR 37(1):34
- riparian landowner's rights, MFR 37(1):34
- crustacean, in Middle America
- business plan, MFR 37(1):28
- culture technology, MFR 37(1):26
- markets, MFR 37(1):24
- siting the enterprise, MFR 37(1):26
- economics bibliography, S 703
- in the Americas
- conflict of interest and its resolution as factors in commercialization, MFR 37(1):48
- institutional constraints to the development of
- contiguous zone, MFR 37(1):31
- high seas, MFR 37(1):31
- inland waters, MFR 37(1):32
- territorial sea, MFR 37(1):31
- response of costs and returns to alternative feed prices and conversions
- grow-out systems, MFR 39(5):15
- rates of return, MFR 39(5):16
- unit costs, MFR 39(5):16
- seaweed
- cultivation, MFR 37(1):7
- overview, MFR 37(1):5
- Sea Grant projects, MFR 37(1):13
- uses, MFR 37(1):3
- Aquaculture, planetary
- seas as range and cropland
- choosing the crops, MFR 37(4):7
- comparison of polar hemispheres, MFR 37(4):6

- management, MFR 37(4):7
- oceans seen from space, MFR 37(4):5
- productivity determinants, MFR 37(4):6
- range and cropland, MFR 37(4):6
- seeding the Southern Ocean with salmon, MFR 37(4):9
- stocking the ocean range, MFR 37(4):9
- Archosargus rhomboidalis*—see Bream, sea
- Arctic Ocean, central
 - calanoid copepods of *Spinocalanus* and *Mimocalanus*, C 391
- Arctica islandica*—see Quahog, ocean
- Arctogadus glacialis*—see Cod, polar
- Argis crassa*
 - invertebrates, midwater
 - Chukchi Sea, southeastern, September-October 1970, S 710
- Argis lar*
 - invertebrates, midwater
 - Chukchi Sea, southeastern, September-October 1970, S 710
- Argopecten gibbus*—see Scallop, calico
- Argopecten irradians*—see Scallop, bay
- Arthropoda: Cirripedia
 - United States, northeastern
 - biology, C 425
 - classification, C 425
 - key, C 425
 - morphology, C 425
 - systematic list, annotated, C 425
- Arthropods
 - review of involvements of *Lagenidium* with, MFR 37(5-6): 61
- Artificial structures
 - attractors of fish
 - SEFC progress report, MFR 39(4):21
- Ascomycetes
 - United States, northeastern
 - index to genera and species, C 398
 - key to spore groups, C 398
 - systematic list, annotated, C 398
- Atheresthes stomias*—see Flounder, arrowtooth
- Atlantic Bight, South
 - fishes, larval and juvenile
 - annotated list, captured with surface-towed meter net between May 1967 and February 1968, S 685
- Atlantic coast
 - Cape Romain to Georges Bank
 - variations in position of shelf water front, 1975, C 416:213
 - cold weather conditions during fall and winter 1976-77
 - effects on estuarine and coastal waters, C 427:171
 - effects on fishery resources, C 427:172
 - entire coast colder than in previous 40 years, C 427:168
 - individual stations, C 427:169
 - surf clam fishery, 1973, MFR 37(12):31
 - wind driven transport
 - 1975, C 416:229
 - 1976, C 427:175
- Atlantic coast, middle
 - clam, surf
 - heavy metals in, survey of, FB 77:285
 - quahog, ocean
 - heavy metals in, survey of, FB 77:285
 - river runoff, 1976, C 427:281
- Atlantic coast, southern
 - invertebrates, marine
 - references for identification, S 729
- Atlantic Ocean
 - seatrouts
 - protein taxonomy, FB 74:599
 - tuna, review of yellowfin-skipjack fishery, 1956-75, MFR 39(12):1
- Atlantic Ocean, eastern tropical
 - tuna length composition, caught by American purse seiners
 - bigeye, S 702
 - skipjack, S 702
 - yellowfin, S 702
- Atlantic Ocean, North
 - calanoid copepods
 - caloric values of some, FB 74:218
- Atlantic Ocean, northwest
 - fishes, laboratory reared larvae
 - length-weight relations, FB 76:890
- Atlantic Ocean, northwestern
 - bluefin tuna
 - purse-seine fishery, MFR 37(3):1
 - teleconnections between northeastern Pacific Ocean and Gulf of Mexico and, FB 73:306
 - whales, fin and humpback
 - feeding on American sand lance, FB 77:285
- Atlantic Ocean, South
 - dolphin, bottlenose
 - behavior and ecology, FB 77:399
 - dolphin, dusky
 - behavior and ecology, FB 77:871
- Atlantic Ocean, southeastern tropical
 - oxycline characteristics, FB 75:857
 - skipjack tuna distribution, FB 75:857
- Atlantic Ocean, southwestern North
 - bottom obstructions, S 715
- Atlantic Ocean, western
 - basis for classifying Sciaenidae, C 415
 - tuna, bluefin
 - length-weight relationships, FB 77:995
 - possible anomalies, MFR 37(12):1
- Atlantic Ocean, western North
 - bigeye thresher shark, observations on, FB 74:221
 - fishing effort estimation from aerial search data, FB 74:503
 - lobsters, deep-sea
 - biology, FB 77:435
 - marlin, white
 - sex composition, length-weight relationship, and reproduction, FB 76:919
 - sea surface conditions, 1976, C 427:43
- Atlas
 - EASTROPAC
 - physical oceanographic and meteorological data, C 330, vol. 11
 - EASTROPAC, third survey cruise
 - biological and nutrient chemistry data, February-March 1968, C 330, vol. 10

Atmospheric climatology
 winter 1977 to winter 1978
 sea surface temperature, effect on, MFR 41(5-6):20

Atmospheric gas supersaturation
 Snake and Columbia Rivers
 salmon, effect on, MFR 38(7):1
 steelhead trout, effect on, MFR 38(7):1

Atwater, W. O.
 chemical composition of fish, MFR 40(7):1

Atylus bruggeni
 invertebrates, midwater
 Chukchi Sea, southeastern, September-October 1970, S 710

Auke Bay, southeastern Alaska
 physical and chemical oceanographic cycles
 climatology, S 712
 density, S 712
 nutrients, inorganic, S 712
 oxygen, dissolved, S 712
 physiography and geology, S 712
 runoff, S 712
 salinity, S 712
 stability, S 712
 temperature, S 712
 tides, S 712

Auke Creek, Alaska
 salmon, pink
 production of fry and adults from gravel incubators and natural spawning, FB 74:961

Aurelia aurita
 invertebrates, midwater
 Chukchi Sea, southeastern, September-October 1970, S 710

Axiiothella sp.
 invertebrates, midwater
 Chukchi Sea, southeastern, September-October 1970, S 710

B

Bacterial diseases—see Diseases, bacterial

Bacterial kidney disease
 salmon, coho
 resistance of different stocks and transferrin genotypes, FB 77:795
 trout, steelhead
 resistance of different stocks and transferrin genotypes, FB 77:795

Bahama Islands
 Antilles Current, velocity and transport northeast of, FB 73:626, 75:222

Bairdiella
 effects of acclimation on temperature and salinity tolerance of larvae
 salinity tolerance, FB 73:250
 upper thermal tolerance, FB 73:250
 effects of temperature and salinity on fertilization, embryonic development and hatching
 acclimation of spawning fish to low salinity, FB 73:5
 capture and maintenance of fish, FB 73:2
 deformed larvae, FB 73:12
 embryonic mortality, FB 73:8

fertilization, FB 73:3
 incubation, FB 73:3
 incubation time, FB 73:7
 induced maturation and spawning, FB 73:2
 maturity of spawning fish, FB 73:6
 normal development, FB 73:7
 response surfaces, FB 73:13
 spermatozoan activity, FB 73:5
 survival of starved larvae, FB 73:12
 viable hatch, FB 73:12

Bairdiella chrysoura
 York River estuary, Virginia
 life history, feeding habits, and functional morphology of juveniles, FB 75:657

Bairdiella icistia—see Bairdiella

Baja California
 phytoplankton in upwelling waters off, FB 73:38
 whale, gray
 behavior of California, FB 75:159

Balaena mysticetus—see Whale, bowhead

Balaenoptera physalus—see Whale, fin

Balenoptera musculus—see Whale, blue

Banana River, Florida
 aerial survey of bottlenosed dolphin and West Indian manatee, FB 77:47

Bar Harbor, Maine
 temperature structure between, and Yarmouth, Nova Scotia, June 1975-November 1976, S 716

Barataria Bay, Louisiana
 oyster
 composition, geographic and monthly variation in, MFR 41(3):13

Barnacles, goose
 La Jolla, California
 on beached flotsam, FB 74:212

Barnacles, shallow water
 larval development of the Carolinas
Balanus amphitrite amphitrite, C 421
Balanus eburneus, C 421
Balanus improvisus, C 421
Balanus subalbidus, C 421
Balanus trigonus, C 421
Balanus venustus, C 421
Chelonibia patula, C 421
Chthamalus fragilis, C 421
Conopea galeata, C 421
 definition and diagnostic characters, C 421
 descriptions, C 421
 keys, C 421
 larval development, C 421
Lepas spp., C 421
Octolasmis muelleri, C 421

Barrow, Alaska
 whale, bowhead
 1976 catch by Eskimos, MFR 40(11):23, 25

Basidiomycetes
 United States, northeastern
 index to genera and species, C 398
 systematic list, annotated, C 398

Bass, kelp
 kelp forests off Santa Barbara, California
 diet and habitat distribution, FB 76:257

- Bass, striped
 - benzene, effects of
 - caloric content, FB 74:694
 - fat content, FB 74:694
 - growth, FB 74:694
- ¹⁴C-benzene
 - uptake, distribution, and depuration, FB 74:545
- developmental anatomy and inflation of the gas bladder, FB 77:1000
- eggs and larvae
 - survival rates, in relation to impact assessments, MFR 41(3):1
- New York Bight fishery resource, C 401
- New York waters
 - abundance, prediction from modal lengths, FB 76:467
- Pacific Northwest commercial fishery, 1922-74
 - commercial fishery, MFR 40(1):18
 - fish introduction and range extension, MFR 40(1):18
 - species description, MFR 40(1):18
 - trends, MFR 40(1):20
- relative contribution of Hudson, Chesapeake, and Roanoke stocks to Atlantic coast fishery
 - best estimator of relative contribution, FB 76:341
 - discriminant functions, establishing, FB 76:340
 - estimating stock contribution for oceanic and overwintering collections, FB 76:342
 - spawning-stock specimens, analysis, FB 76:337
 - spawning-stock specimens, collection, FB 76:336
 - spawning-stock specimens, processing, FB 76:336
 - stock percentages, adjusting estimates, FB 76:337
- Bathochordaeus charon*
 - first record from eastern Pacific Ocean
 - description, FB 77:515
 - distribution, FB 77:516
 - history, FB 77:514
- Bathynectes superbus*
 - epizotes associated with, FB 74:225
- Bathythermograph observations
 - NMFS/MARAD Ship of Opportunity Program, 1972
 - areas of study, S 692
 - data acquisition and processing, S 692
 - NMFS/MARAD Ship of Opportunity Program, 1973
 - Atlantic, western, S 700
 - Gulf of Mexico, S 700
 - NMFS/MARAD Ship of Opportunity Program, 1974
 - Atlantic, western, S 709
 - Gulf of Mexico, S 709
 - NMFS/MARAD Ship of Opportunity Program, 1975
 - Cape Hatteras transects, S 727
 - Gulf of Maine transects, S 727
 - Gulf of Mexico transects, S 727
 - Middle Atlantic Bight transects, S 727
- vertical sections of semimonthly mean temperature on San Francisco-Honolulu route
 - annual cycles, S 728
 - California subsurface countercurrent, S 728
 - coastal upwelling, S 728
 - computational procedures, S 728
 - initial processing, S 728
 - instrumentation, S 728
 - mixed layers and thermoclines, S 728
 - observations, S 728
 - quality control, S 728
 - structure below permanent thermocline, S 728
 - temperature inversions, S 728
 - 30-day temperature changes, S 728
- Beaufort Sea
 - keys to otoliths of some adult fishes, C 420
- Bentheogennema burkenroadi*
 - Pacific Ocean, northeastern
 - description and biology of a new species of, FB 73:737
- Benzene
 - bass, striped
 - effects on growth, fat content, and caloric content, FB 74:694
 - herring, Pacific
 - effects on spawning, FB 75:43
- Bering Sea
 - bottomfish and herring
 - Soviet fisheries off U.S. coast, MFR 38(12):1
 - Japanese trawl vessels
 - U.S. observers board, MFR 38(4):1
 - keys to otoliths of some adult fishes, C 420
- Bering Sea, eastern
 - groundfish resources, MFR 41(11):1
 - pollock, walleye
 - foods, spring and summer, FB 77:304
 - salmon, adult sockeye
 - migratory routes, S 690
 - single-layer hydrodynamical-numerical model of shelf grid system, C 416:198
 - parameterization and initialization of inputs, C 416:198
 - physical characteristics, C 416:197
 - simulated tidal height and current data, C 416:199
- Bering Sea, southeastern
 - age-length-weight and distribution, 1961
 - plaice, Alaska, FB 73:919
 - sole, rock, FB 73:919
 - sole, yellowfin, FB 73:919
- Bibliography
 - economics, aquacultural, S 703
- Biological data
 - EASTROPAC atlas
 - principal participating ships, third survey cruise, February-March 1968, C 330, vol. 10
- Bioluminescence
 - animals, intensity regulation in midwater
 - Abralia trigonura*, FB 75:242
 - Abraliopsis* sp., FB 75:243
 - Cryptosaras couesi*, FB 75:247
 - Enoploteuthis* sp., FB 75:245
 - Heteroteuthis hawaiiensis*, FB 75:247
 - Octopoteuthis nielsenii*, FB 75:246
 - Oplophorus gracilirostris*, FB 75:248
 - Pterygioteuthis microlampas*, FB 75:244
 - Pyroteuthis addolux*, FB 75:245
- Biomass
 - finfish and squid
 - changes in, Gulf of Maine to Cape Hatteras, 1963-74, FB 75:1
- Biscayne Bay, Florida
 - Spherooides spengleri*
 - biology of, contribution to, FB 77:292

- Spherooides testudineus*
biology of, contribution to, FB 77:292
- Bivalve larvae
reevaluation of combined effects of temperature and salinity
on survival and growth
Crassostrea virginica, FB 73:87
Mercenaria mercenaria, FB 73:88
Mulinia lateralis, FB 73:89
- Bivalve variation
application of systematic sampling to study of, in soft
substrate environment, FB 74:944
- Bloodworm, tychoplanktonic
Sullivan Harbor, Maine, FB 76:480
- Bluefish
New York Bight fishery resource, C 401
sources and distribution of larvae and juveniles off U.S. east
coast
eggs, FB 77:216
hydrographic features of Middle and South Atlantic
Bights, FB 77:216
juveniles, FB 77:220
larvae, FB 77:216
- Boats
marine charter fishing industry
economic analysis of Georgia's, MFR 37(4):11
- Boats, recreational
United States
selected information on, MFR 37(2):16
- Boise River
concentration of dissolved gases, 1970-72, D 102
- Boltenia ovifera*
invertebrates, midwater
Chukchi Sea, southeastern, September-October 1970,
S 710
- Bonito, Atlantic
New York Bight fishery resource, C 401
- Bonitos
systematics and morphology
Allothunnus, FB 73:614
color pattern, FB 73:521
Cybiosarda, FB 73:594
Gymnosarda, FB 73:612
key to species of Sardini, FB 73:520
meristic characters, FB 73:524
morphometric characters, FB 73:524
Orcynopsis, FB 73:591
osteology, FB 73:533
Sarda, FB 73:597
scales, FB 73:523
soft anatomy, FB 73:524
systematics, FB 73:590
- Boothbay Harbor, Maine
crab, Jonah
distribution and catch composition, FB 77:685
crab, rock
distribution and catch composition, FB 77:685
- Boston
fish pier landings, 1978, MFR 41(10):29
- Bottom obstructions
Atlantic, southwestern North, S 715
Caribbean Sea, S 715
Gulf of Mexico, S 715
- Bottom temperature—see Temperature, bottom
- Bottomfish
Gulf of Mexico, northern
fishing grounds, MFR 37(7):3
historical aspects, MFR 37(7):1
processing, MFR 37(7):5
tactics, MFR 37(7):4
vessels and gear, MFR 37(7):2
U.S. Pacific and Bering Sea coasts
Soviet fisheries, MFR 38(12):1
- Bottomfish—see also Groundfish resources
- Brachydanio rerio*—see Zebrafish
- Brachyistius frenatus*—see Perch, kelp
- Brazil
São Paulo
Euterpina acutifrons, synergistic effects on metabolism,
FB 76:449
U.S. shrimp fishery off, 1972-74, FB 75:703
- Brazilian shrimp investigation
SEFC progress report, MFR 39(4):15
- Bream, sea
larval, simulated food patches and survival of, FB 76:483
- Brevoortia*
annotated bibliography on biology, 1963-73, S 687
- Brevoortia patronus*—see Menhaden, Gulf
- Brevoortia smithi*—see Menhaden, yellowfin
- Brevoortia tyrannus*—see Menhaden, Atlantic
- Bristol Bay, Alaska
current patterns and distribution of river waters
dye studies, S 713
salinity distribution, S 713
tidal influence, S 713
wind effect, S 713
salmon, sockeye
foods of juvenile in inshore coastal waters, 1966-67,
FB 74:458
identifying stocks by evaluating scale patterns with a
polynomial discriminant method, FB 76:415
migratory routes, S 690
- British Columbia
American shad, history of commercial fishery, MFR
40(2):29
- Brittany, France
Crassostrea gigas possibly infected by *Marteilia refringens*,
MFR 41(1-2):19
- Brosme brosme*—see Cusk
- Buccinum scalariforme*
invertebrates, midwater
Chukchi Sea, southeastern, September-October 1970,
S 710
- Bulkholding
herring, sea
seawater system, chilled, MFR 39(3):4
- Buoy, acoustic
used for high-seas assessment of migrating salmon,
FB 74:104
- Burbot
description, MFR 41(11):32
- Busycon canaliculatum*—see Whelk, channeled
- Busycon carica*—see Whelk, knobbed
- Butterfish
New York Bight fishery resource, C 401

Butterflyfish, millet-seed
 age determination using daily growth rings of otoliths,
 FB 74:990
Byblis gaimardii
 invertebrates, midwater
 Chukchi Sea, southeastern, September-October 1970,
 S 710

C

Cadmium
 cunner, long-term stress in, FB 75:199
 marine animals, effects on, MFR 39(4):5
Calanus cristatus
 invertebrates, midwater
 Chukchi Sea, southeastern, September-October 1970,
 S 710
Calanus finmarchicus
 invertebrates, midwater
 Chukchi Sea, southeastern, September-October 1970,
 S 710
Calanus marshallae
 Oregon coast, central
 seasonal cycle of abundance, FB 75:717
 California
 California and Gulf of California grunions
 hybridization, reciprocal, FB 76:476
 changes in saltwater angling methods and gear, MFR
 41(9):32
 fishes, littoral
 thermal behavioral responses of selected, FB 76:837
 oceanographic conditions, summer 1977, MFR 40(2):24
 red sea urchin
 localized mass mortality, FB 75:645
 Santa Barbara, kelp forests off
 food and habitat of three switch-feeding fishes,
 FB 76:257
 shark, blue
 diel behavior near Santa Catalina Island, FB 75:519
 wind stress and wind stress curl over the California Current,
 S 714
 California, central
 surface currents determined by drift card releases over
 continental shelf, S 718
 California, central and northern
 crab, Dungeness
 egg mortalities in wild populations, FB 75:235
 California, southern
 DDT and metabolites in sediments off, FB 74:27
Euphausia pacifica
 population biology, FB 74:733
 fish prices
 historical trends, MFR 37(11):22
 fish schools, epipelagic
 thickness and depth distributions, FB 77:489
 marine fisheries
 anchovy, northern, MFR 38(1):15
 barracuda, MFR 38(1):7
 bonito, Pacific, MFR 38(1):11
 interactions, MFR 38(1):25
 mackerel, jack, MFR 38(1):15
 mackerel, Pacific, MFR 38(1):16

sardine, Pacific, MFR 38(1):17
 seabass, white, MFR 38(1):18
 stock assessment methods, MFR 38(1):3
 yellowtail, MFR 38(1):22
 rockfish, juvenile
 migration, timing of surface to benthic, FB 75:887
 rockfish, olive
 isolation of populations off, FB 77:975
 scallop, rock
 trace metal contamination, FB 76:936
 surface currents determined by drift card releases over
 continental shelf, S 718
 California Current
 microcopepods
 distribution, size, and abundance, FB 75:601
 survival of marine teleost larvae, influence on, FB 75:601
 sonar mapping
 development and use for pelagic stock assessment,
 FB 74:281
 wind stress and wind stress curl
 atmospheric stability effect, S 714
 averaging effects, S 714
 biological implications, S 714
 coastal time series of curl, S 714
 data reduction, S 714
 monthly curl distributions, S 714
 physical implications, S 714
 seasonal cycle of wind stress distributions at the coast,
 S 714
 spatial and temporal variability of wind stress distribu-
 tions, S 714
 zooplankton
 biomass, annual fluctuations, 1955-59, FB 75:357
 California current, central region
 zooplankton and euphausiid populations
 density, vertical range, and diel movement, FB 74:925
Callinectes danae
 recent records from North Carolina, FB 76:879
Callinectes marginatus
 recent records from North Carolina, FB 76:879
Callinectes sapidus—see Crab, blue
Callorhinus ursinus—see Seal, Alaska fur
 Canadian Maritimes
 smelt, rainbow
 incidence and distribution of piscine erythrocytic necrosis
 and *Glugea hertwigi*, FB 77:503
 Canals, housing development
 ecological consequences, regulations, and recommendations
 changes in water quality and sediment type, MFR 37
 (10):20
 qualitative and quantitative faunal changes, MFR 37
 (10):22
 regulatory mechanisms in management, MFR 37(10):22
 types of development, MFR 37(10):19
 vegetation, destruction of wetland, MFR 37(10):20
Cancer borealis—see Crab, Jonah
Cancer irroratus—see Crab, rock
Cancer magister—see Crab, Dungeness
 Capacity, harvesting
 multiple species fishery, a linear programming approach,
 FB 77:425

- Cape Ann, Massachusetts
 - clam, soft shell
 - spawning cycle, fecundity, and recruitment, FB 76:155
- Cape Cod, Massachusetts
 - flatfishes, larval
 - seasonal distribution on continental shelf, 1965-66, S 691
 - lance, American sand
 - relative abundance, behavior, and food habits, FB 77:243
 - sea surface temperature
 - distribution from, to Miami, Florida, 1976, C 427:209
- Cape Fear River, North Carolina
 - fishes and shellfish
 - shallow marsh habitats as primary nurseries, FB 77:339
- Cape Lookout, North Carolina
 - flatfishes, larval
 - seasonal distributions on continental shelf, 1965-66, S 691
 - surface water drift south of, C 416:299
- Cape Romain, South Carolina
 - shelf water front, variations in position between, and Georges Bank
 - 1975, C 416:213
 - 1976, C 427:301
- Capture data
 - simplification for the study of fish populations, FB 75:561
- Caretta caretta*—see Sea turtles, loggerhead
- Caribbean coast
 - snapper, host-parasite relationship with *Cymothoa excisa*, FB 75:875
- Caribbean Sea
 - bottom obstructions, S 715
- Caroline Islands, western
 - Helen Reef, Palau
 - giant clam stocks, status as of April 1975, MFR 38(4):15
- Catfish
 - bibliography of aquacultural economics, S 703
- Catfish, channel
 - immunization against two bacterial diseases, MFR 40(3):18
 - serological screening of virus, MFR 40(3):30
 - virus disease epizootiology
 - cell culture characteristics, MFR 40(3):28
 - clinical signs and pathogenesis, MFR 40(3):27
 - control, MFR 40(3):29
 - immunological response, MFR 40(3):28
 - morphology and biophysical nature, MFR 40(3):28
 - transmission, MFR 40(3):26
 - virus replication
 - phosphonoacetic acid inhibition of, MFR 40(10):24
 - virus research, recent developments, MFR 40(10):12
- Catsharks
 - revision
 - Apristurus*, C 422
 - Asymbolus*, C 422
 - Atelomycterus*, C 422
 - Aulohalaelurus*, C 422
 - Cephaloscyllium*, C 422
 - Cephalurus*, C 422
 - family Scyliorhinidae, C 422
 - Galeus*, C 422
 - Halaelurus*, C 422
 - Haploblepharus*, C 422
 - Holohalaelurus*, C 422
 - identification characters, C 422
 - Juncrus*, C 422
 - key to genera of Scyliorhinidae, C 422
 - Parapristurus*, C 422
 - Parmaturus*, C 422
 - Pentanchus*, C 422
 - Poroderma*, C 422
 - Schroederichthys*, C 422
 - Scyliorhinus*, C 422
- Celtic Sea
 - herring stocks
 - status, fished by the Federal Republic of Germany fleet, MFR 40(4):22
- Central America
 - crustacean aquaculture, MFR 37(1):24
- Centropristis striata*—see Sea bass, black
- Cephalolobus penaeus*
 - parasitic on penaeid shrimp in Gulf of Mexico and South Atlantic, FB 76:12
- Cephalopods
 - Hawaiian
 - vertical distribution and photosensitive vesicles, FB 76:583
- Ceratium tripos*
 - bloom in New York Bight, 1976
 - accumulation off New Jersey coast, C 410
 - biology, C 410
 - distribution of phytoplankton species, C 410
 - future research and monitoring, C 410
 - growth and respiration, C 410
 - horizontal distribution in maximum chlorophyll layer, C 410
 - phytoplankton productivity, C 410
 - oxygen minimum layer, C 410
 - suspended particulate organic matter and phytoplankton, C 410
 - time-course of bloom, C 410
 - vertical distribution, C 410
 - water column stratification and dissolved oxygen, C 410
- Cerebratulus* sp.
 - invertebrates, midwater
 - Chukchi Sea, southeastern, September-October 1970, S 710
- Ceriantharia
 - continental shelf and slope, U.S. east coast
 - Ceriantheopsis americanus*, FB 74:858
 - Cerianthus borealis*, FB 74:857
- Cerithidea californica*
 - parasitic encapsulation
 - role of agranular hemolymph cells, MFR 38(10):7
- Cero
 - bibliography, annotated, C 418
- Chaetodon miliaris*—see Butterflyfish, millet-seed
- Channel catfish virus disease—see Catfish, channel
- Charleston, South Carolina
 - ichthyoneuston catches
 - Boothbay neuston net, FB 76:295
- Chauliodus sloani*
 - inverse correlation between meristic characters and food supply, FB 73:290
- Chelonia mydas*—see Turtle, green sea

- Chemical oceanographic cycles—see Auke Bay, southeastern Alaska
- Chesapeake Bay, Maryland
- oyster
 - composition, geographic and monthly variation in, MFR 41(3):13
 - oyster diseases in, MFR 41(1-2):45
- Chesapeake Bight
- crab, red
 - reproductive biology of female, FB 75:91
 - galatheid crustaceans
 - occurrence of two in, FB 74:462
- Chignik Lakes, Alaska
- salmon, sockeye
 - history of fishery and summary statistics of runs, 1888-1966, S 735
- Chionoecetes bairdi*—see Crab, snow
- Chionoecetes opilio*
- invertebrates, midwater
 - Chukchi Sea, southeastern, September-October 1970, S 710
- Chlorinated hydrocarbon pollutants
- analysis of, FB 76:880
- Chone cincta*
- invertebrates, midwater
 - Chukchi Sea, southeastern, September-October 1970, S 710
- Christmas Island
- sea-surface temperature, 1954-73, FB 75:767
- Chrysaora melanaster*
- invertebrates, midwater
 - Chukchi Sea, southeastern, September-October 1970, S 710
- Chukchi Sea, southeastern
- species and abundance of midwater invertebrates, September-October 1970, S 710
- Ciguatera
- Virgin Islands
 - ciguatoxic species and locations, MFR 39(8):14
 - fisheries management, MFR 39(8):15
 - origin and nature, MFR 39(8):14
- Citharichthys arcifrons*—see Flounder, Gulf Stream
- Citharichthys sordidus*—see Sanddab, Pacific
- Citharichthys stigmatæus*—see Sanddab, speckled
- Clam
- abundance, management for increasing, MFR 41(10):10
- Clam, giant
- Helen Reef, Palau, western Caroline Islands
 - status of stocks, April 1975, MFR 38(4):15
- Clam, hard
- New York Bight fishery resource, C 401
- Clam, Manila
- growth and survival in newly settled spat
 - growth, FB 77:894, 895
 - movement of clams on beach, FB 77:898
 - plot construction, FB 77:892
 - sampling, FB 77:893
 - survival, FB 77:895, 896
- Clam, soft shell
- neoplasms, gonadal and hematopoietic, MFR 38(10):42
 - New York Bight fishery resource, C 401
 - salinity acclimation, FB 75:225
 - spawning cycle, fecundity, and recruitment from Cape Ann, Massachusetts
 - recruitment, FB 76:162
 - reproductive cycle, FB 76:158
 - sex ratios and fecundity, FB 76:159
- Clam, surf
- Atlantic coast
 - status and trends of the fishery, 1973, MFR 37(12):31
 - Atlantic coast fishery—1972
 - fishing areas, MFR 37(8):22
 - fleets, MFR 37(8):22
 - landing statistics, MFR 37(8):24
 - status and trends of the fishery, MFR 37(8):26
 - Atlantic coast fishery—1974
 - fishery trends, MFR 39(5):21
 - fishing statistics from interviews, MFR 39(5):19
 - fleet operations and landings by area, MFR 39(5):18
 - mid-Atlantic coast
 - heavy metals in, survey of, FB 77:280
 - New York Bight fishery resource, C 401
 - Virginia
 - useable meat yields, FB 75:640
- Clams
- phenol, effects on, MFR 38(10):10
 - proteomyxids
 - relation to neoplastic diseases of, MFR 38(10):16
 - reproduction and recruitment in Virginia
 - distribution and recruitment, FB 73:427
 - environmental data, FB 73:414
 - histological study of reproductive cycle, FB 73:415
 - hydrographic data, FB 73:423
 - larval setting, FB 73:421
 - relationship of reproductive cycle to environmental data, FB 73:425
 - sex ratio, FB 73:420
 - ship collectors, FB 73:414
 - study area, FB 73:413
- Climatology, atmospheric
- effect on sea surface temperature
 - 1975, C 416:89
 - 1976, C 427:19
- Clione limacina*
- invertebrates, midwater
 - Chukchi Sea, southeastern, September-October 1970, S 710
- Clupea harengus harengus*—see Herring, sea
- Clupea harengus pallasii*—see Herring, Pacific
- Cnidaria: Scyphozoa
- United States, northeastern
 - annotated systematic list, C 397
 - keys, C 397
 - natural history, C 397
 - orders, description of, C 397
 - scientific means, index, C 397
- Cobalt-60
- albacore, content in
 - source and migration estimates on west coast, FB 75:867
- Cod
- family and utilization
 - Atlantic, MFR 41(11):26
 - burbot, MFR 41(11):32
 - classification, MFR 41(11):25

- cod as food, MFR 41(11):33
- codworm, MFR 41(11):35
- conservation, MFR 41(11):35
- cusk, MFR 41(11):33
- European, MFR 41(11):32
- false, MFR 41(11):33
- fillets, MFR 41(11):34
- fish cakes, MFR 41(11):35
- fish fillet blocks, MFR 41(11):34
- Greenland, MFR 41(11):27
- haddock, MFR 41(11):27
- hake, Argentine, MFR 41(11):32
- hake, Pacific, MFR 41(11):31
- hake, red, MFR 41(11):31
- hake, South African, MFR 41(11):32
- hake, white, MFR 41(11):31
- handling, MFR 41(11):33
- harvesting, MFR 41(11):33
- Pacific, MFR 41(11):26
- polar, MFR 41(11):27
- pollock, Alaska, MFR 41(11):29
- pollock, Atlantic, MFR 41(11):28
- rockling, fourbeard, MFR 41(11):32
- salted, MFR 41(11):35
- selling, MFR 41(11):34
- smoked, MFR 41(11):35
- tomcod, MFR 41(11):32
- whiting, MFR 41(11):30
- whiting, blue, MFR 41(11):32
- Cod, Atlantic
 - description, MFR 41(1):26
 - New York Bight fishery resource, C 401
 - piscine erythrocytic necrosis (PEN), MFR 40(10):16
- Cod, Greenland
 - description, MFR 41(11):27
- Cod, Pacific
 - description, MFR 41(11):26
 - resource in Bering Sea and Aleutian Islands, MFR 41(11):14
 - summer food near Kodiak Island, Alaska, FB 76:700
- Cod, polar
 - description, MFR 41(11):27
- Codium*
 - introduction in New England waters, FB 73:215
- Columbia River
 - atmospheric gas supersaturation, effect on
 - salmon, MFR 38(7):1
 - trout, steelhead, MFR 38(7):1
 - cobalt-60 content
 - contamination source for albacore off west coast, FB 75:867
 - estuary, 1973
 - species composition and relative abundance of larval and post-larval fishes, FB 75:218
 - leeches, piscivorous
 - records of, FB 76:926
 - salmon, coho
 - homing behavior and contribution to, FB 73:717
 - salmon, juvenile chinook and coho
 - effect of gas supersaturated water on survival, S 688
 - salmon, sockeye
 - contribution of 1960-63 brood hatchery-reared to commercial fishery, FB 77:229
 - salmonids, juvenile
 - barge transportation, 1977, MFR 41(7):28
- Columbia River Basin
 - electronic tags and related tracking techniques aid in study of migrating salmon and steelhead trout in, MFR 37(2):9
- Columbia River hatchery
 - salmon, fall chinook
 - bioeconomic contribution to Pacific salmon fisheries, FB 76:179
- Computer program analysis
 - polymodal frequency distributions (ENORMSEP), FORTRAN IV, FB 73:681
- Conger oceanicus*—see Eel, conger
- Contaminants—see Pollutants, Pollution
- Control theory, optimal
 - fishery regulation via, FB 73:830
- Cooling waters
 - aquatic resources of the Pacific Northwest, impact on
 - biological effects, MFR 38(11):30
 - physical effects, MFR 38(11):29
 - sources of cooling water, MFR 38(11):27
- Copepod
 - Euterpina acutifrons*
 - synergistic effects on metabolism, FB 76:449
- Copepoda: Harpacticoida
 - United States, northeastern
 - annotated systematic list, C 399
 - diagnostic characters, C 399
 - ecology, C 399
 - index, systematic, C 399
 - key, C 399
- Copepods
 - Oregon coast, central
 - seasonal cycle of abundance, FB 75:717
- Copepods, calanoid
 - Arctic Ocean, central
 - Mimocalanus*, C 391
 - Spinocalanus*, C 391
 - Atlantic Ocean, north
 - caloric values of some, FB 74:218
 - Mimocalanus*
 - crassus*, C 391
 - cultrifer*, C 391
 - heronae*, C 391
 - inflatus*, C 391
 - major*, C 391
 - nudus*, C 391
 - ovalis*, C 391
 - sulcifrons*, C 391
 - Monacilla*
 - gracilis*, C 391
 - tenera*, C 391
 - typica*, C 391
 - Spinocalanus*
 - abruptus*, C 391
 - abyssalis*, C 391
 - angusticeps*, C 391
 - antarcticus*, C 391
 - aspinosus*, C 391
 - brevicaudatus*, C 391
 - elongatus*, C 391

- hirtus*, C 391
- hoplites*, C 391
- horridus*, C 391
- longicornis*, C 391
- magnus*, C 391
- oligospinosus*, C 391
- polaris*, C 391
- similis*, C 391
- spinosus*, C 391
- terranovalae*, C 391
- usitatus*, C 391
- validus*, C 391
- Teneriforma naso*, C 391
- Copepods, cyclopoid
 - parasitic on fishes
 - key, C 409
 - systematic list, annotated, C 409
- Corallimorpharia
 - continental shelf and slope, U.S. east coast
 - Corynactis delawarei*, FB 74:858
- Coregonus nelsoni*—see Whitefish, Alaska
- Cottus aleuticus*
 - populations of sympatric in four adjacent salmon-producing coastal streams on Vancouver Island, FB 74:131
- Cottus asper*
 - populations of sympatric in four adjacent salmon-producing coastal streams on Vancouver Island, FB 74:131
- Cottus rhotheus*—see Sculpin, torrent
- Cowlitz River
 - concentration of dissolved gases, 1970-72, D 102
- Crab
 - North American fisheries regulations and their rationales
 - procedures for changing laws and regulations, FB 74:630
- Crab, blue
 - comparative study of the bacterial flora of the hemolymph, MFR 37(5-6):29
 - development of a self-culling pot, MFR 41(12):21
- east coast
 - fishery regulations and their rationales, FB 74:628
- larval culture
 - egg development in vitro, MFR 40(11):11
 - egg mass: age and disease, MFR 40(11):11
 - feed organisms, culture, MFR 40(11):13
 - feeding, MFR 40(11):12
 - holding tanks for mass culture, MFR 40(11):13
 - mating and spawning, MFR 40(11):10
 - survival in natural vs. artificial systems, MFR 40(11):10
 - water quality, characteristics, and optimal parameters, MFR 40(11):11
- New York Bight fishery resource, C 401
- serum changes associated with *Paramoeba perniciosa*
 - acrylamide gel electrophoresis, MFR 37(5-6):35
 - biochemical analysis, MFR 37(5-6):35
 - immuno-electrophoresis, MFR 37(5-6):35
- viral diseases of, MFR 40(10):13
- West Bay, Texas
 - abundance in natural and altered marshes, FB 74:195
- Crab, Cuban stone
 - larval development under laboratory conditions, FB 77:359
- Crab, Dungeness
 - California, central and northern
 - egg mortalities in wild populations, FB 75:235

- eggs
 - mortalities and epibiotic fouling of, from wild populations, FB 74:201
- escape from pots
 - crab recoveries, MFR 38(4):22
 - description of pots, MFR 38(4):20
 - fish captures, MFR 38(4):23
 - mark retention, MFR 38(4):22
 - marking test crabs, MFR 38(4):20
 - octopus predation, MFR 38(4):22
 - pots with tunnel triggers functional and escape rings closed, MFR 38(4):22
 - pots with tunnel triggers functional and escape rings open, MFR 38(4):21
 - pots with tunnels and escape rings open, MFR 38(4):20
 - source of crabs, MFR 38(4):20
- larval dynamics off central Oregon coast, 1970-71
 - abundance, FB 74:357
 - climate, FB 74:357
 - distribution, FB 74:357
 - gut-fullness analysis, FB 74:364
 - hydrographic features, FB 74:353
 - population analyses, larval, FB 74:359
 - sampling variability, FB 74:356
- Pacific coast
 - statistical relationship between upwelling intensity and annual catch, FB 73:901
- Puget Sound, Washington
 - intertidal harvest, estimation of, FB 77:287
- west coast
 - fishery regulations and their rationales, FB 74:626
- Crab, fiddler
 - mercury, cadmium, and lead salts
 - effects on regeneration and ecdysis, FB 74:464
- Crab, horseshoe
 - immunological mechanisms
 - attempted change of hematocrit and agglutinin concentration, MFR 37(5-6):12
 - bacterial cultures, MFR 37(5-6):11
 - bactericidal assays, MFR 37(5-6):13
 - chemical and physical analysis of exudate, MFR 37(5-6):12
 - collection of hemolymph, MFR 37(5-6):12
 - electrophoresis, MFR 37(5-6):12
 - exudate agglutination tests, MFR 37(5-6):12
 - hemocyte hematocrit determination, MFR 37(5-6):12
 - hemocytes and coagulation, MFR 37(5-6):13
 - hemolymph heteroagglutinin, MFR 37(5-6):13
 - hypodermal gland anatomy and histochemistry, MFR 37(5-6):13
 - hypodermal gland mucoprotein, MFR 37(5-6):15
 - preparation of antibody, MFR 37(5-6):13
 - preparation of hemocyte lysates, MFR 37(5-6):12
 - production of exudate, MFR 37(5-6):12
- New York Bight fishery resource, C 401
- Crab, Jonah
 - Boothbay Harbor, Maine
 - distribution and catch composition, FB 77:685
 - traps, escape vent shape, FB 76:425
- Crab, king
 - Alaska
 - fishery regulations and their rationales, FB 74:624

- escape from derelict pots
 - baited pot experiment, S 734
 - box shaped, S 734
 - confined crab viability experiment, S 734
 - conical snow crab, S 734
 - crowding experiment, S 734
 - effect of bait or dead crab, S 734
 - escape from standard pots, S 734
 - experimental design, S 734
 - fiberglass pyramid, S 734
 - history of problem, S 734
 - incidental catch observations, S 734
 - incidental catches, S 734
 - mortality in pots, S 734
 - pot description, S 734
 - pot loss magnitude, S 734
 - radical pyramid, S 734
 - selecting, handling, and tagging, S 734
 - tag returns, S 734
 - unbaited pot experiment, S 734
 - viability of escaped crab, S 734
- Crab, mud
 - fine structure of *Minchinia* sporulation in, MFR 37(5-6): 46
- Crab, portunid
 - Portunus spinimanus*
 - U.S. Virgin Islands, resource potential in, MFR 40(7): 12
- Crab, red
 - reproductive biology of female, Chesapeake Bight
 - abdomen width changes, FB 75:99
 - copulation, physical evidence, FB 75:96
 - ovarian development incidence, FB 75:96
 - ovaries, redeveloping, FB 75:96
 - ovary development, FB 75:92
 - ovigerous females, FB 75:96
 - size at sexual maturity, FB 75:96
 - vulvae changes, FB 75:99
 - survey off northeastern U.S.
 - bottom sediments and topography, MFR 37(8):19
 - distribution, density, and biomass in relation to geographic area and water depth, MFR 37(8):8
 - fishery, MFR 37(8):3
 - notes on biology, MFR 37(8):15
 - previous studies, MFR 37(8):1
 - size, MFR 37(8):6
- Crab, rock
 - Boothbay Harbor, Maine
 - distribution and catch composition, FB 77:685
 - size composition and growth of young in Maine
 - growth, FB 74:952
 - sex ratio, FB 74:951
 - size composition and seasonal distribution, FB 74:949
 - synopsis of biological data
 - bionomics and life history, C 426
 - distribution, C 426
 - exploitation, C 426
 - identity, C 426
 - population, C 426
 - protection and management, C 426
 - traps, escape vent shape, FB 76:425
- Crab, sand
 - growth rate in two different environments
 - environmental differences, FB 76:371
 - instantaneous growth rate rationale, FB 76:370
 - localities, FB 76:370
 - measuring growth, FB 76:373
 - sampling, FB 76:370
- Crab, snow
 - Alaska
 - fishery regulations and their rationales, FB 74:625
 - Canada, eastern
 - fishery regulations and their rationales, FB 74:627
 - electrophoretic evidence of hybrid, FB 74:693
 - mature male, length-width-weight relationships, FB 75:870
 - megalopa description, FB 75:459
- Crab, spider
 - diets, several
 - effect on survival, development time, and growth of larvae, FB 76:59
 - larval development
 - laboratory-reared and planktonic described and compared, FB 75:831
- Crab, stone
 - egg hatching success, effects of desiccation and autospasy on, FB 77:695
 - Florida
 - fishery regulations and their rationales, FB 74:630
- Crab fisheries
 - regulations and their rationales
 - Alaska king, FB 74:624
 - Alaska snow, FB 74:625
 - blue, east coast, FB 74:628
 - Canada, eastern snow, FB 74:627
 - Dungeness, west coast, FB 74:626
 - Florida stone, FB 74:630
- Crab pot
 - development of self-culling blue
 - body relationships, MFR 41(12):24
 - 1977 results, MFR 41(12):23
 - 1978 results, MFR 41(12):24
 - potential benefits, MFR 41(12):26
- Crabs
 - Puget Sound, Washington
 - zoeae, short-term thermal resistance of 10 species, FB 75:555
- Crabs, harvestable-sized
 - traps, escape vent shape, FB 76:425
- Crangon communis*
 - invertebrates, midwater
 - Chukchi Sea, southeastern, September-October 1970, S 710
- Crangon dalli*
 - invertebrates, midwater
 - Chukchi Sea, southeastern, September-October 1970, S 710
- Crangon franciscorum angustimana*
 - Kachemak Bay, Alaska
 - stage I zoeae hatched from ovigerous females collected in, FB 77:991
- Crassostrea commercialis*—see Oyster, Australian; Oyster, rock
- Crassostrea gigas*—see Oyster, Japanese; Oyster, Pacific

- Crassostrea rhizophorae*—see Oyster, mangrove
- Crassostrea virginica*
 hematopoietic neoplasms, occurrence in, MFR 38(10):34
 response surface techniques
 reevaluation of combined effects of temperature and salinity on survival and growth using, FB 73:87
- Crassostrea virginica*—see also Oyster, American
- Croaker
 Gulf of Mexico, northern
 fishing grounds, MFR 37(7):8
 historical aspects, MFR 37(7):6
 processing, MFR 37(7):9
 tactics, MFR 37(7):8
 vessels and gear, MFR 37(7):7
- Croaker, Atlantic
 age determination, reproduction, and population dynamics
 age determination and growth, FB 75:113
 habitat segregation between age groups, FB 75:119
 size, maximum, and age, life span, and mortality rate, FB 75:119
 somatic weight variation, FB 75:112
 spawning, FB 75:110
 total weight-length and girth-length relationships, FB 75:120
 New York Bight fishery resource, C 401
 small preserved
 number and length frequency, subsampler for estimating, FB 76:490
- Croaker, white
 seasonal spawning cycle, FB 74:983
- Cruise tracks
 computer software system for optimizing survey, FB 76:706
- Crustacea
 Nematoscelis
 biology and taxonomy, FB 73:797
- Crustacea, decapod
 distribution off northeastern United States
Acantheephyra pelagica, C 407
Acanthocarpus alexandri, C 407
Argis dentata, C 407
Aristaeomorpha foliacea, C 407
Axius serratus, C 407
Bathynectes superbus, C 407
Benthochascon schmitti, C 407
Bythocaris nana, C 407
Callianassa atlantica, C 407
Callianassa biformis, C 407
Callinectes sapidus, C 407
Calocaris templemani, C 407
Cancer borealis, C 407
Cancer irroratus, C 407
Carcinus maenas, C 407
Caridion gordonii, C 407
Catapagurus gracilis, C 407
Catapagurus sharreri, C 407
Chionoecetes opilio, C 407
Collodes robustus, C 407
Crangon septemspinosa, C 407
Dichelopandalus leptocerus, C 407
Dissodactylus mellittae, C 407
Emerita talpoida, C 407
Ethusa microphthalmia, C 407
Eualus fabricii, C 407
Eualus gaimardii, C 407
Eualus pusiolus, C 407
Eumunida picta, C 407
Euprognatha rastellifera, C 407
Eurypanopeus depressus, C 407
Gennadas valens, C 407
Geryon quinquedens, C 407
Glyphocrangon longirostris, C 407
Hexapanopeus angustifrons, C 407
Hippolyte zostericola, C 407
Homarus americanus, C 407
Homola barbata, C 407
Hyas araneus, C 407
Hyas coarctatus, C 407
Hymenopenaeus robustus, C 407
Latreutes fucorum, C 407
Leander tenuicornis, C 407
Lebbeus groenlandicus, C 407
Lebbeus polaris, C 407
Lebbeus zebra, C 407
Leptochela carinata, C 407
Libinia dubia, C 407
Libinia emarginata, C 407
Lithodes maja, C 407
Lucifer faxoni, C 407
Metacrangon jacqueti agassizii, C 407
Munida iris, C 407
Munida valida, C 407
Myropsis quinquespinosa, C 407
Nematocarcinus rotundus, C 407
Neopanope sayi, C 407
Nephropsis aculeata, C 407
Ocypode quadrata, C 407
Ovalipes ocellatus, C 407
Pagurus acadianus, C 407
Pagurus annulipes, C 407
Pagurus arcuatus, C 407
Pagurus longicarpus, C 407
Pagurus politus, C 407
Pagurus pollicaris, C 407
Pagurus pubescens, C 407
Palaemonetes pugio, C 407
Palaemonetes vulgaris, C 407
Palicus gracilis, C 407
Pandalus borealis, C 407
Pandalus montagui, C 407
Pandalus propinquus, C 407
Panopeus herbstii, C 407
Parapagurus pilosimanus pilosimanus, C 407
Parapandalus willisi, C 407
Parapenaeus longirostris, C 407
Parthenope pourtalesii, C 407
Pasiphaea multidentata, C 407
Pasiphaea tarda, C 407
Pelia mutica, C 407
Penaeus aztecus, C 407
Pinnixa chaetoptera, C 407
Pinnixa sayana, C 407
Pinnotheres maculatus, C 407

- Pinnotheres ostreum*, C 407
Planes minutus, C 407
Plesionika martia, C 407
Plesiopenaeus edwardsianus, C 407
Polyonyx gibbesi, C 407
Pontophilus brevirostris, C 407
Pontophilus norvegicus, C 407
Portunus sayi, C 407
Rochinia crassa, C 407
Rochinia tanneri, C 407
Sabinea hystrix, C 407
Sabinea sarsi, C 407
Sabinea septemcarinata, C 407
Sclerocrangon boreas, C 407
Scyllarus depressus, C 407
Sergestes arcticus, C 407
Sergia robusta, C 407
Sesarma reticulatum, C 407
Solenocera necopina, C 407
Spirontocaris lilljeborgii, C 407
Spirontocaris spina, C 407
Stereomastis sculpta, C 407
Upogebia affinis, C 407
Uca minax, C 407
Uca pugilator, C 407
Uca pugnax, C 407
Crustacea: Branchiura
 United States, northeastern
 key, C 413
 systematic list, annotated, C 413
Crustacea: Cumacea
 United States, northeastern
 development and life history, C 423
 ecology and distribution, C 423
 external morphology, C 423
 internal morphology, C 423
 key, C 423
 systematic list, annotated, C 423
Crustaceans
 bibliography of aquacultural economics, S 703
 cadmium, mercury, and silver, effects of, MFR 39(4):7
 composition of edible portion of raw (fresh or frozen)
 aluminum, MFR 40(9):1
 arsenic, MFR 40(9):1
 ascorbic acid, MFR 40(12):1
 barium, MFR 40(9):1
 biotin, MFR 40(12):1
 cadmium, MFR 40(9):1
 calcium, MFR 39(1):1
 chlorine, MFR 39(1):1
 choline, MFR 40(12):1
 chromium, MFR 40(9):1
 cobalt, MFR 40(9):1
 copper, MFR 40(9):1
 fluorine, MFR 40(9):1
 folic acid, MFR 40(12):1
 inositol, MFR 40(12):1
 iodine, MFR 40(9):1
 iron, MFR 40(9):1
 lead, MFR 40(9):1
 magnesium, MFR 39(1):1
 manganese, MFR 40(9):1
 mercury, MFR 40(9):1
 mercury, organic, MFR 40(9):1
 molybdenum, MFR 40(9):1
 niacin, MFR 40(12):1
 nickel, MFR 40(9):1
 pantothenic acid, MFR 40(12):1
 phosphorus, MFR 39(1):1
 potassium, MFR 39(1):1
 pyridoxine, MFR 40(12):1
 riboflavin, MFR 40(12):1
 selenium, MFR 40(9):1
 silver, MFR 40(9):1
 sodium, MFR 39(1):1
 thiamin, MFR 40(12):1
 tin, MFR 40(9):1
 vanadium, MFR 40(9):1
 vitamin A, MFR 40(12):1
 vitamin B₁₂, MFR 40(12):1
 vitamin D, MFR 40(12):1
 vitamin E, MFR 40(12):1
 zinc, MFR 40(9):1
 diseases of
 introductory remarks, MFR 37(5-6):2
 method for restraining living planktonic, FB 74:220
 Pacific Ocean, northeast
 chemical characteristics, MFR 38(9):6
 Crustaceans, decapod — see Decapods
Cryptosaras couesi
 bioluminescence, intensity regulation of during counter-shading, FB 75:247
Ctenocalanus vanus
 Oregon coast, central
 seasonal cycle of abundance, FB 75:717
Cuba
 grouper and snapper fishery
 catch, MFR 39(10):5
 fishing operations, MFR 39(10):3
 gear, MFR 39(10):2
 grounds, MFR 39(10):2
 history, MFR 39(10):1
 vessels and personnel, MFR 39(10):3
Cunner
 activity, movements, and feeding behavior off New York
 daily activity and movements, FB 73:896
 feeding, FB 73:897
 food habits, FB 73:898
 seasonal activity, FB 73:897
 cadmium, long-term stress
 chemical uptake, FB 75:202
 enzyme activity, FB 75:201
 mortality and respiration, FB 75:200
 Fire Island Inlet
 seasonal dispersal and habitat selection, FB 77:255
Currents
 coasts of Vancouver Island and Washington
 seasonal surface, shown by drift bottle experiments, 1964-65, S 699
Cusk
 description, MFR 41(11):33
Cuspidella mertensii
 invertebrates, midwater

- Chukchi Sea, southeastern, September-October 1970,
S 710
- Cyanea capillata*
invertebrates, midwater
Chukchi Sea, southeastern, September-October 1970,
S 710
- Cyclopsetta fimbriata*—see Flounder, spotfin
- Cymothoa excisa*
biology and occurrence on three species of snappers,
FB 75:875
- Cynoscion macdonaldi*—see Totoaba
- Cynoscion nebulosus*
York River estuary, Virginia
life history, feeding habits, and functional morphology
of juveniles, FB 75:657
- Cynoscion nebulosus*—see also Seatrout, spotted
- Cynoscion regalis*
York River estuary, Virginia
life history, feeding habits, and functional morphology
of juveniles, FB 75:657
- Cynoscion regalis*—see also Weakfish

D

- Daphnia pulex*
water temperature, effects of increased
experiments relating to discharges of heated water,
FB 74:405
experiments relating to water passing through cooling
systems, FB 74:406
- DDD
in sediments off southern California, FB 74:27
- DDE
in sediments off southern California, FB 74:27
- DDT
and metabolites in sediments off southern California,
FB 74:27
- Decapods
protozoan diseases of, MFR 40(10):32
- Decision theory
salmon fishery
applied to data acquisition and management, FB 74:837
- Defense Meteorological Satellite Program
fishing fleet activities revealed by night-time data from,
MFR 37(4):1
- Dehydrocooling
fresh fish, MFR 37(7):17
- Delaware Bay
flounder, biology of summer
age, growth, food habits, and racial characters,
FB 75:823
oyster stocks, laboratory-reared and native
development of resistance to MSX mortality, MFR 41
(1-2):54
polychaetous annelids, FB 76:209
- Delaware River
shad, American
present and historical spawning grounds and nurseries,
FB 74:343
- Delphinus delphis*
distribution of melanin in color pattern, FB 73:439
- Delphinus delphis*—see also Dolphin, common

- Dendronotus dalli*
invertebrates, midwater
Chukchi Sea, southeastern, September-October 1970,
S 710
- Dermocystidium marinum*
oyster infection
life cycle, MFR 38(10):19
pathology, MFR 38(10):19
structure, MFR 38(10):19
taxonomy, MFR 38(10):19
- Desmodema*—see Ribbonfish
- Deuteromycetes
United States, northeastern
index to genera and species, C 398
key to genera and species, C 398
systematic list, annotated, C 398
- Diastylis glabra*
invertebrates, midwater
Chukchi Sea, southeastern, September-October 1970,
S 710
- Diastylis lepechini*
invertebrates, midwater
Chukchi Sea, southeastern, September-October 1970,
S 710
- Diatoms
freshwater and estuarine, benthic
menhaden, Atlantic, grazing by adult, FB 74:689
- Dictyosporae
United States, northeastern
key to genera and species, C 398
- Didymosporae
United States, northeastern
key to genera and species, C 398
- Dinoflagellate
Gymnodinium splendens
two blooms, FB 73:675
- Dinoflagellates
nutritional value of two species for larval northern an-
chovy, FB 75:577
- Diodon*—see Porcupinefishes
- Diplectrum bivittatum*
revision of sea bass genus *Diplectrum*, C 404
- Diplectrum conceptione*
revision of sea bass genus *Diplectrum*, C 404
- Diplectrum eumelum*
revision of sea bass genus *Diplectrum*, C 404
- Diplectrum euryplectrum*
revision of sea bass genus *Diplectrum*, C 404
- Diplectrum formosum*
revision of sea bass genus *Diplectrum*, C 404
- Diplectrum labarum*
revision of sea bass genus *Diplectrum*, C 404
- Diplectrum macropoma*
revision of sea bass genus *Diplectrum*, C 404
- Diplectrum maximum*
revision of sea bass genus *Diplectrum*, C 404
- Diplectrum pacificum*
revision of sea bass genus *Diplectrum*, C 404
- Diplectrum radiale*
revision of sea bass genus *Diplectrum*, C 404
- Diplectrum rostrum*
revision of sea bass genus *Diplectrum*, C 404

- Diplectrum sciurus*
 revision of sea bass genus *Diplectrum*, C 404
- Diplodus cervinus*
 trophic relationships in South African marine littoral
 dentition and gut morphology, FB 76:398
 dietary composition, FB 76:396
 recruitment and growth, FB 76:393
- Diplodus sargus*
 trophic relationships in South African marine littoral
 dentition and gut morphology, FB 76:398
 dietary composition, FB 76:394
 recruitment and growth, FB 76:392
- Diplophos taenia*
 inverse correlation between meristic characters and food
 supply, FB 73:287
- Disease
 lobster
Homarus americanus, MFR 40(10):4
- Diseases
 environmentally related
 fish and shellfish, MFR 40(10):43
 teleost liver, PCB-induced alterations in
 model for environmental disease in fish, MFR 40(10):47
- Diseases, bacterial
 anaerobic
 disease agents in fish, MFR 40(10):10
 fish
 control of, MFR 40(10):2
 shellfish hatcheries, Long Island
 bacteriologic studies, MFR 40(10):8
- Diseases, parasitic
 shellfish
 larval nematodes in, MFR 40(10):39
 shellfish and fish
 research, comments on trends, MFR 40(10):26
 warm-water fishes, MFR 40(10):36
- Diseases, protozoan
 crustaceans, decapod, MFR 40(10):32
- Dogfish, spiny
 Pacific Ocean, northeast
 mercury in, FB 75:642
- Dolphin, bottlenose
 aerial census off Texas coast
 behavior, FB 77:592
 calves, FB 77:589
 comparisons with other population studies, FB 77:591
 counts, FB 77:589
 density estimate, alternative, FB 77:594
 distribution, FB 77:592
 dolphin density, estimated, FB 77:591
 herd size and density, FB 77:589
 perpendicular sighting distances and cues, FB 77:592
 population estimates, possible biases, FB 77:592
 population size, estimated, FB 77:589
 study area, FB 77:586
- Atlantic, South
 behavior and ecology of, FB 77:399
- Dolphin, bottlenosed
 aerial survey in Indian and Banana Rivers, Florida,
 FB 77:47
 observations of feeding behavior
 crowding, MFR 37(9):14
 feeding on fish attracted to nonworking shrimpers,
 MFR 37(9):13
 feeding on trash fish, MFR 37(9):12
 foraging behind working shrimp boats, MFR 37(9):10
 herding of schools of fish, MFR 37(9):13
 individual feeding, MFR 37(9):14
 sweeping schools of small bait fish, MFR 37(9):14
- Dolphin, common
 maturity, correlates of, FB 77:295
- Dolphin, dusky
 behavior and ecology in South Atlantic
 group organization and calving periodicity, FB 77:881
 interspecific interactions, FB 77:881
 relationships of group sizes, feeding, and aerial behavior, FB 77:878
 seasonal and daily surface feeding cycles, FB 77:874
 seasonal occurrence pattern, FB 77:872
 water depth and speed of movement, FB 77:874
- Dolphin, eastern spinner
 Pacific Ocean, eastern tropical
 growth and reproduction, FB 75:725
- Dolphin, spinner
 behavior of Hawaiian
 aerial behavior patterns, FB 77:831
 arousal, FB 77:842
 distribution, FB 77:824
 dive patterns, FB 77:843
 feeding, FB 77:835
 marked animal studies, FB 77:828
 morning shoreward movement, FB 77:837
 morphology, FB 77:822
 predators, FB 77:846
 rest, FB 77:840
 rest areas, FB 77:827
 social, FB 77:843
 sound emissions, FB 77:846
 subsidence into rest, FB 77:839
 systematics, FB 77:823
 zigzag swimming, FB 77:842
- Dolphin, spotted
 Pacific Ocean, eastern tropical
 gross annual reproductive rates compared with estimates
 for eastern spinner dolphin, 1973-75, FB 75:725
 reproductive parameters, 1973-75, FB 75:629
- Dolphin, white-sided
 Gulf of Maine
 probably killed in gill nets, FB 76:475
- Dolphins
 identification guide to western North Atlantic
 Atlantic bottlenosed, C 396
 Atlantic spotted, C 396
 Atlantic white-sided, C 396
 bridled, C 396
 Fraser's, C 396
 Guiana, C 396
 rough-toothed, C 396
 saddleback, C 396
 spinner, C 396
 striped, C 396
 white-beaked, C 396

Dolphins, pelagic
 movements in eastern tropical Pacific as indicated by
 results of tagging, 1969-76
 chronological account of tagging operations, S 737
 long-term movements, S 737
 radiotracking experiment, S 737
 short-term movements, S 737
Dorosoma petenense—see Shad, threadfin
 Dredging
 Pacific Ocean, areas adjacent to northeast
 aquatic organisms, effects on, MFR 38(11):34
 Drop net, portable tripod
 estuarine fish studies, FB 76:285
 Drum, red
 ultrasonic transmitter, harness for attachment of, FB 74:
 998
Dulichia spinosissima
 invertebrates, midwater
 Chukchi Sea, southeastern, September-October 1970,
 S 710

E

Echinodermata—see Holothuroidea
Echiurus echiurus alaskanus
 invertebrates, midwater
 Chukchi Sea, southeastern, September-October 1970,
 S 710
 Ecology data analysis
 resource, at Northwest Fisheries Center, MFR 38(8):22
 Economics
 aquacultural
 bibliography, S 703
 Eel, American
 New York Bight fishery resource, C 401
 Eel, conger
 New York Bight fishery resource, C 401
 occurrence of leptocephali in an estuary, FB 73:444
 Eelgrass
 Puget Sound beds, importance of, MFR 39(11):18
 Eelpout
 Gulf of Mexico
 new genus and species described and figured, FB 75:789
 Eels
 catching and preparation methods, MFR 40(4):1
 life history, MFR 40(4):1
 world demand, MFR 40(4):1
 Effluent
 from steam-electric station
 impact on marshland nursery area during the hot
 season, FB 73:67
 Effluents—see Fishery waste effluents
 Eggs, fish—see Fish eggs
 El Nino
 equatorial Pacific anomalies and, C 416:179
 historical trends and statistics, FB 76:663
 recent progress in monitoring and prediction
 changes in filter and data applications, C 427:93
 1976 event, C 427:95
 outlook, C 427:96
 use of sea surface temperature trends, C 427:94
Elagatis bipinnulata—see Runner, rainbow

Elements, trace
 National Marine Fisheries Service survey in fishery re-
 source
 analytical procedures, S 721
 data management, S 721
 element levels, S 721
 fish collection, S 721
 sample preparation, S 721
Ellobiocystis caridarum
 new records from the North Pacific, FB 73:181
Ellobiocystis species?
 new records from the North Pacific, FB 73:182
 Ellobiopsidae
 new records from the North Pacific
 artificial key to ellopsids found on mysids, FB 73:170
Ellobiocystis caridarum, FB 73:181
Ellobiopsis chattoni, FB 73:181
Thalassomyces albatrossi n. sp., FB 73:175
Thalassomyces boschmai, FB 73:171
Thalassomyces californiensis, FB 73:181
Thalassomyces capillosus, FB 73:180
Thalassomyces fagei, FB 73:179
Thalassomyces fasciatus, FB 73:178
Thalassomyces marsupii, FB 73:178
Thalassomyces species (not identified), FB 73:181
Ellobiopsis chattoni
 new records from the North Pacific, FB 73:181
 Ellopsidae
 new records from the North Pacific
Ellobiocystis species?, FB 73:182
 Elvers
 North Carolina
Synaphobranchus affinis, FB 73:687
Emerita analoga—see Crab, sand
Enchelyopus cimbrius—see Rockling, fourbeard
 Enewetak Atoll
 Marshall Islands
 trophic relationships among fishes and plankton,
 FB 76:133
Engraulis encrasicolus—see Anchovy, northern Adriatic
Engraulis mordax—see Anchovy, northern
Enhydra lutris—see Otter, sea
Enoplateuthis sp.
 bioluminescence, intensity regulation of during counter-
 shading, FB 75:245
 ENORMSEP
 computer program analysis
 polymodal frequency distributions, FB 73:681
 Enteric red mouth disease
 Hagerman strain
 agglutination test, passive, MFR 40(3):47
 asymptomatic disease carrier state, MFR 40(3):45
 carrier identification, MFR 40(3):47
 carrier infections, cyclical nature, MFR 40(3):47
 causative organism, MFR 40(3):43
 clinical signs and pathology, MFR 40(3):43
 economic effects, MFR 40(3):43
 epidemiology, MFR 40(3):42
 induced humoral immune response, MFR 40(3):49
 mortality and transmission, MFR 40(3):43
 Environmental change
 fisheries, northeast Pacific, MFR 38(11):1

Eopsetta jordani—see Sole, petrale

Ephelota sp.
parasitic on penaeid shrimp in Gulf of Mexico and South Atlantic, FB 76:21

Epinephelus sp.
North and South Carolina
offshore headboat fishing, 1972-73, MFR 38(3):13

Epizootes
associated with *Bathynectes superbis*, FB 74:225

Erichthonius difformis
invertebrates, midwater
Chukchi Sea, southeastern, September-October 1970, S 710

Erichthonius tolli
invertebrates, midwater
Chukchi Sea, southeastern, September-October 1970, S 710

ERTS-1 menhaden investigation
SEFC progress report, MFR 39(4):13

Eschrichtius robustus—see Whale, gray

Etropus microstomus—see Flounder, smallmouth

Etrumeus teres—see Herring, round

Eualus fabricii
invertebrates, midwater
Chukchi Sea, southeastern, September-October 1970, S 710

Eualus gaimardii
invertebrates, midwater
Chukchi Sea, southeastern, September-October 1970, S 710

Eualus macilenta
invertebrates, midwater
Chukchi Sea, southeastern, September-October 1970, S 710

Eualus stoneyi
invertebrates, midwater
Chukchi Sea, southeastern, September-October 1970, S 710

Eucalanus bungii
invertebrates, midwater
Chukchi Sea, southeastern, September-October 1970, S 710

Eudorella emarginata
invertebrates, midwater
Chukchi Sea, southeastern, September-October 1970, S 710

Euphausia gibboides
larval development, FB 73:145

Euphausia pacifica
population biology off southern California
annual biomass, FB 74:752
growth, FB 74:745
recruitment efficiency and spatial aggregation of eggs, FB 74:743
sex ratio, FB 74:755
southern California eddy, FB 74:736
spawning and recruitment, FB 74:738
survivorship, FB 74:749
temperature relationships of spawners and larvae, FB 74:744
thermal increases of short duration, effect on survival, FB 76:895

Euphausiacea
Nematoscelis
biology and taxonomy, FB 73:797

Euphausiids
California Current, central region
density, vertical range, and diel movement, FB 74:925

Europe
bluefin tuna
possible anomalies, MFR 37(12):3

Eusyllis sp.
invertebrates, midwater
Chukchi Sea, southeastern, September-October 1970, S 710

Euterpina acutifrons
coast of São Paulo, Brazil
environmental variables on the metabolism, synergistic effects of, FB 76:449

Euthynnus
synopsis of biological data
bionomics and life history, C 429
distribution, C 429
exploitation, C 429
identity, C 429
population, C 429

Euthynnus alletteratus—see Tuna, little

Euthynnus lineatus—see Skipjack, black

Exchodontes daidaleus—see Eelpout

Extended jurisdiction
SEFC progress report, MFR 39(4):24

Extended Normal Separator Program—see ENORMSEP

F

Fatty acids—see Acids, fatty

Federal Republic of Germany
herring stocks, status, MFR 40(4):21

Finfish
cadmium, mercury, and silver, effects of, MFR 39(4):8
composition of edible portion of raw (fresh or frozen)
aluminum, MFR 40(9):1
arsenic, MFR 40(9):1
ascorbic acid, MFR 40(12):1
barium, MFR 40(9):1
biotin, MFR 40(12):1
cadmium, MFR 40(9):1
calcium, MFR 39(1):1
chlorine, MFR 39(1):1
choline, MFR 40(12):1
chromium, MFR 40(9):1
cobalt, MFR 40(9):1
copper, MFR 40(9):1
fluorine, MFR 40(9):1
folic acid, MFR 40(12):1
inositol, MFR 40(12):1
iodine, MFR 40(9):1
iron, MFR 40(9):1
lead, MFR 40(9):1
magnesium, MFR 39(1):1
manganese, MFR 40(9):1
mercury, MFR 40(9):1
mercury, organic, MFR 40(9):1
molybdenum, MFR 40(9):1

- niacin, MFR 40(12):1
- nickel, MFR 40(9):1
- pantothenic acid, MFR 40(12):1
- phosphorus, MFR 39(1):1
- potassium, MFR 39(1):1
- pyridoxine, MFR 40(12):1
- riboflavin, MFR 40(12):1
- selenium, MFR 40(9):1
- silver, MFR 40(9):1
- sodium, MFR 39(1):1
- thiamin, MFR 40(12):1
- tin, MFR 40(9):1
- vanadium, MFR 40(9):1
- vitamin A, MFR 40(12):1
- vitamin B₁₂, MFR 40(12):1
- vitamin D, MFR 40(12):1
- vitamin E, MFR 40(12):1
- zinc, MFR 40(9):1
- Gulf of Maine to Cape Hatteras, 1963-74
 - biomass changes as determined from research vessel survey data, FB 75:1
- Gulf of Mexico, northern
 - distribution, MFR 37(7):9
- Pacific Ocean, northeast
 - chemical characteristics, MFR 38(9):6
- Fire Island Inlet
 - cunner
 - seasonal dispersal and habitat selection, FB 77:255
 - tautog, young
 - seasonal dispersal and habitat selection, FB 77:255
- Fish
 - bacterial disease, control of, MFR 40(10):2
 - catch and catch rates in St. Andrew Bay, Florida, 1973
 - catch rates by bait type, S 708
 - locations, S 708
 - species caught, S 708
 - chemical characteristics, northeast Pacific Ocean
 - composition and nutritional properties, MFR 38(9):11
 - finfish, miscellaneous, MFR 38(9):6
 - flatfishes, MFR 38(9):4
 - inorganic elements (ash), MFR 38(9):9
 - oils, MFR 38(9):8
 - proteins, MFR 38(9):8
 - proximate composition of fish parts, MFR 38(9):7
 - rockfish, MFR 38(9):5
 - salmon, MFR 38(9):4
 - trace components, MFR 38(9):10
 - trash fish, unutilized and miscellaneous, MFR 38(9):6
 - trout, MFR 38(9):4
 - chemical composition of, MFR 40(7):1
 - coastal pelagic
 - automated unmanned fishing system to harvest, MFR 38(2):21
 - entrapment and impingement by power plant cooling-water intakes
 - barriers, behavioral, MFR 39(10):11
 - barriers, physical, MFR 39(10):13
 - cooling system design, MFR 39(10):11
 - guidance and diversion systems, MFR 39(10):11
 - impact assessment, MFR 39(10):9
 - impingement damage, MFR 39(10):8
 - site evaluation, MFR 39(10):10
 - environmental data collected in New York Bight, June 1974-June 1975, S 716
 - fillet blocks
 - preparation, MFR 40(1):5
 - high school students' perceptions of, as a menu item
 - importance of product attributes, MFR 37(10):26
 - perceptions of fish compared to beef and pork, MFR 37(10):25
 - identification
 - thin-layer polyacrylamide gel isoelectric focusing, FB 75:571
 - inverse correlation between meristic characters and food supply in mid-water
 - collection and analysis of data, FB 73:285
 - localities studied, FB 73:285
 - measures of biological productivity, FB 73:285
 - marine trophic interactions by dynamic simulation, FB 73:695
 - mesopelagic
 - net feeding, FB 73:908
 - Mississippi Sound and Louisiana coast
 - finding with satellites, MFR 39(1):16
 - "mock," for studying microbial inhibiting agents, FB 75:880
 - pollution-associated diseases and abnormalities
 - experimentally induced lesions, FB 76:736
 - fin rot, FB 76:719
 - genetic abnormalities, FB 76:734
 - lymphocystis, FB 76:725
 - neoplasms, FB 76:728
 - pollutant-parasite interactions, FB 76:740
 - skeletal anomalies, FB 76:732
 - stress-provoked latent infections, FB 76:727
 - ulcers, FB 76:722
 - role in meeting world's food needs, MFR 38(6):1
 - shallow marsh habitats as primary nurseries, FB 77:339
 - species, mixed
 - utilization, MFR 39(3):1
 - squid attacks on trawl-captured, MFR 39(12):23
 - summer benthic fauna of Sandy Hook Bay
 - abundance, S 698
 - distribution, S 698
 - environmental preferences, S 698
 - length and age composition, S 698
 - Tampa Bay, Florida
 - additional studies of, in upland canals, FB 73:83
 - utilization of mixed species, MFR 39(3):1
 - Fish, adult
 - daily growth increments in otoliths, FB 74:1
 - Fish, epibenthic
 - long-term fluctuations of populations in Apalachicola Bay, Florida
 - distribution, FB 74:313
 - physicochemical parameters, FB 74:313
 - seasonal fluctuations of dominant species, FB 74:314
 - Fish, freshwater
 - parasitic diseases
 - cestodes, MFR 40(3):57
 - crustaceans, MFR 40(3):57
 - nematodes, MFR 40(3):57
 - protozoans, MFR 40(3):56
 - trematodes, MFR 40(3):57

- Fish, frozen
right package for, MFR 39(5):24
- Fish, larval
development of Pacific *Euphausia gibboides*, FB 73:145
Gulf of Maine-Georges Bank
collected during ICNAF larval herring surveys, September 1971-February 1975, S 717
mortality studies, report of colloquium on causes of mortality, C 395
density-dependent mortality, C 395
predation, guidelines for study, C 395
research recommendations, C 395
starvation, guidelines for study, C 395
- Fish, mesopelagic
vertical distribution and other aspects of ecology near Hawaii
avoidance, FB 74:643
migration, FB 74:641
sex ratio, FB 74:643
sexual dimorphism, FB 74:643
- Fish, minced
past, present, and future uses, MFR 39(4):1
- Fish, multispecies—see Multispecies fisheries problem
- Fish, myctophid
distribution across central equatorial Pacific
Bolinichthys longipes, FB 73:636
Bolinichthys photothorax, FB 73:637
Centrobranchus choerocephalus, FB 73:636
Ceratoscopelus warmingi, FB 73:636
Diaphus brachycephalus, FB 73:636
Diaphus drachmani, FB 637
Diaphus elucens, FB 73:636
Diaphus fragilis, FB 73:636
Diaphus garmani, FB 73:636
Diaphus jenseni, FB 73:636
Diaphus longleyi, FB 73:636
Diaphus lucidus, FB 73:637
Diaphus luetkeni, FB 73:637
Diaphus malayanus, FB 73:636
Diaphus problematicus, FB 73:636
Diaphus regani, FB 73:636
Diaphus signatus, FB 73:636
Diaphus splendidus, FB 73:636
Diaphus termophilus, FB 73:637
Diogenichthys atlanticus, FB 73:636
Diogenichthys laternatus, FB 73:636
Electrona rissoi, FB 73:637
Gonichthys teniculus, FB 73:636
Hygophum proximum, FB 73:636
Lampadena luminosa, FB 73:637
Lampanyctus hubbsi, FB 73:636
Lampanyctus "niger", FB 73:637
Lampanyctus nobilis, FB 73:636
Lampanyctus omostigma, FB 73:636
Lampanyctus steinbecki, FB 73:636
Myctophum asperum, FB 73:636
Myctophum aurolaternatum, FB 73:636
Myctophum nitidulum, FB 73:636
Myctophum obtusirostrum, FB 73:636
Myctophum selenoides, FB 73:637
Myctophum spinosum, FB 73:636
Notolychnus valdiviae, FB 73:636
Notoscopelus resplendens, FB 73:636
Symbolophorus evermanni, FB 73:636
Triphoturus nigrescens, FB 73:636
- Fish, ornamental
diseases and problems
bacteriological examination and results, MFR 40(3):58, 59
parasitological examination and results, MFR 40(3):58, 59
virological examination and results, MFR 40(3):59, 60
- Fish, pelagic
eggs and larvae, distribution and ecology off Spanish Sahara
anchovy eggs, spatial and temporal distribution, FB 74:893
identification and enumeration, FB 74:888
sardine eggs, spatial and temporal distribution, FB 74:893
spatial distribution, FB 74:891
temperature and chlorophyll *a*, FB 74:888
zooplankton, FB 74:886
- Fish, postlarval
general feeding ecology in Newport River estuary, FB 73:137
- Fish, refrigerated
spoilage and shelf life prediction
shelf life prediction, MFR 37(4):33
spoilage and spoilage rate factors, MFR 37(4):32
- Fish, small
heading and eviscerating machine
flesh, collection of minced fish, MFR 39(2):15
LaPine gutting machine, MFR 39(2):12
machines, survey of cleaning, MFR 39(2):11
simple method to obtain serum from, FB 77:509
- Fish, trophic interactions
activity patterns of planktivorous fishes, FB 74:580
collecting fishes, FB 74:570
collecting zooplankters, FB 74:569
fishes studied, FB 74:568
zooplankter activity patterns, FB 74:571
zooplankter volumes, FB 74:571
- Fish, warmwater
disease incidence on farms in south-central United States
antibiotics used as prophylactics, MFR 40(3):40
bacterial infection and oxygen depletion incidence, MFR 40(3):38
disease incidence, MFR 40(3):38
protozoan infection incidence, MFR 40(3):38
treatment delivery systems, MFR 40(3):40
parasitic diseases, MFR 40(10):36
- Fish blocks
minced
color measuring system, MFR 39(2):18
- Fish catches
gill nets
relation to frontal periods, FB 74:449
- Fish collections
from New York to Florida, 1968-72, S 697
- Fish diseases
anaerobic bacteria, possible disease agents, MFR 40(10):10
bacterial, control of, MFR 40(10):2
chemoprophylaxis, MFR 40(3):67
control
chemotherapy effectiveness, MFR 40(3):67
drug administration, MFR 40(3):65
drugs commonly used, MFR 40(3):65
parasite control, MFR 40(3):67

- relationship of host, pathogen, and environment, MFR 40(3):65
- environmentally related, MFR 40(10):43
- inspection and certification
 - bacterial, MFR 40(3):70
 - diagnostic examination of fish, MFR 40(3):71
 - parasitic, MFR 40(3):70
 - sampling, MFR 40(3):69
 - viral, MFR 40(3):69
- model for environmental
 - teleost liver, PCB-induced alterations in, MFR 40(10):47
- parasitic
 - research, comments on trends, MFR 40(10):26
- Fish eggs
 - flounder, smallmouth, FB 77:708
 - mackerel, Atlantic
 - description of eggs and early larvae, FB 73:186
 - menhaden, yellowfin
 - description, FB 73:660
 - porcupinefishes
 - development, comments on, FB 76:535
 - seasonal abundance and distribution, 1972-74
 - Gulf of Mexico, eastern, S 701
 - Spanish Sahara
 - distribution and ecology of pelagic in an upwelling area off, FB 74:885
 - survival rates, in relation to impact assessments, MFR 41(3):1
- Fish fauna
 - associated with offshore platforms in northeastern Gulf of Mexico
 - comparison of two platforms, FB 74:395
 - faunal composition, FB 74:389
 - habitat occupation and activity patterns, FB 74:396
 - winter-summer contrast, FB 74:395
- Fish flavors
 - petroleum pickup
 - nature, MFR 40(1):13
 - research, MFR 40(1):14
- Fish immunization
 - Aeromonas salmonicida* bacterins
 - aggregating and nonaggregating strains, MFR 40(3):12
 - vaccines, MFR 40(3):15
 - virulence of strains, MFR 40(3):13
- Fish kill
 - climatic conditions related to, and anoxia off New Jersey
 - during summer 1976
 - application of oxygen model for 1976, C 427:292
 - climatological conditions, C 427:290
 - oxygen cycle and stratification, C 427:291
 - previous fish kills, C 427:294
 - regional aspects, C 427:292
- Fish larvae
 - Anchoa mitchilli*, larval bay
 - simulated food patches and survival of, FB 76:483
 - anchovy
 - field criteria for survival, FB 73:453
 - anchovy, northern
 - culture and growth, FB 74:81
 - diel changes in swim bladder inflation, FB 74:847
 - growth in the sea, FB 77:413
 - Atlantic, northwest, fishes, laboratory reared
 - length-weight relations, FB 76:890
 - California Current
 - anchovy, northern, FB 74:517
 - mackerel, jack, FB 74:517
 - sardine, Pacific, FB 74:517
 - coastal and oceanic off Yaquina Bay, Oregon
 - assemblage, coastal, FB 75:133
 - assemblage, offshore, FB 75:138
 - comparison of coastal and Yaquina Bay larvae, FB 75:141
 - comparison to northeast Pacific, FB 75:143
 - comparison with other planktonic components, FB 75:142
 - distribution, coastal and offshore, FB 75:139
 - distribution, vertical, FB 75:130
 - sampling variability, FB 75:128
 - taxonomic problems, FB 75:128
 - Columbia River estuary, 1973
 - species composition and relative abundance, FB 75:218
 - daily growth increments in otoliths, FB 74:1
 - flounder, smallmouth, FB 77:708
 - flounder, winter
 - analysis of feeding and survival potential, bioenergetic model for, FB 75:529
 - flounder, yellowtail
 - diel movements determined from discrete depth sampling, FB 76:167
 - larval rearing, FB 76:931
 - Gobiesox rhessodon*
 - development, FB 77:300
 - herring, Pacific
 - predator-prey relationship between, and *Hyperoche medusarum*, FB 74:669
 - mackerel, Atlantic
 - continental shelf waters between Massachusetts and Florida, FB 76:95
 - description of eggs and early larvae, FB 73:186
 - mackerel, chub
 - continental shelf waters between Massachusetts and Florida, FB 76:95
 - marine teleost, California Current
 - microcopepod influence on survival, FB 75:601
 - menhaden, Atlantic
 - larval transport and year-class strength, FB 75:23
 - menhaden, yellowfin
 - description, FB 73:660
 - Oregon
 - quillfish, FB 73:681
 - Oregon, distribution and duration of pelagic life in waters off
 - sole, Dover, FB 75:173
 - sole, petrale, FB 75:173
 - sole, rex, FB 75:173
 - porcupinefishes
 - development, comments on, FB 76:535
 - Rimicola muscarum*
 - notes on, FB 77:300
 - scorpionfish
 - identification guide to eastern Pacific, C 402
 - sea bream
 - simulated food patches and survival of, FB 76:485

- seasonal abundance and distribution, 1972-74
 - Gulf of Mexico, eastern, S 701
- seatrout, spotted, FB 76:65
- shrimp, humpy
 - description, FB 76:235
- snapper, vermillion
 - description, FB 75:547
- Spanish Sahara
 - distribution and ecology of pelagic in an upwelling area off, FB 74:885
- survival rates, in relation to impact assessments, MFR 41(3):1
- various species of phytoplankton as food for larval anchovy, FB 75:577
- Fish physiology
 - environmental parameters affecting water reuse systems, MFR 40(10):46
- Fish populations
 - comparison on artificial and natural reef in Florida Keys
 - area description, MFR 41(9):1
 - biomass estimates, MFR 41(9):10
 - cleaning stations, MFR 41(9):9
 - visual counts and rotenone collection, MFR 41(9):10
 - experimental exploitation of competing
 - aquarium tanks, FB 73:873
 - cleaning and treatment of aquaria, FB 73:874
 - competing populations, FB 73:877
 - enumeration, FB 73:875
 - experimental animals, FB 73:873
 - exploitation, FB 73:875
 - food and feeding, FB 73:873
 - handling, FB 73:875
 - independent populations, FB 73:876
 - recruitment relations, FB 73:878
 - simulation model, FB 73:880
 - water characteristics, FB 73:874
 - weighing, FB 73:875
- Fish prices
 - historical trends in southern California commercial fisheries
 - market fish, MFR 37(11):28
 - tunas, MFR 37(11):25
 - wetfish, MFR 37(11):23
- Fish scales
 - found in mesopelagic fishes, FB 73:912
- Fish schools
 - as operational structures
 - geometrical models, FB 74:472
 - locomotor problems, FB 74:491
 - movements, FB 74:482
 - shape, FB 74:482
 - size, FB 74:482
 - spacing, FB 74:476
 - traffic problems, FB 74:486
 - turning problems, FB 74:484
- Fish schools, epipelagic
 - thickness and depth distributions off southern California, FB 77:489
- Fish schools, pelagic
 - photographic method for measuring spacing and density within at sea, FB 75:230
- Fish shipments
 - optimal
 - from Kuala Trengganu, Malaysia, MFR 41(7):16
- Fish stock
 - optimum economic yield of an internationally utilized common property resource, FB 73:51
- Fish stock mixtures
 - composition, assessment of, FB 77:387
- Fish stock production model
 - fitting the generalized by least-squares and equilibrium approximation
 - comparative examples of equilibrium approximation methods, FB 73:28
 - comparative examples of the equilibrium approximation and transition prediction approaches, FB 73:32
 - fitting method, FB 73:25
- Fish traps
 - West Indian, mesh selectivity of, MFR 40(7):15
- Fisheries, commercial industry
 - foreign direct investment in United States
 - employment and payroll, MFR 38(12):24
 - financing, MFR 38(12):24
 - foreign trade, MFR 38(12):24
 - market position, MFR 38(12):24
 - motivation, MFR 38(12):25
 - policy aspects, MFR 38(12):25
 - scope, MFR 38(12):23
 - sources and locations, MFR 38(12):23
- Fisheries, marine
 - California, southern, recreational and commercial, MFR 38(1):1
- Fisheries, mixed species
 - United States, northeastern coast
 - linear programming simulations of effects of bycatch on management, FB 76:851
- Fisheries, otter trawl
 - energy efficiency comparison between Washington and Japan
 - efficiency, MFR 37(4):23
 - energy inputs, MFR 37(4):22
 - energy outputs, MFR 37(4):23
 - fisheries, MFR 37(4):21
- Fisheries, trap
 - soak time, incorporating into measurement of fishing effort, FB 75:213
- Fisheries development
 - New England
 - availability, MFR 39(2):1
 - crabs, MFR 39(2):2
 - future activities, MFR 39(2):5
 - industry interest, MFR 39(2):1
 - markets, MFR 39(2):1
 - mixed species, MFR 39(2):2
 - shellfish, other, MFR 39(2):4
 - squids, MFR 39(2):1
 - technological support, MFR 39(2):5
 - technology
 - catch, increasing domestic, MFR 39(2):7
 - fishing pressure, redistribution, MFR 39(2):7
 - National Marine Fisheries Service, MFR 39(2):7
 - success by coincidence, MFR 39(2):10
 - success by collaborative effort, MFR 39(2):9

- Fisheries management
 - evolution of philosophy
 - biological management for maximum sustainable yield, MFR 38(12):17
 - inexhaustibility debate, MFR 38(12):15
 - nonbiological criteria, MFR 38(12):19
 - optimum sustainable yield, MFR 38(12):20
- Fishermen, commercial
 - economic performance of Oregon's in 1972
 - characteristics of fishermen, MFR 39(8):17
 - costs and returns, MFR 39(8):18
 - data source and description, MFR 39(8):17
 - incomes, total, MFR 39(8):21
 - production functions, MFR 39(8):20
- Fishermen, Texas charter boat
 - characteristics, participation, and motivations
 - fishing motivations, analysis, MFR 40(8):11
 - fishing motivations, understanding, MFR 40(8):10
 - group types, MFR 40(8):10
 - motives, importance, MFR 40(8):11
 - population, study, MFR 40(8):9
 - recreational fishing backgrounds and participation, MFR 40(8):9
 - sociodemographic characteristics, MFR 40(8):9
- Fishery, troll
 - survey of charter boat in North Carolina, 1977
 - economics, MFR 41(4):27
 - fish communities, production of pelagic, MFR 41(4):25
 - fishes, biological characteristics of pelagic, MFR 41(4):26
 - fishes and habitats, MFR 41(4):15
 - fishing areas, MFR 41(4):18
 - geographical distribution of landings, MFR 41(4):21
 - nontrolling activities, MFR 41(4):22
 - number of boats, MFR 41(4):17
 - resource availability, MFR 41(4):24
 - seasonality of landings, MFR 41(4):19
 - species composition, MFR 41(4):18
 - survey methods, MFR 41(4):16
 - trip types, MFR 41(4):18
 - user groups competition, MFR 41(4):26
 - vessels and equipment, MFR 41(4):18
- Fishery cooperative
 - analysis of prices paid to fishermen before and after establishment of markets, MFR 37(3):36
 - objective, MFR 37(3):36
 - percent of export prices paid to fishermen, MFR 37(3):38
 - prices received by fishermen, MFR 37(3):37
 - products, MFR 37(3):36
- Fishery products
 - chlorinated hydrocarbon pollutants in
 - simplified extraction and cleanup procedure for, FB 76:880
 - "mock fish," for studying microbial inhibiting agents, FB 75:880
 - New England
 - export opportunities, MFR 39(2):26
 - United States, 1976-78
 - value added, margins, and consumer expenditures for edible, MFR 41(12):1
 - vacuum cooling and thawing, MFR 37(7):15
- Fishery publications
 - index, 1965-74, C 400
 - lists and indexes: 1974, C 392
- Fishery regulation
 - via optimal control theory, FB 73:830
- Fishery resources
 - west coast, particularly the Pacific Northwest water diversions, effects on, MFR 38(11):46
- Fishery waste effluents
 - chemical oxygen demand and residue
 - method to determine relationships between, FB 74:725
 - oil and grease
 - proposed analytical method, FB 74:681
 - pollutant parameters, system for determining and calculating, FB 75:253
- Fishes
 - Columbia River estuary, 1973
 - species composition and relative abundance of larval and post-larval, FB 75:218
 - estuarine and coastal from St. Andrew Bay, Florida
 - gill net selectivity, FB 75:185
 - gill net catches, St. Andrew Bay, Florida
 - depth zone comparison, FB 75:105
 - net damage, FB 75:107
 - time of day comparison, FB 75:105
 - webbing material comparison, FB 75:104
 - keys to otoliths from Gulf of Alaska, Bering Sea, and Beaufort Sea
 - accuracy, C 420
 - Agonidae, C 420
 - Anarhichadidae, C 420
 - Anoplopomatidae, C 420
 - Bathymasteridae, C 420
 - Bothidae and Pleuronectidae, C 420
 - Cottidae, C 420
 - Cyclopteridae, C 420
 - Gadidae, C 420
 - Hexagrammidae, C 420
 - Osmeridae, C 420
 - Pholididae, C 420
 - potential problems and sources of error, C 420
 - Scorpaenidae, C 420
 - species list, C 420
 - Stichaeidae, C 420
 - Trichodontidae, C 420
 - Zoarcidae, C 420
 - thermal behavioral responses of selected California littoral
 - behavioral criteria, FB 76:845
 - data analyses, FB 76:841
 - experimental criteria, FB 76:837
 - gradient design, FB 76:839
 - relationship of temperatures selected and thermal history, FB 76:843
 - temperature gradient shifting and reversal, FB 76:841
 - trophic relationships among, and plankton at Enewetak Atoll
 - currents, strong, FB 76:140
 - currents, weak, FB 76:137
 - diurnal relationships, FB 76:145
 - fish collection, FB 76:136
 - mysids as prey during day, FB 76:151

- nocturnal increase in fish eggs, FB 76:150
- nocturnal relationships, FB 76:148
- planktivore morphology and distance from reef, FB 76:151
- plankton collection, FB 76:135
- water depth and size influence, FB 76:150
- vertical distribution and development in North Pacific
 - central gyre during summer
 - Benthosema suborbitale*, FB 77:789
- Fishes, larval
 - vertical distribution and development in North Pacific
 - central gyre during summer
 - Bolinichthys* spp., FB 77:787
 - Centrobranchus* spp., FB 77:789
 - Ceratoscopelus warmingi*, FB 77:787
 - Cyclothone* spp., FB 77:784
 - Diaphus* spp., FB 77:787
 - Diogenichthys atlanticus*, FB 77:790
 - family Gonostomatidae, FB 77:783
 - family Myctophidae, FB 77:786
 - family Sternoptychidae, FB 77:786
 - Hygophum* spp., FB 77:790
 - Lampadena* spp., FB 77:788
 - Lampanyctus* spp., FB 77:788
 - Lobianchia gemellari*, FB 77:789
 - Myctophum* spp., FB 77:790
 - Notolychnus valdiviae*, FB 77:789
 - subfamily Lampanyctinae, FB 77:787
 - subfamily Myctophinae, FB 77:789
 - Symbolophorus evermanni*, FB 77:790
 - Triphoturus nigrescens*, FB 77:789
 - Vinciguerria* spp., FB 77:785
- Fishes, larval and juvenile
 - captured in South Atlantic Bight between May 1967 and February 1968
 - Antennariidae, S 685
 - Apogonidae, S 685
 - Atherinidae, S 685
 - Balistidae, S 685
 - Belonidae, S 685
 - Blenniidae, S 685
 - Bothidae, S 685
 - Carangidae, S 685
 - Chaetodontidae, S 685
 - Clupeidae, S 685
 - Congridae, S 685
 - Coryphaenidae, S 685
 - Cynoglossidae, S 685
 - Dactylopteridae, S 685
 - Diodontidae, S 685
 - Echeneidae, S 685
 - Elopidae, S 685
 - Engraulidae, S 685
 - Exocoetidae, S 685
 - Gadidae, S 685
 - Gempylidae, S 685
 - Gobiidae, S 685
 - Holocentridae, S 685
 - Istiophoridae, S 685
 - Kyphosidae, S 685
 - Lobotidae, S 685
 - Lutjanidae, S 685
 - Mugilidae, S 685
 - Mullidae, S 685
 - Muraenidae, S 685
 - Myctophidae, S 685
 - Nemichthyidae, S 685
 - Ophichthidae, S 685
 - Ophidiidae, S 685
 - Ostraciidae, S 685
 - Pomacentridae, S 685
 - Pomatomidae, S 685
 - Priacanthidae, S 685
 - Sciaenidae, S 685
 - Scombridae, S 685
 - Scorpaenidae, S 685
 - Soleidae, S 685
 - Sparidae, S 685
 - Sphyracnidae, S 685
 - Stromateidae, S 685
 - Syngnathidae, S 685
 - Synodontidae, S 685
 - Tetraodontidae, S 685
 - Triglidae, S 685
 - Uranoscopidae, S 685
 - Xiphiidae, S 685
- Fishes, marine
 - spawning
 - principal areas and times of, FB 76:911
- Fishes, mesopelagic
 - Hawaiian
 - diel feeding patterns of 16 species, FB 76:495
 - net feeding, FB 73:908
 - vertical distribution, vertical migration, and abundance in eastern Pacific Ocean
 - abundance and standing stock estimation, FB 76:762
 - abundance variability in replicated samples, FB 76:762
 - micronekton associated with sound-scattering layers, FB 76:764
 - sample analysis, FB 76:755
 - sampling gear, FB 76:752
 - sampling program, FB 76:753
 - study area, FB 76:752
 - vertical distribution of crustaceans, FB 76:763
 - vertical distribution of fish, FB 76:755
- Fishes, midwater
 - postcapture ingestion in trawl nets, FB 77:713
- Fishes, reef
 - Santa Barbara, California
 - day versus night activity in a kelp forest, FB 74:703
- Fishing, distant water
 - observed and perceived impacts
 - Oregon otter trawl case, MFR 37(4):13
- Fishing, electrical
 - SEFC progress report, MFR 39(4):20
- Fishing effort
 - trap fisheries
 - soak time, incorporating into measurement, FB 75:213
- Fishing effort estimation
 - Atlantic, western North
 - aerial search data, FB 74:503
- Fishing fleet
 - activities revealed by night-time data from Defense Meteorological Satellite Program, MFR 37(4):1

- Fishing gear
 - technology development or transfer in New England
 - harvesting technology, MFR 39(2):25
 - herring, MFR 39(2):24
 - squid, MFR 39(2):24
- Fishing industry
 - estimating structure of capacity utilization
 - economic capacity, MFR 40(8):29
 - engineering capacity, MFR 40(8):29
 - harvesting sector, MFR 40(8):31
 - price-capacity utilization relationships, MFR 40(8):32
 - processing sector, MFR 40(8):31
 - theoretical background, MFR 40(8):30
- Fishing industry, charter boat
 - Texas Gulf Coast
 - business characteristics, MFR 40(8):3
 - financial information, MFR 40(8):5
 - fishing activities, MFR 40(8):4
 - operators, MFR 40(8):3
 - organization, MFR 40(8):2
- Fishing system
 - automated and unmanned to harvest coastal pelagic fish
 - attraction devices, MFR 38(2):22
 - benefits, MFR 38(2):25
 - concept of operation, MFR 38(2):23
 - control techniques, MFR 38(2):23
 - present constraints, MFR 38(2):25
 - pumping and processing equipment, MFR 38(2):23
 - evaluation using scuba diving methods, MFR 38(7):15
- Flatfish
 - Oregon, continental shelf
 - food of five species of cooccurring, FB 74:984
 - Pacific Ocean, northeast
 - chemical characteristics, MFR 38(9):4
 - ulcer cause, presumptive *Vibrio* species, MFR 40(10):5
- Flatfishes
 - Cape Cod, Massachusetts, to Cape Lookout, North Carolina, 1965-66
 - seasonal distributions of larval on continental shelf, S 691
 - early development in eastern North Pacific
 - meristic counts of larvae, FB 77:107
 - Oregon
 - distribution and abundance, FB 76:629
- Florida
 - mullet fishery
 - dockside price analysis, MFR 38(6):4
 - puffers
 - biology of, contribution to, FB 77:292
 - St. Andrew Bay
 - fishes, catch and catch rates, 1973, S 708
 - St. Johns River, FB 73:68
 - shrimp processing industry
 - dual structural equilibrium, FB 74:880
 - stranding of pilot whales, FB 77:511
 - Tampa Bay, FB 73:81
 - vessels, red snapper-grouper
 - statistical and budgetary economic analysis of, 1974-75, MFR 39(11):6
- Florida, south
 - inshore waters
 - production of two planktonic carnivores, FB 73:238
- Florida Keys
 - fish populations
 - comparison on artificial and natural reef, MFR 41(9):1
 - spiny lobster fishery
 - costs and earnings in, MFR 37(4):25
- Flounder
 - night stalking in ocean surf
 - fishing implements, MFR 37(9):29
 - fishing methods, MFR 37(9):27
 - general technique, MFR 37(9):28
 - physical conditions, MFR 37(9):28
 - species caught, MFR 37(9):29
- Flounder, arrowtooth
 - resource in Bering Sea and Aleutian Islands, MFR 41(11):20
- Flounder, deepwater
 - Cape Cod, Massachusetts, to Cape Lookout, North Carolina, 1965-66
 - seasonal distributions of larval on continental shelf, S 691
- Flounder, dusky
 - Cape Cod, Massachusetts, to Cape Lookout, North Carolina, 1965-66
 - seasonal distributions of larval on continental shelf, S 691
- Flounder, fourspot
 - Cape Cod, Massachusetts, to Cape Lookout, North Carolina, 1965-66
 - seasonal distributions of larval on continental shelf, S 691
- Flounder, Gulf Stream
 - Cape Cod, Massachusetts, to Cape Lookout, North Carolina, 1965-66
 - seasonal distributions of larval on continental shelf, S 691
- Flounder, ocellated
 - Cape Cod, Massachusetts, to Cape Lookout, North Carolina, 1965-66
 - seasonal distributions of larval on continental shelf, S 691
- Flounder, smallmouth
 - Cape Cod, Massachusetts, to Cape Lookout, North Carolina, 1965-66
 - seasonal distributions of larval on continental shelf, S 691
 - eggs and early life, FB 77:708
- Flounder, spotfin
 - Cape Cod, Massachusetts, to Cape Lookout, North Carolina, 1965-66
 - seasonal distributions of larval on continental shelf, S 691
- Flounder, summer
 - biology, Delaware Bay
 - age, growth, food habits, and racial characters, FB 75:823
 - Cape Cod, Massachusetts, to Cape Lookout, North Carolina, 1965-66
 - seasonal distributions of larval on continental shelf, S 691
- New Jersey
 - composition of catches made by anglers fishing from party boats in 1978, MFR 41(12):28
- New York Bight fishery resource, C 401
- Flounder, winter
 - Cape Cod, Massachusetts, to Cape Lookout, North Carolina, 1965-66
 - seasonal distributions of larval on continental shelf, S 691
 - changes in ribonucleic acid, deoxyribonucleic acid, and protein content, FB 77:703

- embryos, effects of temperature and salinity on survival
 - effects on embryonic development, FB 74:56
 - effects on viable hatch, FB 74:53
 - incubation time and duration of hatching interval, FB 74:55
 - influence on total and viable hatch, FB 74:53
 - hormonal-induced ovulation
 - deoxycorticosterone, FB 73:431
 - freeze-dried carp pituitary, FB 73:431
 - human chorionic gonadotropin, FB 73:431
 - oxytocin, FB 73:431
 - pregnant mare serum gonadotropin, FB 73:431
 - larvae
 - analysis of feeding and survival potential, bioenergetic model for, FB 75:529
 - New York Bight fishery resource, C 401
 - starvation, effect of, FB 77:703
 - synopsis of biological data
 - bionomics and life history, C 414
 - distribution, C 414
 - fishing, C 414
 - identity, C 414
 - pond fish culture, C 414
 - population, C 414
 - protection and management, C 414
 - Flounder, witch
 - Cape Cod, Massachusetts, to Cape Lookout, North Carolina, 1965-66
 - seasonal distributions of larval on continental shelf, S 691
 - Flounder, yellowtail
 - Cape Cod, Massachusetts, to Cape Lookout, North Carolina, 1965-66
 - seasonal distributions of larval on continental shelf, S 691
 - diel movements determined from discrete depth sampling, FB 76:167
 - induced spawning and larval rearing, FB 76:931
 - New England, southern
 - compartmentalized simulation model, FB 75:465
 - fecundity, FB 75:877
 - New York Bight fishery resource, C 401
 - Food webs
 - theoretical treatment of unstructured
 - matrix approach, FB 73:379
 - series approach, FB 73:378
 - FORTTRAN IV
 - frequency distributions, FB 76:285
 - France
 - coho salmon farming, MFR 38(8):1
 - French Guiana
 - U.S. shrimp fishery off, 1972-74, FB 75:703
 - Frontal periods
 - relation of fish catches in gill nets to, FB 74:449
 - Furunculosis
 - Puget Sound, Washington
 - salmon, marine cultured, MFR 40(3):52
- G
- Gadus macrocephalus*—see Cod, Pacific
 - Gadus morhua*—see Cod, Atlantic
 - Gadus ogac*—see Cod, Greenland
 - Gaffkemia
 - fatal infection of lobsters, MFR 37(5-6):20
 - Galathea rostrata*
 - larval development under laboratory conditions
 - ecdysial and sequential variation, FB 76:783
 - fifth zoea, FB 76:797
 - first zoea, FB 76:788
 - fourth zoea (advanced), FB 76:796
 - fourth zoea (regular), FB 76:794
 - megalopa, FB 76:799
 - second zoea, FB 76:790
 - synopses of galatheid larvae, FB 76:803
 - third zoea, FB 76:792
 - Gallbladder lesions
 - salmon, cultured Pacific, FB 75:884
 - Gamefish
 - Skylab-3 gamefish investigation
 - SEFC progress report, MFR 39(4):14
 - Gammaracanthus loricatus*
 - invertebrates, midwater
 - Chukchi Sea, southeastern, September-October 1970, S 710
 - Gammarus wilkitzkii*
 - invertebrates, midwater
 - Chukchi Sea, southeastern, September-October 1970, S 710
 - Gammarus zaddachi*
 - invertebrates, midwater
 - Chukchi Sea, southeastern, September-October 1970, S 710
 - Gas bladder
 - bass, striped
 - developmental anatomy and inflation, FB 77:1000
 - Gas-bubble disease
 - salmon, chinook, fall
 - heritable resistance, FB 73:934
 - salmon, coho
 - mortalities in water with constant total gas pressure and different oxygen-nitrogen ratios, FB 73:915
 - Gases, dissolved
 - concentration, 1970-72
 - Boise River, D 102
 - Cowlitz River, D 102
 - Willamette River, D 102
 - Gasterosteus aculeatus*—see Stickleback, threespine
 - Genyonemus lineatus*—see Croaker, white
 - Georges Bank
 - bottom-water temperatures during spring and autumn, 1976, C 427:353
 - fish (larval) collected during ICNAF herring surveys, September 1971-February 1975, S 717
 - herring stocks
 - status, fished by the Federal Republic of Germany fleet, MFR 40(4):23
 - sea scallop, resources 1975
 - distribution and abundance, MFR 40(2):20
 - length frequency, MFR 40(2):22
 - spawning season, MFR 40(2):20
 - seasonal bottom-water temperature trends, 1963-75, S 725
 - shelf water front
 - variations in position between, and Cape Romain, 1975, C 416:213

- variations in position between, and Cape Romain, 1976, C 427:301
- spring and autumn bottom-water temperatures, 1968-75, C 416:241
- Georges Bank-Nantucket Shoals
 - herring larvae
 - distribution and abundance, growth, and mortality during 1975-76 winter period, C 416:309
- Georgia
 - marine charter boat fishing industry
 - economic analysis of, MFR 37(4):11
- Geryon quinquedens*—see Crab, red
- Gill nets
 - St. Andrew Bay, Florida
 - comparison of fish catches in relation to webbing material, time of day, and water depth, FB 75:103
 - selectivity on estuarine and coastal fishes from St. Andrew Bay, Florida
 - capture efficiency, FB 75:195
 - curves, normality of selection, FB 75:190
 - fishes, numbers and mean lengths of, selected for analysis, FB 75:187
 - gear and methods, FB 75:186
 - mean length-mesh size relation, FB 75:192
 - mesh-size regulations, FB 75:194
 - model for determining selectivity, FB 75:186
 - standard deviation-mesh size relation, FB 75:193
 - use limitations, FB 75:195
- Globicephala macrorhynchus*—see Whale, pilot
- Glugea hertwigi*
 - incidence and distribution in rainbow smelt from Massachusetts to Canadian Maritimes, FB 77:503
- Glycera dibranchiata*—see Bloodworm, tychoplanktonic
- Glycinde* sp.
 - invertebrates, midwater
 - Chukchi Sea, southeastern, September-October 1970, S 710
- Glyptocephalus cynoglossus*—see Flounder, witch
- Glyptocephalus zachirus*—see Sole, rex
- Gobiesox rhessodon*
 - larval development, FB 77:300
- Gonostoma atlanticum*
 - Oregon, first records off, FB 77:700
- Gonostomatidae
 - North Pacific central gyre
 - vertical distribution and development during summer, FB 77:783
- Gonyaulax polyedra*
 - nutritional value for larval northern anchovy, FB 75:577
- Great Central Lake, Vancouver Island
 - threespine stickleback
 - competition for food with juvenile sockeye salmon, FB 74:647
 - distribution, food, and feeding, FB 74:647
- Groundfish resources
 - Bering Sea and Aleutian Islands
 - cod, Pacific, MFR 41(11):14
 - commercially utilized species, MFR 41(11):4
 - environmental features, MFR 41(11):1
 - flounder, arrowtooth, MFR 41(11):20
 - foreign catches, magnitude, MFR 41(11):12
 - halibut, Pacific, MFR 41(11):22
 - Japanese fishery, MFR 41(11):5
 - mackerel, Atka, MFR 41(11):19
 - Pacific cod fisheries, MFR 41(11):5
 - Pacific halibut fisheries, MFR 41(11):5
 - perch, Pacific ocean, MFR 41(11):15
 - pollock, walleye, MFR 41(11):13
 - Republic of Korea fishery, MFR 41(11):11
 - sablefish, MFR 41(11):17
 - sole, yellowfin, MFR 41(11):19
 - Soviet fishery, MFR 41(11):9
 - Taiwanese fishery, MFR 41(11):12
 - total allowable catches in 1979, MFR 41(11):22
 - turbot, Greenland, MFR 41(11):20
- Grouper
 - Cuban fishery in Gulf of Mexico, MFR 39(10):1
 - North and South Carolina
 - offshore headboat fishing, 1972-73, MFR 38(3):13
 - vessels
 - statistical and budgetary economic analysis of, 1974-75, MFR 39(11):6
- Growth
 - daily increments in otoliths
 - larval and adult fishes, FB 74:1
 - daily increments of sagittae
 - nehu, Hawaiian Islands, FB 74:9
- Growth curve
 - likelihood methods for von Bertalanffy
 - applying likelihood ratio tests, FB 77:770
 - constructing confidence regions, FB 77:769
 - example, FB 77:771
 - failure of error assumptions, FB 77:769
 - failure of von Bertalanffy curve, FB 77:768
 - identity of parameter estimates, FB 77:767
 - least squares methods of estimation, FB 77:766
 - model and its maximum likelihood estimates, FB 77:765
 - similarity of covariance matrix estimates, FB 77:767
- Growth model
 - fish, prehatch and posthatch, FB 74:609
- Grunion, California
 - hybridization, reciprocal, FB 76:476
- Grunion, Gulf of California
 - hybridization, reciprocal, FB 76:476
- Grunt, white
 - North and South Carolina
 - offshore headboat fishing, MFR 38(3):13
- Gulf coast
 - cold weather conditions during fall and winter 1976-77
 - effects on estuarine and coastal waters, C 427:171
 - effects on fishery resources, C 427:172
 - entire coast colder than in previous 40 years, C 427:168
 - individual stations, C 427:170
 - shrimp
 - water surface area within statistical subareas used in reporting data, MFR 37(12):22
 - shrimp catches, Texas and Louisiana
 - size composition, effect on ex-vessel value, MFR 40(2):14
- Gulf of Alaska
 - keys to otoliths of some adult fishes, C 420

- pandalid shrimp resources, 1973
 - trawl catches and oceanographic data from NMFS surveys, D 98
 - pollock, walleye
 - biology of, 1973-75, FB 76:263
 - Gulf of Alaska, northern
 - salinity, surface
 - fisheries, relation to, MFR 41(5-6):8
 - Gulf of California, northern
 - totoaba
 - commercial fishery and reproductive biology, FB 74:531
 - Gulf of Maine
 - Bar Harbor, Maine, to Yarmouth, Nova Scotia
 - temperature structure, June 1975-November 1976, S 726
 - bottom-water temperatures during spring and autumn, 1976, C 427:353
 - lance, American sand
 - relative abundance, behavior, and food habits, FB 77:243
 - Nanomia cara*
 - aggregation, FB 76:281
 - seasonal bottom-water temperature trends, 1963-75, S 725
 - spring and autumn bottom-water temperatures, 1968-75, C 416:241
 - Gulf of Maine, northern
 - initiation of monthly temperature transects across, C 416:257
 - Gulf of Mexico
 - bottom obstructions, S 715
 - cooperative estuarine inventory and study
 - Texas: area description, C 393
 - eelpout
 - new genus and species described and figured, FB 75:789
 - estuaries, alteration and destruction of, MFR 39(9):1
 - groundfish trawler profitability, MFR 41(8):15
 - hake, offshore
 - biology, FB 75:147
 - longline fishery, Japanese, 1978, MFR 41(10):23
 - menhaden purse seine fishery
 - catch, fishing activity, and age and size composition, 1964-73, S 722
 - seatrouts
 - protein taxonomy, FB 74:599
 - shrimp, penaeid
 - diseases, parasites, and toxic responses, FB 76:1
 - shrimp fishery
 - trends in catch-effort relationships, MFR 37(2):1
 - shrimp fishery, catch-effort and price-cost trends
 - Mexico, implications on extended jurisdiction, MFR 40(8):24
 - shrimp fleet
 - economic and financial analysis in increasing costs, FB 74:301
 - shrimp vessel owners
 - increasing costs, 1971-75, MFR 38(3):8
 - thread herring, Atlantic
 - abundance, potential yield, and early life history, FB 75:493
 - vessels, red snapper-grouper
 - statistical and budgetary economic analysis of, 1974-75, MFR 39(11):6
 - wind driven transport
 - 1975, C 416:229
 - 1976, C 427:175
 - Gulf of Mexico, eastern
 - sardine, scaled
 - spawning seasons, spawning areas, adult biomass, and fisheries potential, FB 75:613
 - seasonal abundance and distribution, 1972-74
 - fish eggs, S 701
 - fish larvae, S 701
 - zooplankton, S 701
 - shrimp
 - annual catches, marketing category composition, and ex-vessel value, MFR 41(5-6):1
 - Gulf of Mexico, northern
 - shrimp, brown
 - aspects of growth, FB 76:827
 - Gulf of Mexico, northeastern
 - fish fauna
 - observations on, associated with offshore platforms, FB 74:387
 - searobins
 - biology of five species, FB 74:93
 - Gulf of Mexico, northern
 - Gulf menhaden
 - analysis of returns of tagged, FB 74:112
 - industrial and foodfish industries, MFR 37(7):1
 - seasonal description of winds and surface and bottom salinities and temperatures, October 1972 to January 1976, S 719
 - Gulf of Mexico, northwestern
 - continental shelf waters, 1963-65
 - salinity measurements, S 707
 - temperature measurements, S 707
 - surface circulation as deduced from drift bottles, S 730
 - Gulf Stream
 - cold core rings
 - contribution to zooplankton biomass distribution variability in Sargasso Sea, FB 76:323
 - Gulf Stream eddies
 - anticyclonic off northeastern United States, 1976
 - envelopes of eddy center positions and boundaries, C 427:266
 - histories, C 427:262
 - methods of analysis and sources of information, C 427:259
 - zonal analysis of positions and movements, C 427:265
 - passage of anticyclonic through Deepwater Dumpsite 106, 1974-75, C 416:293
 - Guyana
 - U.S. shrimp fishery off, 1972-74, FB 75:703
 - Gymnachirus melas*—see Sole, naked
 - Gymnodinium spendens*
 - nutritional value for larval northern anchovy, FB 75:577
 - two blooms, FB 73:675
- H
- Haddock
 - description, MFR 41(11):27
 - New York Bight fishery resource, C 401
 - Hadropenaeus affinis*
 - American solenocerid shrimp, FB 75:317

- Hadropenaeus lucasii*
American solenocera shrimp, FB 75:327
- Hadropenaeus modestus*
American solenocera shrimp, FB 75:323
- Haemulon plumieri*—see Grunt, white
- Hake, Argentine
description, MFR 41(11):32
- Hake, offshore
biology in Gulf of Mexico
age and growth, FB 75:155
depth related to size and sex, FB 75:150
distribution and abundance, FB 75:149
food habits, FB 75:153
reproduction, FB 75:151
standing stock, FB 75:156
- Hake, Pacific
age and growth
collection methods, FB 73:337
determination of age composition, FB 73:339
growth in length, FB 73:346
growth in weight, FB 73:351
variability in age composition, FB 73:342
description, MFR 41(11):31
interactions with marine mammals, MFR 41(10):1
- Hake, red
description, MFR 41(11):31
New York Bight fishery resource, C 401
- Hake, silver
New York Bight fishery resource, C 401
- Hake, South African
description, MFR 41(11):32
- Hake, white
description, MFR 41(11):31
New York Bight fishery resource, C 401
- Halibut, Atlantic
Cape Cod, Massachusetts, to Cape Lookout, North Carolina, 1965-66
seasonal distributions of larval on continental shelf, S 691
utilization, MFR 40(7):21
- Halibut, Pacific
catch-effort data, analysis of, FB 76:523
Pacific Ocean, northeast
mercury content, FB 74:783
resource in Bering Sea and Aleutian Islands, MFR 41(11):22
- Haliporoides diomedae*
American solenocera shrimp, FB 75:290
- Haplosporidia
classification
internal classification, MFR 41(1-2):41
proposed modification, MFR 41(1-2):43
relation to system of Protozoa, MFR 41(1-2):40
- Haplosporidium*
cell structure
haplosporosomes, MFR 41(1-2):27
organelles, other, MFR 41(1-2):32
sporulation, MFR 41(1-2):33
- Harengula jaguana*—see Sardine, scaled
- Harvesting capacity—see Capacity, harvesting
- Hatchetfish
systematics, development, and distribution of genus *Sternoptyx*
geographic and bathymetric distribution, FB 77:814
geographic variation, FB 77:809
measurements and counts, FB 77:805
photophore nomenclature, FB 77:804
postlarval development, FB 77:810
species distinction, FB 77:806
- Haverstraw Bay
Hudson River, New York
tomcod, Atlantic, food and feeding habits, FB 76:89
- Hawaii
cephalopods
vertical distribution and photosensitive vesicles, FB 76:583
dolphin, spinner
behavior, FB 77:821
Koko Head, Oahu
sea-surface temperatures and salinities, 1956-73, FB 75:767
mesopelagic fishes
diel feeding patterns, FB 76:495
vertical distribution and other aspects of ecology, FB 74:635
- Penaeus marginatus*
found in quantities thought sufficient to sustain a small trawl fishery, MFR 37(12):13
sergestid shrimps, ecology of, FB 74:799
shrimp trawling
exploratory study, MFR 37(12):13
silverside, Hawaiian
predator-prey interactions in schools during twilight, FB 75:415
tuna
handline fishery, night, MFR 41(8):7
whale, humpback, census in 1976, MFR 39(7):1
zooplankters that emerge from the lagoon floor at night, FB 75:275
- Hawaiian Islands
black skipjack, second record, FB 74:207
marlin, blue
mercury and selenium content, FB 76:872
nehu
age and growth as indicated by daily growth increments of sagittae, FB 74:9
oceanic conditions between U.S. west coast and, 1975, C 416:151
- Hebrides
herring stocks
status, fished by the Federal Republic of Germany fleet, MFR 40(4):23
- Heceta Bank, Oregon
demersal fishes
distribution and abundance, FB 76:629
- Hemitripterus americanus*—see Sea raven
- Herklotsichthys punctatus*—see Sardine
- Herring
gill net fishery in southeastern Alaska, MFR 39(3):19
status, fished by Federal Republic of Germany fleet, MFR 40(4):21

- U.S. Pacific and Bering Sea coasts
 - Soviet fisheries, MFR 38(12):1
- Herring, Atlantic
 - eggs and larvae
 - survival rates, in relation to impact assessments, MFR 41(3):1
- Herring, Atlantic thread
 - Gulf of Mexico
 - abundance and potential yield, FB 75:493
 - early life history, FB 75:493
- Herring, Pacific
 - benzene, effects on spawning, FB 75:43
 - copper sensitivity during early life history
 - bioassay system, FB 76:348
 - collection and handling, FB 76:348
 - continuous exposures, FB 76:351
 - statistical analysis, FB 76:350
 - thirty-six hour pulsed exposures, FB 76:353
 - predator-prey relationship between larvae and *Hyperoche medusarum*, FB 74:669
 - uptake, distribution, and depuration of ^{14}C benzene and ^{14}C toluene in, FB 75:633
- Herring, round
 - abundance, potential yield, and early life history in eastern Gulf of Mexico, 1971-74
 - biomass concentration, FB 75:79
 - biomass estimating procedure, FB 75:65
 - egg abundance, FB 75:64, 76
 - egg and larvae abundance in relation to zooplankton, FB 75:75
 - egg occurrence, FB 75:69
 - fecundity and maturity, FB 75:75
 - hatching time, FB 75:76
 - larvae occurrence, FB 75:69
 - larval abundance, FB 75:64, 80
 - larval abundance and mortality, FB 75:67
 - plankton sampling, FB 75:62
 - potential yield to a fishery, FB 75:67, 79
 - spawning, annual, and biomass estimates, FB 75:77
 - survey area and times, FB 75:62
 - temperature and salinity, FB 75:64, 74
- Herring, sea
 - bulkholding
 - seawater system, chilled, MFR 39(3):4
- Herring, thread
 - LANDSAT menhaden and thread herring investigation
 - SEFC progress report, MFR 39(4):14
- Herring fishery
 - Alaska, recent development of southeastern history, MFR 39(3):17
 - management situation, MFR 39(3):17
 - sac roe fishery, MFR 39(3):18
 - Alaska, southeastern
 - bait, winter, MFR 39(3):14
 - processing, MFR 39(3):12
 - sac roe fishery, spring, MFR 39(3):13
- Herring larvae
 - Georges Bank-Nantucket Shoals
 - distribution and abundance, growth, and mortality during 1975-76 winter period, C 416:309
- Herring roe
 - gillnet fishery, southeastern Alaska, 1976
 - economic aspects of development, MFR 40(4):25
- Heteroteuthis hawaiiensis*
 - bioluminescence, intensity regulation of during counter-shading, FB 75:247
- Hippoglossina oblonga*—see Flounder, fourspot
- Hippoglossina stomata*—see Sole, bigmouth
- Hippoglossoides platessoides*—see Plaice, American
- Hippoglossus hippoglossus*—see Halibut, Atlantic
- Hippoglossus stenolepis*—see Halibut, Pacific
- Hippomedon propinquus*
 - invertebrates, midwater
 - Chukchi Sea, southeastern, September-October 1970, S 710
- Hirudinea—see Leeches
- Holothuroidea
 - United States, northeastern
 - key, C 405
 - morphology, C 405
 - systematic characters, C 405
 - systematic list, annotated, C 405
- Homarus americanus*—see Lobster, American
- Honolulu
 - oceanic conditions between, and San Francisco, 1976, C 427:77
- Hudson River, New York
 - Haverstraw Bay
 - food of age 1 and 2 Atlantic tomcod, FB 77:1003
- Hyas coarctatus*
 - invertebrates, midwater
 - Chukchi Sea, southeastern, September-October, 1970, S 710
- Hydrocarbons, chlorinated
 - sea-surface films and subsurface waters in North Central Pacific Gyre, FB 73:445
- Hydrographic observations
 - from New York to Florida, 1968-72, S 697
- Hydrological conditions
 - Tampa Bay, Florida
 - oxygen, FB 73:82
 - salinity, FB 73:82
 - temperature, FB 73:81
- Hymenopenaeus aphoticus*
 - American solenocerid shrimp, FB 75:275
- Hymenopenaeus debilis*
 - American solenocerid shrimp, FB 75:268
- Hymenopenaeus doris*
 - American solenocerid shrimp, FB 75:283
- Hymenopenaeus laevis*
 - American solenocerid shrimp, FB 75:278
- Hymenopenaeus nereus*
 - American solenocerid shrimp, FB 75:287
- Hyperia galba*
 - invertebrates, midwater
 - Chukchi Sea, southeastern, September-October 1970, S 710
- Hyperia medusarum*
 - invertebrates, midwater
 - Chukchi Sea, southeastern, September-October 1970, S 710

Hyperoche medusarum
 invertebrates, midwater
 Chukchi Sea, southeastern, September-October 1970,
 S 710
 Pacific herring larvae
 predator-prey relationship between, FB 74:669
Hypoconcha sabulosa
 larval development
 larvae characteristics, FB 77:861
 larval description, FB 77:852
 species distinction, FB 77:861
 systematic position, FB 77:861
Hypsopsetta guttulata — see Turbot, diamond

I

Ichthyoplankton
 composition from inland coastal waters of southeastern
 Alaska, April-November 1972
 fish, larval abundance, S 723
 fish egg relative abundance, S 723
 plankton volumes and composition, S 723
Ichthyos lockingtoni
 observations on feeding, growth, locomotor behavior, and
 buoyancy, FB 75:453
Ictalurus punctatus — see Catfish, channel
 IEF — see Isoelectric focusing
Illex illecebrosus — see Squid, shortfin
 Immunity
 vaccine development, MFR 40(3):2
 Immunity, cellular
 fish, as measured by lymphocyte stimulation
 evidence that antibodies can regulate lymphocyte re-
 sponses, MFR 40(3):8
 immune response, regulation, MFR 40(3):7
 immunoglobulins, MFR 40(3):7
 immunologic response, MFR 40(3):7
 suppressor cells, MFR 40(3):10
 Impact assessments
 fish eggs and larvae survival rates, in relation to,
 MFR 41(3):1
 Incubator
 salmonids, MFR 37(7):26
 Indian River, Florida
 aerial survey of bottlenosed dolphin and West Indian
 manatee, FB 77:47
 Indonesian droughts
 historical trends and statistics, FB 76:663
 Infauna variation
 application of systematic sampling to study of, in soft
 substrate environment, FB 74:937
 International Billfish Symposium
 report
 background, S 675
 distribution, S 675
 fisheries, S 675
 life history, S 675
 mercury in billfishes, S 675
 officers and organization, S 675
 opening session, S 675
 presentations, S 675
 species identification, S 675

International Commission for the Northwest Atlantic
 Fisheries (ICNAF)
 Gulf of Maine-Georges Bank
 larval fish collected during herring surveys, September
 1971-February 1975, S 717
 Invertebrate pathology
 comparison with vertebrate pathology, MFR 38(10):46
 Invertebrates, epibenthic
 long-term fluctuations of populations in Apalachicola
 Bay, Florida
 distribution, FB 74:313
 physicochemical parameters, FB 74:313
 seasonal fluctuations of dominant species, FB 74:314
 Invertebrates, marine
 United States, southern Atlantic coast
 references for identification, S 729
 Invertebrates, midwater
 Chukchi Sea, southeastern, September-October 1970
Acanthomysis pseudomacropsis, S 710
Acanthonotozoma serratum, S 710
Acanthostepheia behringiensis, S 710
Aglantha digitale, S 710
Ampelisca macrocephala, S 710
Anonyx lilljeborgi, S 710
Anonyx nugax, S 710
Antinoe badia, S 710
Antinoe sarsi, S 710
Apherusa glacialis, S 710
Argis crassa, S 710
Argis lar, S 710
Atylus bruggeni, S 710
Aurelia aurita, S 710
Axiothella sp., S 710
Boltenia ovifera, S 710
Buccinum scalariforme, S 710
Byblis gaimardii, S 710
Calanus cristatus, S 710
Calanus finmarchicus, S 710
Cerebratulus sp., S 710
Chionoecetes opilio, S 710
Chone cincta, S 710
Chrysaora melanaster, S 710
Clione limacina, S 710
Crangon communis, S 710
Crangon dalli, S 710
Cuspidella mertensii, S 710
Cyanea capillata, S 710
Dendronotus dalli, S 710
Diastylis glabra, S 710
Diastylis lepechini, S 710
Dulichia spinosissima, S 710
Echiurus echiurus alaskanus, S 710
Erichthonius difformis, S 710
Erichthonius tolli, S 710
Eualus fabricii, S 710
Eualus gaimardii, S 710
Eualus macilenta, S 710
Eualus stoneyi, S 710
Eucalanus bungii, S 710
Eudorella emarginata, S 710
Eusyllis sp., S 710
Gammaracanthus loricatus, S 710

Gammarus wilkitzkii, S 710
Gammarus zaddachi, S 710
Glycinde sp., S 710
Hippomedon propinquus, S 710
Hyas coarctatus, S 710
Hyperia galba, S 710
Hyperia medusarum, S 710
Hyperoche medusarum, S 710
Ischyrocerus latipes, S 710
Ischyrocerus megalops, S 710
Lebbeus groenlandicus, S 710
Leucon nasica, S 710
Lumbrineris fragilis, S 710
Lumbrineris similabris, S 710
Maera loveni, S 710
Margarites sp., S 710
Margaritopsis probiloffensis, S 710
Melita formosa, S 710
Monoculodes borealis, S 710
Musculus discors, S 710
Mya truncata, S 710
Mysis litoralis, S 710
Mysis oculata, S 710
Mysis polaris, S 710
Natica clausa, S 710
Neomysis rayii, S 710
Nephtys paradoxa, S 710
Nucula tenuis, S 710
Pagurus trigenocheirus, S 710
Pandalus borealis, S 710
Pandalus goniurus, S 710
Paraphoxus milleri, S 710
Parathemisto libellula, S 710
Paroedicerus lynceus, S 710
Phascolosoma sp., S 710
Pleustes panopa, S 710
Pontoporeia femorata, S 710
Priscillina sp., S 710
Protomedia fasciata, S 710
Protomedia stephensi, S 710
Pseudalibrotus glacialis, S 710
Pseudalibrotus nanseni, S 710
Pseudomma truncatum, S 710
Rhachotropis aculeata, S 710
Rhachotropis oculata, S 710
Sagitta elegans, S 710
Sclerocrangon boreas, S 710
Serripes groenlandicus, S 710
Spinontocaris phippisii, S 710
Spiratella helicina, S 710
Stomphia sp., S 710
Synidotea bicuspidata, S 710
Syrrhoe crenulata, S 710
Tecticeps alaskensis, S 710
Thysanoessa inermis, S 710
Thysanoessa longipes, S 710
Thysanoessa raschii, S 710
Tryphosa sp., S 710
Yoldia scissurata, S 710

Ischyrocerus latipes
 invertebrates, midwater

Chukchi Sea, southeastern, September-October 1970,
 S 710
Ischyrocerus megalops
 invertebrates, midwater
 Chukchi Sea, southeastern, September-October 1970,
 S 710
 Isoelectric focusing
 polyacrylamide gel
 identification of fish species by thin layer, FB 75:571
 Isopod
Cymothoa excisa
 biology and occurrence on three species of snappers,
 FB 75:875
Istiophorus platypterus—see Sailfish

J

Japan
 longline fishery in the Gulf of Mexico, 1978, MFR 41(10):
 23
 1975 fisheries
 Antarctic krill, MFR 37(11):11
 automatic fishing machines, MFR 37(11):13
 bluefin tuna rearing, MFR 37(11):10
 building boom continues for large skipjack tuna vessels,
 MFR 37(11):13
 capturing skipjack tuna live bait on high seas,
 MFR 37(11):10
 problems with Soviet fishermen, MFR 37(11):12
 purse seining in western Pacific, MFR 37(11):2
 sardines, MFR 37(11):13
 skipjack tuna fishery survey in Micronesia,
 MFR 37(11):9
 southern water skipjack tuna fishery, July 1974-January
 1975, MFR 37(11):3
 tuna industry dilemma, MFR 37(11):1
 unusual abundance of eel elvers, MFR 37(11):12
 use of live bigeye scad as longline bait, MFR 37(11):11
 otter trawl fisheries in northeast Pacific
 energy efficiency comparison with Washington,
 MFR 37(4):21
 salmon roe
 N-nitrosamines, occurrence of volatile, FB 74:683
 trawl vessels in Bering Sea, U.S. observers board
 bottomfish fishery, MFR 38(4):2
 incidental catch of crab, MFR 38(4):7
 incidental catch of halibut, MFR 38(4):6
 observer program, MFR 38(4):4
 species composition of catch, MFR 38(4):9
Jasus edwardsii—see Lobster, rock

K

Kachemak Bay, Alaska
Crangon franciscorum angustimana
 stage I zoeae hatched from ovigerous females collected
 in, FB 77:991
Lebbeus groenlandicus, description of larvae, FB 76:457
 shrimp, northern
 description of larvae reared in situ, FB 77:157

Kaktovik, Alaska
 whale, bowhead
 1976 catch by Eskimos, MFR 40(11):27

Kaneohe Bay, Hawaii
 catch statistics and abundance of nehu, C 408:114

Katsuwonus pelamis—see Tuna, skipjack

Kelp
 Santa Barbara, California
 reef fishes, day versus night activity, FB 74:703

Kingfish, northern
 New York Bight fishery resource, C 401

Kivalina, Alaska
 whale, bowhead
 1976 catch by Eskimos, MFR 40(11):22

Kodiak Island
 Pacific cod
 summer food near, FB 76:700

Koko Head, Oahu
 sea surface temperatures and salinities, 1956-73, FB 75:767

Kuala Trengganu, Malaysia
 optimal fish shipments from, MFR 41(7):16

Kure Atoll, Hawaii
 zooplankters emerge from the lagoon floor at night,
 FB 77:275

Kuroshio
 zooplankton production and ammonia excretion, FB 76:
 357

L

La Jolla, California
 goose barnacles on flotsam beached at, FB 74:212

Labyrinthomyxa patuxent
 proteomyxan amoeba stage in development of, MFR 38
 (10):16

Lagenidium
 review of involvements with arthropods, MFR 37(5-6):61

Lagenophrys lunatus
 parasitic on penaeid shrimp in Gulf of Mexico and South
 Atlantic, FB 76:17

Lagenorhynchus acutus—see Dolphin, white-sided

Lagenorhynchus obscurus—see Dolphin, dusky

Lagodon rhomboides—see Pinfish

Lake Michigan
 rainbow smelt
 food habits and feeding chronology, FB 75:637

Lampfish, Mexican
 acoustic measurements of a migrating layer at 102 kilo-
 hertz
 acoustic measurements, FB 77:936
 biological sampling, FB 77:936
 calculations, FB 77:936

Lance, American sand
 Atlantic, northwestern
 feeding by fin and humpback whales, FB 77:285

Gulf of Maine
 relative abundance, behavior, and food habits, FB 77:
 243

Lancetfish
 food of, in western North Atlantic
 invertebrate, S 706
 vertebrate, S 706

LANDSAT menhaden and thread herring investigation
 SEFC progress report, MFR 39(4):14

LANDSAT—see also Satellite

Larimus fasciatus
 York River estuary, Virginia
 life history, feeding habits, and functional morphology
 of juveniles, FB 75:657

Larvae
 bairdiella
 effects of acclimation on temperature and salinity
 tolerance of yolk-sac, FB 73:249

bivalve
 reevaluation of combined effects of temperature and
 salinity on survival and growth using response
 surface techniques, FB 73:86

crab, Dungeness
 larval dynamics off central Oregon coast, 1970-71,
 FB 74:353

eel, conger
 occurrence of, in an estuary, FB 73:444

lobster, California spiny
 ecological studies of puerulus stage, FB 73:360

menhaden, Atlantic
 geographic and hydrographic distribution along Middle
 Atlantic coast, FB 73:317

reared in situ in Kachemak Bay, Alaska
Lebbeus groenlandicus, description of, FB 76:457

Larvae, fish—see Fish larvae

Larval fishes—see Fishes, larval

Lebbeus groenlandicus
 invertebrates, midwater
 Chukchi Sea, southeastern, September-October 1970,
 S 710

reared in situ in Kachemak Bay, Alaska
 larvae, description of, FB 76:457

Leeches, piscivorous
 central Columbia River, Washington State
 records of, FB 76:926

Leiostomus xanthurus
 York River estuary, Virginia
 life history, feeding habits, and functional morphology
 of juveniles, FB 75:657

Leiostomus xanthurus—see also Spot

Lepidopsetta bilineata—see Sole, rock

Leptocephali
 guide to Elopiformes, Anguilliformes, and Notacanthi-
 formes
 Albulidae, C 424
 Anguillidae, C 424
 characteristics, C 424
 Congridae, C 424
 Cyemidae, C 424
 Derichthyidae, C 424
 Elopidae, C 424
 Heterenchelyidae, C 424
 identification, C 424
 key, C 424
 Macrocephenchelyidae, C 424
 Moringuidae, C 424
 Muraenidae, C 424
 Myrocongridae, C 424
 Nemichthyidae, C 424

- Nettastomatidae, C 424
- Ophichthidae, C 424
- Saccopharyngoidei, C 424
- Serrivomeridae, C 424
- Synaphobranchidae, C 424
- Xenocoelidae, C 424
- Leptomonas* sp.
 - parasitic on penaeid shrimp in Gulf of Mexico and South Atlantic, FB 76:21
- Lernaeopodidae
 - United States, northeastern
 - key, C 406
 - systematic list, annotated, C 406
- Lesions
 - proliferative
 - identification in mollusks, MFR 38(10):5
- Leucon nasica*
 - invertebrates, midwater
 - Chukchi Sea, southeastern, September-October 1970, S 710
- Leuresthes sardina* — see Grunion, Gulf of California
- Leuresthes tenuis* — see Grunion, California
- Levenberg-Marquardt algorithm
 - derivative-free version
 - Pella-Tomlinson model parameters, estimation of, FB 76:523
- Libinia emarginata* — see Crab, spider
- Limanda aspera* — see Sole, yellowfin
- Limanda ferruginea* — see Flounder, yellowtail
- Limulus polyphemus* — see Crab, horseshoe
- Liparis inquilinus*
 - life history, ecology, and behavior of, associated with sea scallop
 - abundance, geographic variation, FB 74:418
 - behavior of, FB 74:414
 - diel rhythm in fish-scallop association, FB 74:416
 - feeding, FB 74:414
 - juveniles, FB 74:412
 - larvae, FB 74:412
 - resting, FB 74:413
 - spawning behavior, FB 74:412
- "Lipo"
 - New England
 - impact of autumn-winter swarming on fishing in coastal waters, C 416:333
 - swarming in New England coastal waters—update 1976, C 427:349
- Little Goose Dam
 - bypass and collection system for protection of juvenile salmon and trout at, MFR 37(2):31
- Little Port Walter Bay, Alaska
 - salmon, juvenile
 - floating horizontal and vertical raceways, MFR 41(3):18
- Lizardfish
 - western Atlantic
 - correlation between numbers of vertebrae and lateral-line scales, FB 73:202
- Lobster
 - Homarus americanus*
 - diseases and defense mechanisms of, MFR 40(10):4
 - nutrient requirement and nutrition pathology, MFR 40(10):44
 - Lobster, American
 - effects of trap selectivity and some population parameters on size composition along Maine coast
 - body proportions of, FB 73:864
 - comparison of samples from commercial and research gear, FB 73:863
 - effects of throw backs on the fishery, FB 73:866
 - effects of vent size on trap efficiency, FB 73:869
 - length frequencies, FB 73:864
 - recommendations, FB 73:871
 - retention curves, FB 73:868
 - samples from commercial gear, FB 73:862
 - samples from research gear, FB 73:863
 - selectivity curves, FB 73:868
 - trap escapement study, FB 73:870
 - effects of trap venting on gear selectivity in inshore Rhode Island fishery
 - catch per unit effort, FB 77:926
 - immersion time, FB 77:927
 - sex ratios, FB 77:930
 - size selectivity, FB 77:929
 - vent size, orientation, and lath spacing, FB 77:930
 - ghost fishing of vented and unvented traps, MFR 40(5-6):9
 - incidence of culls off the Maine coast
 - fishing intensity, effect on cull frequency, FB 74:721
 - seasonal and size variation in cull frequency, FB 74:719
 - value loss of catch due to culls, FB 74:723
 - migration and dispersion of tagged, southern New England, S 705
 - New York Bight fishery resource, C 401
 - trap contributions to losses of, FB 73:449
 - Lobster, California spiny
 - ecological studies of puerulus larval stage
 - comparison of habitat trap types, FB 73:366
 - duration of puerulus stage, FB 73:371
 - evaluation of natural seaweed and artificial habitat traps, FB 73:374
 - functional significance of puerulus stage, FB 73:373
 - habitat trap success in relation to position on the pier, FB 73:367
 - habitat traps maintained offshore, FB 73:368
 - implications for aquaculture and fishery management, FB 73:375
 - mode of life of puerulus stage, FB 73:372
 - neuston net sampling, FB 73:368
 - night-light observations, FB 73:363
 - paired neuston nets, FB 73:363
 - pigmentation related to date of settlement, FB 73:365
 - relationship of puerulus settlement to environmental factors, FB 73:369
 - seaweed habitat traps, FB 73:362
 - significance of nocturnal illumination of traps in attraction of pueruli, FB 73:367
 - significance of *Phyllospadix* in settlement of puerulus stage, FB 73:374
 - suspension of habitat traps, FB 73:363
 - underwater night-lights, FB 73:362
- Lobster, legal-sized
 - traps, escape vent shape, FB 76:425

- Lobster, rock
 - mortality estimates for New Zealand
 - size-frequency distributions analyses, FB 77:471
 - tag return data analyses, FB 77:475
 - Lobster, spiny
 - costs and earnings in Florida Keys fishery
 - fishing operations, MFR 37(4):27
 - laws and regulations, MFR 37(4):26
 - returns to capital and labor, MFR 37(4):26
 - revenue and cost structure, MFR 37(4):28
 - sampling, MFR 37(4):27
 - Lobster fishery
 - bioeconomic relationships for Maine
 - bioeconomic simulation of fishery, S 683
 - biology of American lobsters, S 683
 - economic relationships, S 683
 - policy considerations, S 683
 - population dynamics, S 683
 - Lobster traps
 - bottom temperature estimates, from fish captured in, MFR 41(8):23
 - gaffkemia, fatal infection of
 - influence of environmental factors, MFR 37(5-6):20
 - pathogen growth and biochemical changes in host, MFR 37(5-6):21
 - Lobsters, deep-sea
 - North Atlantic, western
 - biology, FB 77:435
 - Loligo opalescens*
 - raised in laboratory
 - feeding behavior, food consumption, growth, and respiration, FB 74:176
 - school structure, FB 76:433
 - Loligo pealei*—see Squid, long-fin
 - Long Island, New York
 - activity, movements, and feeding behavior of the cunner, and comparison of food habits with young tautog, FB 73:895
 - shellfish hatcheries
 - bacteriologic studies, MFR 40(10):8
 - Long Island Sound
 - environmental baselines, 1972-73
 - macrofauna, benthic, S 738
 - nutrients, S 738
 - oxygen, dissolved, S 738
 - sediment heavy metals, microorganisms, S 738
 - sediment organic matter, S 738
 - sediments, S 738
 - temperature and salinity, S 738
 - Lopholatilus chamaeleonticeps*—see Tilefish
 - Los Angeles
 - Dover sole, local migrations and fin erosion
 - chlorinated hydrocarbons in, FB 75:513
 - Lota lota*—see Burbot
 - Louisiana
 - brown and white shrimp
 - trends toward decreasing size in reported annual catches, FB 77:985
 - oyster
 - composition, geographic and monthly variation in, MFR 41(3):13
 - shrimp catches
 - size composition, effect on ex-vessel value, MFR 40(2):14
 - Louisiana coast
 - fish, finding with satellites, MFR 39(1):16
 - Lower Granite Dam
 - bypass and collection system for protecting salmon and steelhead trout, MFR 39(7):10
 - Lumbrineris fragilis*
 - invertebrates, midwater
 - Chukchi Sea, southeastern, September-October 1970, S 710
 - Lumbrineris similabris*
 - invertebrates, midwater
 - Chukchi Sea, southeastern, September-October 1970, S 710
 - Lunar spawning—see Spawning, lunar
 - Lutjanus buccanella*—see Snapper, blackfin
 - Lutjanus campechanus*—see Snapper, red
 - Lutjanus vivanus*—see Snapper, silk
 - Lyopsetta exilis*—see Sole, slender
- M
- Machine, eviscerating
 - fish, small, MFR 39(2):11
 - Machine, heading
 - fish, small, MFR 39(2):11
 - Mackerel, Atka
 - resource in Bering Sea and Aleutian Islands, MFR 41(11):19
 - Mackerel, Atlantic
 - assessment of northwest stock
 - abundance indices, S 732
 - catch, S 732
 - catch and stock size projections, S 732
 - catch composition, S 732
 - fishing mortality, S 732
 - partial recruitment, S 732
 - recruitment, S 732
 - stock size, S 732
 - description of eggs and early larvae, FB 73:186
 - eggs and larvae between Massachusetts and Florida
 - body proportions, FB 76:99
 - contrasting characters, FB 76:104
 - distributions of eggs and larvae, FB 76:104
 - identification, FB 76:96
 - meristic characters, FB 76:98
 - pigmentation, FB 76:101
 - sampling, FB 76:95
 - treatment of specimens and data, FB 76:97
 - New York Bight fishery resource, C 401
 - Mackerel, chub
 - effect of swimming speed on excess temperatures and activities of muscles
 - body temperatures, FB 76:864
 - calibration procedures, FB 76:862
 - muscle activity at different swimming speeds, FB 76:865
 - surgical procedures and swimming experiments, FB 76:861
 - eggs and larvae between Massachusetts and Florida
 - body proportions, FB 76:99

- contrasting characters, FB 76:104
- distributions of eggs and larvae, FB 76:108
- identification, FB 76:96
- meristic characters, FB 76:98
- pigmentation, FB 76:101
- sampling, FB 76:95
- treatment of specimens and data, FB 76:97
- New York Bight fishery resource, C 401
- Mackerel, jack
 - California Current
 - larvae, food and feeding, FB 74:517
 - effect of starvation on histological and morphological characteristics
 - brain, FB 76:405
 - comparison of histological and morphological techniques, FB 76:410
 - data analysis, FB 76:405
 - digestive tract, FB 76:405
 - histological grading system, FB 76:404, 408
 - liver, FB 76:405
 - musculature, FB 76:408
 - pancreas, FB 76:405
- Mackerel, king
 - bibliography, annotated, C 418
- Mackerel, Pacific
 - maturation and induced spawning of captive
 - hormones, test for induction of spawning, FB 75:207, 209
 - photoperiods, FB 75:205, 208
 - spawning condition, maintaining after normal spawning season, FB 75:207, 209
 - temperatures, ambient, FB 75:206, 208
- Mackerel, serra Spanish
 - bibliography, annotated, C 418
- Mackerel, Spanish
 - Atlantic, western, new species from, FB 76:273
 - bibliography, annotated, C 418
 - New York Bight fishery resource, C 401
- Macrobenthos survey
 - Raritan Bay, 1957-60, D 99
- Macrobrachium rosenbergii*—see Prawn, Malaysian
- Macrocrustaceans
 - abundance in natural and altered marshes
 - catch between areas, comparisons of, FB 74:197
 - day and night catches, comparison of, FB 74:196
 - dissolved oxygen, catch related to, FB 74:197
- Macrofauna
 - South Carolina surf zone
 - collecting method selectivity, S 704
 - environmental variables and occurrence, relationships between, S 704
 - fishes, analysis of abundance, S 704
 - fishes, comparisons of yearly and seasonal abundance, S 704
 - lengths and lengths to weight relationships, S 704
 - species, annotated list of selected, S 704
 - species ranking, S 704
- Macroinvertebrates
 - Tampa Bay, Florida
 - additional studies of, in upland canals, FB 73:83
 - Tampa Bay, Florida, 1963-64 and 1969
 - distribution and abundance of six phyla, D 100
- Macrozoarces americanus*—see Pout, ocean
- Macrozooplankton
 - standing stocks off Oregon, seasonal and inshore-offshore variations, FB 74:70
- Maera loveni*
 - invertebrates, midwater
 - Chukchi Sea, southeastern, September-October 1970, S 710
- Maine
 - Boothbay Harbor
 - crab, Jonah, FB 77:685
 - crab, rock, FB 77:685
 - crab, rock
 - size composition and growth of young, FB 74:949
 - effects of trap selectivity and some population parameters on size composition of American lobster catch along coast, FB 73:862
 - lobster fishery
 - bioeconomic relationships, S 683
 - lobsters, cull
 - in commercial and research catches, FB 74:719
 - salmonids
 - vibriosis in, MFR 40(10):9
 - Sullivan Harbor
 - bloodworm, tycho planktonic, FB 76:480
- Maine, Gulf of
 - fish (larval) collected during ICNAF herring surveys, September 1971-February 1975, S 717
- Majuro, Marshall Islands
 - biology of baitfishes *Herklotsichthys punctatus* and *Pranesus pinguis*, C 408:63
- Makaira indica*—see Marlin, black
- Makaira nigricans*—see Marlin, blue
- Mammals, marine
 - interactions with Pacific hake, MFR 41(10):1
 - list of the world
 - Balaenopteridae, S 711
 - Delphinidae, S 711
 - Dugongidae, S 711
 - Eschrichtiidae, S 711
 - Monodontidae, S 711
 - Mustelidae, S 711
 - Odobenidae, S 711
 - Otariidae, S 711
 - Phocidae, S 711
 - Physeteridae, S 711
 - Platanistidae, S 711
 - synonyms, S 711
 - Trichechidae, S 711
 - Ursidae, S 711
 - Ziphiidae, S 711
 - Pacific Ocean, northeast
 - chemical characteristics, MFR 38(9):7
 - small
 - nonlethal lavage device for sampling stomach contents, FB 75:653
- Manatee, West Indian
 - aerial survey in Indian and Banana Rivers, Florida, FB 77:52, 58
- Margarites* sp.
 - invertebrates, midwater

- Chukchi Sea, southeastern, September-October 1970, S 710
- Margaritopsis pribiloffensis*
invertebrates, midwater
- Chukchi Sea, southeastern, September-October 1970, S 710
- Marine animals
cadmium, mercury, and silver, effects of, MFR 39(4):5
- Marine environmental conditions
United States
Atlantic and Gulf coasts, MFR 41(5-6):35
off coasts of, MFR 41(5-6):32
Pacific coast, MFR 41(5-6):48
- Marine flora and fauna
United States, northeastern
Arthropoda: Cirripedia, C 425
Copepoda: cyclopoids parasitic on fishes, C 409
Copepoda: Lernaepodidae and Sphyriidae, C 406
Crustacea: Branchiura, C 413
Crustacea: Cumacea, C 423
Echinodermata: Holothuroidea, C 405
Protozoa: Sarcodina: Amoebae, C 419
Sipuncula, C 403
- Marine fouling
subtidal and intertidal, on artificial substrata in Puget Sound, Washington
fouling colonization of construction materials, FB 74:379
fouling organisms, seasonal distribution, FB 74:381
fouling organisms, vertical distribution in subtidal zone, FB 74:382
physicochemical environment, FB 74:378
- Marine organisms
spin-labeling techniques for studying mode of action of petroleum hydrocarbons on, FB 73:299
- Marlin, black
synopsis of biology
bionomics and life history, S 675-3:21
distribution, S 675-3:19
exploitation, S 675-3:25
identity, S 675-3:17
- Marlin, blue
mercury and selenium in, from Hawaiian Islands, FB 76:872
Pacific, central North
von Bertalanffy growth curves, FB 74:553
synopsis of biological data
bionomics and life history, S 675-3:4
distribution, S 675-3:2
exploitation, S 675-3:12
identity, S 675-3:1
population, S 675-3:9
protection and management, S 675-3:14
- Marlin, striped
Pacific, central North
von Bertalanffy growth curves, FB 74:553
synopsis of biological data
bionomics and life history, S 675-3:139
distribution, S 675-3:136
exploitation, S 675-3:150
identity, S 675-3:132
- population, S 675-3:149
protection and management, S 675-3:156
- Marlin, white
Atlantic, western North
sex composition, length-weight relationship, and reproduction, FB 76:919
synopsis of biology
bionomics and life history, S 675-3:69
distribution, S 675-3:62
exploitation, S 675-3:81
identity, S 675-3:55
population, S 675-3:78
protection and management, S 675-3:88
- Marshland nursery area
impact of thermal effluent on, during the hot season
collecting methods, FB 73:69
data presentation, FB 73:69
description of study area, FB 73:68
sampling stations, FB 73:69
- Marteilia*
cell structure
haplosporosomes, MFR 41(1-2):27
organelles, other, MFR 41(1-2):32
sporulation, MFR 41(1-2):33
- Marteilia armoricana*
disease of imported oysters, *Ostrea edulis*, in Dutch estuaries, MFR 42(1-2):8
- Marteilia refringens*
Brittany, France
possible infection of *Crassostrea gigas*, MFR 41(1-2):19
disease of imported oysters, *Ostrea edulis*, in Dutch estuaries, MFR 41(1-2):8
epizootiology in Europe, MFR 41(1-2):67
life cycle and development in *Ostrea edulis*
epidemiology, MFR 41(1-2):64
interaction between host, parasite, and environment, MFR 41(1-2):66
morphology, MFR 41(1-2):64
oyster disease
disease resistance of flat oysters, MFR 41(1-2):39
in situ studies of infections, MFR 41(1-2):38
- Marteilia* sp.
biology, MFR 41(1-2):5
occurrence in *Orchestia gammarellus*, MFR 41(1-2):5
structure, MFR 41(1-2):3
- Marteilia sydneyi*
life cycle and ecology in Australian oyster, MFR 41(1-2):70
- Maryland
oyster
composition, geographic and monthly variation in, MFR 41(3):13
- Massachusetts
smelt, rainbow
incidence and distribution of piscine erythrocytic necrosis and *Glugea hertwigi*, FB 77:503
- Mediterranean Sea
Red Sea, fishes found in, FB 76:249
- Megaptera novaengliae* — see Whale, humpback
- Melanogrammus aeglefinus* — see Haddock
- Melita formosa*
invertebrates, midwater

- Chukchi Sea, southeastern, September-October 1970, S 710
- Menhaden
- annotated bibliography on biology, 1963-73, S 687
 - ERTS-1 menhaden investigation
 - SEFC progress report, MFR 39(4):13
 - hydrolysate
 - preparation of, for possible use in a milk replacer, MFR 40(8):14
 - LANDSAT menhaden and thread herring investigation
 - SEFC progress report, MFR 39(4):14
 - seasonal variations in
 - chemical composition, MFR 38(9):12
 - protein quality, MFR 38(9):12
- Menhaden, Atlantic
- age and size composition of purse seine catch, 1963-71
 - catch, effort, and catch per unit of effort, S 684
 - changes in fishery, S 684
 - fishing effort, S 684
 - length and weight, S 684
 - total catch, S 684
 - year class strength, S 684
 - embryonic development and a fish embryo age estimation
 - method, FB 77:943
 - fecundity, FB 77:308
 - forecasts of catches based on catch and fishing effort
 - description of fishery, MFR 37(10):6
 - estimation of catches in previous years, MFR 37(10):6
 - forecasts of 1973 and 1974 catches, MFR 37(10):7
 - general feeding ecology of postlarval fishes in Newport River estuary, FB 73:137
 - geographic and hydrographic distribution of eggs and larvae along Middle Atlantic coast
 - diel-vertical comparisons of larval catches, FB 73:325
 - eggs, FB 73:327
 - geographic distribution of larvae, FB 73:320
 - mid-water trawl catches, FB 73:327
 - temperature-salinity relations, FB 73:324
 - grazing of freshwater and estuarine, benthic diatoms by adults, FB 74:689
 - larval transport and year-class strength
 - Ekman transport influence, FB 75:30
 - fishery implications, FB 75:38
 - physical oceanography of spawning region, FB 75:26
 - recruit-environmental model, FB 75:33
 - sardine, comparison with Pacific, FB 75:37
 - spawner-recruit relation, FB 75:28
 - spawning and larval distribution, FB 75:24
 - New York Bight fishery resource, C 401
 - status of fishery and implications for management
 - analysis of fishery, MFR 37(9):7
 - historical background of fishery, MFR 37(9):3
 - history and purpose of Federal biological studies, MFR 37(9):2
 - management recommendation for fishery, MFR 37(9):9
- Menhaden, Gulf
- aging
 - juvenile tagging, FB 76:318
 - length-frequency distributions, FB 76:317
 - rings, incidence and spacing, FB 76:318
 - rings, validity as year marks, FB 76:316
 - analysis of returns of tagged
 - autumn releases and recoveries, FB 74:116
 - fishing areas, FB 74:112
 - methods of recovering tags, FB 74:113
 - methods of tagging, FB 74:112
 - spring releases and recoveries, FB 74:114
 - forecasts of catches based on catch and fishing effort
 - description of fishery, MFR 37(10):7
 - estimation of catches in previous years, MFR 37(10):7
 - forecasts of 1973 and 1974 catches, MFR 37(10):7
 - purse seine fishery
 - age and size composition, S 722
 - age and size distribution by longitude, S 722
 - catches, S 722
 - fishing distribution, S 722
 - fishing methods improvements, S 722
 - recruitment and relative abundance, S 722
 - sampling procedure, S 722
 - size and number of vessels, S 722
 - small preserved
 - number and length frequency, subsampler for estimating, FB 76:490
 - status of fishery and implications for management
 - historical background of fishery, MFR 37(9):3
 - history and purpose of Federal biological studies, MFR 37(9):2
- Menhaden, yellowfin
- description of eggs and larvae, FB 73:660
- Menidia beryllina*—see Silverside, tidewater
- Menidia menidia*—see Silverside, Atlantic
- Menippe mercenaria*—see Crab, stone
- Menippe nodifrons*—see Crab, Cuban stone
- Menippidae
- crab, Cuban stone
 - larval development under laboratory conditions, FB 77:359
 - status of family, FB 77:359
- Menticirrhus americanus*
- York River estuary, Virginia
 - life history, feeding habits, and functional morphology of juveniles, FB 75:657
- Menticirrhus saxatilis*
- York River estuary, Virginia
 - life history, feeding habits, and functional morphology of juveniles, FB 75:657
- Menticirrhus saxatilis*—see also Kingfish, northern
- Mercenaria mercenaria*
- response surface techniques
 - reevaluation of combined effects of temperature and salinity on survival and growth using, FB 73:88
- Mercenaria mercenaria*—see also Clam, hard
- Mercury
- marine animals, effects on, MFR 39(4):5
 - marlin, blue, from Hawaiian Islands, FB 76:872
 - Pacific Ocean, northeast
 - spiny dogfish, FB 75:642
- Merluccius albidus*—see Hake, offshore
- Merluccius bilinearis*—see Hake, silver; Whiting
- Merluccius capensis*—see Hake, South African
- Merluccius hubbsi*—see Hake, Argentine
- Merluccius productus*—see Hake, Pacific
- Mesopelagic fishes—see Fishes, mesopelagic

- Mesopenaeus tropicalis*
American solenocera shrimp, FB 75:332
- Metal contamination
scallop, rock
near large municipal outfall, FB 76:936
- Meteorological data
EASTROPAC atlas
from principal participating ships, third survey cruise,
February-March 1968, C 330, vol. 9
Latin American ships and ships of opportunity, February 1967-March 1968, C 330, vol. 11
- Mexico
catch-effort and price-cost trends in Gulf of Mexico shrimp fishery
extended jurisdiction implications, MFR 40(8):24
- Miami, Florida
sea surface temperature
distribution from, to Cape Cod, Massachusetts, 1976, C 427:209
- Microbial outgrowth
"mock fish," for studying inhibiting microbial agents, FB 75:880
- Microcopepods
California Current
distribution, size, and abundance, FB 75:601
survival of marine teleost larvae, influence on, FB 75:601
- Microgadus tomcod* — see Tomcod, Atlantic
- Micromesistius poutassou* — see Whiting, blue
- Micronekton
standing stocks off Oregon, seasonal and inshore-offshore variations, FB 74:70
- Micronekton, mesopelagic
Hawaii
faunal composition, standing stock, and vertical migration, FB 73:726
- Microphallus* sp.
parasitic on penaeid shrimp in Gulf of Mexico and South Atlantic, FB 76:24
- Micropogon undulatus* — see Croaker, Atlantic
- Micropogonias undulatus*
York River estuary, Virginia
life history, feeding habits, and functional morphology of juveniles, FB 75:657
- Micropogonias undulatus* — see also Croaker, Atlantic
- Microstomus pacificus* — see Sole, Dover
- Microwaves
shrimp processing, effects on, MFR 37(12):25
- Middle Atlantic Bight
bottom-water temperature trends, spring and autumn, 1964-76
relationship of temperatures east and west of Cape Cod, S 739
temperature observations, S 739
temperature variation causes, S 739
temperature variation effects, S 739
zooplankton and net phytoplankton, 1976, C 427:337
- Middle Atlantic Shelf
sea scallop, resources 1975
distribution and abundance, MFR 40(2):21
length frequency, MFR 40(2):22
- Midway Atoll
zooplankters emerge from the lagoon floor at night, FB 77:275
- Milk replacer
preparation of menhaden hydrolysate for possible use in, MFR 40(8):14
- Mimocalanus*
Arctic Ocean, central
key to species, C 391
- Minchinia*
cell structure
haplosporosomes, MFR 41(1-2):27
organelles, other, MFR 41(1-2):32
sporulation, MFR 41(1-2):33
fine structure of sporulation in mud crab, MFR 37(5-6):46
- Minchinia nelsoni*
development of resistance to mortality in Delaware Bay laboratory-reared stocks, MFR 41(1-2):55, 56
monitoring program, MFR 41(1-2):56
native seed, MFR 41(1-2):58
disease of American oyster, MFR 38(10):22
- Minchinia* sp.
occurrence in *Teredo* from New Jersey, MFR 41(1-2):21
- Mississippi
oyster reefs, damaged
aquacultural program developed for rehabilitation, MFR 39(8):1
- Mississippi Sound
fish, finding with satellites, MFR 39(1):16
- Mnemiopsis mccradyi*
production in south Florida inshore waters
analysis of samples, FB 73:239
conversion of raw data to other units, FB 73:241
growth rates, FB 73:241
problems of measuring growth rate, FB 73:245
production calculation, FB 73:242
production comparisons, FB 73:246
sampling methods, FB 73:238
seasonal changes, FB 73:243
study site, FB 73:238
- Mobile Bay, Alabama
oyster
composition, geographic and monthly variation in, MFR 41(3):13
- Mobile laboratory
flow-through capability
thermal tolerance studies on aquatic organisms, MFR 38(3):24
- Molluscan pathology
workshop, closing comments on, MFR 38(10):49
- Mollusks
bibliography of aquacultural economics, S 703
cadmium, mercury, and silver, effects of, MFR 39(4):6
composition of edible portion of raw (fresh or frozen)
aluminum, MFR 40(9):1
arsenic, MFR 40(9):1
ascorbic acid, MFR 40(12):1
barium, MFR 40(9):1
biotin, MFR 40(12):1
cadmium, MFR 40(9):1
calcium, MFR 39(1):1
chlorine, MFR 39(1):1

- choline, MFR 40(12):1
- chromium, MFR 40(9):1
- cobalt, MFR 40(9):1
- copper, MFR 40(9):1
- fluorine, MFR 40(9):1
- folic acid, MFR 40(12):1
- inositol, MFR 40(12):1
- iodine, MFR 40(9):1
- iron, MFR 40(9):1
- lead, MFR 40(9):1
- magnesium, MFR 39(1):1
- manganese, MFR 40(9):1
- mercury, MFR 40(9):1
- mercury, organic, MFR 40(9):1
- molybdenum, MFR 40(9):1
- niacin, MFR 40(12):1
- nickel, MFR 40(9):1
- pantothenic acid, MFR 40(12):1
- phosphorus, MFR 39(1):1
- potassium, MFR 39(1):1
- pyridoxine, MFR 40(12):1
- riboflavin, MFR 40(12):1
- selenium, MFR 40(9):1
- silver, MFR 40(9):1
- sodium, MFR 39(1):1
- thiamin, MFR 40(12):1
- tin, MFR 40(9):1
- vanadium, MFR 40(9):1
- vitamin A, MFR 40(12):1
- vitamin B₁₂, MFR 40(12):1
- vitamin D, MFR 40(12):1
- vitamin E, MFR 40(12):1
- zinc, MFR 40(9):1
- epidermal papillomas, description of in three bivalve species, MFR 38(10):25
- lesions, identification of proliferative
 - encapsulation cells, MFR 38(10):5
 - phagocytic cells, MFR 38(10):5
- leucocyte cell renewal model for bivalve, MFR 38(10):34
- polyps, description of in three bivalve species, MFR 38(10):25
- proliferative disorders in bivalve, MFR 38(10):30
- Mollusks, marine
 - viruses and viruslike lesions, MFR 40(10):18
- Monacilla*
 - Arctic Ocean, central
 - key to species, C 391
- Monoculodes borealis*
 - invertebrates, midwater
 - Chukchi Sea, southeastern, September-October 1970, S 710
- Monolene sessilicauda* — see Flounder, deepwater
- Montague Strait
 - Prince William Sound, Alaska
 - otter, sea, feeding behavior and major prey species, FB 76:125
- Monterey Bay, California
 - net plankton and nannoplankton
 - contribution to standing stocks and primary productivity during upwelling season, FB 74:183
- Morone americana* — see Perch, white
- Morone saxatilis* — see Bass, striped
- Mortality
 - sea urchin, red
 - localized mass mortality near Santa Cruz, California, FB 75:645
- Mugil cephalus* — see Mullet, striped
- Mulinia lateralis*
 - response surface techniques
 - reevaluation of combined effects of temperature and salinity on survival and growth using, FB 73:89
- Mullet
 - dockside price analysis in Florida fishery
 - annual prices, MFR 38(6):4
 - industry implications, MFR 38(6):12
 - monthly prices, MFR 38(6):6
 - price flexibilities, MFR 38(6):11
- Mullet, striped
 - ecology, aspects of estuarine intertidal
 - distribution, FB 76:305
 - field sites and capture of fish, FB 76:299
 - predators, FB 76:307
- Multiple species fishery
 - harvesting capacity, a linear programming approach, FB 77:425
- Multispecies fisheries problem
 - report of a colloquium, June 1976, MFR 39(9):8
- Munida forceps*
 - Chesapeake Bight
 - occurrence in, FB 74:462
- Munidopsis bermudezi*
 - Chesapeake Bight
 - occurrence in, FB 74:462
- Murrells Inlet, South Carolina
 - artificial reefs, MFR 41(9):12
- Muscles
 - mackerel, chub
 - effect of swimming speed on excess temperatures and activities, FB 76:861
- Musculus discors*
 - invertebrates, midwater
 - Chukchi Sea, southeastern, September-October 1970, S 710
- Mussel
 - culture in Venezuela
 - areas, MFR 37(1):15
 - environmental factors, MFR 37(1):17
 - outlook, MFR 37(1):17
 - techniques, MFR 37(1):15
- Mussel, bay
 - uptake and loss of petroleum hydrocarbons
 - mortality studies, FB 73:510
 - No. 2 fuel oil studies, FB 73:510
 - No. 5 fuel oil studies, FB 73:511
- Mussel, blue
 - cultivated and natural stocks
 - seasonal effect on yield, proximate composition, and quality of meats, MFR 40(8):18
 - mariculture of
 - Atlantic coast of France—pole culture, MFR 37(10):14
 - Netherlands bottom culture, MFR 37(10):15
 - northwest Spain—raft or rope culture, MFR 37(10):11
- Mya arenaria* — see Clam, soft shell

Mya truncata
 invertebrates, midwater
 Chukchi Sea, southeastern, September-October 1970,
 S 710

Myctophidae
 Pacific, North central gyre
 vertical distribution and development during summer,
 FB 77:786

Mysis litoralis
 invertebrates, midwater
 Chukchi Sea, southeastern, September-October 1970,
 S 710

Mysis oculata
 invertebrates, midwater
 Chukchi Sea, southeastern, September-October 1970,
 S 710

Mysis polaris
 invertebrates, midwater
 Chukchi Sea, southeastern, September-October 1970,
 S 710

Mytilus californianus
 effects of thermal discharge on reproductive cycles,
 FB 77:498

Mytilus edulis
 effects of thermal discharge on reproductive cycles,
 FB 77:498
 larvae, inhibitory effect on growth of
Pavlova lutherii, FB 77:715

Mytilus edulis—see also Mussel, bay; Mussel, blue

N

N-nitrosamines
 salmon roe, Japanese
 occurrence of volatile, FB 74:683

Naknek River system
 Bristol Bay, Alaska
 possible management procedures for increasing production of sockeye salmon smolts, S 733

Nanaimo River, British Columbia
 salmon, chinook
 utilization of estuary by juvenile, FB 77:653

Nannoplankton
 Monterey Bay, California
 contribution to standing stocks and primary productivity during upwelling season, FB 74:183

Nanomia cara
 Gulf of Maine
 aggregation, FB 76:281

Narragansett Bay, Rhode Island
 crab, planktonic spider
 larval development, FB 75:831

Natica clausa
 invertebrates, midwater
 Chukchi Sea, southeastern, September-October 1970,
 S 710

Nehu
 age and growth, Hawaiian Islands
 geographical comparison of growth rates, FB 74:16
 catch statistics and abundance in Kaneohe Bay, C 408:114
 fishery for
 baiting localities, C 408:57

capture methods, C 408:58
 catch, effort, and catch per effort, C 408:58
 day-bait production, C 408:59
 night-bait production, C 408:59
 species utilized, C 408:57
 statewide production, C 408:58

Hawaiian Islands
 age and growth as indicated by daily growth increments of sagittae, FB 74:9

Hawaiian skipjack tuna fishery
 estimates of amount per bucket of bait in, C 408:55

Nekton
 small preserved
 number and length frequency, subsampler for estimating, FB 76:490

Nematobranchion sp.
 California Current, central region
 density, vertical range, and diel movement, FB 74:932

Nematodes
 larval, parasitic in shellfish, MFR 40(10):39
 parasitic on penaeid shrimp
Thynnascaris sp., FB 76:26

Nematopsis brasiliensis
 parasitic on penaeid shrimp in Gulf of Mexico and South Atlantic, FB 76:12

Nematopsis duorari
 parasitic on penaeid shrimp in Gulf of Mexico and South Atlantic, FB 76:12

Nematopsis penaeus
 parasitic on penaeid shrimp in Gulf of Mexico and South Atlantic, FB 76:12

Nematoscelis
 biology and taxonomy of the genus, FB 73:797

Nematoscelis sp.
 California Current, central region
 density, vertical range, and diel movement, FB 74:932

Neomysis rayii
 invertebrates, midwater
 Chukchi Sea, southeastern, September-October 1970,
 S 710

Nephtys paradoxa
 invertebrates, midwater
 Chukchi Sea, southeastern, September-October 1970,
 S 710

Net, purse seine
 modified tuna, achieves record low porpoise kill rate, MFR 39(6):1

Net feeding
 mesopelagic fishes, FB 73:908

Nets, gill
 fish catches
 relation to frontal periods, FB 74:449

Neuston net, Boothbay
 ichthyoneuston catches
 diurnal variations off Charleston, South Carolina, FB 76:295

New Brunswick
 Pacific salmon, juvenile
 discovery in small coastal stream, FB 76:487

New England
 Boston fish pier landings, 1978, MFR 41(10):29
 fisheries development, MFR 39(2):1

- fishery products
 - export opportunities, MFR 39(2):26
- fishing gear
 - technology development or transfer, MFR 39(2):24
- impact of autumn-winter swarming of siphonophore on
 - fishing in coastal waters, C 416:333
- introduction of *Codium*, FB 73:215
- siphonophore swarming in coastal waters—update 1976, C 427:349
- temperature structure on continental shelf and slope south of
 - bottom temperature diagram for 1975, C 416:272
 - bottom temperatures in 1975, C 416:278
 - bottom temperatures in 1976, C 427:321
 - highlights of temperature sections, C 416:274, 427:316
 - long-term monthly mean bottom temperature diagram—1940-66, C 416:273
 - occurrence of warm core Gulf Stream eddies, C 416:273
 - preparation of vertical sections and bottom temperature diagram, C 427:315
 - vertical temperature sections, C 416:271
- New England, Southern
 - flounder, yellowtail
 - compartmentalized simulation model, FB 75:465
 - lobster, American
 - migration and dispersion of tagged, S 705
- New Hampshire
 - salmonids
 - vibriosis in, MFR 40(10):9
- New Jersey
 - climatic conditions related to fish kill and anoxia during summer of 1976, C 427:289
 - flounder, summer
 - composition of catches made by anglers fishing from party boats in 1978, MFR 41(12):28
 - occurrence of *Minchinia* sp. in species of *Teredo*, MFR 41(1-2):21
 - Sandy Hook Bay
 - summer benthic fish fauna, July-October 1970, S 698
- New York
 - cunner
 - seasonal dispersal and habitat selection, FB 77:255
 - Haverstraw Bay, Hudson River
 - food of age 1 and 2 Atlantic tomcod, FB 77:1003
 - striped bass
 - abundance, prediction from modal lengths, FB 76:467
 - tautog, young
 - seasonal dispersal and habitat selection, FB 77:255
- New York Bight
 - Ceratium tripos* bloom, 1976, C 410
 - fisheries and fishery resources
 - alewives, C 401
 - bass, striped, C 401
 - bay scallop, Atlantic, C 401
 - bluefish, C 401
 - bonito, Atlantic, C 401
 - butterfish, C 401
 - clam, hard, C 401
 - clam, soft, C 401
 - clam, surf, C 401
 - cod, Atlantic, C 401
 - conch, C 401
 - crab, blue, C 401
 - crab, horseshoe, C 401
 - croaker, Atlantic, C 401
 - eels, C 401
 - flounder, summer, C 401
 - flounder, winter, C 401
 - flounder, yellowtail, C 401
 - food fisheries, C 401
 - haddock, C 401
 - hake, red C 401
 - hake, silver, C 401
 - hake, white, C 401
 - herring, Atlantic, C 401
 - industrial fisheries, C 401
 - industrial trawl fishery, C 401
 - kingfish, northern, C 401
 - lobster, American, C 401
 - mackerel, Atlantic, C 401
 - mackerel, chub, C 401
 - mackerel, frigate, C 401
 - mackerel, Spanish, C 401
 - menhaden, Atlantic, C 401
 - mussels, sea, C 401
 - New Jersey landings, C 401
 - oyster, American, C 401
 - perch, white, C 401
 - puffer, northern, C 401
 - scup, C 401
 - sea bass, black, C 401
 - sea scallop, Atlantic, C 401
 - semi-industrial fisheries, C 401
 - shad, American, C 401
 - shrimps, C 401
 - spot, C 401
 - squids, C 401
 - sturgeon, Atlantic, C 401
 - swordfish, C 401
 - tautog, C 401
 - tilefish, C 401
 - tuna, bluefin, C 401
 - tuna, little, C 401
 - weakfish, C 401
- June 1974-June 1975
 - fishes and associated environmental data, S 716
- zooplankton
 - composition, abundance, and distribution of, FB 77:669
- New Zealand
 - lobster, rock
 - mortality estimates, FB 77:471
- Newport River estuary
 - general feeding ecology of postlarval fishes
 - menhaden, Atlantic, FB 73:137
 - pinfish, FB 73:137
 - spot, FB 73:137
- Nightlighting
 - attracting and controlling fish
 - SEFC progress report, MFR 39(4):21
- Nitrite additives
 - harmful or necessary in foods?, MFR 38(4):24
- North America
 - mean sea level
 - anomalies of monthly along west coast, C 427:51

west coast, 1967-73
 daily and weekly upwelling indices, S 693

North America, west coast
 albacore, cobalt-60 content in
 source and migration estimates on west coast, FB 75:867
 anomalies of coastal sea surface temperatures, C 416:127

North America, western
 coastal upwelling, 1975
 Baja California, C 416:144
 Cape Blanco to Point Conception, C 416:143
 Gulf of Alaska, eastern, C 416:142
 Gulf of Alaska, northern, C 416:141
 Vancouver Island to central Oregon, C 416:142

coastal upwelling, 1976
 Gulf of Alaska, C 427:66
 Point Conception to Baja California, C 427:69
 relation to fisheries, C 427:70
 Vancouver Island to Point Conception, C 427:67

North Carolina
 charter boat troll fishery survey, 1977, MFR 41(4):15
 elvers, occurrence
Synphobranchus affinis, FB 73:687
 offshore headboat fishing, 1972-73
 recreational catches, effort, and angling quality,
 MFR 38(3):13
 porgy, red
 reproductive cycle, fecundity, and sex ratios, FB 74:775
 recent records of
Callinectes danae, FB 76:879
Callinectes marginatus, FB 76:879
 scallop, calico
 fishes, macroinvertebrates, and their interrelationships
 with, FB 75:427
 shallow marsh habitats as primary nurseries, FB 77:339
 weakfish, reproductive biology, FB 74:18

North Sea
 herring stocks
 status, fished by the Federal Republic of Germany
 fleet, MFR 40(4):21

Northwest Fisheries Center
 resource ecology data analysis, MFR 38(8):22

Norwegian Sea
 herring stocks
 status, fished by the Federal Republic of Germany
 fleet, MFR 40(4):23

Nosema nelsoni
 parasitic on penaeid shrimp in Gulf of Mexico and South
 Atlantic, FB 76:13

Notemigonus crysoleucas — see Shiner, golden

Nuclear detonations
 cobalt-60 content
 contamination source for albacore off west coast,
 FB 75:867

Nucula tenuis
 invertebrates, midwater
 Chukchi Sea, southeastern, September-October 1970,
 S 710

Nuiqsut, Alaska
 whale, bowhead
 1976 catch by Eskimos, MFR 40(11):27

Nutrient chemistry data
 EASTROPAC atlas

principal participating ships, third survey cruise, Feb-
 ruary-March 1968, C 330, vol. 10

Nutrition

lobster

requirement and pathology, MFR 40(10):44

O

Oahu

Koko Head, Hawaii

sea-surface temperatures and salinities, 1956-73, FB 75:
 767

Ocean environment

monitoring of

application to fisheries, MFR 38(2):8

FAX program, MFR 38(2):3

fishing information, MFR 38(2):5

ship-of-opportunity program, MFR 38(2):7

Ocean variability

effects on U.S. marine resources — 1975

Atlantic, C 416:10

Chesapeake Bay streamflow, C 416:23

coastal temperatures, C 416:21

copepoda, net phytoplankton, and temperature-salinity-
 copepod relationships in the Middle Atlantic Bight,
 C 416:28

data products, C 416:19

Pacific, C 416:6

sea surface temperature anomalies, C 416:24

seasonal cycles, C 416:4

transition zone, eastern North Pacific, C 416:26

U.S. fishery conservation zone, 1976

atmospheric circulation, C 427:11

Oceanic conditions

between Hawaiian Islands and U.S. west coast, 1975

subsurface temperature structure, C 416:153

surface salinity, surface temperature, and heat storage,
 C 416:154

between San Francisco and Honolulu, 1976, C 427:77

Oceanographic sampling

albacore movements

small-scale in relation to ocean features, FB 75:347

Octopoteuthis nielsenii

bioluminescence, intensity regulation of during counter-
 shading, FB 75:246

Octopus, Pacific

aggressive behavior exaggerated, MFR 38(9):18

distribution, MFR 38(9):17

fast growth-short life, MFR 38(9):17

fishery, MFR 38(9):20

handling underwater, MFR 38(9):19

movements and feeding, MFR 38(9):18

Octopus dofleini — see Octopus, Pacific

Oil and grease

fishery waste effluents

proposed analytical method, FB 74:681

Oil — see Petroleum transportation

Oithona similis

Oregon coast, central

seasonal cycle of abundance, FB 75:717

Oncorhynchus gorbuscha — see Salmon, pink

Oncorhynchus keta — see Salmon, chum

- Oncorhynchus kisutch* — see Salmon, coho
Oncorhynchus masou — see Salmon, cherry
Oncorhynchus nerka — see Salmon, sockeye
Oncorhynchus sp.
 North American
 hatching survival of hybrids of *Oncorhynchus masou*
 with, FB 73:447
Oncorhynchus spp.
 juvenile, freshwater and estuarine culture
 floating horizontal and vertical raceways, MFR 41(3):18
Oncorhynchus tshawytscha — see Salmon, chinook
Opecoeloides fimbriatus
 parasitic on penaeid shrimp in Gulf of Mexico and South
 Atlantic, FB 76:24
Ophidiiformes
 guide to identification of genera
Abyssobrotula, C 417
Abythites, C 417
Acanthonus, C 417
Alcockia, C 417
Aphyonus, C 417
Barathrites, C 417
Barathrodemus, C 417
Barathronus, C 417
Bassobythites, C 417
Bassogigas, C 417
Bassozetus, C 417
Bathyonus, C 417
Bellottia, C 417
Benthocometes, C 417
Bidenichthys, C 417
Brosomphyciops, C 417
Brosomphycis, C 417
Brotula, C 417
Brotulataenia, C 417
Brotulina, C 417
Bythites, C 417
Calamopteryx, C 417
Carapus, C 417
Cataetys, C 417
Cherublemma, C 417
Chilara, C 417
Dannevigia, C 417
Dermatopsis, C 417
Dermatopsoides, C 417
Diancistrus, C 417
Dicrolene, C 417
Dinematichthys, C 417
Diplacanthopoma, C 417
Dipulus, C 417
Echiodon, C 417
Encheliophis, C 417
Enchelybrotula, C 417
Epetriodus, C 417
Eretmichthys, C 417
Genypterus, C 417
Glyptophidium, C 417
Grammonoides, C 417
Gunterichthys, C 417
Hephthocara, C 417
Holcomycteronus, C 417
Homostolus, C 417
Hoplobrotula, C 417
Hypopleuron, C 417
Lamprogrammus, C 417
Lepophidium, C 417
Leucicorus, C 417
Lucifuga, C 417
Luciobrotula, C 417
Mastigopterus, C 417
Meteoria, C 417
Microbrotula, C 417
Monomitopus, C 417
Monothrix, C 417
Neobythites, C 417
Nybelinella, C 417
Ogilbia, C 417
Oligopus, C 417
Onuxodon, C 417
Ophidion, C 417
Otophidium, C 417
Parabassogigas, C 417
Parophidion, C 417
Penopus, C 417
Petrotyx, C 417
Porogadus, C 417
Propteridium, C 417
Pseudonus, C 417
Pycnocrasedum, C 417
Pyramodon, C 417
Raneya, C 417
Saccogaster, C 417
Sciadonus, C 417
Selachophidium, C 417
Sirembo, C 417
Snyderidia, C 417
Spectrunculus, C 417
Spottobrotula, C 417
Stygnobrotula, C 417
Tauredophidium, C 417
Thalassobathia, C 417
Typhlonus, C 417
Xyelacyba, C 417
Opisthonema oglinum — see Herring, Atlantic thread
Oplophorus gracilirostris
 bioluminescence, intensity regulation of during counter-
 shading, FB 75:248
Opsanus tau — see Toadfish, oyster
Orchestia gammarellus
 structure and biology of *Marteilia* sp. in, MFR 41(1-2):3
Oregon
Acartia californiensis
 effects of temperature and salinity on production and
 hatching of dormant eggs, FB 77:567
 albacore
 catches at different times of the day, FB 73:691
 American shad, history of commercial fishery, MFR
 40(2):29
Aphanopus carbo, FB 77:700
 crab, Dungeness
 larval dynamics off central coast, 1970-71, FB 74:353
 distant water fishing off
 observed and perceived impacts, MFR 37(4):13

- feeding habits off
 - sanddab, Pacific, FB 76:641
 - sole, Dover, FB 76:641
 - sole, rex, FB 76:641
 - sole, slender, FB 76:641
- fishermen, commercial
 - economic performance in 1972, MFR 39(8):17
- Gonostoma atlanticum*, first record off, FB 77:700
- larvae, distribution and duration of pelagic life in waters off
 - sole, Dover, FB 75:173
 - sole, petrale, FB 75:173
 - sole, rex, FB 75:173
- micronekton and macrozooplankton
 - seasonal and inshore-offshore variations in standing stocks, FB 74:70
- oceanographic conditions, summer 1977, MFR 40(2):24
- Paralepis atlantica*, first record off, FB 77:700
- rockfish
 - age determination methods, analysis, FB 75:405
 - development and occurrence of larvae and juveniles, FB 77:1, 901
- salmon, coho
 - contribution of wild and hatchery-reared to ocean sport fishery, FB 77:617
 - monitoring location of, MFR 38(3):1
- small flatfishes and other demersal fishes
 - distribution and abundance, FB 76:629
- sole, rex
 - biology, 1969-73, FB 75:51
- upwelling zone
 - year-to-year variations in the planktology of, FB 73:642
- zooplankton
 - seasonal cycle of abundance and species composition, FB 75:717
- Oscillation, Southern
 - historical trends and statistics, FB 76:663
- Osmerus mordax* — see Smelt, rainbow
- Ostrea edulis*
 - life cycle and development of Abers disease in, MFR 41(1-2):64
- Otoliths
 - daily growth increments, larval and adult fishes, FB 74:1
 - separate juvenile steelhead trout from juvenile rainbow trout, FB 73:654
- Otter, sea
 - Montague Strait, Prince William Sound, Alaska
 - feeding behavior and major prey species, FB 76:125
- Oxygen
 - Atlantic, southeastern tropical
 - oxycline characteristics and skipjack tuna distribution, FB 75:857
- Oxygen, dissolved
 - York River estuary, Virginia
 - mean values, May 1972-August 1973, FB 75:659
- Oxygen concentration, dissolved
 - tuna
 - swimming speed, effect on, FB 75:649
- Oxygen levels
 - evaluation of contaminants on marine life, MFR 38(11):4
- Oxyjulis californica* — see Señorita
- Oyster
 - composition, geographic and monthly variation in, MFR 41(3):13
- Oyster, American
 - Minchinia nelsoni* disease, MFR 38(10):22
 - New York Bight fishery resource, C 401
- Oyster, Australian
 - life cycle and ecology of *Marteilia sydneyi* in age of oysters, MFR 41(1-2):72
 - condition of oysters, MFR 41(1-2):72
 - distribution of *M. sydneyi*, MFR 41(1-2):72
 - incubation period, MFR 41(1-2):72
 - morphology, MFR 41(1-2):71
 - solutions to disease problem, MFR 41(1-2):72
 - temperature and salinity, MFR 41(1-2):72
- Oyster, European flat
 - imported, haplosporidian diseases in Dutch estuaries
 - Marteilia armoricana*, MFR 41(1-2):10
 - Marteilia refringens*, MFR 41(1-2):9
- Oyster, Japanese
 - Brittany, France
 - possibly infected by *Marteilia refringens*, MFR 41(1-2):19
- Oyster, mangrove
 - culture in Venezuela
 - areas, MFR 37(1):15
 - environmental factors, MFR 37(1):17
 - outlook, MFR 37(1):17
 - techniques, MFR 37(1):15
- Oyster, Pacific
 - fertilization method quantifying gamete concentrations and maximizing larvae production, FB 74:698
 - polyp, description of on mantle, MFR 38(10):25
 - radiation, ionizing
 - histopathological effects on, MFR 38(10):12
- Oyster, rock
 - epidermal papillomas, description of on mantle, MFR 38(10):29
- Oyster diseases
 - Chesapeake Bay
 - Dermocystidium marinum*, MFR 41(1-2):46
 - direct infections versus alternate hosts, MFR 41(1-2):53
 - diseases caused by *Minchinia costalis* and *M. nelsoni*, MFR 41(1-2):50
 - life cycle notes, MFR 41(1-2):51
 - Minchinia costalis*, MFR 41(1-2):47
 - Minchinia nelsoni*, MFR 41(1-2):47
 - Minchinia nelsoni* activity patterns, MFR 41(1-2):48
 - monitoring methods, MFR 41(1-2):45
 - sporulation in susceptible spat, MFR 41(1-2):52
 - sporulation occurrence in *M. nelsoni*, MFR 41(1-2):52
- Oyster farming
 - Pacific Northwest, MFR 39(7):17
- Oyster industry
 - development of program to rehabilitate, of Prince Edward Island
 - applied research needed, MFR 37(3):34
 - cost-benefit ratios, MFR 37(3):34
 - development of management program, MFR 37(3):30
 - ecology of oyster grounds, MFR 37(3):23
 - functional operations of industry, MFR 37(3):26
 - oyster biology, MFR 37(3):22

- pilot projects conducted, MFR 37(3):31
- specific management program, MFR 37(3):32
- Middle Atlantic
 - interaction of economic, biological, and legal forces, FB 73:256
- Oyster reefs
 - aquacultural program for rehabilitation of damaged, in Mississippi Sound
 - dredging effects, MFR 39(8):3
 - growth rate, MFR 39(8):4
 - hurricane impact, MFR 39(8):3
 - landings, historical, MFR 39(8):3
 - leveeing effects, MFR 39(8):2
 - location of reefs, MFR 39(8):2
 - oyster industry, MFR 39(8):6
 - physical aspects of sound, MFR 39(8):2
 - physical condition and oyster density in 1975, MFR 39(8):8
 - pollution effects, MFR 39(8):3
 - predators, commensals, and diseases, MFR 39(8):5
 - program development, MFR 39(8):9
 - rigid-tine cultivator recommended, MFR 39(8):11
 - salinity and temperature regimes, MFR 39(8):5
 - spat recruitment, MFR 39(8):3
 - survival rate, MFR 39(8):4
- Oyster seed hatcheries
 - U.S. west coast
 - cultchless seed, MFR 41(12):13
 - hatchery technique developments, MFR 41(12):11
 - problems and potentials, MFR 41(12):12
 - seed, MFR 41(12):10
 - seed on cultch, MFR 41(12):12
 - seed sources, competing, MFR 41(12):13
- Oysters
 - bibliography of aquacultural economics, S 703
 - Dermocystidium marinum* infection in, MFR 38(10):19
 - hematopoietic neoplasms in Virginia, MFR 38(10):34
 - inflammation and wound repair, MFR 38(10):2
 - mechanical escalator harvester
 - design and construction, MFR 41(12):17
 - field tests, MFR 41(12):18
 - proteomyxids
 - relation to neoplastic diseases of, MFR 38(10):16

P

- Pacific Coast
 - rearing facilities
 - releases of anadromous salmon and trout, 1960-73, D 101
 - salmonid rearing facilities
 - historical and descriptive account and summary of their releases by region, 1960-76, S 736
- Pacific Northwest
 - American shad, history of commercial fishery, MFR 40(2):29
 - aquatic resources
 - impact of cooling waters on, MFR 38(11):27
 - fishery resources
 - water diversions, effects of, MFR 38(11):46
 - oyster farming, MFR 39(7):17
 - sturgeon, commercial fishery, MFR 40(7):17

- Pacific Ocean
 - bottomfish and herring
 - Soviet fisheries off U.S. coast, MFR 38(12):1
 - climatic change in, C 416:103
 - tuna
 - pole-and-line and live-bait fisheries, C 408:36
 - tuna, skipjack
 - distribution, relative abundance, and movement based on Japanese longline catches, 1964-67, S 695
- Pacific Ocean, areas adjacent to northeast
 - aquatic organisms, effects on
 - dredging, MFR 38(11):34
- Pacific Ocean, central equatorial
 - Christmas Island
 - sea-surface temperatures, 1954-73, FB 75:767
- Pacific Ocean, central North
 - marlin, blue
 - von Bertalanffy growth curves, FB 74:553
 - marlin, striped
 - von Bertalanffy growth curves, FB 74:553
 - Scopelogadus clarki*, description of new species, FB 74:142
- Pacific Ocean, eastern
 - Bathochordaeus charon*
 - first record, FB 77:514
 - scorpionfish larvae identification guide, C 402
 - sea surface conditions, 1976, C 427:35
 - skipjack tuna
 - distribution and ecology, FB 73:382
 - tuna, yellowfin
 - energetics model for an exploited population, FB 74:36
 - whale, melon-headed
 - first record in, with summary of world distribution, FB 74:457
- Pacific Ocean, eastern North
 - flatfishes, early development, FB 77:105
- Pacific Ocean, eastern subarctic
 - fishes, vertical distribution, diel vertical migration, and abundance of some mesopelagic in summer, FB 76:751
- Pacific Ocean, eastern tropical
 - dolphin, eastern spinner
 - growth and reproduction, FB 75:725
 - dolphin, spotted
 - gross annual reproductive rates compared with estimates for eastern spinner dolphin, 1973-75, FB 75:725
 - reproductive parameters, 1973-75, FB 75:629
 - dolphins, pelagic
 - movements as indicated by results of tagging, 1969-76, S737
 - porpoise, spotted
 - growth and reproduction, FB 74:229
 - tuna associations with flotsam, FB 77:147
 - tuna fishery
 - relationship to sea surface temperatures during 1975, C 416:169
 - whale, blue
 - recent sightings, FB 76:915
- Pacific Ocean, equatorial
 - anomalies and El Nino
 - forecast method, C 416:183
 - recent index trends and indications, C 416:183

- resume for early 1975 El Nino event, C 416:180
statistical evidence, C 416:181
- Pacific Ocean, North
 albacore
 seasonal migration into North American coastal waters, FB 75:795
 tag shedding, estimates of rates, FB 74:675
 chlorinated hydrocarbons in sea-surface films and subsurface waters, FB 73:445
 fishes, larval
 vertical distribution and development in central gyre during summer, FB 77:783
 Pandalus tridens
 larval morphology and summary of principal morphological characteristics of larvae, FB 77:625
- Pacific Ocean, northeast
 Bentheogennema burkenroadi
 description and biology of a new species of, FB 73:737
 chemical characteristics of fish caught in, MFR 38(9):1
 dogfish, spiny
 mercury in, FB 75:642
 fisheries and environmental change, MFR 38(11):1, 51
 halibut, Pacific
 mercury content, FB 74:783
 otter trawl fisheries
 energy efficiency comparison between Washington and Japanese, MFR 37(4):21
 petroleum, impact of transportation, MFR 38(11):20
 pollution, man-caused, MFR 38(11):2
 sablefish
 mercury content, FB 74:791
 teleconnections between, and Gulf of Mexico and northwestern Atlantic Ocean, FB 73:306
- Pacific Ocean, northern North
 sunspot activity and oceanic conditions, C 416:191
- Pacific Ocean, south
 albacore
 assessment of fishery, 1953-72, MFR 37(3):9
- Pacific Ocean, southwestern
 Japanese skipjack tuna baitfish surveys, C 408:81
- Pacific Ocean, western
 Japanese skipjack tuna baitfish surveys, C 408:81
- Pagrus pagrus*—see Porgy, red
Pagrus sedecim—see Porgy, red
Pagurus trigonocheirus
 invertebrates, midwater
 Chukchi Sea, southeastern, September-October 1970, S 710
- Palau
 aspects of population biology of *Stolephorus heterolobus*, C 408:119
- Palau Islands
 tuna bait species
 observations of, and their habitats, C 408:69
- Panama
 Caribbean coast
 snapper, host-parasite relationship with *Cymothoa excisa*, FB 75:875
- Pandalus borealis*
 invertebrates, midwater
 Chukchi Sea, southeastern, September-October 1970, S 710
- Pandalus borealis*—see also Shrimp, northern; Shrimp, pink
Pandalus goniurus
 invertebrates, midwater
 Chukchi Sea, southeastern, September-October 1970, S 710
- Pandalus goniurus*—see also Shrimp, humpy
Pandalus hypsinotus—see Shrimp, coonstripe
Pandalus jordani
 sampler, epibenthic, used to study ontogeny of vertical migration, FB 74:994
- Pandalus platyceros*—see Prawn, spot
Pandalus tridens
 larval morphology and summary of morphological characteristics
 comparison of larval stages with descriptions by other authors, FB 77:636
 morphological characteristics, summary, FB 77:637
 Stage I zoea, FB 77:625
 Stage II zoea, FB 77:628
 Stage III zoea, FB 77:629
 Stage IV zoea, FB 77:633
 Stage V zoea, FB 77:634
 Stage VI zoea, FB 77:634
 Stage VII zoea, FB 77:636
- Panopeus herbstii*—see Crab, mud
Panulirus argus—see Lobster, spiny
Panulirus interruptus—see Lobster, California spiny
- Papillomas, epidermal
 descriptions of in three bivalve mollusk species, MFR 38(10):25
- Papua New Guinea
 distribution and abundance of baitfish resources, C 408:89
 relationships amongst skipjack tuna catch, bait catch, and lunar cycle, C 408:104
 skipjack tuna fishing in
 1970-73, MFR 37(2):5
 tuna bait species
 appraisal of live-bait potential and handling characteristics, C 408:95
- Paracalanus parvus*
 Oregon coast, central
 seasonal cycle of abundance, FB 75:717
- Parachristianella dimegacantha*
 parasitic on penaeid shrimp in Gulf of Mexico and South Atlantic, FB 76:24
- Parachristianella heteronegacanthus*
 parasitic on penaeid shrimp in Gulf of Mexico and South Atlantic, FB 76:26
- Parachristianella monomegacantha*
 parasitic on penaeid shrimp in Gulf of Mexico and South Atlantic, FB 76:24
- Paralabrax clathratus*—see Bass, kelp
Paralepis atlantica
 Oregon, first records off, FB 77:700
- Paralichthys dentatus*—see Flounder, summer
Paralithodes camtschatica—see Crab, king
Paramoeba pernicioso
 cause of serum changes in blue crab, MFR 37(5-6):34
- Paraphoxus milleri*
 invertebrates, midwater
 Chukchi Sea, southeastern, September-October 1970, S 710

- Parasitic diseases—see Diseases, parasitic
- Parathemisto libellula*
invertebrates, midwater
Chukchi Sea, southeastern, September-October 1970, S 710
- Parauronema* sp.
parasitic on penaeid shrimp in Gulf of Mexico and South Atlantic, FB 76:21
- Paroedicerus lynceus*
invertebrates, midwater
Chukchi Sea, southeastern, September-October 1970, S 710
- Parophrys vetulus*—see Sole, English
- Parrotfish, striped
spawning, daily and summer-winter variation in mass behavior, general, FB 76:118
behavior, mass spawning, FB 76:119
predation, FB 76:122
spawning frequency, FB 76:120
- Pathology
vertebrate and invertebrate
observations on comparative, MFR 38(10):46
- Patinopecten caurinus*—see Scallop, Pacific sea
- Pavlova lutherii*
inhibitory effect on growth of *Mytilus edulis* larvae, FB 77:715
- Pelagic resources
harvest, innovations in
flotsam and vessels, MFR 39(9):18
moored objects, MFR 39(9):16
night-lights, MFR 39(9):18, 20
pots, fish, MFR 39(9):17
pots, towed midwater, MFR 39(9):19
structures, artificial, MFR 39(9):20
trolling, MFR 39(9):15
- Pella-Tomlinson system
parameter estimation under nonequilibrium conditions, FB 76:523
restructuring, FB 76:515
- Penaeopsis*
intersex anomalies in shrimp of the genus, FB 76:687
revision of penaeid shrimp genus
key to species, FB 77:723
P. balssi, FB 77:724
P. challengerii, FB 77:728
P. eduardoi, FB 77:734
P. jerryi, FB 77:737
P. rectacuta, FB 77:741
P. serrata, FB 77:748
- Penaeopsis balssi*
revision of shrimp genus, FB 77:724
- Penaeopsis challengerii*
revision of shrimp genus, FB 77:728
- Penaeopsis eduardoi*
revision of shrimp genus, FB 77:734
- Penaeopsis jerryi*
revision of shrimp genus, FB 77:737
- Penaeopsis rectacuta*
revision of shrimp genus, FB 77:741
- Penaeopsis serrata*
revision of shrimp genus, FB 77:748
- Penaeus aztecus*—see Shrimp, brown
- Penaeus aztecus subtilis*
phosphoglucomutase polymorphism in, FB 74:453
- Penaeus brasiliensis*
phosphoglucomutase polymorphism in, FB 74:453
- Penaeus duorarum*—see Shrimp, pink
- Penaeus marginatus*
Hawaiian Islands, exploratory study
found in quantities thought sufficient to sustain a small trawl fishery, MFR 37(12):13
- Penaeus setiferus*—see Shrimp, white
- Peponocephala electra*—see Whale, melon-headed
- Peprilus triacanthus*—see Butterfish
- Perch, kelp
food, activity, and habitat in kelp forests off California activity, FB 73:821
food, FB 73:818
habitat, FB 73:823
overlap with other species, FB 73:824
resource breadth, FB 73:823
- Perch, Pacific ocean
population biology in Washington-Queen Charlotte Sound region
age composition, FB 75:380
age-length relationships, FB 75:376
fecundity, FB 75:391
life history, general features, FB 75:372
migrations and availability, FB 75:373
mortality, FB 75:383
recruitment to fishery, FB 75:381
response to fishing, FB 75:394
sexual maturation, FB 75:385
size composition, FB 75:378
stock delineation, FB 75:371
resource in Bering Sea and Aleutian Islands, MFR 41(11):15
- Perch, white
New York Bight fishery resource, C 401
- Perch, yellow
eggs and larvae
survival rates, in relation to impact assessments, MFR 41(3):1
- Perna perna*—see Mussel
- Petalidium suspiciosum*
ecology of Hawaiian, FB 74:824
- Petroleum
hydrocarbons
spin-labeling techniques for studying mode of action of, on marine organisms, FB 73:299
- Petroleum transportation
Pacific Ocean, impact on northeast
biological fate of oil, MFR 38(11):25
chemical and physical fate of oil, MFR 38(11):24
crude oil tanker traffic, MFR 38(11):23
fisheries, direct effects on, MFR 38(11):25
marine resources, potential effects of oil pollution on, MFR 38(11):26
oil pollution sources, MFR 38(11):22
Prudhoe Bay crude oil, expected production, MFR 38(11):20
superports and supertankers, MFR 38(11):21
transportation and production, MFR 38(11):20
- Phanerodon furcatus*—see Seaperch, white

- Phascolosoma* sp.
invertebrates, midwater
Chukchi Sea, southeastern, September-October 1970,
S 710
- Phenol
clams, effects on, MFR 38(10):10
- Phoca (Histriophoca) fasciata*—see Seal, ribbon
- Phosphonoacetic acid
inhibition of virus replication in channel catfish, MFR 40
(10):24
- Photoperiod
effects of photoperiod-temperature regimes on body fat
reserves
golden shiner, FB 73:766
- Phragmosporae
United States, northeastern
key to genera and species, C 398
- Phyllodoce mucosa*
antipredation mechanism
behavior, FB 77:610
fish response, FB 77:607
histology and ultrastructure of parapodial cirri, FB 77:
610
- Physical oceanographic cycles—see Auke Bay, southeastern
Alaska
- Physical oceanographic data
EASTROPAC atlas
from principal participating ships, third survey cruise,
February-March 1968, C 330, vol. 9
Latin American ships and ships of opportunity, Feb-
ruary 1967-March 1968, C 330, vol. 11
- Phytoplankton
food for larval northern anchovy, FB 75:577
in upwelling waters off Baja California
biogeographical comments, FB 73:45
carbon abundance, FB 73:43
net phytoplankton, FB 73:40
numerical abundance, FB 73:41
vertical distribution, FB 73:44
- Phytoplankton, net
Mid-Atlantic Bight, 1976, C 427:337
- Pike, northern
eggs and larvae
survival rates, in relation to impact assessments, MFR
41(3):1
- Pimelometopon pulchrum*—see Sheephead, California
- Pinelectomy
effects on body fat reserves
golden shiner, FB 73:766
- Pinfish
experiments on some possible effects of tire reefs on,
MFR 37(3):18
feeding ecology, observations of postlarval
current speed and feeding intensity, FB 74:424
daily rations, FB 74:425
evacuation rates, FB 74:424
feeding periodicity, FB 74:425
size related food preferences, FB 74:428
temporal variation in midday feeding, FB 74:424
general feeding ecology of postlarval fishes in Newport
River estuary, FB 73:137
- Piscine erythrocytic necrosis
Cod, Atlantic, MFR 40(10):16
incidence and distribution in rainbow smelt from Massa-
chusetts to Canadian Maritimes, FB 77:503
- Placopecten magellanicus*—see Scallop, sea
- Plaice, Alaska
Bering Sea, southeastern, 1961
age-length-weight and distribution, FB 73:919
- Plaice, American
Cape Cod, Massachusetts, to Cape Lookout, North
Carolina, 1965-66
seasonal distributions of larval on continental shelf,
S 691
- Plankton
found in mesopelagic fishes
diversity, FB 73:912
Oregon upwelling zone
year-to-year variations, FB 73:642
trophic relationships among fishes and, at Enewetak
Atoll, FB 76:133
- Plankton—see also Zooplankton
- Plankton, net
Monterey Bay, California
contribution to standing stocks and primary produc-
tivity during upwelling season, FB 74:183
- Platyhelminthes
parasitic on penaeid shrimp
Microphallus sp., FB 76:24
Opecoeloides fimbriatus, FB 76:24
Parachristianella dimegacantha, FB 76:24
Parachristianella heteronegacanthus, FB 76:26
Parachristianella monomegacantha, FB 76:24
Prochristianella hispida, FB 76:24
Renibulbus penaeus, FB 76:26
- Pleistophora* (= *Plistophora*) *penaei*
parasitic on penaeid shrimp in Gulf of Mexico and South
Atlantic, FB 76:14
- Pleoticus muelleri*
American solenocercid shrimp, FB 75:309
- Pleoticus robustus*
American solenocercid shrimp, FB 75:297
- Pleurogrammus monopterygius*—see Mackerel, Atka
- Pleuronectes quadrituberculatus*—see Plaice, Alaska
- Pleuronichthys coenosus*—see Turbot, C-O
- Pleuronichthys decurrens*—see Turbot, curlfin
- Pleuronichthys ocellatus*—see Turbot, gulf
- Pleuronichthys ritteri*—see Turbot, spotted
- Pleuronichthys verticalis*—see Turbot, hornyhead
- Pleustes panopla*
invertebrates, midwater
Chukchi Sea, southeastern, September-October 1970,
S 710
- Poecilia vittata*—see Topminnow
- Pogonias cromis*
York River estuary
life history, feeding habits, and functional morphology
of juveniles, FB 75:657
- Point Hope, Alaska
whale, bowhead
1976 catch by Eskimos, MFR 40(11):22
- Pollachius virens*—see Pollock, Atlantic

- Pollichthys maui*
inverse correlation between meristic characters and food supply, FB 73:288
- Pollock, Alaska
description, MFR 41(11):29
effect of processing variables on storage characteristics of frozen minced
addition of ingredients, MFR 39(5):13
alternate uses, MFR 39(5):14
comparing preservation methods, MFR 39(5):12
minced flesh particle size, MFR 39(5):13
minced flesh yield, MFR 39(5):12
washing the flesh, MFR 39(5):12
- Pollock, Atlantic
description, MFR 41(11):28
- Pollock, walleye
Bering Sea, eastern
foods, spring and summer, FB 77:304
Gulf of Alaska, western
biology of, 1973-75, FB 77:263
physical, chemical, and sensory changes when held in ice and in carbon dioxide modified refrigerated seawater
chemical analyses, FB 77:482, 484
effects of washing ground flesh, FB 77:487
physical appearance and yield, FB 77:483
sampling, FB 77:481
sensory assessments, FB 77:483
sensory evaluation, FB 77:482
resource in Bering Sea and Aleutian Islands, MFR 41(11):13
- Pollutants
chlorinated hydrocarbon, analysis of, FB 76:880
histopathological effects on marine organisms, MFR 40(10):51
- Pollution
acute toxicity of ammonia
to several developmental stages of rainbow trout, FB 73:207
cadmium, mercury, and silver
marine animals, effects on, MFR 39(4):5
¹⁴C benzene and ¹⁴C toluene in Pacific herring
uptake, distribution, and depuration, FB 75:633
chlorinated hydrocarbons in Dover sole
local migrations and fin erosion, FB 75:513
cobalt-60 content in albacore
source and migration estimates on west coast, FB 75:867
concentration of mercury, copper, nickel, silver, cadmium, and lead
northern Adriatic anchovy and sardine, FB 73:193
fishery waste effluents
parameters, system for determining and calculating, FB 75:253
Gulf of Mexico
estuaries, alteration and destruction of, MFR 39(9):5
Pacific Ocean, areas adjacent to northeast
living resources, impact of material disposal on, MFR 38(11):36
Pacific Ocean, northeast
contaminants, physical transport and distribution of, MFR 38(11):6
contamination, toxicology of, MFR 38(11):6
marine life, effects on, MFR 38(11):8
marine resources, potential effects of oil pollution on, MFR 38(11):26
oxygen levels, MFR 38(11):4
physical environment, MFR 38(11):4
salinity, MFR 38(11):5
temperature, MFR 38(11):5
wastes, domestic, MFR 38(11):12
wastes, industrial, MFR 38(11):15
Puget Sound, Washington
short-term thermal resistance of zoeae of 10 species of crabs, FB 75:555
scallop, rock
trace metal contamination near municipal outfall, FB 76:936
- Polyacrylamide gel
fish identification
thin-layer isoelectric focusing, FB 75:571
- Polychaete variation
application of systematic sampling to study of, in soft substrate environment, FB 74:942
- Polychaetes
Delaware Bay region
polychaetous annelids, FB 76:209
- Polychelidae
lobsters, deep-sea
biology, FB 77:435
- Polydactylus sexfilis*—see Threadfin
- Polymers, synthetic
dilute solutions of
enhanced survival of larval grass shrimp, FB 73:678
- Polyps
descriptions of in three bivalve mollusk species, MFR 38(10):25
- Pomatomus saltatrix*—see Bluefish
- Ponape
observations on tuna baitfish, C 408:75
- Pontoporeia femorata*
invertebrates, midwater
Chukchi Sea, southeastern, September-October 1970, S 710
- Population parameters
effects of on size composition of American lobster catch along Maine coast, FB 73:862
- Population sizes
model for estimating historical
bias, FB 76:773
bias estimation, FB 76:772
variance, FB 76:776
variance estimation, FB 76:773
- Porcupinefishes
egg and larval development, comments on, FB 76:535
systematics and zoogeography, FB 76:535
- Porgy, red
North and South Carolina
offshore headboat fishing, 1972-73, MFR 38(3):13
North Carolina
fecundity, FB 74:775
reproductive cycle, FB 74:775
sex ratios, FB 74:775
synopsis of biological data
bionomics and life history, C 412

- distribution, C 412
- fishing, C 412
- identity, C 412
- population, C 412
- Porpoise
 - identification guide to western North Atlantic harbor, C 396
 - kill rate
 - record low, using modified tuna purse seine net, MFR 39(6):1
 - rescue methods and importance of Medina panel mesh size
 - appendage penetration tests, MFR 39(5):5
 - field tests, MFR 39(5):8
 - Medina panel history, MFR 39(5):2
 - NMFS gear program, MFR 39(5):4
- Porpoise, spotted
 - growth and reproduction in eastern tropical Pacific
 - color pattern, FB 74:242
 - gestation period, FB 74:234
 - growth, fetal, FB 74:234
 - growth, postnatal, FB 74:236
 - Japanese population, comparison with, FB 74:266
 - length at birth, FB 74:234
 - length-weight relationships, FB 74:242
 - production, gross annual, FB 74:265
 - reproduction, female, FB 74:248
 - reproduction, male, FB 74:243
 - reproduction, seasonality, FB 74:243
 - schooling in relation to reproduction, FB 74:265
 - sex ratios, FB 74:264
 - underwater paint marking, FB 74:687
- Portunus spinimanus*—see Crab, portunid
- Pots, crab
 - Dungeness crab escape from, MFR 38(4):19
- Pout, ocean
 - development of an underutilized fishery resource
 - candling and lesion occurrence, MFR 39(6):9, 10
 - chemical analysis, MFR 39(6):10, 11
 - growth, MFR 39(6):7
 - marketing, MFR 39(6):12
 - movement, MFR 39(6):7
 - processing time, MFR 39(6):9, 10
 - sex composition, MFR 39(6):7
 - size, MFR 39(6):7
 - tag mortality and retention, MFR 39(6):8
 - taste panel evaluations, MFR 39(6):9, 11
 - yield, MFR 39(6):9, 10
- Pranesus insularum*—see Silverside, Hawaiian
- Pranesus pinguis*—see Silverside
- Prawn, Malaysian
 - roles, prior residence and relative size, FB 76:905
- Prawn, spot
 - growth, in laboratory and net pens
 - using different diets, FB 76:886
 - second mating and spawning in captivity, first record of, FB 75:648
- Prince Edward Island
 - oyster industry
 - development of program to rehabilitate, MFR 37(3):21
- Prionace glauca*—see Shark, blue
- Prionotus scitulus*—see Searobin, leopard
- Priscillina* sp.
 - invertebrates, midwater
 - Chukchi Sea, southeastern, September-October 1970, S 710
- Prochristianella hispida*
 - parasitic on penaeid shrimp in Gulf of Mexico and South Atlantic, FB 76:24
- Prosobranch, marine
 - Cerithidea californica*
 - role of agranular hemolymph cells in parasitic encapsulation, MFR 38(10):7
- Protomedia fasciata*
 - invertebrates, midwater
 - Chukchi Sea, southeastern, September-October 1970, S 710
- Protomedia stephensi*
 - invertebrates, midwater
 - Chukchi Sea, southeastern, September-October 1970, S 710
- Protozoa
 - parasitic on penaeid shrimp
 - Cephalolobus penaeus*, FB 76:12
 - Ephelota* sp., FB 76:21
 - Lagenophrys lunatus*, FB 76:17
 - Leptomonas* sp., FB 76:21
 - Nematopsis brasiliensis*, FB 76:12
 - Nematopsis duorari*, FB 76:12
 - Nematopsis penaeus*, FB 76:12
 - Nosema nelsoni*, FB 76:13
 - Paraurenomma* sp., FB 76:21
 - Pleistophora* (= *Plistophora*) *penaei*, FB 76:14
 - Thelohania duorara*, FB 76:13
 - Thelohania penaei*, FB 76:13
 - Zoothamnium* sp., FB 76:17
- Protozoa: Sarcodina: Amoeboeae
 - United States, northeastern
 - collecting methods, C 419
 - culture, C 419
 - diagnostic characters, C 419
 - ecology, C 419
 - key to families, genera, and species, C 419
 - observational techniques, C 419
 - problems in determining identity of marine Sarcodina, C419
 - systematic list, annotated, C 419
- Protozoan diseases—see Diseases, protozoan
- Prudhoe Bay crude oil
 - expected production and transportation, MFR 38(11):20
- Pseudalibrotus glacialis*
 - invertebrates, midwater
 - Chukchi Sea, southeastern, September-October 1970, S 710
- Pseudalibrotus nanseni*
 - invertebrates, midwater
 - Chukchi Sea, southeastern, September-October 1970, S 710
- Pseudocalanus* sp.
 - Oregon coast, central
 - seasonal cycle of abundance, FB 75:717
- Pseudomma truncatum*
 - invertebrates, midwater

Chukchi Sea, southeastern, September-October 1970,
S 710
Pseudomonas sp.
"mock fish" used for studying microbial outgrowth of,
FB 75:880
Pseudopleuronectes americanus—see Flounder, winter
Pterygoteuthis microlampas
bioluminescence, intensity regulation of during counter-
shading, FB 75:244
Ptilichthys goodei—see Quillfish
Puffer
Spherooides spengleri
biology of, contribution to, FB 77:292
Spherooides testudineus
biology of, contribution to, FB 77:292
Puffer, northern
New York Bight fishery resource, C 401
Puget Sound, Washington
clam, Manila
growth and survival in newly settled spat, FB 77:891
crab, Dungeness
intertidal harvest, estimation, FB 77:287
crabs, 10 species
short-term thermal resistance of zoeae, FB 75:555
eelgrass beds, importance of, MFR 39(11):18
marine fouling
subtidal and intertidal, on artificial substrata, FB 74:377
potential for *Porphyra* culture, MFR 37(2):25
salmon, Pacific
isolation and description of two vibrios pathogenic to,
FB 74:447
vibriosis and current salmon vaccination procedures,
MFR 40(3):24
Pyroteuthis addolux
bioluminescence, intensity regulation of during counter-
shading, FB 75:245

Q

Quahog, ocean
mid-Atlantic coast
heavy metals in, survey of, FB 77:280
Queen Charlotte Sound
perch, Pacific ocean
population biology and response to fishing, FB 75:369
Queenfish
seasonal spawning cycle, FB 74:983
Quillfish
Oregon
records of larval, transforming, and adult specimens of,
FB 73:681

R

Radiation
ionizing
histopathological effects on *Crassostrea gigas*, MFR 38
(10):12
white shrimp
low level ionizing, and spice treatment, MFR 37(4):16
Radiation energy
seafoods, use in preservation of

dose, measurement of, MFR 38(6):21
food preservation, MFR 38(6):22
nature, MFR 38(6):19
penetration, MFR 38(6):20
Raja eglanteria
distribution and relative abundance
Nova Scotia to Cape Hatteras, FB 73:114
Raja erinacea
distribution and relative abundance
Nova Scotia to Cape Hatteras, FB 73:119
Raja garmani
distribution and relative abundance
Nova Scotia to Cape Hatteras, FB 73:114
Raja laevis
distribution and relative abundance
Nova Scotia to Cape Hatteras, FB 73:119
Raja ocellata
distribution and relative abundance
Nova Scotia to Cape Hatteras, FB 73:121
Raja radiata
distribution and relative abundance
Nova Scotia to Cape Hatteras, FB 73:114
Raja senta
distribution and relative abundance
Nova Scotia to Cape Hatteras, FB 73:123
Rangia cuneata—see Clams
Raritan Bay
macrobenthos survey, 1957-60, D 99
Red Sea
immigration of fishes into the Mediterranean, FB 76:251
Reefs, artificial
Murrells Inlet, South Carolina
area, MFR 41(9):12
fish population estimates, MFR 41(9):14
fish recruitment, MFR 41(9):17
fish territoriality, MFR 41(9):17
growth, MFR 41(9):21
invertebrates and plants, MFR 41(9):15
mutualism, MFR 41(9):21
pre-construction surveys, MFR 41(9):14
seasonal species composition, MFR 41(9):18
sport fishery, MFR 41(9):13
Reefs, Liberty Ship
access to and usage of in Texas
charter/party boat operator survey, MFR 41(9):27, 28
Houston/Galveston boat fishermen survey, MFR 41(9):
27, 29
Reinhardtius hippoglossoides—see Turbot, Greenland
Remote sensing
SEFC progress report, MFR 39(4):15
Renibulbus penaeus
parasitic on penaeid shrimp in Gulf of Mexico and South
Atlantic, FB 76:26
Rhachotropis aculeata
invertebrates, midwater
Chukchi Sea, southeastern, September-October 1970,
S 710
Rhachotropis oculata
invertebrates, midwater
Chukchi Sea, southeastern, September-October 1970,
S 710

- Rhode Island
 lobster, American
 effects of trap venting on gear selectivity in inshore fishery, FB 77:925
 spider crab, laboratory-reared
 larval development, FB 75:831
 spider crab, planktonic
 larval development, FB 75:831
Rhomboplites aurorubens — see Snapper, vermilion
- Ribbonfish
 description and ontogenetic changes, FB 75:843
 new species, FB 75:843
Rimicola muscarum
 larva, notes on, FB 77:300
- Rockfish
 California, southern
 migration, timing of surface-to-benthic in juveniles, FB 75:887
 development and occurrence of larvae and juveniles off Oregon
 Sebastes flavidus, FB 77:902
 Sebastes melanops, FB 77:902
 Pacific Ocean, northeast
 chemical characteristics, MFR 38(9):5
- Rockfish, black
 changes in physical, chemical, and sensory properties when held in ice and in carbon dioxide modified refrigerated seawater
 analyses, FB 77:866
 chemical analyses, FB 77:867
 effects of washing minced flesh, FB 77:868
 frozen storage, FB 77:868
 physical appearance and yield, FB 77:866
 sampling, FB 77:865
 sensory, FB 77:866
 sensory evaluation, FB 77:867
- Oregon
 age determination methods, analysis, FB 75:405
- Rockfish, blue
 kelp forests off Santa Barbara, California
 diet and habitat distribution, FB 76:257
- Rockfish, canary
 Oregon
 age determination methods, analysis, FB 75:405
- Rockfish, dusky
 Alaska, southeastern
 distribution and activity, seasonal changes, MFR 39(3): 23
- Rockfish, olive
 isolation of populations off southern California
 artificial tagging, FB 77:976
 biological tagging, FB 77:976
 size variation, FB 77:978
 kelp forests off Santa Barbara, California
 diet and habitat distribution, FB 76:257
- Rockfish, yellowtail
 Alaska, southeastern
 distribution and activity, seasonal changes, MFR 39(3): 23
- Oregon
 age determination methods, analysis, FB 75:405
- Rockfishes
 development and occurrence off Oregon
 identification, FB 77:2
 meristics, FB 77:3
 morphometrics, FB 77:3
 spination, FB 77:5
 terminology, developmental, FB 77:5
- Rockling, fourbeard
 description, MFR 41(11):32
 variation in
 body proportions, FB 77:94
 color, FB 77:93
 meristics, FB 77:93
 sampling areas, FB 77:92
- Rouleina attrita*
 taxonomy and distribution
 description, FB 76:83
 distribution, FB 76:85
 ecology, FB 76:84
 key, FB 76:81
 nomenclature, FB 76:81
- Rouleina maderensis*
 taxonomy and distribution
 description, FB 76:84
 distribution, FB 76:85
 ecology, FB 76:84
 key, FB 76:81
- Runner, rainbow
 oceanic resource, latent, MFR 41(8):1
- S
- Sablefish
 mercury in, from northeast Pacific
 age, FB 74:795
 geographical location, FB 74:792
 sex, FB 74:796
 size, FB 74:793
 utilization, FB 74:796
 resource in Bering Sea and Aleutian Islands, MFR 41(11): 17
- Sagitta elegans*
 invertebrates, midwater
 Chukchi Sea, southeastern, September-October 1970, S 710
- Sagitta hispida*
 production in south Florida inshore waters
 analysis of samples, FB 73:239
 conversion of raw data to other units, FB 73:241
 growth rates, FB 73:241
 problems of measuring growth rate, FB 73:245
 production calculation, FB 73:242
 production comparisons, FB 73:246
 sampling methods, FB 73:238
 seasonal changes, FB 73:243
 study site, FB 73:238
- Sagittae
 daily growth increments in nehu
 indicate age and growth, FB 74:9
- Sahara, Spanish
 pelagic fish eggs and larvae

- distribution and ecology in an upwelling area off, FB 74:885
- Sailfish
 - synopsis of biology
 - bionomics and life history, S 675-3:101
 - distribution, S 675-3:98
 - exploitation, S 675-3:116
 - identity, S 675-3:95
 - population, S 675-3:112
 - protection and management, S 675-3:117
- St. Andrew Bay, Florida
 - estimated average daily instantaneous numbers of recreational and commercial fishermen and boaters, 1973
 - commercial fishing, S 724
 - marine estuarine features, S 724
 - methods of estimating effort, S 724
 - recreational fishing, S 724
 - transit recreational boats and occupants, S 724
- fishes
 - catch and catch rates, 1973, S 708
- gill net
 - selectivity on estuarine and coastal fishes, FB 75:185
- net fish catches
 - comparison on webbing materials, times of day, and water depths, FB 75:103
- penaeid shrimp, distribution, abundance, and size, FB 74:158
- St. Lawrence Island, Alaska
 - whale, bowhead
 - 1976 catch by Eskimos, MFR 40(11):21
- Salinity
 - effects on survival
 - winter flounder embryos, FB 74:52
 - evaluation of contaminants on marine life, MFR 38(11):5
 - Koko Head, Oahu, 1956-73, FB 75:767
 - tuna
 - swimming speed, effect on, FB 75:649
 - York River estuary, Virginia
 - mean values, May 1972-August 1973, FB 75:659
- Salinity, surface
 - Gulf of Alaska, northern
 - fisheries, relation to, MFR 41(5-6):8
- Salmo clarki*—see Trout, cutthroat
- Salmo gairdneri*—see Trout, rainbow; Trout, steelhead
- Salmo trutta*—see Trout, brown
- Salmon
 - Alaska
 - income estimates and reasonable returns, FB 75:483
 - limited entry, empirical study of, MFR 37(7):22
 - bibliography of aquacultural economics, S 703
 - bypass and collection system for protection of juveniles
 - fish holding area, MFR 37(2):35
 - fish screening facilities, MFR 37(2):33
 - gatewell orifices and transportation pipe, MFR 37(2):32
 - upwell and fish grader, MFR 37(2):34
 - electronic tags and related tracking techniques aid in migration study
 - future, MFR 37(2):15
 - radio tracking, MFR 37(2):13
 - sonic tracking, MFR 37(2):10
 - high-seas assessment of migrating
 - acoustic buoy, FB 74:104
 - receiver-decoder system, FB 74:104
 - Lower Granite Dam bypass and collection system
 - fish marking and lab facilities, MFR 39(7):13
 - gatewell orifices and bypass system, MFR 39(7):11
 - holding area, MFR 39(7):13
 - screening facilities, MFR 39(7):10
 - upwell and fish grader, MFR 39(7):13
 - net-pen culture of Pacific in marine waters
 - brood stock development, MFR 37(1):44
 - commercial pens, MFR 37(1):38
 - commercial production farms, MFR 37(1):45
 - diseases, MFR 37(1):41
 - enhancement of sport fisheries, MFR 37(1):46
 - environmental requirements, MFR 37(1):45
 - experimental pens, MFR 37(1):37
 - growth, MFR 37(1):40
 - possible uses of hybrids, MFR 37(1):43
 - Pacific, cultured
 - gallbladder lesions in, FB 75:884
 - Pacific fry
 - comparative vulnerability to predation by torrent sculpin in stream aquaria, FB 73:931
 - Pacific Ocean, northeast
 - chemical characteristics, MFR 38(9):4
 - profitability and productivity analysis for Alaska fishery
 - cost and returns in commercial fishery, MFR 38(4):12
 - data sources, MFR 38(4):11
 - factors affecting profitability, MFR 38(4):12
 - production functions, MFR 38(4):13
 - resource productivities, MFR 38(4):13
 - vessel characteristics, MFR 38(4):11
 - Snake and Columbia Rivers
 - atmospheric gas supersaturation, effect on, MFR 38(7):1
 - Salmon, anadromous
 - release from Pacific Coast rearing facilities, 1960 to 1973, D 101
 - Salmon, cherry
 - hatching survival of hybrids with
 - North American species of *Oncorhynchus*, FB 73:447
 - Salmo gairdneri*, FB 73:447
 - Salmon, chinook
 - Columbia River hatchery
 - bioeconomic contribution to Pacific salmon fisheries, FB 76:179
 - dart and jaw tags
 - comparative retention during spawning migration, MFR 38(7):24
 - effect of gas supersaturated Columbia River water on survival
 - effect of water depth on survival, S 688
 - mortality and incidence of gas-bubble disease symptoms, S 688
 - relation between Columbia River water and water in test tanks, S 688
 - effects of various concentrations of atmospheric gas on
 - effect of oxygen concentration on time to death measurements, FB 73:790
 - effect of supersaturation stress on growth, FB 73:791
 - effect of supersaturation stress on survivors, FB 73:793
 - progression of gas bubble disease, FB 73:792
 - recovery from gas bubble disease, FB 73:793

- relationships among mortality, exposure time, and gas concentration, FB 73:790
- evaluation of return of adults to Abernathy incubation channel
 - migrants from Abernathy Creek, FB 73:357
 - migrants from incubation channel, FB 73:357
 - releases of hatchery fingerlings, FB 73:357
 - returns from Abernathy Creek, FB 73:358
 - returns from Abernathy Incubation Channel, FB 73:358
 - returns from hatchery-reared fingerlings, FB 73:358
 - treatment of adults, FB 73:357
- gas-bubble disease
 - heritable resistance for fall, FB 73:934
- mortalities, natural and fishing
 - estimating, based on recoveries of marked fish, FB 76:45
- ocean distribution as shown by tagging experiments
 - coastal recoveries in year tagged, S 689
 - coastal recoveries subsequent to year of tagging, S 689
 - high-seas recoveries in year of tagging, S 698
 - high-seas recoveries subsequent to year of tagging, S 689
- production of juvenile in a heated model stream
 - associated flora, FB 74:765
 - benthos and drift, FB 74:765
 - disease, FB 74:769
 - food availability, FB 74:769
 - periphyton biomass and sedimentation, FB 74:771
 - physical characteristics of stream, FB 74:763
 - temperature, direct effects on growth, FB 74:768
 - temperature regulation, FB 74:764
 - temporal changes in production, FB 74:767
- smolts
 - salt water used to reduce mortality during handling and hauling, MFR 39(7):6
- Snake River
 - effects of transportation on survival and homing, FB 73:925
- utilization of Nanaimo River estuary by juveniles
 - distribution and relative abundance in estuary, FB 77:660
 - downstream run of fry, FB 77:657
 - estuary population, estimate of total, FB 77:663
 - estuary sampling, FB 77:655
 - food habits and feeding rates, FB 77:667
 - marine sampling, FB 77:655
 - population outside estuary, FB 77:665
 - river sampling, FB 77:653
 - sample processing, FB 77:656
 - size and growth in estuary, FB 77:662
 - study area description, FB 77:656
- Salmon, chum
 - ocean distribution as shown by tagging experiments
 - coastal recoveries in year tagged, S 689
 - coastal recoveries in years subsequent to tagging, S 689
 - high-seas recoveries in year tagged, S 689
 - high-seas recoveries in years subsequent to tagging, S 689
 - zooplankton abundance and feeding habits of fry in Traitors Cove, Alaska
 - carrying capacity of Traitors Cove, FB 73:857
 - feeding in the estuary, FB 73:849
 - feeding in Traitors River, FB 73:849
 - food selection, FB 73:856
 - grazing rate, FB 73:856
 - initiation of feeding, FB 73:854
 - zooplankton abundance and distribution, FB 73:853
- Salmon, coho
 - body size and learned avoidance as factors affecting predation by torrent sculpin, FB 75:457
- Columbia River
 - homing behavior and contribution to, FB 73:717
 - effect of gas supersaturated Columbia River water on survival
 - effect of water depth on survival, S 688
 - mortality and incidence of gas-bubble disease symptoms, S 688
 - relation between Columbia River water and water in test tanks, S 688
- farming in France
 - brood stock development, MFR 38(8):7
 - freshwater culture, MFR 38(8):3
 - seawater culture, MFR 38(8):3
- fry, some features of emerging from simulated redds and concurrent changes in photobehavior, FB 74:167
- gas-bubble disease
 - mortalities in water with constant total gas pressure and different oxygen-nitrogen ratios, FB 73:915
- juvenile, in small coastal stream of New Brunswick, FB 76:487
- life history in Sashin Creek, Alaska
 - age determination, FB 74:904
 - age of juveniles in stream, FB 74:910
 - emigration and salinity tolerance of fry, FB 74:908
 - escapement size, FB 74:899
 - fecundity, FB 74:905
 - fry and smolts, numbers, FB 74:907
 - growth and age characteristics, FB 74:911
 - interspecific competition, FB 74:903
 - juveniles entering estuary, FB 74:907
 - redd life, FB 74:902
 - retained eggs, FB 74:905
 - spawners, distribution and density, FB 74:903
 - survival and instantaneous mortality rates, FB 74:917
 - survival from potential egg deposition to emergence, FB 74:913
 - survival of juveniles, FB 74:914
- monitoring location of harvestable, MFR 38(3):1
- ocean distribution as shown by tagging experiments
 - coastal recoveries in year tagged, S 689
 - coastal recoveries subsequent to year of tagging, S 689
 - high-seas recoveries in years tagged, S 689
- Oregon ocean sport fishery
 - contribution of wild and hatchery-reared, FB 77:617
 - resistance of different stocks and transferrin genotypes to bacterial kidney disease and vibriosis, FB 77:795
- Salmon, juvenile
 - freshwater and estuarine culture
 - floating horizontal and vertical raceways, MFR 41(3):18
- Salmon, marine cultured
 - vibriosis and furunculosis, Puget Sound, Washington
 - description of diseases, MFR 40(3):52
 - diagnostic procedures, MFR 40(3):53
 - disease observations, MFR 40(3):53

- drug sensitivity tests, MFR 40(3):53
- mortality assessments, MFR 40(3):53
- therapeutic treatment procedures, MFR 40(3):53
- Salmon, Pacific
 - bioeconomic contribution of fall chinook salmon, FB 76:179
 - dams, effects on, MFR 38(11):39
 - juvenile, in small coastal stream of New Brunswick, FB 76:487
 - Puget Sound, Washington
 - isolation and description of two vibrios pathogenic to, FB 74:447
- Salmon, pink
 - ocean distribution as shown by tagging experiments
 - coastal recoveries in year of tagging, S 689
 - coastal recoveries subsequent to year of tagging, S 689
 - high-seas recoveries in year tagged, S 689
 - production of fry and adults from gravel incubators and natural spawning in Alaska
 - adults, recovery of marked, FB 74:965
 - adults, size of returning, FB 74:968
 - adults, timing of return, FB 74:969
 - egg collection and eyeing, FB 74:962
 - fry counting and processing, FB 74:963
 - fry size and developmental index, FB 74:967
 - natural spawning, FB 74:962
 - oxygen levels, FB 74:963
 - raising eyed eggs to fry stage, FB 74:962
 - survival from egg to fry, FB 74:966
 - survival from egg to returning adult, FB 74:967
 - survival from fry to returning adult, FB 74:966
 - survival from marking effects, FB 74:967
 - time of emergence and seaward migration, FB 74:968
 - water filter and purifier, FB 74:962
 - water temperatures, FB 74:963
 - Sashin Creek, southeastern Alaska
 - streambed overseeding, probable case of, FB 73:569
 - tagging experiments in southeastern Alaska, 1938-42 and 1945
 - experimental and analytic methods, S 686
 - historical review, S 686
 - migration routes as determined from tag recoveries, S 686
 - mortality rates, S 686
 - recommendations for design of future tagging experiments, S 686
 - relative abundance and migration as determined from trap catch data, S 686
 - travel rate determined from tagging data, S 686
 - zooplankton abundance and feeding habits of fry in Traitors Cove, Alaska
 - carrying capacity of Traitors Cove, FB 73:857
 - feeding in the estuary, FB 73:849
 - feeding in Traitors River, FB 73:849
 - food selection, FB 73:856
 - grazing rate, FB 73:856
 - initiation of feeding, FB 73:854
 - zooplankton abundance and distribution, FB 73:853
- Salmon, sockeye
 - Bristol Bay, Alaska, 1966-67
 - foods of juvenile in inshore coastal waters, FB 74:458
- contribution of 1960-63 brood to Columbia River commercial fishery
 - differential mark mortality, FB 77:236
 - economic evaluation, FB 77:237
 - estimating procedures, FB 77:233
 - hatchery, FB 77:233
 - hatchery contribution to fishery, FB 77:236
 - lake existence, FB 77:239
 - marked fish recovery, FB 77:234
 - marking and release procedure, FB 77:233
 - potential hatchery catch, FB 77:236
 - problems, adults, FB 77:240
 - problems, downstream migrants, FB 77:239
 - sampling results, FB 77:234
 - Wenatchee system stock, FB 77:230
- Great Central Lake, Vancouver Island
 - competition for food with the threespine stickleback, FB 74:647
- history of fishery and summary statistics of runs to Chignik Lakes, Alaska, 1888-1966
 - catches, escapements, and total runs by stock, S 735
 - catches and escapements, S 735
 - climate, S 735
 - history of commercial fishery, S 735
 - research at Chignik, S 735
 - watershed, S 735
- identifying stocks of Bristol Bay by evaluating scale patterns with polynomial discriminant method
 - discriminant function analyses or pattern recognition, FB 76:415
 - high seas stocks, FB 76:419
 - inshore stocks, FB 76:420
- migratory routes of adult in eastern Bering Sea and Bristol Bay
 - Bristol Bay salmon fishery, S 690
 - inshore distribution, S 690
 - offshore distribution, S 690
 - synopsis of distribution and migratory routes, S 690
- ocean distribution as shown by tagging experiments
 - coastal recoveries in year tagged, S 689
 - coastal recoveries subsequent to year of tagging, S 689
 - high-seas recoveries in year tagged, S 689
 - high-seas recoveries subsequent to year of tagging, S 689
- possible management procedures for increasing production of smolts
 - abundance of juvenile and associated species, S 733
 - adequacy of natural spawning grounds, S 733
 - additional spawners required, S 733
 - current fry recruitment estimates, S 733
 - desirable fry recruitment, S 733
 - egg-to-fry survival, S 733
 - fecundity, S 733
 - fry-to-smolt survival, S 733
 - physical aspects and productivity of lakes, S 733
 - predation as a limiting factor, S 733
 - recommendations, S 733
 - spawning populations and sex ratios, S 733
- Salmon fishery
 - decision theory applied to simulated data acquisition and management, FB 74:837
- Salmon roe
 - Japanese

- N-nitrosamines, occurrence of volatile, FB 74:683
- Salmonid rearing facilities
 - historical and descriptive account of Pacific coast
 - Alaska, S 736
 - British Columbia, S 736
 - California, S 736
 - Columbia Basin, S 736
 - hatchery numbers, S 736
 - history, S 736
 - Oregon coastal, S 736
 - rearing trends, S 736
 - size at time of release, S 736
 - species reared, S 736
 - Washington coastal and Puget Sound, S 736
- Salmonids
 - Alaska
 - new incubator, MFR 37(7):26
 - immunization for control of vibriosis
 - bacterin, length of oral administration, MFR 40(3):21, 22
 - bacterin administration and challenge, MFR 40(3):20
 - bacterin concentration, MFR 40(3):21, 22
 - bacterin preparation, MFR 40(3):20
 - oral and injected bacterins, comparison, MFR 40(3):21, 22
 - temperature effect on oral immunization, MFR 40(3):21, 22
 - laboratory evaluation of Denil-type steepass fishway for passage of
 - effect of entrance conditions, MFR 37(9):23
 - effect of exit conditions, MFR 37(9):23
 - effect of 50-foot long Denil on fish passage, MFR 37(9):23
 - equipment and procedures, MFR 37(9):17
 - evaluation of prototype Denil fishway installation, MFR 37(9):23
 - Puget Sound, Washington
 - vibriosis and vaccination procedures, MFR 40(3):24
 - viruses and virus diseases of, MFR 40(10):21
 - whirling disease, susceptibility studies, MFR 40(10):30
- Salmonids, juvenile
 - barge transportation on Columbia and Snake Rivers, 1977
 - auxillary oxygen system, MFR 41(7):31
 - capacity and loading-and-unloading procedures, MFR 41(7):31
 - chemical treatments, MFR 41(7):32
 - drain facilities, MFR 41(7):31
 - holding areas, MFR 41(7):28
 - oxygen and temperature monitoring, MFR 41(7):33
 - potential problem areas, MFR 41(7):33
 - transport program, MFR 41(7):33
 - water supply system, MFR 41(7):30
- Salt water
 - salmon, chinook smolts
 - reduce mortality during handling and hauling, MFR 39(7):6
- Salvelinus fontinalis*—see Trout, brook
- Samoa, American
 - longline fishery, 1966-71, FB 73:747
- Sampling, stratified systematic
 - application to study of infauna variation in soft substrate environment
 - bivalves, FB 74:944
 - polychaetes, FB 74:942
 - procedures, field, FB 74:939
 - procedures, statistical, FB 74:939
 - sediment, FB 74:941
- Sampling, systematic
 - in a planktonic ecosystem, FB 76:617
- Sampling techniques
 - comparison of three for estimating abundance and distribution of selected megafauna
 - sled, camera, MFR 39(12):13
 - submersible, MFR 39(12):12
 - trawl, otter, MFR 39(12):14
- San Diego
 - sea surface temperature distributions obtained using an airborne infrared radiometer, S 720
 - tuna industry
 - employment impact on the local economy, MFR 40(7):5
- San Francisco
 - oceanic conditions between, and Honolulu, 1976, C 427:77
- Sanddab, Pacific
 - feeding habits off Oregon
 - differences among stations, FB 76:643
 - variations with season or size of fish, FB 76:645
 - Heceta Bank, Oregon
 - distribution and abundance, FB 76:629
 - Oregon, continental shelf
 - food of, FB 74:984
- Sanddab, speckled
 - thermal behavioral responses: laboratory and field investigations, FB 76:867
- Sandy Hook, New Jersey
 - water column thermal structure across shelf and slope southeast of, 1976, C 427:231
- Sandy Hook Bay
 - New Jersey
 - summer benthic fish fauna, July-October 1970, S 698
- Santa Barbara, California
 - kelp forests
 - food and habitat of three switch-feeding fishes, FB 76:257
 - kelp forests off
 - food, activity, and habitat of three microcarnivorous fishes in, FB 73:815
 - reef fishes
 - day versus night activity in a kelp forest, FB 74:703
- Santa Catalina Island, California
 - sea urchin, red
 - localized mass mortality, FB 75:645
 - shark, blue
 - diel behavior of, FB 75:519
 - relationships of, and its prey species near, FB 77:175
 - trophic interactions among fishes and zooplankters, FB 74:567
- São Paulo, Brazil
 - Euterpina acutifrons*
 - environmental variables on the metabolism, synergistic effects of, FB 76:449
- Sarda sarda*—see Bonito, Atlantic
- Sardina pilchardus*—see Sardine
- Sardine
 - biology at Majuro, Marshall Islands
 - age and growth estimates, C 408:65
 - distribution and abundance, C 408:65

- maturity and fecundity, C 408:66
- observational program, C 408:63
- sampling methods, C 408:64
- scouting methods, C 408:63
- stomach contents, C 408:66
- concentration of mercury, copper, nickel, silver, cadmium, and lead in, FB 73:193
- Sardine, Pacific
 - California Current
 - larvae, food and feeding, FB 74:517
- Sardine, scaled
 - Gulf of Mexico, eastern
 - abundance and potential yield, FB 75:613
 - early life history, FB 75:613
- Sardinops sagax*—see Sardine, Pacific
- Sargasso Sea
 - zooplankton biomass distribution variability
 - Gulf Stream cold core rings contribution, FB 76:323
- Sarpa salpa*
 - trophic relationships in South African marine littoral
 - dentition and gut morphology, FB 76:398
 - dietary composition, FB 76:397
 - recruitment and growth, FB 76:393
- Sashin Creek, Alaska
 - salmon, coho
 - life history, FB 74:897
 - salmon, pink
 - streambed overseeding, probable cause of, FB 76:569
- Satellite
 - Mississippi Sound and Louisiana coast
 - finding fish with, MFR 39(1):16
- Sauries
 - revision
 - beak development, FB 77:523
 - distribution, FB 77:550
 - Elassichthys* Hubbs and Wisner, new genus, FB 77:534
 - Elassichthys adocetus* Bohlke 1951, FB 77:534
 - genera description and comparisons, FB 77:541
 - generic separation justification, FB 77:542
 - gonads, FB 77:542
 - identification aids, FB 77:529
 - key to species, FB 77:528
 - lateral line scales, FB 77:546
 - mucus pores and canals of head, FB 77:545
 - Nanichthys* Hubbs and Wisner, new genus, FB 77:530
 - Nanichthys simulans* Hubbs and Wisner, new species, FB 77:531
 - Nanichthys simulans* synonymy, FB 77:531
 - pharyngeal bones and teeth, FB 77:549
 - phylogeny, FB 77:523
 - Scomberesox saurus scombroides*, FB 77:535
 - subspecific separation justification, FB 77:539
- Scallop, bay
 - culture in Virginia
 - conditioning for spawning, MFR 37(1):21
 - development, MFR 37(1):21
 - fertilization, MFR 37(1):21
 - food, MFR 37(1):22
 - larval competitors, MFR 37(1):22
 - larval density and larval environment, MFR 37(1):22
 - larval diseases, MFR 37(1):22
 - larval predators, MFR 37(1):22
 - natural history, MFR 37(1):20
 - setting, MFR 37(1):23
 - spawning, MFR 37(1):21
- New York Bight fishery resource, C 401
- utilization
 - aquaculture, MFR 40(11):9
 - biology, MFR 40(11):3
 - harvesting, MFR 40(11):5
 - history, MFR 40(11):1
 - processing, MFR 40(11):6, 7
- Scallop, calico
 - fishes, macroinvertebrates, and their interrelationships with, off North Carolina
 - environmental data, FB 75:429
 - environmental observations, FB 75:431
 - fishery, FB 75:427
 - growth, FB 75:434
 - sampling vessels, FB 75:429
- utilization
 - aquaculture, MFR 40(11):9
 - biology, MFR 40(11):3
 - harvesting, MFR 40(11):5
 - history, MFR 40(11):2
 - processing, MFR 40(11):6, 7
- Scallop, Pacific sea
 - utilization
 - biology, MFR 40(11):4
 - history, MFR 40(11):2
- Scallop, rock
 - trace metal contamination
 - near a large southern California municipal outfall, FB 76:936
- Scallop, sea
 - life history, ecology, and behavior of *Liparis inquilinus* associated with, FB 74:409
 - New York Bight fishery resource, C 401
 - resources, northeastern U.S. coast 1975, MFR 40(2):19
- utilization
 - aquaculture, MFR 40(11):8
 - biology, MFR 40(11):2
 - harvesting, MFR 40(11):4
 - history, MFR 40(11):1
 - processing, MFR 40(11):6
 - quality problems, MFR 40(11):8
- Scarus croicensis*—see Parrotfish, striped
- Sciaenidae
 - classifying western Atlantic
 - Bairdiella* key, C 415
 - Cynoscion* key, C 415
 - diagnoses and primary synonymy of suprageneric groups, genera, and species, C 415
 - Equetus* key, C 415
 - external morphology groupings, C 415
 - key to genera and species, C 415
 - Larimus* key, C 415
 - Menticirrhus* key, C 415
 - Micropogonias* key, C 415
 - Ophioscion* key, C 415
 - otolith morphology groupings, C 415
 - Paralichthys* key, C 415
 - Pareques* key, C 415

- phylogenetic relationships of genera and suprageneric groups, C 415
- relationships of genera within suprageneric groups, C 415
- relationships of suprageneric groups, C 415
- Sciaena* key, C 415
- Stellifer* key, C 415
- swim bladder morphology groupings, C 415
- synopsis of suprageneric groups, genera, and species, C 415
- Umbrina* key, C 415
- Sciaenids
 - trypanorhynch infections in, MFR 40(10):37
 - York River estuary, Virginia
 - life history, feeding habits, and functional morphology of juveniles, FB 75:657
- Sciaenops ocellata*
 - York River estuary, Virginia
 - life history, feeding habits, and functional morphology of juveniles, FB 75:657
- Sciaenops ocellata*—see also Drum, red
- Sclerocrangon boreas*
 - invertebrates, midwater
 - Chukchi Sea, southeastern, September-October 1970, S 710
- Scolecosporae
 - United States, northeastern
 - key to genera and species, C 398
- Scomber japonicus*—see Mackerel, chub; Mackerel, Pacific
- Scomber scombrus*—see Mackerel, Atlantic
- Scomberomorus brasiliensis*
 - new species, western Atlantic, FB 76:273
- Scomberomorus brasiliensis*—see also Mackerel, serra Spanish
- Scomberomorus cavalla*—see Mackerel, king
- Scomberomorus maculatus*—see Mackerel, Spanish
- Scomberomorus regalis*—see Cero
- Scombridae—see Tuna
- Scopelengys
 - review of genus and description of a new species from central North Pacific, FB 74:142
- Scopelengys clarkei*
 - new species from the central North Pacific, FB 74:142
- Scophthalmus aquosus*—see Windowpane
- Scorpionfish
 - larvae identification guide, eastern Pacific
 - character summary, C 402
 - Ectreposebastes imus*, C 402
 - Helicolenus dactylopterus*, C 402
 - key to early preflexion, C 402
 - key to postflexion, C 402
 - life history series, C 402
 - Pontinus* type A, C 402
 - Pontinus* type B, C 402
 - Scorpaena guttata*, C 402
 - Scorpaena* type A, C 402
 - Scorpaenodes xyris*, C 402
 - Sebastes capensis*, C 402
 - Sebastes cortezii*, C 402
 - Sebastes fasciatus*, C 402
 - Sebastes jordani*, C 402
 - Sebastes levis*, C 402
 - Sebastes macdonaldi*, C 402
 - Sebastes marinus*, C 402
 - Sebastes paucispinis*, C 402
 - Sebastes* sp.—Gulf of California type A, C 402
 - Sebastes viviparus*, C 402
 - Sebastolobus alascanus*, C 402
 - Sebastolobus altivelis*, C 402
 - species from northwestern Pacific, C 402
- Scuba diving
 - methods for evaluation of fishing systems
 - diver operations, MFR 38(7):21
 - diver safety, MFR 38(7):21
 - trawls, dynamically deployed, MFR 38(7):15
 - trawls, statically deployed, MFR 38(7):18
- Sculpin, torrent
 - in stream aquaria
 - comparative vulnerability of fry of Pacific salmon and steelhead trout to predation by, FB 73:931
 - predator on coho salmon fry, FB 75:457
- Sculpins
 - populations of sympatric on Vancouver Island
 - age determination, FB 74:133
 - age structure, FB 74:136
 - annual growth, mortality, and length-weight relations, FB 74:138
 - biomass distribution, FB 74:137
 - distribution and relative abundance, FB 74:133
 - general life history, FB 74:133
 - population estimates, FB 74:132
 - population sampling, FB 74:132
- Scup
 - New York Bight fishery resource, C 401
- Sea bass
 - genus *Diplectrum* revision
 - Diplectrum bivittatum*, C 404
 - Diplectrum conceptione*, C 404
 - Diplectrum eumelum*, C 404
 - Diplectrum euryplectrum*, C 404
 - Diplectrum formosum*, C 404
 - Diplectrum labarum*, C 404
 - Diplectrum macropoma*, C 404
 - Diplectrum maximum*, C 404
 - Diplectrum pacificum*, C 404
 - Diplectrum radiale*, C 404
 - Diplectrum rostrum*, C 404
 - Diplectrum sciurus*, C 404
 - gonad morphology, C 404
 - key to species, C 404
 - osteology, C 404
 - zoogeography, C 404
 - morphological comparisons of North American larvae
 - Anthias*, C 428
 - Centropristis*, C 428
 - Diplectrum*, C 428
 - Epinephelus*, C 428
 - Hemanthias*, C 428
 - Hypoplectrus*, C 428
 - Liopropoma*, C 428
 - Mycteroperca*, C 428
 - Paralabrax*, C 428
 - Paranthias*, C 428
 - Plectranthias*, C 428
 - Pronotogrammus*, C 428
 - Pseudogramma*, C 428

- Rypticus*, C 428
- Schultzea*, C 428
- Serraniculus*, C 428
- Serranus*, C 428
- Sea bass, black
 - experiments on some possible effects of tire reefs on, MFR 37(3):18
 - New York Bight fishery resource, C 401
 - North and South Carolina
 - offshore headboat fishing, 1972-73, MFR 38(3):13
- Sea level, mean
 - anomalies of monthly along west coasts of North and South America
 - Aleutian Islands, C 427:55
 - California Current, C 427:56
 - data, C 427:51
 - Gulf of Alaska-Pacific Northwest, C 427:55
 - Mexico-Central America, C 427:56
 - Peru Current region, C 427:56
- Sea otter
 - Amchitka Island, Alaska
 - experimental studies of algal canopy interaction in a kelp community, FB 73:230
- Sea raven
 - notes on early development, FB 74:467
- Sea-surface temperature—see Temperature, sea surface
- Sea turtle, loggerhead
 - encountering shrimp trawls, MFR 39(11):15
- Sea urchin, red
 - Santa Cruz, California
 - localized mass mortality, FB 75:645
- Sebastes alutus*—see Perch, Pacific Ocean
- Seafoods
 - concept for assuring quality to consumers, MFR 40(1):1
 - radiation energy to preserve, MFR 38(6):19
- Seafoods, fresh
 - economic feasibility of assuring U.S. Grade A quality
 - cost to insure U.S. Grade A quality, MFR 41(7):25
 - cost-benefit analysis, MFR 41(7):26
 - gross profit margins, MFR 41(7):26
 - prices at three levels, MFR 41(7):22
 - procedure, MFR 41(7):20
 - prototype processor costs, MFR 41(7):25
 - prototype retailer costs, MFR 41(7):25
 - sales trends, MFR 41(7):22
- Seafoods, frozen
 - United States, need and potential for high quality
 - handling procedure, recommended, MFR 41(4):7
 - packaging, MFR 41(4):3
 - retail handling, MFR 41(4):4
 - temperature control, MFR 41(4):2
 - transportation, MFR 41(4):4
 - warehouse and freezing capacities, MFR 41(4):3
- Seal, Alaska fur
 - yield of male, role of land and ocean mortality in, FB 77:311
- Seal, ribbon
 - underwater sounds from, FB 75:450
- Seaperch, white
 - food, activity, and habitat in kelp forests off California
 - activity, FB 73:821
 - food, FB 73:818
 - habitat, FB 73:823
 - overlap with other species, FB 73:824
 - resource breadth, FB 73:823
- Searobin, leopard
 - trophic ontogeny, FB 76:225
- Searobins
 - biology of five species from northeastern Gulf of Mexico
 - bottom type, FB 74:100
 - depth distribution, FB 74:99
 - food habits, FB 74:102
 - geographic distribution, FB 74:99
 - sexual maturity, FB 74:101
 - size-depth relationship, FB 74:100
 - spawning season, FB 74:101
 - time of capture, FB 74:100
 - water temperature, FB 74:100
- Seatrout, spotted
 - eggs and larvae, description
 - embryonic development, FB 76:66
 - growth, FB 76:70
 - larval development, FB 76:67
- Seatrouts
 - protein taxonomy
 - Atlantic Ocean, FB 74:599
 - Gulf of Mexico, FB 74:599
- Seawater system, semiclosed
 - automatic salinity, temperature, and turbidity control
 - alarm system, S 694
 - flow description, S 694
 - salinity control, S 694
 - temperature control, S 694
- Seaweed
 - aquaculture
 - Chondrus*, MFR 37(1):10
 - Enteromorpha*, MFR 37(1):9
 - Eucheuma*, MFR 37(1):12
 - Gelidium*, MFR 37(1):9
 - Gracilaria*, MFR 37(1):9
 - kombu, MFR 37(1):7
 - Macrocystis*, MFR 37(1):10
 - Monostroma*, MFR 37(1):9
 - nori, MFR 37(1):7
 - overview, MFR 37(1):5
 - Pterocladia*, MFR 37(1):9
 - Sea Grant projects, MFR 37(1):13
 - uses of seaweed, MFR 37(1):3
 - wakame, MFR 37(1):7
- Seaweeds
 - bibliography of aquacultural economics, S 703
- Seaweeds, edible
 - survey of industry
 - Japanese production, MFR 37(2):22
 - potential industry in United States, MFR 37(2):23
 - U.S. production and supply, MFR 37(2):20
 - world production, MFR 37(2):20
- Sebastes alutus*—see Perch, Pacific ocean
- Sebastes ciliatus*—see Rockfish, dusky
- Sebastes crameri*
 - development and occurrence off Oregon, FB 77:6
- Sebastes diploproa*—see Rockfish

- Sebastes flavidus*
development and occurrence of larvae and juveniles off Oregon, FB 77:902
- Sebastes flavidus*—see also Rockfish, yellowtail
- Sebastes helvomaculatus*
development and occurrence off Oregon, FB 77:30
- Sebastes melanops*
development and occurrence of larvae and juveniles off Oregon, FB 77:902
- Sebastes melanops*—see also Rockfish, black
- Sebastes mystinus*—see Rockfish, blue
- Sebastes pinniger*
development and occurrence off Oregon, FB 77:19
- Sebastes pinniger*—see also Rockfish, canary
- Sebastes serranoides*—see Rockfish, olive
- Selenium
Hawaiian Islands
marlin, blue, found in, FB 76:872
- Senorita
food, activity, and habitat in kelp forests off California
activity, FB 73:821
food, FB 73:818
habitat, FB 73:823
overlap with other species, FB 73:824
resource breadth, FB 73:823
- Sergestes armatus*
ecology of Hawaiian, FB 74:810
- Sergestes atlanticus*
ecology of Hawaiian, FB 74:805
- Sergestes consobrinus*
ecology of Hawaiian, FB 74:813
- Sergestes cornutus*
ecology of Hawaiian, FB 74:808
- Sergestes erectus*
ecology of Hawaiian, FB 74:809
- Sergestes orientalis*
ecology of Hawaiian, FB 74:811
- Sergestes pectinatus*
ecology of Hawaiian, FB 74:815
- Sergestes sargassi*
ecology of Hawaiian, FB 74:813
- Sergestes similis*
life history and vertical migration off southern California coast
daily and ontogenetic vertical migration, FB 77:187
growth, FB 77:190
growth, sexual maturity, and longevity, FB 77:196
relation between spawning season and environment, FB 77:194
spawning season, FB 77:189
- Sergestes tanillus*
ecology of Hawaiian, FB 74:812
- Sergestes vigilax*
ecology of Hawaiian, FB 74:811
- Sergia bigemnea*
ecology of Hawaiian, FB 74:819
- Sergia bisulcata*
ecology of Hawaiian, FB 74:822
- Sergia fulgens*
ecology of Hawaiian, FB 74:816
- Sergia gardineri*
ecology of Hawaiian, FB 74:818
- Sergia inequalis*
ecology of Hawaiian, FB 74:821
- Sergia laminata*
ecology of Hawaiian, FB 74:824
- Sergia maxima*
ecology of Hawaiian, FB 74:823
- Sergia scintillans*
ecology of Hawaiian, FB 74:817
- Sergia tenuiremis*
ecology of Hawaiian, FB 74:823
- Seriphus politus*—see Queenfish
- Serripes groenlandicus*
invertebrates, midwater
Chukchi sea, southeastern, September-October 1970, S 710
- Shad, American
dynamics of runs in Delaware River
age and repeat spawner composition, FB 73:489
comparative magnitudes of runs, 1961-68, FB 73:490
comparative year-class strengths, FB 73:491
sex composition of spawning runs, FB 73:488
size composition, FB 73:489
laboratory evaluation of Denil-type steep pass fishway for passage of
effect of entrance conditions, MFR 37(9):24
effect of exit conditions, MFR 37(9):25
effect of test period duration, MFR 37(9):25
New York Bight fishery resource, C 401
oceanic migration along Atlantic coast
coastal migration, FB 77:208
distribution of international catches, FB 77:204
offshore distribution, FB 77:206
vertical distribution, FB 77:207
Pacific Northwest commercial fishery
history, MFR 40(2):29
present and historical spawning grounds and nurseries in Delaware River
areas contributing to successful production of adults, FB 74:349
spawning period, FB 74:344
spawning period behavior, FB 74:345
weight loss, mortality, feeding, and duration of residence in fresh water
feeding behavior, FB 74:153
gonad weight-length relationships prior to spawning, FB 74:152
somatic weight-length relationships prior to spawning, FB 74:152
total and fork length conversion, FB 74:152
total weight-length relationships prior to spawning, FB 74:152
upstream mortality, FB 74:153
- Shad, threadfin
capture, transportation, and pumping
bait seine and skiff, C 408:128
capture and handling, C 408:131
docksites holding tanks, C 408:128
fish pumps, C 408:130
oxygenation system, C 408:128
portable transport tanks, C 408:128
pumping experiments, C 408:135

- Shark, bigeye thresher
Atlantic, western North, observations on, FB 74:221
- Shark, blue
relationships of it and its prey species near Santa Catalina Island, California, FB 77:175
reproduction, FB 77:445
Santa Catalina Island, California, near
diel behavior, FB 75:519
- Shark fishing
behavior and attitudes of recreational fishers
attitudes and motivations, MFR 38(2):13
comparison of shark fishers to other fishers, MFR 38(2):17
fisher characteristics, MFR 38(2):13
fishing patterns, MFR 38(2):13
- Sharks
description and physical characteristics, MFR 40(2):1
occurrence and habits, MFR 40(2):1
relationship to man, MFR 40(2):1
utilization, MFR 40(2):1
- Sheephead, California
reproductive biology
age and growth, FB 73:165
age determination methods, FB 73:263
anatomical features of gonad and sexual transformation, FB 73:267
coloration, sex, and field distribution of coloration types, FB 73:274
distribution of gonad development classes with time, FB 73:271
methods, FB 73:264
multiple spawning and fecundity, FB 73:272
sex ratio and estimate of survival, FB 73:279
source of materials, FB 73:263
time of sampling, FB 73:263
transformation schedule, FB 73:268
- Shelf water front
variations in position off Atlantic coast, 1975
data analysis, C 416:214
data source, C 416:213
intrusion of slope water over Georges Bank, C 416:216
monthly mean frontal positions, C 416:215
trends in weekly frontal positions, C 416:214
yearly mean frontal positions, C 416:216
variations in position off Atlantic coast, 1976
data, C 427:301
data analysis, C 427:302
intrusion of slope water over Georges Bank, C 427:305
monthly mean frontal positions, C 427:304
weekly frontal positions, C 427:302
yearly mean frontal position, C 427:304
- Shellfish
fresh
attitudinal and demographic characteristics for regular and irregular users, MFR 37(2):27
oxygen depletion and mass mortalities in Middle Atlantic Bight in 1976
fish and shellfish stocks, MFR 40(12):19
fish populations, effects on, MFR 40(12):22
shellfish, effects on, MFR 40(12):20
meteorological and hydrological events, MFR 40(12):19
oxygen depletion, extent, MFR 40(12):18
- Pacific Ocean, northeast
chemical characteristics, MFR 38(9):6
pathogens and hyperparasites
cell structure, MFR 41(1-2):25
pollution-associated diseases and abnormalities
experimentally induced lesions, FB 76:736
genetic abnormalities, FB 76:734
neoplasms, FB 76:728
pollutant-parasite interactions, FB 76:740
shell disease, FB 76:724
shallow marsh habitats as primary nurseries, FB 77:339
- Shellfish diseases
arthropods, MFR 40(3):62
bacterial, MFR 40(3):62
environmentally related, MFR 40(10):43
etiology unknown, MFR 40(3):62
fungal, MFR 40(3):62
hatchery operation studies, MFR 40(3):62
helminthic, MFR 40(3):62
larval nematodes parasitic in, MFR 40(10):39
parasitic, MFR 40(3):62, (10):26
testing bacterial pathogenicity, MFR 40(3):63
viral, MFR 40(3):61
- Shellfish hatcheries
Long Island
bacteriologic studies, MFR 40(10):8
- Shellfish poisoning, paralytic
Tenakee, southeastern Alaska
possible cause, FB 74:679
- Shiner, golden
effects of photoperiod-temperature regimes and pinealectomy on body fat reserves, FB 73:766
- Shrimp
bibliography of aquacultural economics, S 703
Brazilian shrimp investigation
SEFC progress report, MFR 39(4):15
catches, two Gulf Coast States
relationship between size composition and ex-vessel value, MFR 40(2):14
- Gulf Coast
water surface area within statistical subareas used in reporting data, MFR 37(12):22
- Gulf of Mexico
increasing costs of vessel owners, 1971-75, MFR 38(3):8
- Hawaii, exploratory trawling
Penaeus marginatus found in quantities thought sufficient to sustain a small trawl fishery, MFR 37(12):13
intersex anomalies of the genus *Penaeopsis*, FB 76:687
- Pandalus jordani*
sampler, epibenthic, used to study ontogeny of vertical migration, FB 74:994
- solenocerid, American
Hadropenaeus, key to species, FB 75:316
Hadropenaeus affinis, FB 75:317
Hadropenaeus lacasii, FB 75:327
Hadropenaeus modestus, FB 75:323
Haliporoides diomedae, FB 75:290
Hymenopenaeus, key to species, FB 75:268
Hymenopenaeus aphoticus, FB 75:275
Hymenopenaeus debilis, FB 75:268
Hymenopenaeus doris, FB 75:283
Hymenopenaeus laevis, FB 75:278

- Hymenopenaeus nereus*, FB 75:287
- Mesopenaeus tropicalis*, FB 75:332
- Pleoticus*, key to species in western Atlantic, FB 75:296
- Pleoticus muelleri*, FB 75:309
- Pleoticus robustus*, FB 75:297
- Solenoceridae, key to genera, FB 75:265
- South America, northeastern, 1972-74
 - U.S. fishery, FB 75:703
- Texas
 - economic impact, MFR 37(7):12
 - thermal and microwave energy for processing, MFR 37(12):25
- Shrimp, brown
 - aspects of growth in Gulf of Mexico
 - length, FB 76:829
 - weight, FB 76:831
 - Gulf of Mexico, eastern
 - annual catches, marketing category composition and ex-vessel value, MFR 41(5-6):1
 - small preserved
 - number and length frequency, subsampler for estimating, FB 76:490
 - South America, northeastern, 1972-74
 - U.S. fishery, FB 75:703
 - Texas and Louisiana
 - trends toward decreasing size in reported annual catches, FB 77:985
 - Texas and Louisiana catches
 - size composition, effect on ex-vessel value, MFR 40(2):14
 - West Bay, Texas
 - abundance in natural and altered marshes, FB 74:195
- Shrimp, coonstripe
 - zoeae
 - description of, reared in laboratory, FB 74:323
- Shrimp, crangonid
 - Crangon franciscorum angustimana*
 - stage I zoeae hatched from ovigerous females collected in Kachemak Bay, Alaska, FB 77:991
- Shrimp, grass
 - West Bay, Texas
 - abundance in natural and altered marshes, FB 74:195
- Shrimp, hippolytid
 - Lebbeus groenlandicus*
 - larvae, description of, FB 76:457
- Shrimp, humpy
 - Kachemak Bay, Alaska
 - larvae, description of, FB 76:235
- Shrimp, larval grass
 - survival, enhanced in
 - dilute solutions of polyethylene oxide, FB 73:678
- Shrimp, northern
 - Kachemak Bay, Alaska
 - description of larvae reared in situ, FB 77:157
- Shrimp, pandalid
 - Gulf of Alaska resource, 1973
 - trawl catches and oceanographic data from NMFS surveys, D 98
- Shrimp, penaeid
 - cellular response to injury
 - fibrocytes, MFR 37(5-6):7
 - "fixed" phagocytes, MFR 37(5-6):6
 - hemocyte elimination of foreign material, MFR 37(5-6):6
 - hemocyte function in encapsulation, MFR 37(5-6):5
 - hemocyte function in phagocytosis, MFR 37(5-6):5
 - melanin formation, MFR 37(5-6):8
- diseases, parasites, and toxic responses in, Gulf of Mexico and South Atlantic coasts of North America
 - bacteria, FB 76:6
 - broken-back syndrome, FB 76:40
 - cadmium, FB 76:32
 - chemotherapeutic chemicals, FB 76:35
 - DDT, FB 76:28
 - dieldrin, FB 76:28
 - fungi, FB 76:10
 - gas bubble disease, FB 76:39
 - mercury, FB 76:33
 - mirex, FB 76:29
 - muscle necrosis, spontaneous, FB 76:37
 - nematodes, FB 76:26
 - organochlorines, FB 76:28
 - organophosphates and carbamates, FB 76:30
 - PCB's, FB 76:29
 - petroleum, FB 76:32
 - platyhelminthes, FB 76:23
 - protozoa, FB 76:10
 - "shell disease" and black gills, FB 76:39
 - tumors, FB 76:37
 - viruses, FB 76:2
- revision of genus *Penaeopsis*, FB 77:721
- St. Andrew Bay system, Florida, distribution, abundance, and size, FB 74:158
- septicemic bacterial disease syndrome
 - bacteria isolated, MFR 37(5-6):26
 - clinical signs of bacterial disease, MFR 37(5-6):26
 - infectivity experiments, MFR 37(5-6):26
 - methods of isolation and culture, MFR 37(5-6):25
 - pathogenicity experiments, MFR 37(5-6):27
- Shrimp, pink
 - Gulf of Mexico, eastern
 - annual catches, marketing category composition and ex-vessel value, MFR 41(5-6):1
 - physical and chemical changes due to holding
 - carbon dioxide modified refrigerated seawater compared with ice, FB 76:73
 - preserved in carbon dioxide dissolved in refrigerated brine
 - bacteriological measurements, MFR 40(9):25
 - CO₂ concentration, MFR 40(9):27
 - pH, MFR 40(9):26
 - refrigerated brine equipment, MFR 40(9):25
 - salt concentration, MFR 40(9):27
 - sensory evaluation, MFR 40(9):27
 - West Bay, Texas
 - abundance in natural and altered marshes, FB 74:195
- Shrimp, pink-spotted
 - South America, northeastern, 1972-74
 - U.S. fishery, FB 75:703
- Shrimp, white
 - Gulf of Mexico, eastern
 - annual catches, marketing category composition and ex-vessel value, MFR 41(5-6):1
 - low level ionizing radiation and spice treatment of raw, headless, MFR 37(4):16

- spermatophores and thelyca of American descriptions, FB 73:466
 - Penaeus (Litopenaeus) occidentalis*, FB 73:469
 - Penaeus (Litopenaeus) schmitti*, FB 73:476
 - Penaeus (Litopenaeus) setiferus*, FB 73:479
 - Penaeus (Litopenaeus) stylirostris*, FB 73:472
 - Penaeus (Litopenaeus) vannamei*, FB 73:466
- role of coxal plates in retention of compound spermatophore, FB 73:482
- spermatophore comparisons, FB 73:483
- Texas and Louisiana
 - trends toward decreasing size in reported annual catches, FB 77:985
- Texas and Louisiana catches
 - size composition, effect on ex-vessel value, MFR 40(2):14
- West Bay, Texas
 - abundance in natural and altered marshes, FB 74:195
- Shrimp fishery
 - catch-effort and price-cost trends in Gulf of Mexico
 - implications on Mexico's extended jurisdiction, MFR 40(8):24
 - trends in catch-effort relationships in Gulf of Mexico
 - catch, MFR 37(2):3
 - catch/unit of effort, MFR 37(2):3
 - effort, MFR 37(2):1
 - United States, southeastern
 - trawl, developing selective shrimp, MFR 39(10):48
- Shrimp fleet
 - economic and financial analysis of increasing costs in Gulf of Mexico
 - cash flow data, FB 74:302
 - costs and returns, FB 74:302
 - data collection, FB 74:302
 - financial analysis with cost adjusted to 1974 and 1975, FB 74:305
 - vessel classes, comparison, FB 74:304
 - vessel classification, FB 74:303
 - vessel description, FB 74:302
- Shrimp industry, American
 - status and problems
 - imports, MFR 40(9):30
 - insurance rates, MFR 40(9):31
 - jurisdictions, extended, MFR 40(9):31
 - operating costs, MFR 40(9):30
 - overcapitalization, MFR 40(9):30
- Shrimp processing
 - dual structural equilibrium in Florida industry
 - characteristics, FB 74:881
 - entry and exit patterns, 1959-71, FB 74:880
 - forecasting firm distribution and predicting structural equilibrium, FB 74:882
 - theoretical considerations, FB 74:880
- Shrimp separator trawl
 - SEFC progress report, MFR 39(4):20
- Shrimp trawl, electric
 - SEFC progress report, MFR 39(4):20
- Shrimp trawling
 - Hawaiian Islands
 - exploratory study, MFR 37(12):13
- Shrimp trawls
 - encountered by loggerhead sea turtles, MFR 39(11):15
- Shrimp vessels—see Vessels, shrimp
- Shrimps
 - ecology of Hawaiian sergestid
 - color pattern and daytime vertical distribution: role of countershading, FB 74:825
 - contamination problem in analysis of vertical distribution data, FB 74:803
 - feeding chronology and diet, FB 74:829
 - feeding study, FB 74:803
 - interspecific relations, FB 74:831
 - nighttime vertical distribution and migration, FB 74:827
 - Petalidium suspensum*, FB 74:824
 - reproduction and growth, FB 74:831
 - sampling area, FB 74:799
 - Sergestes armatus*, FB 74:810
 - Sergestes atlanticus*, FB 74:805
 - Sergestes consobrinus*, FB 74:813
 - Sergestes cornutus*, FB 74:808
 - Sergestes erectus*, FB 74:809
 - Sergestes orientalis*, FB 74:811
 - Sergestes pectinatus*, FB 74:815
 - Sergestes sargassi*, FB 74:813
 - Sergestes tantillus*, FB 74:812
 - Sergestes vigilax*, FB 74:811
 - Sergia bigemnea*, FB 74:819
 - Sergia bisulcata*, FB 74:822
 - Sergia fulgens*, FB 74:816
 - Sergia gardineri*, FB 74:818
 - Sergia inequalis*, FB 74:821
 - Sergia laminata*, FB 74:824
 - Sergia maxima*, FB 74:823
 - Sergia scintillans*, FB 74:817
 - Sergia tenuiremis*, FB 74:823
 - vertical distribution, FB 74:800
- Silver
 - marine animals, effects on, MFR 39(4):5
- Silverside
 - biology at Majuro, Marshall Islands
 - age and growth estimates, C 408:65
 - distribution and abundance, C 408:65
 - maturity and fecundity, C 408:66
 - observational program, C 408:63
 - sampling methods, C 408:64
 - scouting methods, C 408:63
 - stomach contents, C 408:66
- Silverside, Atlantic
 - embryos, optical malformations induced by insecticides, FB 74:208
- Silverside, Hawaiian
 - predator-prey interactions in schools during twilight, FB 75:415
- Silverside, tidewater
 - small preserved
 - number and length frequency, subsampler for estimating, FB 76:490
- Simulation, dynamic
 - marine trophic interactions of fish species, FB 73:695
- Siphonophore
 - Nanomia cara*
 - aggregation, FB 76:281

- New England
 impact of autumn-winter swarming on fishing in coastal waters, C 416:333
 swarming in New England coastal waters—update 1976, C 427:349
- Sipuncula
 United States, northeastern
 key, C 403
 scientific names index, C 403
 systematic list, annotated, C 403
- Skates
 distribution and relative abundance of
 interspecific relationships, FB 73:128
Raja eglanteria, FB 73:114
Raja erinacea, FB 73:119
Raja garmani, FB 73:114
Raja laevis, FB 73:119
Raja ocellata, FB 73:121
Raja radiata, FB 73:125
Raja senta, FB 73:123
- Skylab-3 gamefish investigation
 SEFC progress report, MFR 39(4):14
- Smelt, rainbow
 eggs and larvae
 survival rates, in relation to impact assessments, MFR 41(3):1
 Lake Michigan
 food habits and feeding, FB 75:637
 Massachusetts to Canadian Maritimes
 incidence and distribution of piscine erythrocytic necrosis and *Glugea hertwigi*, FB 77:503
- Snail
 dermal lesions and amebocytic accumulations, MFR 38(10):44
- Snake River
 atmospheric gas supersaturation
 effect on salmon, MFR 38(7):1
 effect on trout, steelhead, MFR 38(7):1
 chinook salmon and steelhead trout
 effects of transportation on survival and homing, FB 73:925
 salmonids, juvenile
 barge transportation, MFR 41(7):28
 trout, steelhead
 distribution, age, and size of tagged adult in drainage, MFR 38(6):14
- Snapper
 Cuban fishery in Gulf of Mexico, MFR 39(10):1
 Panama, Caribbean coast of
 host-parasite relationship with *Cymothoa excisa*, FB 75:875
- Snapper, blackfin
 Carolina coast
 description, life history, and fishery, MFR 39(1):14
 North and South Carolina
 offshore headboat fishing, 1972-73, MFR 38(3):13
- Snapper, red
 Carolina coast
 description, life history, and fishery, MFR 39(1):12
 North and South Carolina
 offshore headboat fishing, 1972-73, MFR 38(3):13
- vessels
 statistical and budgetary economic analysis of, 1974-75, MFR 39(11):6
- Snapper, silk
 Carolina coast
 description, life history, and fishery, MFR 39(1):13
 North and South Carolina
 offshore headboat fishing, 1972-73, MFR 38(3):13
- Snapper, vermilion
 Carolina coast
 description, life history, and fishery, MFR 39(1):14
 larval and early juvenile, description of, FB 75:547
 North and South Carolina
 offshore headboat fishing, 1972-73, MFR 38(3):13
- Soak time
 incorporating into measurement of fishing effort in trap fisheries, FB 75:213
- Sole, bigmouth
 early development in eastern North Pacific
 developmental stages, description, FB 77:135
 egg description, FB 77:111
- Sole, Dover
 chlorinated hydrocarbons in
 local migrations and fin erosion, FB 75:513
 feeding habits off Oregon
 differences among stations, FB 76:643
 variations with season or size of fish, FB 76:645
 Heceta Bank, Oregon
 distribution and abundance, FB 76:629
 larvae, distribution and duration of pelagic life off Oregon
 collections, FB 75:174
 distribution, inshore-offshore and north-south, FB 75:178
 distribution, vertical, FB 75:181
 growth and development, FB 75:175
 juveniles, benthic, FB 75:181
 larval stages, FB 75:175
 seasonality, growth, and length of larval life, FB 75:176
- Sole, English
 Oregon, continental shelf
 food of, FB 74:984
- Sole, naked
 Cape Cod, Massachusetts, to Cape Lookout, North Carolina, 1965-66
 seasonal distributions of larval on continental shelf, S 691
- Sole, petrale
 larvae, distribution and duration of pelagic life off Oregon
 collections, FB 75:174
 distribution, inshore-offshore and north-south, FB 75:178
 distribution, vertical, FB 75:181
 growth and development, FB 75:175
 juveniles, benthic, FB 75:181
 larval stages, FB 75:175
 seasonality, growth, and length of larval life, FB 75:176
 Oregon, continental shelf
 food of, FB 74:984
- Sole, rex
 biology in Oregon waters, 1969-73
 age and growth, FB 75:53
 length-weight relationships, FB 75:53
 mortality rate, FB 75:55
 reproduction, FB 75:56
 stock identification, FB 75:57

- feeding habits off Oregon
 - differences among stations, FB 76:643
 - variations with season or size of fish, FB 76:645
- Heceta Bank, Oregon
 - distribution and abundance, FB 76:629
- larvae, distribution and duration of pelagic life off Oregon
 - collections, FB 75:174
 - distribution, inshore-offshore and north-south, FB 75:178
 - distribution, vertical, FB 75:181
 - growth and development, FB 75:175
 - juveniles, benthic, FB 75:181
 - larval stages, FB 75:175
 - seasonality, growth, and length of larval life, FB 75:176
- Oregon, continental shelf
 - food of, FB 74:984
- Sole, rock
 - Bering Sea, southeastern, 1961
 - age-length-weight and distribution, FB 73:919
 - Oregon, continental shelf
 - food of, FB 74:984
- Sole, slender
 - feeding habits off Oregon
 - differences among stations, FB 76:643
 - variations with seasons or size of fish, FB 76:645
 - Heceta Bank, Oregon
 - distribution and abundance, FB 76:629
- Sole, yellowfin
 - Bering Sea, southeastern, 1961
 - age-length-weight and distribution, FB 73:919
 - resource in Bering Sea and Aleutian Islands, MFR 41(11):19
- Sonar mapping
 - development and use for pelagic stock assessment in California Current area
 - automated hydroacoustic data acquisition and processing system, FB 74:292
 - automated sonar survey, FB 74:294
 - bottom topography, FB 74:289
 - diurnal and seasonal effects, FB 74:285
 - experiment, charter boat, FB 74:291
 - experiment, fish trap, FB 74:290
 - target size, FB 74:283
 - target strength, FB 74:285
- South America
 - mean sea level
 - anomalies of monthly along west coast, C 427:51
- South America, northeastern
 - U.S. shrimp fishery, 1972-74, FB 75:703
- South Carolina
 - barnacles, shallow water
 - larval development, C 421
 - crab, spider
 - larval development of laboratory-reared, FB 75:831
 - Folly Beach
 - macrofauna of surf zone, S 704
 - Murrells Inlet
 - artificial reefs, MFR 41(9):12
 - offshore headboat fishing, 1972-73
 - recreational catches, effort, and angling quality, MFR 38(3):13
 - shrimp vessels
 - productivity and profitability, 1971-75, MFR 41(4):8
 - stranding of pilot whales, FB 77:511
 - Southeast Fisheries Center
 - fishery engineering advancements
 - 5-year progress report, MFR 39(4):12
 - Soviet fisheries
 - bottomfish and herring off U.S. Pacific and Bering Sea coasts
 - data adequacy, MFR 38(12):8
 - fishing operations, economics, MFR 38(12):6
 - fishing operations, types, MFR 38(12):3
 - future, MFR 38(12):13
 - historical perspective, MFR 38(12):1
 - impact on U.S. fisheries, MFR 38(12):11
 - species harvested, MFR 38(12):8
 - Spawning
 - flounder, yellowtail
 - induced, FB 76:931
 - marine fishes
 - principal areas and times of, FB 76:911
 - prawn, spot
 - second mating and spawning in captivity, first record of, FB 75:648
 - tautog
 - behavior under laboratory conditions, FB 75:585
 - Spawning, lunar
 - threadfin, in Hawaii, FB 76:900
 - Spearfish, longbill
 - synopsis of biological data
 - bionomics and life history, S 675-3:33
 - distribution, S 675-3:33
 - exploitation, S 675-3:35
 - identity, S 675-3:28
 - population, S 675-3:35
 - Spearfish, Mediterranean
 - synopsis of biological data
 - bionomics and life history, S 675-3:126
 - distribution, S 675-3:124
 - exploitation, S 675-3:128
 - identity, S 675-3:121
 - population, S 675-3:128
 - protection and management, S 675-3:128
 - Spearfish, shortbill
 - synopsis on biology in Indo-Pacific areas
 - bionomics and life history, S 675-3:45
 - distribution, S 675-3:43
 - exploitation, S 675-3:51
 - identity, S 675-3:39
 - population, S 675-3:49
 - Sphoeroides maculatus*—see Puffer, northern
 - Sphoeroides spengleri*—see Puffer
 - Sphoeroides testudineus*—see Puffer
 - Sphyriidae
 - United States, northeastern
 - key, C 406
 - systematic list, annotated, C 406
 - Spin-labeling techniques
 - studying mode of action of petroleum hydrocarbons on marine organisms
 - contaminant-host interaction, FB 73:303
 - membranes and their properties, FB 73:302
 - outlook, FB 73:305
 - spin-labeling, fundamentals, FB 73:300

- Spinocalanidae
 Arctic Ocean, central
 Arctic hydrography, C 391
 description, C 391
 distribution, vertical, C 391
 field methods, C 391
 key to genera, C 391
 laboratory methods, C 391
- Spinocalanus*
 Arctic Ocean, central
 key to species, C 391
- Spinocalanus*—see also Copepods, calanoid
- Spinontocaris phippisii*
 invertebrates, midwater
 Chukchi Sea, southeastern, September-October 1970,
 S 710
- Spiratella helicina*
 invertebrates, midwater
 Chukchi Sea, southeastern, September-October 1970,
 S 710
- Spisula solidissima*—see Clam, surf
- Spot
 feeding ecology, observations of postlarval
 current speed and feeding intensity, FB 74:424
 daily ratios, FB 74:425
 evacuation rates, FB 74:424
 feeding periodicity, FB 74:425
 size related food preferences, FB 74:428
 temporal variation in midday feeding, FB 74:424
 general feeding ecology of postlarval fishes in Newport
 River estuary, FB 73:137
 New York Bight fishery resource, C 401
- Squalus acanthias*—see Dogfish, spiny
- Squid
 care and maintenance of quality, MFR 39(7):15
 foreign fishery off northeast U.S. coast
 background, MFR 41(7):1
 by-catch, MFR 41(7):12
 catch and effort, MFR 41(7):10
 depth sounders and net recorders, MFR 41(7):4
 feasibility of domestic fishery, MFR 41(7):13
 fishing areas, MFR 41(7):10
 fishing operations, MFR 41(7):6
 foreign vessels, MFR 41(7):2
 preferred fishing conditions, MFR 41(7):6
 processing catch, MFR 41(7):7
 trawl gear, MFR 41(7):2
 laboratory-reared
 feeding behavior, food consumption, growth, and respi-
 ration, FB 74:176
- Loligo opalescens*
 school structure, FB 76:433
- Squid, longfin
 New York Bight fishery resource, C 401
- Squid, shortfin
 fish, attacks on trawl-captured, MFR 39(12):23
 New York Bight fishery resource, C 401
 strandings in New England in fall 1976
 catches by research vessel, MFR 40(1):22
 distribution and fishery, MFR 40(1):21
 estimating numbers stranded, MFR 40(1):25
 examining stranded squid, MFR 40(1):23
- reasons for strandings, MFR 40(1):25
 stranding reports, MFR 40(1):22
 strandings, past, MFR 40(1):23
- Squids
 Gulf of Maine to Cape Hatteras, 1963-74
 biomass changes as determined from research vessel sur-
 vey data, FB 75:1
- Squilla empusa*
 development of pelagic larvae and postlarva, FB 77:61
- SST—see Temperature
- SST maps
 monitoring the location of harvestable coho salmon,
 MFR 38(3):1
- Steam-electric station
 impact of thermal effluent from, on marshland nursery
 area during the hot season, FB 73:67
- Stellwagen Bank
 lance, American sand
 relative abundance, behavior, and food habits, FB 77:243
- Stenella attenuata*—see Dolphin, spotted; Porpoise, spotted
- Stenella longirostris*—see Dolphin, eastern spinner
- Stenotomus chrysops*—see Scup
- Sternoptychidae
 Pacific, North central gyre
 vertical distribution and development during summer,
 FB 77:786
- Stickleback, threespine
 Great Central Lake, Vancouver Island
 competition for food with juvenile sockeye salmon,
 FB 74:647
 distribution, food, and feeding, FB 74:647
- Stock-production models
 time-dependent solutions and efficient parameters
 Graham system analysis, FB 76:378
 Pella-Tomlinson system analysis, FB 76:382
- Stolephorus heterolobus*
 aspects of population biology from Palau
 bait fishery, C 408:121
 growth, C 408:120
 mortality, C 408:120
- Stolephorus purpureus*—see Nehu
- Stomphia* sp.
 invertebrates, midwater
 Chukchi Sea, southeastern, September-October 1970,
 S 710
- Strongylocentrotus franciscanus*—see Sea urchin, red
- Sturgeon
 Pacific Northwest commercial fishery, MFR 40(7):17
- Sturgeon, Atlantic
 differentiation of freshwater characteristics of fatty acids in
 marine specimens, FB 73:838
 New York Bight fishery resource, C 401
- Sturgeon, shortnose
 annotated bibliography and subject index, S 731
- Stylocheiron* sp.
 California Current, central region
 density, vertical range, and diel movement, FB 74:932
- Suez Canal
 immigration of fishes, FB 76:249
- Sullivan Harbor, Maine
 bloodworm, tycho planktonic, FB 76:480
- Surf clam—see Clam, surf

- Surface currents
 - California, central and southern
 - determined by drift card releases over continental shelf, S 718
 - Surfperch, pink
 - reproductive cycle, FB 75:882
 - Surinam
 - U.S. shrimp fishery, 1972-74, FB 75:703
 - Swim bladder
 - anchovy, northern
 - diel changes in inflation, FB 74:847
 - state and structure in relation to behavior and mode of life in stromateoid fishes
 - fish size at inflation, FB 73:101
 - regression, FB 73:101
 - regression in relation to behavior and mode of life, FB 73:105
 - relative dimensions and capabilities, FB 73:102
 - structure, FB 73:97
 - Swimming speed
 - minimum
 - tuna, albacore, FB 74:955
 - tuna
 - dissolved oxygen concentration and salinity, effect of, FB 75:649
 - Swimming speeds
 - mackerel, chub
 - effect on excess temperatures and activities of heart and red and white muscles, FB 76:861
 - role of different fibre types in fish myotomes
 - carp, FB 76:693
 - herring, Pacific, FB 76:692
 - trout, rainbow, FB 76:694
 - Swordfish
 - New York Bight fishery resource, C 401
 - Syacium papillosum*—see Flounder, dusky
 - Synaphobranchus affinis*
 - North Carolina
 - occurrence of elvers, FB 73:687
 - Synidotea bicuspidata*
 - invertebrates, midwater
 - Chukchi Sea, southeastern, September-October 1970, S 710
 - Synodontidae
 - correlation between numbers of vertebrae and lateral-line scales in western Atlantic lizardfish, FB 73:202
 - Synthetic polymers—see Polymers, synthetic
 - Syrrhoe crenulata*
 - invertebrates, midwater
 - Chukchi Sea, southeastern, September-October 1970, S 710
- T
- Tags
 - dart and jaw, comparative retention on
 - trout, steelhead, MFR 38(7):24
 - Tags, electronic
 - aid in study of migrating salmon and steelhead trout in Columbia River Basin, MFR 37(2):9
 - Tampa Bay, Florida
 - fishes, macroinvertebrates, and hydrological conditions of
 - upland canals, FB 73:81
 - macroinvertebrate species
 - distribution and abundance of six phyla, 1963-64 and 1969, D 100
 - searobin, leopard
 - trophic ontogeny, FB 76:225
 - Tapes japonica*—see Clam, Manila
 - Tardigrada
 - United States, northeastern
 - annotated list, of the world, C 394
 - ecology, C 394
 - key to species, C 394
 - listing, C 394
 - scientific names, index, C 394
 - Tautog
 - comparison of food habits with the cunner off Long Island, New York, FB 73:895
 - courtship and spawning behavior under laboratory conditions, FB 75:585
 - Fire Island Inlet
 - seasonal dispersal and habitat selection, FB 77:255
 - New York Bight fishery resource, C 401
 - Tautoga onitis*—see Tautog
 - Tautogolabrus adspersus*—see Cunner
 - Tecticeps alaskensis*
 - invertebrates, midwater
 - Chukchi Sea, southeastern, September-October 1970, S 710
 - Teleosts
 - liver, PCB-induced alterations in, MFR 40(10):47
 - Temperature
 - aquatic organisms, thermal tolerance studies
 - mobile laboratory with flow-through capability, MFR 38(3):24
 - bottom, York River estuary
 - mean values, May 1972-August 1973, FB 75:659
 - crabs, 10 species
 - short-term thermal resistance of zoeae from Puget Sound, Washington, FB 75:555
 - effects of photoperiod-temperature regimes on body fat reserves in golden shiner, FB 73:766
 - effects on survival
 - winter flounder embryos, FB 74:52
 - Euphausia pacifica*
 - thermal increases of short duration, effect on survival, FB 76:895
 - thermal effects on
 - shrimp processing, MFR 37(12):25
 - toxicological impact of a contaminant, MFR 38(11):5
 - Temperature—see also SST maps
 - Temperature, bottom
 - estimates, from fish captured in lobster traps, MFR 41(8):23
 - Temperature, sea surface
 - anomalies, C 427:111
 - anomalies of coastal along west coast of North America
 - air temperatures, C 416:130
 - coastal temperatures, C 416:129
 - data sources and processing, C 416:127
 - effects on fisheries, C 416:132
 - index station temperatures, C 416:128
 - relation of data sets, C 416:131

- atmospheric climatology effect on, C 416:89; MFR 41(5-6):20
- Christmas Island, 1954-73, FB 75:767
- distribution from Cape Cod, Massachusetts, to Miami, Florida, 1976, C 427:209
- fluctuations of, and density at coastal stations, 1976
- east coast, C 427:154, 155
- Gulf of Mexico, C 427:155, 156
- west coast, C 427:152, 153
- Koko Head, Oahu, 1956-73, FB 75:767
- San Diego, California
- distributions obtained using an airborne infrared radiometer, S 720
- Temperature transects
- Gulf of Maine, northern
- initiation of monthly, C 416:257
- Tenakee, Alaska
- shellfish poisoning, paralytic
- possible cause, FB 74:679
- Teredo bartschi*
- New Jersey
- Minchinia* sp., occurrence of, MFR 41(1-2):21
- Teredo furcifer*
- New Jersey
- Minchinia* sp., occurrence of, MFR 41(1-2):21
- Teredo navalis*
- New Jersey
- Minchinia* sp., occurrence of, MFR 41(1-2):21
- Tessarabrachion* sp.
- California Current, central region
- density, vertical range, and diel movement, FB 74:929
- Tetrapturus albidus*—see Marlin, white
- Tetrapturus angustirostris*—see Spearfish, shortbill
- Tetrapturus audax*—see Marlin, striped
- Tetrapturus belone*—see Spearfish, Mediterranean
- Tetrapturus pfluegeri*—see Spearfish, longbill
- Texas
- dolphin, bottlenose
- aerial census in a region of coast, FB 77:585
- fishermen, charter boat
- characteristics, participation, and motivations, MFR 40(8):8
- Gulf Coast
- charter boat fishing industry, MFR 40(8):1
- study of behavior and attitudes of recreational shark fishers, MFR 38(2):10
- Gulf of Mexico estuarine inventory and study
- channelization and fill, C 393
- coast, C 393
- dimensions, C 393
- economic development, C 393
- environmental properties, C 393
- estuarine bottom sediments, C 393
- fauna, C 393
- geology, C 393
- pollution, C 393
- population, C 393
- stream discharge, C 393
- vegetation, C 393
- reefs, Liberty Ship
- access to and usage of offshore, MFR 41(9):25
- shrimp
- economic impact, MFR 37(7):12
- shrimp, brown and white
- trends toward decreasing size in reported annual catches, FB 77:985
- shrimp catches
- size composition, effect on ex-vessel value, MFR 40(2):14
- Thalassomyces albatrossi* n. sp.
- new records from the North Pacific, FB 73:175
- Thalassomyces boschmai*
- new records from the North Pacific, FB 73:171
- Thalassomyces californiensis*
- new records from the North Pacific, FB 73:181
- Thalassomyces capillosus*
- new records from the North Pacific, FB 73:180
- Thalassomyces fagei*
- new records from the North Pacific, FB 73:179
- Thalassomyces fasciatus*
- new records from the North Pacific, FB 73:178
- Thalassomyces marsupii*
- new records from the North Pacific, FB 73:178
- Thalassomyces* species
- new records from the North Pacific, FB 73:181
- Thelohania duorara*
- parasitic on penaeid shrimp in Gulf of Mexico and South Atlantic, FB 76:13
- Thelohania penaei*
- parasitic on penaeid shrimp in Gulf of Mexico and South Atlantic, FB 76:13
- Theragra chalcogramma*—see Pollock, Alaska; Pollock, walleye
- Threadfin
- Hawaii
- lunar spawning, FB 76:900
- Thunnus alalunga*—see Tuna, albacore
- Thunnus albacares*—see Tuna, yellowfin
- Thunnus obesus*—see Tuna, bigeye
- Thunnus thynnus thynnus*—see Tuna, bluefin
- Thynnascaris* sp.
- parasitic on penaeid shrimp in Gulf of Mexico and South Atlantic, FB 76:26
- Thysanoessa inermis*
- invertebrates, midwater
- Chukchi Sea, southeastern, September-October 1970, S 710
- Thysanoessa longipes*
- invertebrates, midwater
- Chukchi Sea, southeastern, September-October 1970, S 710
- Thysanoessa raschii*
- invertebrates, midwater
- Chukchi Sea, southeastern, September-October 1970, S 710
- Thysanoessa* sp.
- California Current, central region
- density, vertical range, and diel movement, FB 74:929
- Thysanopoda* sp.
- California Current, central region
- density, vertical range, and diel movement, FB 74:929
- Tilapia
- commercial hatchery—cost analysis and problematical study

- cost estimate for construction of commercial production plant, C 408:140
 - estimate of value of nehu, C 408:138
 - features of tank construction, C 408:145
 - operating expenses, C 408:141
 - production and production costs, C 408:142
- Tilapia mossambica*
- effect of crowding on stock and catch, FB 73:685
 - selective and unselective exploitation of experimental populations
 - basic relations, FB 73:498
 - course of populations, FB 73:497
 - exploitation and response, FB 73:500
 - genetic response, FB 73:502
- Tilefishes
- New York Bight fishery resource, C 401
 - systematics and biology
 - Branchiostegidae*, C 411
 - Branchiostegus albus*, C 411
 - Branchiostegus argentatus*, C 411
 - Branchiostegus doliatius*, C 411
 - Branchiostegus ilocanus*, C 411
 - Branchiostegus japonicus*, C 411
 - Branchiostegus sawakinensis*, C 411
 - Branchiostegus semifasciatus*, C 411
 - Branchiostegus serratus*, C 411
 - Branchiostegus vittatus*, C 411
 - Branchiostegus wardi*, C 411
 - Caulolatilus affinis*, C 411
 - Caulolatilus chrysops*, C 411
 - Caulolatilus cyanops*, C 411
 - Caulolatilus guppyi*, C 411
 - Caulolatilus hubbsi*, C 411
 - Caulolatilus intermedius*, C 411
 - Caulolatilus microps*, C 411
 - Caulolatilus princeps*, C 411
 - Caulolatilus williamsi*, C 411
 - evolution, C 411
 - Hoplostilatus (Asymmetrurus) fourmanoiri*, C 411
 - Hoplostilatus (Asymmetrurus) oreni*, C 411
 - Hoplostilatus (Hoplostilatus) cuniculus*, C 411
 - Hoplostilatus (Hoplostilatus) fronticinctus*, C 411
 - Hoplostilatus (Hoplostilatus) starcki*, C 411
 - key to families, C 411
 - key to genera of *Branchiostegidae*, C 411
 - key to genera of *Malacanthidae*, C 411
 - key to species of *Branchiostegus*, C 411
 - key to species of *Caulolatilus* from Pacific Ocean, C 411
 - key to species of *Caulolatilus* from western Atlantic Ocean, C 411
 - key to species of *Lopholatilus*, C 411
 - key to species of *Malacanthus*, C 411
 - key to subgenera and species of *Hoplostilatus*, C 411
 - life history, early, C 411
 - Lopholatilus chamaeleonticeps*, C 411
 - Lopholatilus villarii*, C 411
 - Malacanthidae*, C 411
 - Malacanthus brevirostris*, C 411
 - Malacanthus latovittatus*, C 411
 - Malacanthus plumieri*, C 411
 - summary of synonyms, C 411
- Toadfish, oyster
- calling behavior, temporal aspects, FB 75:871
- Tomcod, Atlantic
- food and feeding habits of juveniles in Haverstraw Bay, Hudson River, New York, FB 76:89
 - Haverstraw Bay, Hudson River, New York
 - food of age 1 and 2, FB 77:1003
- Topminnow
- economic and technological aspects related to commercial production, C 408:156
 - suitability of cultured as live baitfish for skipjack tuna
 - brood stock, C 408:153
 - density, C 408:152
 - dissolved oxygen, C 408:152
 - food and feeding, C 408:153
 - lighting requirements, C 408:152
 - pH, C 408:152
 - recommended facility design, C 408:154
 - water exchange rate, C 408:152
 - water salinity, C 408:151
 - water temperature, C 408:151
- Totoaba
- commercial fishery and reproductive biology in northern Gulf of California
 - breeding migration, FB 74:534
 - decline of fishery, FB 74:538
 - diet, FB 74:537
 - distribution, FB 74:537
 - habitat, FB 74:537
 - history of fishery, FB 74:532
 - spawning concentration, FB 74:535
- Trachurus symmetricus*—see Mackerel, jack
- Tracking, ultrasonic
- albacore movements
 - small-scale in relation to ocean features, FB 75:347
- Traitors Cove, Alaska
- salmon, pink and chum, fry
 - zooplankton abundance and feeding habits, FB 73:846
- Transmitter, ultrasonic
- harness for attachment of
 - drum, red, FB 74:998
- Transport, wind-driven
- Atlantic coast and Gulf of Mexico, 1975, C 416:229
- Transportation
- Snake River chinook salmon and steelhead trout
 - effects on, FB 73:925
- Traps, lobster
- annotated bibliography on, and related subjects, MFR 40 (5-6):68
 - design and ghost fishing
 - availability and catchability, MFR 40(5-6):62
 - bait, MFR 40(5-6):63
 - behavior, MFR 40(5-6):63
 - biological deterioration, MFR 40(5-6):61
 - catch escape panels, MFR 40(5-6):65
 - corrosion, MFR 40(5-6):61
 - destruction by dragged gear, MFR 40(5-6):62
 - effort, reduced, MFR 40(5-6):65
 - escape vents, MFR 40(5-6):7
 - escape vents, sublegal, MFR 40(5-6):65
 - escapement, MFR 40(5-6):62
 - factors affecting ghost fishing, MFR 40(5-6):5

- fishery, MFR 40(5-6):2
- habipots, MFR 40(5-6):66
- head design, MFR 40(5-6):60
- injury and mortality, MFR 40(5-6):63
- lobster range, MFR 40(5-6):2
- loss assessment, MFR 40(5-6):64
- loss cutting, MFR 40(5-6):65
- management, MFR 40(5-6):3
- materials, MFR 40(5-6):60
- pots, number lost, MFR 40(5-6):59
- preventing and decreasing ghost fishing, MFR 40(5-6):6
- sections, degradable, MFR 40(5-6):65
- set-over days, MFR 40(5-6):62
- shape, MFR 40(5-6):59
- size, MFR 40(5-6):59
- storm surge, MFR 40(5-6):61
- substrate burial, MFR 40(5-6):62
- effect of selectivity on size composition of American lobster catch along Maine coast, FB 73:862
- escape vents
 - ghost fishing, MFR 40(5-6):11
 - selectivity, MFR 40(5-6):50
- ghost fishing of vented and unvented
 - catch gear distribution, MFR 40(5-6):10
 - description of trawls and pots, MFR 40(5-6):11
 - environmental monitoring, MFR 40(5-6):13
 - ghost-pot catch, MFR 40(5-6):17
 - ghost-pot trawls, surveying, MFR 40(5-6):12
 - natural population, MFR 40(5-6):13
 - pot trawls, setting and hauling of surface-buoyed, MFR 40(5-6):11
 - study area, MFR 40(5-6):9
 - surface-hauled pot catch, MFR 40(5-6):14
- timed release mechanisms
 - release mechanism, MFR 40(5-6):44, 45, 49
 - release method, MFR 40(5-6):44, 48
 - release timer, MFR 40(5-6):44, 45
- Trawl, selective shrimp
 - development for southeast U.S. shrimp fisheries
 - fish escape device, MFR 39(10):21
 - rectangular mesh separator panel design, MFR 39(10):21
 - skylights, MFR 39(10):22
 - square mesh separator panel design, MFR 39(10):21
- Trawl, shrimp
 - employing electricity to selectively capture
 - electrical fishing technology, recent advances, MFR 40(9):22
 - webbing panel type separator trawls, MFR 40(9):21
- Trawler, groundfish
 - Gulf of Mexico, northern
 - profitability, MFR 41(8):15
- Trawling, shrimp—see Shrimp trawling
- Trawls
 - performance of, used in resource assessment
 - Eastern trawl (83-112 foot) measurements, MFR 39(6):20
 - field test set, MFR 39(6):18
 - footrope unit, MFR 39(6):17
 - 400-mesh Eastern trawl measurements, MFR 39(6):19
 - headrope unit, MFR 39(6):17
 - playback unit, MFR 39(6):18
 - 61-foot shrimp sampling trawl measurements, MFR 39(6):21
 - wing units, MFR 39(6):18
- Trichechus manatus*—see Manatee, West Indian
- Triphoturus mexicanus*—see Lampfish, Mexican
- Tripod drop net—see Drop net, portable tripod
- Trout
 - bibliography of aquacultural economics, S 703
 - bypass and collection system for protection of juveniles
 - fish holding area, MFR 37(2):35
 - fish screening facilities, MFR 37(2):33
 - gatewell orifices and transportation pipe, MFR 37(2):32
 - upwell and fish grader, MFR 37(2):34
 - Pacific Ocean, northeast
 - chemical characteristics, MFR 38(9):4
 - release from Pacific Coast rearing facilities, 1960 to 1973, D 101
 - Trout, brook
 - wild
 - production by three populations with emphasis on influence of recruitment rates, FB 75:751
 - Trout, brown
 - homing, morpholine-imprinted, FB 76:293
 - Trout, cutthroat
 - angling techniques, MFR 39(12):22
 - life history, MFR 39(12):20
 - population status, MFR 39(12):20
 - Trout, rainbow
 - acute toxicity of ammonia to several developmental stages, FB 73:207
 - hatching survival of hybrids of *Oncorhynchus masou* with, FB 73:447
 - use of otoliths to separate from juvenile rainbow trout, FB 73:654
 - Trout, steelhead
 - dams, effects on, MFR 38(11):39
 - dart and jaw tags
 - comparative retention during spawning migration, MFR 38(7):24
 - distribution, age, and size in Snake River drainage
 - length, MFR 38(6):16
 - ocean-age composition, MFR 38(6):16
 - tag recoveries, MFR 38(6):15
 - timing of recoveries, MFR 38(6):15
 - weight, MFR 38(6):16
 - effects of various concentrations of atmospheric gas on
 - effect of oxygen concentrations on time to death measurements, FB 73:790
 - effect of supersaturation stress on growth, FB 73:791
 - effect of supersaturation stress on survivors, FB 73:793
 - progression of gas bubble disease, FB 73:792
 - recovery from gas bubble disease, FB 73:793
 - relationships among mortality, exposure time, and gas concentration, FB 73:790
 - electronic tags and related tracking techniques aid in migration study
 - future, MFR 37(2):15
 - sonic tracking, MFR 37(2):10
 - fry
 - comparative vulnerability to predation by torrent sculpin in stream aquaria, FB 73:931
 - Lower Granite Dam bypass and collection system
 - fish marking and lab facilities, MFR 39(7):13
 - gatewell orifices and bypass system, MFR 39(7):11

- holding area, MFR 39(7):13
- screening facilities, MFR 39(7):10
- upwell and fish grader, MFR 39(7):13
- ocean distribution as shown by tagging experiments
 - coastal recoveries in year of tagging, S 689
 - coastal recoveries subsequent to year of tagging, S 689
- resistance of different stocks and transferrin genotypes to bacterial kidney disease and vibriosis, FB 77:795
- Snake and Columbia Rivers
 - atmospheric gas supersaturation, MFR 38(7):1
- Snake River
 - effects of transportation on survival and homing, FB 73:925
- use of otoliths to separate from juvenile rainbow trout, FB 73:654
- Trypanorhynch infections
 - sciaenid flesh, MFR 40(10):37
- Tryphosa* sp.
 - invertebrates, midwater
 - Chukchi Sea, southeastern, September-October 1970, S 710
- Tuna
 - associations with flotsam in eastern tropical Pacific, FB 77:147
 - Hawaii
 - handline fishery, MFR 41(8):7
 - Pacific pole-and-line and live-bait fisheries
 - bait and tuna catches, C 408:46
 - factors affecting CPUB, C 408:48
 - Hawaiian, C 408:38
 - Japanese pole-and-line, C 408:41
 - landings, C 408:44
 - landings related to fleet size, C 408:45
 - Pacific, eastern, C 408:36
 - purse seine fisheries, theoretical study
 - aggregation and fishery dynamics, FB 77:317
 - swimming speed
 - dissolved oxygen concentration and salinity, effect of, FB 75:649
- Tuna, albacore
 - assessment of South Pacific fishery, 1953-72
 - fishing effort, MFR 37(3):10
 - generalized production model, MFR 37(3):14
 - index of relative abundance, MFR 37(3):13
 - total catch, MFR 37(3):12
 - total effective effort, MFR 37(3):14
 - catch-per-unit effort, U.S. jig vessels, 1961-70
 - annual concentration index, MFR 38(5):4
 - annual latitudinal variation in distribution of fishery, MFR 38(5):3
 - annual standardized catch-per-unit effort, MFR 38(5):3
 - offshore distribution of fishery, MFR 38(5):4
 - seasonal development of fishery, MFR 38(5):4
 - cobalt-60 content
 - source and migration estimates on west coast, FB 75:867
 - energy for migration, FB 75:447
 - movements, small-scale related to ocean features
 - capture, handling, and tagging, FB 75:347
 - oceanographic observations, aircraft, FB 75:349
 - oceanographic observations, ship, FB 75:348
 - sea surface temperature, FB 75:350
 - speed, FB 75:349
 - temperature fronts, upwelling, FB 75:350
 - thermal structure, vertical, FB 75:354
 - tracking equipment, FB 75:348
 - tracking procedure, FB 75:348
- North American coastal waters
 - distribution, relative abundance, and association with Transition Zone waters, FB 75:795
- Oregon
 - catches at different times of the day, FB 73:691
- Pacific, North
 - tag shedding, estimates of rates, FB 74:675
- Samoan longline fishery, 1966-71, FB 73:747
- swimming speed, minimum
 - comparison among four scombrids, FB 74:958
 - density variations, FB 74:956
 - determining, FB 74:957
 - estimates, field, FB 74:959
- uniform U.S. west coast logbook for coastwide data system, MFR 37(11):18
 - design of logbook, MFR 37(11):14
 - dissemination of catch-effort information to cooperating fishermen, MFR 37(11):18
 - distribution of logbooks and collection of logbook records, MFR 37(11):15
- west coast
 - troll fishermen, comparison of the most successful and least successful, FB 74:973
- Tuna, bigeye
 - Atlantic, eastern tropical
 - length composition, caught by American purse seiners, S 702
- Tuna, black skipjack
 - Hawaiian Islands, second record, FB 74:207
- Tuna, bluefin
 - Atlantic, western
 - length-weight relationships, FB 77:995
 - New York Bight fishery resource, C 401
 - possible anomalies
 - Atlantic, western, MFR 37(12):1
 - European waters, MFR 37(12):3
 - purse-seine fishery in Atlantic Ocean
 - age composition, MFR 37(3):6
 - catch rate, MFR 37(3):7
 - fishery, MFR 37(3):1
 - fishery effort, MFR 37(3):5
 - total catch, MFR 37(3):2
- Tuna, little
 - New York Bight fishery resource, C 401
- Tuna, skipjack
 - Atlantic, eastern tropical
 - length composition, caught by American purse seiners, S 702
 - Atlantic Ocean, southeastern tropical
 - distribution, October-November 1968, FB 75:857
 - Atlantic Ocean fishery, 1956-75
 - catch rates, MFR 39(12):7
 - size composition, MFR 39(12):8
 - stock, state of, MFR 39(12):9
 - surface fishery, MFR 39(12):3
 - desired characteristics of a bait for behavior, C 408:53

- flavor, C 408:53
- size, C 408:53
- survival, C 408:53
- distribution, relative abundance, and movement in Pacific Ocean, 1964-67
 - adult-larvae relationship in equatorial Pacific, S 695
 - catch per unit effort distribution, S 695
 - data source, S 695
 - effort distribution, S 695
 - longline data evaluation, S 695
 - movement, past studies, S 695
 - movement, present study, S 695
- distribution and ecology in eastern tropical Pacific
 - biological characteristics, FB 73:388
 - chlorophyll, FB 73:395
 - currents, FB 73:395
 - caught, FB 73:403
 - distribution by time of day, FB 73:388
 - forage, FB 73:396
 - mixed layer depth, FB 73:394
 - off-track catches, FB 73:388
 - oxygen content of water, FB 73:395
 - pole-and-line fishing, FB 73:405
 - sex and maturity, FB 73:406
 - size, FB 73:405
 - water temperature, FB 73:392
 - zooplankton, FB 73:395
- effect of body size on standard metabolic rate, FB 77:494
- evaluation of bait substitution schemes in Hawaiian fishery
 - assumptions and uncertainties, C 408:166
 - evaluating alternative bait systems, C 408:164
 - feasibility line, C 408:164
 - opportunity cost of nehu, C 408:161
 - temporal variation in opportunity cost, C 408:161
- fishing in Papua New Guinea
 - bait fishery, MFR 37(2):8
 - catch, MFR 37(2):7
 - companies, MFR 37(2):5
 - possible future development, MFR 37(2):8
 - vessels, MFR 37(2):5
- Hawaiian fishery
 - estimates of amount of nehu per bucket of bait in, C 408:55
- heat exchange in, and adaptive significance of elevated body temperature
 - adaptive significance, FB 73:226
 - body temperatures, FB 73:221
 - differences in heat exchangers, FB 73:224
 - heat-exchange structure and red muscle distribution, FB 73:222
 - thermal profile, FB 73:225
- Japanese baitfish surveys in western and southwestern Pacific Ocean
 - equatorial oceanic waters, C 408:84
 - Papua New Guinea, C 408:81
 - South Pacific islands, C 408:84
- reevaluation of fishing effort and apparent abundance in Hawaiian fishery, 1948-70
 - catch reports, FB 74:60
 - comparison of catch per effective trip and catch per day fished, FB 74:62
 - differences in catch per effective trip between vessel classes, between areas, and among years, FB 74:64
 - fishing areas, FB 74:61
 - interrelation of total catch, fishing intensity, and apparent abundance, FB 74:67
 - measures of apparent abundance and fishing intensity, FB 74:66
 - relation between catch per day fished and catch per effective trip, FB 74:64
 - reporting of zero-catch trips, FB 74:60
 - sources of variability in fishing power among vessels, FB 74:60
 - standardization of catch per day fished, FB 74:66
 - vessels, classes of, FB 74:61
- relationships amongst catch, bait catch, and lunar cycle in Papua New Guinea
 - annual variations in number of days lost due to failure to catch bait, C 408:106
 - influence of amount of bait held on tuna catch and catch per bucket, C 408:110
 - influence of moon phase on daily average catch of bait, C 408:109
 - influence of moon phase on tuna and tuna catch per bucket of bait, C 408:111
 - variation according to moon phase in number of days lost due to failure to catch bait, C 408:108
- review on use of live baitfishes to capture in Pacific Ocean
 - baitfish behavior, C 408:9
 - baitfish evaluation, C 408:13
 - baitfish families, C 408:14
 - body coloration, C 408:9
 - body form, C 408:9
 - body length, C 408:9
 - schooling behavior, C 408:11
 - survival in captivity, C 408:11
 - tropical Pacific, C 408:149
 - temperature and oxygen requirements, FB 76:653
- Tuna, yellowfin
 - Atlantic, eastern tropical
 - length composition, caught by American purse seiners, S 702
 - Atlantic Ocean fishery, 1956-75
 - catch rates, MFR 39(12):2, 5
 - longline fishery, MFR 39(12):2
 - size composition, MFR 39(12):3, 7
 - stock, state of, MFR 39(12):8
 - surface fishery, MFR 39(12):3
 - energetics model for an exploited population
 - food as a population regulator, FB 74:46
 - population dynamics, FB 74:37
 - spawning survival versus population biomass, FB 74:47
 - total drag determination, FB 74:41
 - velocity determination, FB 74:41
 - heat exchange in, and adaptive significance of elevated body temperature
 - adaptive significance, FB 73:226
 - body temperatures, FB 73:221
 - comparisons within genus *Thunnus*, FB 73:225
 - differences in heat exchangers, FB 73:224
 - heat-exchange structure and red muscle distribution, FB 73:222
 - thermal profile, FB 73:225

- Pacific, eastern
 - catch-effort data, analysis of, FB 76:523
 - purse seine fishery
 - porpoise rescue methods, MFR 39(5):1
 - theoretical examination of interaction between longline and surface fisheries
 - availability of stock to gear, FB 76:809
 - effects of age-specific sex ratios on yield per recruit to gear and stock fecundity, FB 76:813
 - simulation model of dispersal and recruitment patterns, FB 76:816
 - Tuna baitfish
 - distribution and abundance in Papua New Guinea waters, C 408:89
 - observations on, in Ponape lagoon, C 408:75
 - Palau Islands
 - observations of species and their habitats, C 408:69
 - Papua New Guinea
 - appraisal of live-bait potential and handling characteristics, C 408:95
 - summary of workshop
 - criteria of good baitfish species, C 408:1
 - cultured stocks, C 408:3
 - natural stocks, C 408:2
 - transporting, holding, and substitute baits, C 408:5
 - tuna fishing and baitfish problem, C 408:1
 - Tuna fishery
 - Pacific, eastern tropical
 - relationship to sea surface temperatures during 1975, C 416:169
 - Tuna industry
 - San Diego
 - employment impact on the local economy, MFR 40(7):5
 - Tunas
 - food of, in western North Atlantic
 - invertebrate, S 706
 - vertebrate, S 706
 - Turbot, C-O
 - early development in eastern North Pacific
 - developmental stages, description, FB 77:116
 - egg description, FB 77:107
 - Turbot, curlfin
 - early development in eastern North Pacific
 - developmental stages, description, FB 77:111
 - egg description, FB 77:107
 - Turbot, diamond
 - early development in eastern North Pacific
 - developmental stages, description, FB 77:132
 - egg description, FB 77:108
 - Turbot, Greenland
 - resource in Bering Sea and Aleutian Islands, MFR 41(11):20
 - Turbot, gulf
 - early development in eastern North Pacific
 - developmental stages, description, FB 77:126
 - egg description, FB 77:107
 - Turbot, hornyhead
 - early development in eastern North Pacific
 - developmental stages, description, FB 77:120
 - egg description, FB 77:107
 - Turbot, spotted
 - early development in eastern North Pacific
 - developmental stages, description, FB 77:127
 - egg description, FB 77:107
 - Turkey
 - fed tuna oil with and without α -tocopherol supplement or injection
 - effects of cooking in air or nitrogen on development of fishy flavor in breast meat, FB 74:89
 - Tursiops truncatus*—see Dolphin, bottlenose
 - Turtle—see Sea turtle
 - Turtle, green sea
 - herpesvirus disease
 - clinical and histological picture, MFR 40(3):34
 - farm facilities and operation, MFR 40(3):33
 - gray-patch disease development, MFR 40(3):36
 - isolation attempts, MFR 40(3):37
 - presence of virus in lesions, MFR 40(3):35
 - temperature effect, MFR 40(3):36
 - transmission studies, MFR 40(3):35
 - vaccination attempts with virus, MFR 40(3):37
 - virus origin, MFR 40(3):36
 - Tychoplankton
 - Sullivan Harbor, Maine
 - bloodworm, tycho planktonic, FB 76:480
- U
- Uca pugilator*—see Crab, fiddler
 - United States
 - Atlantic coast
 - marine environmental conditions January 1977-March 1978, MFR 41(5-6):35
 - coasts
 - marine environmental conditions January 1977-March 1978, MFR 41(5-6):32
 - commercial fisheries industry
 - foreign direct investment, MFR 38(12):23
 - continental shelf and slope, eastern coast
 - Ceriantharia, Zoanthidea, Corallimorpharia, and Actinaria, FB 74:857
 - Gulf coast
 - marine environmental conditions January 1977-March 1978, MFR 41(5-6):35
 - northeast coast
 - foreign squid fishery, MFR 41(7):1
 - northeast coast, 1975
 - sea scallop resources, MFR 40(2):19
 - observers board Japanese trawl vessels in Bering Sea, MFR 38(4):1
 - Pacific and Bering Sea coasts
 - Soviet fisheries for bottomfish and herring, MFR 38(12):1
 - Pacific coast
 - marine environmental conditions January 1977-March 1978, MFR 41(5-6):48
 - west coast
 - oceanographic conditions, summer 1977, MFR 40(2):24
 - United States, east coast
 - bluefish
 - sources and distribution of larvae and juveniles off, FB 77:213
 - United States, northeastern
 - anticyclonic Gulf Stream eddies during 1976, C 427:259
 - Arthropoda: Cirripedia, C 425
 - Cnidaria: Scyphozoa from coastal waters, C 397

Copepoda: cyclopoids parasitic on fishes, C 409
 Copepoda: Harpacticoida from New Jersey to Maine, C 399
 Copepoda: Lernaepodidae and Sphyridae, C 406
 Crustacea: Branchiura, C 413
 Crustacea: Cumacea, C 423
 fungi of intertidal zone
 Ascomycetes, C 398
 Basidiomycetes, C 398
 Deuteromycetes, C 398
 Protozoa: Sarcodina: Amoebae, C 419
 Tardigrada of marine coastal areas, C 394
 United States, northeastern coast
 fisheries, mixed species
 linear programming simulations of effects of bycatch on
 management, FB 76:851
 United States, south-central
 warmwater fish farms
 disease incidence, MFR 40(3):38
 United States, southeastern
 shrimp fisheries
 trawl, developing selective shrimp, MFR 39(10):18
 United States, west coast
 oceanic conditions between Hawaiian Islands and, 1975,
 C 416:151
 Upwelling, coastal
 North America, western, 1975, C 416:141
 Upwelling, coastal indices
 North America, west coast
 daily and weekly, 1967-73, S 693
Urophycis chuss—see Hake, red
Urophycis tenuis—see Hake, white
Urosporidium
 cell structure
 haplosporosomes, MFR 41(1-2):27
 organelles, other, MFR 41(1-2):32
 sporulation, MFR 41(1-2):33

V

Vaccine
 development and immunity
 bacterial, inactivated, MFR 40(3):3
 bacterial, modified live, MFR 40(3):3
 cell line, stable, MFR 40(3):4
 fish vaccines, MFR 40(3):4
 immunity types, MFR 40(3):2
 inactivated vs. live, MFR 40(3):2
 vaccine types, MFR 40(3):2
 viral, MFR 40(3):3
 Vacuum heat thawing
 frozen fishery products, MFR 37(7):18
 Vancouver Island, British Columbia
 Cottus aleuticus and *Cottus asper*
 populations of sympatric in four adjacent salmon-pro-
 ducing coastal streams, FB 74:131
 currents, seasonal surface off coast
 shown by drift bottle experiments, 1964-65, S 699
 oceanographic conditions, summer 1977, MFR 40(2):24
 Venezuela
 culture of mussels and mangrove oysters, MFR 37(1):15
 Vertebrate pathology
 comparison with invertebrate pathology, MFR 38(10):46

Vessels

Japanese trawl
 U.S. observers board in Bering Sea, MFR 38(4):1
 offshore headboats, fishing in North and South Carolina,
 MFR 38(3):13
 shrimp, increasing costs in Gulf of Mexico, 1971-75, MFR
 38(3):8

Vessels, shrimp

South Carolina
 fishing effort, MFR 41(4):11
 opportunity wages, MFR 41(4):11
 productivity, MFR 41(4):10
 profitability, MFR 41(4):8

Vibrio species, presumptive
 ulcer cause in flatfish, MFR 40(10):5

Vibrios

Puget Sound, Washington
 isolation and description of two, pathogenic to Pacific
 salmon, FB 74:447

Vibriosis

immunization of salmonids for control, MFR 40(3):20
 Puget Sound, Washington
 salmon, marine cultured, MFR 40(3):52
 salmon vaccination procedures, MFR 40(3):24
 salmon, coho
 resistance of different stocks and transferrin genotypes,
 FB 77:795
 salmonids
 Maine and New Hampshire, MFR 40(10):9
 trout, steelhead
 resistance of different stocks and transferrin genotypes,
 FB 77:795

Vinciguerria lucetia

inverse correlation between meristic characters and food
 supply, FB 73:288

Vinciguerria nimbaria

inverse correlation between meristic characters and food
 supply, FB 73:289

Viral diseases

catfish, channel
 phosphonoacetic acid inhibition of, MFR 40(10):24
 Cod, Atlantic
 piscine erythrocytic necrosis (PEN), MFR 40(10):16
 crab, blue, MFR 40(10):13
 mollusks, marine, MFR 40(10):18
 salmonids, MFR 40(10):21

Virgin Islands, U.S.

ciguatera problem, MFR 39(8):14
Portunus spinimanus
 resource potential, MFR 40(7):12

Virginia

clam, surf
 useable meat yields, FB 75:640
 culture of bay scallop in, MFR 37(1):19
 James River
 reproduction and recruitment of *Rangia cuneata*, FB
 73:412
 sciaenids, juvenile
 life history, feeding habits, and functional morphology in
 the York River estuary, FB 75:657

Virus research
catfish, channel
recent developments, MFR 40(10):12

W

Wainwright, Alaska
whale, bowhead
1976 catch by Eskimos, MFR 40(11):23
Wales, Alaska
whale, bowhead
1976 catch by Eskimos, MFR 40(11):22
Walleye
eggs and larvae
survival rates, in relation to impact assessments, MFR 41(3):1
Washington
crab
short-term thermal resistance of zoeae from Puget Sound, FB 75:555
crab, Dungeness
intertidal harvest, estimation, FB 77:287
currents, seasonal surface off coast
shown by drift bottle experiments, 1964-65, S 699
leeches, piscivorous
records of, Columbia River, FB 76:926
oceanographic conditions, summer 1977, MFR 40(2):24
otter trawl fisheries in northeast Pacific
energy efficiency comparison with Japan, MFR 37(4):21
perch, Pacific ocean
population biology and response to fishing, FB 75:369
Puget Sound
eelgrass beds, importance of, MFR 39(11):18
shad, American, history of commercial fishery, MFR 40(2):29
Wastes—see Pollution
Water diversions
west coast, particularly the Pacific Northwest
fishery resources, effects on, MFR 38(11):46
Water reuse systems
environmental parameters affecting fish physiology, MFR 40(10):46
Weakfish
New York Bight fishery resource, C 401
reproductive biology in North Carolina, FB 74:18
West Bay, Texas
macrocrustaceans, abundance in a natural marsh and a marsh altered by dredging, bulkheading, and filling, FB 74:195
West coast
fishery resources
water diversion, effects of, MFR 38(11):46
West Indies
fish traps, mesh selectivity of, MFR 40(7):15
Whale, blue
Pacific, northeastern tropical
recent sightings, FB 76:915
Whale, bowhead
Alaska field studies, 1975
autumn whaling, MFR 38(8):16
migration, MFR 38(8):15
spring whaling, MFR 38(8):10

utilization, MFR 38(8):14
whaling effort, MFR 38(8):14
whaling methods, MFR 38(8):12
whaling villages, MFR 38(8):10
1976 catch by Alaskan Eskimos
autumn whaling, MFR 40(11):25
effort, MFR 40(11):23
spring whaling, MFR 40(11):21
utilization, MFR 40(11):20
whaling methods, MFR 40(11):19
utilization of
animal traps and spears, MFR 38(8):19
arts and crafts, MFR 38(8):21
commercial products, MFR 38(8):18
Eskimo implements, MFR 38(8):19
food, MFR 38(8):18
heat, MFR 38(8):18
light, MFR 38(8):18
toys, MFR 38(8):21
Whale, fin
Atlantic, northwest
feeding on the American sand lance, FB 77:285
Whale, gray
Baja California, southern
behavior, aerial, FB 75:165
behavior, aggressive, FB 75:169
buoyancy and respiration, FB 75:167
feeding, FB 75:169
observation studies, FB 75:164
phonation, FB 75:170
population segregation, FB 75:169
thigmotaxis, FB 75:166
tracking studies, FB 75:162
juvenile, surface feeding, FB 76:290
Whale, humpback
Atlantic, northwest
feeding on the American sand lance, FB 77:185
Hawaii census, 1976
aerial photography, MFR 39(7):2
color phases, MFR 39(7):4
distribution and abundance, MFR 39(7):2
group size and behavior, MFR 39(7):3
interference with activities, MFR 39(7):4
vessels, MFR 39(7):1
Whale, melon-headed
Pacific, eastern
first record in, with summary of world distribution, FB 74:457
Whale, pilot
Florida and South Carolina
strandings, FB 77:511
Whales
assessment of North Pacific stocks
current status of stocks, MFR 37(10):2
future research needs, MFR 37(10):3
IWC action on proposed whaling moratorium, MFR 37(10):3
modern whaling in North Pacific, MFR 37(10):1
recent research on sei whales, MFR 37(10):3
identification guide to western North Atlantic
Antillean beaked, C 396
Atlantic pilot, C 396

beluga, C 396
 blue, C 396
 bowhead, C 396
 Bryde's, C 396
 dense-beaked, C 396
 dwarf sperm, C 396
 false killer, C 396
 fin, C 396
 goosebeaked, C 396
 grampus, C 396
 humpback, C 396
 killer, C 396
 many-toothed blackfish, C 396
 minke, C 396
 narwhal, C 396
 North Sea beaked, C 396
 northern bottlenosed, C 396
 pygmy killer, C 396
 pygmy sperm, C 396
 right, C 396
 sei, C 396
 short-finned pilot, C 396
 sperm, C 396
 True's beaked, C 396
 Whelk, channeled
 New York Bight fishery resource, C 401
 Whelk, knobbed
 New York Bight fishery resource, C 401
 Whirling disease
 salmonids, susceptibility studies of, MFR 40(10):30
 Whitefish, Alaska
 feeding during spawning run, FB 75:234
 Whiting
 description, MFR 41(11):30
 Whiting, blue
 description, MFR 41(11):32
 Willamette River
 concentration of dissolved gases, 1970-72, D 102
 Windowpane
 Cape Cod, Massachusetts, to Cape Lookout, North Carolina, 1965-66
 seasonal distributions of larval on continental shelf, S 691
 Wisconsin, northern
 brook trout, wild
 production by three populations with emphasis on influence of recruitment rates, FB 75:751
 Woods, Charles
 chemical composition of fish, MFR 40(7):1

X

Xiphias gladius—see Swordfish

Y

Yaquina Bay, Oregon
 fish larvae
 coastal and oceanic in an upwelling area off, FB 75:125
 Yarmouth, Nova Scotia
 temperature structure between, and Bar Harbor, Maine, June 1975-November 1976, S 726

Yoldia scissurata

invertebrates, midwater
 Chukchi Sea, southeastern, September-October 1970, S 710
 York River estuary, Virginia
 sciaenid fishes, juvenile
 life history, feeding habits, and functional morphology, FB 75:657

Z

Zalembius rosaceus—see Surfperch, pink
 Zebrafish
 pheromonal stimulation and metabolite inhibitor of ovulation in, FB 73:889
 Zoanthidea
 continental shelf and slope, U.S. east coast
 Epizoanthus incrustatus, FB 74:858
 Zoeae
 Puget Sound, Washington
 crabs, short-term thermal resistance of, FB 75:555
 Zooplankters
 Kure and Midway Atolls, Hawaii
 emerge from lagoon floor at night, FB 75:275
 Santa Catalina Island
 trophic interactions with fishes, FB 74:567
 Zooplankton
 abundance of, and feeding habits of pink and chum salmon fry in Traitors Cove, Alaska, FB 73:846
 biomass distribution variability in Sargasso Sea
 biomass, regional, FB 76:325
 biomass structure, ring, FB 76:331
 biomass structure, shallow, FB 76:329
 diel migration, FB 76:328
 organic flux to deep sea, FB 76:332
 regional contribution of Gulf Stream cold core rings, FB 76:329
 vertical structure, FB 76:328, 330
 California Current, annual fluctuations in biomass, 1955-59
 data processing methods, FB 75:358
 geographical distribution, FB 75:359
 year-to-year fluctuations, FB 75:361
 California Current, central region
 density, vertical range, and diel movement, FB 74:925
 Mid-Atlantic Bight, 1976, C 427:337
 New York Bight
 composition, abundance, and distribution of, FB 77:669
 Oregon coast, central
 seasonal cycle of abundance and species composition, FB 75:717
 production, and ammonia excretion in Kuroshio and adjacent seas
 biomass, habitat temperature, and size distribution, FB 76:357
 feeding and production estimates, FB 76:361
 mortality loss during production, FB 76:362
 ratio of herbivores to carnivores, FB 76:363
 respiration and ammonia excretion, FB 76:360
 relationships between displacement volume, wet weight, dry weight, and carbon
 theoretical consideration, FB 73:777

seasonal abundance and distribution, 1972-74

Gulf of Mexico, eastern, S 701

Zoothamnium sp.

parasitic on penaeid shrimp in Gulf of Mexico and South
Atlantic, FB 76:17

Zostera marina—see Eelgrass

NOAA TECHNICAL REPORTS

NMFS Circular and Special Scientific Report—Fisheries

Guidelines for Contributors

CONTENTS OF MANUSCRIPT

First page. Give the title (as concise as possible) of the paper and the author's name, and footnote the author's affiliation, mailing address, and ZIP code.

Contents. Contains the text headings and abbreviated figure legends and table headings. Dots should follow each entry and page numbers should be omitted.

Abstract. Not to exceed one double-spaced page. Footnotes and literature citations do not belong in the abstract.

Text. See also Form of the Manuscript below. Follow the *U.S. Government Printing Office Style Manual*, 1973 edition. Fish names, follow the American Fisheries Society Special Publication No. 6, *A List of Common and Scientific Names of Fishes from the United States and Canada*, third edition, 1970. Use short, brief, informative headings in place of "Materials and Methods."

Text footnotes. Type on a separate sheet from the text. For unpublished or some processed material, give author, year, title of manuscript, number of pages, and where it is filed—agency and its location.

Personal communications. Cite name in text and footnote. Cite in footnote: John J. Jones, Fishery Biologist, Scripps Institution of Oceanography, La Jolla, CA 92037, pers. commun. 21 May 1977.

Figures. Should be self-explanatory, not requiring reference to the text. All figures should be cited consecutively in the text and their placement, where first mentioned, indicated in the left-hand margin of the manuscript page. Photographs and line drawings should be of "professional" quality—clear and balanced, and can be reduced to 42 picas for page width or to 20 picas for a single-column width, but no more than 57 picas high. Photographs and line drawings should be printed on glossy paper—sharply focused, good contrast. Label each figure. DO NOT SEND original figures to the Scientific Editor; NMFS Scientific Publications Office will request these if they are needed.

Tables. Each table should start on a separate page and should be self-explanatory, not requiring reference to the text. Headings should be short but amply descriptive. Use only horizontal rules. Number table footnotes consecutively across the page from left to right in Arabic numerals; and to avoid confusion with powers, place them to the *left* of the numerals. If the original tables are typed in our format and are clean and legible, these tables will be reproduced as they are. In the text all tables should be cited consecutively and their placement, where first mentioned, indicated in the left-hand margin of the manuscript page.

Acknowledgments. Place at the end of text. Give credit only to those who gave exceptional contributions and *not* to those whose contributions are part of their normal duties.

Literature cited. In text as: Smith and Jones (1977) or (Smith and Jones 1977); if more than one author, list according to years (e.g., Smith 1936; Jones et al. 1975; Doe 1977). All papers referred to in the text should be listed alphabetically by the senior author's surname under the heading "Literature Cited"; only the author's surname and initials are required in the author line. The author is responsible for the accuracy of the literature citations. Abbreviations of names of periodicals and serials should conform to *Biological Abstracts List of Serials with Title Abbreviations*. Format, see recent SSRF or Circular.

Abbreviations and symbols. Common ones, such as mm, m, g, ml, mg, °C (for Celsius), %, ‰, etc., should be used. Abbreviate units of measures only when used with numerals; periods are rarely used in these abbreviations. But periods are used in et al., vs., e.g., i.e., Wash. (WA is used only with ZIP code), etc. Abbreviations are acceptable in tables and figures where there is lack of space.

Measurements. Should be given in metric units. Other equivalent units may be given in parentheses.

FORM OF THE MANUSCRIPT

Original of the manuscript should be typed double-spaced on white bond paper. Triple space above headings. Send good duplicated copies of manuscript rather than carbon copies. The sequence of the material should be:

FIRST PAGE

CONTENTS

ABSTRACT

TEXT

LITERATURE CITED

TEXT FOOTNOTES

APPENDIX

TABLES (provide headings, including "Table" and Arabic numeral, e.g., Table 1.--, Table 2.--, etc.)

LIST OF FIGURE LEGENDS (entire legend, including "Figure" and Arabic numeral, e.g., Figure 1.--, Figure 2.--, etc.)

FIGURES

ADDITIONAL INFORMATION

Send ribbon copy and two duplicated copies of the manuscript to:

Dr. Carl J. Sindermann, Scientific Editor
Northeast Fisheries Center Sandy Hook Laboratory
National Marine Fisheries Service, NOAA
Highlands, NJ 07732

Copies. Fifty copies will be supplied to the senior author and 100 to his organization free of charge.

UNITED STATES
DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL MARINE FISHERIES SERVICE
SCIENTIFIC PUBLICATIONS STAFF
ROOM 336
1700 WESTLAKE AVENUE N.
SEATTLE, WA 98109
OFFICIAL BUSINESS

PENN STATE UNIVERSITY LIBRARIES
A000072019191
POSTAGE AND FEES PAID
U.S. DEPARTMENT OF COMMERCE
COM-210

THIRD CLASS
BULK RATE

NOAA SCIENTIFIC AND TECHNICAL PUBLICATIONS

The National Oceanic and Atmospheric Administration was established as part of the Department of Commerce on October 3, 1970. The mission responsibilities of NOAA are to assess the socioeconomic impact of natural and technological changes in the environment and to monitor and predict the state of the solid Earth, the oceans and their living resources, the atmosphere, and the space environment of the Earth.

The major components of NOAA regularly produce various types of scientific and technical information in the following kinds of publications:

PROFESSIONAL PAPERS — Important definitive research results, major techniques, and special investigations.

CONTRACT AND GRANT REPORTS — Reports prepared by contractors or grantees under NOAA sponsorship.

ATLAS — Presentation of analyzed data generally in the form of maps showing distribution of rainfall, chemical and physical conditions of oceans and atmosphere, distribution of fishes and marine mammals, ionospheric conditions, etc.

TECHNICAL SERVICE PUBLICATIONS — Reports containing data, observations, instructions, etc. A partial listing includes data serials; prediction and outlook periodicals; technical manuals, training papers, planning reports, and information serials; and miscellaneous technical publications.

TECHNICAL REPORTS — Journal quality with extensive details, mathematical developments, or data listings.

TECHNICAL MEMORANDUMS — Reports of preliminary, partial, or negative research or technology results, interim instructions, and the like.

Information on availability of NOAA publications can be obtained from:

**ENVIRONMENTAL SCIENCE INFORMATION CENTER (D822)
ENVIRONMENTAL DATA AND INFORMATION SERVICE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
U.S. DEPARTMENT OF COMMERCE**

**6009 Executive Boulevard
Rockville, MD 20852**