Eighty-four species of fishes, representing 46 families, were captured. The number and length range of each species by month are presented for the areas from which it was caught. Also included are the salinity and temperature ranges at capture. Four species were not previously recorded from Pensacola estuaries.

NOAA Technical Report NMFS CIRC-384. Moul, Edwin T., "Marine flora and fauna of the Northeastern United States. Higher plants of the marine fringe." September 1973, iii + 60 p. For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402-Price 65 cents.

#### **ABSTRACT**

The common higher plants of the beaches, dunes, morainal cliffs, and tidal marshes of Southern New England are treated in an illustrated key, using only vegetative characters. Both scientific and common names are given. Habitat lists of the plants are included, presenting to the investigator the association of plants as they occur in nature. The range of each plant along the Atlantic coast is designated. A glossary of terms is included.

Fishery Facts-5. Dudley, Shearon, J. T. Graikoski, H. L. Seagran, and Paul M. Earl, "Sportsman's guide to handling, smoking, and preserving coho salmon." June 1973, iii + 28 p. For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402-Price 25 cents PPD, 15 cents BKS.

### No Abstract

Circular 330, Volume 7. Love, Cuthbert M. (editor), "EASTROPAC Atlas." July 1973, vii + 145 figures. For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402-Price \$4.75 per volume.

## **ABSTRACT**

This atlas contains charts depicting the distribution of physical, chemical, and biological oceanographic properties and associated meteorological properties observed during EASTROPAC. EASTRO-PAC was an international cooperative investigation of the eastern tropical Pacific Ocean (20° N. to 20° S., and from the west coasts of the American continents to 119°W.) which was intended to provide data necessary for a more effective use of the marine resources of the area, especially tropical tunas, and also to increase knowledge of the ocean circulation, air-sea interaction, and ecology. The Bureau of Commercial Fisheries (now National Marine Fisheries Service) was the coordinating agency. The field work, from February 1967 through March 1968, was divided into seven 2month cruise periods. During each cruise period one or more ships were operating in the study area.

On completion of the field work the data seemed too numerous for a classical data report. Instead, it was decided to produce an 11volume atlas of the results, with five volumes containing physical oceanographic and meteorological data from the principal participating ships, five volumes containing biological and nutrient chemistry data from the same ships, and one volume containing all data from Latin American cooperating ships and ships of opportunity. Extensive use was made of a computer and automatic plotter in preparation of the atlas charts. Methods used to collect and process the data upon which the atlas is based are described in detail by the contributors of the following categories of chart: temperature, salinity, and derived quantities; thickness of the upper mixed layer; dissolved oxygen; meteorology; nutrient chemistry; phytoplankton standing stocks and production; zooplankton and fish larvae; micronekton; birds, fish schools, and marine mammals.

# Index

Marine Fisheries Review

Vol. 35, 1973

NOTE: Indexed here by author, title, and subject are the 67 signed papers which appeared in *Marine Fisheries Review* in 1973. (A list of these papers, in numerical order, appears at the end of the Index.) Anonymous notes, news articles, and regular departments are not indexed, since they are often of preliminary or ephemeral nature. The entries indexed by number and page (i.e., 7:12 indicates the July number, page 12).

"Aircraft-refueling trailer modified to haul salmon and trout," Jim R. Smith and Wesley J. Ebel, 8:37.

Alaska

Japanese fishing vessels off, 1-2:6 log-rafting, dumping areas, 5-6, 19, shrimp studies, 3-4:62, 65, sonic tags on king crabs, 7:18.

"Alterations of estuaries of south Florida: threat to its fish resources," William N. Lindall, Jr., 10:26.
Alverson, Dayton Lee—see Stansby and

Alverson

"(The) American lobster fishery: Economic analysis of alternative management strat-Frederick W. Bell and Richard F. Fullenbaum, 8:1.

Aquaculture Japan, shrimp culture, 3-4:71.

technological basis for producing low-cost food fish, 11:6.

U.S., progress toward shrimp, 3-4:67 Army and Air Force Exchange Service procedures for sales to, 7:15.

Artificial habitat effects on marine sport fishery and econ-

Ash content crustaceans, 12:18, finfish (canned), 12:17. finfish (raw), 12:17. mollusks, 12:19.

"(An) automatic pumping device for sampling postlarval shrimp (*Penaeus* spp.)," Frank Marullo, 3-4:24.

Barge, portable

Barge, portagree research, 1-2:27.
Barnett, H. J., R. W. Nelson, P. J. Hunter, A. E. Einmo, and D. N. Plant, "The overland shipment of live Dungeness crabs by self-contained van," 11:18.

self-contained van," 11:18.

Barr, Louis, "Studies of spot shrimp, Pandalus platyceros, at Little Port Walter, Alaska," 3-4:65.

Bartlett, C. J.—see Ingraham and Bartlett Baxter, Kenneth N., "Shrimp discarding by the commercial fishery in the western Gulf of Mexico," 9:26.

Baxter, Kenneth N.—see Caillouet and Baxter

"Beefish patties," by Frederick J. King and George J. Flick, 7:31. Bell, Frederick W., and Richard F. Fullen-baum, "The American lobster fishery:

Economic analysis of alternative management strategies," 8:1. Billfish

International Billfish Tourn-Hawaiian ament, 8:19.

Boies, Henry I., and Richard C. Raulerson, "Procedure for product approval and purchase: Army and Air Force Exchange Service," 7:15.

Bonnet, James C.—see Sidwell et al.

Buchanan, Chester C., "Effects of an artificial habitat on the marine sport fishery and economy of Murrells Inlet, South Carolina," 9:15.

Caillouet, Charles W., Jr., and Kenneth N. Baxter, "Gulf of Mexico shrimp resource research," 3-4:21.
Caillouet, Charles W., Jr.—see Clark and

Caillouet

Calcium content crustaceans, 12:18. finfish (canned), 12:17. finfish (raw), 12:17. mollusks, 12:19.

California Current Region

inshore sportfishes, 5-6:15. astagna, Michael, "Shipworms and other Castagna, Michael, "marine borers," 8:7.

Catfish (cultured)

proximate composition, calcium, and phosphorus content, 12:17.

Catfish (wild)

proximate composition, calcium, and phosphorus content, 12:17

Charm, S. E .- see Ronsivalli et al.

"Chemical and nutritive values of several fresh and canned finfish, crustaceans, and mollusks. Part I: Proximate composition, calcium, and phosphorus," Virginia D. Sidwell, James C. Bonnet, and Elizabeth G. Zook, 12:16.

Clams

boring, 8:11. hardshell

proximate composition, calcium, and phosphorus content, 12:19.

soft shell

proximate composition, calcium, and phosphorus content, 12:19.

proximate composition, calcium, and phosphorus content, 12:19.

Clark, Stephen H., and Charles W. Caillouet, Jr., "White shrimp (Penaeus setiferus) population trends in a tidal marsh pond, 3-4:27.

Cod

shortage, alternative sources, 11:1. slide rule for predicting shelf life of, 7:34.

Cod, Icelandic

proximate composition, calcium, and phosphorus content, 12:17.

Cod, inshore-domestic

proximate composition, calcium, and phosphorus content, 12:17.

"Collection and transportation system of juvenile salmonids evaluated at Little Goose Dam," Parker S. Trefethen and Wesley J. Ebel, 8:33.

"Comparison of salmon catches in monoand multifilament gill nets," Percy Wash-

ington, 8:13.

Contaminants, environmental effects on marine organisms, 5-6:8.

proximate composition, calcium, and phosphorus content, 12:18.

proximate composition, calcium, and phosphorus content, 12:18

Dungeness

shipment by van, 11:18.

king

sonic tags attached to, 7:18.

king (body)

proximate composition, calcium, and phosphorus content, 12:18.

king (legs)

proximate composition, calcium, and phosphorus content, 12:18.

Croaker

surimi, export opportunities, 7:27.

Crustaceans

proximate composition. calcium, and

phosphorus content, 12:18.
Cummins, Robert C., Jr., and Albert C.
Jones, "Distribution of commercial shrimp off the northeastern coast of South America," 3-4:31.

Dahlstrom, W. A., "Status of the California ocean shrimp resource and its management," 3-4:55.

ment," 3-4:55.

Dassow, J. A., and M. A. Steinberg, "The technological basis for development of aquaculture to produce low-cost food

fish," 11:6. Dickinson, William R., vessels off Alaska," 1-2:6. "Japanese fishing

"Distribution of commercial shrimp off the northeastern coast of South America, Robert C. Cummins and Albert C. Jones,

Ebel, Wesley J.—see Smith and Ebel; Trefethen and Ebel.

Eels

(elver) investigations in southeast, 5-6:45. Japanese fishery, 5-6:41.

U.S. export opportunities, 7:28.
"Effects of an artificial habitat on the marine sport fishery and economy of Murrells Inlet, South Carolina," Chester C. Buchanan, 9:15.

Einmo, A. E .- see Barnett et al.

Eldridge, Maxwell B., and W. Michael Kaill, "San Francisco Bay area's herring resource—a colorful past and a controversial future," 11:25.
Ellis, Robert J., "Preliminary biological sur-

vey of log-rafting and dumping areas in

southeastern Alaska," 5-6:19. "Elver investigations in the

southeast," Robert Topp and Richard Raulerson, 5-6:45

Emiliani, Dennis A., and Frank Marullo, "Portable barge for estuarine research," 1-2:27

Estuaries

south Florida, alterations as threat, 10:26.

"European demand helps spur New England shrimp catches," John R. Kallio, 3-4:7. "Export opportunities for U.S. fishery products," Morton M. Miller, Jukka Kolhonen, and Gregory Hall, 7:22.

"Factors in the fish picture of concern to industry and consumers," Morton M. Miller, 10:20.

Fat content

crustaceans, 12:18. finfish (canned), 12:17. finfish (raw), 12:17. mollusks, 12:19.

Finfish

canned

proximate composition, calcium, and phosphorus content, 12:18.

proximate composition, calcium, and phosphorus content, 12:18.

Fish

structure and senses, 5-6:51.

Fish attraction subsurface light source system, 10:15.

Fish marketing retailers, Ohio, 12:33.

wholesalers, Ohio, 9:31.

Fish, Pacific gel-forming capacity, 12:10.

Fish Hawk

research steamer, 11:14.

Fish roe

U.S. export opportunities, 7:27.

Fish sticks

improving supply of minced blocks for, 8.30.

"Fisheries research steamer Fish Hawk," John W. Reintjes, 11:14.

Fishery for northern shrimp, Pandalus borealis, in the Gulf of Maine," Roland L. Wigley, 3-4:9.

Fishery products beefish patties, 7:31.

kamaboko, 12:1. price spreads, 7:1.

U.S. export opportunities, 7:22. Flick, George J .- see King and Flick

Flounder, yellowtail

proximate composition, calcium, and phosphorus content, 12:17.
Folsom, William B., "Japan's eel fishery,"

Frame, David W., and Scott A. Pearce, "A survey of the sea bass fishery," 1-2:19.

Fuel shortages and fisherman, 9:22.

"Fuel shortages and the fisherman," Joseph Pileggi, 9:22

Fullenbaum, Richard F .- see Bell and Fullenbaum

"(The) future of the fisheries. I. The Seattle conference." "The future of the sheries. II. The oceans and industry," John K. Tabor. "The future of the fisheries. III. Sounding our ocean future," Robert M. White. "The future of the fisheries. IV. National fisheries policies and programs for our national needs," David Wallace 9:1.

"Gel-forming capacity of washed and un-washed flesh of some Pacific coast species of fish," George Kudo, Minoru Okada, of fish," George Kudo, Minoru Okada, and David Miyauchi, 12:10.

Gill nets

and multifilament catches, 8:13. mono-Gordy, Herbert R.—see Guthrie et al. Gribbles, 8:12.

Gross, George B., Shrimp industry of Central America, Caribbean Sea, and northern South America," 3-4:36. Gulf of Maine

shrimp fishery, 3-4:9.

Gulf of Mexico

discarding shrimp in, 9:26.

Charles W. Caillouet, Jr., and Kenneth N. Baxter, 3-4:21. 'Gulf of Mexico shrimp resource research,"

Guthrie, James F., Richard L. Kroger, Herbert R. Gordy, and Curtis W. Lewis, "The long-haul fishery of North Carolina," 12:27. long-haul fishery of North Carolina,"

Haddock (inshore)

proximate composition, calcium, phosphorus content, 12:17.

Hake

Pacific

proximate composition, calcium, and phosphorus content, 12:17 U.S. export opportunities, 7:28.

silver
U.S. export opportunities, 7:28.
Halibut, Pacific

proximate composition, phosphorus content, 12:17. calcium,

Hall, Gregory—see Miller et al.

Hawaiian International Billfish Tournament, 8:19.

Herring, Atlantic

U.S. export opportunities, 7:26. Herring

San Francisco Bay area, 11:25.

Hile, Ralph, "Structure and senses of fish," 5-6:48

Hunter, P. J .- see Barnett et al.

"Improving the supply of minced blocks for

the fish stick trade: A progress report,"
Frederick J. King, 8:26.
Ingraham, W. James, Jr., and C. J. Bartlett,
"Rapid assessment of ocean environment
aided by new shipboard STD digitizercomputer interface," 7:10.

computer interface," 7:10.
"Investigations of billfish biology at the Hawaiian International Billfish Tourna-

ment," John J. Naughton, 8:19.

Japan

eel fishery, 5-6:41. fishing vessels off Alaska, 1-2:14.

shrimp culture in, 3-4:71.
"Japan's eel fishery," William B. Folsom, 5-6:41.

"Japanese fishing vessels off Alaska," William

R. Dickinson, 1-2:6.

Jones, Albert C.—see Cummins and Jones
Joyner, Timothy, "Salmon for New England
fisheries. Part I: Historical background," 10:1

Joyner, Timothy, "Salmon for New England fisheries. Part II. Effect of the ocean en-vironment on the high seas distribution of salmon.' 10:4.

Joyner, Timothy-see Mahnken and Joyner

Kaill, W. Michael—see Eldridge and Kaill Kallio, John R., "European demand helps spur New England shrimp catches," 3-4:7.

Kamaboko

production and market for, 12:1.

"Kamaboko"—the giant among Japanese processed fishery products," Minoru Okada, David Miyauchi, and George Kudo, 12:1.

Kawasaki, Tsuyoshi, "The skipjack tuna resource (Katsuo no shigen ni tsuite),"

5-6:1

5-6:1.
King, Frederick J., "Improving the supply of minced blocks for the fish stick trade: A progress report," 8:26.
King, Frederick J., and George J. Flick, "Beefish patties," 7:31.
Kolhonen, Jukka—see Miller et al.
Konopa, Leonard J., "Marketing practices of retailers handling fish in the Akron and Cleveland areas," 12:33.

Cleveland areas," 12:33. Konopa, Leonard J., "Marketing practices of wholesalers handling fish in the Akron and Cleveland areas," 9:31.

Kramer, David, and Paul E. Smith, "Seasonal and geographic characteristics of fishery

al and geographic characteristics of fishery resources, California Current Region. IX. Inshore sportfishes," 5-6:15.

Kroger, Richard L.—see Guthrie et al. Kudo, George, Minoru Okada, and David Miyauchi, "Gel-forming capacity of washed and unwashed flesh of some Pacific coast species of fish," 12:10.

Kudo, George-see, Miyauchi, et al. and

Kudo, George-see Miyauchi et al. and Okada et al.

Learson, Robert J.—see Ronsivalli et al.

Lewis, Curtis W.—see Guthrie et al.
Lindall, William N., Jr., "Alterations of
estuaries of south Florida: A threat to its
fish resources," 10:26.
Liscom, Kenneth L., "Sonic tags in sockeye
salmon, Oncorhynchus nerka, give travel
time through metropolitan waters," 9:38.

Lobster (American) fishery

economic analysis of alternative management strategies, 8:1.

Lobster, spiny

proximate composition, calcium, and

phosphorus content, 12:18.
Long-haul fishing, 12:27.
"(The) long-haul fishery of North Carolina,"
James F. Guthrie, Richard L. Kroger,
Herbert R. Gordy, and Curtis W. Lewis,

Mackerel, Atlantic

U.S. export opportunities, 7:29.

Mahnken, Conrad, and Timothy Joyner,

"Pacific salmon for New England. Part III: Developing a coastal fishery for Pacific salmon," 10:9. Marine borers, 8:7.

'Marketing practices of retailers handling fish in the Akron and Cleveland areas," Leonard J. Konopa, 12:33.

"Marketing practices of wholesalers handling fish in the Akron and Cleveland areas, Leonard J. Konopa, 9:31.

Marlin, blue

Hawaiian International Billfish Tournament, 8:19.

Marlin, striped Hawaiian International Billfish Tourna-

ment, 8:19.

Marullo, Frank, "An automatic pumping device for sampling postlarval shrimp

(Penaeus spp.)," 3-4:24. Marullo, Frank—see Emiliani and Marullo 'Menhaden tagging and recovery: Part I-Field methods for tagging menhaden, genus *Brevoortia*," Paul J. Pristas and Thurman D. Willis, 5-6:31.

"Menhaden tagging and recovery: Part II— Recovery of internal ferromagnetic tags used to mark menhaden, genus Brevoortia,

R. O. Parker, Jr., 5-6:36.

Miller, Morton M., "Factors in the fish picture of concern to industry and consumers, 10:20.

Miller, Morton M., Jukka Kolhonen, and Gregory Hall, "Export opportunities for U.S. fishery products," 7:22.

Mineral content crustaceans, 12:18.

crustaceans, 12:18. finfish (canned), 12:17. finfish (raw), 12:17. mollusks, 12:19. Miyauchi, David, George Kudo, and Max Patashnik, "Surimi—a semi-processed wet fish protein," 12:7.

Miyauchi, David-see Kudo et al.; Okada

Mock, C. R., "Shrimp culture in Japan," 3-4:71.

Moisture content crustaceans, 12:18 finfish (canned), 12:17. finfish (raw), 12:17. mollusks, 12:19.

Mollusks ash content, 12:19. calcium content, 12:19 fat content, 12:19. mineral content, 12:19. moisture content, 12:19. nutritive values, 12:19. phosphorus content, 12:19. protein content (crude), 12:19. proximate composition. calcium, and phosphorus content, 12:19.

Monan, Gerald E., and Donald L. Thorne, "Sonic tags attached to Alaska king crab,"

U.S. export opportunities, 7:27.

U.S. export opportunities, 7:29.

Naughton, John J., "Investigations of billfish biology at the Hawaiian International Billfish Tournament," 8:19. Neal, Richard A., "Progress toward farming shrimp in the United States," 3-4:67. Nelson, R.W.—see Barnett et al. North Carolina

long-haul fishery, 12:27.

"Northwest Atlantic squids," Warren F. Rathjen, 12:20.

"Northwest Fishery Center research on effects of environmental contaminants on marine organisms," Maurice E. Stansby and Dayton Lee Alverson, 5-6:8.

Nutritive values crustaceans, 12:18 finfish (canned), 12:17. finfish (raw), 12:17. mollusks, 12:19.

Okada, Minoru, David Miyauchi, and George Kudo, "'Kamaboko'—the giant among Japanese processed fishery products," 12:1.

Okada, Minoru—see Okada et al. Olsen, James C., "Pandalid shrimp life history research at Kachemak Bay, Alaska,"

3-4:62.

sablefish, 9:27.

"(The) overland shipment of live Dungeness crabs by self-contained van," H. J. Barnett, R. W. Nelson, P. J. Hunter, A. E. Einmo, and D. N. Plant, 11:18.

Oysters (Long Island)

proximate composition, phosphorus content, 12:19. calcium, and

Oysters (Maryland and Virginia) proximate composition, calcium, and phosphorus content, 12:19.

"Pandalid shrimp life history research at Kachemak Bay, Alaska," James C. Olsen; 3-4:62.

Parker, R. O., Jr., "Menhaden tagging and recovery: Part II—Recovery of internal ferromagnetic tags used to mark menhaden, genus *Brevoortia*," 5-6:36.

Parks, Norman B., "Results of comparative

trawl and trap fishing off Oregon for sable-

fish, Anoplopoma fimbria," 9:27.
Patashnik, Max—see Miyauchi et al.
Pearce, Scott A.—see Frame and Pearce
Penn, Erwin S., "Price spreads of fish products among producers and distributors,

Perch, ocean

proximate composition, calcium, and phosphorus content, 12:17.

Phosporus content crustaceans, 12:18

crustaceans, 12:18.
finfish (canned), 12:17.
finfish (raw), 12:17.
mollusks, 12:19.
Pileggi, Joseph, "Fuel shortages and the fisherman," 9:22.
Plant, D. N.—see Barnett et al.

Pole-and-line fishing

for tuna, Pacific, 1-2:31. Pollock

proximate composition, calcium, and phosphorus content, 12:17.
U.S. export opportunities, 7:30.

'Portable barge for estuarine research," Denis A. Emiliani and Frank Marullo, "Preliminary biological survey of log-rafting

and dumping areas in southeastern Alaska, Robert J. Ellis, 5-6:19.
"Price spreads of fish products among

producers and distributors," Erwin S Penn, 7:1. Pristas, Paul J., and Thurman D. Willis,

'Menhaden tagging and recovery: Part I-Field methods for tagging menhaden, genus Brevoortia," 5-6:31.

"Procedure for product approval and pur-chase: Army and Air Force Exchange Service," by Henry I. Boies and Richard

C. Raulerson, 7:15.
"Progress toward farming shrimp in the United States," Richard A. Neal, 3-4:67.
Protein content (crude)

crustaceans, 12:18. finfish (canned), 12:17. finfish (raw), 12:17. mollusks, 12:19.

Proximate composition crustaceans, 12:18. finfish (canned), 12:17. finfish (raw), 12:17. mollusks, 12:19.

"Rapid assessment of ocean environment aided by new shipboard STD digitizer-computer interface," W. James Ingraham, Jr., and C. J. Bartlett, 7:10. athjen, Warren F., "Northwest Atlantic

Rathjen, Warren F., squids," 12:20.

Raulerson, Richard C .- see Boies and Raulerson; Topp and Raulerson.

Reintjes, John W., "Fisheries research steamer Fish Hawk," 11:14.

"Results of comparative trawl and trap fishing off Oregon for sablefish, *Anoplopoma fimbria*," Norman B. Parks, 9:27.

Rockfish, Pacific

proximate composition, calcium, and phosphorus content, 12:17.
Roedel, Philip M., "Shrimp '73—A billion dollar business," 3-4:1.
Ronsivalli, L. J., Robert J. Learson, and S. E. Charm, "Slide rule for predicting shelf life of cod," 7:34.

Sablefish

comparative fishing for, Oregon, 9:27.

Sailfish

Hawaiian International Billfish Tournament, 8:19.

"Salmon for New England fisheries. Part I. Historical background," Timothy Joyner,

"Salmon for New England fisheries. Part II. Effect of the ocean environment on the high seas distribution of salmon," Timothy Joyner, 10:4.

'Salmon for New England fisheries. Part III. Developing a coastal fishery for Pacific salmon," Conrad Mahnken and Timothy Joyner, 10:9.

Salmon

for New England, 10:1. transportation of juveniles, 8:34, 37

U.S. export opportunities, 7:23. Salmon, sockeye

tags give travel time, 9:38. Salmon, sockeye (canned)

proximate composition, phosphorus content, 12:17 calcium, and

'San Francisco Bay area's herring resource-A colorful past and a controversial future," Maxwell B. Eldridge and W. Michael Kaill, 11:25.

Scallops bay

proximate composition, calcium, and phosphorus content, 12:19.

proximate composition, calcium, and phosphorus content, 12:19.

proximate composition. calcium, and phosphorus content, 12:19.

Sea bass black

survey of fishery, 1-2:19. rock

survey of fishery, 1-2:19.

U.S. export opportunities, 7:30.

Sea urchin

"Seasonal and geographic characteristics of

Seasonal and geographic characteristics of fishery resources, California Current Region: IX. Inshore sportfishes," David Kramer and Paul E. Smith, 5-6:15. Seidel, Wilber R.—see Wickham and Seidel "(A) self-contained subsurface light source system for fish attraction," Donald A. Wickham and Wilber P. Seidel, 10:14 Wickham and Wilber R. Seidel, 10:14.

Shipworms, 8:7

'Shipworms and other marine borers,"

Michael Castagna, 8:7.

Shortbill spearfish Hawaiian International Billfish Tournament, 8:19.

Shrimp

billion dollar business, 3-4:1.

California resource, 3-4:57. Central America, Caribbean Sea, and northern South America, 3-4:36. culture in Japan, 3-4:71

discarding in Gulf of Mexico, 9:26. European demand for northern, 3-4:7 farming, U.S. progress toward, 3-4:67

Gulf of Mexico resource research, 3-4:21 northern, fishery for, 3-4:9.

pandalid research, Alaska, 3-4:62. population trends in tidal marsh, 3-4:27.

prospects for 1970's, 5-6:23, pumping device for, 3-4:24.

research at Gulf Coastal Fisheries Center Galveston Laboratory, 3-4:19.

South America, northeastern, 3-4:31. spot, Alaska, 3-4:65.

U.S. export opportunities, 7:24. Shrimp, Alaskan

proximate composition, phosphorus content, 12:18.

Shrimp, Asian

proximate composition, phosphorus content, 12:18.

Shrimp, brown

proximate composition. phosphorus content, 12:18

Shrimp, Maine

proximate composition, phosphorus content, 12:18

Shrimp, Mexican

proximate composition, phosphorus content, 12:18. and

Shrimp, white

proximate composition, calcium, and phosphorus content, 12:18.

South Atlantic

proximate composition, calcium, and phosphorus content, 12:18.

"Shrimp culture in Japan," C. R. Mock,

'Shrimp discarding by the commercial fish-ery in the western Gulf of Mexico," Ken-

neth N. Baxter, 9:26.
"Shrimp industry of Central America, Caribbean Sea, and northern South America," George B. Gross, 3-4:36.

"Shrimp research at the Galveston Laboratory of the Gulf Coastal Fisheries Center, Robert F. Temple, 3-4:16. "Shrimp '73—A billion dollar business,

Philip M. Roedel, 3-4:1

Sidwell, Virginia D., James C. Bonnet, and Elizabeth G. Zook, "Chemical and nutri-tive values of several fresh and canned finfish, crustaceans, and mollusks. Part I: Proximate composition, calcium, and phosphorus," 12:16.

"(The) skipjack tuna resource (Katsuo no shigen ni tsuite)," Tsuyoshi Kawasaki, 5-6:1.

"Slide rule for predicting shelf life of cod," L. J. Ronsivalli, Robert J. Learson, and S. E. Charm, 7:34.

Smith, Jim R., and Wesley J. Ebel, "Aircraftrefueling trailer modified to haul salmon and trout," 8:37. Smith, Paul E.—see Kramer and Smith

Snapper, red

proximate composition, calcium, and

phosphorus content, 12:17.
"Sonic tags attached to Alaska king crab,"
Gerald E. Monan and Donald L. Thorne, 7:18.

"Sonic tags in sockeye salmon, Oncorhynchus nerka, give travel time through metro-politan waters," Kenneth L. Liscom, 9:38. South America

shrimp distribution, 3-4:31, 36.

South Carolina

artificial habitat for fishes, 9:15.

Sportfishes California Current Region, 5-6:15. Squid

northwest Atlantic, 12:23. U.S. export opportunities, 7:26.

Stansby, Maurice E., and Dayton Lee Alverson, "Northwest Fishery Center research on effects of environmental contaminants on marine organisms," 5-6:8.

'Status of the California ocean shrimp resource and its management," W. A. Dahlstrom, 3-4:55.

STD

digitizer-computer interface, 7:10.

Steinberg, M. A.—see Dassow and Steinberg "Structure and senses of fish," Ralph Hile, 5-6:48

"Studies of spot shrimp, Pandalus platyceros, at Little Port Walter, Alaska," Louis Barr,

Sumida, R. F.—see Uchida and Sumida

Surimi-a semi-processed wet fish protein," David Miyauchi, George Kudo, and Max Patashnik, 12:7

"(A) survey of the sea bass fishery," David W. Frame and Scott A. Pearce 1-2:19.

Tabor, John K., "The future of the fisheries. II. The oceans and industry," 9:3.

"(The) technological basis for development of aquaculture to produce low-cost food fish," J. A. Dassow and M. A. Steinberg, 11:6.

Temple, Robert F., "Shrimp research at the Galveston Laboratory of the Gulf Coastal

Fisheries Center," 3-4:16.
Thorne, Donald L.—see Monan and Thorne
Topp, Robert, and Richard Raulerson, "Elver investigations in the southeast," 5-6:45. Trefethen, Parker S., and Wesley J. Ebel,

"Collection and transportation system of juvenile salmonids evaluated at Little Goose Dam," 8:33.

Trout

transportation of juveniles, 8:37. Tuna, skipiack

pole-and-line fishing trials, 1-2:31. resource in western Pacific, 5-6:1.

Tuna, yellowfin Hawaiian International Billfish Tournament, 8:19.

Tuna, yellowfin (canned in brine)

proximate composition, phosphorus content, 12:17 calcium. Tuna, yellowfin (canned in oil)

proximate composition, phosphorus content, 12:17.

"Tuna: pole-and-line fishing trials in central and western Pacific," R. N. Uchida and R. F. Sumida, 1-2:31.

Uchida, R. N., and R. F. Sumida, "Tuna: pole-and-line fishing trials in central and western Pacific," 1-2:31.

'(The) U.S. shrimp industry: Past trends and prospects for the 1970's," Donald R. Whitaker, 5-6:23.

Wallace, David, "The future of the fisheries. IV. National fisheries policies and programs for our national needs," 9:11.

Washington, Percy, "Comparison of salmon catches in mono- and multifilament gill 8:13. nets.

Whitaker, Donald R., "The U.S. shrimp industry: Past trends and prospects for the 1970's," 5-6:23.

Whitaker, Donald R., "Why the cod shortage? What are the alternatives?" 11:1.
White, Robert M., "The future of the fish-Whitaker, Donald R.,

eries. III. Sounding our ocean future," 9:7. 'White shrimp (*Penaeus setiferus*) population trends in a tidal marsh pond," Stephen H. Clark and Charles W. Caillouet, Jr., Stephen 3-4:27.

Whiting proximate composition, calcium, and

phosphorus content, 12:17.
"Why the cod shortage? What are the alternatives?" Donald R. Whitaker, 11:1.

Wickham, Donald A., and Wilber R. Seidel,

"A self-contained subsurface light source system for fish attraction," 10:14.
Wigley, Roland L., "Fishery for northern shrimp, *Pandalus borealis*, in the Gulf of Maine," 3-4:9.

Willis, Thurman D .- see Pristas and Willis

Zook, Elizabeth G.—see Sidwell et al.

# Marine Fisheries Review

# Paper Numbers, 1973

959. "Japanese fishing vessels off Alaska," William R. Dickinson, 1-2:6-18.

"A survey of the sea bass fishery," David W. Frame and Scott A. Pearce, 960 -2:19-26.

961. "Portable barge for estuarine research," Dennis A. Emiliani and Frank Marullo, 1-2:27-29.

"Tuna: Pole-and-line fishing trials in central and western Pacific," R. N. Uchida and R. F. Sumida, 1-2:31-41.
963. "Shrimp '73—A billion dollar business," Philip M. Roedel, 3-4:1-2.

"European demand helps spur New England shrimp catches," John R. Kallio, 3-4:7-8.

"Fishery for northern shrimp, Pandalus borealis, in the Gulf of Maine," Roland L. Wigley, 3-4:9-14.
"Shrimp research at the Galveston laboratory of the Gulf Coastal Fisher-

Center," Robert F. Temple, 3-4: 16-20.

967. "Gulf of Mexico shrimp resource re-search," Charles W. Caillouet, Jr. and Kenneth N. Baxter, 3-4:21-24.

968.

"An automatic pumping device for sampling postlarval shrimp (*Penaeus* spp.)," Frank Marullo, 3-4:24-26.
"White shrimp (*Penaeus* setiferus) population trends in a tidal marsh pond," Stephen H. Clark and Charles W. Coilleast La. 2, 427-29.

W. Caillouet, Jr., 3-4:27-29.
970. "Distribution of commercial shrimp off the northeastern coast of South America," Robert C. Cummins, Jr. and Albert C. Jones, 3-4:31-35.
"Shrimp industry of Central America,

Caribbean Sea, and northern South America," George B. Gross, 3-4:36-55. "Status of the California ocean shrimp

resource and its management," Dahlstrom, 3-4:55-59. W. A.

973. "Pandalid shrimp life history research at Kachemak Bay, Alaska," James C. Olsen, 3-4:62-64.

974. "Studies of spot shrimp, Pandalus platyceros, at Little Port Walter, Alaska," Louis Barr, 3-4:65-66.
975. "Progress toward farming shrimp in the United States," Richard A. Neal,

3-4:67-70.

3-4;67-70. "Shrimp culture in Japan," C. R. Mock, 3-4;71-74. "The skipjack tuna resource (Katsuo no shigen ni tsuite)," Tsuyoshi Kawasaki, 5-6;1-7. "Northwest Fishery Center research on effects of environmental contaminants on marine organisms," Maurice E. Stansby and Dayton Lee Alverson, 5-6-8-14 5-6:8-14

979. "Seasonal and geographic characteristics of fishery resources, California Current region: IX. Inshore sportfishes," David Kramer and Paul E. Smith, 5-6:15-18.

980. "Preliminary biological survey of log-rafting and dumping areas in south-eastern Alaska," Robert J. Ellis, 5-6:

"The U.S. shrimp industry: Past trends and prospects for the 1970's," Donald R. Whitaker, 5-6:23-30.
"Menhaden tagging and recovery:

Part I—Field methods for tagging menhaden, genus *Brevoortia*," Paul J. Pristas and Thurman D. Willis, 5-6: 31-35

"Menhaden tagging and recovery: Part II—Recovery of internal ferromagnetic tags used to mark menhaden, genus *Brevoortia*," R. O. Parker, Jr., 5,6,24,3 -6:36-39.

"Japan's eel fishery," William B. Folsom, 5-6:41-45.

"Elver investigations in the southeast," Robert Topp and Richard Raulerson, 5-6:45-47.

"Structure and senses of fish," Ralph Hile, 5-6:48-53.

"Price spreads of fish products among producers and distributors," Erwin S. Penn, 7: 1-9.

"Rapid assessment of ocean environ-ment aided by new shipboard STD digitizer-computer interface," W. James Ingraham, Jr., and C. J. Bart-lett, 7:10-14.

"Procedure for product approval and purchase: Army and Air Force Exchange Service," Henry I. Boies and Richard C. Raulerson, 7:15-17.

990. "Sonic tags attached to Alaska king crab," Gerald E. Monan and Donald L. Thorne, 7:18-21.

991. "Export opportunities for U.S. fishery products," Morton M. Miller, Jukka Kolhonen, and Gregory Hall, 7:22-30. 992. "Beefish patties," Frederick J. King and George J. Flick, 7:31-33.

"Slide rule for predicting shelf life of cod," L. J. Ronsivalli, Robert J. Learson, and S. E. Charm, 7:34-36.

"The American lobster fishery: Economic analysis of alternative management strategies," Frederick W. Bell and Richard F. Fullenbaum, 8:1-6.

"Shipworms and other marine borers," Michael Castagna, 8:7-12. "Comparison of salmon catches in

mono- and multifilament gill nets,

Percy Washington, 8:13-17. "Investigations of billfish biology the Hawaiian International Billfish Tournament," John J. Naughton, 8:19-25

"Improving the supply of minced blocks for the fish stick trade: A progress report," Frederick J. King,

"Collection and transportation system of Juvenile salmonids evaluated at Little Goose Dam," Parker S. Trefethen and Wesley J. Ebel, 8:33-36.

"Aircraft-refueling trailer modified to haul salmon and trout," Jim R. Smith and Wesley J. Ebel, 8:37-40.

and Wesley J. Ebel, 8:37-40.
"The future of the fisheries. I. The Seattle Conference," "II. The Oceans and Industry," John K. Tabor, "III. Sounding our ocean future," Robert M. White, "IV. National fisheries policies and programs for our national needs," David Wallace, 9:1-14.

"Effects of an artificial habitat on the marine sport fishery and economy of Murrells Inlet, South Carolina," Chester C. Buchanan, 9:15-22.
"Fuel shortages and the fisherman," Joseph Pileggi, 9:22-25.
"Shrimp discarding by the commer-

1004. cial fishery in the western Gulf of Mexico," Kenneth N. Baxter, 9:26. 1005. "Results of comparative trawl and

trap fishing off Oregon for sablefish, Anoplopoma fimbria," Norman B. Parks, 9:27-30.

"Marketing practices of wholesalers handling fish in the Akron and Cleve-land areas," Leonard J. Konopa, 9: 31-37.

"Sonic tags in sockeye salmon, On-corhynchus nerka, give travel time through metropolitan waters," Ken-

eth L. Liscom, 9:38-41.
"Salmon for New England fisheries.
Part I: Historical background," Timothy Joyner, 10:1-3.

"Salmon for New England fisheries. Part II: Effect of the ocean environment on the high seas distribution of salmon," Timothy Joyner, 10:4-8.

"Salmon, Timothy Joyner, 10:4-8.
"Salmon for New England fisheries.
Part III: Developing a coastal fishery
for Pacific salmon," Conrad Mahnken
and Timothy Joyner, 10:9-13.
"A self-contained subsurface light
source system for fish attraction," Donald A. Wickham and Wilber R. Seidel,

10:14-19.

1012. "Factors in the fish picture of concern to industry and consumers," Morton M. Miller, 10:20-25.

1013. "Alterations of estuaries of south Florida: A threat to its fish resources," William N. Lindall, Jr., 10:26-33. 1014. "Why the cod shortage? What are the alternatives?" Donald R. Whitaker,

"The technological basis for development of aquaculture to produce low-cost food fish," J. A. Dassow and cost food fish," J. A. M. A. Steinberg, 11:6-13.

1016. "Fisheries research steamer Fish Hawk," John W. Reintjes, 11:14-17.
 1017. "The overland shipment of live Dunge-

ness crabs by self-contained van, H. J. Barnett, R. W. Nelson, P. Hunter, A. E. Einmo, and D. N. Plant, 11:18-24. "San Francisco Bay area's herring

1018. "San Francisco Bay areas herring resource—A colorful past and a controversial future," Maxwell B. Eldrige and W. Michael Kaill, 11:25-31.
1019. "Kamaboko'—The giant among Japanese processed fishery products," Minoru Okada, David Miyauchi, and George Kudo, 12:1-6.
1020. "Surimi—A semi-processed wet fish

"Surimi—A semi-processed wet fish protein," David Miyauchi, George Kudo, and Max Patashnik, 12:7-9.

"Gel-forming capacity of washed and unwashed flesh of some Pacific coast species of fish," George Kudo, Minoru Okada, and David Miyauchi, 12: 10-15

"Chemical and nutritive values of crustaceans, and multitive values of several fresh and canned finish, crustaceans, and mollusks. Part I: Proximate composition, calcium, and phosphorus," Virginia D. Sidwell, James C. Bonnet, and Elizabeth G. Zook, 12:16-19.

"Northwest Atlantic squids," Warren F. Rathjen, 12:20-26.
"The long-haul fishery of North Carolina," James F. Guthrie, Richard L. Kroger, Herbert R. Gordy, and Curtis W. Lewis, 12:27-32

"Marketing practices of retailers han dling fish in the Akron and Cleveland areas," Leonard J. Konopa, 12:33-41.