DOE/NBM-2016053
(DE82016053)

BIBLIOGRAPHY ON NEKTON FROM THE HAWAIIAN ISLAND ARCHIPELAGO

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Work Performed Under Contract No. W-7405-ENG-48

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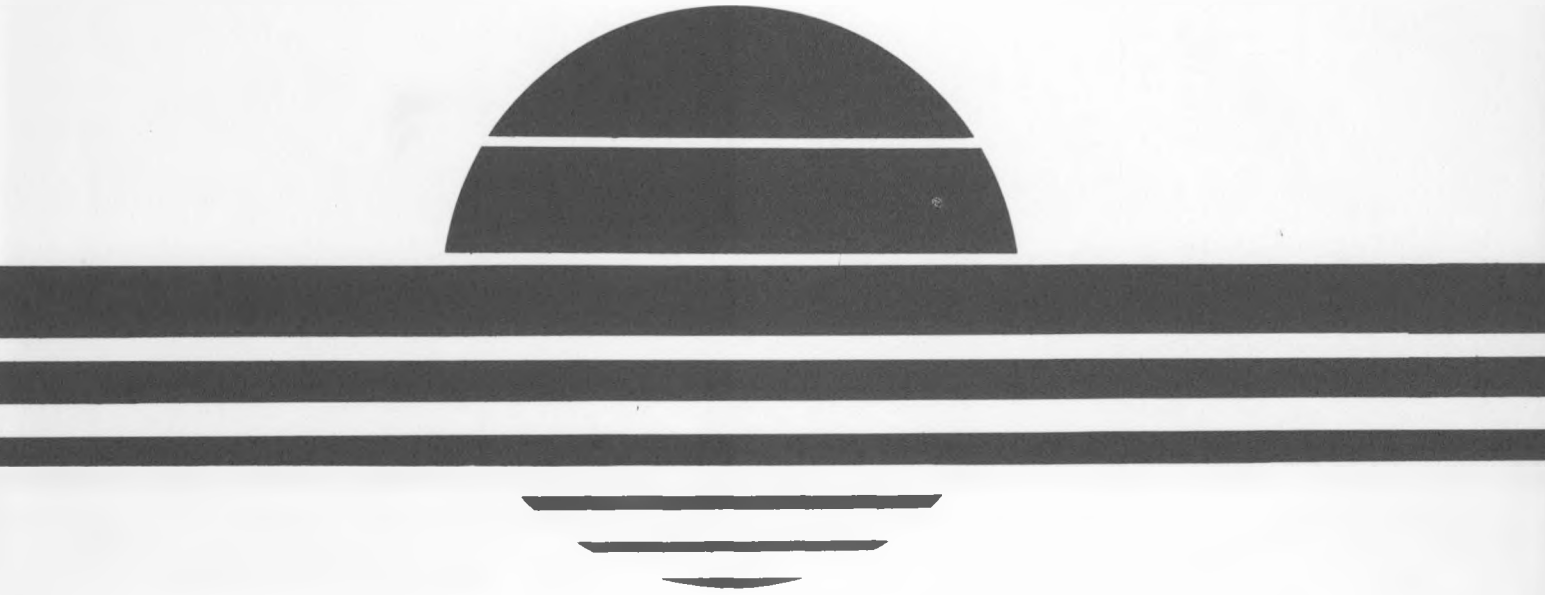

U.S. Department of Energy

Solar Energy

DOE/NBM-2016053
(DE82016053)
Distribution Category UC-64

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ABSTRACT

A selected bibliography of nekton, principally fish, from the Hawaiian Island Archipelago was compiled in conjunction with environmental work associated with the Ocean Thermal Energy Conversion (OTEC) project.

INTRODUCTION

The U.S. Department of Energy is studying the environmental design and impact considerations of operating commercial Ocean Thermal Energy Conversion (OTEC) power plants in Hawaiian waters. Fish are important commercially and ecologically to the Hawaiian Islands. The operation of OTEC plants may influence the ichthyoplankton, juvenile fish and adult fish populations. The chemical nature of the discharge plume waters (nutrients, biocides, etc.) and the relocation of entrained organisms may affect the trophic structure of the fish community. The entrainment and impingement mortality resulting from the intake of water will also affect fish stocks. The physical structure, floating module and associated pipes, will be an attractant to pelagic fish and may significantly affect operation. These several impacts may affect fish recruitment and utimately fishery stocks. Publications on marine mammals and turtles in Hawaiian waters have recently been completed (S.F. Payne and E.O.

Hartwig, 1981, The Ecology of Hawaiian Marine Mammals Emphasizing the Impact of OTEC on Endangered Species, MSG-82-017; S.F. Payne, 1980, Marine Mammals of Hawaii: A Bibliography. LBL Report No. 13192; S.F. Payne, 1981, A Bibliography of Marine Turtles in Hawaii. LBL Report No. 12902.)

This bibliography lists publications dealing with the ecology, distribution, and abundance of marine fish and other nekton in the Hawaiian Archipelago. Papers and conferences on the ecology, distribution, migration and abundance of nekton are listed as are articles discussing the fisheries, fishing methods, levels of fishing effort and catch records.

The citations in this bibliography have been divided into three major categories by habitat: the pelagic fish principally tuna and billfish, midwater fish including myctophids and stomiatoids, and general citations which refer to reef and others fishes.

BONHAM K. (1946) Measurements of some pelagic commercial fishes of Hawaii. Copeia 1946, 81-84.

BROCK V.E. (1949) A preliminary report on Parathunnus sibi in Hawaiian waters and a key to the tunas and tuna-like fishes of Hawaii. Pacific Science 3, 271-277.

BROCK V.E. (1954) Some aspects of the biology of the aku, Katsuwonus pelamis in the Hawaiian Islands. Pacific Science 8, 94-104.

BROCK V.E. (1965) A review of the affects of the environment on the tuna. International Commission for the Northwest Atlantic Fisheries, Special Publication 6, 75-92.

BROCK V.E. and R.N. UCHIDA (1968) Some operational aspects of the Hawaiian live-bait fishery for skipjack tuna (Katsuwonus pelamis). United States Fish and Wildlife Service, Special Scientific Report Fisheries 574, 1-9.

CHAPMAN W.M. (1946) Observations on tuna-like fishes in the tropical Pacific. California Fish and Game 32(4), 165-170.

COMMITINI S. (1974) An approach to evaluating alternative fishing techniques in the Hawaiian skipjack fishery. Indo-Pacific Fish Council Proceedings 15, 490-495.

DUNG D.I.V. and W.F. ROYCE (1953) Morphometric measurements of Pacific scombroids. United States Fish and Wildlife Service, Special Scientific Report Fisheries 95, 170 pp.

ECKLES H.H. (1949a) Observations on juvenile oceanic skipjack (Katsuwonus pelamis) from Hawaiian waters and sierra mackerel (Scomberomorus sierra) from the eastern Pacific. United States Fish and Wildlife Service, Fishery Bulletin 51(48), 245-250.

ECKLES H.H. (1949b) Fishery exploration in the Hawaiian Islands (August to October 1948, by the vessel Oregon of the Pacific Exploration Company). Commercial Fishery Review 11(6), 1-9.

GODSIL H.C. and E.C. GREENHOOD (1952) Observations of the occurrence of tunas in the eastern and central Pacific. California Fish and Game, Fishery Bulletin 38, 239-249.

GOODING R.M. (1965) A raft for direct subsurface observation at sea. United States Fish and Wildlife Service, Special Scientific Report Fisheries 517, 1-5.

GOODING R.M. and J.J. MAGNUSON (1967) Ecological significance of a drifting object to pelagic fishes. Pacific Science 21, 486-497.

HAWAII DIVISION OF FISH AND GAME and BUMBLE BEE SEAFOODS (1970) Purse seine fishery for skipjack tuna (aku) in Hawaiian waters - summer 1970. Hawaii Division of Fish and Game and Bumble Bee Seafoods, Division of Castle and Cook, Inc., Honolulu, 33 pp.

HENNEMUTH R.C. (1959) Morphometric comparison of skipjack from the central and eastern tropical Pacific Ocean. Inter-American Tropical Tuna Commision Bulletin 3, 239-304.

HESTER F.J. (1974) Some considerations of the problems associated with the use of live bait for catching tunas in the tropical Pacific Ocean. Marine Fishery Review 36(5), 1-12.

HESTER F.J. and T. OTSU (1973) A review of the literature on the development of skipjack tuna fisheries in the central and western Pacific Ocean. National Marine Fisheries Service, Special Scientific Report Fisheries 661, 1-13.

HIATT R.W. (1948) On the herding of prey and the schooling of the black skipjack, Euthynnus yaito Kishinouye. Pacific Science 2, 297-298.

HIDA T.S. (1973) Food of tunas and dolphins (Pisces: Scombridae and Coryphaenidae) with emphasis on the distribution and biology of their prey Stolephorus buccaneeri (Engraulidae). Fishery Bulletin 71, 135-143.

HIGGINS B.E. (1970) Juvenile tunas collected by midwater trawling in Hawaiian waters, July-September 1967. Transactions, American Fishery Society 1970, 60-69.

IKEHARA I.I. (1953) Live-bait fishing for tuna in the central Pacific. United States Fish and Wildlife Service, Special Scientific Report Fisheries 107, 20 pp.

IVERSEN E.S. and H.O. YOSIDA (1957) Longline and troll fishing for tuna in the central equatorial Pacific, January 1955 to Febuary 1956. United States Fish and Wildlife Service, Special Scientific Report Fisheries 203, 1-38.

IVERSEN R.T.B. (1962) Food of albacore tuna, Thunnus germo (Lacepede), in the central and northeastern Pacific. United States Fish and Wildlife Service, Fishery Bulletin 62, 459-481.

IVERSEN R.T.B. (1971) Use of threadfin shad, Dorosoma petenense, as live bait during experimental pole-and-line fishing for skipjack tuna, Katsuwonus pelamis, in Hawaii. National Marine Fishery Service, Special Scientific Report Fishery 641, 1-10.

JUNE F.C. (1950) The tuna industry in Hawaii. Pan-Americain Fisherman 4(10), 11,19.

JUNE F.C. (1951a) Preliminary fisheries survey of the Hawaiian-Line Islands area: Part II- Notes on the tuna and bait resources of the Hawaiian, Leeward and Line Islands. Commercial Fishery Review 13(1), 1-22.

JUNE F.C. (1951b) Preliminary fisheries survey of the Hawaiian-Line Islands area: Part III- The live-bait skipjack fishery of the Hawaiian Islands. Commercial Fishery Review 13(2), 1-18.

JUNE F.C. (1952) Observations on a specimen of bluefin tuna (Thunnus thynnus) taken in Hawaiian waters. Pacific Science 6, 75-76.

KING J.E. and I.I. IKEHARA (1956) Comparative study of bigeye and yellowfin tuna in the central Pacific. United States Fish and Wildlife Service, Fishery Bulletin 57(108), 61-85.

KLAWE W.L. and M.P. MIYAKA (1967) An annotated bibliography on the biology and fishery of the skipjack tuna, Katsuwonus pelamis, of the Pacific Ocean. Inter-American Tropical Tuna Commision Bulletin 12, 1-228.

MANAR T.A. (1966a) Skipjack landings could be doubled - scientist disclose at Hawaiian meet. Pacific Fishermen 64, 7,9.

MANAR T.A. (1966b) editor, Proceedings of The Govenor's Conference on Central Pacific Fishery Resources. 1966 Febuary 28 - March 12, Honolulu - Hilo, State of Hawaii, 266 pp.

MARR J.C. (1962) editor, Pacific Tuna Biology Conference, 1960 August 14-19, Honolulu, Hawaii. United States Fish and Wildlife Service, Special Scientific Report Fisheries 415, 45 pp.

MARR J.C. (1963) Note on the return rate of tagged skipjack, Katsuwonus pelamis, and effects of handling. International Commission for the Northwest Fisheries, Special Publication 4, 15-16.

MATSUMOTO W.M. (1952) Experimental surface gill net fishing for skipjack (Katsuwonus pelamis) in Hawaiian waters. United States Fish and Wildlife Service, Special Scientific Report Fisheries 90, 1-20.

MATSUMOTO W.M. (1958) Description and distribution of larvae of four species of tuna in central Pacific waters. United States Fish and Wildlife Service, Fishery Bulletin 58(128), 31-72.

MATSUMOTO W.M. (1961) Collection and description of juvenile tunas from the central Pacific. Deep-Sea Research 8, 279-286.

MATSUMOTO W.M. (1976) Second record of black skipjack, Euthynnus lineatus, from the Hawaiian Islands. National Marine Fisheries Service, Fishery Bulletin 74, 207.

MATSUMOTO W.M. and T. KANG (1967) The first record of black skipjack, Euthynnus lineatus, from the Hawaiian Islands. Copeia 1967, 837-838.

MILLER J.M. (1979) Nearshore abundance of tuna (Pisces: Scombridae) larvae in the Hawaiian Island. Bulletin of Marine Science 29, 19-26.

MOORE H.L. (1951) Estimation of the age and growth of yellowfin tuna (Neothunnus macropterus) in Hawaiian waters. United States Fish and Wildlife Service, Fishery Bulletin 65, 133-149.

MURPHY G.I. and E.L. NISKA (1953) Experimental tuna purse seining in the central Pacific. Commercial Fishery Review 15(4), 1-12.

MURPHY G.I. and R.S. SHOMURA (1953a) Longline fishing for deep-swimming tunas in the central Pacific, 1950-51. United States Fish and Wildlife Service, Special Scientific Report Fisheries 98, 47 pp.

MURPHY G.I. and R.S. SHOMURA (1953b) Longline fishing for deep-swimming tuna in the central Pacific, January-June 1952. United States Fish and Wildlife Service, Special Scientific Report Fisheries 108, 32 pp.

MURPHY G.I. and R.S. SHOMURA (1972) Pre-exploitation abundance of tunas in the equatorial central Pacific. National Marine Fishery Service, Fishery Bulletin 70, 875-913.

MURPHY G.I., K.D. WALDRON and G.R. SECKEL (1960) The oceanographic situation in the vicinity of the Hawaiian Islands during 1957 with comparison with other years. California Cooperative Oceanic Fishery Investigation Report 7, 56-59.

NAKAMURA E.L. (1969) A review of field observations on tuna behavior. In: Proceedings of the FAO conference of fish behavior in relation to fishing techniques and tactics, 1967 October 19-27, Norway, Bergen, A. BENTUVIA and W. DICKSON, editors, Food and Agriculture Organization of the United Nations, Fishery Report 62(2), 59-68.

OTSU T. (1954) Analysis of the Hawaiian longline fishery, 1948-52. Commercial Fishery Review 16(9), 1-17.

OTSU T. and R.F. SUMIDA (1970) Albacore of Hawaiian waters, Thunnus alalunga. Commercial Fishery Review 32(5), 18-26.

REINFJES J.W. and J.E. KING (1953) Food of the yellowfin tuna in the central Pacific. United States Fish and Wildlife Service, Fishery Bulletin 54, 92-110.

ROSA H.,Jr. (1963) editor, World Scientific Meeting on the Biology of Tunas and Related Species, Proceedings. 1962 July 2-14 La Jolla, California Food and Agriculture Organization of the United Nations Fishery Report 6, 3 vols.

ROTHSCHILD B.J. (1965) Hypotheses on the origin of exploited skipjack tuna (Katsuwonus pelamis) in the eastern and central Pacific Ocean. United States Fish and Wildlife Service, Special Scientific Report Fisheries 512, 1-20.

ROYCE W.F. and T. OTSU (1955) Observation of skipjack schools in Hawaiian waters, 1953. United States Fish and Wildlife Service, Special Scientific Report Fisheries 147, 31 pp.

SECKEL G.R. (1972) Hawaiian caught skipjack tuna and their physical environment. United States Fish and Wildlife Service, Fishery Bulletin 72, 763-787.

SECKEL G.R. and K.D. WALDRON (1960) Oceanography and the Hawaiian skipjack fishery. Pacific Fishermen 58(3), 11-13.

SHIPPEN H.H. (1961) Distribution and abundance of skipjack in the Hawaiian fishery, 1952-53. United States Fish and Wildlife Service, Fishery Bulletin 61(188), 281-300.

SHOMURA R.S. (1959) Changes in tuna landings of the Hawaiian longline fishery, 1948-1956. United States Fish and Wildlife Service, Fishery Bulletin 60(160), 87-106.

SHOMURA R.S. (1963) Monofilament gill net fishing for skipjack tuna in Hawaiian waters, 1961-62. United States Fish and Wildlife Service, Circular 170, 1-12.

SHOMURA R.S. (1964) Effectiveness of tilapia as live bait for skipjack tuna fishing. Transactions, American Fishery Society 98, 291-294.

SHOMURA R.S. (1977) editor, Collection of tuna baitfish papers. 1974 June 4-6, Honolulu, Hawaii. National Marine Fishery Service, Technical Report Circular 408, 1-167.

SHOMURA R.S. and G.I. MURPHY (1955) Longline fishing for deep-swimming tunas in the Central Pacific, 1953. United States Fish and Wildlife Service, Special Scientific Report Fisheries 157, 70 pp.

STRASBURG D.W. (1960) Estimates of larval tuna abundance in the Central Pacific. United States Fish and Wildlife Service, Fishery Bulletin 60(167), 231-255.

STRASBURG D.W. (1961) Diving behavior of Hawaiian skipjack tuna. Journal du Conseil, Conseil Permanent International pour l'Exploration de la Mer 26, 223-229.

STRASBURG D.W. (1964) Postlarval scombroid fishes of the genera Acanthocybium, Nealotus and Diplospinus from the Central Pacific Ocean. Pacific Science 18, 174-185.

SUN T. (1960) Lichinki i mal'ki tuntsov, parusnikov i mech-ryby (Thunnidae, Istiophoridae, Xiphiidae) tsentral'noi i zapadnoi chasti Tikhogo okeana [in Russian]. Trudy Institute Okeanologi 41, 175-191. (English translation by W.L. Kane) Inter-American Tropical Tuna Commission, La Jolla, 18 pp, 1960.

SUZUKI Z. (1974) Re-examination of scale reading method of yellowfin tuna taken in the western and central Pacific Ocean. Japan Far Seas Fisheries Research Laboratory Bulletin 10, 157-177 [in English].

TESTER A.L. and E.L. NAKAMURA (1957) Catch rate, size, sex and food of tunas and other pelagic fishes taken by trolling off Oahu, Hawaii, 1951-55. United States Fish and Wildlife Service, Special Scientific Report Fisheries 250, 25 pp.

UCHIDA R.N. (1961) Hermaphrodite skipjack. Pacific Science 15, 294-296.

UCHIDA R.N. (1968) Catch and estimates of fishing effort and apparent abundance in the fishery for skipjack tuna (Katsuwonus pelamis) in Hawaiian waters, 1952-62. United States Fish and Wildlife Service, Fishery Bulletin 66, 181-194.

UCHIDA R.N. (1970) Distribution of fishing effort and catches of skipjack tuna, Katsuwonus pelamis, in Hawaiian waters, by quarters of the year, 1948-65. United States Fish and Wildlife Service, Special Scientific Report Fisheries 615, 1-37.

UCHIDA R.N. (1976) Reevaluation of fishing effort and apparent abundance in the Hawaiian fishery for skipjack tuna, Katsuwonus pelamis, 1948-70. National Marine Fishery Service, Fishery Bulletin 74, 59-69.

UCHIDA R.N. and R.F. SHUMIDA (1971) Analysis of the operations of seven Hawaiian skipjack tuna fishing vessels, June-August, 1967. National Marine Fishery Service, Special Scientific Report Fisheries 629, 29 pp.

WELSCH J.P. (1950) A preliminary study of food and feeding habits of Hawaiian kawakawa, mahimahi, ono, aku, and ahi. Hawaii Division of Fish and Game, Special Bulletin, Fishery Research Report I (2), 1-26.

WETHERALL J.A. (1977) Evaluation of bait substitution schemes in Hawaiian fishery for skipjack tuna, Katsuwonus pelamis. National Marine Fishery Service, Circular 408, 160-167.

YAMASHITA D.T. (1958) Analysis of catch statistics of the Hawaiian skipjack fishery. United States Fish and Wildlife Service, Fishery Bulletin 58, 253-278.

YAMASHITA D.T. and K.D. WALDRON (1959) Tagging skipjack in Hawaiian waters. Pacific Science 13, 342-347.

YOSHIDA H.O. (1968) Early life history and spawning of the albacore, Thunnus alalunga, in Hawaiian waters. National Marine Fishery Service, Fishery Bulletin 67, 205-211.

ANONOMOUS (1972) Eight countries represented at billfish symposium. Marine Fishery Review, 24, 58-61.

BEARDSLEY G.L., N.R. MENETT and W.S. RICHARDS (1975) Synopsis of the biology of the sailfish, Istiphorus platypterus (Shaw and Nodder, 1971). In: Proceedings of the International Billfish Symposium, R.S. SHOMURA and F. WILLIAMS (editors), Kailua-Kona, Hawaii, 1972 August 9-12, Part 3. Species Synopsis, National Marine Fishery Service, Special Scientific Report Fisheries 675, 95-102.

HOWARD J.K. and S. VEYANAGI (1965) Distribution and relative abundance of billfish (Istiophoridae) of the Pacific Ocean. Tropical Oceanography, Institute of Marine Science, University of Miami, 2, 1-134.

MATSUMOTO, W.M. and T.K. KAZAMA (1974) Occurence of young billfishes in the central Pacific Ocean. National Marine Fishery Service, Special Scientific Report Fisheries 676, 238-251.

MOORE H.L. (1950) The occurence of a black marlin, Tetrapterus mazara, without a spear. Pacific Science 4, 164.

NAUGHTON J.J. (1973) Investigations of billfish biology at the Hawaiian International Billfish Tournament. Marine Fisheries Review 35(8), 19-25.

ROYCE W.F. (1957) Observations on the spearfishes of the central Pacific. U.S. Fish and Wildlife Service, Fishery Bulletin 57, 497-554.

SHOMURA R.S. and F. WILLIAMS (1975) Proceedings of the International Billfish Symposium, Kailua-Kona, Hawaii. 1972 August 9-12, Part I. Report of the Symposium National Marine Fishery Service, Special Scientific Report Fisheries 675, 1-41.

SKILLMAN R.A. ad M.Y.Y. YOUNG (1976) Von Bertalanffy growth curves for striped marlin, Tetrapturus audax, and blue marlin, Makaira nigricans, in the central north Pacific Ocean. National Marine Fishery Service, Fishery Bulletin 74, 553-566.

STRASBURG D.W. (1969) Billfishes of the central Pacific Ocean. U.S. Fish and Wildlife Service, Circular 311, 11 pp.

STRASBURG D.W. (1970) A report on the billfishes of the central Pacific Ocean. Bulletin of Marine Science 20, 575-604.

UCHIYAMA J.H. and R.S. SHOMURA (1974) Maturation and fecundity of swordfish, Xiphias gladius, from Hawaiian waters. In: Proceedings of the International Billfish Symposium, R.S. SHOMURA and F. WILLIAMS (editors), Kailua-Kona, Hawaii, 1972 August 9-12, Part 2. Review and Contributed Papers. National Marine Fishery Service, pecial Scientific Report Fisheries 675, 142-148.

VEYANAGI S. and P.G. WARES (1975) Synopsis of biological data on striped marlin, Tetrapturus audux (Philippi), 1887. In: Proceedings of the International Billfish Symposium, R.S. SHOMURA and F. WILLIAMS (editors), 9-12 August 1972, Kailua-Kona, Hawaii, Part 3. Species Synopsis. National Marine Fishery Service, Special Scientific Report Fisheries 675, 132-159.

YUEN H.S.H. (1978) Memorandum to all billfishers. National Marine Fishery Service. Administration Report No. 22H, 12 pp.

YUEN H.S.H, A.E. DIZON and J.H. UCHIYAMA (1974) On notes on the tracking of the Pacific Blue Marlin, Makaria riguiana. In: Proceedings of the International Billfish Symposium, R.S. SHOMURA and F. WILLIAMS (editors), Kailua-Kona, Hawaii, 9-12 August 1972, Part 2: Review and Contributed Papers, National Marine Fishery Service, Special Scientific Report Fisheries 675, 265-268.

AMESBURY S.S. (1975) The vertical structure of the midwater fish community off leeward Oahu, Hawaii. Ph.D. Thesis, University of Hawaii, 1-106.

CLARKE T.A. (1973) Some aspects of the ecology of lantern fishes (Myctophidae) in the Pacific Ocean near Hawaii. National Marine Fishery Service, Fishery Bulletin 71, 401-433.

CLARKE T.A. (1974) Some aspects of the ecology of stomiatoid fishes in the Pacific Ocean near Hawaii. National Marine Fishery Service, Fishery Bulletin 76, 495-513.

CLARKE T.A. (1980) Diets of fourteen species of vertically migrating mesopelagic fishes in Hawaiian waters. National Marine Fishery Service, Fishery Bulletin 78, 619-640.

CLARKE T.A. and P.J. WAGNER (1976) Vertical distribution and other aspects of the ecology of certain mesopelagic fishes taken near Hawaii. National Marine Fishery Service, Fishery Bulletin 74, 635-645.

HARTMANN A.R. and T.A. CLARKE (1975) The distribution of myctophid fishes across the central equatorial Pacific. National Marine Fishery Service, Fishery Bulletin 73, 633-641.

KING J.E. and R.T.B. IVERSEN (1962) Midwater trawling for forage organisms in the central Pacific. U.S. Fish and Wildlife Service, Fishery Bulletin 62, 271-321.

MAYNARD S.D., F.V. RIGGS and J.F. WALTERS (1975) Mesopelagic micronekton in Hawaiian waters: faunal composition, standing stock, and diel vertical migration. National Marine Fishery Service, Fishery Bulletin 73, 726-736.

STRUHSAKER P. (1973) Arguripnus brocki, a new species of stomiatoid fish from Hawaii, with observations on A. ephippiatus and A. iridescens. National Marine Fishery Service, Fishery Bulletin 71, 827-836.

ANDERSON W.D. Jr. (1971) Revision of the genus Symphysanodon (Pisces: Lutjanidae) with description of four new species. National Marine Fishery Service, Fishery Bulletin 68, 325-346.

BALDWIN W.J. (1972) A new genus and new species of Hawaiian gobiid fish. Pacific Science 26, 125-128.

BONKHAM K. (1946) Measurements of some pelagic commercial fishes of Hawaii. Copeia 1946, 81-84.

BORODIN N.A. (1927) A new blenny from the Hawaiian Islands. American Museum Novitates 281, 1-2.

BORODIN N.A. (1930) Fishes (Scientific results of the yatch "Ara" expedition during the years 1926 to 1930, while in command of Williamn K. Vanderbilt collected in 1929). Bulletin Vanderbilt Marine Museum 1, (Art. 2), 39-64.

BROCK V.E. (1948a) A new blennoid fish from Hawaii. Pacific Science 2, 125-127.

BROCK V.E. (1948b) An addition to the fish fauna of the Hawaiian Islands. Pacific Science 2, 298.

BROCK V.E. (1977) A five year study of marine fish colonization in Honokohau Harbor, Kona, Hawaii. Prepared for U.S. Army Engineer Division, Pacific Ocean, Corps of Engineers, under Contract DACW874-76-M-0396, 18 pp.

BROCK V.E. and T.C. CHAMBERLAIN (1968) A geological and ecological reconnaissance off western Oahu, Hawaii, principally by means of the research submarine "Asherah". Pacific Science 22, 373-394.

BROCK V.E. and Y. YAMAGUCHI (1954) The identity of the parrotfish Scarus ahula, the female of Scarus perspicillatus. Copeia 1954, 154-155.

CARLSON B.A. (1978) A contribution to the biology of the spotted blenny, Exallias brevis (Pisces: Blenniidae). Pacific Science 32, 96 (Abstract).

CARTER B. (1969) Fishing in Hawaii. Hawaii Visitors´ Bureau, Honolulu. (pamphlet)

CHAVE E.H. (1978) General ecology of six species of Hawaiian cardinal fishes. Pacific Science 32, 245-270.

CLARK E. (1949) Notes on some Hawaiian Plectognath fishes, including a key to the species. American Museum Novitates 1397, 1-22.

CLARKE T.A. (1971) The ecology of the scalloped hammerhead shark, Sphyrna lewini, in Hawaii. Pacific Science 25, 133-144.

COHEN D.M. (1970) A new argentinid fish from Hawaii. Pacific Science 24, 377-378.

ESCHMEYER W.N. and J.E. RANDALL (1975) The scorpaenid fishes of the Hawaiian Islands, including new species and new records (Pisces: Scorpaenidae). Proceedings of the California Academy of Science 40, 265-333.

FOWLER H.W. (1912) Description of nine new eels with notes on other species. Proceedings Academy of Natural Science, Philadelphia 64, 8-33.

FOWLER H.W. (1923) New or little-known Hawaiian fishes. Bernice P. Bishop Museum Occasional Papers 8, 375-392.

FOWLER H.W. (1925) Fishes of Guam, Hawaii, Samoa and Tahiti. Bernice P. Bishop Museum Bulletin 22, 4-22.

FOWLER H.W. (1927) Fishes of the tropical central Pacific. Bernice P. Bishop Museum Bulletin 38, 32 pp.

FOWLER H.W. (1928a) Pristipomoides microlepis in Hawaii. Copeia 167, 37.

FOWLER H.W. (1928b) The fishes of Oceania. Memorie Bernice P. Bishop Museum 10.

FOWLER H.W. (1931) The fishes of Oceania. Supplement 1. Memorie Bernice P. Bishop Museum 11, 313-381.

FOWLER H.W. (1934) The fishes of Oceania. Supplement 2. Memorie Bernice P. Bishop Museum 11, 385-466.

FOWLER H.W. (1938) The fishes of the George Vanderbilt South Pacific Expedition, 1937. Monograph Academy of Natural Science, Philadelphia 2, 349 pp.

FOWLER H.W. (1941) The George Vanderbilt Oahu survey - the fishes. Proceedings Academy of Natural Science, Philadelphia 93, 247-279.

FOWLER H.W. (1949) The fishes of Oceania. Supplement 3. Memorie Bernice P. Bishop Museum 12, 37-186.

FOWLER H.W. and S.E. BALL (1924) Descriptions of new fishes obtained by the Tanager Expedition of 1923 in the Pacific Islands west of Hawaii. Proceedings Academy of Natural Science, Philadelphia 76, 269-274.

FOWLER H.W. and S. BALL (1925) Fishes of Hawaii, Johnson Island, and Wake Island. Bernice P. Bishop Museum Bulletin 26.

FREUND G. Sport fishing guide to Hawaii. Distributed by Pacific Sports, Honolulu. (updated) 75 pp.

FRITZSCHE R.A. (1975) First description of the adult male of Microgranthus brachyrhimnus (Pisces: Syngathidae). Pacific Science 29, 267-268.

GILBERT C.H. (1905) The aquatic resources of the Hawaiin Islands. Section II. The Deep-sea Fishes. Bulletin U.S. Fish Commision 23, 577-713.

GILBERT C.H. and F. CRAMER (1897) Report on the fishes dredged in deep water near the Hawaiian Islands, with descriptions and figures of twenty-three new species. Proceedings U.S. National Museum 19, 403-435.

GILBERT C.H. and C.L. HUBBS (1917) Description of Hymenocephalus tenuis, a new Macruroid fish from the Hawaiian Islands. Proceedings U. S. National Museum 54, 173-175.

GOMON M.F. and J.E. RANDALL (1975) Review of the Hawaiian fishes of the labrid tribe Bodianini. Bulletin of Marine Science 28, 32-48.

GOODSON G. (1973) The many-splendored fishes of Hawaii. Marquest Colorguide Books, Palos Verdes Estates, California, 91 pp.

GOSLINE W.A. (1950) The osteology and relationship of echelid eel, Kanpichthys diodontus. Pacific Science 4, 309-314.

GOSLINE W.A. (1951a) Chilorhinus brocki, a new Echelid eel from Hawaii, with notes on the classification of the order Anguillidae. Copeia 1951, 195-202.

GOSLINE W.A. (1951b) The scientific name of the nehu, an Engraulid baitfish of the Hawaiian Islands. Pacific Science 5, 272.

GOSLINE W.A. (1951c) The osteology and classification of the Ophichtid eels of the Hawaiian Islands. Pacific Science 5, 298-320.

GOSLINE W.A. (1952a) A new Atherinid fish of the genus Iso from the Hawaiian Islands. Pacific Science 6, 47-50.

GOSLINE W.A. (1953) Hawaiian shallow-water fishes of the family Brotulidae with the description of a new genus and notes on Brotulid anatomy. Copeia 1953, 215-225.

GOSLINE W.A. (1954) Fishes killed by the 1950 eruption of Mauna Loa. II Brotulidae. Pacific Science 8, 68-83.

GOSLINE W.A. (1959) Four new species, a new genus and a new suborder of Hawaiian fishes. Pacific Science 13, 67-77.

GOSLINE W.A. (1960a) Hawaiian lava-flow fishes. Part IV. Snycleridia canina Gilbert with notes on the osteology of Ophidioid faiulei. Pacific Science 14, 373-381.

GOSLINE W.A. (1960b) A new Hawaiian Percoid fish, Suttonia lineata with a discussion of its relationships and a definition of the family Gramumistidae. Pacific Science 14, 28-38.

GOSLINE W.A. (1965) Vertical zonation of inshore fishes in the upper water layers of the Hawaiian Islands. Ecology 46, 823-831.

GOSLINE W.A. and V.E. BROCK (1960) Handbook of Hawaiian fishes. University of Hawaii Press, Honolulu, 372 pp.

GOSLINE W.A., V.E. BROCK, H.L. MOORE and Y. YAMAGUCHI (1954) Fishes killed in the 1950 eruption of Mauna Loa. The origin and nature of the collections. Pacific Science 8, 23-27.

GOSLINE W.A. and D.W. STRASBURG (1956) The Hawaiian fishes of the family Moringuidae: another eel problem. Copeia 1956, 9-18.

GREY M. (1961) Fishes killed by the 1950 eruption of Mauna Loa. Part V. Gonostomatidae. Pacific Science 15, 462-476.

GUDGER E.W. (1931) The opah or moonfish, Lampris luna, on the coasts of California and of Hawaii. American Naturalist 65, 531-540.

GUNTHER A. (1887) Deep Sea Fishes Report on the scientific results of the voyage of HMS Challenger. Zool. vol. 22, 335 pp. Eyre and Spottisnoode, London.

HAIG J. (1955) Fishes killed by the 1950 Eruption of Mauna Loa. III. Sternoptychidae. Pacific Science 9, 318-323.

HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES (1974) Survey of fish and habitat. Division of Fish and Game, Project No. F-9-4, 1974, 67 pp.

HAWAII VISITORS BUREAU (1972) Fishing in Hawaii. Hawaii Visitors' Bureau, Honolulu, 4 pp.

HIATT R.W. (1951) Food and feeding habits of the nehu, Stolephorus purpureus Fowler. Pacific Science 5, 347-358.

HIDA T.S. (1972) Food of tunas and dolphins (Pisces: Scombridae and Coryphaenidae) with emphasis on the distribution and biology of their prey Stolephorus buccaneeri (Engraulidae). National Marine Fishery Service, Fishery Bulletin 71, 135-143.

HOBSON E.S. (1972) Activity of Hawaiian reef fishes during the evening and morning transitions between daylight and darkness. National Marine Fishery Service, Fishery Bulletin 70, 715-740.

HOBSON E.S. (1973) Diel feeding migrations in tropical reef fishes. Helfoland Wiss Meeresuntres 24 (1-4), 361-370.

HOBSON E.S. (1974) Feeding relationships of teleostean fishes on coral reefs in Kona, Hawaii. National Marine Fishery Service, Fishery Bulletin 72, 915-1031.

HOBSON E.S. and E.H. CHAVE (1972) Hawaiian reef animals. University Press Hawaii, Honolulu, 135 pp.

HOSAKA E.Y. (1944) Sport fishing in Hawaii. Bonds Publishing, Honolulu, 198 pp.

ICKLES H.C. (1945) Fisheries resources of the United States - letter of the Secretary of the Interior transmitted pursuant to law, a report on a survey of the fishery resources of the United States and its possessions. 79th Congress.

IQAMOTO T., J.E. McCOSKER and O. BARTON (1976) Alepocephalid fishes of the genera Hermigia and Bothylaco with the first Pacific record of Hermigin kreffti new record. Japan Journal of Ichthyology 23, 55-59.

JENKINS O.P. (1895) Description of new species of Ranzania from the Hawaiian Island. Proceedings of the California Academy of Science, Second Series 5, 779-784.

JENKINS O.P. (1900) Descriptions of new species of fishes from Hawaiian Islands belonging to the families of Labridae and Scaridae. Bulletin U.S. Fish Commision for 1899, 45-65.

JENKINS O.P. (1901) Description of fifteen new species of fishes from the Hawaiian Islands. Bulletin U.S. Fish Commision for 1899, 389-404.

JENKINS O.P. (1904) Report on collection of fishes made in the Hawaiian Islands, with description of new species. Bulletin U.S. Fish Commision 1902, 22, 417-511.

JONES R.S. (1968) Ecological relationships in Hawaiian and Johnson Island Acanthuridae (Surgeon fishes). Micronesica 4, 308-361.

JORDAN D.S. (1922) Description of deep-sea fishes from the coast of Hawaii killed by a lava flow from Mauna Loa. Proceedings U.S. National Museum 59, 643-658.

JORDAN D.S. (1923) Roa - A genus of Chaetodont fishes. Copeia 118, 63.

JORDAN D.S. (1926) Notes on certain Hawaiian fishes. Copeia 150, 100-101.

JORDAN D.S. and B.W. EVERMANN (1903) Descriptions of new genera and species of fishes from the Hawaiian Islands. Bulletin U.S. Fish Commision for 1902, 161-208.

JORDAN D.S. and B.W. EVERMANN (1905) The Aquatic Resources of the Hawaiian Islands. Part I. The Shore fishes of the Hawaiian Islands, with a general account of the fish fauna. Bulletin U..S. Fish Commision 23, 1-574.

JORDAN D.S. and B.W. EVERMANN (1907) Description of a new genus and two new species of fishes from the Hawaiian Islands. Bulletin of the U.S. Fish Commision for 1902, 209-210.

JORDAN D.S. and B.W. EVERMANN (1926a) A review of the giant mackerel-like fishes, tunnies, spearfishes and swordfishes. California Academy of Science Occasional Papers 12, 5-113.

JORDAN D.S. and B.W. EVERMANN (1926b) A checklist of fishes of Hawaii. Journal Pan-Pacific Research Institute, Honolulu 1, 3-15.

JORDAN D.S., B.W. EVERMANN and S. TANAKA (1927) Notes on new or rare fishes from Hawaii. Proceedings California Academy of Science 16, 649-680.

JORDAN D.S. and B.W. EVERMANN (1973) The Shore fishes of Hawaii. Handbook Keys, U.S.A. [Reprint of 1905 work]

JORDAN D.S. and E.K. JORDAN (1922) A list of fishes of Hawaii, with notes and descriptions of new species. Memorie Carnegie Museum 10, 1-92.

JORDAN D.S. and C.W. METZ (1912) Descriptions of two new species of fishes from Honolulu, Hawaii. Proceedings U.S. National Museum 42, 525-527.

JORDAN D.S. and J.O. SNYDER (1904) Notes on the collections of fishes from Oahu Island and Laysan Island, with descriptions of four new species. Proceedings U.S. National Museum 27, 939-948.

JORDAN D.S. and J.O. SNYDER (1923) Gonorhynchus moseleyi, a new species of herring-like fish from Honolulu. Journal Washington Academy of Science 13, 347-350.

JORDAN E.K. (1925) Notes on the fishes of Hawaii with descriptions of six new species. Proceedings U.S. National Museum 66, 1-43.

JUNE F.C. (1950) Preliminary fisheries survey of the Hawaiian-Line Islands area. I. The Hawaiian long-line fishery. Commercial Fishery Review 12 (1), 1-23.

JUNE F.C. (1951a) Preliminary fisheries survey of the Hawaiian-Line Islands area. II. Notes on the tuna and bait resource of Hawaiian, Leeward and Line Islands. Commercial Fishery Review 13 (1), 1-22.

JUNE F.C. (1951) Preliminary fisheries survey of the Hawaiian-Line Islands area. III. The live-bait skipjack fishery of the Hawaiian Islands. Commercial Fishery Review 13(2), 1-18.

KANAZAWA R.H. (1958) A revision of the eels of the genus Conger with descriptions of four new species. Proceedings U.S. National Museum 108, 219-267.

KENDALL W.C. and E.L. GOLDSBOROUGH (1911) The shore fishes. Report on the scientific results of the expedition to the tropical Pacific in charge of Alexander Agassiz by the U.S. Fish Commision Streamer "Albatross" from August 1899 to March 1900. Cambridge Memoir Museum Comparative Zoology, Harvard Collection 26, 239-344.

KING J.E. (1951) Two juvenile pointed-tailed ocean sunfish Masturaus lanceolatus from Hawaiian waters. Pacific Science 5, 108-109.

KING J.E. and I.I. IKAHARA (1956a) Some unusual fishes from the central Pacific. Pacific Science 10, 17.

KING O.E. (1951) Two juvenile pointed-tailed ocean sunfish, Masturus lanceolatus from Hawaiian waters. Pacific Science 5, 108-109.

LEARY D.F., G.I. MURPHY and M. MILLER (1975) Fecundity and length at first spawning of the Hawaiian anchovy or nehu (Stolephorus purpureus Fowler) in Kaneohe Bay, Oahu. Pacific Science 27, 171-180.

LOEB V.J. (1979) The ichthyoplankton assemblage of the north Pacific Central Gyre: spatial and temporal patterns. Ph.D. Thesis, University of California, San Diego, 220 pp.

MACIOLEK J.A. (1977) Taxonomic status, biology and distribution of Hawaiian Lentipes a diadromus goby. Pacific Science 31, 355-362.

MADDEN W.D. (1973) The collection of live fishes from a salvaged vessel. Copeia 1973, 144-145.

MATSUI T. (1963) Population of anchovy baitfish (Stolephorus) in the vicinity of Maui, Hawaiian Islands. MS Thesis, University of Hawaii, Honolulu, 98 pp.

MATSUMOTO W.M. (1968) Morphology and distribution of larval wahoo Acanthocybium solandri (Cuvier) in the central Pacific Ocean. U.S. Fish and Wildlife Service, Fishery Bulletin 66, 299-322.

MILLER J.M. (1974) Nearshore distribution of Hawaiian marine fish larvae: effects of water quality, turbidity and currents. In: The Early Life History of Fish, J.H.S. BLAXTER, editor, Springer Verlag, pp. 217-231.

MORRIS R.A. and D.E. MORRIS (1967) A rare hawkfish Oxycirritus typus Bleeker found in Hawaii. Ichthyologica 39, 71-72.

MURPHY G.I. and I.I. IKEHARA (1955) A summary of sightings of fish schools and bird flocks and of trolling in the central Pacific. U.S. Fish and Wildlife Service, Special Scientific Report 154, 32 pp.

MYERS G.S. (1940) The fish fauna of the Pacific Ocean, with especial reference to zoogeographical regions and distribution as they affect the international aspects of the fisheries. Proceedings 6th Pacific Science Congress 3, 201-210.

NAKAMURA E.L. (1970) Synopsis of biological data on Hawaiian species of Stolephorus. In: The Kuroshiro symposium on the Japan Current Papers. J.C. MARR, editor, East-West Center Press, Honolulu, 425-446.

NAKAMURA R. (1968) An aditional contribution to the biology of the aholehole, Kuhlia sandvicensis (Steirdachnen). Pacific Science 22, 493-496.

NICHOLS J.T. (1921) A Hawaiian Race of Carangoides gymnostethoides. American Museum Novitates 3, 2 pp.

NICHOLS J.T. (1922) Carangoides jordani from Hawaiian Islands with notes on related fishes. American Museum Novitates 50, 3 pp.

NICHOLS J.T. (1935a) The Hawaiian "Ulva". Copeia 1935, 192-193.

NICHOLS J.T. (1935b) Variation in Pacific Trachurops crumenophthalmus. American Museum Novitates 815, 1-6.

NORMAN J.R. (1931) Notes on flat fishes (Heterosomata). III. Collections from China, Japan and the Hawaiian Islands. Annual Magazine Natural History, Series 10, 8, 597-604.

PIETSCHMANN V. (1930) Remarks on Pacific fishes. Bernice P. Bishop Museum Bulletin 73, 1-24.

PIETSCHMANN V. (1934) Zwei neue Meergrundeln von der Hawaiischen Inseln. Zool. Anz. 108, 43-44.

PIETSCHMANN V. (1938) Hawaiian Shore Fishes. Bulletin Bishop Museum 156, 55 pp.

RANDALL J.E., Jr. (1955) A contribution to the biology of the Acanthuridae (surgeonfishes). Ph.D. Dissertation, University of Hawaii.

RANDALL J.E. (1956) A revision of the surgeonfish genus Acanthurus. Pacific Science 10, 159-235.

RANDALL J.E. (1958) Two new species of Anampses from the Hawaiian Island, with notes on other Labrid fishes of this genus. Journal Washington Academy of Science 48, 100-108.

RANDALL J.E. (1961a) Two new butterfly fishes (Family Chaetodontidae) of the Indo-Pacific genus Forcipiger. Copeia 1961, 237-238.

RANDALL J.E. (1961b) A contribution to the biology of the convict surgeonfish of the Hawaiian Islands, Acanthurus triostegus sandricensis. Pacific Science 15, 215-272.

RANDALL J.E. (1963) Review of the Hawkfishes (family Cirrhitdae). Proceedings U.S. National Museum 114, 389-451.

RANDALL J.E. (1971) The nominal triggerfishes (Balistidae) Pachynathus nycteris and Oncorbalistes erythropterus, junior synonyms of Melichthys vidua. Copeia 1971, 462-469.

RANDALL J.E. (1972) A revision of the labiid fish genus Anampses. Micronesica 8, 151-195.

RANDALL J.E. (1972) The Hawaiian trunk fishes of genus Ostracion. Copeia 1972, 756-768.

RANDALL J.E. (1975) Notes on the Hawaiian filetail Pseudomonacathus garretti. Japanese Journal of Ichthyology 21, 223-226.

RANDALL J.E. and R.K. KANAYAMA (1972) Hawaiian fish immigrants. Sea Frontiers 18, 144-153.

RANDALL J.E. and J.C. KAY (1974) Stethojulis axillaris, junior synonym of the Hawaiian labrid fish Stethojulis balteata, with a key to the species of the genus. Pacific Science 28, 101-107.

RANDALL J.E. and P. STRUHSAKER (1971) The acanthurid fish Naso lopezi Heire from the Hawaiian Islands. Copeia 1971, 320-322.

RANDALL J.E. and P. STRUHSAKER (1976) Description of the male of the Hawaiian angelfish Gerricanthus personatus. Bulletin of Marine Science 26, 414-416.

RANDALL J.E. and S.N. SWERDLOFF (1973) A review of the damselfish genus Chromis from the Hawaiian Islands, with descriptions of three new species. Pacific Science 27, 327-349.

RASS T.S. (1964) editor, Fishes of the Pacific and Indian Ocean - Biology and Distribution. (Trans. from Russian: Biologiya: rasprostranenic ryb Tikhugo; Indiiskogo okeanov. Akademiya Nauk SSSR. Trydy Instituta Okeanologii) Academy of Science of the USSR Transaction of the Institute of Oceanology, vol. 73, Moskva, 1964, 266 pp.

RASS T.S. (1959a) Deep Sea Fishes of the northern Pacific and far-eastern Seas. XVth International Congress Zoology, Section III, 34 pp.

RICHARDS W.J. (1967) Stemonosudis rothschildi, a new paralepidid fish from the central Pacific. California Fish and Game 53, 35-37.

ROGER C. and R. GRANDPERRIN (1976) Pelagic food webs in the tropical Pacific. Limnology and Oceanography 21, 731-735.

ROTHSCHILD B.J. (1964) Observations on dolphins (Coryphaena spp.) in the Central Pacific Ocean. Copeia 2, 445-447.

SALE P.F. (1970) Distribution of larval Acanthuridae off Hawaii. Copeia 4, 765-766.

SCHINDLER O. (1932) Sexually mature larval Hemiramphidae from the Hawaiian Islands. Bernice P. Bishop Museum Bulletin 97, 3-28.

SCHULTZ L.P. (1938) Notes on the Scorpaenid fish, Taenianotus triacanthus, from the Hawaiian Islands. Copeia 1938, 206.

SCHULTZ L.P. (1941) Kraemeria bryani, a new species of trichonotid fish from the Hawaiian Islands. Journal Washington Academy of Science 31, 269-272.

SCHULTZ L.P. (1951) Chaetodon tinkeri, a new species of butterfly fish (Chaetodontidae) from the Hawaiian Islands. Proceedings U.S. National Museum 101, 485-488.

SCHULTZ L.P. (1950) Three new species of fishes of the genus Cirrhitus (family Cirrhitidae) from the Indo-Pacific. Proceedings U.S. National Museum 100, 547-552.

SCHULTZ L.P. (1966) Pseudochegma diagramma, a new genus and species of grammiated fish with a key to genera of the family and to the species of the subfamily Pseudogramminae. Ichthyologica 37, 185-194.

SMITH S.V., K.E. CHAVE and D.T.O. KAM (1973) Atlas of Kaneohe Bay: a reef system under stress. Univ. of Hawaii Sea Grant Program. UNIHI-SEA GRANT-TR-72-01, 128 pp.

SNYDER J.O. (1904) A catalogue of the shore fishes collected by the Steamer Albatross about the Hawaian Islands in 1902. Bulletin U.S. Fish Commision 1902, 22, 513-538.

SPRINGER V.G. Revision of the circumtropical shore fish genus Entomarodus (Blenniidae: Salarinae) Proceedings U.S. National Museum 122, 1-50.

STRASBURG D.W. (1955) North-south differentiation of blenniid fishes in the central Pacific. Pacific Science 9, 297-303.

STRASBURG D.W. (1956) Notes on th blennioid fishes of Hawaii with description of two new species. Pacific Science 10, 241-267.

STRASBURG D.W. (1958) Distribution, abundance and habits of pelagic sharks in the central Pacific Ocean. U.S. Fish Wildlife Service, Fishery Bulletin 58, 335-361.

STRASBURG D.W. (1960) A new Hawaiian Engraulid fish. Pacific Science 14, 395-399.

STRASBURG D.W. (1964) Further notes on the identification and biology of Echeneid fishes. Pacific Science 18, 51-57.

STRASBURG D.W. (1966) New fish records from Hawaii: Hime, Pikea and omubranchus. Pacific Science 20, 91-94.

STRASBURG D.W., E.C. JONES and R.T.B. IVERSON (1968) Use of a small submarine for biological and oceanographic research. Journal du Conseil, Conseil Permanent International Pour l'Exploration de la Mer 31, 410-426.

STRUHSAKER P. and R.M. MONCIEFF (1974) Bothus thompsoni (Fowler) 1923, a valid species of flat fish (Pisces: Bothidae) from the Hawaiian Islands. National Marine Fishery Service, Fishery Bulletin 72, 237-246.

TAYLOR L. and P. STRUHSAKER (1976) New shark off Kahuka Point, Oahu. 15 Nov. 1976. Pacific Science 32, 25.

TESTER A.L. (1951) The distribution of eggs and larvae of the anchovy, Stolephorus purpureus Fowler, in Kaneohe Bay, Oahu, with a consideration of the sampling problem. Pacific Science 5, 321-346.

TESTER A.L. and R.W. HIATT (1952) Variation in the vertebral number of the anchovy (Stolephorus purpureus) in Hawaiian waters. Pacific Science.

TINKER S.W. (1944) Hawaiian Fishes. Tongg Publishing Co., Honolulu, 403 pp.

WASS R.C. (1973) Size, growth and reproduction of the sandbar shark, Carcharhinus millerti in Hawaii. Pacific Science 27, 305-318.

WATARAI L.T. (1973) Growth rate of a caranzid fish, the omaka, Caranx mate in Hawaii. American Fishery Society Transactions 102, 617-620.

YOSHIDA H.O. (1973) Taroctes subescens and Trarctichthys steindachneri from Hawaiian waters. Fishery Bulletin 71, 900-902.

YOUNGBLUTH M.J. (1968) Aspects of the ecology and ethology of the cleaning fish, Labroides phthirophagus Randall. Zeitschrift fur Tierpsychologie 25, 915-932.

☆U.S. GOVERNMENT PRINTING OFFICE: 1982-546-085/3192