National Systematics Laboratory Report for Calendar Year 1980

1981
Washington, D.C.

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

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Malcolm Baldrige, Secretary

National Oceanic and Atmospheric Administration
James P. Walsh, Acting Administrator

National Marine Fisheries Service
Terry L. Leitzell, Assistant Administrator for Fisheries

INTRODUCTION

Systematics is basic to most other kinds of biological research. The primary function of this Laboratory is to study the systematics of fishes and crustaceans of economic or ecological significance. Most of our effort is concerned with describing shape and form, measuring variation, and comparing samples. The resulting information is used to define and distinguish from each other species and other taxonomic categories and to arrange species in classifications that are based as nearly as possible on evolutionary relationships. Other work in systematics carried on by Laboratory scientists includes naming previously unknown species, preparing faunal guides, describing the diversity of faunas, charting geographical distribution, and describing the function of anatomical structures.

The overall objectives of the Laboratory in fulfilling its function are as follows.

1) Prepare taxonomic revisions that are sufficiently comprehensive to aid biologists in making identifications and serve as a basis for ecological studies. Along with this carry out anatomical studies that serve as bases for classifications.

2) Prepare studies on the systematics of the biotas of particular regions, which are designed to integrate existing knowledge with the results of new research.

3) Serve as a source of specialized information for NOAA, other organizations, and individuals.

These ends are accomplished by the following Laboratory Program.

LABORATORY PROGRAM

Major research of the Laboratory is divided into four general areas, chief responsibility for work in each being that of a single scientist with technical assistance.

1) Epipelagic fishes - Bruce B. Collette

2) Benthic and deep pelagic fishes - Daniel M. Cohen

3) Penaeoid shrimps - Isabel C. Canet (Pérez Farfante)

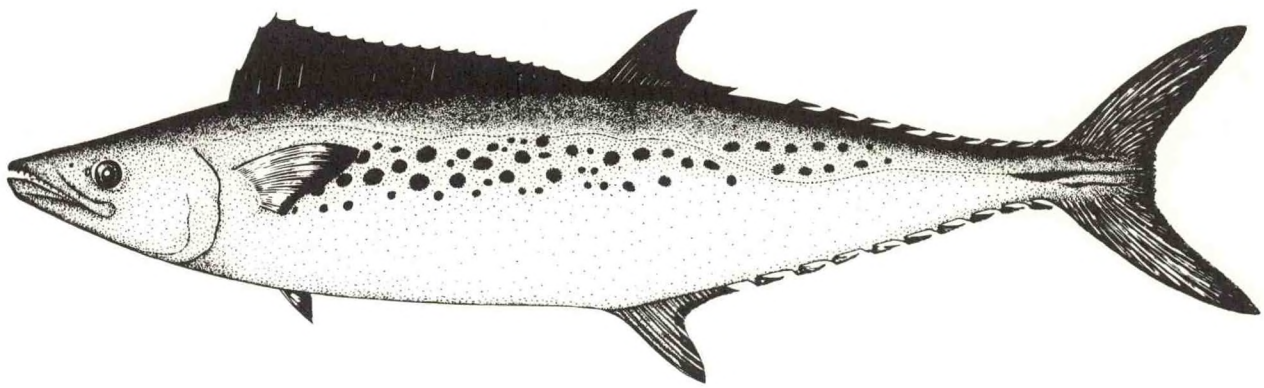
4) Crabs and other decapod crustaceans - Austin B. Williams

EPIPELAGIC FISHES

Epipelagic fishes live in the highly productive surface layers of the ocean where species tend to grow large, range widely, and are of great importance to man. Particular emphasis is devoted to studying the anatomy and systematics of scombroids, the group that includes the tunas, Spanish mackerels, bonitos, and mackerels. Although many of the species have been known for a long time and an extensive literature exists about them, detailed anatomical descriptions and comparisons are few, incorrect scientific names are often used, geographical ranges for many are not precisely delimited, and poorly documented classifications are current. The giant tunas and bonitos found around the world have been treated by Dr. Collette and colleagues in a series of monographs and papers. The Spanish mackerels are now being studied. Also studied are the halfbeaks (family Hemiramphidae) and needlefishes (family Belonidae), abundant fishes which are important forage items and which are of local commercial importance as food and bait. Monographs on these two families are being prepared for the series, Fishes of the Western North Atlantic.

Work Completed During The Year

1) A paper describing the 18th known species of Spanish mackerel, *Scomberomorus munroi*, from Australia and New Guinea was published. This species is part of the important Queensland mackerel fishery and was previously confused with *S. niphonius*, a N. Pacific species.



The Australian spotted mackerel *(Scomberomorus munroi)* was first recognized as an unnamed species by a Laboratory project that is defining the Spanish mackerels or the world. This species is part of the important Queensland mackerel fishery. Drawn by Keiko Hiratsuka Moore.

2) Sections on eight families of epipelagic fishes were completed and accepted for publication in four different FAO and UNESCO fishery identification sheets and checklist series (see papers IN PRESS).

In Progress

1) The first draft was completed for FAO of an annotated list of the mackerels, bonitos and tunas of the world.

2) Progress was made on the long-term study of the Spanish mackerels (*Scomberomorus*). A stable nomenclature is particularly needed as these fishes constitute an important recreational and commercial fishery resource in the southeastern U.S. and other parts of the world. About 7 specimens were dissected during the year, and counts and measurements were made on these plus an additional 45 specimens. Important material of Spanish mackerels was obtained during visits to India and South Africa. Synonymies were completed for all 18 species in the genus, and drawings of several species were finished. The morphometric and meristic data base on over 1,000 specimens of *Scomberomorus* was transferred from the George Washington University computer to the NEFC system.

3) The first draft of a manuscript on the host-parasite relationships of parasitic copepods and their scombrid hosts was completed in collaboration with Dr. R. Cressey of the Smithsonian Institution. A total of 46 species of copepods has been collected from the 47 species of the subfamily Scombrinae over the last 20 years. Host specificity, distributions of hosts and parasites, and relative rates of evolution of hosts and parasites are some of the topics discussed.

4) Work was done on manuscripts describing a new species of halfbeak from New Guinea, the rediscovery of an estuarine halfbeak from India, and an analysis of the mangrove swamp fishes of New Guinea.

5) Data was collected for sections on Scombridae, Belonidae, and Hemiramphidae for a revision of Smith's Sea Fishes of Southern Africa.

BENTHIC FISHES

The main topic of investigation is the classification and biology of fishes of the outer continental shelf and deeper water. Special emphasis is given to the important gadiform or codfish group, many species of which are abundant in deep water and which, along with ophidioid fishes (the cusk eels and their relatives), another group being studied, dominate the fish fauna of the continental slope. Monographs are being prepared for the series Fishes of the Western North Atlantic. Selected groups of deep living pelagic fishes are also studied; as CALCOFI and MARMAP have shown, shallower dwelling early stages may be common constituents of the ichthyoplankton taken during egg and larvae surveys, and their identification depends upon the classification and nomenclature of adult fishes.

Work Completed During The Year

1) Sections on eight families of fishes were completed and accepted for publication in four different FAO and UNESCO fishery species identification sheets and checklist series (see list of papers IN PRESS).

2) Two papers on ophidioid fishes were accepted for publication, one an osteological study and description of a new species of *Enchelybrotula* from the continental rise of the equatorial Pacific, the other the description of a new species of *Saccogaster* from a Caribbean reef.

3) A short note was accepted for publication (prepared in collaboration with two Japanese and one U.S. ichthyologists and resulting from participation in a joint U.S.-Japanese groundfish survey) recording four species new to the eastern Bering Sea, two of which are new records for North America.

In Progress

Work was begun on an annotated checklist for FAO of the commercial and potentially commercial cod-like fishes of the world. Considerable data were taken and several taxonomic problems were resolved during visits to collections in New Zealand, Australia and South Africa.

A first draft was completed of the description of a new species of ophidiid of the genus *Spottobrotula* from the Philippines. Work was done on the description of a new reef dwelling ophidioid of the genus *Dinematichthys* from Australia. And a review was begun of the Indo-Pacific cusk-like genus *Sirembo*. Work was done on a list of ophidioid fishes taken during French trawling cruises around Madagascar.

PENAEOID FISHES

Penaeoid shrimps are not only among our most valuable domestic fisheries resources but are also imported in large quantities. New fishing areas are continually being exploited, both in distant areas and in deep waters. Shrimps are also being cultured. Management efforts require additional research on the systematics of these tasty animals. The chief topics of investigation concern species definition, classification of higher categories, morphology, distribution, and aspects of reproduction.

Work Completed During The Year

1) A systematic revision of the shrimp genus *Penaeopsis* was published. This genus, which is redefined and its relationships discussed, is represented by six species, one amphi-Atlantic, the others from the Indo-West Pacific (no eastern Pacific representative has been found). The male of one species, *P. challengeri*, is reported for the first time. Two of the six species were recognized as new during the course of the study and preliminary descriptions were published prior to the appearance

of the revision. The species are described in detail and illustrated. A diagnosis, full references, and locality records, are given for each, and geographic and bathymetric ranges, and affinities are discussed. A key for species identification is also included.

2) A paper was completed and published describing *Sicyonia olgae*, a new rock shrimp ranging from the Dry Tortugas Islands, Florida to Suriname. It has been found at depths between 33 and 622 m, the broadest bathymetric range of any western Atlantic rock shrimp. The close relationship of this species to *S. typica*, a very common shrimp in the area, is discussed and their morphological differences pointed out. A key to the 9 western Atlantic species of *Sicyonia* is included, supplemented by synopses of their geographic and depth ranges, many of which proved to be considerably more extensive than previously recorded.

3) A manuscript co-authored by B. B. Boothe, Jr. describing a new species of *Sicyonia* was completed and accepted for publication. This shrimp occurs on the west coast of Baja California and from the Gulf of California to the Golfo de Panamá, in waters 9 to 249 m deep. The affinities as well as the morphological differences between *Sicyonia* n. sp., and *S. affinis* and *S. aliaffinis*, its two close relatives from the American Pacific, are discussed.

4) The description of a new species, *Solenocera australiana*, from the Northern Territory, Australia, was published in collaboration with D. L. Grey, an Australian biologist. This shrimp was found on commercial grounds and in unexploited areas at depths between 15 and 24 m. Only a single record of a species of *Solenocera* from Australian waters has been previously reported, a rather surprising fact in view of the numerous studies that have been made on commercial catches, as well as on collections taken by research vessels, from those waters. In addition to the new species, records, that were communicated to us by two Australian colleagues, of other members of the genus occurring in the waters of Australia are also included.

In Progress

Progress was made on a systematic revision of the American Pacific rock shrimps, *Sicyonia*. This investigation is needed for after decades of being discarded by the trawlers, some of these shrimps are now taken commercially and others constitute a potential fishery resource. Little effort has been devoted to their study and it is hoped that the present work will serve as a basis for and as a stimulus to further research. Among about 2000 specimens of rock shrimps that have been sorted from collections made from Monterey Bay to off Callao, Perú, twelve species have been identified, one of them previously unnamed. The study of the morphology, analysis of meristic data, measurements of certain critical features, and observations on intraspecific variation of some have been undertaken. Distributional and environmental data are also being assembled.

A manuscript describing a new species of *Solenocera* from the Philippines is in preparation. This shrimp, which bears an armature unique within the genus, has been found in waters 176 to 540 m deep.

Study has begun on a small collection of rare shrimps from off east Africa and west of Australia. In it a representative of a genus previously unrecorded from the Pacific has been found along with other species that have not been recorded from those areas.

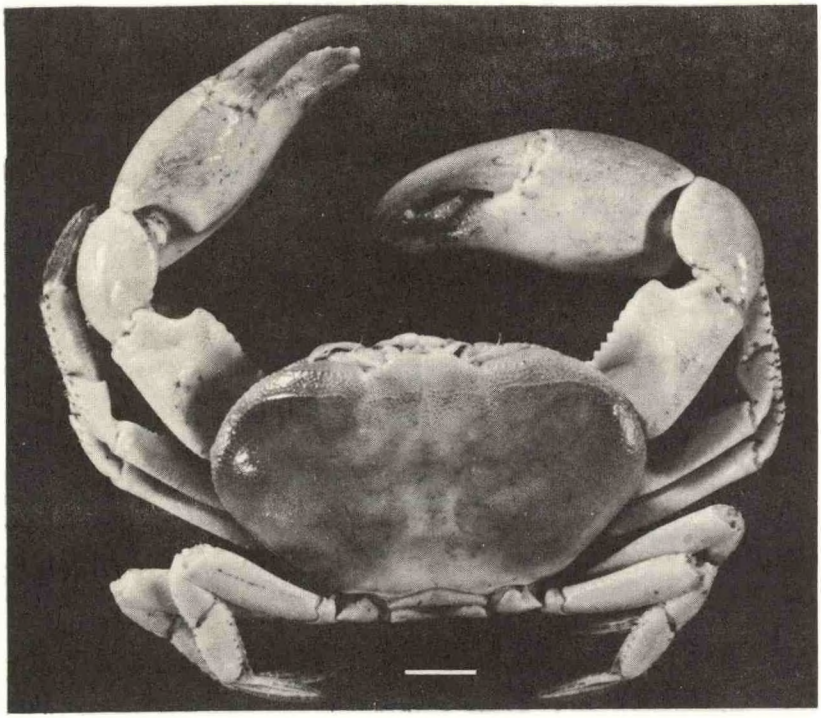
With the assistance of Dr. Steven Cairns, further sorting and identification of penaeoids collected by U.S. exploratory fishing cruises in the Philippines and Indian Ocean have been accomplished.

CRABS AND OTHER DECAPOD CRUSTACEANS

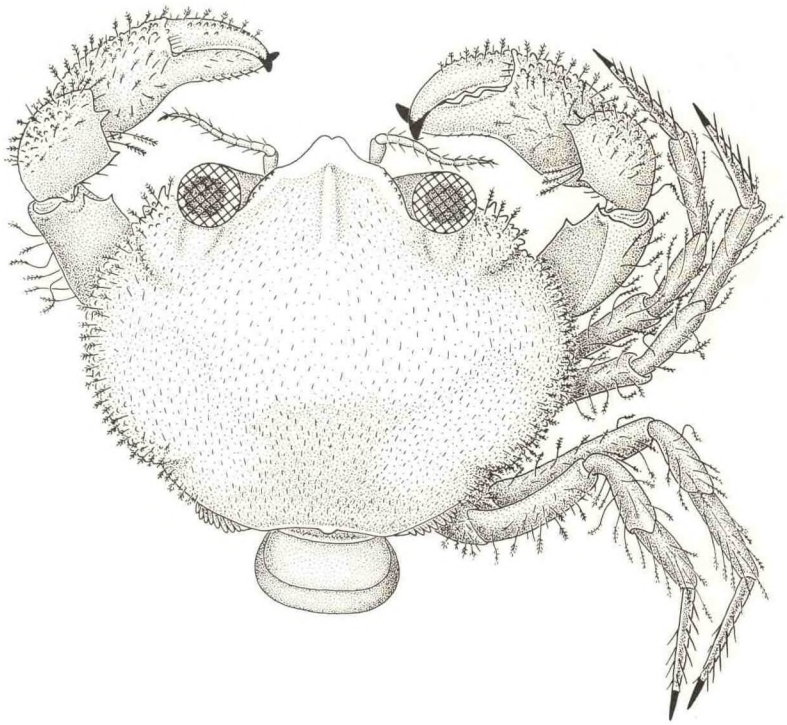
Crabs of the world and decapod crustaceans of the temperate western North Atlantic region are the topic of this investigation. Studies have been done or are in progress on anatomy, taxonomy, phylogeny, distribution, species diversity, community structure, and other aspects of the biology of these crustaceans. Interest is centered on crabs and shrimps associated with estuaries and nearshore circulation systems. The information produced is of particular value to NOAA and to scientists who are attempting to characterize the U.S. east coast estuarine and nearshore biotas for management directed toward harvest of food, recreation, shipping, urban and industrial development, and conservation.

Work Completed During The Year

1) In a paper completed and published, a new crab family from the eastern Pacific is based on *Bythograea thermydron*, a new species and new genus found in the vicinity of thermal vents on the Galapagos Rift zone at a depth of 2500 m. The new family, which exhibits some characters of the swimming crabs, Portunidae, mud crabs, Xanthidae, and freshwater crabs, Potamidae, is placed in an independent superfamily. A large series of specimens captured in baited fish traps set and retrieved during dives of the deep submersible *Alvin* provided material for morphometric analysis of this blind and otherwise highly specialized crab. Study of late larval and juvenile stages yielded other insights into adaptation to its life in the restricted vent areas and to developmental changes from eyed but blind larvae to almost eyeless adults.



Bythograea thermydron, a newly described genus and species of crab from the Galapagos rift zone which represents a new superfamily and family, 1 cm indicated.



Late larval stage of *Bythograea thermydron*. Drawn by María M. Dieguez, 1 mm indicated.

2) Recent distributional extensions for the American lobster (*Homarus americanus*) south of Cape Hatteras, N.C., and tropical species of swimming crabs, genus *Callinectes*, north of Florida are documented in a paper accepted for publication. From sizes of individual lobsters, the known seasonal migration patterns and rates of movement, rare occurrences south of Cape Hatteras are judged to be the result of individual movements within a few months prior to capture. Strandings of tropical swimming crabs along the Carolinian coast are judged to result from transport of juveniles or adults via the Gulf Stream and spin-off eddies along its western boundary within a single warm season; the strandings reported are not attributed to larval drift. Review of weather records, current patterns and figures of Gulf Stream eddies reproduced from satellite data are included in the discussion.

3) A paper was accepted for publication, which reduces from four nominal species to two valid ones the number of western Atlantic caridean shrimps of the genus *Ogyrides*. One of the valid species is described as new.

In Progress

1) Preparation of a comprehensive, illustrated review of the shrimps, lobsters and crabs of the temperate eastern United States continues. This manuscript, treating 350 species, includes a general introductory systematic discussion of the groups, and an analysis of their zoogeographic affinities. A general key to families is followed by family, subfamily, generic and specific accounts, with keys to categories below family scattered through the text. Each species account includes a standard treatment: abbreviated synonymy, recognition characters, figure(s), measurements, habitat, type-locality, known range, and, as data permit, discussion of variation, color, and general remarks on life history-ecology. Selected literature through 1979 is fully cited. Publication is planned as a book.

2) A systematic review of the mud shrimps, genus *Upogebia*, in the eastern Pacific continues. A number of previously unrecognized species have been distinguished.

LABORATORY PUBLICATIONS

COHEN, D. M.
Names of the hakes. *Marine Fisheries Review*, vol. 42, no. 1, p. 2-3.

COLLETTE, B. B.
Specimen banking marine organisms. In: *Monitoring Environmental Materials and Specimen Banking, Proceedings of the International Workshop*, N.-P. Luepke, editor, Martinus Nijhoff Publishers, p. 165-167.

COLLETTE, B. B., and RUSSO, J. L.
Scomberomorus munroi, a new species of Spanish mackerel from Australia and New Guinea. *Australian Journal of Marine and Freshwater Research*, vol. 31, p. 241-250.

PARIN, N. V., COLLETTE, B. B., and SHCHERBACHEV, YU. N.
Preliminary review of the marine halfbeaks (Hemiramphidae, Beloniformes) of the tropical Indo-West Pacific. *Trudy Instituta Okeanologii*, vol. 97, p. 7-173 (In Russian).

PÉREZ FARFANTE, I.
Revision of the penaeid shrimp genus *Penaeopsis* (Crustacea: Decapoda). *Fishery Bulletin*, U.S., vol. 77, p. 721-763.

PÉREZ FARFANTE, I.
A new species of *Solenocera* (Crustacea: Decapoda: Solenoceridae) from northern Australia. *Proceedings of the Biological Society of Washington*, vol. 93, no. 2, p. 421-434.

PÉREZ FARFANTE, I.
A new species of rock shrimp of the genus *Sicyonia* (Penaeoidea), with a key to the western Atlantic species. *Proceedings of the Biological Society of Washington*, vol. 93, no. 3, p. 771-780.

WILLIAMS, A. B.
A new crab family from the vicinity of submarine thermal vents on the Galapagos Rift (Crustacea: Decapoda: Brachyura). *Proceedings of the Biological Society of Washington*, vol. 93, no. 2, p. 443-472.

IN PRESS

COHEN, D. M.
Saccogaster melanomycter (Ophidiiformes: Bythitidae), a new fish species from the Caribbean. *Proceedings of the Biological Society of Washington.*

COHEN, D. M.
The deepsea fish genus *Enchelybrotula* (Ophidiidae): description of new species, notes on distribution, and osteology. *Bulletin of Marine Science.*

COHEN, D. M.
Families Argentinidae, Gadidae and Moridae. In: *Species Identification Sheets for Fishery Purposes, East Central Atlantic (Fishing Area 34)*, FAO, W. Fischer and W. B. Scott, eds.

COHEN, D. M.
Families Bregmacerotidae and Moridae. In: *Species Identification Sheets for Fishery Purposes, Western Indian Ocean (Fishing Area 51)*, FAO, W. Fischer, ed.

COHEN, D. M.
Families Argentinidae, Bathylagidae, Opisthoproctidae, Bregmacerotidae, Moridae, Melanonidae. In: *Fishes of the Northeastern Atlantic and Mediterranean*, UNESCO, J. Nielsen and P. Whitehead, eds.

COHEN, D. M.
Families Argentinidae, Bathylagidae, Melanonidae, Moridae, Gadidae, and Bregmacerotidae. In: *Check-list of Fishes of the Eastern Tropical Atlantic*, UNESCO, J. C. Quéro, ed.

COLLETTE, B. B.
Families Belonidae, Coryphaenidae, Hemiramphidae, Pomatomidae, Rachycentridae, and Scombridae. In: *Species Identification Sheets for Fishery Purposes, East Central Atlantic (Fishing Area 34)*, FAO, W. Fischer and W. B. Scott, eds.

COLLETTE, B. B.
Families Belonidae, Coryphaenidae, Echeneidae, Hemiramphidae, Pomatomidae, Rachycentridae, and Scombridae. In: *Species Identification Sheets for Fishery Purposes, Western Indian Ocean (Fishing Area 51)*, FAO, W. Fischer, ed.

COLLETTE, B. B.
Families Coryphaenidae and Scombridae. In: *Fishes of the Northeastern Atlantic and Mediterranean*, UNESCO, J. Nielsen and P. Whitehead, eds.

COLLETTE, B. B.
Family Scombridae. In: *Check-list of Fishes of the Eastern Tropical Atlantic*, UNESCO, J. C. Quéro, ed.

COLLETTE, B. B.
Family Hemiramphidae. In: *Check-list of the Freshwater Fishes of Africa*, UNESCO, J. Daget, ed.

COLLETTE, B. B., and PARIN, N. V.
Families Belonidae and Hemiramphidae. In: *Fishes of the Northeastern Atlantic and Mediterranean*, UNESCO, J. Nielsen and P. Whitehead, eds.

COLLETTE, B. B., and PARIN, N. V.
Families Belonidae and Hemiramphidae. In: *Check-list of Fishes of the Eastern Tropical Atlantic*, UNESCO, J. C. Quéro, ed.

COLLETTE, B. B., and RUSSO, J. L.
A revision of the scaly toadfishes, genus *Batrachoides*, with descriptions of two new species from the eastern Pacific. *Bulletin of Marine Science*, vol. 31.

PÉREZ FARFANTE, I.
The geminate shrimp species *Parapenaeus longirostris* and *Parapenaeus politus* (Crustacea: Decapoda: Penaeoidea). *Quaderni del Laboratorio di Tecnologia della Pesca*, Ancona, Italy.

PÉREZ FARFANTE, I., and BOOTHE, B. B.
A new species of rock shrimp of the genus *Sicyonia* (Crustacea: Decapoda: Penaeoidea) from the American Pacific. *Journal of Crustacean Biology*.

RUSSO, J. L.
Field guide to fishes commonly taken in longline operations in the western North Atlantic Ocean. *NOAA Technical Report NMFS Circular*.

WILLIAMS, A. B.
Western Atlantic species of the caridean shrimp genus *Ogyrides*. *Journal of Crustacean Biology*.

WILLIAMS, A. B.
Revision of the genus *Latreillia* Roux (Brachyura: Homoloidea). *Quaderni del Laboratorio di Tecnologia della Pesca*, Ancona, Italy.

WILLIAMS, A. B., and WILLIAMS, D. McN.
Carolinian records for American lobster, *Homarus americanus*, and tropical swimming crab, *Callinectes bocourti*. Postulated means of dispersal. *Fishery Bulletin, U.S.*

YABE, M., COHEN, D. M., WAKABAYASHI, K., and IWAMOTO, T.
Fishes new to the eastern Bering Sea. *Fishery Bulletin, U.S.*

INFORMATION AND SERVICES

Technical Information

Specialized technical information was provided to: NEFC on squids; NWAFS Kodiak Laboratory on names of invertebrates and fishes; NMFS central office on lithodid crabs. A variety of inquiries were answered for NOAA headquarters on crabs and other crustaceans. For Food and Drug Administration many inquiries were answered about barnacles, stone, centolla, and king crabs and common names of fishes. EPA required information on penaeid shrimp larvae and amphipods and the National Park Service was given information on crustacean food chains. Information on fishes was supplied to the U.S. Customs Service in New York and Los Angeles. The following institutions asked technical questions: Dauphin Island Sea Laboratory, Alabama; Georgia Southern College; University of Hokkaido, Japan; South China Sea Institute of Oceanography; Instituto de Mar, Peru; National Museum of New Zealand; Iwate Prefecture Fisheries Research Station; and University of Otago, New Zealand. Information on fishes and crustaceans was also furnished several importers and to authors and the public.

Identifications

A variety of fishes were identified for investigators at: the Smithsonian Institution; U.S. Trust Territories, Samoa; N. Carolina Dept. of Fisheries; Inter-American Tropical Tuna Commission, La Jolla; Museum of Comparative Zoology, Harvard; Bishop Museum, Honolulu; British Museum (Natural History), London; University of Tanzania; Institute of Zoology, Taipei; Royal Ontario Museum of Zoology, Toronto; INPA, Manaus, Brazil; for 10 zoological collections and fisheries laboratories in Australia, three in New Zealand, and three in South Africa. Also for the Lockheed ocean mining project.

Crabs and shrimps were identified for: SWFC, Honolulu; NWAFC, Kodiak; Smithsonian Institution; S. Carolina Marine Resources Institute; University of Miami; Florida State Museum; University of Delaware; University of Costa Rica; Marine Biology Station, Arraial do Cabo, Brazil; Instituto del Mar, Peru; Instituto Tecnológico, Monterrey, Mexico.

Curatorial Assistance

Substantial help was furnished to the Smithsonian Institution by handling much material of groups being studied by Laboratory scientists. Assistance in studying the national collections and using the library was provided to numerous scientists, both visiting and through correspondence.

The ophidioid fish collection, more than 50 shelves, was moved, rearranged, and many lots were reidentified. All large, tank-stored specimens of Scombridae were reviewed. Loans were arranged for investigators at the Western Australian Museum (Batrachoididae); Illinois Natural History Survey (Percidae); Oklahoma State University (Percidae); University of Copenhagen (ophidioids); VIMS (ophioids); Dauphin Island Sea Lab. (crustaceans); N. Carolina State Museum (crustaceans).

Exchanges were arranged, gifts received, and for many cataloged into the USNM collections: fishes from the People's Republic of China including important material of Spanish mackerels and halfbeaks; fishes from the west coast of India obtained during a FAO project; spanish mackerels and halfbeaks from S. Africa; halfbeaks exchanged with the Institute of Oceanology, Moscow; gadoid and ophidioid fishes from New Zealand and Australia; shrimps from Brazil, Peru, and Florida; crustaceans from Costa Rica, the east coast of the U.S., and the Galapagos Rift zone.

Manuscripts

Reviews were provided for: NMFS Fishery Bulletin, Circulars and Special Scientific Reports; J. Fisheries and Aquatic Science (Canada); Science; Copeia; J. Crustacean Biology; Estuaries; Bulletin Marine Science; Occasional Papers, Hancock Foundation; Northeast Gulf Science; Proceedings of the Biological Society of Washington. Also for colleagues at the NEFC, SWFC, Smithsonian, Department of Fisheries and Oceans (Canada), U.S. Geological Survey, S. Carolina Marine Research Institute, N. Carolina State University, Texas A&M University, Bishop Museum, University of Miami, and Japan Marine Fishery Research Center.

Research Proposals

Reviews were provided for: NOAA, Manned Undersea Science and Technology Office; National Science Foundation (nine proposals); National Geographic Society.

Collaborators and Visitors

Visitors to the Laboratory included Dr. K. Amaoka of the University of Hokkaido, who stayed two weeks and studied coldwater marine fishes and discussed plans for cooperative work with U.S. scientists. Dr. J. Nielsen of the University of Copenhagen who studied ophidioids with D. Cohen for a week; Dr. N. V. Parin of the Institute of Oceanology, Moscow, who studied pelagic fishes with B. Collette; Dr. Peter Gaemers of the University of Leiden for several weeks to study gadoid otoliths. Other vistors included Drs. L. Trott and R. Stone of the NMFS Central Office; Drs. G. Hoskin and J. Bier of FDA; Dr. J. Nold, Armed Forces Institute of Pathology; Dr. G. Rowe, Brookhaven National Lab.; Dr. H. DeWitt, University of Maine; Dr. J. Wourms, Clemson University; Dr. C. R. Robins, University of Miami; D. Kulka, Fisheries Canada, Newfoundland; Dr. L. Chao, Universidade do Rio Grande do Sul, Brazil; Dr. A. Ben-Tuvia, Hebrew University, Jerusalem; H. Wood, Division of Fisheries, Trinidad and Tobago; Dr. R. Gore, Smithsonian, Ft. Pierce, Florida; Dr. D. Felder, Southwestern Louisiana State University, J. Clamp, N. Carolina State University; Dr. Z. Stevcic, Boscovic Institute, Yugoslavia; Dr. M. Wicksten, University of Southern California; Dr. V. Kennedy, University of Maryland; Mme M. Saint Laurent, Museum National d'Histoire Naturelle, Paris; Dr. R. Y. George, University of N. Carolina; Dr. G. Mayer, SUNY; Dr. N. Chamberlain, College of Charleston, S. Carolina; Mr. C. Morgan, Lockheed; A. Dittel, University of Costa Rica. Also graduate students from VIMS; University of Maryland; University of S. Carolina; University of Delaware; Texas A&M University.

PROFESSIONAL MEETINGS

American Society of Ichthyologists and Herpetologists. Annual Meeting at Fort Worth, Texas. Attended by President-Elect B. Collette who presented a paper entitled, "The Mangrove Swamp Fishes of New Guinea."

WORKSHOP MEETINGS

Editorial Board. Fishes of The Western North Atlantic. A meeting in Philadelphia attended by D. Cohen to discuss future volumes in the series.

FAO/DANIDA Expert Consultation on Field Identification of Commercial Marine Organisms in the Western Indian Ocean. In Cochin, India, attended by B. Collette, who drafted sections on a number of fish families.

ACADEMIC

Dr. Williams chaired two doctoral committees at the University of North Carolina.

Dr. Canet served as external examiner of a Ph.D. dissertation for the University of Witwatersrand, S. Africa.

Dr. Collette taught a course in ichthyology for Northeastern University, which appointed him Adjunct Professor of Biology. He also served as external examiner of a Ph.D. dissertation for Macquarie University, Australia.

Lectures or seminars were presented by Dr. Canet at the Estaçao de Biologia Marinha, Arraial do Cabo, Brazil, "On the Male and Female Genitalia of *Penaeus* Shrimps, and Structure and Dehiscence of Their Spermatophores," and "On the Penaeoid Shrimp Fauna of Brazil"; at the Fundaçao de Estudos do Mar (FEMAR), Rio de Janeiro, "On the Distribution and Life Cycles of Brazilian Commercial Shrimps". By Dr. Collette at the FAO/DANIDA Consultation, Cochin, "Systematics and Adaptations of Tunas and Mackerels" and "Ecology of Coral Reef Fishes: Results of the Tektite Program"; at Durban, Grahamstown, and Cape Town, S. Africa lectures on scombrid phylogeny and coral reef fish ecology. Dr. Williams presented lectures on crustaceans at Northeast Regional Convention, District 1 of Beta Beta Biological Society, Hartwick College Oneonta, N. Y.; Natural History Film and Lecture Series, Baird Auditorium, Natural History Building, Smithsonian Institution; and a Biology Department Seminar, George Washington University, Wash., D.C. Dr. Cohen talked at the Australian Museum on, "The Biology of The Galapagos Rift Thermal Vents", and discussed Laboratory research for a meeting of the D. C. District of the American Institute of Fishery Research Biologists.

OTHER ACTIVITIES

Smithsonian Institution. Cohen and Collette served as Research Associates of the Department of Vertebrate Zoology and Canet and Williams of the Department of Invertebrate Zoology. Williams served as a member of the Oceanographic Sorting Center Arthropod Advisory Committee and as a member of the Special Event Alert Network Advisory Committee.

Museum of Comparative Zoology, Harvard. Collette continued to serve as a Research Associate in the Department of Ichthyology.

American Society of Ichthyologists and Herpetologists. Collette continued to serve on the Environmental Quality and Ichthyological Collections committees and as President-Elect of the Society. Cohen served on the Board of Governors.

Fishes of The Western North Atlantic. Collette and Cohen continued to serve on the Board of Editors.

Estuarine Research Federation. Williams served as Chairman of the Publications Committee and Vice President of the Federation.

Biological Society of Washington. Cohen, Collette and Williams served on the Council.

STAFF

Daniel M. Cohen	Ichthyologist and Laboratory Director
Bruce B. Collette	Ichthyologist
Isabel C. Canet	Carcinologist
Austin B. Williams	Carcinologist
George E. Clipper	Scientific Assistant (until 7/20/80)
Joseph L. Russo	Scientific Assistant (after 10/6/80)
Steven A. Cairns	Scientific Assistant (until 5/27/80)
Ruth E. Gibbons	Scientific Assistant (after 11/2/80)
María M. Farfante	Scientific Illustrator and Scientific Assistant (until 6/30/80)
Keiko H. Moore	Scientific Illustrator
Arleen S. McClain	Administrative Assistant and Secretary
Virginia R. Thomas	Typist