

An Annotated Bibliography on the Breeding Habits and Development of Fishes of the Indian Region



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AN ANNOTATED BIBLIOGRAPHY ON THE BREEDING
HABITS AND DEVELOPMENT OF FISHES OF
THE INDIAN REGION

BY

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FOREWORD

This 'Foreword' should serve as a preface also since I happen to be one of the authors of this Bulletin. Some personal reference, therefore is unavoidable.

My association with investigations relating to breeding habits and development of fishes goes back to a period of about three and a half decades and despite exigencies of service and vicissitudes of official career it had been possible to maintain contact with the subject more or less uninterruptedly. At the time of initiation of work in this field the scattered and sketchy nature of the relevant literature became evident and the need for bringing them together and reviewing them was keenly felt. An attempt was made in this direction resulting in the account entitled "Breeding habits and development of Indian freshwater and brackishwater fishes" which was published by me in 1946 in two parts in the *Journal of the Bombay Natural History Society*. This, I should say, was well received and soon after, with the change of assignment to fisheries research after a decade of service as an entomologist, it became possible for me to carry on work on the life-histories of fishes as a routine rather than as a hobby. With the literature collected till then two fairly comprehensive bibliographies entitled "Bibliography of breeding habits and development of fishes of inland waters of India" and "Bibliography of breeding habits and development of estuarine and marine fishes of India" were published in 1950 and 1951 respectively in the *Journal of the Zoological Society of India*. Incidentally it may be stated that these were the first bibliographies to be published in fisheries and marine sciences in the Indian Region and could be said to have paved the way for others.

The present bibliography covers the earlier ones issued also. The annotations are brief, just to indicate the most salient aspects pertaining to the subject in the concerned reference. No annotation however detailed could substitute any original article and hence those interested are advised to refer the original contributions. To avoid confusion in most cases, scientific names as given by the authors are used and the validity of these has not been gone into. Reference to figures has been inadvertently left out in some of the annotations and this may be condoned.

Every effort has been made to make the bibliography as comprehensive as possible and authors would be thankful for bringing to their notice,

omissions or mistakes if any. In all 1079 references are listed, more than double of the earlier two which had altogether 484 references. To a very great extent this increase in number has been due to the increased interest evinced in the fishery circles in India in life-history studies of fishes during the last two decades. It may be said here that in this respect a dominant role was played by the two Central Fisheries Research Institutes dealing with the marine and inland fisheries research formerly under the Ministry of Food and Agriculture, Government of India and now in the Indian Council of Agricultural Research. Further, while many of the earlier contributions had remained in the abstract stage or in the form of brief notes, most of the recent contributions have come out as full papers thereby enhancing their utility from the reference point of view.

The area covered in the present bibliography is more or less the same as in the previous ones, viz., the subcontinent of India and the adjacent countries, ichthyofauna of which is familiar to Indian workers. Relevant information to the extent available are given on exotic fishes introduced in this country. References to the spawning and life-history stages of fishes distributed in the Indian Ocean based on the work done elsewhere are also included. To make the listing comprehensive references of a casual nature relating to young stages, such as fry, fingerlings and juveniles and their transport, culture etc. are also cited though the same may not strictly come under regular life-history studies. This has been done deliberately with hardly any attempt at selection. The bibliography may therefore appear 'diffuse' but it was felt expedient to 'err' in this direction leaving selection to the need and judgement of the workers concerned.

I wish to record here my appreciation of the efficient way my colleague and co-author, Mr. P. Bensam, collaborated with me in the compilation and annotation of the widely scattered references without prejudice to his routine work. It is also a pleasure to express my appreciation of the very high sense of duty and responsibility shown by staff of the Institute who worked with devotion to bring out the Bulletin in time.

It is hoped that this Bibliography will be found helpful by the fishery biologists engaged in the study of life histories of fishes and would pave the way for further studies in this field and thus enable us to acquire a better knowledge of our resources so essential in fishery development and management.

Mandapam Camp
September, 1968.

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ANNOTATED BIBLIOGRAPHY

ABRAHAM, J. G. 1962. Studies on *Colisa lalius* (Cuv. and Val.). *Govt. of Madras Fish. St. Rep. & Year book 1957-58*: 128-138.

Fecundity, spawning and sex- ratio.

ABRAHAM, J.G. 1964. Sex dimorphism in *Barbus curmuca* (Hamilton). *Madras J. Fish.* 1962, 1:40. Presence of pearl organs in males and longer anal fin in females.

ADAMS, W., H. R. MONTALBAN and C. MARTIN 1932. Cultivation of Bangos in the Philippines. *Philipp. J. Sci., Manila*, **47**(1): 1-38.

Cultivation and acclimatisation of the young stages of *Chanos chanos*.

AHL, E. 1929. Uebersicht uber die lebend eingefuhrten asiatischen Fishes der Gattung *Panchax*. *Aquar.*, Berlin: 39-42

Notes on breeding.

AHMAD, N. 1934. Preliminary study of the embryology of *Wallgo attu*. *Proc. 21st Indian Sci. Congr.* (Bombay), Pt.3 *Abstracts*: 271.

Processes of embryogenesis including the formation of germ layers.

AHMAD, N. 1936. Observations on the spawning habits of the carp, *Labeo gonius* (Day). *Proc. 23rd Indian sci. Congr.* (Indore), Pt. 3 *Abstracts*: 358.

Spawning and hatching.

AHMAD, N. 1942. Occurrence of late eggs in *Salmo fario* Linnaeus. *Proc. 29th Indian Sci. Congr.* (Baroda), Pt.3 *Abstracts*: 159.

Occurrence of late eggs.

AHMAD, N. 1944a. On the spawning habits and development of the so-called freshwater shark, *Wallagonia attu* (Bloch & Schneider). *Proc. Nat. Inst. Sci. India*, **10**(2) : 193-199.

Spawning habits, egg membranes and water absorption, structure of the fertilized egg, cleavage, formation of embryo, hatching, newly hatched larva, older stages and one week old fry with figures.

AHMAD, N. 1944b. The spawning habits and early stages in the development of the carp, *Labeo gonius* (Hamilton) with hints for distinguishing eggs, embryos and larvae of *Labeo gonius*, *Cirrhina mrigala* and *Wallagonia attu*. *Ibid.*, **10**(3): 343-354.

Spawning habits, ripe egg, fertilised egg, segmentation, embryonic development, hatching and larval development till 5 weeks old fry condition of *Labeo gonius*; distinguishing features of the eggs, embryos and larvae of *L. gonius*, *C. mrigala* and *W. attu* with figures.

AHMAD, N. 1946. On the spawning habits and culture of katli, *Barbus (Lissochilus) hexagonolepis* McClelland. *Bengal Govt. Fish. Dev. Pamphlet*, No. 2: 4-8.

Spawning ground, breeding habits and enemies of eggs and young stages.

AHMAD, N. 1948a. On the spawning habits and development of the Copper Mahaseer, *Barbus (Lissochilus) hexagonolepis* McClelland. *Proc. Nat. Inst. Sci. India*, **14**(1): 21-28.

Spawning season, ovarian, ova, ripe egg, embryonic development, newly hatched larval development till 1.2 cm. long with figures.

AMHAD, N. 1948b. A note on carp ova and their hatching. *Curr. Sci.*, **17**(12); 362-363.

Ova of *Catla catla*, *Labeo rohita* and *Cirrhina mrigala* hatching in hatchery pits, their transformation to fry condition and the number of ova in relation to fish weight.

AHMAD, N. 1948c. Methods of collection and hatching of carp ova in Chittagong with some suggestions for their improvement. *J. Bombay nat. Hist. Soc.*, **47**: 593-602.

Spawn collection centres, spawning grounds, spawning season and condition of spawn in *Labeo rohita*, *Catla catla* and *Cirrhina mrigala*.

AHMAD, N. 1955. Certain observations on the spawning of major carps in the river Halda of Chittagong (East Pakistan). *J. Zool. Soc. India*, **7**(1): 101-103.

Spawning grounds and lunar periodicity on the spawning *Catla catla*, *Labeo rohita* and *Cirrhina mrigala*.

AHMAD, N. 1956. Transplantation of food fish in East Pakistan. *Pakistan J. Sci.*, **8**(4): 167-170.

Breeding of *Carassius auratus*, *Trichogaster pectrolalis* and *Tilapia mossambica* in impoundments.

AIYAR, R.G. 1935. Observations on the development of *Acentrogobius neilli* (*Gobius neilli* Day). *Zool. Anz.*, Leipzig, **199**: 83-92.

Breeding and development.

AIYAR, R.G. 1942. Observations on the protective envelopes of some viviparous elasmobranch fishes of Madras Coast. *Proc. 29th Indian Sci. Congr. (Baroda)*, Pt.3 Abstracts :157.

Protective membranes in *Chiloscyllium griseum*, *Carcharinus dussumieri*, *Scoliodon palasorrah*, *S. sorrakowah*, *Rhinobatus granulatus* and *Pristis cuspidatus*.

AIYAR, R.G. and G. MAHADEVAN. 1939. On a collection of elasmobranch embryos obtained from the Madras Coast. *Proc. 26th Indian Sci. Congr. (Lahore)*, Pt.3 Abstracts: 134.

Embryos of *Scoliodon sorrakowah*, *S. palasorrah*, *S. dussumieri*, *S. walbehmi*, *Hemigaleus balfouri*, *Rhinobatus granulatus*, *R. thouini*, *Pristis cuspidatus*, *Narcine timlei*, *N. indica* and *Astrape dipterygia* reported.

AIYAR, R. G., K. A. MENON and M. G. K. MENON 1936. Plankton records for the years 1929 and 1930. *J. Madras Univ.*, **8** : 1-43.

Occurrence of fish eggs and larvae in the plankton off Madras.

AIYAR, R.G. and K.P. NALINI 1938. Observations on the reproductive system, egg-case and breeding habits of *Chiloscyllium griseum* M. &H. *Proc. Indian Acad. Sci.*, **7B**(5) : 252-269.

Aiyar, R.G. and K.P Nalini 1938(Contd).

Reproductive system, egg-case, development of the egg, embryonic development from one week to 70 days, breeding period and egg liberation.

AIYAR, R.G., M.M .UNNI and P.M. VARKEY 1944. Studies on leptocephali of Madras Coast. *Proc. 31st Indian Sci. Congr. (Delhi). Pt.3 Abstracts:* 106-107.

Eggs of eels and leptocephali belonging to *Muraenesox cinereus* and *Ophichthys boro*.

ALCOCK, A. 1890. Observations on the gestation of some sharks and rays. *J. Asiatic Soc. Bengal*, **59**(2) 51-56.

Gestation in *Carcharinus dussumieri*, *C. melanopterus*, *Dasyatis bleekeri*, *Aetomylaeus nichofii* and *Sphyrna blochii*.

ALCOCK, A. 1891. On viviparous bathybial fish from the Bay of Bengal. *Proc. Zool. Soc. London*, 1891: 226-227.

Internal impregnation of the eggs, structure of the embryos and distensible abdomen during the gestation period in *Saccogaster maculata*.

ALCOCK, A. 1892a. On utero-gestation in *Trygon bleekeri*. *Ann. Mag. nat. Hist.*, ser.6, 9: Gestation.

ALCOCK, A. 1892b. Natural history notes from H.M.Indian Marine Survey Steamer "Investigator" Ser. II, No.4. Some Observations on the embryonic history of *Pteroplatea micrura*. *Ibid.*, ser.6, **10**: 1-8. Embryonic stages.

ALCOCK, A. 1892c. Natural history notes from H.M. Indian Marine Survey Steamer "Investigator" Ser. II, No. 5. On the bathybial fishes collected during the season of 1891-92. *Ibid.*, ser. 6, **10**: 347-348 & 360-361.

Ova of *Chimaera monstrosa* and eggs of *Xenodermichthys guentheri*.

ALCOCK, A. 1895. On a new species of viviparous fish of the family Ophidiidae. *Ibid.*, ser .6, **16**: 144-146.

Structure of egg capsules and embryos of *Diplacanthopoma river-andersoni* and *D. brachysoma*.

ALEXANDER, E.C. 1961. A contribution to the life history, biology and geographical distribution of the bone fish, *Albula vulpes* (Linnaeus). *Dana Rept.*, 53: 51 pp.

Larval history and spawning.

ALIKUNHI, K.H. 1947. On the bionomics and post-larval development of the Orange- chromide, *Etroplus maculatus* Bloch. *Proc. 34th Indian Sci. Congr. (Delhi), Pt.3 Abstracts:* 178.

Postlarval stages, breeding in brackish and freshwater and feeding habits of the early stages.

ALIKUNHI, K.H. 1948a. On the bionomics, feeding habits and breeding of 'Karambai', *Barbus (Lissochilus) hexagonolepis* McClelland in the River Cauvery, Madras. *Proc. 35th Indian Sci. Congr. (Patna) , pt.3 Abstracts:* 201

Breeding season and collection of fry from nurseries for stocking.

ALIKUNHI, K.H. 1948b. Food, feeding habits and growth of fingerlings of the freshwater shark, *Wallagonia attu* (BI. & Schn.), *Ibid.*, Pt.3 Abstracts:206.

Growth of fingerlings in nursery tanks.

ALIKUNHI, K.H. 1948 C. Growth, maturity and brood care in the murrels, *Ophicephalus striatus* and *O. punctatus*. *Ibid.*, Pt.3, Abstracts: 207.

Embryonic and larval development, post larval growth and age at first maturity.

ALIKUNHI, K.H. 1949. On the occurrence of the mrigal, *Cirrhina mrigal* Ham. In the Godavari. *Curr. Sci.*, **18**(1): 11-12.

Young stages.

ALIKUNHI, K.H. 1954. Notes on the bionomics, breeding and growth of the murrel, *Ophicephalus striatus* Bloch. *Proc. Indian Acad. Sci.* 1953, **38B**(1): 10-20.

Breeding habits, eggs, size and age at maturity fecundity, development, incubation, hatching and postlarval growth in the laboratory as well as in nature.

ALIKUNHI, K.H. 1956. Observations on the fecundity, larval development and early growth of *Labeo bata* (Hamilton). *Indian J. Fish.*, **3**(1): 216-229.

Breeding season, fecundity and larval development from about 18 hours after hatching till the early juvenile stage (about one month old), with figures.

ALIKUNHI, K.H. 1957a. Further observations on the feeding habits of young carp fry. *Proc. 44th Indian Sci. Congr.* (Calcutta), pt.3 Abstracts: 324-325.

Zooplanktonic food of carp fry.

ALIKUNHI, K.H. 1957b. *Fish culture in India. Farm Bull. No.20.* Indian Counc. Agr. Res., New Delhi.

General notes on the breeding and young stages of *Catla catla*, *Labeo rohita*, *Cirrhina mrigala*, *Labeo calbasu*, *L. fimbriatus*, *Cirrhina cirrhosa* *L. kontius*, *C. reba*, *L. bata*, *Osteochilus thomassi*, *Thynnichthys sandhkol*, *Barbus carnaricus*, *B. hexagonolepis*, *B. dubius*, *B. sarana*, *Cyprinus carpio*, *Carassius vulgaris*, *Tinca tinca*, *Chanos chanos*, *Etroplus suratensis*, *Mugil cephalus*, *M. corsula*, *Lates calcarifer*, *Megalops cyprinoides*, *Osphronemus goramy*, *Ophicephalus striatus*, *O. marulius*, *Anabas testudineus*, *Heteropneustes fossilis*, *Clarias batrachus*, *Notopterus chilata*, *Mystus seenghala* and *Pangasius pangasius*.

ALIKUNHI, K.H. 1958. Observations on the feeding habits of young carp fry. *Indian J. Fish.*, **5**(1): 95-106.

Carp fry feeding avidly on zooplankton and hardly taking phytoplankton.

ALIKUNHI, K.H. 1966. Synopsis of biological data on the common carp *Cyprinus carpio* (Linnaeus), 1758 (Asia and Far east). *Proc. F.A.O. World Symp. on warm water pond fish culture, Rome, 18-25 May 1966: 1-32.*

Data relating to breeding, maturity and development.

ALIKUNHI, K.H. and H. CHAUDHARI 1953. Characteristic colouration of juvenile specimens of *Labeo (Morulius) angra* with notes on growth. *J. Bombay nat. Hist. Soc.*, **51**(3): 537-542.

Postlarval stage and juveniles.

ALINKUNHI, K.H. and H. CHAUDHURI 1954. On the life-history and bionomics of carp minnow, *Chela phulo* (Hamilton). *Proc. Indian Acad. Sci.*, **39B**(2):76-90.

Maturity, breeding, fecundity, ovarian egg, cleavage, formation of embryo, hatching, prolarvae and postlarvae.

ALIKUNHI, K.H., H. CHAUDHURI and V. RAMACHANDRAN 1951. A possible method for segregation of species from a mixed collection of carp fry. *Sci. & Cult.*, **17**(5): 220.

Experiments on segregation of different species of carp fry.

ALINKUNHI, K.H., H. CHAUDHURI and V. RAMACHANDRAN 1952. Response to transplantation of fishes in India, with special reference to conditions of existence of carp fry. *J. Asiat. Soc.Sci.*, **18**(1):35-53.

Eggs, fry and fingerlings of *Cyprinus carpio*, *Osphronemus goramy*, *Etioplos suratensis*, *Megalops cyprinoides* and *Elops saurus*.

ALIKUNHI, K.H., H. CHAUDHURI and V. RAMACHANDRAN 1955. On the mortality of the carp fry in nursery ponds and the role of plankton in their survival and growth. *Indian J. Fish.*, **2**(2) :257-313.

Rearing carp fry in semi-natural but controlled conditions and survival of the fry.

ALIKUNHI, K.H., A. DUTTA, V.D. SINGH, S. ARJUN and G.P. DUBEY 1964. Observations on the breeding of carps in bundhs, near Nowgong, Madhya Pradesh during July-August 1964. *Bull. Cent. Inst. Fish. Edu. Bombay*, No. 1, 22pp.

Breeding of carps in different kinds of bundhs.

ALIKUNHI, K.H., S.V. GANAPATHI and S.N. RAO 1949. Notes on the life-history of *Labeo calbasu* and *L. fimbriatus*, *Proc. 36th Indian Sci. Congr. (Allahabad)*, Pt. 3 *Abstracts*: 159

Fertilised eggs, period of incubation, hatchling and pigment patterns of the fry.

ALIKUNHI, K.H. and V.G. JHINGRAN 1951. Principal freshwater fisheries and fish culture. *Handbook of Indian fisheries* (Min. of Agri. New Delhi): 40-47.

Fish seed such as fry, fingerlings etc. for culture and their collection, stocking and rearing.

ALIKUNHI, K.H., S. PARAMESWARAN and K.K. SUKUMARAN 1962. Fecundity, breeding and life-history of a minor carp *Labeo boga* (Hamilton). *Proc. 49th Indian Sci. Congr. (Cuttack)*, Pt.3 *Abstracts*: 386-387

Maturity, fecundity, breeding, development from cleavage, hatchling and early larvae.

ALIKUNHI, K.H., V. RAMACHANDRAN and H. CHAUDHURI 1951. Mortality of carp fry under supersaturation of dissolved oxygen in water. *Proc.nat. Inst. Sci. India*, **17**(4): 262-264.

Mortality of the fry of *Catla catla*, *Labeo rohita*, *L. calbasu*, *L. bata*, *Cirrhina mrigala* and *C. reba*.

ALIKUNHI, K.H., V. RAMACHANDRAN and H. CHAUDHURI 1952. On the role of the duck weed *Lemna minor* in the preparation of carp nurseries. *Sci. & Cult.*, **17**(10): 437-438.

Experiments on the use of the weed in nurseries of the fry of *Ctenopharyngodon idellus*.

ALIKUNHI, K.H. and G.L. RAO 1948. Influence of temperature on the rate of embryonic differentiation in *Rasbora daniconius*. *Proc. 35th Indian Sci. Congr.* (Patna), Pt.3 Abstracts: 206-207.

Intensive breeding period, embryonic and larval development, embryonic differentiation in relation to temperature and time of hatching.

ALIKUNHI, K.H., G.L. RAO and P.K. JACOB 1947. Bionomics and development of *Glossogobius giuris* (Hamilton). *Proc. 34th Indian Sci. Congr.* (Delhi), Pt. 3 Abstracts: 179 (Also *J. Madras Univ.*, 1951, **21B**: 238-248).

Breeding habits, ovarian egg, fertilised egg, embryonic development, hatchling and larval development upto about 80 hours after hatching.

ALIKUNHI, K.H. and S.N. RAO 1948a. On the bionomics, development and early growth rate of Cauvery carp, *Labeo konitus* Day. *Proc. 35th Indian Sci. Congr.* (Patna), Pt. 3 Abstracts: 205-206.

Spawning season, size at first maturity, spawning time, fertilized egg, period of incubation, hatching, postlarval stages and growth rate.

ALIKUNHI, K.H. and S.N. RAO 1948 b. Observations on the growth of *Cyprinus carpio* in tropical environment at the Chetput fish farm, Madras. *Ibid.*, Pt.3 Abstracts: 206.

Early growth rate of the fry of *C. carpio* var. *communis*, *specularis* and *nudus* fed on artificial food.

ALIKUNHI, K.H. and S.N. RAO 1949. Observations on the bionomics and postlarval development of the Carnatic Carp, *Barbus carnaticus* (Jerdon). *Proc. 36th Indian Sci. Congr.* (Allahabad), pt.3 Abstracts: 160.

Size and age at first maturity, breeding season, postlarval stages and identifying features of fry and fingerlings.

ALIKUNHI, K.H. and S.N. RAO 1951a. Notes on the early development growth and maturity of *Cirrhina reba* (Hamilton) *J. Zool. Soc. India*, **3**(1): 85-98.

Embryonic development hatchling, larval stages till 1½ months old and maturity with figures.

ALIKUNHI, K.H. and S.N. RAO 1951b. Notes on the metamorphosis of *Elops saurus* Linn. and *Megalops cyprinoides* (Broussonet) with observations on their growth. *Ibid.*, **3**: 99-109 (Also *Proc. 36th Indian Sci. Congr.* (Allahabad), Pt 3 Abstracts: 160).

Notes on breeding, stages in metamorphosis and aspect of acclimatization of the young stages with figures.

ALIKUNHI, K.H. and V. RENGANATHAN 1947. Bionomics, breeding habits and development of the tench, *Tinca tinca* in the Nilgiri waters. *Proc. 34th Indian Sci Congr.* (Delhi), Pt.3 Abstracts: 179.

Breeding season, fertilised egg, cleavage, time of hatching and developmental stages.

ALIKUNHI, K.H. and K.K. SUKUMARAN 1964. Preliminary observations on Chinese carps in India. *Proc. Indian Acad. Sci.*, **60B**(3): 171-188.

Attainment of sexual maturity in *Ctenopharyngodon idellus*, *Hypophthalmichys molitrix*, *Aristichthys nobilis* and *Mylopharyngodon piceus*.

ALIKUNHI, K.H., K.K. SUKUMARAN and S. PARAMESWARAN 1963. Induced spawning of the Chinese grass carp, *Ctenopharyngodon idellus* (C. & V.) and the silver carp, *Hypophthalmichthys molitrix* (C. V.) in ponds at Cuttack, India. *Proc. Indo-Pac. Fish. Council.* 10th Sess., 1962, Sect. I I I: 181-202 (*Also Curr. Sci.*, **32**(3): 103-106

Fecundity of pond reared specimens, induced breeding in ponds, development, hatchling, one day and two-day old larvae and attempts at hybridization.

ALIKUNHI, K.H., K.K. SUKUMARAN, S. PARAMESWARAN and S.C. BANERJEE 1964. Preliminary observations on commercial breeding of Indian carps under controlled temperature in the laboratory. *Bull. Cent. Inland Fish. Res. Inst. Barrackpore*, No. 3: 1-19.

First successful experiments in inducing the Catla, Rohu and Mrigal to breed in the laboratory by pituitary injections and controlled water temperature.

ALIKUNHI, K.H., M.A. VIJAYALAKSHMANAN and K.H. IBRAHIM 1960. Preliminary observations on the spawning of Indian carps induced by injection of pituitary hormones. *Indian J. Fish.*, **7**(1): 1-19.

Spawning by injection of fish pituitary extracts, fertilisation of eggs, hatching and hatchlings.

AMAOKA, KUNIO 1962. Development and growth of the sinistral flounder, *Bothus myriaster* (Temminck and Schlegel) found in the Indian and Pacific Oceans. *Bull. Misaki mar. biol. Inst. Kyoto Univ.*, No. 5: 11-29.

Development and growth.

AMIRTHALINGAM, C. 1939. The nesting habits of gourami (*Osphronemus goramy*). *J. Bombay nat. Hist. Soc.*, **41**: 436-437.

Nesting habits.

ANNANDALE, N. 1918. Fish and fisheries on Inle Lake. *Rec. Indian Mus.*, **14**: 33-64.

Ripe egg of *Chaudhuria caudata* and breeding of *Barilius auropurpureus* and its postlarvae.

ANNIGERI, G.G. 1967. Maturation of intraovarian eggs and the spawning periodicities in a few fishes of Mangalore based on ova- diameter measurements. *Indian J. Fish.* 1963, **10A**(1): 23-32 (*Also Adv. Abstr. Contr. Fish. Aquat. Sci. India*, **1**(1): 21).

Gives an account of maturity stages, ova diameters, maturation and spawning habits in *Anodontostoma chacunda*, *Nematalosa nasus*, *Otolithes argenteus* and *Saurida tumbil*.

ANONYMOUS 1936. Fish culture in tanks. *Bull. Dept. Fish. Bengal*, No.2:1-14.

Breeding and culture of young ones.

ANONYMOUS 1937. Indian fisheries and Japanese enterprises. *Curr. Sci.*, **5**: 573-577.

Conservation of the stocks of fish and development.

ANONYMOUS 1940. Indian fishes of economic value. *Nature*, **146**: 657-658.

Review of the work on the bionomics and postlarvae of Hilsa Ilisha and on the breeding and development of *Aplocheilus* and *Oryzias*.

ANONYMOUS 1949. Marine fisheries of India. *Proc. Indo-Pac. Fish. Counc. 1st meet.*, Sect. 3: 73-81.

Eggs and larvae of *Sardinella longiceps*, *Kowala thoracata*, *Anchoviella tri*, embryological and developmental studies in *Scoliodon walbeehmi*, gestation in *Trygon uarnak*, *Hypolophus sephen*, *Pteroplatea micrura*, maturity and ripe egg of *Trichiurus haumela*.

ANONYMOUS 1965. Chanos- a fish with a future. *Indian Livestock*, **3**(3): 32-34.

Culture of young stages of *Chanos chanos*.

ARATA, G.F. 1954. A contribution to the life history of the sword fish, *Xiphias gladius* Linnaeus from the south Atlantic coast of the United States and the gulf of Mexico. *Bull. Mar. Sci. Gulf and Caribbean*, **4**(3): 183-243.

Larval stages with figures.

ARORA, H.L. 1951. A contribution to the biology of the silverbelly, *Leiognathus splendens* (Cuv.) *Proc. Indo-Pac. Fish. Counc. 3rd meet.*, Sect. II: 75-80.

Spawning period, frequency of spawning, fecundity and size at first maturity.

ARORA, H.L. and S.K. BANERJI 1957. Flying-fish fishery along the Coromandel coast. *Indian J. Fish.*, **4**(1): 80-91.

Sex-ratio and maturity of *Cypselurus coromandelensis*.

BAAKE 1929. *Etroplus maculatus* (Bloch). *B1. Aquar, u. Terrarienk* (Heilborn), **40**: 404-407.
Breeding in the aquarium.

BAAKE 1930a. Von der Haltung des *Ambassis lala* (Ham. Buch.) und der Schuresigkeit Seine Zucht. *Ibid.* (Heilborn), **41**: 91-95.

Spawning in the aquarium.

BAAKE 1930b. *Brachydanio albolineatus* (Blyth). *Ibid.* (Heilborn), **41**: 95-96.

Breeding habits in the aquarium.

BAAKE. 1930c. *Gambusia holbrooki* (Girard) and ueber Gambusenzuchten in allgemeinen. *Ibid.* (Heilborn), **41**: 197-199.

Breeding in the aquarium.

BAAKE 1930d. *Barbus conchoni* (Ham. Buch.) die Bracht Barbe. *Ibid.* (Heilborn), **41**: 227-229.

Breeding in the Aquarium.

BAAKE 1930e. *Trichogaster trichopterus* (Pallas), der punktierte Gurami. *Ibid.* (Heilborn), **41**: 255-259.

Breeding in the aquarium.

BADAMI, V. C. and A. DAVID 1964. Preliminary observations on the successful inducement of breeding of *Catla catla* (Hamilton). *Curr. Sci.*, **33**(10): 310-312.

Experiments of reducing fat by artificial feed and inducing the species to spawn by pituitary extracts.

BAL, D.V. and S.V. BAPAT 1949a. The food-habits of some young sciaenids. *Proc. 36th Indian Sci. Congr.* (Allahabad), Pt.3 *Abstracts*: 162-163.

Food of the postlarvae of *Sciaena miles*, *S. albida*, *S. glauca*, *S. semiluctosa* and *Otolithes argenteus*.

BAL, D.V. and S.V. BAPAT 1949b. The food of some postlarval clupeoids. *Ibid.*, Pt. 3 *Abstracts* : 162.

Food of postlarvae of *Megalops cyprinoides*, *Chaetossus nasus*, *Engraulis hamiltoni*, *E. purava*, *E. commersonianus*, *E. tri*, *E. dussumieri*, *E. kammalensis*, *Coilia dussumieri*, *Clupea lile*, *C. brachysoma*, *C. kunzei*, *C. toli*, *Pellona brachysoma*, *P. elongata*, *P. motius* and *P. filigera*.

BAL, D.V. and M.S. JOSHI 1956. Studies on the biology of *Coilia dussumieri* (Cuv. & Val.). *Indian J. Fish.*, **3**(1): 91-100.

Sex composition, percentages of maturing, mature, ripe and spent fish and spawning movements.

BAL, D.V. and L.B. PRADHAN 1945a. A preliminary note on the plankton of Bombay harbour. *Curr. Sci.*, **14**(8): 211-212.

Occurrence of fish eggs, larvae and postlarvae; and breeding of some fishes.

BAL, D.V. and L.B. PRADHAN 1945b. *First progress report on "Investigation of fish eggs and fish larvae from Bombay waters"*, 1944-45. Govt. Central Press, Bombay.

Occurrence of eggs and larval stages of *Megalops cyprinoides*, *Dussumieria hasseltii*, *Engraulis hamiltonii*, *E. kammalensis*, *E. Indicus*, *Clupea lile*, *Pellona motius*, *P. brachysoma*, *Scopelus sp.*, *Hemirhamphus sp.*, *Polynemus tetradactylus*, *Sphyræna jello*, *Mugil sp.*, *Bregmaceros maccllellandi*, *Cynoglossus sp.*, *Triacanthus brevirostris*, *Apogon wassinki*, *Serranus diacanthus*, *Therapon jarbua*, *T. argenteus*, *Leignathus fasciata*, *Scatophagus argus var. tetracanthus*, *Chaetodon sp.*, *Lutjanus johnii*, *Sciaena albida*, *Apocryptes serperaster*, *Petroscirtes punctatus*, *Tetrodon oblongus*, *T. leopardus* and *Tetrodon sp.*

BAL, D.V. and L.B. PRADHAN 1946. *Second progress report on "Investigation of fish eggs and fish larvae from Bombay waters"*, 1945-46. Govt. Central Press, Bombay.

Occurrence of eggs or larvae of *Harengula vittata*, *Ilisha brachysoma*, *I. motius*, *Kowala coval*, *Anchoviella commersonii*, *Zenarchopterus ectuntio*, *Sphyræna jello*, *Mugil dussumieri*, *M. macrolepis*, *Epinephelus diacanthus*, *E.leopardus*, *Therapon argenteus*, *Lutjanus johnii*, *Leiognathus fasciatus*, *Scatophagus argus*, *S. argus var.tetracanthus*, *Petroscirtes bhattacharyae*, *P.punctatus*, *Gobius, sp.*, *Parapocryptes separaster*, *Cynoglossus sp.*, *Triacanthus brevirostris*, *Tetrodon leopardus* and *T.oblongus*.

BAL, D.V. and L.B. PRADHAN 1947. *Third progress report on "Investigation of fish eggs and fish larvae from Bombay waters" 1946-47*. Govt. Central Press, Bombay.

Bal and Pradhan, 1947 (Contd.)

Occurrence of eggs and larvae of *Stolephorus* sp., *Clupeid* sp., two soles; *Caranx* sp; ripe ova of *Harpodon nehereus*, larvae of *Megalops cyprinoides*, *Dussumieria hasseltii*, *Engraulis kammalensis*, *E. hamiltonii*, *E. purava*, *E. dussumieri*, *E. commersonianus*, *E. indicus*, *Clupea lile*, *Clupea toli*, *C. melanura*, *Pellona motius*, *P. megaloptera*, *Scopelus* sp., *Syngnathus cyanospilus*, *Hemirhamphus ectuntio*, *Belone* sp., *polynemus tetradactylus*, *Sphyraena jello*, *Mugil dussumieri*, *M. seheli*, *M. troscheli*, *Bregmoceras maccllellandi*, *Cynoglossus* sp., *Triacanthus brevirostris*, *Apogon wassinki*, *Serranus diacanthus*, *S. leopardus*, *Serranus* sp., *Therapon jarbua*, *T. argenteus*; *Equula fasciata*, *Gazza* sp., *Scatophagus argus*, *S. tetracanthus*, *Chaetodon* sp., *Lutjanus johnii*, *Sciaena albida*, *Apocryptes serperaster*, *Gobius* spp., *Petroscirtes bhattacharyae*, *P. punctatus*, *Tetrodon oblongus* and *T. leopardus*.

BAL, D.V. and L.B. PRADHAN 1951. Occurrence of fish larvae and postlarvae in Bombay waters during 1944-1947. *J. Univ. Bombay*, new ser., **20B**: 15 pp.

Occurrence of larvae and postlarvae of *Megalops cyprinoides*, *Dussumieria hasseltii*, *Engraulis kammalensis*, *E. hamiltonii*, *E. purava*, *E. dussumieri*, *E. commersonianus*, *E. indicus*, *Clupea lile*, *C. toli*, *C. melanura*, *Pellona brachysoma*, *P. motius*, *P. megaloptera*, *Myctophum* sp., *Syngnathus oyanopsius*, *Hemirhamphus ectuntio*, *Belone* sp., *Polynemus tetradactylus*, *Sphyraena jello*, *Mugil dussumieri*, *M. seheli*, *M. toroschelli*, *Bregmoceras maccllellandi*, *Cynoglossus* sp., *Triacanthus brevirostris*, *Apogon wassinki*, *Serranus diacanthus*, *Serranus* sp., *Therapon jarbua*, *T. argenteus*, *Leiognathus fasciata*, *Gazza* sp., *Scatophagus argus*, *S. tetracanthus*, *Chaetodon* sp., *Lutjanus johnii*, *Sciaena albida*, *Gobius* spp., *Apocryptes serperaster*, *Petroscirtes bhattacharyae*, *P. punctatus*, *Tetrodon oblongus* and three undetermined clupeids.

BAL, D.V. and L.B. PRADHAN 1952. Records of zooplankton in Bombay waters during 1944-47. *Ibid.*, **20(5)**: 75-79.

Occurrence of the eggs of pleuronectids, clupeoids and carangoids.

BALAKRISHNAN, K.P. 1959. Marine zoology and fisheries in the Indian Ocean 1. Fish eggs and larvae of the Kerala coast (Abstract). *Proc. 1st All India Congr. Zoology* (Jabalpur), *Abstracts*: 3.

Eggs and larvae of *Anchoviella commersonii*, *A. tri.* larvae of *Megalops cyprinoides*, *Allanetta forskalli*, *Ambassis*, *Leiognathus brevirostris*, *Apogon*, *Fistularia*, *Syngnathus* and *Hemirhamphus*.

BALAKRISHNAN, K.P. 1961. Fish eggs and larvae collected by the Research Vessel 'Conch' during 1958-1961 I. Larvae of *Cynoglossus semifasciatus* Day. *Bull. Cent. Res. Inst. Univ. Kerala Ser. C*, **8**: 131-139.

Stations from where the larvae were collected, descriptions of larvae from 2 mm. to 12.5 mm. stages and affinities with *Cynoglossus* larvae described earlier with figures.

BALAKRISHNAN, K.P. 1963a. Fish eggs and larvae collected by the Research Vessel Conch 2. Larvae of *Arnoglossus tapeinosoma* Blkr., *Bothus ocellatus* Agassiz. *Laeops guntheri* Alc., *Solea ovata* Rich. and *Cynoglossus monopus* Blkr. *Bull. Dept. Mar, biol. & Oceanogr. Univ. Kerala*, **1** 81-96.

Descriptions and figures of larval stages.

BALAKRISHNAN, K.P. 1963b. On a chimaeroid egg capsule from the Arabian Sea. *J. Zool. Soc. India*, 1962, **14(2)**: 137-140.

An egg capsule, tentatively assigned to *Harriota pinnata*.

BALAKRISHNAN, V. 1957. Occurrence of larvae and young mackerel (*Rastrelliger canagurta Cuvier*) off Vizhingam, near Trivandrum. *Curr. Sci.*, **26**(2) : 57-58.

Occurrence of ripe and spent fish, ova from mature fish, juveniles and very young fish, prolarvae and suspected eggs and probable spawning grounds.

BALAN, V. 1967. Biology of the silvery belly, *Leiognathus bindus* (Val.) of the Calicut coast. *Indian J. Fish.*, 1963, **10A**(1): 118-134 (Also *Adv. Abstr. Contr. Fish. Aquat. Sci. India*, **1**(1): 14-15.

Maturation, fecundity, minimum size at first maturity and ponderal index.

BALANCO, G.J. and D.V. VILLADOLID 1939. Fish fry industry of the Philippines.

Fry of *Chanos chanos*.

BALASUBRAHMANYAM, K. 1968. Larva of *Idiacanthus fasciola* (Pisces - Fam. Idiacanthidae) from the Bay of Bengal. *J. Mar. biol. Ass. India*, 1966, **8**(2): 347-349. (Also *Adv. Abstr. Contr. Fish. Aquat. Sci. India*, **1**(3): 8).

Larval stages 5.3 and 15.5 mm. with figure.

BALASUBRAHMANYAM, K., K. S. P. B. RAO and R.C. SUBRARAJU. 1967. Larval and juvenile stages of the flying fish *Exocoetus voilitans* Linn. and *Hirundichthys coromandelensis* (Hornell) from the Bay of Bengal (Abstract). *Int. Indian Ocean Exp., Newslett.*, **4**(4) 6.

Larval and juvenile stages.

BAPAT, S.V. 1955. A preliminary study of the pelagic fish eggs and larvae of the Gulf of Mannar and the Palk Bay. *Indian J. Fish.*, **2**(1): 231-255.

Eggs and larvae assigned to *Anchoviella*, *Thrissocles*, *Kowala coval*, *Dorosoma chacunda*, *Dussumieria*, *Sardinella fimbriata*, *Caranx leptolepis*, *Saurus* and *Cynoglossus* with figures. Spawning time, period of incubation and variations in the abundance of eggs in relation to temperature and salinity.

BAPAT, S.V. 1967. The Bombay-duck. *Cent. Mar. Fish. Res. Inst. 20th Anniv. Souv.* :48-50.

Breeding and maturity of *Harpodon nehereus*.

BAPAT, S.V. and D.V. BAL 1950a. Occurrence of fish larvae and postlarvae in Bombay waters during 1948-49. *Proc. 37th Indian Sci. Congr. (Poona), Pt. 3 Abstracts*: 255.

Occurrence of the larvae of *Megalops cyprinoides*, *Engraulis kammalensis*, *Hemirhamphus ectuntio*, *Polynemus tetradactylus*, *Therapon argenteus*, *Apocryptes separaster* and young ones of *Dussumieria hasseltii*, *Bregmoceras maccllellandi*, *Trichiurus savala* and *Drepane* sp.

BAPAT, S.V. and D.V. BAL 1950b. The food of some young clupeids. *Proc. Indian Acad. Sci.*, **32**(1): 39-58.

Food habits of the larvae and postlarvae of *Nematalosa nasus*, *Harengula punctata*, *Sardinella albella*, *Hilsa toli*, *Kowala coval*, *Ilisha brachysoma*, *I. motius*, *I. filigera*; young of *I. elongata*, *Thrissocles kammalensis*; postlarvae of *Thrissocles hamiltonii*; juvenile of *T. purava*, *T. dussumieri*; postlarvae of *Anchoviella commersonii*; young of *A. tri*; and postlarvae of *Coilia dussumieri*.

BAPAT, S.V. and D.V. BAL 1952. The food of some young fishes from Bombay. *Ibid.*, **35B**(2): 78-92.

Food of the young ones of *Sciaena miles*, *S. albida*, *S. semiluctosa*, *S. glauca*, *Otolithes argenteus*, *Polynemus tetradactylus*, *P. heptadactylus*, *mugil* spp., *Serranus*, *Ambassis*, *Apogon*, *Therapon*, *Bregmoceras macclelandi*, *Equula* and *Scatophargus argus*.

BAPAT, S.V., S.K. BANERJI and D.V. BAL 1952. Observations on the biology of *Harpodon nehereus* (Hamilton). *J. Zool. Soc. India*, **3**(2): 341-356.

Size and age at first maturity, spawning habits, breeding season and their relation to temperature and specific gravity of sea water.

BAPAT, S.V., and R.R. PRASAD 1952. On some developmental stages of *Caranx kalla* Cuv. & Val. *J. Bombay nat. Hist. Soc.*, **51**: 111-115.

Graded series in the juvenile and postlarval stages with figures.

BASHEERUDDIN, S. and K.N. NAYAR 1962. A preliminary study of juvenile fishes of the coastal waters off Madras city. *Indian J. Fish.*, 1961, **8**(1): 169-188.

Occurrence, size-range, major size group and food of the young ones of *Elops indicus*, *Sardinella fimbriata*, *S. sirm*, *Ilisha indica*, *Opisthopterus tardoore*, *Dussumieria hasseltii*, *Anodontostoma chacunda*, *Thrissocles mystax*, *T. setirostris*, *Chirocentrus dorab'* *Saurida tumbil*, *Parexocoetus brachypterus*, *Cypselurus spilopterus*, *Polynemus indicus*, *P. sextarius*, *P. sexfilis*, *Sphyræna jello*, *S. obtusata*, *Mugil* sp., *Therapon theraps*, *T. jarbua*, *Priacanthus hamrur*, *Megalaspis cordyla*, *Decapterus russelli*, *Selar mate*, *Caranx carangus*, *Alectis indica*, *Carangoides armatus*, *C. malabaricus*, *Antropus atropus*, *Chorinemus tol*, *Trachinotus blochi*, *Lactarius lactarius*, *Archamia macroptera*, *Apogon lateralis*, *A. frenatus*, *Leiognathus insidiator*, *L. ruconius*, *L. splendens*, *L. fasciatus*, *L. equulus*, *Gazza minuta*, *Gerres setifer*, *G. abbreviatus*, *Upeneus sulphureus*, *U. taeneopterus*, *Parupeneus indicus*, *Lutianus kasmira*, *L. lineolatus*, *Lethrinus nebulosus*, *Nemipterus japonicus*, *Pomadasyus maculatus*, *Otolithus* sp., *Johnius belengeri*, *Sciaena dussumieri*, *Drepane punctata*, *Teuthis javus*, *Acanthurus matoides*, *Pterois russelli*, *Trichiurus haumela*, *Rastrelliger kanagurta*, *Scomberomorus commerson*, *S. guttatus*, *Glossogobius biocellatus*, *Apolectus niger*, *Stromateus sinensis*, *Platycephalus scaber*, *Psettodes erumei*, *Bothus pantherinus*, *Plotosssus canius*, *Bregmoceras macclelandi*, *Triacanthus brevirostris* and *Sphaerodon lunaris* tabulated. Percentage composition of the juveniles of the different families, rate of growth of the juveniles of *Lactarius lactarius*, *Polynemus sextarius*, *Apolectus niger* and *Rastrelliger kanagurta* and notes on spawning periodicity.

BASU, S.P. 1946. Possibilities of mullet culture in India. *Indian fmg.*, **7**(11): 517-522.

Spawning of *Mugil cephalus*, *M. capito*; fry of *M. tade* and *M. parsia* in the fishery; nets for fry collection, spawning of *M. corsula* and acclimatizing the young of *M. troschelli*, *M. waigiensis* and *M. seheli*.

BASU, S.P. 1950 a. Effect of different combination and concentration of oxygen and carbon dioxide on larva, fry and fingerlings of Indian food fishes, *Catla catla* (Ham.), *Labeo rohita* (Ham.) and *Cirrhina mrigala* (Ham.). *Proc. nat. Inst. Sci. India*, 1949, **15**(1): 283-286 (Also *Proc. 37th Indian Sci. Congr.*(Poona), Pt. 3 *Abstracts*: 256).

Effect of oxygen and carbondioxide on the early stages of development of the three species.

BASU, S.P. 1950b. Effect of different concentrations of H₂S (Sulphuretted hydrogen) on the oxygen consumption and survival of fingerlings of major Indian carps. *Proc. 37th Indian Sci. Congr. (Poona)*, Pt. 3 Abstracts:256-257.

Experiments on the fingerlings of *Catla catla*, *Cirrhina mrigala* and *Labeo rohita* and results showing the high toxicity of H₂S.

BASU, S.P. 1950c. Experiments on the transport of larvae of Indian carps with oxygen in a closed system. *Ibid.*, Pt. 3 Abstracts: 257-258.

Transport of the larvae of *Catla catla*, *Labeo rohita*, *L. bata* and *Cirrhina mrigala* under different experimental conditions.

BASU, S.P. 1951a. Effect of addition of soil in transport of larvae of Indian carps. *Proc. 38th Indian Sci. Congr. (Bangalore)*, Pt. 3 Abstracts: 227-228.

Experiments on carp larvae with addition of soil to water.

BASU, S.P. 1951b. Influence of basic Physico-chemical factors in the transport of fish larvae and fry of Indian carps. *Ibid.*, Pt.3 Abstracts: 228-229.

Experiments on the transport of larvae and fry of carps in relation to oxygen, carbon-di-oxide, temperature etc.

BASU, S.P. 1951c. Oxygen utilization by different Indian carps under varying oxygen, carbondioxide tension in the medium. *Ibid.*, Pt. 3 Abstracts: 229.

Experiments on the larvae, fry and fingerlings of *Catla catla*, *Labeo rohita*, *L. bata*, *L. calbasu*, *Cirrhina mrigala* and *Carassius auratus*.

BASU, S.P. 1952a. Effect of different surface area on the survival and transport of larvae of major Indian carps. *Proc. 39th Indian Sci. Congr. (Calcutta)*, Pt. 3 Abstracts :334.

Experiments on replenishing dissolved oxygen and eliminating accumulated CO₂ in the medium of the larvae.

BASU, S.P. 1952b. Physiological requirements of eggs, larvae and fry during transportation. *Proc. Indo-Pac. Fish. Counc. 3rd meet., Sec. III*: 209-217.

Effect of certain physico-chemical factors on the physiological needs of the larvae and fry of *Catla catla*, *Cirrhina mrigala*, *Labeo rohita* and *L. calbasu*.

BAUCHOT, M.L. 1959. Etude des larves leptocephales du groupe *Leptocephalus lanceolatus* et identification a la famille des Serrivomeridae. *Dana Rept.*, **48**: 1-148.

Identification of leptocephali.

BEAUFORT, L.F. de 1940. *The fishes of the Indo- Australian Archipelago*, **8**, Leiden.

Young one of *Coris aygula* described as *C. cirgulum* is referred and notes on the color and other features are given.

BEAVEN, R. 1877. *Handbook of the fresh water fishes of India*, London.

Spawning activities of cyprinids including mahseer.

BELSARE, D.K. 1964. Seasonal changes in the ovary of *Ophicephalus punctatus* Bloch. *Indian J. Fish.*, 1962, **9**(1): 140-154.

Developing, maturing and mature stages of ova, seasonal ovarian changes including ripe and spent conditions and ovarian cycle.

BENNET, P.S. 1964. *Euthynnus affinis affinis* (Cantor) in the Vizhingam, fisheries. *Proc. Symp. Scombr. Fishes*, Mandapam Camp (Mar. biol. Ass. India) 1962, Pt. II: 708-711.

Maturity of gonads, partly spent, oozing and spawning *Euthynnus affinis affinis*.

BENNET, P.S. 1967. Seasonal abundance of small-sized juvenile *Rastrelliger kanagurta* at Vizhingam during 1960-1963. *Indian J. Fish.*, 1964, **11A**: 391-406. (Also *Adv. Abstr. Contr. Fish. Aquat. Sci. India*, **1**(4): 18).

Abundance of very small sized mackerel.

BENSAM, P. 1965a. Regeneration of the caudal fin in the Indian oil sardine, *Sardinella longiceps* Valenciennes. *J. Mar. biol. Ass. India*, **7**(1): 102-107.

Regeneration in spawning fish.

BENSAM, P. 1965b. On a freak embryo of the grey-shark, *Carcharinus limbatus* Muller and Henle. *Ibid.*, **7**(1): 206-208.

Description and explanation for an abnormality.

BENSAM, P. 1967. Differences in the food and feeding adaptations between juveniles and adults of the Indian oil sardine, *Sardinella longiceps* Valenciennes. *Indian J. Fish.*, 1964, **11**(A): 377-390 (Also *Adv. Abstr. Contr. Fish. Aquat. Sci. India*, **1**(4):5).

Food and feeding adaptations of juveniles and adults including spawners.

BENSAM, P. 1968a. The eggs and early development of a muraenid eel. *J. Mar. biol. Ass. India*, 1966, **8**(1): 181-187 (Also *Adv. Abstr. Contr. Fish. Aquat. Sci. India*, **1**(2): 4-5).

Eggs, embryos and early larvae.

BENSAM, P. 1968b. Growth- variations in the Indian oil sardine, *Sardinella longiceps* Valenciennes. *Adv. Abstr. Contr. Fish. Aquat. Sci. India*, **2**(1): 3-4 (Also *Indian J. Fish.*, 1963, **11A** (2): 699-708).

Growth rate, maturity and spawning during the first and second years of life.

BENSAM, P. 1968c. The embryonic and early larval development of the long-finned herring, *Opisthopterus tardoore* (Cuvier). *Adv. Abstr. Contr. Fish. Aquat. Sci. India*, **2**(2): 2-3 (Also *J. Mar. biol. Ass. India*, **9**(1)).

Eggs, embryos and early larval stages.

BENSAM, P. 1968d. On the eggs and early larval stages of the Malabar sole, *Cynoglossus semifasciatus* Day. *Adv. Abstr. Contr. Fish. Aquat. Sci. India*, **2**(2): 8 (Also *Indian J. Fish.*, **12**(1)).

Eggs and early larvae.

BEY, A. A. F. G. 1948. Commensalisms between fish and anemone (with a description of the eggs of *Amphiprion bicinctus* (Rupell)). *Publ. Mar. Biol. Station Ghardaqua* (Red Sea) (Cairo), **6**: 35-44.

Eggs and embryonic stages.

BHARGAVA, H.N. 1962. The development of cephalic arteries in *Mastacembelus armatus* (Cuv. & Val.). *Proc. 49th Indian Sci Congr.* (Cuttack), Pt. 3 Abstracts: 354.

Development of the arteries from 5.5 to 21.6 mm stages.

BHASKARAN, V.K. 1946. Bionomics and life history of *Etroplus suratensis* (Bloch) , with special reference to stocking tanks. *Proc. 33rd Indian Sci. Congr.* (Bangalore), Pt. 3 Abstracts:128.

Breeding season, number of eggs laid at a time and food of the young ones.

BHATNAGAR, G.K. 1967a. On some aspects of the biology of *Puntius kolus* (Sykes) of the Tungabhadra reservoir. *Adv. Abstr. Contr. Fish. Aquat. Sci. India*, **1**(1): 8-9 (Also *Indian J. Fish.*, **10**).

Breeding season, sexual dimorphism, fecundity and feeding of juveniles.

BHATNAGAR, G.K. 1967b. Observations on the spawning frequency and fecundity of certain Bhakra reservoir fishes. *Indian J. Fish.*, 1964, **11**(A): 485-502. (Also . *Adv. Abstr. Contr. Fish. Aquat. Sci. India*, **1**(4): 12).

Spawning frequencies, breeding grounds and modes of spawning in *Crossocheilus latius latius*, *Cyprinus carpio*, var *communis*, *Garra gotyla*, *Labeo bata*, *L. dero*, *Schizothorax plagiostomus*, *Tor putitora*, *Mystus(Mystus) bleekeri*, *M. (Osteobargus) seenghala*, *Clupisoma montana* and *Mastacembelus armatus armatus*.

BHATT, Y.M., M.N. KUTTY, K.V. RAO and D.M. PUNWANI 1967. "Ghol-dara" fishery off Bedi port in the Gulf of Kutch. *Indian J. Fish.*, 1964, **11A**(1): 135-156 (Also *Adv. Abstr. Contr. Fish. Aquat. Sci. India*, **1**(4):13-14).

Maturation, spawning fecundity and sex ratio of *Polydactylus indicus* and *Pseudosciaena diacanthus*.

BHATTACHARYA, D.H. 1916. Stages in the life-history of *Gobius*, *Petroscirtes* and *Hemirhamphus*. *Mem. Indian Mus.*, **5**(4): 383-392.

Embryonic stages of *Gobius ostreicola* and larval stages of *Petroscirtes bhattacharyae* and *Hemirhamphus limbatus*.

BHATTACHARYA, H. 1946. On the life-history of *Ophicephalus striatus* (Bloch.). *Proc. 33rd Indian Sci. Congr.* (Banglore), Pt. 3 Abstracts: 128-129.

Breeding season, eggs, spawning, segmentation, embryonic development, hatchling and food of the early larvae.

BHIMACHAR, B.S., and A. DAVID 1945. On the occurrence of external gills in the loach, *Lepidocephalus thermalis* (C.V.). *Curr. Sci.*, **14**(3); 74

External gills and other features of the early larval stages.

BHIMACHAR, B.S., A. DAVID and B. MUNIAPPA. 1944. Observations on the acclimatization, nesting habits and early development of *Osphronemus gorami* (Lacepede). *Proc. Indian Acad. Sci.*, **20**: 88-101.

Nesting habits, breeding, embryonic development, hatching and larval stages till one month old.

BHIMACHAR, B.S. and P.C. GEORGE 1953. Observations on the food and feeding of the Indian mackerel, *Rastrelliger canagurta* (Cuvier). *Ibid.*, 1952, **36B** (3): 105-118.

Size and maturity in relation to feeding.

BHOWMICK, R.M. 1966. Studies on some aspects of the biology of *Glossogobius giuris* (Hamilton) with notes on its fishery in the Hooghly estuary. *Proc. Indo-Pac. Fish. Counc.* 11th Sess. 1964, Sect II: 99-115 (Also *Proc. 49th Indian Sci. Congr.*, Cuttack, Pt. 3 Abstracts: 388.).

Sexual dimorphism, maturity stages and spawning.

BOONPRAKOB, U. 1963. Preliminary results of fish eggs survey in the gulf of Thailand. *Proc. Indo-Pac. Fish. Counc.* 10th sess., 1962, Sec II: 10-19.

Eggs of *Rastrelliger*, *Stolephorus*, *Dussumieria*, *Clupea*, *Trichiurus* and *Fistularia* with figures.

BOONPRAKOB, U. 1967. Study on the fecundity of the Indo-Pacific mackerel, *Rastrelliger* spp. In the gulf of Thailand. *Ibid.*, 12th sess., 1966, Sect. II: 124-138.

Fecundity, ova diameter frequencies, frequency of spawning and spawning season of *Rastrelliger neglectus* and *R. kanagurta*.

BREDER, C.M. 1940. The spawning of *Mugil cephalus* on the Florida, West Coast. *Copeia*, 1940, 2.

Spawning behaviour.

CARBINE, W.F. 1948. Bangos culture in the Philippines. *Prog. Fish. Cult.* (Washington), 10(4): 187-197.

Culture of *Chanos chanos* from fry stage.

CARBOUNIER, M. 1876. Nidification of the Indian Rainbow fish. *Ann. Mag. nat. Hist.*, 17: 172-174.

Mating, nest building and parental care of *Colisa fasciata*.

CARBOUNIER, M. 1877. The gourami and its nest. *Ibid.*, 19: 274-276.

Nesting and breeding habits of *Osphronemus gorami*.

CHACKO, P.I. 1942. A note on rearing the larvae of the milk-fish (*Chanos chanos*). *Curr. Sci.*, 11(3): 108.

Rearing of the larvae and notes on larval characters.

CHACKO, P.I. 1944. On the bionomics of Leiognathidae. *Ibid.*, 13(8): 214-215.

Spawning seasons of *Leiognathus* spp. and *Gazza* spp.

CHACKO, P.I. 1945. Acclimatisation of mirror carp in Nilgiris. *J. Bombay nat. Hist. Soc.*, 45: 244-247.

Introduction and successful breeding of *Cyprinus carpio* var. *specularis* in Ootacamund.

CHACKO, P.I. 1946a. On the bionomics of the Indian sprat (*Sardinella gibbosa* (Cuv. & Val.)). *Ibid.*, 46(2): 407-408 (Also *Proc. 32nd Indian Sci. Congr. Nagpur*, Pt. 3. Abstracts: 112).

Spawning season, size of ripe ova and size of planktonic eggs.

CHACKO, P.I. 1946b. A note on carp spawning in the Godavari and Kistna, Madras. *Proc. 33rd Indian Sci. Congr.* (Bangalore), Pt. 3 *Abstracts*: 128.

Catla catla, *Labeo calbasu* and *Cirrhina cirrhosa*- their breeding grounds, migration, spawning, eggs, hatching, newly hatched larvae and collection of spawn for stocking.

CHACKO, P.I. 1946c. On the migration of the inland water fishes of Madras. *Ibid.*, Pt. 3 *Abstracts*: 129-130.

Migration of *Hilsa ilisha*, *Bagarius yerrelii*, *Barbus carnaticus*, *B.tor* and *B. hexagonolepis* for breeding purposes.

CHACKO, P.I. 1948a. Fish production in religious institutional waters. *Proc. 35th Indian Sci. Congr.* (Patna), Pt. 3 *Abstracts*: 209.

Breeding of *Osphronemus goramy* and *Etroplus*.

CHACKO, P.I. 1948b. Growth-rate of twenty one species of fishes of Madras. *Ibid.*, Pt. 3 *Abstracts*: 210.

Growth rate of the young stages of *Wallagonia attu*, *Labeo fimbriata*, *L. calbasu*, *L. rohita*, *L. kontius*, *Osteochilus thomassi*, *Cirrhina cirrhosa*, *C. reba*, *C. fulun*. *Catla catla*, *Thynnichthys sandkhol*, *Notopterus notopterus*, *Barbus hexagonolepis*, *Megalops cyprinoides*, *Chanos chanos*, *Lates calcarifer*, *Ophicephalus marulius*, *O. striatus*, *Osphronemus goramy*, *Etroplus suratensis* and *Cyprinus carpio* var. *specularis*.

CHACKO, P.I. 1948c. On the habit of the exotic mosquitofish, *Gambusia affinis* (Baird and Girard) in the waters of Madras. *Curr. Sci.*, **17**(3): 93 (Also *Proc. 34th Indian Sci. Congr.*, Delhi, Pt.3 *Abstracts*: 181).

Maturity, breeding season, eggs, parturition, larva and postlarval development.

CHACKO, P.I. 1948d. Acclimatisation of the Millions, *Lebistes reticulates* (Peters) in Madras. *Ibid.*, **27**(5): 157-158 (Also *Proc. 35th Indian Sci. Congr.*, Patna, Pt. 3 *Abstracts*: 210).

Size at maturity, ovarian egg, fertilized egg, embryonic development and release of the brood.

CHACKO, P.I. 1949a. On the nutrition of the young stages of certain estuarine fishes of Madras. *Proc. 36th Indian Sci. Congr.* (Allahabad), Pt. 3, *Abstracts*: 163-164.

Food of the fry and fingerlings of *Elops saurus*, *Megalops cyprinoides*, *Chanos chanos*, *Lates calcarifer*, *Lutjanus lineolatus*, *Therapon*, *jarbua*, *Diagramma crassispinum*, *Gerres filamentosus*, *Scatophagus argus*, *Sillago sihama*, *Mugil dissumieri*, *M. ocur* and *Etroplus suratensis*.

CHACKO, P.I. 1949b. Bionomics of the Indian paradise fish *Macropodus cupanus* in the waters of Madras. *Ibid.*, Pt. 3 *Abstracts*: 164.

Size and age at first maturity, breeding colouration, courtship, number of eggs laid, nesting, fertilized egg, embryonic period, hatchling and period for attaining adult features.

CHACKO, P.I. 1949c. Fish and fisheries of the Muthupet saline swamp, Tanjore District, *Ibid.*, Pt. 3 *Abstracts*: 166.

Breeding of mullets, *Etroplus suratensis*, *Lates calcarifer*, *Polynemus tetradactylus*, occurrence of the fingerlings of *Chanos chanos* and *Megalops cyprinoides*.

CHACKO, P.I. 1950a. Spawning and development of *Cirrhina reba* (Ham.). *Proc. 37th Indian Sci. Congr.* (Poona), Pt.3 *Abstracts*: 251-252.

Age at first maturity, fertilised eggs, embryonic development, pigmentation of the embryo, time of hatching, absorption of the yolk sac and formation of the mouth and development till the 30 mm stage.

CHACKO, P.I. 1950 b. On the bionomics of Buchanan's carp, *Barbus curmuca* (Ham). *Ibid.*, Pt. 3 *Abstracts*: 252.

Breeding season and localities.

CHACKO, P.I. 1950c. Marine plankton from the waters around Krusadi Island. *Proc. Indian Acad. Sci.*, **31B** (3): 162-174.

Spawning season and features of the eggs and larvae assigned to *Chirocentrus dorab*, *Sardinella gibbosa*, *Pellona brachysoma*, *Dorosoma chacunda*, *Engraulis dussumieri*, *Stolephorus indicus*, *Dussumieria hasseltii*, *Chanos chanos*, *Therapon jarbua*, *Otolithes ruber*, *Trichiurus savala*, *Caranx hippos*, *Leiognathus bindus*, *Cybium commersonii*, *Sillago sihama* and *Mugil seheli*.

CHACKO, P.I. 1950d. A note on the bionomics of *Lepidocephalus thermalis* (Cuv. and Val.). *Sci. & Cult.*, **15**(7) : 281-282 (Also *Proc. 36th Indian Sci. Congr.* (Allahabad), Pt. 3 *Abstracts*: 164)

Size at first maturity, number of eggs in the ovaries, sexual dimorphism, spawning time, description of eggs, embryo and hatching.

CHACKO, P.I. 1951a. Bionomics of the carp, *Labeo ariza* (Hamilton). *Proc. 38th Indian Sci. Congr.* (Bangalore), Pt. 3 *Abstracts*: 225.

Breeding, number of ova in females and fingerlings.

CHACKO, P.I. 1951b. Bionomics of the silver fish, *Chela untrahi* (Day). *Ibid.*, Pt. 3 *Abstracts*: 226.

Spawning, number of eggs in mature females, eggs, development after artificial fertilization and hatchling and to 20mm, old stages.

CHACKO, P.I. 1951c. Bionomics of *Barbus amphibius* Day. *Ibid.*, Pt. 3 *Abstracts*: 226.

Maturity, breeding, number of eggs in females, egg laying, fertilized egg, embryonic duration and hatching.

CHACKO, P.I. 1951d. *Madras rural piscicultural Scheme, Prog. Rept. (Period 1st April 1950 to 31st March 1951)*, Indian Council of Agricultural Research, New Delhi.

Breeding, larval development and metamorphosis of *Elops indicus*, metamorphosis in *Megalops cyprinoides*, spawning migration and eggs of *Hilsa ilisha*, breeding, fingerlings and eggs of *Notopterus notopterus*, *Cyprinus carpio*, *Labeo fimbriatus*, *L. calbasu*, *L. kontius*, *L. boggut*, *L. boga*, spawning in *Barbus dubius*, *B. carnaticus*, maturity, breeding and eggs and larvae of *B. curmuca*, *Cirrhina cirrhosa*, *C. mrigala*, *C. reba*, *Chela untrahi*, *Carassius carassius*, *Catla catla*, *Thynnichthys sandkhol*, *Osteochilus thomassi*, maturity, breeding and nesting in *Mystus seenghala*, *Ophicephalus striatus*, breeding and parental care in *O. punctatus*, *O. marulius*, *Osphronemus goramy*, maturity and breeding in *Anabas scandens*, *Lates calcarifer*, breeding and parental care in *Etroplus suratensis*, spawning in *E. maculatus* and embryonic development and early larvae of *Glossogobius giuris*.

CHACKO, P.I. 1954a. Marine fisheries research in Madras State. *Ind-Com. J. (Madras)*, **9**(2): 2-8.

Spawning season of *Sardinella longiceps* breeding of *Rastrelliger kanagurta*, maturity and spawning season of *Sardinella fimbriata*, spawning period of *Thrissocles* spp., *Anchoviella* spp., *Anodontostoma chacunda*, *Arius* spp., *Trichiurus* spp., *Cynoglossus semifasciatus*, *Lactarius lactarius* and *Chanos chanos*.

CHACKO, P.I. 1954b. Past, present and future of the hilsa fisheries in the Madras State. *J. Asiatic Soc. Sci.*, **20**(1): 55-58.

Relation between breeding migration etc. and weirs; and past work on hatcheries, artificial propagation etc. in Madras.

CHACKO, P.I. 1955a. Spawning habits of the milk-fish, *Chanos chanos* (Forsk.) in the coastal waters of Madras State, India. *Proc. 42nd Indian Sci. Congr. (Baroda)*, Pt 3 Abstracts: 307.

Spawning season, main and secondary; behaviour of spawners, nature of breeding grounds, and the coincidence of spawning in *C. chanos* with that of *Elops indicus* and *Megalops cyprinoides*.

CHACKO, P.I. 1955b. The 1953-54 bumper fishery of the oil sardine (*Sardinella longiceps*) of the west coast of Madras State. *Ibid.*, Pt.3 Abstracts: 307- 308.

Occurrence of spawners and indication of successful spawning and recruitment.

CHACKO, P.I. 1955c. A review of the 1953-54 fishery of mackerel, *Rastrelliger kanagurta* of the west coast of Madras State. *Ibid.*, Pt.3 Abstracts: 308.

Occurrence of spawners and young ones.

CHACKO, P.I. 1956. Observations on the biology and ecology of the inland water fishes of Madras with special reference to their suitability for culture. *Govt. of Madrs Fish. St.Rep. & Year Book 1954-55*: 247-270.

Breeding, maturity and larvae of *Elops saurus*, *Megalops cyprinoides*, *Chanos chanos*, *Notopterus notopterus*, *Mastacembelus panacalus*, *Cyprinus carpio*, *Labeo fimbriatus*, *L. clbasu*, *L. rohita*, *L. konntius*, *L. boggut*, *L. boga*, *L. ariza*, *Barbus chrysopoma*, *B. carnaticus*, *B. curmuca*, *Cirrhina cirrhosa*, *C. mrigala*, *C. reba*, *Catla catla*, *Thynnichthys sandkhol*, *Osteochilus thomassi*, *Mystus seenghala*, *Chana striatus*, *C. punctatus*, *C. marulius*, *Anabas scandens*, *Osphronemus goramy*, *Lates calcarifer*, *Etroplus suratensis*, *E. maculatus* and *Glossogobius giuris*.

CHACKO, P.I., J.G. ABRAHAM and R. ANDAL 1953. Report on a survey of the flora, fauna and fisheries of the Pulicat lake, Madras State, India, 1951-52. *Contr Freshwater Fish. biol. Stat.* (Dept. fish., Madras), No. 8.

Availability of larvae and young of *Elops Saurus*, *Megalops cyprinoides*, *Chanos chanos*, *Mugil* spp., and *Etroplus suratensis* and the breeding grounds of *C. chanos*.

CHACKO, P.I. and S.V. GANAPATI 1949. On the spawning conditions and larvicidal propensities of *Carassius auratus*. *Curr. Sci.*, **18**(7): 257-258.

Spawning.

CHACKO, P.I. and S.V. GANAPATI 1949b. On the bionomics of *Hilsa ilisha* (Hamilton) in the Godavari river. *J. Madras Univ.*, **18**: 16-22 (Also *Proc. 35th Indian Sci. Congr., Patna, Pt. 3 Abstracts*: 209).

Maturity, spawning and young stages.

CHACKO, P.I. and S.V. GANAPATI 1949c. Some observations on the Adyar river with special reference to its hydrobiological conditions. *Indian Geogr. J.*, **24**(3): 1-15.

Occurrence of the young ones of *Elops indicus*, *Megalops cyprinoides*, *Chanos chanos*, *Mugil* spp., *Lates calcarifer*, *Lutjanus* spp. and *Etroplus suratensis*; maturation, breeding, fertilized eggs, embryonic development, hatchling, a few older larval stages and parental care in *E. suratensis*.

CHACKO, P.I. and S.V. GANAPATI 1949d. Some observations on *Aplocheilus lineatus* (Cuv. & Val.) in Madras province. *J. Bombay nat. Hist. Soc.*, **48**(3): 604-605.

Breeding and early development.

CHACKO, P.I. and S.V. GANAPATI 1949e. Increased fish production in inland waters. *Indian Geogr. J.*, **24**(4): 1-10.

Provision of facilities for purposes of spawning and augmentation of seed of *Chanos chanos*, *Etroplus suratensis*, *Mugil* spp. and *Lates calcarifer*.

CHACKO, P.I. and S.V. GANAPATI 1950a. On the bionomics of the carp, *Thynnichthys sandkhol* (Sykes). *Sci. & Cult.*, **15**(12): 484-485.

Breeding, size at maturity, spawning season and hatchlings.

CHACKO, P.I. and S.V. GANAPATI 1950b. On a case of phenomenal growth of the Indian carp, *Catla catla* (Cuv. & Val.) in two tanks of Kancheepuram. *Sci. & Cult.*, **16**(1): 28-30.

Ecological conditions and their influence on the growth of the fry.

CHACKO, P.I. and S.V. GANAPATI 1951. Bionomics of the mrigal, *Cirrhina mrigala* (Ham.) in south Indian waters. *J. Bombay nat. Hist. Soc.*, **50**(1): 13-19.

Maturity, breeding season, spawning condition, factors influencing the spawning and collection of fry and fingerlings.

CHACKO, P.I. and S.V. GANAPATI 1952. Hydrobiological survey of the Suruli river in the highways, Madurai district, India to determine its suitability for the introduction of the rainbow trout. *Sonderdr. aus dem Archiv. Hydrobiol.*, **46**: 128-141.

Extent of natural spawning facilities and capacity of the river to nourish the fry.

CHACKO, P.I. and S. GEORGE 1953. Propagation and distribution of food fishes in Madras State. *Ind-Com. J.*, **8**(2): 186-192.

Breeding of *Catla catla*, *Labeo rohita*, *Cirrhina mrigala*, *L. calbasu*, *L. fimbriatus*, *L. kontius*, *Cirrhina cirrhosa*, *C. reba* and *Barbus* spp. their fertilised eggs and early larvae; young ones of *Osphronemus goramy* and hatchery for *Hilsa ilisha*.

CHACKO, P.I. and A.G. GNANAMEKALAI 1963. Preliminary observations on the age, growth, maturity and spawning of *Sardinella sirm* occurring in the Gulf of Mannar off Tuticorin. *Proc. 50th Indian Sci. Congr. (Delhi), Pt. 3 Abstracts*: 506.

Maturity and spawning.

CHACKO, P.I. and S.V. JOB 1948. On the nutrition of the young stage of certain freshwater fishes of Madras. *Proc. 35th Indian Sci. Congr. (Patna), Pt.3 Abstracts: 204* (Also *Sci. & Cult.*, **14**(6): 245-247).

Food of the fry of *Barbus tor*, *B. carnaticus*, *B. hexagonolepis*, *B. curmuca*, *Cirrhina reba*, *C. cirrhosa*, *C. fulungee*, *Labeo fimbriatus*, *L. calbasu*, *Silundia sykesii*, *Callichrous bimaculatus*, *Macrones gulio*, *M. seenghala*, *Bagarius bagarius*, *Clyptothorax lonah* and *Wallagonia attu*.

CHACKO, P.I. and B. KRISHNAMURTHI 1948. A preliminary note on the hilsa fishery investigations in South India. *Proc. 35th Indian Sci. Congr. (Patna), Pt. 3 Abstracts: 204*.

The pause in feeding of spawners, spawning migration, nursery areas and fry.

CHACKO, P.I. and B. KRISHNAMURTHY 1949 Notes on *Hilsa kanagurta* (Bleeker) and *Hilsa toli* (Cuv. & Val.). *Proc. 36th Indian Sci. Congr. (Allahabad).Pt.3 Abstracts: 167* (Also *Sci. & Cult.*, **15**(3): 118-119).

Feeding during breeding and size at maturity of males and females.

CHACKO, P.I. and B. KRISHNAMURTHY 1950a. A biometrical study of *Hilsa ilisha* (Ham.) in the Godavari river. *J. Bombay nat. Hist. Soc.*, **49**(2): 315-316.

Starvation during spawning and its impact on the formation of rings in scales and their significance.

CHACKO, P.I. and B. KRISHNAMURTHI 1950b. On the natural history of the Olive carp, *Barbus chrysopoma* Cuv. & Val. *Proc. 37th Indian Sci. Congr. (Poona), Pt.3 Abstracts: 254*.

Breeding season, and conditions of the spawning areas.

CHACKO, P.I. and B. KRISHNAMURTHI 1954. Observations on *Tilapia mossambica* Peters in Madras. *J. Bombay nat. Hist. Soc.*, **52**(2&3): 349-353.

Maturity, breeding, development of embryo, hatchling and development till the 6 day old stage with figures.

CHACKO, P.I. and G.K KURIYAN 1947. On the culture of *Ophicephalus marulius* Hamilton in the Coimbatore and Salem districts, Madras. *Proc. 34th Indian Sci. Congr. (Delhi), Pt.3 Abstracts: 180*.

Breeding, "nest", number of fry in the brood, colour, pigmentation parental care and transport of fingerlings.

CHACKO, P.I. and G.K KURIYAN 1948a. On a fish survey of the Cauvery, Madras. . *Proc. 35th Indian Sci. Congr. (Patna), Pt.3 Abstracts: 205*.

Breeding of *Osphronemus goramy* and *Etroplus suratensis* and their spawning and nursery areas.

CHACKO, P.I. and G.K KURIYAN 1948b. A survey of the fisheries of the Tungabhadra river. *Proc. Indian Acad. Sci.*, **28**(5): 166-176.

Maturity, mature egg, breeding season and breeding migration of *Osteochilus thomassi* and breeding of *Ophicephalus marulius*.

CHACKO, P.I. and G.K KURIYAN 1949a. On the bionomics of *Catla catla* (Cuv. & Val.) in South Indian waters. *Proc. Zool. Soc. London*, **120**(1): 39-42 (Also *Curr. Sci.*, **17**(6): 191 and . *Proc. 35th Indian Sci. Congr. (Patna), Pt.3 Abstracts: 209*)".

Breeding grounds, size at maturity, ripe egg, development of the embryo, newly hatched larva and a few older larval stages.

CHACKO, P.I. and G.K. KURIYAN 1949b. Feeding and breeding habits of the common carps of south India. *Proc. 36th Indian Sci. Congr.* (Allahabad). Pt.3 Abstracts: 167 .

Breeding period, favourable spawning grounds and maximum spawning in *Catla* sp., *Labeo fimbriatus*, *L. calbasu*, *Cirrhina cirrhosa*, *C. reba*, *Barbus khudree*, *B. hexagonolepis* and *B. carnaticus*.

CHACKO, P.I., G.K. KURIYAN and S. THYAGARAJAN 1955. A survey of the fisheries of the Cauvery river. *Contr, Freshwater Fish Biol. Stat.* (Dept. Fish., Madras), No. 12.

Maturity and spawning migration of *Cirrhina cirrhosa*, breeding season and fingerlings of *Barbus hexagonolepis* spawning in *B. dubius*; breeding habits and spawning in general and fry collection in the river.

CHACKO, P.I. and S. MAHADEVAN 1956. Collection and culture of the milk fish, *Chanos chanos* (Forsk.) in and around Krusadai and Rameswaram islands, with notes on its biology. *Govt. of Madras Fish. St. Rep. & yearbook 1954-55*: 145-154.

Spawning habits of *Chanos chanos*.

CHACKO, P.I. and M.J. MATHEW 1950. Notes on the natural history of four species of fish from the Tungabhadra river. *Proc. 37th Indian Sci. Congr.* (Patna), Pt.3 Abstracts: 254-255.

Attainment of maturity of *Schismatorhynchus (Nuhta) nuhta* and spawning season of *Puntius kolus*.

CHACKO, P.I. and M.J. MATHEW 1955. Biology and fisheries of Horsemackerels of the West coast of Madras State. *Contr. Mar. Biol. Stn. West Hill*, No.2 : 1-12.

Eggs and early larvae assigned to *Decapterus russeli*, *Caranx crumenophthalmus*, *C. djedaba* and *C. kalla* with figures.

CHACKO, P.I. and M.J. MATHEW 1956a. Programme of oil sardine research in Madras State Fisheries department in 1954-55. *Proc. 42nd Indian Sci. Congr.* (Agra), Pt.3 Abstracts: 309-310.

Occurrence of mature and spent fish, entrance of new broods and feeding of the young ones of *Sardinella longiceps*.

CHACKO, P.I. and M.J. MATHEW 1956b. Biology and fisheries of the sprat, *Sardinella albella* (Cuv. & Val.) in the west coast of Madras State. *Govt. of Madras Fish. St. Rep. & yearbook 1954-55*: 103-108.

Maturity and breeding period, embryonic and larval development.

CHACKO, P.I., A. RAJAGOPAL and P. MOHANAKRISHNAN 1966. Preliminary note on the bionomics and fisheries of gizzard shad, *Chaetossus nasus* in Ennore and Pulicat backwaters. *Madras J. Fish.*, 2: 52.

Breeding, size at spawning and secondary spawning.

CHACKO, P.I. and S.D. THOMAS 1962. Further observations on the breeding of the milkfish *Chanos chanos* in the inshore waters of Rameswaram. *Proc. 49th Indian Sci. Congr.* (Cuttack), Pt.3 Abstracts: 390.

Breeding close to tidal creeks and mudflats twice a year.

CHACKO, P.I. and R.S. VENKATARAMAN 1945. On the bionomics of baril, *Barilius bendelisis* (Hamilton). *J. Bmbay nat. Hist. Soc.*, **45**: 438-439.

Breeding.

CHACKO, P.I. and R.S. VENKATARAMAN 1948a. On the bionomics of larvivorous fishes of Madras. *Proc. 35th Indian Sci. Congr. (Patna), Pt.3 Abstracts*: 205.

Breeding grounds, seasons and habits of some larvivorous fishes of Madras.

CHACKO, P.I., R.S. VENKATARAMAN and G.K. KURIYAN 1947. On the bionomics of *Osterchilus (Osteochilichthys) thomassi* (Day). *Proc. 34th Indian Sci. Congr. (Delhi), Pt.3 Abstracts*: 181.

Size at first maturity, ripe eggs, breeding season, movements for egg laying and occurrence of fingerlings.

CHACKO, P.I., R.S. VENKATARAMAN and V. RENGANATHAN 1946. On the bionomics of the silver fish, *Chela argentea* Day. *Curr. Sci.*, **15**: 167.

Breeding season, breeding colouration, ripe egg, embryonic duration, hatching and a few older larval stages.

CHACKO, P.I., A.R.K. ZOBAIRI and B. KRISHNAMURTHI 1948. The radii of scales of *Hilsa ilisha* (Hamilton) as an index of growth and age. *Curr. Sci.*, **17**(5): 158-159 (Also *Proc. 35th Indian Sci. Congr. (Patna), Pt.3 Abstracts*: 210).

Spawning and accessory rings on scales.

CHAKRABORTY, R.D. and S.B. SINGH 1967. Observations on some aspects of the fishery and biology of mrigal, *Cirrhina mrigala* (Hamilton) from Allahabad. *Indian J. Fish.*, 1963, **10A**(1): 209-232 (Also *Adv. Abstr. Contr. Fish. Aquat. Sci. India*, **1**(1): 7-9).

Seasonal cycle in gonad weight, sex-ratio, sexual dimorphism and fecundity.

CHANDRA, R. 1964. A preliminary account of the distribution and abundance of fish larvae in the Hooghly estuary. *Indian J. Fish.*, 1962, **9**(1): 48-70.

Abundance and distribution of larval *Hilsa ilisha*, *Setipinna phasa*, *Pama pama*, *Polynemus paradiseus* and *Eleutheronema tetradactylum*.

CHATTERJEE, G.C. 1934. *Biological control of Malaria in rural areas of Lower Bengal*, Calcutta, 28 pp.

Breeding habits of *Aplocheilus panchax*.

CHAUDHURI, H.S. 1950. On the origin and fate of pallial layer in the oocytes of marine teleosts. *Proc. 37th Indian Sci. Congr. (Poona), Pt.3 Abstracts*: 237.

Pallial layer in the eggs of marine teleosts.

CHAUDHURI, B.L. 1916a. Descriptions of two new fish from the Chilka Lake. *Rec. Indian Mus.*, **12**(3): 108.

Breeding localities of *Gobius ostreicola* and *Petroscirtes bhattacharyae* in Chilka Lake.

CHAUDHURI, B.L. 1916b. Fauna of Chilka Lake, Fish, Part I and II. *Mem. Indian Mus.*, **5**(4&5): 403-439 & 441-458.

Chaudhuri, 1916b (contd.)

Breeding of *Dasyatis imbricata*, *Nematalosa nasus*, *Thrissocles kempfi*, *T. purava*, *T. rambhae*, *Anchoviella indica*, young ones of *Plotosus canius*, breeding in *Barbus tioto*, *Ichthyocampus carce*, *Hippocampus brachyrhynchus*, *Aplocheilus panchax* and *Oryzias melastigma*.

CHAUDHURI, B.L. 1917. Fauna of the Chilka Lake, Fish, Part III. *Ibid.*, **5**(6): 491-508.

Appearance of the young ones of *Mugil cunnesius* and *Eleutheronema tetradactylum* in Chilka Lake and probability of their breeding there; breeding in *Hemirhamphus gaimardi* and *Chelonodon Patoca*.

CHAUDHURI, B.L. 1923b. Fauna of the Chilka Lake, Fish, Part IV. *Ibid.*, **5**(11): 711-736.

Breeding of *Coius quadrifasciatus*, *Therapon puta*, *Sillago sihama* and *Leiognathus equulus*.

CHAUDHURI, B.L. and S. SEWELL 1912. *Indian Fish of proved utility as mosquito destroyers*, Calcutta.

Breeding and development of *Ambassis ranga*.

CHAUDHURI, H. 1951. Notes on the embryonic development of the 'transparent goby', *Gobiopterus chuno* (Hamilton). *Proc. nat. Inst. Sci. India*, **17**(4): 247-252.

Breeding season, fecundity, eggs, early segmentation, formation of embryo, hatching and hatchling of *Gobiopterus chuno* with figures.

CHAUDHURI, H. 1959. Notes on external characters distinguishing sex of breeders of the common Indian carps. *Sci. & Cult.*, **25**: 258-259.

Breeding and characters distinguishing the sex of breeders.

CHAUDHURI, H. 1960. Experiments on induced spawning of Indian carps with pituitary injections. *Indian. J. Fish.*, **7**(1): 20-48.

Induced breeding of Indian carps, the eggs, hatching rate, development and survival as well as growth of fry and fingerlings, of Indian carps.

CHAUDHURI, H. 1962a. Breeding and life-history of *Rasbora elauga* (Hamilton). *Proc. 49th Indian Sci. Congr. (Cuttack)*, Pt.3 Abstracts: 390.

Induced breeding, fertilized eggs, life history and characters of male and female breeders.

CHAUDHURI, H. 1962b, Breeding of *Puntius sarana* (Hamilton) and observations on its life-history and bionomics. *Proc. 49th Indian Sci. Congr. (Cuttack)*, Pt.3 Abstracts: 390.

Induced breeding and life history.

CHAUDHURI, H. 1962c. Induced breeding and development of common cat fish, *Ompok bimaculatus* (Bloch). *Proc. 49th Indian Sci. Congr. (Cuttack)*, Pt.3 Abstracts: 390-391.

Induced spawning and life history.

CHAUDHURI, H. 1963. Induced spawning of Indian carps. *Proc. nat. Inst. Sci. India*, **29B**(4): 478-487.

Induced spawning of common carps.

CHAUDHURI, H. 1964. Technique of induced breeding in fishes with special referece to major carps of India. In *Seminar on Inland fish. Development in Uttar Pradesh*, 28-29 Jan. 1964: 65-73.

Technique of induced breeding in fishes with particular references to Indian carps.

CHAUDHURI, H. and K.H. ALIKUNHI 1957. Observations on the spawning in Indian carps by hormone injection. *Curr. Sci.*, **26**(12): 381-382.

Effect of fish pituitary extracts on the spawning of Indian carps and other fishes.

CHAUDHURI, H., R.M. BHOWMICK, R.N. PAL and A.B. MUNSHI 1962. Observations on induced breeding of major Indian carps during 1960 at Cuttack. *Proc. 49th Indian Sci. Congr. (Cuttack)*, Pt.3 *Abstracts*: 391.

Experiments of induced breeding, spawning success and notes on breeding and hatching.

CHAUDHURI, H., S.B. SINGH and K.K. SUKUMARAN 1966. Experiments on large scale production of fish seed of the Chinese grass carp, *Ctenopharyngodon idellus* (C. and V.) and the silver carp, *Hypophthalmichthys molitrix* (C. and V.) by induced breeding in ponds in India. *Proc. Indian Acad. Sci.*, **63B**(2): 80-95.

Induced breeding techniques by injecting hormones and results obtained.

CHAUDHURI, H.S. 1957. A preliminary note on the toxicity of gamma BHC on the fry and fingerlings of Mirror carp. *Proc. 44th Indian Sci. Congr. (Calcutta)*, Pt.3 *Abstracts*: 320

Experiments on the fry and fingerlings of *Cyprinus carpio* and *Barbus*.

CHAUHAN, B.S. 1949. Fishery survey of Patna State, Orissa. *Rec. Indian Mus.*, 1947, **45**(2): 273-275.

Breeding of *Glossogobius giuris*.

CHAUHAN, B.S. and G. RAMAKRISHNA 1959. On the occurrence of fish mortality due to helminthic infestation by Cestode cysts in a stocking tank at Nagpur. *Indian J. Helminth.*, **10**(1): 53-55 .

Mortality in the fingerlings of *Labeo rohita*, *Cirrhina mrigala* and *Catla catla* caused by certain cysts.

CHIDAMBARAM, K. 1941. Observations on the development of *Arius jella* (Day). *Proc. Indian Acad. Sci.*, **14B**(6): 502-508 (Also *Proc. 26th Indian Sci. Congr. Banaras*, Pt.3 *Abstracts*: 180.,

Embryonic development, breeding season and parental care with figures.

CHIDAMBARAM, K. 1943. On two types of horse-mackerel eggs found in the plankton from the sea opposite West Hill (Malabar). *Proc. 30th Indian Sci. Congr. (Calcutta)*, Pt.3 *Abstracts*: 62.

Eggs and early larval stages assigned to *Caranx kurra* and *C. kalla*.

CHIDAMBARAM, K. 1945. The spawning season of the Malabar sole. *Proc. 32th Indian Sci. Congr. (Nagpur)*, Pt.3 *Abstracts*: 113.

Spawning season and larval life of *Cynoglossus semifasciatus*.

CHIDAMBARAM, K. 1949. Comments on W.F. Carbine's "Bangos culture in Phillipines". *Prog. Fish-Cult.*, (Washington), **11**(4): 343-344.

Culture of the young of *Chanos chanos*.

CHIDAMBARAM, K. 1950. Studies on the length frequency of the oil sardine *Sardinella longiceps* Cuv. & Val. and on certain factors influencing their appearance on the Calicut coast of Madras Presidency. *Proc. Indian Acad. Sci.*, **31B**(5): 252-286.

Factors influencing spawning, effect of hydrological condition on spawning and larval survival and availability of food for young sardines.

CHIDAMBARAM, K. and G.K. KURIYAN 1952. Notes on the grey mullets (*Mugil* spp.) of Krusadai Island, Gulf of Mannar. *J. Bombay nat. Hist. Soc.*, **50**(3): 515-519.

Breeding season, characters and food of the fry of *Mugil troschelli*, *M. waigiensis* and *M. seheli*.

CHIDAMBARAM, K. and M.D. MENON 1945. The correlation of the West Coast (Malabar and South Kanara) fisheries with plankton and certain oceanographical factors. *Proc. Indian Acad. Sci.*, **22**(6): 355-367.

Occurrence of fish eggs and larvae in plankton.

CHIDAMBARAM, K. and M.D. MENON 1946. *Investigations on the shark fishery Madras Presidency*. Government Press, Madras.

Breeding in *Galeocerdo* spp., *Cercharinus melanopterus*, *Sphyrna* spp. and *Pristis* spp.

CHIDAMBARAM, K. and M.D. MENON 1948. Notes on the development of *Megalops cyprinoides* and *Hemirhamphus georgii*. *Proc. Zool. Soc. London*, **117**(4):756-763.

Early developmental stages.

CHIDAMBARAM, K. and M.M. UNNI 1946. Variation in the rate of growth of the milk fish (*Chanos chanos*). *Nature* (London), **157**(3986): 375.

Variation in the growth rate of the young stages.

CHIDAMBARAM, K. and S.S. VENKATARAMAN 1946. *Tabular statement of the natural history of certain marine food fishes of the Madras Presidency - West coast*. Govt. Press, Madras.

Breeding in sharks, spawning season in *Arius* spp. *Sardinella longiceps*, *S. fimbriata*, *Kowala thoracata*, *Engraulis* spp., *Stolephorus* spp., *Trichiurus* spp., *Caranx crumenophthalmus*, *Leiognathus* spp., *Lactarius lactarius*, *Rastrelliger kanagurta* and *Cynoglossus semifasciatus*.

CHOODAMANI, N.V. 1941. On the smallest (?) Elasmobranch egg. *Proc. 28th Indian Sci. Congr.* (Banaras), Pt.3 *Abstracts*: 179.

Process of gastrulation of the egg, blastoderm formation, enclosure of the yolk and embryos of *Scolidon sorrakowah*.

CHOODAMANI, N.V. and S. THYAGARAJAN 1959. Observations on the sexual dimorphism in *Barbus dubius* (Day). *Govt. Madras Fish. St. Rep. & year book 1955-56*: 241-249.

Spawning season, colouration and sexual dimorphism.

CHUTE, W.H. 1935. *Guide to John G. Shedd Aquarium Michigan*.

Breeding of *Aplocheilichthys panchax*, *A. lineatus*, *Betta splendens*, *Trichogaster trichopterus*, *Colisa fasciata*, *C. labiosa* and *C. labia*.

CODRINGTON, K. de B. 1946. Notes on the Indian mahseers. *J. Bombay nat. Hist. Soc.*, **46**(2): 336-344.

Breeding migration, spawning and fry of the mahseers, *Barbus (tor) putitora* and *B. (tor) tor*.

DANDEKAR, S.V. 1965. A note on the fecundity of *Tripauchen vagina* (Bl. & Sch.). *J. Mar. biol. Ass. India*, **7**(1): 212-214.

Maturity and fecundity.

DAS, A.K. and H.K. RAO 1952. On the observation of growth in "Mirror carp" (*Cyprinus carpio* (Linn.) in Aquaria. *Sci. & Cult.*, **17**(7): 300-301.

Experiments on the growth of fingerlings in limited space, aeration, diet etc.

DAS, B.B 1917. On the process of development of rohita, catla and *Cirrhina mrigala* in confined waters of Bengal. *Proc. Indian. Ass. Cult. Sci.* (Calcutta), **3**: 6-20.

Development of *Labeo rohita*, *Catla catla* and *Cirrhina mrigala* in confined waters.

DAS, B.C. 1959. Comparative effects of vitamin B₁₂, Cobalt nitrate and ruminant stomach extract on the survival rate of Indian carps during the first weeks of life. *Indian J. Fish.*, **6**(1): 211-221.

Experiments on one day old larvae of *Catla catla*, *Labeo rohita* and *Cirrhina mrigala*.

DAS, B.C. 1961. Effect of density on survival of Indian freshwater carps during the first two weeks of life. *Proc. nat. Inst. India*, **27B**(3): 91-103.

Experiments on one to a few days old larvae of *Catla catla*, *Labeo rohita*, *L. bata*, *L. boga*, *Cirrhina mrigala* and *Crossocheilus latia*.

DAS, B.C. and H.K MURTHY 1959 Comparative effects of yeast, vitamin B complex and vitamin B₁₂ on the survival rate of Indian minor carps during the first two weeks of life. *Proc. nat. Inst. Sci. India*, **25B**(6): 300-306.

The effect of yeast, vitamin B complex and vitamin B₁₂ on survival of the fry of *Labeo bata*, *Cirrhina reba* and *Crossocheilus latia*.

DAS, B.K. 1928. The bionomics of certain air breathing fishes of India, together with an account of the development of their air breathing organs. *Philos. Trans. R. Soc.* (London), **216B**: 183-219.

Breeding and the development of their breathing organs.

DAS, B.K. 1946. Further observations on the ecology, bionomics and development of the semi-terrestrial symbranchoid eels, *Amphipnopus cuchia* (Ham. Buch.) – the Cuchia eel of India. *Proc. 33rd Indian Sci. Congr.* (Bangalore), Pt.3 Abstracts: 127.

Egg laying, parental care, colour of eggs, newly hatched larvae and postlarvae.

DAS, B.K. and K.C. PATI 1966. Preliminary observation on the supplementary feed of the fry of *Cyprinus carpio* (Linn). *Proc. 2nd All Indian Congr. Zool.* (Varanasi), 1962, Pt.2: 445-447.

Growth in length and weight of the fry of *C. carpio* var. *communis* on account of various feeds.

DAS, I. 1958. Observations on the nutrition of the carp spawn of the Mahanadi River. *Proc. nat. Inst. Sci. India*, **24** B(6): 274-284 (Also *Proc. 44th Indian Sci. Congr.*, Calcutta, 1957, Pt. 3 Abstracts: 318).

Experiments on the spawn of *Cirrhina reba* fed with zooplankton added by vitamins, proteins and carbohydrates.

DAS, K.N. and B.N.D. GUPTA 1945. Breeding of the principal carps in Bengal. *Proc. nat. Inst. Sci. India*, **11**(3): 324-327.

Breeding of *Labeo bata*, *L. calbasu*, *Cirrhina mrigala* and *Catla catla* in relation to environmental conditions.

DAS, R.K. and C.C. MOHANTY 1966. On the food of the fry of *Labeo calbasu* (Hamilton). *Proc. 2nd All India Congr. Zool.* (Varanasi), 1962, Pt. 2: 443-444

Preference of phytoplankton to zooplankton.

DAS, S.M. 1959. Eggs, larvae and early life-history of some catfishes of Lucknow. (Abstract) *Proc. 1st All India Congr. Zool.* (Jabalpur), Pt. 2: 188.

Early life history of *Bagarius*, *Wallagonia*, *Mystus*, *Clarias*, *Heteropneustes*, *Eutropiichthys* and *callichrous*.

DAS, S.M. 1965. Observations on gonad conditions and breeding season in some fishes of North India. *Proc. 51st and 52nd Indian Sci. Congr.* (Calcutta), Pt. 3 Abstracts: 495.

Ovarian ova, ratio of ova to total length and number of ovarian ova in *Wallagonia attu*, *Ophicephalus marulius*, *Rita rita*, *Mystus bleekeri* and *Gonialosa manminna*.

DAS, S.M. and S.K. MOITRA 1957a. On the early life history of *Mystus vittatus* (Bloch). *Proc. 44th Indian Sci. Congr.* (Calcutta), Pt. 3 Abstracts: 315-316.

Egg, hatchling, prolarva and postlarva.

DAS, S.M. and S.K. MOITRA 1957b. On the early life history of *Bagarius bagarius* (Ham.). *Ibid.*, Pt. 3, Abstracts: 316.

Egg, hatchling, prolarva and postlarva.

DAS, S.M. and S.K. MOITRA 1957c. On the early life history of *Nemachilus zonatus* (Ham.). *Ibid.*, Pt.3 Abstracts: 319-320.

Egg, hatchling, prolarva, postlarva and fry.

DATAR, G.G. and D.V.BAL 1955. The interrelationships between total length, standard length, body weight and gonad weight of *Megalaspis cordyla*. *Proc. 42nd Indian Sci. Congr.* (Baroda), Pt.3 Abstracts: 301-302.

Gonadal conditions of maturing fish.

DAVID, A. 1954. A preliminary survey of the fish and fisheries of five-mile stretch of the Hooghly river near Barrackpore. *Indian J. Fish.*, **1**(1& 2): 231-255.

Collection of carp spawn during rainy months; breeding of *Polynemus paradiseus* and spawning of *Pama pama*.

DAVID, A. 1960. Observations on some spawning grounds of the Gangetic major carps with a note on carp seed resources in India. *Indian J. Fish.*, 1959, **6**(2): 327-341.

Discovery of extensive spawning grounds in the Ganga river system, appearance of eggs, fry, fingerlings and steps to protect the fish and fingerlings of major carps.

DAVID, A. 1961. Early life-history of the cobitid fish, *Botia dayi* Hora. *Proc. Zool. Soc. Bengal*, **14**(1): 39-46.

Early life history with figures.

DAVID, A 1962. Notes on the embryonic and larval development of the "Goonch"- *Bagarius bagarius* (Hamilton). *J. Zool. Soc. India*, 1961, **13**(2): 194-205.

Eggs and larvae reared, identifying characters and migration of the fish in relation to spawning with figures.

DAVID, A 1967. Fishery biology of the schilbeid catfish, *Pangasius pangasius* (Hamilton) and its utility and propagation in culture ponds. *Adv. Abstr. Contr. Fish. Aquat. Sci. India*, **1**(1): 9-10 (Also *Indian J. Fish.*, 1963, **10A**).

Ova- diameter frequencies, fecundity, spawning seasons, larvae and fry.

DAY, F. 1865. *Fishes of Malabar*, London.

Colouration of the young ones of many species.

DAY, F. 1873. *Report on the freshwater fish and fisheries of India and Burma*. Calcutta.

Migration of the young of *Hilsa ilisha* and spawning activity of cyprinids.

DAY, F. 1876-1888. *Fishes of India*, London.

Spawning migration of *Hilsa ilisha*, young ones of *Barbus chrysopoma*, eggs of *B. sophore*, characters of the young ones of *B. carnaticus*, *B. vittatus*, breeding of *Barilius bendelensis*, young of *B. neilgherriensis*, *Nemichilus zonatus*, eggs of *Lepidocephalichthys thermalis*, young of *Gagata cenia*, ova of *Heteropneustes fossilis*, *Ophicephalus punctatus*, breeding season of *Anabas testudineus* and young one of *Scatophagus argus*.

DAY, F. 1889. *Fishes, Fauna of British India including Burma and Ceylon*. London.

Characters of the young ones of *Arius sona*, *Sisor rhabdophorus*, *Rhinobatos annandalei*, *Rhyneobatus djiddensis*, *Dasyatis uarnak* and *Gymnura micrura*.

DE, K.C. 1936. *A few hints on the culture of fish in tanks in Eastern Bengal and Assam*. Bengal Govt. Press, Bengal.

Rearing tanks for the larvae of carps (*Labeo rohita*, *L. calbasu*, *L. boga*, *Catla catla* and *Cirrhina mrigala*) and attainment of maturity.

DEAN, B. 1906. *Chimaeroid fishes and their development*, Washington.

Development of *Rhinchimaera*.

DELSMAN, H.C. 1922a. Fish eggs and larvae from the Java sea 1. *Fistularia serrata* (Cuv.). *Treubia*, **2**(1): 97-108.

Description of the eggs, newly hatched larva and a few older stages with figures.

DELSMAN, H.C. 1922b. Fish eggs and larvae from the Java sea. 2. *Chirocentrus dorab* (Forsk.). *Ibid.*, **3**(1): 38-46.

Egg, newly hatched larva, and a few stages till the 20.5 cm. with figures.

DELSMAN, H.C. 1924. Fish eggs and larvae from the Java sea 3. A pelagic scomberesocid egg. *Ibid.*, **5**(4): 408-418.

Eggs, newly hatched larvae, one and two days old stages and pelagic postlarvae till the 28.75 mm. suspected to belong to *Hemirhamphus quoyi*.

DELSMAN, H.C. 1925. Fish eggs and larvae from the Java sea 4. *Dussumieria hasseltii* (Blkr.). *Ibid.*, **6**(3-4): 297-307.

Egg, newly hatched larva and a number of larval stages till 42 mm. stage with figures.

DELSMAN, H.C. 1926a. Fish and eggs larvae from the Java sea 5. *Caranx kurra*, *C. macrosoma* and *C. crumenophthalmus*. *Ibid.*, **8**(3&4): 199-211.

Eggs, newly hatched larva, 2 and 3 days old larvae of *C. kurra*; egg newly hatched larva, one day and a little older larval stages of *C. macrosoma*; and egg, newly hatched larva, 48 hours and 3 days old larvae of *C. crumenophthalmus* with figures.

DELSMAN, H.C. 1926b. Fish eggs and larvae from the Java sea 6. On a few carangid eggs and larvae. *Ibid.*, **8**(3&4): 212-218.

Eggs and larvae probably belonging to *Caranx gallus* or to *C. ciliaris* or to both with figures.

DELSMAN, H.C. 1926c. Fish eggs and larvae from the Java sea 7. The genus *Clupea*. *Ibid.*, **8**(3&4): 219-239.

Eggs, newly hatched larva and few older stages of *Clupea fimbriata*; eggs and a few early larval stages suspected of *C. kanagurta*; eggs and early larvae of *C. brachysoma*, *C. leiogaster*, of two unidentified *Clupea* spp.; some pelagic postlarvae assigned to *C. fimbriata* and a few other unidentified *Clupea* eggs and larvae suspected to be of *C. clupeoides*, *C. sirm* and *C. longiceps* with figures.

DELSMAN, H.C. 1926d. Fish eggs and larvae from the Java sea 8. *Dorosoma chacunda*. *Ibid.*, **8**(3&4): 389-394.

Eggs and early larval stages assigned to *Dorosoma chacunda* and to another species, probably *D. nasus* with figures.

DELSMAN, H.C. 1926e. Fish eggs and larvae from the Java sea 9. *Scomber kanagurta* C.V. *Ibid.*, **8**(3&4): 395-399

Eggs presumed to belong to *Scomber kanagurta* and a few early larval stages with figures.

DELSMAN, H.C. 1926f. Fish eggs and larvae from the Java sea 10. On a few larvae of empang fishes. *Ibid.*, **8**(3&4): 400-412.

Postlarvae of *Chanos chanos*, *Albula vulpes*, *Elops hawaiiensis*, *Megalops cyprinoides*; larvae assigned to *Lates calcarifer*, *Ambassis* sp., *Gobius* spp. and eggs and larvae of two species of *Stolephorus* with figures

DELSMAN, H.C. 1927. Fish eggs and larvae from the Java sea 11. The genus *Trichiurus*. *Ibid.*, **9**(4): 338-351.

Eggs, newly hatched larva, about 1 $\frac{1}{2}$ - two days old stage, and a few older stages of five kinds, probably belonging to *T. haumela*, *T. savala*, *T. glossodon* and *T. muticus* with figures.

DELSMAN, H.C. 1929a. Fish eggs and larvae from the Java sea 12. The genus *Engraulis*. *Ibid.*, **11**(2): 275-281.

Eggs and early larvae assigned to *Engraulis mystax*. and *E. grayi* with figures.

DELSMAN, H.C. 1929b. Fish eggs and larvae from the Java sea 13. *Chanos chanos*. (Forsk.). *Ibid.*, **11**(2): 281-286.

Egg, early larval stages, distribution of eggs and pelagic larvae with figures.

DELSMAN, H.C. 1929c. The study of pelagic fish eggs. *Fourth Pac. Sci. Congr.* (Batavia): 1-17.

General observation on pelagic eggs.

DELSMAN, H.C. 1930a. Fish eggs and larvae from the Java sea 14. The genus *Pellona*. *Treubia*, **12**(1): 37-46.

Egg, newly hatched larva, few older stages of *P. elongata*, egg of *P. amblyuroptera*, egg, newly hatched larva and a few older stages of *P. ditchoa* and two unidentified *Pellona* spp. with figures.

DELSMAN, H.C. 1930b. Fish eggs and larvae from the Java sea 15. On *Chirocentrus hypselosoma* and *dorab*. *Ibid.*, **12**(1): 46-50.

Eggs and early larval stages probably belonging to the above species with figures.

DELSMAN, H.C. 1930c. Fish eggs and larvae from the Java sea 16. *Amphiprion percula* C.V. *Ibid.*, **12**(3-4): 367-370.

Stages in the development of the egg from the first day to fifth day and the newly hatched larva with figures.

DELSMAN, H.C. 1931a. Fish eggs and larvae from the Java sea 17. The genus *Stolephorus*. *Ibid.*, **13**(2): 217-243.

Eggs and early larvae stages of *Stolephorus*, assigned to *S. insularis*, *S. indicus*, *S. commersonii*, *S. zollingeri*, *S. heterolobus*, *S. tri*, *S. baganensis*; planktonic larvae of *S. bangenesis*, and *S. tri*? with figures.

DELSMAN, H.C. 1931b. Fish eggs and larvae from the Java sea 18. The genus *Cybium*. *Ibid.*, **13**(3-4): 401-410.

Eggs and early larvae probably belonging to *Cybium guttatum* and some other species and eggs of *Echeneis naucrates* with figures.

DELSMAN, H.C. 1932a. Fish eggs and larvae from the Java sea 19. The genus *Setipinna*. *Ibid.*, **14**(1): 109-114.

Eggs and early larvae of *S. melanochir*, *S. breviceps*, *S. taty*, planktonic postlarvae of *S. taty* and *S. breviceps* with figures.

DELSMAN, H.C. 1932b. Fish eggs and larvae from the Java sea 20. The genus *Coilia*. *Ibid.*, **14**(1): 114-116.

Eggs and early larvae probably belonging to *C. dussumieri* with figures.

DELSMAN, H.C. 1933a. Fish eggs and larvae from the Java sea 20. Eel eggs. *Ibid.*, **14**(2): 237-247.

One type of egg and early larvae referable to Muraenidae; eggs and early larvae referable to Ophichthyidae and probably other families (belonging to eight types), and a few other larval stages with figures.

DELSMAN, H.C. 1933b. Fish eggs and larvae from the Java sea 22. *Clupeoides lile* (C.V.). *Ibid.*, **14**(2): 247-249.

Distinguishing characters of the eggs of *Clupeoides lile* and *Dorosoma chacunda*.

DELSMAN, H.C. 1933c. Fish eggs and larvae from the Java sea 23. A few more *Clupea* eggs. *Ibid.*, **14**(2): 249-254.

Eggs and early larvae assigned to *Clupea perforata* and two unidentified clupeoid eggs, probably referable to *Clupea toli* and *C. macrura* with figures.

DELSMAN, H.C. 1938. Fish eggs and larvae from the Java sea 24. *Myctophoidia*. *Ibid.*, **16**(3): 415-420.

Eggs and early larval stages of four kinds of unidentified species with figures.

DELSMAN, H.C. and J.D.F. HARDENBERG 1934. *De indische zeevisschen en zeevisscherij*, Batavia.

Notes on the eggs and/or larvae of *Chanos chanos*, *Aalbula vulpes*, *Megalops cyprinoides*, *Chirocentrus dorab*, *C. hypselosoma*, *Dussumieria acuta*, *Clupea leiogaster*, *C. fimbriata*, *Dorosoma chacunda*, *Clupeoides lile*, *Pellona ditchoa*, *P. elongata*, *Stolephorous hetrolobus*, *Thrissa* sp., *Setipinna breviceps*, *Coilia dussumieri*, *Saurida tumbil*, *Harpodon nehereus* *Arius sagor*, *Cypselurus* sp., *Hemirhamphus* sp., *Fistularia* sp., *Amphiprion* sp., *Acanthurus* sp., *Caranx* spp., *Cybium guttatum* and *Echeneis naucrates* with figures.

DERANIYAGALA, P.E.P. 1929. The Labyrinthici of Ceylon. *Spol. Zeyl.*, **15**(2): 79-111.

Breeding season and fry of *Ophicephalus marulius*, collection of the larvae of *O. gachua*, ovigerous females of *Channa orientalis*, *Polyacanthus signatus* and breeding of *Anabas testudineus*.

DERANIYAGALA, P.E.P. 1930a. Notes on the breeding habits of the eel, *Leiuranus semicinctus* (Lay & Bennet). *Ceylon J. Sc.*, **15B**(1): 107.

Breeding behaviour.

DERANIYAGALA, P.E.P. 1930b. The Eventognathi of Ceylon. *Spol. Zeyl.*, **16**(1): 1-41.

Collection of gravid females and young ones of *Barbus tor*, *B. chrysopoma*, *B. dorsalis*, *Garra ceylonensis ceylonensis*, breeding in *Amblypharyngodon melettina* and gravid females of *Lepidocephalichthys thermalis*.

DERANIYAGALA, P.E.P. 1930-1932a. Further notes on the Anguilliform fishes of Ceylon. *Ibid.*, **16**: 131-137.

Elvers of *Anguilla bicolor* and *A. elphinstonei*.

- DERANIYAGALA, P.E.P. 1930-1932b. The Opisthomi of Ceylon. *Ibid.*, **16**: 265-269.
Eggs of *Mecrognathus aculeatus* and young ones of *Mastacembelus armatus*.
- DERANIYAGALA, P.E.P. 1930-1932c. The Nematognathii of Ceylon. *Ibid.*, **16**: 271-289.
Spawning habits and parental care of *Osteogeneiosus militaris*, *Heteropneustes fossilis* and *Clarias teysmanni*.
- DERANIYAGALA, P.E.P. 1934a. The embryo of the dog fish, *Chiloscyllium indicum*. *Ceylon J. Sci.* **18B**(2): 249-252.
Embryonic stage.
- DERANIYAGALA, P.E.P. 1934b. A further embryonic stage of the dog fish *Hemiscyllium colax*. *Spol. Zeyl.*, **24**(2): 91-92.
Early embryonic stages.
- DERANIYAGALA, P.E.P. 1934c. Some apodal larvae from Ceylon waters. *Ceylon J. Sci.*, **19B**(1): 89-96.
Certain ophichthyid muraenid, congrid and moringuid leptocephali and a few other unidentified ones.
- DERANIYAGALA, P.E.P. 1936. Two Xiphiiform fishes from Ceylon. *Ibid.*, **19B**(3): 211-218.
127mm. young one of *Istiophorus gladius* with figures.
- DESAI, V.R. and S.J. KARAMCHANDANI 1968. On the larval development and spawning seasons of two species of *Barilius* from Narbada River. *J. Zool. Soc. India*, 1967, **19**(1&2): 27-41.
Spawning season, fecundity and larval stages of *Barilius bendelisis* var. *chedra* and *B. barila* with figures.
- DEVANESEN, D.W. 1937. On the spawning habits and hatching experiments with the eggs of *Hemirhamphus georgii* Cuv. et. Val. *CR. 12th Congr. Intr. Zool.* (Lisbon), 1935: 2175-2181.
Spawning habits, eggs and embryonic stages with figures.
- DEVANESEN, D.W. 1939. Research work on the hilsa. *Curr. Sci.*, **8**(3):126.
Breeding behaviour of *Hilsa ilisha*.
- DEVANESEN, D.W. 1942. Weirs in South India and their effect on the bionomics of the hilsa in the South Indian waters, the Godavari, the Kistna and the Cauvery. *Ibid.*, **11**(10): 398-399.
Effect of weirs on the breeding of *Hilsa ilisha*.
- DEVANESEN, D.W. 1943. A brief investigation in to the causes of fluctation of the annual fishery of the oil sardine of Malabar (*Sardinella longiceps*), determination of its age and an account of the discovery of its eggs and spawning grounds. *Madras Fish. Bull.*, **28**(1): 1-38.
Maturity, ripe ova, spawners, spawning ground and planktonic eggs with early embryonic stages.
- DEVANESEN, D.W. and P.I. CHACKO 1943. On the possibility of artificial culture of the marine mullets in freshwater tanks. *Proc. nat. Inst. Sci. India*, **9**(2): 249-250(Also *Proc. 30th IndianSci. Congr.*, *Calcutta*, Pt.3 *Abstracts*: 60-61).
Experimental introduction of the fry of *Mugil troscheli*, *M. waigiensis* and *M. seheli* to freshwater.

DEVANESEN, D.W. and P.I. CHACKO 1944a. On the bionomics of the rainbow sardine, *Dussumieria hasseltii* (Bleeker). *Ibid.*, **10**(1): 143-145 (Also *Proc. 30th Indian Sci. Congr.*, Calcutta, 1943, Pt.3 Abstracts: 60).

Spawning season, period and time of occurrence of eggs in plankton, description of planktonic egg, hatching, newly hatched larva, a few early larvae and their rearing.

DEVANESEN, D.W. and P.I. CHACKO 1944 b. Cultivation of milk-fish in Krusadi Island. *Proc. 31st Indian Sci. Congr.* (Delhi), Pt.3 Abstracts: 108.

Cultivation, food, enemies and growth of the fingerlings of *Chanos chanos*.

DEVANESEN, D.W. and P.I. CHACKO 1944c. Bionomics of the bigjawed jumber, *Lactarius lactarius* (Cuv. & Val.). *Ibid.*, Pt.3 Abstracts: 108.

Spawning season.

DEVANESEN, D.W. and K. CHIDAMBARAM 1941. On two kinds of fish eggs hatched out in the laboratory of the West Hill Biological Station, Calicut. *Curr. Sci.*, **10**(5): 259-261. (Also *Proc. 28th Indian Sci. Congr.*, Banaras, Pt.3 Abstracts: 180).

Two kinds of eggs, assigned to *Dorosoma chacunda* and *Caranx crumenophthalmus*, their development and larval stages in the laboratory.

DEVANESEN, D.W. and K. CHIDAMBARAM 1948. *The common food-fishes of the Madras Presidency*, Govt. Press, Madras.

Viviparous specimens of *Galeocerdo articus*, breeding movement of *Sphyrna* spp; breeding season and fry of *Chanos chanos*, spawning season and maturity of *Kowala thoracata*, spawning behaviour of *Sardinella longiceps*, spawning season of *Engraulis hamiltonii*, breeding of *Arius thalassinus*, *A. jella*, *Osteogeniosus militaris*, *Hemirhamphus georgii*, *Cypselurus* spp., metamorphosis in *Cynoglossus semifasciatus*, spawning season of *Rastrelliger kanagurta*, breeding of *Hilsa ilisha*, spawning in *Barbus tor*, *Catla catla*, *Pangasius pangasius*, breeding behaviour in *Ophiocephalus* spp., *Osphronemus goramy* and *Etroplus suratensis*.

DEVANESEN, D.W. and V. JOHN 1940. On the natural history of *Rastrelliger kanagurta* (Russell) with special reference to its spawning season and eggs. *Curr. Sci.*, **9**(10): 462-464.

Spawning season and eggs probably belonging to the species.

DEVANESEN, D.W. and V. JOHN 1941. On the natural history of *Kowala thoracata* (Cuv. & Val.) with special reference to its gonads and eggs. *Rec. Indian Mus.*, **43**(2): 215-216.

Maturity, spawning season and eggs.

DEVANESEN, D.W. and S. VARADARAJAN 1942. On the hatching of fish eggs in 1940-41 in the laboratory of West Hill Biological Station, Calicut. *Proc. 29th Indian Sci. Congr.*(Baroda), Pt.3 Abstracts: 157-158.

Hatching of carangoid and clupeid eggs, assigned to *Caranx* sp., *Anchoviella heterolobus* and *Thrissocles hamiltonii*.

DEVASUNDARAM, M.P. 1947. The caudal skeleton of Orissa carps. *Proc. 34th Indian Sci. Congr.* (Delhi), Pt. 3. Abstracts: 182 (Also *Presidency College Zool. Mag.* (Madras), 1949, **6**)

Caudal skeleton of fingerlings of major carps.

DEVASUNDARAM, M.P. 1951. Systematics of Chilka mullets with a key for their identification. *J. zool. Soc. India*, **3**(1): 19-25.

Breeding migration of mullets from Chilka Lake to sea.

DHARMAMBA, M. 1960. Studies on the maturation and spawning habits of some common clupeoids of Lawson's bay, Waltair. *Indian J. Fish.*, 1959, **6**(2): 374-388.

Spawning habits, based on ova diameter studies, of *Sardinella gibbosa*, *Thrissocles mystax*, *T. dussumieri*, *Dussumieria hasselti*, *Anchoviella commersonii* and *A. heterolobus*.

DHU, S. 1906. *The mighty mahseer and other fish*, 2nd edition, Madras.

Culture of trout (*Salmo fario*) from the egg fry stages, breeding of *Barbus carnaticus* and tench (*Tinca tinca*) in new surroundings.

DHU, S. 1918. *The angler in Northern India*, 2nd edition, Pioneer Press, Allahabad.

Deposition and hatching of the eggs of *Salmo mykiss* (?- *S. fario*), spawning of *Salvelinus malma* and culture of trout from the young stages.

DHULKHED, M.H. 1964. Observations on the food and feeding habits of the Indian oil sardine, *Sardinella longiceps* Val. *Indian J. Fish.*, 1962, **9A**(1): 37-47.,

Maturity conditions and food of different maturity stages.

DHULKHED, M.H. 1967. Observations on the food and feeding habits of the Indian oil sardine, *Sardinella longiceps* Valenciennes determined by ova diameter studies. *Ibid.*, 1964, **11A**(1): 371-376 (Also *Adv. Abstr. Contr. Fish. Aquat. Sci. India*, **1**(4): 7).

Minimum size at first maturity and release of eggs by batches.

DIXITULU, J.V.H. and P.I. CHACKO 1962. Studies on *Hilsa ilisha* (Hamilton) in Madras State. *Govt. of Madras Fish. St. Rep. & Yearbook 1951-58*: 108-127.

Maturity, spawning, maturity stages, sex-ratio, frequency of spawning, spawning areas, artificial fertilization, embryonic development, newly-hatched larva and 20 hours old stage.

DUBEY, G.P. and R.P. TULI 1961. Observations on the breeding of major carps in Madhya Pradesh. *J. Bombay nat. Hist. Soc.*, **58**(1): 81-91.

Breeding grounds of *Labeo rohita*, *Catla catla* and *Cirrhina mrigala*; the nature of the grounds and influence of lunar periodicity on spawning.

DUNKER, G. 1910. On some syngnathids from Ceylon. *Spol. Zeyl.*, **7**: 25-34.

Breeding of *Microphis brachyurus*.

DURVE, V.S. and K.V. GEORGE 1967. Some physiological observations on the fry of *Chanos chanos* (Forsk.) for their transport in plastic containers. *Indian J. Fish.*, 1963, **10A**(1): 1-10 (Also *Adv. Abstr. Contr. Fish. Aquat. Sci. India*, **1**(1): 7-8).

Experiments on the fry to find out optimum densities of different sizes for transport.

DURVE, V.S. and S.K. DHARMARAJA 1968. Effects of anaesthetics on the behaviour of mullet fingerlings and scope of using these in different fishery procedures. *J. Mar. biol. Ass. India*, 1966, **8**(1): 28-55 (Also *Adv. Abstr. Contr. Fish. Aquat. Sci. Inda.* **1**(2): 8-9).

Anaesthetics used on mullet fingerlings and their effects.

DUTT, S. 1966. The Indian shad, *Hilsa ilisha* (Hamilton) in the sea. *Curr. Sci.*, **35**(13): 329-330.

Spawning grounds and three possible ecotypes.

DUTT, S. and V. RAO 1961. On the breeding habits and early developmental stages of *Petroscirtes bipunctatus* Day. *J. Zool. Soc. India*, 1960, **12**(2): 158-161.

Breeding habits, nesting, parental care and eggs.

ECKLES, H.H. 1949. Observations on juvenile oceanic skipjack (*Katsuwonus pelamis*) from Hawaiian waters and sierra mackerel (*Scomberomorus sierra*) from the eastern Pacific. *U.S. Dept. int. Fish Wildl. Serv Fish. Bull. No. 48*, Vol. 51: 245-250.

Juveniles of *K. pelamis* 113-118 mm. in total length with figures; spawning in Hawaiian area; and larvae suspected to be of the species with figures.

EDYE, E.H.H. 1923. *Report on the fisheries of the United Provinces*, Allahabad.

Brief references to breeding of a few species.

EGGERT, B. 1930. Zur kenntnis der Brutpflegeorgane bei *Macrones gulio* Ham. *Buch. Zool. Anz.* (Leipzig), **42**: 130-134.

Breeding and development including parental care.

FAOZI, H. 1936. Successful stocking of Lake Quaroun with mullets (*Mugil cephalus* and *M. capito*) from the Mediterranean. *Intern. Rev. Hydrobiol* (Leipzig), **33**: 434-439.

Stocking with young stages of *Mugil cephalus*.

FOWKE, P. 1938. Trout culture in Ceylon. *Spol. Zeyl.*, 6: 1-78.

Spawning, stripping, hatchery, hatching, enemies of eggs, fry ponds, conditioning and transporting the fry and migratory movements of *Salmo gairdneri*.

FRASER, A.G.L. 1937. Fish Deolabi part II. Ecological and biological observations. *J. Bombay nat. Hist. Soc.*, **39**(4): 689-711.

Fraser, 1937 (Contd.)

Habits of some species such as *Chela clupeioides*, *Barilius bandelisis*, *Danio fraseri*, *Rasbora labiosa*, *Barbus ticto*, *Garra mullya* and *Glossogobius giuris* presumably connected with breeding.

FREY, D.G. 1947. The pond fisheries of the Philippine islands. *J. Mar. Res.* (New Haven). **6**(3): 247-258.

Fry of *Chanos chanos* and their cultivation in ponds.

GADGIL, M. 1967. On some aspects of the biology of *Coilia dussumieri* (Cuv. & Val.). *J. Bombay nat. Hist.*, **64**(1): 55-69.

Breeding, maturity stages, size at first maturity, sex-ratio, spawning cycle, spawning periodicity, fecundity and ova diameter frequencies.

GANAPATI, P.N. and N.S. RAJU 1961a. On the occurrence of pelagic fish spawn. *Curr. Sci.*, **30**(2): 61.

Three spawn masses collected from surface plankton, the eggs contained in them and the larvae hatched from them with figures.

GANAPATI, P.N. and N.S. RAJU 1961b. On the eggs and early development of eels off Waltair coast. *J. zool. Soc. India*, 1960, **12**(2): 229-238.

Eggs and early development of a few unidentified muraenid and ophichthyid species with figures.

GANAPATI, P.N. and N.S. RAJU 1963. Fish eggs of Waltair coast. *Curr. Sci.*, **32**(10): 361-362.

Five types of ophichthyid and two types of muraenid eel eggs and their larvae with figures.

GANAPATI, P.N. and K.S. RAO 1957. On the bionomics of *Sardinella gibbosa* (Blkr.) off Waltair coast. *J. zool. Soc. India*. **9**(2) : 162-182 (Also *Proc. 45th Indian Sci. Congr., Madras*, 1958, Pt.3 *Abstracts*: 372).

Spawning season, movement of spawners and occurrence of planktonic eggs.

GANAPATI, P.N. and K.S. RAO 1962. Observations on the feeding and spawning of *Thrissocles mystax* (Schn.) off Waltair Coast. *Proc. 1st All India Congr. Zool.* (Jabalpur), 1959, Pt.2: 321-323 (Also *Abstracts*, Sect. 7: 45).

Maturity and spawning.

GANAPATI, P.N. and K.H. ALIKUNHI 1948a. Note on the spawning of carps in the river Thungabhadra in response to 'off- season' freshets. *J. zool. Soc. India*, **2**(2): 93-95 (Also *Proc. 35th Indian Sci. Congr.*, Patna, Pt.3 *Abstracts*: 207-208).

Spawning in response to ' off-season' freshets, nature of spawn collected and breeding of *Labeo fimbriatus*, *Catla catla*, *Osteochilus thomassi*, *Osteochilus* sp. and *Thynnichthys sandkhol*.

GANAPATI, S.V. and K.H. ALIKUNHI 1948b. On an interesting case of mortality of larvicides in the Public Health Fish Nurseries at Ennur, Madras. *Proc. 35th Indian Sci. Congr.*, (Patna), Pt.3 Abstracts: 208-209).

Breeding of *Gambusia affinis*.

GANAPATI, P.N. and K.H. ALIKUNHI 1949a. On the spawning of carps in the South Indian rivers. *Proc. 36th Indian Sci. Congr.*, (Allahabad), Pt.3 Abstracts: 160-161.

Spawning of *Labeo kontius* in the Cauvery under turbid and non-turbid conditions; spawning of *L. fimbriatus*, *Labeo* sp., *Cirrhina reba*, *Garra lamta* and *Bagarius* sp. under similar conditions and factors.

GANAPATI, S.V. and K.H. ALIKUNHI 1949b. Experiments on the acclimatization of salt-water fish seed to freshwater. *Ibid.*, (Allahabad), Pt.3 Abstracts: 161.

Adaptation of the postlarvae of *Mugil cephalus*, *M. seheli*, *Megalops cyprinoides*, *Elops indicus*, *Gerres filamentosus*, *Scatophagus argus*, *Sillago sihama*, *Hemirhamphus gaimardi* and *Ambassis* sp. to changes in salinity.

GANAPATI, S.V., K.H. ALIKUNHI and T.F. THIVY 1948. On an interesting case of carp spawning in the river Cauvery and Bhavani in June 1947. *Proc. 35th Indian Sci. Congr.*, (Patna), Pt.3 Abstracts: 208.

Collection of the spawn of *Labeo fimbriatus* and *Cirrhina reba* under nonflooded conditions; spawning time and rearing of spawn in the laboratory.

GANAPATI, S.V. K.H. ALIKUNHI and A.R.K. ZOBARI 1947. Notes on the hydrobiology of carp spawning in the Cauvery. *Proc. 34th Indian Sci. Congr.*, (Delhi), Pt.3 Abstracts: 182.

Eggs of *Labeo kontius*, catfish etc. spawning time and location of carp fry.

GANAPATI, S.V. and P.I. CHACKO 1951a. A comparative study of the transport of fish-seed in oxygen tin carriers and in ordinary tin carriers. *Ind.-Com. J.*, Oct. 1951: 1-3.

Fry of *Chanos chanos*, *Mugil cephalus*, *Etroplus suratensis*, *Esomus danricus*, *Trichogaster fasciatus*, *Oryzias melastigma*, *Laubuca laubuca*, *Barbus stigma*, *Brachydanio rerio* and *Lepidocephalus theramalis* experimented for oxygen requirements.

GANAPATI, S.V. and P.I. CHACKO 1951b. A hydrobiological survey of the waters of Upper Palnis with a view to fish culture. *Sonderdr. aus dem Archiv. Hydrobiol.*, **45**: 543-556.

Maturity conditions and eggs of *Carassius carassius* and *Barbus melanampyx* and spawning of trout.

GANAPATI, S.V. and P.I. CHACKO 1954. Some observations on the spawning of Indian carps in the "bundhs" of Bengal. *Indian Geogr. J.*, **27**(3&4): 1-17.

Physical, chemical and biological conditions of the spawning areas of carps.

GANAPATI, S.V. and P.I. CHACKO, R. SRINIVASAN and B. KRISHNAMURTHI 1950. On the acclimatization, transport and culture of some salt water fishes in inland waters of the Madras State. *Ibid.*, **25**(2): 1-15.

Maturity, breeding and early development of *Etroplus suratensis*, *Megalops cyprinoides*, *Elops indicus* and breeding of *Chanos chanos*.

GANGULY, D.N. and S. MOOKERJEE 1947. On the nature and evolution of ctenoid scales of fishes. *Proc. 34th Indian Sci. Congr.*, (Delhi), Pt. 3 Abstracts: 183.

Scale development in *Sciaena coitor*.

GANGULY, D.N., S.P. SARKAR and B. MITRA 1963. On the biology of *Ophicephalus stewartii* Playfair. *Proc. zool. Soc. (India)*, **16**(2): 195-200.

Breeding habits and development.

GEORGE, K.C. and S.K. BANERJI 1968. Age and growth studies on the Indian mackerel *Rastrelliger kanagurta* (Cuvier) with special reference to length-frequency data collected at Cochin. *Adv. Abstr. Contr. Fish. Aquat. Sci. India*, **2**(1): 5 (Also *Indian J. Fish.*, 1963, **11A**(2): 621-638).

Growth of the young ones.

GEORGE, P.C. 1958. Sole fisheries. *Fish. West Coast of India* (Cent. Mar. Fish. Res. Stat.): 51-54.

Appearance of spawners and eggs of *Cynoglossus semifasciatus*.

GEORGE, P.C. and G.G. ANNIGERI 1960. On the occurrence of small-sized mackerels (*Rastrelliger kanagurta* (Cuvier)) off Ratnagiri Coast. *Curr. Sci.*, **29**(8): 319-320.

Spawning season and young ones.

GEORGE, P.C., M.H. DHULKHED and V.R. RAO. 1950. Observations on the mackerel fishery of the Netravati Estuary, West Coast, South India. *J. Bombay nat. Hist. Soc.*, **56**(1): 32-38.

Occurrence of partly spent, fully spent and recovering specimens of *Rastrelliger kanagurta*.

GHOSH, A. 1967. Acclimatisation of the mullet fry (*Mugil parsia* Hamilton) in fresh water. *Proc. zool. Soc. Calcutta*, **20**(1): 49-56.

Acclimatisation of the fry to freshwater conditions.

GHOSH, A. and A.B. KAR 1952. Seasonal changes in the gonads of the common Indian catfish *Heteropneustes fossilis* (Bloch). *Ibid.*, **5**(1): 29-49.

The testicular and ovarian stages.

GILBERT, C.F. 1904. The breeding of the gourami. *J. Bombay nat. Hist. Soc.*, **8**(3): 435-438.

Spawning behaviour and fry of *Osphronemus goramy* under aquarium conditions.

GILL, T. 1906. Parental care among freshwater fishes. *Rep. Smithsonian. Inst.*, (Washington), 1905: 403-531.

Describes parental care in several fishes including *Tilapia* spp; sex of fish which takes care of eggs and fry, different kinds of nests etc.

GNANAMEKALAI, A.G. 1964. Studies on the age and growth of the keerimeen chalai, *Sardinella sirm.* *Madras J. Fish.*, **1**: 25-33.

Spawning period.

GOLDSCHMIDT, F.R. 1954. Spawning of rohu at Pawai Lake. *J. Bombay nat. Hist. Soc.*, **52**(2&3): 634-635.

Spawners and breeding period with views on the same.

GOPALAKRISHNAN, V., R.N. PAL and P.K. CHAKRABORTY 1966. Observations on the breeding of major carps in the Tilaiya and Panchet reservoirs. *Bull. Cent. Inland Fish. Res. Inst., Barrackpore*, No. 1, 17 pp.

Spawning of major carps in the two reservoirs.

GOPALAN, U.K. 1967. Studies on the maturity and spawning of silver pomfret, *Pampus argenteus* (Euphr.) in the Arabian sea. (Abstract). *Int. Indian Ocean Exp., News lett.*, **4**(4): 13.

Maturity stages, spawning and postlarvae.

GOPINATH, K. 1942. Distribution and feeding of the postlarval fishes of the Trivandrum coast. *Curr. Sci.*, **11**(8): 337-338.

Reports the occurrence and seasonal abundance of the postlarvae of *Cybium commersonii*, *Engraulis commersonianus*, *E. tri*, *Equula blochii*, *Lactarius delicatulus*, *Pristipoma stridens*, *Scomber microlepidotus*, *Sillago sihama*, *Sciaena albida* (?), *Sphyraena jello*, *Therapon jarbua*, *Stromateus niger*, *S. sinensi*, *Polynemus heptadactylus* and *Upenoides vittatus*. Feeding habits of postlarval *S. microlepidotus*, *Engraulis* spp., *Sphyraena jello* and *Lactarius* are also given.

GOPINATH, K. 1943. Observations on the breeding and development of *Gambusia affinis* (Baird & Girard) in Indian waters. *Proc. 30th Indian Sci. Congr.*, (Calcutta), Pt. 3 *Abstracts*: 61-62.

Breeding season, fertility and young ones.

GOPINATH, K. 1946a. Preliminary observations on the food of postlarval fishes. *Proc. 33rd Indian Sci. Congr.*, (Bangalore), Pt. 3 *Abstracts*: 130-131.

Occurrence of the postlarvae of *Engraulis mystax*, *Leiognathus blochii*, *Upenoides vittatus*, *Gobius* sp. and *Sarus* sp. along Trivandrum Coast and their food.

GOPINATH, K. 1946b. Notes on the larval and postlarval stages of fishes found along the Trivandrum Coast. *Proc. nat. Inst. Sci. India*, **12**(1): 7-21.

Larval stages of *Albula vulpes*, *Elops indicus*, *Megalops cyprinoides*, *Stolephorus commersonii*, *Engraulis mystax*, *Dussumieria hasselti*, *Congrellus anago*, *Saurus indicus*, *S. myops*, *Saurida tumbil*, *Atherina forskali*, *Pempheris moluca*, *Ambassis ambassis*, *Pelates quadrilineatus*, *Sillago sihama*, *Johnius belengeri*, *Selar kalla*, *Leiognathus blochii*, *Bothus pantherinus*, *Pseudorhombus arsius*, *P. triocellatus*, *Paraplagusia bilineata*, *Gobius* sp. and *Triacanthus brevirostris* with figures.

GOPINATH, K. 1950. On a few leptocephali from the Trivandrum Coast. *Rec. Indian Mus.*, 1949, **46**(1): 87-98.

Leptocephali of *Muraenesox cinereus*, *Congrellus anago* and four other unidentified species.

GORBUNOVA, N.N. 1963. Larvae of Scombroid fishes (Pisces, Scombriformes) from the Indian ocean. *Trudy Inst. Oceanol. Acad. Sci.*, **62**: 68-95 (in Russian with English summary).

Larval stages of *Thunnus albacara*, *T. alalunga*, *Parathunnus obesus*, *Thunnus* sp., *Katsuwonus pelamis*, *Euthynnus affinis*, *Auxis thazard*, *Scomberomorus* sp., *Rastrelliger kangurtra* and *Gymnosarda unicolor* with figures.

GORBUNOVA, N.N. 1967. The reproduction of scombroid fishes in the Indian ocean. *Sea food trade journ.*, **2**(6): 23-25.

Spawning localities and larvae of *Grammatorcynus bicarinatus*, *Thunnus albacares*, *T. obesus*, *Katsuwonus pelamis*, *Euthynnus affinis* and *Auxis thazard*.

GOVERNMENT OF MADRAS 1956. *Booklet on fish farming*. Govt. fish. Inform. Bur., Madras.

Breeding of *Osphronemus goramy*, *Catla catla* and *Etroplus suratensis*.

GRAVELY, F.H. 1931. Inland fishing experiments and research administration report, 1927-28. *Madras Fish. Bull.*, **23**: 19-21.

Breeding of *Hilsa*, gouramy, mullets, *Catla*, *Etroplus*, tench and English carp.

GUDGER, E.W. 1914. History of the spotted eagle-ray *Aetobatus narinari*, together with a study of its external structures. *Carnegie Instit. Washington*, Public. No. 183: 243-323.

Breeding habits and observations of previous workers on the same.

GUDGER, E.W. 1926. A study of the smallest shark suckers (Echeneididae) on record with special reference to metamorphosis. *American Mus. Novit.* (New York), **234**: 1-26.

Metamorphosis of *Leptecheneis naucrates*.

GUNTHER, A. 1889. Report on the pelagic fishes collected by H.M.S. Challenger during the years 1873-1876. *Chall. Rep. Zool.* (London), **31**(2): 1-47.

Young ones of *Pimelepturus fuscus*, *Scorpacna dactyloptera*, *Holocentrum* sp., *Xiphias gladius*, *Histiophorus* sp., *Coryphaena* spp., *Thynnus thunnina*, *Echeneis remora*, *E. naucrates*, *Antennarius marmoratus*, *Gobius* sp., *Bregmoceras maclellandi*, *Pleuronectid* spp., *Exocetus* spp., *Hemirhamphus* spp., *Belone* sp., *Balistes* sp., *Tetrodon* sp., a muraenid leptocephalus and ovum of a scombresocid with figures.

HAMILTON, B. 1822. *An account of the fishes from the river Ganges and its branches*, Edinburgh.

Eggs carrying female of *Syngnathus cunculus* and breeding season of *Nandus nandus*.

HANZELMANN, E. 1930. *Colisa lalia*. *Das. Aquar.* (Leipzig): 91-93.

Breeding.

HARDENBERG, J.D.F. 1931. The fish fauna of the Rokan mouth. *Truebia*, **13**(1): 81-168.

Maturity of fishes found around the Rokan Mouth and spawning localities of a few fishes, such as *Stolephorus baganensis* and *Coilia dussumieri*.

HARDWICKE, T. 1835. Observations on the goramy of India (*Osphronemus olfax* commerson). *Zool. Journ.*, 1829, **4**: 309-314.

Breeding.

HASAN, R. and A.K. JAFRI 1964. A physico-chemical analysis of ripe unspawned eggs of some freshwater teleosts. *Proc. Indian Acad. Sci.*, **60B**(1):1-9.

Size, chemical composition, specific gravity, fat, protein and phosphorus contents in relation to duration of embryonic development and time of hatching.

HERRE, A.W.C.T. 1937. Lessons from the fish market of Calcutta. *Curr. Sci.*, **6**: 263-265.

Fry of *Chanos chanos* and of gouramy.

HERRE, A.W. and J. MENDOZA 1929. Bangos culture in the Phillipine islands. *Philipp. J. Sci.*, **38**(4): 451-509.

Culture of young *Chanos chanos*.

HICKLING, C.F. 1967. The artificial inducement of spawning in the grass carp, *Ctenopharyngodon idella* Val. – A review. *Proc. Indo-Pac. Fish. Council*. 12th sess., 1966, Sect.II: 236-243.

A historical review and summary of experience and methods in the artificial inducement of spawning in the case of *Ctenopharyngodon idella*.

HIGGINS, B.E. 1967. The distribution of juveniles of four species of tunas in the Pacific ocean. *Proc. Indo-Pac. Fish. Council*. 12th sess., 1966, Sect. II: 79-99.

Distribution of juveniles of *Katsuwonus pelamis*, *Thunnus albacares*, *T. alalunga* and *T. obesus*.

HOLLISTER, G. 1939. Young *Megalops cyprinoides* from Batavia, Dutch East India, including a study of the skelton and a comparison with Atlantic species, *Tarpon atlanticus*. *Zoologica* (New York), **24**(4): 449-476.

Young stages in the life history.

HORA, S.L. 1921a. Fish and fisheries of Manipur, with some observations of those of the Naga Hills. *Rec. Indian Mus.*, **22**(3): 165-214.

Gravid specimens of *Glyptothorax dorsalis*, *G. minutus*, young of *Labeo angra*, *Barbus oatesii*, *B. clavatus*, *B. hexastichus* and gravid specimen of *Nemachilus kanjupkhulensis*.

HORA, S.L. 1921b. Indian cyprinoid fishes belonging to the genus *Garra* with notes on related species from other countries. *Rec. Indian, Mus.*, **22**(5): 633-687.

The disc in young ones of unidentified *Garra* spp. and *G. rupeculus*.

HORA, S.L. 1924. Zoological results of a tour in the far east. Fish of the Tale Sap, Peninsular Siam. *Mem. Asiat. Soc. Bengal*, **6**: 479-501.

Breeding of economically important fishes such as *Clarius batrachus*, *Chirocentrus dorab*, *Hilsa kanagurta*, *Mugil dussumieri*, *Serranus lanceolatus*, *Sillago sihama* and *Scatophagus argus* in the lake Tale Sap.

HORA, S.L. 1934. Wanderings of the Bombay duck, *Harpodon nehereus* (Ham. Buch.) in Indian waters. *J. Bombay nat. Hist. Soc.*, **37**(3): 640-653.

Apperance of the fish with ripe gonads.

HORA, S.L. 1938. Notes on the biology of the freshwater grey mullet, *Mugil corsula* Hamilton with observations on the probable mode of origin of aerial vision in fishes. *J. Bombay nat. Hist. Soc.* **40**(1):62-68.

Breeding of *Mugil corsula*.

HORA, S.L. 1936. Ecology and bionomics of the gobioid fishes of Gangetic delta. *C.R. 12th Congr. Internat. Zool.* (Lisbon), 1935: 841-863.

Breeding season of *Ctenogobius nusus* young ones of *Taenioides rubicundus*, *Apocryptes bato*, breeding season and young of *Pseudapocryptes lanceolatus* and *Periophthalmodon schlosseri*.

HORA, S.L. 1938. A Preliminary note on the spawning grounds and bionomics of the so-called Indian shad, *Hilsa ilisha* (Hamilton) in the river Ganges. *Rec. Indian Mus.*, **40**(2): 147-158.

Breeding, life-history in the water works of Pulta, rate of growth, food of young ones.

HORA, S.L. 1940. Life-history and wanderlings of hilsa in Bengal waters. *J. Asiat. Soc. Bengal*, **4**(2): 93-112.

Life history of *Hilsa ilisha* including young stages from 19 mm. to 61 mm. with figures.

HORA, S.L. 1942. The effect of dams on the migration of the hilsa fish in Indian waters. *Curr. Sci.*, **11**: 470-471.

Procuring the spawners, rearing hatchlings and stocking of the larvae of *Hilsa ilisha*.

HORA, S.L. 1945a . Analysis of factors influencing the lake fishes, previous work on the spawning habits of Indian carps, including experiments, spawning in bundhs, analyses of the factors influencing spawning and construction of artificial spawning grounds and further lines of work.

HORA, S.L. 1955. Some observations on the trout farm and hatchery at Achhabal, Kashmir. *J. Bombay nat. Hist. Soc.*, **56**(2): 390-396.

Causes of mortality in the hatchery and fungal infection after stripping of spawners.

HORA, S.L. and D.D. MUKERJI 1938. Table for the identification of Indian freshwater fishes, with descriptions of certain families and observations on the relative utility of the probable larvivorous fishes of India. *Malaria Bur. India, Health Bull.* (Calcutta), No. 12: 1-47.

Breeding of *Ambassis* sp., *Aplocheilus* spp. and young of *Wallago* sp.

HORA, S.L. and K.K. NAIR. 1940a. Further observations on the bionomics and fishery of the Indian shad, *Hilsa ilisha* (Hamilton) in Bengal waters. *Rec. Indian Mus.*, **42**(1): 35-50.

Breeding season and growth rate of the early stages.

HORA, S.L. and K.K. NAIR. 1940a. The Jatka fish of Eastern Bengal and its significance in the fishery of the so-called Indian shad, *Hilsa ilisha* (Hamilton). *Rec. Indian Mus.*, **42**(4): 553-565.

The fishery for young stages of *Hilsa ilisha* and its effect on the stock.

HORA, S.L. and K.K. NAIR. 1943a. The game fish Bokar of the Assamese or Katli of the Nepalese, *Barbus (Lissochilus) hexagonolepis* McClelland. *J. Bengal nat. Hist. Soc.* (Darjeeling), **17**: 107-110.

Maturity of males and females, age at breeding and spawning localities.

HORA, S.L. and K.K NAIR 1943b. Pollution of streams and conservation of fisheries. *Proc. nat. Inst. Sci. India*, **10**(1): 147-166.

Breeding season, spawning and fingerlings of *Barbus* spp. (*B. putitora*), *B. tor*, *B. hexagonolepis*), *Semiplotus semiplotus*, *Garra annandeli*, *G. gotyla*, *Barilius bendelisis* and species of *Danio*, *Rasbora* and *Esomus*.

HORA, S.L. and K.K NAIR 1944. Suggestion for the development of the salt –water bheris or Bhasabadha fisheries in the Sunderbans. *Bengal Govt. Fish. Dev. Pamphlet*, No. 1:

Breeding and fry of *Lates calcarifer*, *Mugil tade* and *M. parsia*.

HORNELL, J. 1922a. Inland pisciculture. Administration Report for 1920-22. *Madras Fish. Bull.*, **15**: 23-28.

Acclimatization of the fry of *Etroplus suratensis*, gouramy, mullets, *Catla catla* and *Hilsa*.

HORNELL, J. 1922b. The flying fish fishery of the Coromandal Coast and the spawning habits of *Cypselurus*. *Ibid.*, **15**(4): 99-108.

Spawning habits and egg masses of *Cypselurus* sp.

HORNELL, J. and M.R. NAYUDU 1923. A contribution to the life history of the Indian oil sardine with notes on the plankton of the Malabar Coast. *Ibid.*, **17**(5): 129-197.

Brood differences, maturity, appearance of spawners and spent *Sardinella longiceps*.

HOSAINI, V.H. and M. RAHIMULLAH 1946. Early developmental states of *Ophicephalus punctatus* Bl. *Proc. 33rd Indian Sci. Congr.* (Bangalore), Pt. 3 *Abstracts*: 126.

Breeding season and early developmental stages.

HOWELL. G.C.L. 1916. The making of Himalayan trout water. *J. Bombay nat. Hist. Soc.*, **24**(2): 317-328.

Nurseries and fry of the trout, stocking them, hatchery, the eggs, early larvae, planting the seed, care of fry and planting them.

HUSAIN, A. 1945. Analysis of experimental data on the spawning of carp in the Punjab. *Proc. nat. Inst. Sci. India*, **11**(3): 320-324.

Experiments on spawning under artificial, semi-natural and natural conditions of carps with special reference to *Labeo rohita* and *Cirrhina mrigala*.

HUSSAKOF, L. 1912. Notes on the embryo of *Pristis cuspidatus*. *Bull. American Mus. Nat. Hist.* (New York), **31**: 327-330.

Embryo.

IBRAHIM, K.H. 1957. Bionomics of forage fishes: Observations on the fecundity of three common species of minor barbels. *J. Bombay nat. Hist. Soc.*, **54**(4): 826-834.

Fecundity of *Puntius stigma*, *P. ticto* and *P. vittatus*, fecundity in relation to ovary weight and body weight and ova diameters.

IBRAHIM, K.H. 1961. Up-stream migration of elvers of *Anguilla nebulosa* (= *bengalensis*) over first anicut of the river Godavari. *J. Bombay nat. Hist. Soc.*, **58**(3): 810-811.

Movement of the elvers from sea to rivers upstream along sloping cement pavement.

IBRAHIM, K.H. 1963. Some observations on the carp fry resources of the river Godavari near Rajahmundry, Andhra Pradesh. *Indian J. Fish.*, 1961, **8**(2): 403-412.

Spawning of carps, fry resources and the transplantation of *Labeo rohita* in the Godavari.

INNES, W.T. 1935. *Exotic aquarium fishes*, Philadelphia.

Breeding of *Barbus conchoni* in the aquarium, sexual dimorphism during the breeding season in *B. ticto*, breeding of *B. Stoliczkanus*, *B. gelius*, *B. phutunio*, *B. terio*, *B. vittatus*, *Danio malabaricus*, *Esomus danricus*, *Rasbora daniconius*, *Brachydanio rerio*, *B. nigrofasciatus*, *B. albolineatus*, *Aplocheilus panchax*, *A. blockii*, *Osphronemus goramy*, *Trichogaster trichopterus*, *Macropodus cupanus* var. *dayi*, *Colisa lalia*, *Zetta splendens*, *Anabas testudineus*, *Ambassis lala* and *Badis badis*.

INNES, W.T. 1939. *Panchax lineatus* (Cuv. & Val.). *Aquarium* (Philadelphia). **7**(9): 150-151.

Breeding in *Aplocheilus lineatus*.

ISHIYAMA, R. and K. OKADA 1957. Postlarval form of the skipjack (*Katsuwonus pelamis*) from the Phoenix islands. *J. Shim. Coll. Fish.*, **7**(1): 141-146.

5mm. and 8mm. larvae with figures.

IYENGAR, H.D.R. 1962. Further studies on paddy-cum fish culture at Hasseraghatta fish farm in Mysore State. *J. Bombay nat. Hist. Soc.*, **59**(1): 301-305.

Utilizing paddy fields as nursery for the fry and fingerlings of freshwater fishes like *Ophicephalus striatus*.

JACOB, P.K. 1949. The bionomics of ribbon fishes (*Trichiurus* spp.) and their fishery on the west coast of Madras Province. *J. Bombay nat. Hist. Soc.*, **48**(2): 261-264.

Spawning season of *Trichiurus savala* and *Trichiurus haumela* and eggs of *Trichiurus*.

JACOB, P.K and B. KRISHNAMURTHY 1948a. Breeding and feeding habits of mullets in Ennore Creek. *J. Bombay nat. Hist. Soc.*, **47**: 663-668.

Breeding season, probable spawning localities, fecundity, postlarvae and fry of *Mugil oeur*(Forsk.) , *M. troschelli*, *M. dussumieri*, *M. waigiensis*, *M. oligaolepis*, *M. tade*, *M. buehanani* and *M. spleigeri*.

JACOB, P.K. and B. KRISHNAMURTHY 1948b. Sciaenids of the west coast of Madras Province. *Ibid.*, **48**(1):118-124.

Spawning seasons of *Otolithes ruber*, *O. argenteus*, *Sciaena carutta*, *S. coitor* and *S. belengeri*.

JACOT, A.P 1920. Age, growth and scale characters of the mullets, *Mugil cephalus* and *Mugil curema*. *Trans. Amer. Micros. Soc.* (New York), **39**: 199-229.

Young ones of *Mugil cephalus*.

JAGANNADHAN, N. 1967. A note on the collection, conditioning and transport of fingerlings of *Catla* in the Madras Presidency. *J. Bombay nat. Hist. Soc.*, **47**(2): 315-319.

Favourable factors for spawning, ripe and fertilized eggs, hatching, fingerlings, and collection as well as transport of the young stages of *Catla catla*.

JAMES, P.S.B.R. 1963. Observations on shoals of the Javanese cownose ray *Rhinoptera javanica* Muller and Henle from the Gulf of Mannar with additional notes on the species. *J. Mar. biol. Ass. India*, **4**(2): 217-223.

Embryo bearing females.

JAMES, P.S.B.R. 1963. Studies on the biology and fishery of the ribbon fishes of the family Trichiuridae from Indian waters. Ph. D. Thesis, Banaras Hindu University.

Maturation, stages, spawning, frequency and spawning habits of *Eupleurogrammus intermedius*, *E. muticus*, *Lepturacanthus savala* and *Trichiurus lepturus*.

JAMES, P.S.B.R. 1967a. The ribbon fishes. *Cent. Mar. Fish. Res. Inst. 20th Anniv. Souv.* : 58-61

Maturity, spawning, eggs and larvae of *Trichiurus lepturus* and *Eupleurogrammus intermedius*.

JAMES, P.S.B.R. 1967b. *The ribbon-fishes of the family Trichiuridae of India*, Memoir I, Mar. biol. Ass. India.

Size at first maturity, fecundity sex-ratio, and young stages of *Eupleurogrammus intermedius*; eggs and larvae of *Lepturacanthus savala*; maturity of *E. intermedius* and spawning habits of *E. intermedius*, *E. muticus*, *Trichiurus lepturus* and *Lepturacanthus savala*.

JAMES, P.S.B.R. 1967c. Some observations on the fishery of *Chorinemus lysan* (Forsk.) of the Rameshwaram island with notes on its biology. *Indian. J. Fish.*, 1964, **11A**(1): 268-276. (Also *Adv. Abstr. Contr. Fish. Aquat. Sci. India*, **1**(4):11).

Sex-ratio, maturity, spawning, fecundity and ova-diameter frequencies.

JENKINS, J.T. 1910. Fish from India and Persia with description of new species. *Rec. Indian Mus.*, **5**: 123-140.

Notes on the eggs of *Aplocheilus melanostigma*, spawning of *Hilsa ilisha*, and parental care in *Arius jatius* and *Osteogeniosus militaris*.

JENKINS, J.T. 1938. Spawning of *Hilsa*. *Curr. Sci.*, **7**(5): 251-252.

The probable spawning places of *Hilsa ilisha* and spawning migration.

JERDON, T.C. 1848. On the freshwater fishes of Southern India. *Madras J. Lit. & Sci.*, **15**.

Parental care *Etroplus maculatus* under the name of *E. coruchi*.

JHINGRAN, V.G. 1958. Observations on the seaward migration of *Mugil cephalus* Linnaeus from the Chilka lake for breeding. *Curr. Sci.*, **27**(5): 181-182.

Migrating spawners for breeding, appearance of fry and spent fish in the case of *Mugil cephalus* and similar habits of other mullets like *Liza trsochelli*, *L. boroneensis* and *L. ceruleomaculatus*.

JHINGRAN, V.G. 1959. On the breeding migration of *Mugil cephalus* Linnaeus from the Chilka lake into the sea. *Proc. 46th Indian Sci. Congr. Delhi, Pt.3 Abstracts*: 401-402.

Regular migration from the lake to sea for breeding.

JHINGRAN, V.G. 1963. Studies on the maturity and fecundity of the Gangetic anchovy, *Setipinna phasa* (Hamilton). *Indian J. Fish.*, 1961, **8**(2) : 291-311.

Maturity conditions, spawning season, spawning periodicity, size at first maturity, sex-ratio and fecundity in relation to length and weight.

JHINGRAN, V.G. 1966. Synopsis of biological data on catla, *Catla catla* (Hamilton), 1822. *F.A.O. world Symp. on warm water pond fish culture*, Rome, 18-25 May 1966.

Breeding and development.

JHINGRAN, V.G. and S. JENA 1964. Recovery of a tagged mullet *Liza troschelli* (Bleeker) about a year of the tagging in Chilka lake, India. *Sci. & Cult.*, **30**(9): 464-466.

Tagging studies throwing light on breeding.

JHINGRAN, V.G. and K.N. MISHRA 1965. Further fish tagging experiments in the Chilka Lake (1959) with special reference to *Mugil cephalus* Linnaeus. *Indian J. Fish.*, 1962, **9A**(2): 476-498.

Breeding migration of *M. cephalus*.

JOB, S.V. 1959. The routine-active oxygen consumption of the milk fish. *Proc. Indian Acad. Sci.*, **45B**(6): 302-313.

Oxygen consumption by the fry of *Chanos chanos*.

JOB, T.J. 1940. On the breeding and development of Indian mosquito fish of the genera *Aplocheilus* McClelland and *Oryzias* Jordan & Synder. *Rec. Indian Mus.*, **42**(1):51-79.

Breeding, eggs, embryogenesis, late embryonic development till nine days old egg, newly hatched larva and metamorphosis of *A. panchax*; breeding, eggs and fry of *A. lineatus*, breeding of *A. blockii*, breeding, development and early larvae of *O. melastigma* with figures.

JOB, T.J. 1941a. Life-history and bionomics of the spiny eel, *Mastacembleus pancalus* (Hamilton) with notes on the systematics of the Mastacembelidae. *Rec. Indian Mus.*, **43**(2): 121-135.

Breeding, egg, development of the embryo, hatching, newly hatched larva and metamorphosing stages covering a period one month with figures.

JOB, T.J. 1941b. Food and feeding habits of the glassfishes (*Ambassis* Cuv. & Val.) and their bearing on the biological control of guineaworm and malaria. *Indian J. Med. res.*, **29**: 851-862.

Reference to breeding habits of *Ambassis ranga*.

JOB, T.J. 1942. Hilsa investigations in Bengal waters. *Sci. & Cult.*, **7**: 427-429.

Spawning grounds, food of the larvae and migration connected with spawning.

JOB, T.J. 1952. Fish seed industry in India, *Proc. Indo-Pac. Fish. Counc. 3rd meet.*, Sect. III: 202-208.

Methods of collection of fish seed, handling, transport and implements for spawn collection.

JOB, T.J., K.H. ALIKUNHI and N.V. CHOODAMANI 1947. On the biology of the pearl-spot, *Etroplus suratensis* (Bloch). *Proc. 34th Indian Sci. Congr.*(Delhi), Pt.3 Abstracts:183.

Size at first maturity, breeding maxima, life history in freshwater and early age groups.

JOB, T.J., and P.I. CHACKO 1947a. On the breeding grounds of *Catla* and other major carps in the South Indian rivers. *Proc. 34th Indian Sci. Congr.*(Delhi), Pt.3 Abstracts:183.

Breeding grounds of *Catla catla*, *Labeo fimbriata*, *L. Kontius*, *Barbus* spp. in rivers and the collection of fish seed of these and *Wallagonia attu*, *Macrones seenghala*, *Barbus tor*, *B. sarana*, *B. hexagonolepis*, *B. carnaticus*, *Cirrhina reba*, *C. fulunjee* and *Osteochilus thomassi*.

JOB, T.J., and P.I. CHACKO 1947b. Rearing of salt-water fish in freshwater of Madras. *Indian Ecol.* (Bombay), **2**(1): 12-20.

Breeding and young ones of *Etroplus suratensis*, *Chanos chanos*, *Lates calcarifer* larvae of *Megalops cyprinoides* and *Polynemus tetradactylus*.

JOB, T.J., A. DAVID and K.N. DAS 1955. Fish and fisheries of the Mahanadi in relation to Hiracud dam. *Indian J. Fish.*, **2**(1): 1-36.

Spawning season and appearance of the young stages of *Notopterus chitala*, *Barbus sarana*, *Barbus (Tor) mosal* var. *mahanadicus*, *Catla catla*,

JOB, T.J., A. DAVID and K.N. DAS 1955 (Contd.)

Cirrhina mrigala, *C. reba*, *Labeo gonius*, *L. bata*, *L. boga*, *L. dyocheilus*, *L. dero*, *L. boggut*, *L. fimbriatus*, *L. calbasu*, *Ompok bimaculatus*, *Wallgo attu*, *Mystus aor*, *M. seenghala*, *Rita chrysea*, *Bagarius bagarius*, *Clupisoma garua*, *Pangasius pangasius* and *Siolnia silondia*.

JOB, T.J. and S.V. GANAPATI 1947. Hydrological aspects of the spawning of the major Indian carps in the bundhs of Bengal. *Proc. 34th Indian Sci. Congr.*(Delhi), Pt.3 Abstracts:184.

Discussion of the divergent views on the causes influencing spawning of major carps.

JOB, T.J. and S. JONES 1938. Studies on the development of the Indian garfish, *Tylosurus strongylurus* (Van Hass.), with notes on the young stages of *Hemirhamphus gaimardi* Cuv. et Val. *Rec. Indian Mus.*, **40**(3): 245-253.

Eggs, developing stages of the embryo till 7 days, newly hatched larva and larval stages till 5 days old stage of *Tylosurus strongylurus* and a few postlarval stages of *Hemirhamphus gaimardi* with figures.

JOHN, C.C. 1948. *Progress reports of the fisheries development schemes*, Division of marine biology and fisheries, Central Research Institute, Trivandrum.

Migration of marine mullets into backwaters for spawning; breeding, fry and fingerlings of *Ambassis*; and eggs and larvae of *Etroplus suratensis*.

JOHN, C.M. 1950. The early development of *Echeneis naucraes* (Linn) *Bull. Cent. Res. Inst. Univ. Travancore C*, **1**(1): 47-55. (Also *Proc. 33rd Indian Sci. Congr.*Bangalore, Pt.3 Abstracts: 126).

Spawning habits, fertilised eggs, development, newly hatched larva, stages twenty four hours and forty eight hours after hatching with figures.

JOHN, M.A. 1951. Pelagic fish eggs and larvae of the Madras coast. *J. zool. Soc. India*, **3**(1): 38-66 (Also *Proc. 31st Indian Sci. Congr.* Delhi , Pt.3, Abstracts:107).

Eggs and early larvae assigned to *Sardinella sirm*, juvenile of *Opisthopterus tardoore*, eggs and early larvae of *Anchoviella tri*, postlarvae of *Anchoviella* spp., eggs and early larvae of *Thrissocles* sp., postlarvae of *Plotosus anguillaris*, *Centriscus scutatus*, young ones of *Leiognathus lineolatus*, *L. insidiator*, *L. ruconius*, postlarvae and young ones of *Pseudosciaena aneus*, juveniles of *Psettodes erumei*, postlarva of *Arnoglossus macrolophus*, eggs and early larvae of *Solea ovata*, postlarvae of *Solea* sp. and youngones of *Paraplagusia bilineata* as well as feeding habits of larvae and postlarvae with figures.

JOHN, V. 1939. On the food and spawning season of *Sardinella brachysoma* (Bleek.). *Proc. 26th Indian Sci. Congr.* Lahore, Pt.3 Abstracts:134-135.

Spawning season and localities.

JONES, S. 1937a. Observations on the breeding habits and development of certain brackishwater fishes of Adyar, Madras. *Proc. Indian Acad. Sci.*, **5**(6): 261-289.

Breeding habits and development of *Etroplus suratensis*, *E. maculatus*, *Acentrogobius viridipunctatus*, *Boleophthalmus boddaerti*, *Petroscirtes bhattacharyae*, *Aplocheilus melastigma* and *Panchax parvus* with figures.

JONES, S. 1937b. On the origin and development of the cement glands in *Etroplus maculatus* (Bloch). *Proc. Indian Acad. Sci.*, **6**(4): 252-261. (Also *Curr. Sci.*, **5**(9): 480).

Origin and development of the cement organs in the embryo of *E. maculatus* and their subsequent disappearance during the early larval period with figures.

JONES, S. 1938a. On the breeding and development of cyprinid, *Danio (Danio) malabaricus* (Jerdon) in Ceylon. *Spol. Zeyl.*, **6**: 79-89.

Breeding habits and development with figures.

JONES, S. 1938b. External features in the embryonic development of a Ceylon mountain carp, *Garra ceylonensis ceylonensis* (Bleeker). *Spol. Zeyl.*, **6**: 91-98.

Embryonic development of *Garra ceylonensis ceylonensis* with figures.

JONES, S. 1939a. On the external gills of *Acentrogobius viridipunctatus* (Day) *Proc. Indian Acad. Sci.*, **9**(5): 256-266. (Also *Curr. Sci.*, **5**(9): 481).

Origin, development and structures of the external gills in the embryos and degeneration after hatching, with figures.

JONES, S. 1939b. On the nesting habits of the gourami (*Osphronemus goramy* Lacepede). *J. Bombay nat. Hist. Soc.*, **40**(4): 766-771.

Nesting habits as given by different workers with a discussion on the divergent observations.

JONES, S. 1940. Notes on the breeding habits and early development of *Macropodus cupanus* (Cuv. et Val.), with special reference to the cement glands of the early larvae. *Rec. Indian Mus.*, **42**(2): 269-276.

Breeding season, nest, mating, egg laying, parental care, the eggs in different stages of development, newly hatched larva and larvae till the 15th day with figures.

JONES, S. 1941a. Larval development of *Garra ceylonensis ceylonensis* (Bleeker). *Ibid.*, **43**(2): 117-120.

Postembryonic development from the newly hatched larva till one and a half month with figures.

JONES, S. 1941b. An interesting case of migration of stone-licking fish, *Garra mullya* (Sykes) for breeding. *Curr. Sci.*, **10**(1): 445-446.

Migration for breeding.

JONES, S. 1942. On two interesting types of cement glands in South Indian teleosteans with a discussion on the homology of the vertebrate cement glands in general. *Proc. 29th Indian Sci. Congr.* (Baroda), Pt.3, *Abstracts*: 158.

Cement glands in the early development stages of some cyprinids with discussion on cement glands in vertebrates.

JONES, S. 1944. On the occurrence of diapause in the eggs of Indian Cyprinodonts. *Curr. Sci.*, **13**(4): 107-108.

Prolongation of the hatching time in *Oryzias melastigma*, the feature of the larvae hatched late and probable reasons for the same.

- JONES, S. 1946a. Breeding and development of Indian freshwater and brackish water fishes. Part I. *J. Bombay nat. Hist. Soc.*, **46**(2): 317-336.
 General notes and review of information available on breeding and developmental stages in Megalopidae, Clupeidae, Engraulidae, Notopteridae, Salmonidae, Mastacembelidae, Anguillidae, Cyprinidae, Colatidae, Siluridae, Ariidae, Bagridae, Claridae and Heteropneustidae.
- JONES, S. 1946b. Destructive methods of fishing in the rivers of the hill ranges of Travancore. *Ibid.*, **46**(3): 437-445.
 Fish capture during breeding migration.
- JONES, S. 1946c. Breeding and development of Indian freshwater and brackish water fishes. Part II. *Ibid.*, **46**(3): 453-471.
 Review of information available on breeding and development of fishes belonging to Cyprinodontidae, Poeciliidae, Horaichthyidae, Belonidae, Hemirhamphidae, Ophicephalidae, Polyacanthidae, Osphronemidae, Anabantidae, Mugilidae, Polynemidae, Ambassidae, Latidae, Theraponidae, Sillaginidae, Nandidae, Toxotidae, Scatophagidae, Cichlidae, Gobidae, Periophthalmidae and Blennidae with bibliography.
- JONES, S. 1950a. A note on the terminology of the early developmental stages of fishes. *J. zool. Soc. India*, **2**(1): 39-41.
 Terminology for embryonic, larval and young stages.
- JONES, S. 1950b. Bibliography of the breeding habits and development of fishes of Inland waters India *Ibid.*, **2**(2): 109-125.
 Bibliography of the breeding habits and early development of fishes of the inland waters of the Indian Region.
- JONES, S. 1951. Bibliography of the breeding habits and development of estuarine and marine fishes of India. *Ibid.*, **3**(1): 121-139.
 Bibliography of the breeding habits and early development of marine and estuarine fishes of the Indian Region.
- JONES, S. 1952. A bibliography of the Indian shad, *Hilsa ilisha* (Hamilton). *Ibid.*, **4**(1): 89-99.
 References on breeding, eggs, larvae and development.
- JONES, S. 1958. Notes on eggs, larvae and juveniles of fishes from Indian waters I. *Xiphias gladius* Linnaeus. *Indian J. Fish.*, **5**(2): 357-361.
 Larval stages with figures.
- JONES, S. 1959. Notes on eggs, larvae and juveniles of fishes from Indian waters II. *Istiophorus gladius* (Broussonet). *Ibid.*, **6**(1): 204-210.
 Early larval stages from the Laccadive Sea with figures.
- JONES, S. 1959b. On a juvenile sail-fish, *Istiophorus gladius* (Broussonet) from the Laccadive Sea. *J. Mar. biol. Ass. India*, **1**(2): 255-256.
 Juvenile 396 mm. S.L. with figure.
- JONES, S. 1960a. On the snake mackerel *Gempylus serpens* Cuvier from the Laccadive sea. *J. Mar. biol. Ass. India*, **2**(1): 85-88.
 Early larval stages with figures.
- JONES, S. 1960b. Notes on eggs, larvae and juveniles of fishes from Indian waters III. *Katsuwonus pelamis* (Linnaeus) and IV. *Neothunnus macropterus* (Temminck and Schlegel). *Indian J. Fish.*; 1959, **6**(2): 360-373.
 Early larvae of *Katsuwonus pelamis* and *Neothunnus macropterus* collected from the Laccadive Sea with figures.

JONES, S. 1960c. Notes on eggs, larvae and juveniles of fishes from Indian waters V. *Euthynnus affinis* (Cantor). *Ibid.*, **7**(1): 101-106.

Postlarvae and juvenile of *Euthynnus affinis* with figures.

JONES, S. 1961. Notes on eggs, Larvae and juveniles of fishes from Indian waters VI. Genus *Auxis* Cuvier, VII. *Sarda orientalis* (Temminck & Schlegal). *Ibid.*, 1960, **7**(2): 337-347.

Early larvae presumably of *A. thazard* and juveniles of *A. thazard* and *A. thynnoides* as well as of *S. orientalis* with figures.

JONES, S. 1962. Notes on eggs, larvae and juveniles of fishes from Indian waters VIII. *Scomberomorus guttatus* (Bloch and Schneider), IX. *Scomberomorus commerson* (Lacepede) and X. *Scomberomorus lineolatus* (Cuvier). *Ibid.*, 1961, **8**(1):107-120.

Early larvae and juveniles of *S. guttatus* and *S. commerson* with figures. Identity of the larvae of *S. guttatus* reported earlier discussed.

JONES, S. 1963a. Notes on eggs, larvae and juveniles of fishes from Indian waters XI. Further observations on the genus *Auxis* Cuvier. *Ibid.*, 1961, **8**(1): 413-421.

Larval stages of *A. thazard* and larvae presumed to be of *A. thynnoides* with figures.

JONES, S. 1963b. Synopsis of biological data on the long corseletted frigate mackerel *Auxis thynnoides* Bleeker 1855. *Proc. World Sci. meet. biol. tunas and rel. sp.* (FAO Fish. Repts., No. 6, Vol.2): 782-810.

Distribution of juveniles, maturity, spawning season, suspected eggs and larvae as well as juveniles.

JONES, S. 1963c. Synopsis of biological data on the northern bluefin tuna *Kishinoella tonggol* (Bleeker) 185 (Indian ocean). *Ibid.*, (FAO Fish. Repts., No.6, Vol.2): 862-876.

Data on maturity and ripe ova.

JONES, S. 1965. Notes on eggs, larvae and juveniles of fishes from Indian waters XIV. Further notes on *Xiphias gladius* Linnaeus. *Indian J. Fish.*, 1962, **9**(2): 525-529.

One unidentified swordfish like larvae presumed to be of *Acanthocybium* and larval *X. gladius* with figures.

JONES, S. 1967a. Two decades of marine fisheries research. *Cent. Mar. Fish. Res. Inst. 20th Anniv. Souv.* : 5-21.

Review of studies on life histories of fishes conducted at the Central Marine Fisheries Research Institute viz., *Sardinella longiceps*, *S. fimbriata*, *S. gibbosa*, *Kowala coval*, eels, *Scomberomorus commerson*, *S. guttatus*, *S. lineolatus*, *Auxis* spp., *Euthynnus affinis affinis*, *Neothunnas macropterus*, *Katsuwonus pelamis*, *Sarda orientalis*, *Xiphias gladius*, *Istiophorus gladius*, *Rastrelliger kanagurta*, *Anchoviella* spp, *Caranx* spp. *Chanos*, *Gempylus* etc.

JONES, S. 1967b. Notes on eggs, larvae and juveniles of fishes from Indian waters XV. *Pegasus volitans* Linnaeus, XVI. *Dactyloptena orientalis* (Cuvier and Valenciennes) and XVII. *Dactyloptena macracanthus* (Bleeker). *Indian J. Fish.*, 1964, **11A**(1): 232-246. (Also *Adv. Abstr. Contr. Fish. Aquat. Sci. India*, **1**(4):1).

Early larvae of the three species with figures.

JONES, S. 1967c. On the terminology for phases and stages in the life history of teleostean fishes. *Proc. zool. Soc. (Calcutta)*, **20**(1): 99-102. (Also *Adv. Abstr. Contr. Fish. Aquat. Sci. India*, **1**(1):2-3).

Various phases and stages in the life history of teleostean fishes categorized.

JONES, S. and T.J. JOB. 1940. Notes on the early stages in the development of the Deccan killifish, *Aplocheilus lineatus* (Cuv. & Val.). *J. Bombay nat. Hist. Soc.*, **42**: 203-206.

Notes on the eggs, embryonic development, early larvae and metamorphosis with figures.

JONES, S. and M. KUMARAN 1963. Distribution of larval tuna collected by the Carlseberg Foundation's Dana Expedition (1928-1930) from the Indian ocean. *Proc. World Sci. meet. biol. tunas and rel. sp.*, 1962 (FAO Fish. Repts., No.6, Vol.3): 1753-1774.

Geographical and seasonal distribution of the larvae of *Katsuwonus Pelamis*, *Neothunnus macropterus*, *Euthynnus affinis affinis* and *Auxis thazard* in the Indian Ocean.

JONES, S. and M. KUMARAN 1964a. Notes on eggs, larvae and juveniles of fishes from Indian waters XII. *Myripristis murdjan* (Forsk.) and XIII. *Holocentrus* sp. *Indian J. Fish.*, 1962, **9**(1): 157-167.

Larval stages of the two species collected from off the west coast of India with figures.

JONES, S. and M. KUMARAN 1964b. Distribution of larval bill fishes (Xiphiidae and Istiophoridae) in the Indo-Pacific with special reference to the collections made by the Danish Dana expedition. *Proc. Symp. Scombr. fishes*, Mandapam Camp, (Mar. Biol. Ass. India), 1962, Pt. I: 483-498.

Distribution of the larvae of *Istiophorus gladius*, *Istiompax indicus*, *Makaria mazara*, *M. audax* and *Xiphias gladius*.

JONES, S. and M. KUMARAN 1964c. Eggs, larvae and juveniles of Indian scombroid fishes. *Ibid.*, 1962, Pt. I: 343-378.

Larvae of *Scomberomorus guttatus*, *S. commerson*, *Neothunnus macropterus*, *Euthynnus affinis affinis*, *Auxis thazard*, *A. thynnoides*, *Sarda orientalis*, *Xiphias gladius*, *Istiophorus gladius*, *Makaira audax*, *M. mazara*, *Istiompax indicus* and early juveniles of *Rastrelliger kanagurta* with figures.

JONES, S. and P.M.G. MENON 1950a. Spawning habits and development of the Gangetic anchovy, *Setipinna phasa* (Hamilton). *Curr.Sci.*, **19**(1):25.

Breeding habits, spawning time, incubation period, egg, hatching, newly hatched larva, and early postlarval stages.

JONES, S. and P.M.G. MENON 1950b. Spawning of *Hilsa ilisha* (Hamilton) in the Hooghly river. *Sci. & Cult.*, **15**(11): 443-444.

Spawning, ripe eggs, structure of the early developmental stages, hatching, hatchling, feeding in postlarvae and collection of postlarvae and young.

JONES, S. and P.M.G MENON 1951a. Observations on the life history of the Indian shad, *Hilsa ilisha* (Hamilton). *Proc. Indian Acad. Sci.*, **33**(3): 101-125.

Spawning habits, embryonic development, newly hatched larva, larvae up to 5th day, migratory movements and food of larvae with figures.

JONES, S. and P.M.G MENON 1951b. Notes on the bionomics and developmental stages of some Indian flat-fishes. *J. zool. Soc. India*, **3**(1): 71-83.

Breeding and larval stages of *Brachirus pan* till 21mm., postlarva of *Cynoglossus lingua*; maturity, breeding and larvae of *Cynoglossus cynoglossus*; an unidentified *Cynoglossus* prolarva and unidentified *Cynoglossus* postlarva with figures.

JONES, S. and P.M.G MENON 1951c. Observations on the bionomics, development and fishery of the Gangetic anchovy, *Setipinna phasa* (Hamilton). *Ibid.*, **3**(2): 323-333.

Breeding season, spawning time, embryonic development, larval development from the newly hatched larva to 50mm. juvenile with figures.,

JONES, S. and P.M.G MENON 1952. Observations on the development and systematics of the fishes of the genus *Coilia* Gray. *Ibid.*, **4**(1):17-36.

Larval development with figures.

JONES, S. and P.M.G MENON 1953. Notes on the breeding habits and developmental stages of some estuarine fishes. *Ibid.*, **5**(2): 255-267.

Breeding habits and development of *Tylosurus strongylurus*, *Polynemus paradiseus* a few embryonic and juvenile stages of *Ichthyocampus carce* prolarva of *Paragobiopsis ostreicola* and a juvenile of *Callionymus fluviatilus* with figures.

JONES, S. and V.R. PANTULU 1952. On the metamorphosing stages of the talabon eel, *Muraenesox talabon* (Cantor) with descriptions of some leptocephali from the estuaries of Bengal and Orissa. *J. Asiatic Soc.*, **18**: 129-140.

Metamorphosing stages of *Muraenesox talabon* and some unidentified muraenid leptocephali including the one, probably of *Muraena tile* with figures.

JONES, S. and V.R. PANTULU 1955. On some ophichthyid larvae from the Indian coastal waters. *Indian J. Fish.*, **2**(1): 57-66.

Prolarvae hatched out from eggs collected off Madras Coast, Leptocephali from off Madras, Kerala and Orissa coasts including those of *Congrellus anago* and *Pisoodonophis hijala* with figures.

JONES, S. and V.R. PANTULU 1958. On some larval and juvenile fishes from the Bengal and Orissa coasts. *Ibid.*, **5**(1): 118-143.

Larvae and juveniles of *Zenarchopterus buffoni*, *Bregmoceros macclelandi*, *Callionymus melanopterus*, *Arnoglossus tapeinosoma*, *Bothus* sp; *Samaris macrolepis*, *Solea ovata*, *Heteromycteris oculus*, *Cynoglossus* spp., *Triacanthus brevirostris* and *Parapegasus natans* with figures.

JONES, S. and H. ROSA JR. 1965 Synopsis of biological data on Indian mackerel *Rastrelliger kanagurta* (Cuvier) 1817 and short bodied mackerel *Rastrelliger brachysoma* (Bleeker) 1851. *FAO Fish. Synopsis* No. 29.

Maturity conditions, spawning, fecundity spawning grounds, eggs, larvae of *R. kanagurta* and juveniles of both species.

JONES, S. and H. ROSA JR. 1967. Synopsis of biological data on the fishes of the genus *Rastrelliger* Jordan and Starks 1908 with an annotated bibliography. *Proc. Symp. Scombr. Fishes*, Mandapam Camp, (Mar. biol. Ass. India) 1962, Pt. III: 1190-1236.

Gives information on maturity condition, fertilisation, fecundity, spawning season, frequency of spawning grounds, ripe ova, larvae and juveniles, of *Rastrelliger kanagurta* and juveniles of *R. brachysoma*.

JONES, S. and K.K. SAROJINI 1952. History of transplantation and introduction of fishes in India. *J. Bombay nat. Hist. Soc.*, **50**(3): 594-609.

Deals with transplantation of the fry and fingerlings of *Chanos chanos*, *Hilsa ilisha*, *Catla catla*, *Labeo rohita*, *Cirrhina mrigala*, *Etroplus suratensis*, *Mugil corsula*; breeding in the new surroundings of *Osphronemus goramy*, *Tinca tinca*, *Carassius carassius*, *Cyprinus carpio*, *Barbus putitora*, *Salmo gairdner* and *Gambusia affinis*.

JONES, S. and E.G. SILAS 1963. Synopsis of biological data on skipjack *Katsuwonus pelamis* (Linnaeus) 1758 (Indian Ocean). *Proc. World Sci. meet. Biol. Tunas and rel. sp.* (FAO Fish. Repts., No.6, Vol.2): 663-684.

Data on distribution of larvae, young fish, on maturity, fertilization, fecundity, spawning season, frequency of spawning, spawning grounds and some larval stages in the Indian Ocean.

JONES, S. and E.G. SILAS 1964. Mackerel from the Andaman Sea. *Proc. Symp. Scombr. fishes*, Mandapam Camp, (Mar. Biol. Ass. India), 1962, Pt. 1: 255-282.

Sex and maturity of *Rastrelliger kanagurta* and *R. brachysoma*.

JONES, S. and K.H. SUJANSINGANI 1951. The hilsa fishery of the Chilka Lake. *J. Bombay nat. Hist. Soc.*, **50**(2):264-280.

Spawning grounds and spawning seasons of *Hilsa ilisha* in Chilka lake.

JONES, S. and K.H. SUJANSINGANI 1954. Fish and fisheries of the Chilka Lake with statistics of fish catches for the years 1948-1950. *Indian J. Fish.*, **1**(1 & 2): 256-344.

Breeding of *Dasyatis imbricata*, *D. sephen*, *Nematalosa nasus*, *Hilsa ilisha*, *Anchoviella indica*, *Thrissocles* spp., *Osteogeneiosus militaris*, *Tachysurus caelatus*, *T. falcarius*, *Plotosus canius*, *Ichthyocampus carce*, *Hippocampus brachyrhynchus*, *Aplocheiulus panchax*, *Oryzias melastigma*, *Liza corsula*, *Triacanthus brevirostris*, *Hemirhamphus gaimardi*, *Tylosurus strongylurus*, *Lates calcarifer*, *Sillago sihama*, *Petroscirtes bhattacharyae*, *Etroplus suratensis*, *Paragobius osreicola* with notes on the fish seed resources.

JOSEPH, J. 1967. Fecundity of yellowfin tuna (*Thunnus albacares*) and skipjack (*Katsuwonus pelamis*) from the eastern Pacific ocean. *Bull. int. - Am. Trop. Tuna Comm.*, **7**(4):257-292.

Fecundity of *Thunnus albacares* and *Katsuwonus pelamis*.

KADAM, K.M. 1956. The development of the chondrocranium in the Indian sea-horse, *Hippocampus* (Lophobranchii). *Proc. 43rd Indian Sci. Congr.* (Agra), Pt.4, Late Abstracts:33-34.
Development of the various regions of the chondrocranium.

KADAM, K.M. 1959. The development of chondrocranium in *Nerophis*(Lophobranchii) *Proc. 46th Indian Sci. Congr.* (Delhi), Pt.3, Abstracts: 402.
Development of the various regions of the chondrocranium.

KAGWADE, V.N. 1965. Preliminary observations on the biology of 'Horse mackerel', *Caranx kalla* (Cuvier and Valenciennes). *Sci. & Cult.*, **31**(4): 207-208.
Maturity stages and spawning.

KAPOOR, A.S. 1962. The development of the dermal bones related to laterosensory canals of the head in the fishes, *Ophicephalus punctatus* Bloch (Ophicephalidae) and *Wallago attu* Bl. & Schn. (*Siluridae*). *Proc. 49th Indian Sci. Congr.* (Cuttack), Pt.3, Abstracts: 355.
Development of the bones related to the lateral lines on the head in the case of *Ophicephalus punctatus* and *Wallago attu*.

KARAMCHANDANI, S.J. 1957. On the occurrence of associates of carp fry in the fry-collection nets and destructive role played by predatory fish. *Indian. J. Fish.*, **4**(1):47-61.
Deals with extent of association of undesirable fish with carp fry in fry collection nets as well as the larvae and fry of predatory fish found with carp fry.

KARAMCHANDANI, S.J. 1961. On the location of the spawning grounds of Indian shad, *Hilsa ilisha* (Hamilton) in freshwater regions of the Narbada river, *Curr. Sci.*, **30**(10): 373-375.
Spawning grounds above the tidal zone.

KARAMCHANDANI, S.J. and V.R. DESAI 1966. On the early development of two freshwater catfishes from river Narbada. . *J. zool. Soc. India*, 1964, **16**(1): 21-37.
Early development of *Clupisoma garua* (Hamilton) and *Gagata itchkeea* (Sykes) and their distinguishing features from comparable developing stages of *Silonia silondia* (Hamilton), *Bagarius bagarius* (Hamilton) and *Gagata cenia* (Hamilton) with figures.

KARAMCHANDANI, S.J. and M.P. MOTWANI 1954. On the larval development of *Pseudosciaena coitor* (Hamilton). *Ibid.*, **6**(1): 71-79.
Development of *Pseudosciaena coitor* from postlarval to early juvenile stage, distinguishing features of the early stages of *P. coitor* and *Pama pama* with figures..

KARAMCHANDANI, S.J. and M.P. MOTWANI 1955. Early life-history, bionomics and breeding of *Rita rita* (Hamilton). *Ibid.*, **7**(2): 115-126.
Embryonic, prolarval and postlarval stages and breeding habits with figures.

KARAMCHANDANI, S.J. and M.P. MOTWANI 1956. On the larval development of four species of freshwater catfishes from river Ganga. *Ibid.*, **8**(1): 19-34.

A few stages in the larval development of *Silonia silondia*(Hamilton), *Aliya coilia*(Hamilton), *Ailichthys punctata* (Hamilton) and *Gagata cenia* (Hamilton) with notes on breeding and figures.

KARAMCHANDANI, S.J. and M. D. PISOLKAR 1968. On the occurrence and breeding of *Catla catla* (Hamilton) in Tapti river. *J. Bombay nat. Hist. Soc.*, **64**(2):375-377 (Also *Adv. Abstr. Contr. Fish. Aquat. Sci. India*, **2**(1):8)

Breeding in certain areas of the river.

KARANDIKAR, K. and V.C. PALEKAR 1951. Studies on the ovaries of *Polynemus tetradactylus* Shaw in relation to its spawning. *J. Univ. Bombay*, **19**(3) (Also *Curr. Sci.* 1950, **19**(5): 154-155.)

Occurrence of larvae and postlarvae, maturation, mature ova, spent fish, and probable spawning periodicity.

KAREKAR, P.S. and D.V. BAL 1960. A study on maturity and spawning of *Polydactylus indicus* (Shaw). *Indian J. Fish.*, **7**(1): 147-164. (Also *Proc. 43rd Indian Sci. Congr.*, Agra, 1956, Pt.3, *Abstracts*:305-306).

Ovarian maturity stages, ova-diameter frequencies, spawning season, frequency of spawning, minimum size at maturity and fecundity.

KHAN, H. 1923a. Reproductive powers of some Cyprinids in the Punjab and observations on their breeding habits, *Proc. 10th Indian Sci. Congr.* (Lucknow): 161.

Fecundity in relation to weight, commencement of breeding and eggs of *Labeo rohita*, *L. gonius*, *L. calbasu*, *Cirrhina mrigala*, *C. reba*, *Catla catla* and breeding migration in *Barbus tor*.

KHAN, H. 1923b. Observations on the breeding habits, nest building and parental care of *Ophicephalus marulius*. *Ibid.*, 161-162.

Nest building in *Ophicephalus marulius*, *O. striatus*, *O. gachua* process of spawning in *O. gachua*, its breeding season and eggs.

KHAN, H. 1924a. Observations on the breeding habits of some freshwater fishes in the Punjab. . *J. Bombay nat. Hist. Soc.*, **29**: 958-962.

Breeding habits of *Labeo rohita*, *L. calbasu*, *Cirrhina mrigala*, *Catla catla*, *Wallago attu*, *Barbus tor*, *Ophicephalus marulius*, *O. gachua* and *O. striatus* and experiments to breed them under artificial conditions.

KHAN, H. 1924b. Early stages in the development of Cyprinidae and Siluridae (Pisces). *Proc. 11th Indian Sci. Congr.* (Bangalore): 119- 120.

Embryonic development of *Labeo gonius*, *L. rohita*, *Cirrhina mrigala*, *Wallago attu* and *Ophicephalus marulius* and development of the different organs in the embryonic and postembryonic stages.

KHAN, H. 1926. Early stages in the development of some freshwater fishes in the Punjab. *J. Bombay nat. Hist. Soc.*, **30**:531-540.

Embryonic development and early stages of *Ophicephalus marulius* egg and early larvae of *Wallagonia attu* and egg and newly hatched larva of *Labeo gonius* with figures.

KHAN, H. 1929. Early stages in the development of the gold fish, *Carassius auratus*. *Ibid.*, **33**:614-617.

Spawning behaviour, egg deposition, stages in the development of the embryo, newly hatched larva and a few stages till eight days with figures.

KHAN, H. 1934. Habits and habitats of the food fishes of the Punjab. *Ibid.*, **37**:657-662.

Breeding in *Labeo rohita*, *L. gonius*, *L. calbasu*, *L. diplostomus*, *L. microphthalmus*, *Barbus tor*, *B. sarana*, *Catla catla*, *Cirrhina mrigala*, *C. reba*, *Aspidoparia morar*, *Orienus sinatus*, *Rita rita*, *Wallago attu*, *Macrones seenghala*, *Pseudeutropius garua*, *P. murius*, *Callichrous bimaculatus*, *Saccobranchus fossilis*, *Ophiocephalus marulius*, *O. striatus*, *C. punctatus*, *O. gachua*, *Salmo fario* and *Notopterus chitala*.

KHAN, H. 1938b. Ovulation in fish (Effect of administration of anterior pituitary gland). *Curr. Sci.*, **7**(5): 233-234.

The sex stimulating hormone and its effect on ovulation in carps particularly *Cirrhina mrigala*.

KHAN, H. 1939a. Notes on the diseases of the trout at the Mahili hatchery, Kulu (Punjab). *J. Bombay nat. Hist. Soc.*, **40**(4): 653-656.

Diseases of the trout in hatcheries.

KHAN, H. 1939b. Study of the sex organs of mahseer (*Barbus tor* H.B.) *Ibid.*, **41**(1):653-656.

Breeding season, maturity, frequency of spawning and occurrence of the fry.

KHAN, H. 1940a. Oxygen requirements of the fingerlings of an Indian carp, *Cirrhina mrigala* (Hamilton). *Indian J. Vet. Sci.*, **10**(4): 372-381.

Oxygen requirements of the fingerlings.

KHAN, H. 1940b. Punjab search for 'test tube' trout-stocking of Kangra and Kulu waters. *Illustr. Wkly. India*, 24-11-1940: 32-33.

Spawning of mahseer and trout.

KHAN, H. 1942. Spawning of carps and their spawning grounds in the Punjab. *J. Bombay nat. Hist. Soc.*, **43**(3):416-427.

Spawning in rivers, in tanks connected with streams, in tanks unconnected with streams and probable factors which induce spawning of *Labeo rohita*, *Cirrhina mrigala* and *Catla catla*.

KHAN, H. 1943. On the breeding habits and development of an Indian carp, *Cirrhina mrigala* (Hamilton). *Proc. Indian Acad. Sci.*, **18B**(1):1-13.

Spawning behaviour, stripping, egg, segmentation, embryonic development, newly hatched larva, larval stages till the 14th day old and discussion on swelling up of egg membrane, rapidity of embryonic development, formation of caudal fin and disparity in growth rate with figures.

KHAN, H. 1945a. Observations on the spawning behaviour of carp in the Punjab. *Proc. nat. Inst. Sci. India*, **11**(3):315-320.

Spawning of carps such as *Labeo rohita* and *Cirrhina mrigala* during 1923, 1928, 1929, 1933 and 1944 and the probable factors that induce spawning.

KHAN, H. 1945b. Reproductive powers and breeding habits of some of the fishes of the Punjab. *Punjab Fish. Manu.* (Lahore), Appendix II: vi-xi.

Breeding habits of the fishes mentioned.

KHAN, H. 1947. Observations on the spawning of carp in a tank in the Punjab. *Proc. 34th Indian Sci. Congr.* (Delhi), Pt.3, *Abstracts*: 184.

Spawning of *Labeo rohita* and *Cirrhina mrigala* in reservoir.

KHAN, H. (BHATTI) 1951. Planning of biological research in freshwater fisheries- Presidential address. *Third Pakistan Sci. Confer., Dacca: 1-31.*

Reference to maturity, spawning season, breeding habits, spawning grounds, development and life histories of various fishes.

Hatching, newly hatched larva and older stages upto 100 days.

KHAN, H. and M.L. BHATIA 1923. Observations on the early stages in the life history of *Ophicephalus marulius*. *Proc. 10th Indian Sci. Congr.* (Lucknow): 162.

Hatching, newly hatched larva and older stages upto 100 days.

KHAN, H. and A. HUSAIN 1947a. A note on the destruction of the carp fry by larvae of aquatic insects.. *Proc. 34th Indian Sci. Congr.* (Delhi), Pt.3, *Abstracts*: 184.

Mortality of carp fry caused by the presence of beetle larvae.

KHAN, H. and A. HUSAIN 1947b. Further observations on the spawning of carp in ponds at Chhenawan fish farm in the Punjab. *Ibid.*, (Delhi), Pt.3, *Abstracts*: 184-185.

Spawning influenced by heavy showers, the duration of spawning process and temperature of the water.

KHAN, M.S. 1959. Observations on the breeding of Indian carps in the Garua Nala (Bhopal). *J. Bombay nat. Hist. Soc.*, **56**(1):144-147.

Location of breeding grounds for major Indian carps in Garua Nala, connected with the Betwa river system.

KHANNA, D.V. 1958. Observations of the spawning of the major carps at a fish farm in the Punjab. *Indian J. Fish.*, **5**(2): 282-290.

Spawning of major carps in a farm and probable stimulants inducing them to spawn.

KIKAWA, S. 1966. Spawning potential of big-eye and yellow-fin tuna (Abstract). *Proc. 11th Pac. Sci. Congr.*, **7**:1.

Spawning potential of the bigeye tuna and yellowfin tuna.

KIKAWA, S. and M.G. FERRARO 1967. Maturation and spawning of tunas in the Indian ocean. *Proc. Indo-Pac. Fish. Counc. 12th Sess.*, 1966, Sect. II:65-78.

Maturation of *Thunnus alalunga*, *T. albacares*, *T. obesus* their spawning areas and peak spawning seasons.

KIKAWA, S. and STAFF OF NANKAI REG. FISH LAB., KOCHI. 1963. Synopsis of biological data on bonito *Sarda orientalis* Temmnick and Schlegal 1842. *Pro. World Sci. meet. Biol. tunas and rel. Sp.* (FAO Fish, repts., No. 6 Vol.2): 147-156.

Deals with supposed spawning ground, juvenile and formation of bands in *Sarda orientalis*.

- KISHINOUE, K. 1919. Larval and juvenile tunas and skipjacks. *Suisan Gakkai Ho*, **3**(2). (U.S. Dept. int. Fish and Wildl. Serv. Spl. Sci. Rept. No.19 Translated from Japanese by W.G. Van Campen).
Larvae of *Katsuwonus pelamis* from 3 mm. to about 6 mm., *Auxis* sp. of 4 mm. and juvenile, 63 mm. (Standard length) and of *Neothunnus macropterus* with figures.
- KLAWE, W.L. 1961a. Notes on larvae, juveniles and spawning of bonito (*Sarda*) from the eastern Pacific ocean. *Pac. Sci.*, **15**(4):487-493.
Identification of the juvenile of *Sarda orientalis*.
- KLAWE, W.L. 1961b. Young of scombroids from the waters between Cape Hatteras and Bahama islands. *Bull. Mar. Sci. Gulf and Caribb.*, **11**(1): 150-157.
Young of *Katsuwonus pelamis* in total length from 25 to 42 mm. and *Auxis thazard* in total length 11 and 13 mm. with figures and notes on spawning habits.
- KLAWE, W.L. 1963. Observations on the spawning of four species of tuna *Neothunnus macropterus*, *Katsuwonus pelamis*, *Auxis thazard* and *Euthynnus lineatus* in the eastern Pacific ocean based on the distribution of their larvae and juveniles. *Bull. Inter-Am. Trop. Tuna Comm.*, **6**(9): 449-514.
Spawning, distribution of larvae and of juveniles of the four species.
- KLAWE, W.L. and M. SHIMADA 1959. Young scombroid fishes from the gulf of Mexico. *Bull. Mar. Sci. Gulf. and Caribb.*, **9**(1):100-115.
Identification and description of the young stages of *Katsuwonus pelamis* and *Auxis thazard* are dealt with.
- KOWTAL, G.V. 1965. On the breeding of *Eleutheronema tetradactylum* (Shaw) in the Chilka Lake. *Sci. & Cult.*, **31**(5):262-263.
Breeding of the species in the lake and prolarvae and postlarvae till 5.5 mm. stage.
- KRISHNAMOORTHY, B. 1958. Observations on the spawning season and the fisheries of the spotted seer, *Scomberomorus guttatus* (Bloch and Schneider). *Indian J. Fish.*, **5**(2):270-281.
Spawning season and minimum size at maturity.
- KRISHANMURTHI, K. 1962. Occurrence of a very early stage of *Parapegusus natans* (Linnaeus) from the nearshore waters of Porto Novo, South India. *J. Mar. biol. Ass. India*, 1961, **3**(1&2): 271-272.
6 mm. postlarvae with figure.
- KRISHNAYYA, CH. G. 1967. On the use of otoliths in the determination of age and growth of the Gangetic whiting, *Sillago panijus* (Hamilton Buchanan), with notes on its fishery in Hooghly estuary. *Adv. Abstr. Contr. Fish. Aquat. Sci. India*, **1**(1): 13-14 (Also *Indian J. Fish.*, 1963, **10A**)
Spawning and maturation of *Sillago panijus*.
- KULKARNI, C.V. 1940. On the systematic position, structural modifications, bionomics and development of remarkable new family of Cyprinodont fishes from the Province of Bombay. *Rec. Indian Mus.*, **42**(2): 379-423.
Fertilization of the eggs, mode of egg laying, description of the egg, development of the embryo, period of incubation, newly hatched larva, larval development till 10 mm. stage, and development of the gonopodium in *Horaichthys setnai*.

KULKARNI, C.V. 1943. Breeding habits and early stages of gourami (*Osphronemus goramy* Lacepede) *J. Bombay nat. Hist. Soc.* **44**: 233-243.

Breeding habits, breeding season, nest building, eggs, embryonic development, newly hatched larva, and stages till 9 days old with figures.

KULKARNI, C.V. 1946. Gourami culture, *Indian Fmg.*, **7**(12): 565-571.

Culture of *Osphronemus goramy*, breeding habits, nest, spawning, eggs and early larvae.

KULKARNI, C.V. 1947. Notes on fresh water fishes of Bombay and Salsette islands, *J. Bombay nat. Hist. Soc.* **47**(2): 319-326.

Fingerlings of *Megalops cyprinoides*, *Lates calcarifer*, breeding of *Glossogobius giuris*, *Barbus sarana*, *Gambusia affinis*, fingerlings of *Osphronemus goramy*, *Etroplus suratensis*, and *Ophicephalus marulius*.

KULKARNI, C.V. 1950. Breeding habits, eggs and early life history of the Indian shad, *Hilsa ilisha* (Hamilton) in the Narbada river. *Proc. nat. Inst. Sci. India*, **16**(3): 169-176.

Spawning grounds, range of migration ovarian eggs, embryonic development, newly hatched larva and early larvae till 3 days with figures.

KULSHRESHTHA, S.D. and T. MAJUPURIA 1957. Notes on the development of the carps *Barbus stigma*. *Proc. 44th Indian Sci. Congr.* (Calcutta), Pt.3, Abstracts: 317.

Development till postlarval stages.

KURIAN, C.V. 1966. Spawning of *Mugil cephalus*. *Indian Fmg.*, **15**(2):10-11.

Migration, spawning and availability of fry.

KUTHALINGAM, M.D.K. 1956. Observations on the food and feeding habits of the Indian mackerel, *Rastrelliger kanagurta* (Russel). *J. zool. Soc. India*, **8**(2):99-106.

Food of postlarvae and the change to juvenile food habits.

KUTHALINGAM, M.D.K. 1957. Life history and feeding habits of *Cynoglossus lingua* (Ham. Buch.). *Ibid.*, **9**(2):208-215. (Also *Proc. 45th Indian Sci. Congr.*, Madras, 1958, Pt.3, Abstracts: 368).

Eggs, prolarvae, postlarvae, metamorphosis to juvenile condition, and food of the juveniles with figures.

KUTHALINGAM, M.D.K. 1958. Studies on postlarvae and feeding habits of some fishes found in the Madras Plankton. *J. Madras univ.*, **28B**: 1-11.

Larvae of *Elops saurus*, *Saurida* sp., *Stolephorus* sp., *Hemirhamphus* sp., *Ambassis* sp., *Gobius* sp. and *Megalops cyprinoides* and their food.

KUTHALINGAM, M.D.K. 1959a. A contribution to the life histories and feeding habits of horse-mackerels, *Megalaspis cordyla* (Linn.) and *Caranx mate* (Cuv. and Val.) and notes on the effect of absence of light on the development and feeding habits of larvae and postlarvae of *Megalaspis cordyla*. *Ibid.*, **29B**(2): 79-96.

Eggs and larvae till the 33rd day after hatching of *M. cordyla* and eggs and larvae till the 38th day after hatching of *C. mate* with figures.

KUTHALINGAM, M.D.K. 1959b. Observations on the food and feeding habits of postlarvae, juveniles and adults of some Madras fishes. *Ibid.*, **29B**(2):139-152.

Food and feeding habits of the postlarvae and juveniles of *Stolephorus indicus*, *Hemirhamphus georgii* and *Scomberomorus lineolatus*.

KUTHALINGAM, M.D.K. 1959c. Temperature tolerance of the larvae of ten species of marine fishes. *Curr. Sci.*, **28**(2): 75-76.

Optimum temperature and range of tolerance for development of pro- and postlarvae and juveniles of *Polynemus indicus*, *Sardinella longiceps*, *Dussumieria acuta*, *Caranx mate*, *Megalaspis cordyla*, *Mugil cephalus*, *Cynoglossus lingua*, *Solea elongata*, *Saurida tumbil* and *Triacanthus brevirostris*.

KUTHALINGAM, M.D.K. 1959d. *Saurida tumbil* (Bloch): development and feeding habits. *J. zool. Soc. India*. **II**(2): 116-124.

Eggs, embryonic stages, larval development till 34 days, juvenile of 42 days old and feeding experiments on juveniles with figures.

KUTHALINGAM, M.D.K. 1959e. The life history and feeding habits of triopod fish (*Triacanthus brevirostris* Tem. & Schleg.) of the Indian sea, *Treubia*, **25**: 159-164.

Eggs, just hatched larva and stages in the larval development till 39th day after hatching, with figures.

KUTHALINGAM, M.D.K. 1960a. An account of the life history and feeding habits of a sole (*Solea elongata* Day). *J. Madras. Univ.*, **30B**(2 & 3): 87-96.

Plaktonic eggs, just-hatched larvae, and larval stages till the 18th day after hatching with figures.

KUTHALINGAM, M.D.K. 1960b. Observations on the life history and feeding habits of the Indian sardine, *Sardinella longiceps* (Cuv. & Val.) *Treubia*, **25**(2): 207-213.

Eggs, newly hatched larva, larvae up to 40 days after hatching and food of postlarvae with figures.

KUTHALINGAM, M.D.K. 1961a. Studies on the life history and feeding habits of the Indian thread-fin, *Polynemus indicus* (Shaw). *J. zool. Soc. India*, 1960, **12**(2): 191-200.

Stages in the early life-history, food of postlarvae and mortality in the early postlarval stages with figures.

KUTHALINGAM, M.D.K. 1961b. Observations on the life-history and feeding habits of a Plankton-feeder, the rainbow sardine (*Dussumieria acuta* Cuv. & Val.) with a note on the method of securing stomach contents of live fish. *Ibid.*, **13**(1): 24-33.

Eggs, larvae and juveniles with figures and their feeding habits.

KUTHALINGAM, M.D.K. 1961c. A contribution to the life history and feeding habits of *Mugil cephalus* (Linn.). *Treubia*, **27**(1): 11-32.

Eggs, newly hatched larva, stages up to 22nd day and juveniles with figures.

KUTHALINGAM, M.D.K. 1967a. Observations on the fishery and biology of the silver pomfret *Pampus argenteus* (Euphrasen) from the Bay of Bengal. *Indian J. Fish.*, 1963, **10A**(1): 59-74. (Also *Adv. Abst. Contr. Fish. Aquat. Sci. India*, **1**(1): 19).

Maturity, spawning, occurrence of young ones and approximate spawning season.

KUTHALINGAM, M.D.K. 1967b. Some observations on the fishery and biology of *Kurtus indicus* (Bloch) of the Bay of Bengal. *Ibid.*, 1963, **10A**(1): 159-166. (Also *Adv. Abst. Contr. Fish. Aquat. Sci. India*, **1**(1):19).

Sex-ratio and maturity.

LAL, B. 1963. Biochemical studies in the ovary of *Cirrhina mrigala* (Hamilton) during different maturity stages. *Sci. & Cult.*, **29**(6):305-306.

Cytochemical aspects of the maturity stages.

LOVATT, J.D. 1956. The spawning of carps. *J. Bombay nat. Hist. Soc.*, **54**(1):197-198.

Spawning of *Barbus tor Khudree* in Periyar River.

LUTHER, G. 1967a. The grey mullets. *Cent. Mar. Fish. Res. Inst. 20th Anniv. Souv.*: 70-74.

Reference to spawning and breeding migrations, of *Mugil cephalus*, *Liza macrolepis*, *L. parsia*, *L. tade*, *M. cunnesius*, *Valmugil seheli*, *Ellochelon vaigiensis* and *Rhinomugil corsula*.

LUTHER, G. 1967b. Some observations on the biology of *Liza macrolepis* (Smith) and *Mugil cephalus* Linnaeus (Mugilidae) with notes on the fishery of grey mullets near Mandapam. *Adv. Abst. Contr. Fish. Aquat. Sci. India*, **1**(1):11-12. (Also *Indian J. Fish.*, 1963, **10A**.).

Maturity, spawning and fecundity of *Liza macrolepis*.

MACKAY, W.S.S. 1944. *Some high range hatchery and river management notes*. Suppl. to high range Angling Assoc., Rept. for 1944-1945, Rajamally, Munnar.

Spawners, stripping and fertilizing the eggs artificially, preparation of hatcheries, hatching of the eggs and feeding in the alevins and fry of *Salmo fario*.

MACKAY, W.S.S. 1945a. *Trout stream improvement in the High Range*. Suppl. To High Range Angling Assoc., Rept. for 1945, Rajamally, Munnar.

Spawning grounds, spawners, eggs, and disease among the fry of the trout (*Salmo fario*).

- MACKAY, W.S.S. 1945b. Trout of Travancore . Part I. *J. Bombay nat. Hist. Soc.*, **45**(3): 352-373.
Breeding of trout, (*Salmo fario* and *S. Shasta*) fertilization of the eggs, egg laying, behaviour of males, transportation of the ova, the first hatchery, stocking, stripping, hatching, alevins, fry and hatchery improvements.
- MACKAY, W.S.S. 1945c. Trout of Travancore. Part II. *Ibid.*, **45**(4):542-557.
Spawners, eggs, hatchery improvement, transport and stocking of trout (*Salmo fario* and *S. Shasta*)
- MAHADEVAN, G. 1940. Preliminary observations on the structure of the uterus and the placenta of a few Indian Elasmobranchs. *Proc. Indian Acad. Sci.*, **11**(1):1-44.
Deals with the reproductive system uterus containing embryos, yolk sac and appendicula of *Scoliodon sorrakowah* and *S. Palaserrah*; and placenta of *S. walbeehmi* and *Carchorinus dussumieri*.
- MAHADEVAN, S. and P.I. CHACKO 1962. A preliminary report on the biology of the rainbow sardine, *Dussumieria hasseltii* (Bleeker). *Govt. of Madras Fish. St. Rep. & year book 1957-58*: 77-85.
Maturation, fecundity, spawning period, eggs and larvae.
- MAHMOOD, S. and M. RAHIMULLAH 1947. Fish survey of Hyderabad State IV. Fishes of the Nizamabad district. *J. Bombay nat. Hist. Soc.*, **47**(1): 102-111.
Fishes breeding below dams: young of *Barbus khudree*.
- MAJUMDAR, C.H. 1939. Culture of hilsa. *Modern Review*.(Calcutta): 294-295.
Young stages of *Hilsa ilisha*.
- MAJUMDAR, C.H. 1940. Spawning grounds and hatcheries in the district of Chittagong, Bengal. *Sci. & Cult.*, **5**(12):735-738.
Spawning grounds, spawning time, hatching operations, hatcheries, kind of fry obtained and artificial culture of carps in general such as *Catla catla*, *Labeo rohita* and *Cirrhina mrigala*.
- MAMMEN, T.A. 1967. Transport of the fry and fingerlings of the milk fish *Chanos chanos* (Forsk.) *J. Bombay nat. Hist. Soc.*, 1966, **63**(2): 298-314.
Collection of fry, transport, cause of mortality etc.
- MAMMEN, T.A. and P. SULOCHANAN 1962. Induced breeding of Catla in the Mettur reservoir. *Proc. Indian Acad. Sci.*, **56B**(1): 27-34.
Experiments on collection of breeders, pituitary gland extract injection, spawning and hatching of Catla.
- MARR, J.C. 1948. Observations on the spawning of oceanic skipjack (*Katsuwonus pelamis*) and yellowfin tuna (*Neothunnus macropterus*) in the northern Marshall islands. *U.S. Dept. int. Fish. and Wildl. Serv. Fish. Bull. No.44*, Vol. 51: 201-206.
Spawning of the two species.

MASUREKAR, V.B. 1968. Eggs and developmental stages of *Tylosurus crocodilus* (Lesueur). *Adv. Abstr. Contr. Fish. Aquat. Sci. India*, **2**(2): 6 (Also *J. Mar. Biol. Ass. India*, 1967, **9**(1).

Eggs, development and larval stages.

MASUREKAR, V.B. and M.R. REGE 1960. Observations on the maturity and spawning of *ThriSSocles hamiltonii* (Gray) in Bombay waters. *J. Mar. Biol. Ass. India*, **2**(1): 17-23.

Spawning period, ova diameters, fecundity and size at first maturity.

MATHUR, P.K 1967. Studies on the maturity and fecundity of the hilsa, *Hilsa ilisha* (Hamilton) in the upper stretches of the Ganga. *Indian J. Fish.*, 1964, **11A**(1): 423-448 (Also *Adv. Abstr. Contr. Fish. Aquat. Sci. India*, **1**(4):3.

Seasonal changes in gonad condition, development of ova, ova diameter studies, spawning, maturity stages of females, spawning season, size at first maturity, sex-ratio and fecundity.

MATSUMOTO, W.M. 1958. Descriptions and distribution of larvae of four species of tuna in Central Pacific waters. *U.S. Dept. int. Fish and Wildl. Serv. Fish. Bull.* No. 128, Vol. 58: 29-72.

Description and figures of the larvae of *Neothunnus macropterus* from 3.9. mm. to 14.25 mm. total length, *Katsuwonus pelamis* from 3.7. mm. to 14.5 mm. total length, and *Auxis thazard* from 3.7 mm to 11.2. mm. total length with figures and a comparative account of the larvae, area and locality of spawning and time of spawning in *K. pelamis* and *N. macropterus*.

MATSUMOTO, W.M. 1959. Descriptions of *Euthynnus* and *Auxis* larvae from the Pacific and Atlantic oceans and adjacent seas. *Dana Rept.*, **50**: 1-34.

Larvae of *Auxis* from Central Pacific with figures.

MATSUMOTO, W.M. 1960. The application of paper chromatography in identifying tuna larvae. *U.S. Dept. int. Fish and Wildl. Serv. Spl. Sci. Rept.* No. 337.

Identification of the larvae of *Neothunnus macropterus*, *Katsuwonus pelamis*, *Auxis thazard* and *A. thynnoides*.

MATSUMOTO, W.M. 1962. Identification of larvae of four species of tuna from the Indo-Pacific region. *Dana Rept.*, **55**: 1-16.

Identification of the early larval stages of *Kishinoella tonggol*, *Thunnus alalunga*, *T. orientalis* and *Parathunnus sibi*.

MATSUMOTO, W.M. 1966. Identification of tuna larvae (Abstract). *Proc. 11th Pac. Sci. Congr.*, **7**: 2.

Identification of tuna larvae.

MATSUMOTO, W.M. 1967. Morphology and distribution of larval wahoo *Acanthocybium solandri* (Cuvier) in the Central Pacific Ocean. *U.S. Fish and Wildl. Ser. Fish. Bull.*, **66**(2): 299-322.

Larvae ranging from 2.8 to 23.7 mm. standard length collected from Central Pacific Ocean are described and figured. Larvae live in open Ocean as well as near land. The species spawns throughout the year in the tropical and subtropical waters between 30°N and 25°S.

MAZUMDAR, N.N. 1952. On the specimens of *Wallago attu* (Bl. and Schn.) with two pairs of mandibular barbels. *Proc. 39th Indian Sci. Congr. (Calcutta)*, Pt.3 Abstracts: 328-329.

Four fingerlings having additional barbels.

MAZUMDAR, S.R. 1957a. On the spawning habits and early development of *Wallogonia attu* (Bloch and Schneider). *Proc. zool. Soc.*, (Calcutta), 10(2):99-106.

Breeding season, localities, fertilized eggs, hatching, prolarvae, postlarvae and metamorphosis with figures.

MAZUMDAR, S.R. 1957b. A key to the identification of impregnated eggs of common freshwater fishes of Bengal. *Curr. Sci.*, **26**(4): 125-126.

Tabulated key for the identification of the fertilised eggs.

McDONALD, A. St. J. 1948. *Circumventing the mahseer and other sporting fish in India and Burma*, Diocesan press, Madras:16.

Breeding of the mahseer.

MELLEN, I.M. and R.J. LANIER 1935. *1001 questions answered about your aquarium*, New York.

Breeding of *Barbus conchoni*, *B. lateristriga*, *Danio malabaricus*, *Carassius auratus*, *Esomus danricus*, *Rasbora daniconius*, *R. maculata*, *Brachydanio rerio*, *B. nigrifasciatus*, *B. albolineatus*, *Aplocheilichthys panchax*, *A. lineatus*, *A. blockii*, *Gambusia affinis holbrooki*, *Colisa fasciata*, *C. lalia*, *C. labiosa*, *Betta splendens*, *Osphronemus goramy*, *Trichogaster trichopterus*, *Macropodus cupanus* and *Anabas testudineus*.

MELOUK, M.A. 1949. The external features in the development of the Rhinobatidae. *Pub. Mar.Biol. stn. Ghardaqua (Red sea), Cairo*, No.7: 1-98.

Embryonic development of *Rhynchobatus djiddensis* and comparison with the embryos of *Carcharinus melanopterus* with figures.

MELOUK, M.A. 1957. On the development of *Carcharinus melanopterus* (Q.&G.). *Ibid.*, No. 9: 229-251.

Mating season, fertilization, ripe ovum, egg shell, embryonic development, placenta of *Carcharinus melanopterus* and comparison with *Scoliodon palasorrah* and *S. sorrakowah* with figures.

MENON, M.A.S. 1945. Observations on the seasonal distribution of the plankton of the Trivandrum coast. *Proc. Indian Acad, Sci.*, **22B**(2) : 31-62.

Reference to seasons of occurrence of fish eggs and larvae.

MENON, V. and N.V. RADHA 1964. Biology and fisheries of *Barbus dubius* (Day) in the Bhavanisagar Reservoir. *Madras J. Fish.*, 1962, **1**: 1-24.

Maturation, fecundity, spawning and development from fertilized egg to 14 mm. stage with figures.

MIMURA, K. and STAFF OF NANKAI REG. FISH. RES. LAB., KOCHI 1963a. Synopsis of biological data on yellowfin tuna *Neothunnus macropterus* Temminck and Schlegel 1842 (Indian Ocean). *Proc. World Sci. meet. biol. tunas and rel. sp.*(FAO Fish. Repts. No.6, Vol.2): 319-349.

Data on distribution of larvae and young, maturity, fecundity, spawning season, spawning ground and larval history.

MIMURA, K. and STAFF OF NANKAI REG. FISH. RES. LAB., KOCHI 1963b. Synopsis of the biology of bigeye tuna *Parathunnus mebachii* Kishinouye 1923(Indian Ocean). *Ibid.*, (FAO Fish. Repts. No.6, Vol.2): 350-379.

Data relating to breeding.

- MISRA, K.S. 1950. Sexual dimorphism in *Labeo boggut* (Sykes). *J zool. Soc. India* **2**(2) : 91-92.
Characters distinguishing mature males from females.
- MITCHELL, R.U.S 1875. Observations on fish. *Nature*, **13**: 107.
Rapid growth of young of *Catla catla*.
- MITO, S. 1956. On the egg development and hatched larvae of *Lethrinus nematacanthus* Bleeker (in Japanese with English resume). *Sci. Bull. Facul. Agri. Kyushu Univ.*, **15**(4) : 497-500.
Embryonic development and early larvae with figures.
- MITO, S. 1960. Egg development and hatched larvae of the common Dolphin fish, *Coryphaena hippurus* Linne. (in Japanese with English resume). *Bull. Japanese Soc. Sci. Fish.*, **26**(3): 223-226.
Ovarian egg, embryonic and larval stages with figures.
- MITO, S. 1961. Pelagic fish eggs from Japanese waters- 1. Clupeina, Chanina, Stomiatina, Myctophida, Angullida, Belonida and Syngnathida (in Japanese with English resume). *Sci. Bull. Fac. Agri., Kyushu Univ.*, **18**(3): 285-310.
Eggs and larvae of *Synodus variegatus?*, *Saurida tumbil?* an unidentified ophichthyid, nine types of unidentified angullids, an unidentified exocoetid, *Oxyporhamphus micropterus* and *Fistularia petimba* with figures.
- MITO, S 1963a. Pelagic fish eggs from Japanese waters- VIII (in Japanese with English resume). *Jap. J. Ichth.*, **11**(3-6): 65-113.
Eggs and larvae of *Pterois lunulata* and *Platycephalus indicus* with figures.
- MITO, S. 1963b. Pelagic fish eggs from Japanese waters- III. Percina (in Japanese with English resume). *Ibid.*, **11**(1&2): 39-64.
.Eggs and larvae of *Upeneus benasi*, unidentified sparids and *Lethrinus nematacanthus* with figures.
- MITO, S. 1967. Some ecological notes on the planktonic fish larvae (in Japanese with English resume). *Inform. Bull. Panktol. Japan*, No. 14: 34-49
An ophichthyid larva and larvae of *Trachynocephalus myops*, *Syngnathus schlegeli*, *Platycephalus indicus*, *Histiophorus orientalis*, *Holocentrus* sp. and *Signanus fuscescens* with figures.
- MITO, S. and T. SENTA 1967. On the egg development and prolarval stages of the silver pomfret with reference to its spawning in the Seto inland area (in Japanese with English resume). *Bull. Japanese Soc. Sci. Fish.*, **33**(10): 948-951.
Embryonic development from early cleavage, newly hatched larva and a few larval stages till 5 days of *Pampus argenteus* with figures.
- MITRA, B.N. 1956. On the observation of the existing system of fry-trade in Dhulian. *Proc. 43rd Indian Sci. Congr. (Agra)*, Pt. 3 *Abstracts*: 310.
Time of collecting fry, type of net, zone of collection, nature of fry etc.

- MITHRA, G.N. 1942. Rate of growth in the first year of *Labeo rohita* and *Catla catla* in the different districts of Orissa. *Proc. 29th Indian Sci. Congr.* (Baroda), Pt. 3 Abstracts: 159
Growth of the young ones in the first year of their life.
- MITHRA, G.N. 1958. Observation on the spawn of carps of the Mahanadi river (1). *Proc. 45th Indian Sci. Congr.* (Madras), Pt. 3 Abstracts: 373.
Spawning of carps after monsoon, the first and second spawning and relationship with environmental factors.
- MITHRA, G.N. and I. DAS. 1957. On the nutrition of carp fry of the Mahanadi river. *Proc. 44th Indian Sci. Congr.* (Calcutta), Pt. 3 Abstracts: 317-318.
Artificial food of the fry of *Catla catla*, *Cirrhina mrigala*, *Labeo rohita*, and *L. calbasu*.
- MITHRA, G.N. and I. DAS. 1968. On the nutrition of the Indian major carp fry. *Adv. Abstr. Contr. Fish. Aquat. Sci. India*, 2(2): 9 (Also *Indian J. Fish.*, 12).
Experiments on the food of carp fry.
- MITHRA, G.N. and P. MOHAPATRA 1956. On the role of zooplankton in the nutrition of carp fry. *Indian J. Fish.* 1956, 3(2): 299-310 (Also *Proc. 44th Indian Sci. Congr.* (Lucknow), Pt. 3 Abstracts: 211.
Experiments on carp fry with zooplanktonic and artificial food.
- MITHRA, S.K. 1957. On the optimum yield of carp fingerlings from nurseries. *Proc. 44th Indian Sci. Congr.* (Calcutta), Pt. 3 Abstracts: 318.
Rearing of carp spawn till fingerlings stage and their artificial food.
- MOGHE, M.A. 1941. On the development of mesonephros in a teleostean fish, *Thynnichthys sandkhhol* (Sykes). *Proc. 28th Indian Sci. Congr.* (Banaras), Pt. 3 Abstracts: 181.
Development of mesonephros.
- MOHAMED, K.H. 1955. Preliminary observations on the biology and fisheries of the thread-fin, *Polydactylus indicus* Shaw in the Bombay and Saurashtra waters. *Indian J. Fish.*, 2(1): 164-179.
Breeding season, maturity and probable spawning grounds.
- MOHAPATHRA, P. 1966. On the occurrence of *Chanos* fry in the Mahanadi Estuary. *Bull. Orissa Fish. Res. Invest.*, 1: 21-23.
Occurrence of fry of *Chanos chanos* and methods of collection.
- MOLESWORTH, C. and J.F. BRYANT 1921. Trout culture in Nilgiris. *J. Bombay nat. Hist. Soc.*, 27(4): 898-910.
Introduction of the trout eggs in the Nilgiris.
- MOODY, A.S. 1933. *Panchax lineatus*. *Aquarium*, New York, 2: 185-187.
Reference to breeding habits.
- MOOKERJEE, D.D. 1935. Description of a new species of Hemirhamphid fish, *Dermogenys burmanicus* from Lower Burma, with notes on dimorphism and its taxonomic significance. *Rec. Indian Mus.*, 37(2): 213-218.
Sexual dimorphism.

MOOKERJEE, H.K. 1943. On the developmental phases of the external morphology from fry to adult of a few carps in Bengal. *Proc. 30th Indian Sci. Congr. (Calcutta)*, Pt. 3 Abstracts:61.

Developmental stages of the fry of *Labeo rohita*, *L. calbasu*, *L. bata*, *L. gonius*, *Barbus sarana*, *Catla catla*, *Cirrhina reba* and *C. mrigala*.

MOOKERJEE, H.K. 1945a. Breeding and rearing of major carps of Bengal. *Calcutta Rev.*, **94**: 31-36.

Mode of collecting the fry and preparation of ponds for rearing fry of *Labeo rohita*, *L. calbasu*, *L. bata*, *Cirrhina mrigala*, *Catla catla* and *Barbus punctius*.

MOOKERJEE, H.K. 1945b. Factors influencing the spawning of principal carps of India. *Proc. Nat. Inst. Sci. India*, **11**(3): 312-315.

Experiments to determine the factors influencing the spawning of carps in relation to environmental conditions.

MOOKERJEE, H.K. 1945c. Breeding of freshwater fish of Bengal. *Modern Rev. (Calcutta)*, **78**(2):87-91.

Spawning localities and spawning seasons of *Ophicephalus* spp., *Barbus punctius* and *Amblypharyngodon mola*; environmental conditions for breeding of freshwater fish; methods of collection of fry and food of young stages.

MOOKERJEE, H.K. 1946a. Identification of eggs of common freshwater fishes of Bengal. *Sci. Cult.*, **11**(1): 48.

Nature size, shape and colour of the eggs of *Catla catla*, *Cirrhina mrigala*, *Labeo rohita*, *L. calbasu*, *L. gonius*, *Clarias batrachus*, *Wallagonia attu*, *Notopterus notopterus*, *N. chitala*, *Mastacemберus* sp., *Barbus conchoniis*, *Oryzias melastigma*, *Aplochilus panchax*, *Ophicephalus punctatus*, *O. striatus*, *O. marulius*, *Anabas testudineus*, *Colisa fasciata* and *Colisa lalius* tabulated.

MOOKERJEE, H.K. 1946b. Life-history of some carnivorous fishes of Bengal. *Ibid.*, **11**(1): 102-103.

Breeding season, spawning grounds, nature of eggs, details of embryonic development, observations on fry and parental care in *Anabas testudineus*, *Notopterus notopterus*, *Ophicephalus punctatus* and *Wallagonia attu* tabulated.

MOOKERJEE, H.K. and S.P. BASU 1944. On the spawning habits and early development of *Oryzias melastigma* (McClelland). *Proc. 31st Indian Sci. Congr. (Delhi)*, Pt. 3, Abstracts: 107-108 (Also *J. Dep. Sci. Calcutta Univ.*, **1**(4)).

Spawning habit, oviposition, egg and embryonic stages.

MOOKERJEE, H.K. and S.P. BASU 1946. Life-history of *Amblypharyngodon mola* (Ham. Buch.), a delicate food fish of Bengal. *Sci. & Cult.*, **12**(1): 54-56.

Breeding season, mode of egg deposition, fertilization, structure and nature of the fertilized egg, size of the egg after swelling, details in embryonic development, newly hatched larva, characteristics of fry and progressive development of the fins.

MOOKERJEE, H.K. and R. BHATTACHARYA 1950. Some aspects of the natural history of *Clupea lile*. *Proc. 37th Indian Sci. Congr. (Poona)*, Pt. 3, Abstracts: 250.

Reference to migration of the young ones into river.

MOOKERJEE, H.K. and R.N. BHATTACHARYA 1949. Culture of fish fry in temporary hard waters. *Proc. zool. Soc. Bengal.*, **2**(2):163-171.

Growth of the fry of *Labeo rohita*, *Cirrhina mrigala* and *Catla catla* in relation to plankton abundance.

MOOKERJEE, H.K. and D.N. GANGULY 1949. On the life-history of the carp, *Labeogonius* (Ham). *Ibid.*, **2**(2): 173-286.

Eggs, cleavage, embryogenesis, hatching, larval development, postlarvae and fry with figures.

MOOKERJEE, H.K. and D.N. GANGULY 1951a. On the structure and formation of the vertebral column in certain clupeid fishes. *Proc. 38th Indian Sci. Congr.* (Bangalore), Pt. 3, *Abstracts*: 224.

Structure and formation of vertebral column in some unidentified clupeids.

MOOKERJEE, H.K. and D.N. GANGULY 1951b. The study of the development of the vertebral column in the Elasmobranchii, as shown in the life-history of *Scoliodon palasorrah* and *Narcine timlei*. *Ibid.*, Pt. 3. *Abstracts*: 224-225.

Development of vertebral column.

MOOKERJEE, H.K., D.N. GANGULY and R.N. BHATTACHARJEE 1948. On the bionomics, breeding habits and development of *Ophicephalus striatus* Bloch. *Proc. zool. Soc. Bengal*, **1**(1): 58-64.

Breeding habits and developmental stages with figures.

MOOKERJEE, H.K., D.N. GANGULY and S.K. BRAHMA 1952. On the life history of *Barbus stigma* (Cuv. & Val.). *Proc. 39th Indian Sci. Congr.* (Calcutta), Pt. 3, *Abstracts*: 328.

Breeding season, time of spawning, reproduction and development.

MOOKERJEE, H.K., D.N. GANGULY and S.K. BRAHMA 1954. Structure and development of the Weberian ossicles in *Heteropneustes fossilis*. *Anat. Anz.*, **101**(10-12): 133-146.

Development of the various components of the Weberian ossicles.

MOOKERJEE, H.K., D.N. GANGULY and T.P. CHATTARJEE 1955. On the development of the notochord and the vertebral column in the cyprinodont *Oryzias melastigma* (McClelland). *Proc. 42nd Indian Sci. Congr.* (Baroda), Pt. 3, *Abstracts*: 278-279.

Mode of formation of the notochord and vertebral column.

MOOKERJEE, H.K., D.N. GANGULY and S.K. DAS. 1955. On the structure and development of the Weberian apparatus in a Siluroid fish, *Silundia gangetica*. *Ibid.*, Pt. 3, *Abstracts*: 303.

Embryological history of the different component parts of the Weberian apparatus.

MOOKERJEE, H. K., D. N. GANGULY and S. C. GANGULY 1953. On the development of the vertebral column of the labyrinthodon fish, *Anabas testudineus* (Bloch). *Proc. 40th Indian Sci. Congr.* (Lucknow), Pt. 3 *Abstracts*: 204.

Salient features in the development of the notochord, vertebral centra, neural and hemal arches, ribs etc.

MOOKERJEE, H.K, D.N. GANGULY and S.N.S. GUPTA 1946. The optimum range of temperature of water for the fingerlings of major carps of India. *Sci. & Cult.*, **11**(7): 383-384.

Optimum range of temperature required for rearing the fingerlings of *Cirrhina mrigala*, *Labeo rohita* and *Catla catla* between sizes 6.5 and 7 mm. under experimental conditions.

MOOKERJEE, H.K, D.N. GANGULY and M. ISLAM 1946a. On the composition of food and their correlation with weight and length of the body in the development of *Ophiceplalus punctatus* (Bloch). *Proc 33rd Indian Sci. Congr.* (Bangalore), Pt. 3, *Abstracts*: 15.

Food of the fry from an early larval stage.

MOOKERJEE, H.K, D.N. GANGULY and M. ISLAM 1946b. Variation in the embryonic movement during the process of hatching in *Labeo rohita* and *Cirrhina mrigala*. *Sci. & Cult.*, **11**(5): 268-269.

Comparative differences in the movements of the embryos of *Labeo rohita* and *Cirrhina mrigala* during hatching.

MOOKERJEE, H.K, D.N. GANGULY and S.C. MALLICK 1950. On the life-history of *Ophicephalus gachua* Ham. *Proc. zool. Soc. Bengal*, **3**(2): 169-179.

Breeding, cleavage, formation of embryo, hatching, stages till 28 days and larval colouration with figures.

MOOKERJEE, H.K, D.N. GANGULY and B.N. MITRA 1952. Preliminary observation on the distribution of fry collection centers, method of collection and the fry trade in the river Bhagirathi of West Bengal. *Proc 39th Indian Sci. Congr.* (Calcutta), Pt. 3, *Abstracts*: 328.

Three zones of fish fry collection and the methods followed.

MOOKERJEE, H.K, D.N. GANGULY and B. MOOKERJEE 1952. The development of the vertebral column in *Anguilla japonica*. *Ibid.*, Pt.3. *Abstracts*: 328.

Prominent role of perichordal tube in the formation of the centra.

MOOKERJEE, H.K, D.N. GANGULY and A. SIRCAR 1946. On the composition of food of the Indian mullet, *Mugil parsia*(Ham.), with suggestion to culture them in freshwater ponds of Bengal. *Proc. 33rd Indian Sci. Congr.* (Bangalore), Pt. 3, *Abstracts*: 132.

Food of the fry.

MOOKERJEE, H.K and S.N. GHOSE 1945. Life-history of *Barbus conchoniis*. *Proc. 33rd Indian Sci. Congr.* (Nagpur), Pt. 3, *Abstracts*: 110.

Breeding habits, breeding colouration, fertilized eggs, cleavage, embryonic development, newly hatched larva, larval stages till 27 days and food of the fry.

MOOKERJEE, H.K and N.S. GUPTA 1946. Correlation between food, body weight and length of the gut in *Cirrhina reba*. *Proc. 33rd Indian Sci. Congr.* (Bangalore) Pt. 3, *Abstracts*: 131-132.

Food of the fry from an early post-larva to the juvenile stage.

MOOKERJEE, H.K. and S.R. MAZUMDAR 1946a. On the lifehistory of *Labeo calbasu* (Ham.). *J. Dept. Sci. Calcutta Univ.*, **2**(1): 1-21.

Breeding season, egg, embryonic development, early larval stages and metamorphosis with figures.

MOOKERJEE, H.K. and S.R. MAZUMDAR 1946b. On the life-history of *Notopterus notopterus* (Pallas). *Ibid.*, **2**(1): 88-100.

Breeding localities and seasons; details of embryonic development, early stages and metamorphosis with figures.

MOOKERJEE, H.K and S.R. MAZUMDAR 1946c. On the life-history, breeding and rearing of *Anabas testudineus* (Bloch). *Ibid.*, **2**(1): 101-140.

Spawning season, mating, egg laying, eggs, early larval stages with figures.

MOOKERJEE, H.K. and S.R. MAZUMDAR 1950. Some aspects of the life history of *Clarius batrachus* (Linn.). *Proc. zool. Soc. Bengal*, **3**(1); 71-84.

Nest building habit, sexual dimorphism, breeding and development.

MOOKERJEE, H.K. S.R. MAZUMDAR and B.D.GUPTA 1940. Sex dimorphism in *Macrones gulio* (Ham.). *Indian J. vet. Sci.*, **10**(3);295.

Sexual demorphism.

MOOKERJEE, H.K, S.R. MAZUMDAR and B.D. GUPTA 1941. Breeding colouration of *Barbus (Puntius) stigma* (Cuv. & Val.). *Ibid.*, **11**: 250-251.

Breeding colouration.

MOOKERJEE, H.K, S.R. MAZUMDAR and B.D.GUPTA 1944a. Identification of the fry of the common carps of Bengal. *J. Dep. Sci. Calcutta Univ.*, **1**(4): 59-69.

Identification of the fry of *Catla catla*, *Cirrhina mrigala*, *C. reba*, *Labeo bata*, *L. calbasu*, *L. gonius* and *L. rohita*.

MOOKERJEE, H.K., S.R. MAZUMDAR and B.D. GUPTA 1944b. Observations on the breeding grounds and spawning habits of certain Indian carps in the Midnapore District, with suggestions for the breeding, collection of eggs and rearing of fry. *Ibid.*, **1**(4): 81-91.

Spawning habits, breeding grounds, artificial breeding, collection of eggs and fry of *Catla catla*, *Cirrhina mrigala*, *Labeo calbasu* and *L. rohita*.

MOOKERJEE, H.K, G.N. MITRA and S.R. MAZUMDAR 1940. The development of the vertebral column in a viviparous teleost, *Lebistes reticulatus*, *J. Morph.*, **5**(2); 241-269.

Development of vertebral column.

MOOKERJEE, H.K , and P.S. MOOKERJEE 1950. On some aspects of the natural history of *Engraulis hamiltonii* and *Engraulis telara*. *Proc. 37th Indian Sci. Congr.* (Poona), Pt. 3 Abstracts: 251.

Breeding season and availability of the fry.

MOOKERJEE, S. 1948a. The morphology and development of scales in *Glossogobius giuris* (Ham.). *Proc. zool. Soc. Bengal*, **1**(1): 13-22.

Development of scales.

MOOKERJEE, S. 1948b. The structure, form and development of scales in *Mugil sp.* *Proc. 35th Indian Sci. Congr.* (Patna), Pt.3 Abstracts: 212.

Development of scales from an early stage.

MORROW, E.J. 1964. Marlins, sailfish and spearfish of the Indian ocean. *Proc. Symp. Scombr. Fishes*, Mandapam Camp (Mar. biol. Ass. India), Pt. I: 429-440.

Aspects of spawning in *Tetrapturus angustirostris*, *T. audax*, *Makaria nigricans* and *Istiompax indicus*.

MOTWANI, M.P. and B.B. BOSE. 1957. Oxygen requirements of fry of the Indian major carp, *Labeo rohita* (Hamilton). *Proc. nat. Inst. Sci. India*, **23B**(1): 1-16.

Oxygen consumption rates of the fry at resting and active stages of respiration.

MOTWANI, M.P. , V.G. JHINGRAN and S.J. KARAMCHANDANI 1954. Occurrence and breeding of *Pama pama* (Hamilton) in freshwaters. *Curr. Sci.*, **23**(5): 161.

Occurrence of the fry in the Ganga River indicating the breeding of the fish in freshwater.

MOTWANI, M.P., V.G. JHINGRAN and S.J. KARAMCHANDANI 1957. On the breeding of the Indian shad, *Hilsa Ilisha* (Hamilton) in freshwater. *Sci. Cult.*, **23**(1): 47-48.

Breeding in the Ganga River system with observations on the eggs, larvae and breeding migration.

MUNRO, I.S.R. 1945. Postlarval stages of Australian fishes No. I. *Mem. Queensland Mus.*, (Brisbane), **12** (3):136-153.

Postlarvae of *Pelates quadrilineatus* measuring 13.5, 15 and 18.5.m.

MUNRO, I.S.R. 1950. Revision of *Bregmoceras* with descriptions of larval stages from *Australia*. *Proc. Roy. Soc. Queensland*, **61**(5): 37-53.

Gives an account of the larval stages of *Bregmoceros macclellandi* measuring 5.8, 6.6, 11.2, 12.6, and 13.6.mm. with figures.

NAIDU, M.R. 1939. *Report on a survey of the fisheries of Bengal*, Govt. press, Bengal.

Reference to young ones and breeding of *Lates calcarifer*, artificial fertilization of the eggs, hatcheries and location of the spawning grounds of *Hilsa ilisha*.

NAIR, G.S. 1957. Notes on the early development of *Mugil cephalus* Linnaeus. *Bull. Cent. Res. Inst. Univ. Travancore*, **5C**(1): 77-84.

Ripe females and oozing males collected from Kayamkulam Lake, free eggs, embryonic development , just hatched larva and a few stages till 72 hours old with figures.

NAIR, G.S. 1957. On the breeding habits and development of *Ambassis gymnocephalus* (Lac.). *Ibid.*, **5C**(1): 69-76.

Breeding habits, larval mortality, embryonic development, just hatched larva, larval stages till 70 hours old condition, spawning grounds and growth of fry with figures.

NAIR, G.S. 1961. On the development and early embryology of *Stigmatogobius javanicus* (Blkr.). *Ibid.*, Ser. C, **8**: 37-54.

Breeding habits, newly spawned egg, fertilized egg, cleavage, early embryonic development, hatching and larvae with figures.

NAIR, K.K. 1939. On some early stages in the development of the so-called Indian shad, *Hilsa ilisha* (Hamilton). *Rec. Indian Mus.*, **41**(4): 409-418.

A few larval stages from 14 mm. to 22 mm. with figures. Observations on the forward movement of the dorsal fin, change in the position of the anus and development of scutes.

NAIR, K.K. 1940. On some early stages in the development of the Gangetic anchovy, *Engraulis telara* (Hamilton). *Ibid.*, **42**(2): 277-288.

Larval stages from 10 mm. to 50 mm. with figures; shifting of dorsal fin, development of scutes and pectoral fins.

NAIR, K.K. 1945. On the systematics of certain eel like fishes of the Ganges. *J. Asiat. Soc. Bengal (Sci.)*, **11**: 32-36.

Reference to maturity of *Pisoodonophis hijala*.

NAIR, R.V. 1946a. On the metamorphosis of the leptocephali of the Madras plankton. *Proc. 33rd Indian Sci. Congr. (Bangalore)*, Pt. 3 *Abstracts*: 127.

Metamorphosis of the leptocephali of *Muraenesox* and *Muraena*.

NAIR, R.V. 1946b. Fish eggs and larvae of the Madras plankton. *Ibid.*, Pt. 3 *Abstracts*: 127.

Three types of clupeid eggs, two types of *Solea* eggs, one type of carangid egg, postlarvae of *Elops indicus*, *Stolephorus* sp., *Mugil* sp., *Trichiurus haumela*, *Ambassis miops*, *Therapon jarbua*, *Lactarius lactarius*, *Leiognathus ruconius*, *Gerres lucidus* and *Scatophagus argus*.

NAIR, R.V. 1946c. On the leptocephalus of *Uroconger lepturus* (Richardson) from the Madras Plankton. *Curr. Sci.*, **15**(11): 318-319.

Characteristic features of the leptocephalus with figures.

NAIR, R.V. 1947. On the metamorphosis of two leptocephali from the Madras plankton. *Proc. Indian Acad. Sci.*, **25**(1): 1-14.

Stages in the metamorphosis of the leptocephali of *Muraenesox cinereus* and *Muraena macrura* with figures.

NAIR, R.V. 1948. Leptocephali of the Gulf of Mannar. *Ibid.*, **27B**(4): 87-91.

Leptocephali assigned to *Congrellus anago*, *Uroconger lepturus*, and *Muraenesox cinereus* with figures.

NAIR, R.V. 1952a. Studies on the life-history, bionomics and fishery of the white sardine, *Kowala coval* (Cuv.). *Proc. Indo-Pac. Fish. Council. 3rd meet.*, 1951, Sect. II: 103-118.

Eggs, stages in embryonic development, hatching, larval stages till 4 days, maturity, sex composition and fecundity with figures.

NAIR, R.V. 1952b. Studies on some fish eggs and larvae of the Madras plankton. *Proc. Indian Acad. Sci.*, **35B**(5): 181-208.

Eggs and early larvae of *Thrissocles* sp., *Anchoviella* spp., *Cynoglossus* spp., *Caranx* sp., *Saurida* and an unidentified egg mass as well as the eggs and larvae hatched from them with figures.

NAIR, R.V. 1952c. Studies on some post-larval fishes of the Madras plankton. *Ibid.*, **35B(5)**: 225-244.
 Post larvae of *Elops saurus*, *Anchoviella* sp., *Tylosurus strongylurus*, *Hemirhamphus gaimardi*, *Mugil* sp., *Trichiurus haumela*, *Cynoglossus* sp., *Ambassias miops*, *Therapon jarbua*, *Lactarius lactarius*, *Leiognathus ruconius*, *Gerres lucidus*, *Scatophagus argus* and *Pseudosciaena* sp. with figures.

NAIR, R.V. 1953. Studies on the revival of the Indian oil sardine fishery. *Proc. Indo-Pac. Fish. Counc.* 4th meet., Sect.II: 115-129.

Feeding activity of spawners; and occurrence of the planktonic eggs of *Sardinella longiceps*.

NAIR, R.V. 1958. The sardines. *Fish. West. Coast of India* (Cent. Mar. Fish. Res. Stat.): 31-37.

Reference to appearance of spawners and spent *Sardinella longiceps*.

NAIR, R.V. 1960a. Synopsis on the biology and fishery of the Indian sardines. *Proc. World Sci. meet. biol. sardines and rel. species* (FAO sp. syn.), Vol. 2: 329-414.

Distribution of eggs, maturity, fecundity, spawning season, spawning grounds, eggs and larval stages of *Sardinella longiceps*; maturity, spawning season, eggs and oarvae of *S. gibbosa*; maturity,, spawning, eggs and larvae of *S. albella* and *S. fimbriata*; spawning grounds, eggs and larvae of *S. sirm* and food of the young ones of *S. melanura*.

NAIR, R.V. 1960b. Notes on the spawning habits and early life-history of the oil sardine, *Sardinella longiceps*. Cuv. & Val. *Indian J. Fish.*, 1959, **6(2)**: 342-359.

Spawning season, frequency of spawning, fecundity, planktonic eggs and early larval stages till 2 days with figures.

NAIR, R.V. 1961. General remarks on Indian leptocephali. *Proc. Indian Acad. Saci.*, 1960, **52B(5)**: 228-252.

Distribution, characters, pigmentation, growth, metamorphosis, elvers described so far and their affinities.

NAIR, R.V. and B.S. BHIMACHAR 1950. On some eel eggs and larvae from the Gulf of Mannar. *Ibid.*, **51B(6)**: 331-338.

Three types of eel eggs and two types of larvae with figures.

NAIR, R.V. and M. DHARMAMBA 1961. On the early development of an Ophichthyid egg from the Lawson's Bay, Waltair. *Ibid.*, 1960, **52B(5)**: 220-227.

The eggs and early larvae till 3 days with figures.

NAIR, R.V. and K.H. MOHAMED 1961a. Studies on the leptocephali of Bombay waters .I. The metamorphosing stages of *Muraenesox talabonoides* (Bleeker). *Ibid.*, 1960, **52B(5)**: 147-168.

Metamorphosing stages with figures.

NAIR, R.V. and K.H. MOHAMED 1961b. Studies on the leptocephali of Bombay waters .II. The metamorphosing stages of *Muraenesox talabon* (Cantor). *Ibid.*, 1960, **52B(5)**: 169-181.

Metamorphosing stages with figures.

NAIR, R.V. and K.H. MOHAMED 1961c. Studies on the leptocephali of Bombay waters III. The metamorphosing stages of *Uroconger lepturus* (Richardson). *Ibid.*, 1960, **52B(5)**: 182-190.

Metamorphosing stages with figures.

NAIR, R.V. and K.H. MOHAMED 1961d. Studies on the leptocephali of Bombay waters . IV. Some ophichthyid leptocephali. *Ibid.*, 1960, **52B(5)**: 191-208.

Three types of leptocephali with figures and their affinities.

NAIR, R.V. and K.H. MOHAMED 1961e. Studies on the leptocephali of Bombay waters .V. A few other leptocephali *Ibid.*, 1960, **52B(5)**:209-219.

Two types of leptocephali with figures.

NAKAMURA, H. et. al. 1951. Notes on the life-history of the sword-fish, *Xiphias gladius* Linnaeus. *Jap. J. Ichth.*, **1(4)**: 264-271.

Review of the larvae and juveniles and their distribution.

NALINI, K.P. 1940. Structure and function of the nidamental glands of *Chiloscyllium griseum* (M.&H.). *Proc. Indian. Acad. Sci.*, **12B(5)**: 189-214.

Structure of the nidamental glands and mode of formation of the egg case with figures.

NAYAK, P.D. 1960. Some aspects of the fishery and biology of *Polydactylus indicus*, (Shaw). *Indian. J. Fish.* 1959, **6(2)**: 280-297.

Maturity stages, spawning season, number of spawning in an year and fecundity.

NAYAK, P.D. 1965. Study on the biology and fishery of *Polynemus heptadactylus* Cuv. & Val. Ph.D. Thesis, University of Bombay.

Maturation, maturity stages, age at first maturity, sex-ratio, spawning and fecundity.

NAYADU, M.R. 1922. A note on the eggs and early embryonic development of *Cypselurus*. *Madras Fish. Bull.*, **15(4)**: 109-112.

Embryonic stages of *Cypselurus* sp. with figures.

NEVILL, G.A. 1915. The breeding habits of the Mahseer (*Barbus tor*). *J. Bombay nat. Hist. Soc.*, **24**: 838-839.

Breeding habits.

NOBLE, A. 1965. The food and feeding habits of the Indian mackerel, *Rastrelliger kanagurta* (Cuvier) at Karwar. *Indian J. Fish.*, 1962, **9A(2)**:701-713.

Feeding habits of mature and spent fish.

NORLUND, M.C. 1937. *Panchax panchax*. *The Aquarium*, **5(3)**:60.

Breeding habits of *Aplocheilus panchax*.

PADMANABHAN, K.G. 1955. Breeding habits and early embryology of *Macropodus cupanus* (Cuv. & Val.). *Bull. Cent. Res. Inst. Univ. Travancore*, **4C**(1):1-46.

Breeding season, nest-building, mating behaviour, spawning, embryonic development, hatchling and behaviour with figures.

PADMANABHAN, K.G. 1957. Early stages in the development of the toad fish, *Antennarius marmoratus* Bleeker. *Ibid.*, **5C**(1): 85-92.

Eggs masses, segmentation, embryonic development, just hatched larva and stages till 48 hours old with figures.

PADMANABHAN, K.G. 1959. Early stages in the development of *Labuca dadiburjori* (Menon). *Ibid.*, **7C**(1): 147-154.

Describes the breeding habits, spawning season, mating behaviour, embryonic development, just-hatched larva, larval stages till 5 day old condition and adhesive glands of the larva of this fish, with figures.

PADMANABHAN, K.G. 1961. Early development of *Solenostomus cyanopterus* Blkr. *Ibid.*, **8C**: 1-13.

Brood pouch, ripe ovum, fertilised egg, embryonic development, hatching and early larval stages with figures.

PADMANABHAN, K.G. 1963. Development of the flying fish, *Gypselurus comatus* (Mitchill). *Bull. Dept. mar. biol. & Oceanogr. Univ. Kerala*, **1**: 45-56.

Embryonic and early larval stages with figures.

PAKRASI, B. and K.H. ALIKUNHI 1953. On the development of the freshwater grey mullet, *Mugil corsula* (Hamilton). *J. zool. Soc. India*, 1952, **4**(2): 123-140 (*Proc. 37th Indian Sci. Congr.*, Poona, 1950, Pt.3 Abstracts: 238).

Fertilized eggs and embryonic stages, larval development and juveniles with figures.

PAL, B.C. and C.H. SOUTHWICK 1966. Reproductive behaviour of the Indian spike-tailed, paradise fish, *Macropodus cupanus* (Cuv. & Val.). *J. Bombay nat. Hist. Soc.*, 1965, **62**(3): 463-474.

Premating behaviour, nest building by male, mating, spawning, postmating behaviour and breeding season.

PALEKAR, V.C. and D.V. BAL 1960. Observations on the length frequency distributions of the Indian whiting, *Sillago sihama* (Forsk.) from the Karwar waters. *J. zool. Soc. India*, **12**(1): 104-113.

Movement of the spawners in estuary and sea.

PALEKAR, V.C. and D.V. BAL 1961. Studies on the maturation and spawning of the Indian whiting, *Sillago sihama* (Forsk.) from the Karwar waters. *Proc. Indian Acad. Sci.*, **54B**(2): 76-93.

Maturing, ripe and spent fish and their ovaries, maturation cycle, spawning, size at first maturity and fecundity.

PALEKAR, V.C. and K.R. KARANDIKAR 1952. Maturity and spawning period of *Thrissocles purava* (Ham.) as determined by ova-diameter measurements. *Ibid.*, **35B**(4): 143-154.

Ova diameter frequencies, maturing, mature and spent fish, fecundity, spawning, duration and frequency of spawning and size at first maturity.

PALEKAR, V.C. and K.R. KARANDIKAR 1953. Maturity of *Coilia dussumieri* Cuv. & Val. in Bombay waters during different months of the year. *J. zool. Soc. India*, **5**(1): 217-226.

Spawning localities and maturity.

PANIKKAR, N.K. 1951. Physiological zoology and fisheries. *J. Madras univ.*, **21B**(2):316-320.

Physiology of reproduction in relation to fish culture.

PANIKKAR, N.K. 1955. Fish and fisheries. *Proc. Sci. India, 1938-1950* (Nat. Inst. Sci. India), Sect. VII, Sub-Sect. III: 1-60.

Review of breeding and life-histories of freshwater and marine fishes, breeding grounds of *Hilsa ilisha* and spawning and eggs of sardines and mackerel.

PANIKKAR, N.K. and R.G. AIYAR 1939. Observations on breeding in brackishwater animals of Madras. *Proc. Indian Acad. Sci.*, **9**: 343-365.

Occurrence of the larvae of *Engraulis*, *Stolephorous*, *Elops*, *Meglops cyprinoides*, breeding season of *Barbus sophore*, *Aplocheilus melastigma*, *Panchax parvus*, larvae of *Hemirhamphus gaimardi*, eggs of *Tylosurus strongylurus*, yearlings of *Therapon jarbua*, breeding season of *Ambassis miops*, *Acentrogobius neilli*, *A. virindipunctatus*, *Glossogobius giuris* and *Scatophagus argus*.

PANIKKAR, N.K. and R.V. NAIR 1945. *Progress report of the Scheme of research on the fish eggs and larvae of the Madras Plankton (1944-1945)*, Madras.

Six stages in the metamorphosis of *Muraenesox* sp., five stages of *Muraena* sp., six types of fish eggs and postlarval stages of *Elops indicus*, *Stolephorus* sp., *Mugil* sp., *Trichiurus haumela*, *Ambassis miops*, *Therapon jarbua*, *Lactarius lactarius*, *Leiognathus ruconius*, *Gerres lucidus* and *Scatophagus argus*.

PANIKKAR, N.K. and P.R.S. TAMPI 1954. On the mouth-breeding cichlid, *Tilapia mossabica* Peters. *Indian J. Fish.*, **1**(1&2): 217-230.

Sex differentiation, breeding habits, eggs, embryos, larval stages and the fry with figures.

PANIKKAR, N.K., P.R.S. TAMPI and R. VISWANATHAN 1952. On the fry of the milk-fish *Chanos chanos* (Forsk.) *Curr. Sci.*, **21**(1):18-19.

Fry and secondary spawning.

PANIKKAR, N.K., P.R.S. TAMPI and R. VISWANATHAN 1953. Some aspects of adaptation in *Chanos chanos* (Forsk.) *Proc. Indian Acad. Sci.*, **37B**(6): 203-213.

Adaptation of fingerlings to variations in temperature and salinity.

PANIKKAR, N.P. 1920. Notes on the two cichlid fishes of Malabar, *Etroplus Suratensis*, and *E. maculatus*. *Madras Fish. Bull.*, **12**: 157-166.

Nest making, egg laying, care of eggs and the young, notes on breeding and breeding season, eggs, early larval stage and a few older larval stages of *E. Suratensis*; breeding, eggs and early larval stages of *E. maculatus*.

PANIKKAR, N.P. 1924. Further notes on the breeding of the pearl fish, *Etroplus suratensis*. *J. Bombay nat. Hist.Soc.*, **33**: 1064.

Capacity of the fish to breed twice every consecutive month.

PANTULU, V.R. 1956. Studies on the biology of the Indian freshwater eel, *Anguilla bengalensis* Gray. *Proc. nat. Hist. Inst. Sci. India*, **22B**(5): 259-280.

Immigration of elvers into estuaries with figures.

PANTULU, V.R. 1963. Studies on the age and growth fecundity and spawning of *Osteogeneiosus militaris* (Linn). *J. Cons.* **28**(2): 295-315.

Fecundity stages with figures.

PANTULU, V.R. and S. JONES 1951. Notes on the larval development of the Gangetic whiting, *Pama pama* (Hamilton). *J. zool. Soc. India*, **3**(1): 111-117.

Larval stages with figures.

PANTULU, V.R. and S. JONES 1954. On some metamorphosing stage of eels (Muraenidae) from the estuary of the Burhabulong river, Orissa State. *Proc. Indian Acad. Sci.*, **39B**(2): 24-35.

Metamorphosing stages of *Muraena tile* and two *Muraena* spp. with figures

PATHANSALI, D. 1967. Observations on the gonad maturity stages of female *Rastrelliger Kanagurta* Cuvier. *Proc. Indo-Pac. Fish. Counc.* 12th sess., 1966, Sect.II: 116-123.

Maturation, fecundity, ova-diameter frequencies, and number of batches of ova that could be spawned in one reproductive season.

PATNAIK, D.A. 1966. On the biology of *Mugil cephalus* Linnaeus of the Chilka Lake. *Proc. 2nd All India Congr. Zool.*, (Varanasi), 1962, Pt.2: 457-464.

Maturity, fecundity, spawning season, frequency of spawning, migration and breeding.

PEARSE, A.S. 1932. Observations on the ecology of certain fishes and crustaceans along the bank of the Matla river at Port Canning. *Rec. Indian Mus.*, **34**(3): 289-298.

Reference to spawners of *Saccobranchnus fossilis*.

PERTWEE, A.H. 1913. Notes on the freshwater fishes of Ceylon. *Spol. Zeyl.*, **8**(32):243-250.

Parental care in *Ophicephalus striatus*, *Arius falcarius*; and spawning periods of *Lates calcarifer*.

PETER, K.J. 1967a. A note on the record of *Rastrelliger* (Mackerel) larvae from the Indian Ocean. *Curr. Sci.*, **36**(10): 273-274 (Also *Int. Indian ocean Exp. News lett.*, **4** (4): 25-26)

Locality of collection and description of 2.7 to 5.3 mm. larval stages probably belonging to *Rastrelliger kanagurta* with figures.

PETER, K.J. 1967b. Preliminary reports on the density of fish eggs and larvae of the Indian Ocean (Abstract). *Int. Indian ocean Exp. News lett.*, **4**(4): 26.

Abundance of eggs and larvae in relation to time, space and seasons.

PILLAI, S.R. 1964. Maturation and spawning of the hilsa, *Hilsa ilisha* (Hamilton) of the Saurashtra coast. *Proc. nat. Inst. Sci. India*, **30B** (1): 8-14.

Maturity stages, maturation and spawning.

PILLAI, S.R. and K.V. RAO 1963. Observations on the biology and fishery of the hilsa, *Hilsa ilisha* (Hamilton) of river Godavari. *Proc. Indo-pac. Fish. Counc.* 10th sess., Sect. III: 37-61.

Food of young, fecundity, maturation, spawning, maturity stages, ova diameter frequencies and sex-ratio.

PILLAI, S.R., K.V. RAO and P.K. MATHUR 1963. Preliminary report on the tagging of the hilsa, *Hilsa ilisha* (Hamilton). *Ibid.*, 10th sess., Sect. II: 28-36.

Tagging studies throwing light on spawning movements.

PILLAI, S.R. and H. ROSA Jr. 1963. Synopsis of biological data on hilsa, *Hilsa ilisha* (Hamilton) 1822. *Fish. Biol. Synops.*, F.A.O., Rome, No.25

Synopsis of information on sexes, maturity, mating, fertilisation, fecundity, spawning seasons, number of spawnings per year and frequency, spawning time, induction of spawning, artificial fertilization, spawning grounds, egg, embryonic and larval development including advanced postlarvae and rates of development.

PILLAI, T.V.R. 1947. Possibilities of mullet culture in India. *Indian. Fmg.*, **8**(11): 544-548.

Stocking and culture of the fry of *Mugil seheli*, *M. vaigiensis*, *M. troscheli*, *M. tade* and *M. persia*.

PILLAI, T.V.R. 1948a. A mullet farm in Cochin State. *Ibid.*, **9**(3):99-103.

Mullet fry and maturity of *Mugil cephalus*.

PILLAI, T.V.R. 1948b. Marine fisheries of Kodinar in Kathiawar. *J. Bombay nat. Hist. Soc.*, **48**(1): 47-61.

Reference to young ones of *Harpodon*.

PILLAI, T.V.R. 1949. On the culture of grey mullets in association with commercial carps in freshwater tanks in Bengal. *Ibid.*, **48**(3): 601-604.

Culture of young stages of mullets.

PILLAI, T.V.R. 1953a. On the occurrence of *Hilsa toli* (Cuv. & Val.) in the river Hooghly. *Curr. Sci.*, **22**(3):82-83.

Probable migration for spawning.

PILLAI, T.V.R. 1953 b. Structure and development of the scales of five species of grey mullets of Bengal. *Proc. nat. Inst. Sci. India*, **18**(6):413-424.

Development of the scale characters of *Mugil*.

PILLAI, T.V.R. 1954. The biology of the grey mullet, *Mugil tade* (Forsk.) with notes on its fishery in Bengal. *Ibid.*, **20**(2): 187-217.

Sex-ratio, fecundity, maturation, spawning season, frequency of spawning grounds and larval stages.

PILLAI, T.V.R. 1957. The biology and fisheries of the hilsa *Hilsa ilisha* (Hamilton)- A review. Proc. Indo-Pac. Fish. Counc. 6th sess., Sect. II. 211-219.

Fecundity, maturation, spawning, sex-ratio and sexual dimorphism.

PILLAI, T.V.R. 1958. Biology of the hilsa *Hilsa ilisha* (Hamilton) of the river Hooghly. *Indian J. Fish.*, **5**(2):201-257.

Fecundity, maturity, maturation, size at first at first maturity, sexual dimorphism, sex-ratio and spawning grounds in the river.

PILLAI, T.V.R. and A.N. GHOSH 1958. A note on the hilsa fisheries of Assam. *J. Bombay nat. Hist. Soc.*, **55**(1): 174-177.

Maturing and mature fish and breeding locality.

PILLAI, T.V.R. and K.K SAROJINI 1950. On the larval development of the Indian transparent goby, *Gobiopterus chuno* (Hamilton) with observations on its bionomics. Proc. 36th Indian Sci. Congr., Allahabad, Pt.3 Abstracts: 163).

Occurrence of the fry of *Mugil* spp., *Polynemus* sp., young ones of *Stromateus cinereus*, *S. sinensis*, *parastromateus niger*; fry of *Labeo boggut* and its breeding; young ones of *Hilsa ilisha* and fry of pomfret.

PRABHU, M.S. 1950. On the breeding habits of the ribbonfish, *Trichiurus haumela* (Forsk.). *Curr. Sci.*, **19**(7): 213-214.

Size at first maturity spawning periodicity and probable spawning grounds.

PRABHU, M.S. 1953. Preliminary observations on the biology of *Chirocentrus dorab* Forsk. *Ibid.*, **22**: 309-310.

Maturity, spawning periodicity and fecundity.

PRABHU, M.S. 1954a. The perch-fishery by special traps in the area around Mandapam in the Gulf Mannar and Palk Bay. *Indian J. Fish.*, **1**(1&2): 94-129.

Occurrence of mature and spent specimens of *Psammoperca waigiensis*, *Pelates quadrilineatus* etc. in the trap catches.

PRABHU, M.S. 1954b. Ovary as an indicator of spawning period in some fishes of the Madras Coast. Proc 41st Indian Sci. Congr. (Hyderabad), Pt.3 Abstracts: 184

Maturity stages and spawning periods in *Therapon jarbua*, *T. puta*, *Macrones vittatus*, *Chirocentrus dorab*, *Pelates quadrilineatus*, *Cypselurus oligolepis*, *Psammoperca waigiensis*, *Caranx leptolepis* and *Stolephorus indicus*.

PRABHU, M.S. 1955. Some aspects of the biology of the ribbon fish *Trichiurus haumela* (Forsk.). *Indian J. Fish.*, **2**(1):132-163.

Maturity stages, minimum size at first maturity, spawning duration and occurrence of young ones.

PRABHU, M.S. 1956. Maturation of intra-ovarian eggs and spawning periodicities in some fishes. *Ibid*; **3**(1): 59-90.

Spawning periods and their duration and spawning in *Therapon jarbua*, *Macrones vittatus*, *Chirocentrus dorab*, *Pelates quadrilineatus*, *Cypsolurus oligolepis*, *Psammoperca waigiensis*, *Therapon puta*, *Caranx leptolepis* and *Stolephorus indicus*.

PRABHU, M.S. 1967. The oil sardine. *Cent. Mar. Fish. Res. Inst. 20th Anniv. Souv.*: 41-43.

Information on maturity and spawning of *Sardinella longiceps*.

PRABHU, M.S. and M.H. DHULKHED 1967. On the occurrence of small sized oil sardine, *Sardinella longiceps*. Val. *Curr. Sci.*, **36**(15): 410-411.

Relation between spawning season and the brood to which the 0-year class belongs.

PRADHAN, L.B. 1956. Mackerel fishery of Karwar. *Indian J. Fish.*, **3**(1):141-182.

Maturity, spawning season, spawning, minimum size at maturity.

PRADHAN, L.B. and K. VIRABHADRA RAO 1958. The mackerel. *Fish. West coast of India* (Cent. Mar. Fish. Res. Stat.): 38-44.

Spawning season and frequency of spawning in *Rastrelliger kanagurta*.

PRADHAN, M.J. 1965. Observations on the maturity and spawning of *Psettodes erumei* (Schneider). *Indian J. Fish.*, 1962, **9**(2):580-589.

Maturity conditions, spawning season, fecundity, size at first maturity and sex-ratio.

PRASAD, R.R. 1948. Preliminary observations on the nidamental glands of some elasmobranch fishes of the Madras coast. *Proc. 29th Indian Sci. Congr.* (Baroda), Pt. 3 *Abstracts*: 157.

Nidamental glands in relation to ova-viviparity and viviparity of *Rhinobatus granulatus* and *Scoliodon palasorrah* as well as *S. sorrakowah* respectively.

PRASAD, R.R. 1946. A study of the succession of teeth in Elasmobranchs. *J. Madras Univ.*, **16B**(1):25-36.

Arrangement of teeth in the embryos of *Hemigaleus balfouri*, *Chiloscyllium griseum*, *Rhinobatus granulatus*, *Trigon uarnak* and *Narcine brunnea*.

PRASAD, R.R. 1951. Observations on the egg cases of some ova-viviparous and viviparous elasmobranchs, with a note on the formation of the elasmobranch egg-case. *J. Bombay nat. Hist. Soc.*, **49**(4): 755-762.

Egg cases of *Rhinobatus granulatus*, *Rhynchobatus djiddensis*, *Pristis cuspidatus*, *Galeocerdo tigrinus*, *Carcharinus dussumieri*, *Hemigaleus balfouri*, *Scoliodon palasorrah* and *S. sorrakowah* and the probable mode of their formation

PRASHAD, B. 1920. Notes from the Bengal fisheries laboratory, No. 7- On some Indian Torpedinidae from the Orissa Coast. *Rec. Indian Mus.*, **19**(3): 97-105.

Gravid uterus and embryos of *Narcine indica* with figures.

PRASHAD, B., S.L. HORA and K.K. NAIR 1940. Observations on the seaward migration of the so-called Indian shad, *Hilsa ilisha* (Ham.). *Ibid.*, **42**(4): 529-552.

Migration probably related to spawning purposes.

PRASHAD, B. and D.D. MOOKERJEE 1930. On the fishes of the Manchar Lake (Sind). *J. Bombay nat. Hist. Soc.*, **34**(1): 164-169.

Difference between young and older specimens of *Aoria vittatus*.

PUCKLE, M. 1868. *Freshwater fish in and about Bangalore*, Bangalore.

Breeding of *Ophicephalus striatus*.

PUNWANI, D.M. 1952. Surface transport of the fingerlings of the Mirror carp, the Leather carp and the Scale carp from the Nilgiris to West Bengal. *Proc. 39th Indian Sci. Congr.*(Calcutta), Pt. 3 Abstracts: 326-327.

Transportation of the fingerlings of *Cyprinus carpio* var. *specularis*, var. *nudus* and var. *communis* and their relative suitability.

PURSER, G.L. 1943. Reproduction in *Lebistes reticulatus*. *Quart. J. Micr. Sci.*, London, **75**: 151-157.

Breeding habits and development.

QASIM, S.Z. 1966. Sex-ratio in fish populations as a function of sexual difference in growth rate. *Curr. Sci.*, **35**(6):140-142.

Difference in the growth rate of males and females of *Ophicephalus punctatus*, *Barbus stigma* and *Callichrous bimaculatus* in relation to sex-ratios and abrupt stop in the spawning of *Callionymus lyra*.

QASIM, S.Z. and V.S. BHATT 1964. Occurrence of growth zones on the opercular bones of the freshwater murrel, *Ophicephalus punctatus* Bloch. *Ibid.*, **33**(1): 19-20.

Reference to prolonged breeding season.

QASIM, S.Z. and A. QAYYUM 1962. Spawning frequencies and breeding seasons of some freshwater fishes with special reference to those occurring in the plains of northern India. *Indian J. Fish.*, 1961, **8**(1): 24-43 (Also *Proc. 48th Indian Sci. Congr.* Roorke, 1961, Pt.3 Abstracts: 431).

Maturity conditions, spawning frequencies and duration of spawning in *Cirrhina mrigala*, *Labeo rohita*, *L. calbasu*, *Barbus sarana*, *B. stigma*, *B. (Tor) putitora*, *Chela bacaila*, *Wallagonia attu*, *Eutropiichthys vacha*, *Callichrous pabda*, *Bagarius bagarius*, *Mystus vittatus*, *M. cavasius*, *Heteropneustes fossilis*, *Ophicephalus striatus*, *O. marulius*, *O. punctatus*, *Mugil corsula* and *Rhynchobdella aculeata* as well as index of spawning and breeding seasons in relation to rainfall and temperature.

QAYYUM, A. and S.Z. QASIM 1961. The fecundity of *Ophicephalus punctatus* Bloch, *Mystus vittatus* (Bloch) and *Callichrous pabda* (Ham.). *Proc. 48th Indian Sci Congr.* (Roorke), Pt. 3 Abstracts: 430-431.

Fecundity of ripe ovaries in main breeding months of *Ophicephalus punctatus*, *Mystus vittatus* and *Callichrous pabda*.

QAYYUM, A. and S.Z. QASIM 1964a. Studies on the biology of some freshwater fishes Part I. *Ophicephalus punctatus* Bloch. *J. Bombay nat. Hist. Soc.* 61(1):74-98.

Maturity stages, breeding, size at first maturity, sex-ratio, spawning cycle, occurrence of larvae, spawning periodicity and food of larvae.

QAYYUM, A. and S.Z. QASIM 1964b. Studies the biology of some freshwater fishes Part II. *Barbus stigma* (Cuv. & Val.). *Ibid.*, 61(2): 330-347.

Stages of maturity, size at first maturity, sex-ratio, spawning cycle, breeding and spawning periodicity.

QAYYUM, A. and S.Z. QASIM 1964c. Studies the biology of some freshwater fishes Part III. *Callichrous bimaculatus* (Bloch). *Ibid.*, 61(3): 627-650.

Breeding, stages of maturity, size at first maturity, sex-ratio, spawning cycle and spawning periodicity.

RABANAL, R.H 1951. Methods and problems of collecting eggs and fry for transportation. *Proc. Indo-Pac. Fish. Counc.*, 3rd meet., Sect. III:196-201.

Eggs and fry of *Chanos chanos*, *Cyprinus carpio*, *Mugil cephalus*, *Mugil* spp., *Scatophagus argus*, *Teuthis* spp., *Lates calcarifer* and *Epinephelus* spp.

RADHAKRISHNAN, N. 1954. Occurrence of growth rings on the otoliths of the Indian whiting, *Sillago sihama* (Forsk.) *Curr. Sci.*, 23(6):196-197.

Formation of rings probably owing to maturation.

RADHAKRISHNAN, N. 1957. A contribution to the biology of Indian sand whiting - *Sillago sihama* (Forsk.). *Indian J. Fish.*, 4(2): 254-283.

Maturation, spawning season, sex-ratio, fecundity and spawning area.

RADHAKRISHNAN, N. 1961. *Studies on some aspects of biology of a few indian marine food fishes*. Ph.D, Thesis, Aligarh Muslim University.

Maturity stages, sex-ratio, spawning periodicity and spawning season of *Opisthopterus tardoore*; fecundity, maturation, spawning and ova diameters of *Sardinella albella*; and spawning season, grounds, maturity stages, sex-ratio and larvae of *Sillago sihama*.

RADHAKRISHNAN, N. 1965. Observations of the maturity and spawning of Indian mackerel, *Rastrelliger kanagurta* (Cuvier) at Karwar. *Indian J. Fish.*, 9A(2): 512-524.

Maturity conditions, size at first maturity, ova diameter frequency, shedding of ova and intra-ovarian ova.

RADHAKRISHNAN, N. 1967a. Notes on the maturity and spawning of *Opisthopterus tardoore* (Cuvier). *Ibid.*, 1963, 10A(1): 102-106 (Also *Adv. Abstr. Contr. Fish. Aquat. Sci. India*, 1(1): 5).

Minimum size at maturity, sex-ratio, spawning periodicity ova diameter frequencies and spawning season.

RADHAKRISHNAN, N. 1967b. Notes on some aspects on the biology of the fringe scale sardine, *Sardinella fimbriata* (Cuvier & Valenciennes). *Ibid.*, 1964, **11A**(1): 127-134. (Also *Adv. Abstr. Contr. Fish. Aquat. Sci. India*, **1**(4): 8).

Maturation and spawning.

RADHAKRISHNAN, N. 1967c. Age and rate of growth of the Indian mackerel, *Rastrelliger kanagurta* (Cuvier) with notes on its fishery at Karwar. *Ibid.*, 1964, **11A**(1): 187-216. (Also *Adv. Abstr. Contr. Fish. Aquat. Sci. India*, **1**(4): 14).

Brood of a current year spawning and growth in the initial stages of life.

RADHAKRISHNAN, N. 1968. Oil sardine investigations at Karwar. *Adv. Abstr. Contr. Fish. Aquat. Sci. India*, **2**(2): 4-5 (Also *Indian J. Fish.*, **12**)

Duration of spawning, minimum size at maturity and number of spawning during the life time of *Sardinella longiceps*.

RAHIMULLAH, M. 1943. Fishes of Ghanpoor Anicut. *Proc. 30th Indian Sci. Congr.*, (Calcutta), Pt. 3 Abstracts : 62.

Distribution of fry; breeding areas.

RAHIMULLAH, M. 1944. Colour changes in the developing stages of *Mystacoleucus ogilbii* (Sykes). *Proc. Indian Acad. Sci.*, **24**(3): 80-83 (Also *Proc. 31st Indian Sci. Congr.*, Delhi, Pt. 3 Abstracts: 108.

Colouration in the young stages.

RAHIMULLAH, M. 1945. A note on the fishes of Nahr-e-Ambari, Aurangabad (Hyderabad-Deccan). *Proc. 32nd Indian Sci. Congr.*, (Nagpur), Pt. 3 Abstracts: 111.

Occurrence of fish eggs.

RAHIMULLAH, M. 1946a. Observations on the breeding habits of *Ophicephalus striatus* Bl. *Proc. 33rd Indian Sci. Congr.*, (Bangalore), Pt. 3 Abstracts: 129.

Breeding, number of fry in each bateh and rate of growth.

RAHIMULLAH, M. 1946b. Acclimatisation of exotic fish, *Etroplus suratensis* (Bloch), in the Hyderabad State. *Ibid.*, Pt. 3 Abstracts: 129.

Breeding in fresh water.

RAHIMULLAH, M. 1948. Fisheries of the Manjra river. *Proc. 35th Indian Sci. Congr.*, (Patna), Pt. 3 Abstracts : 201-202.

Breeding habits of carps and catfishes.

RAHIMULLAH, M., S. MAHMOOD and S.A. KABIR 1944. A note on the breeding habits of common eel, *Anguilla bengalensis* Gray and Hardw. *Proc. Indian Acad. Sci.*, **19B**(1): 16-18.

Young ones and probable breeding migration.

RAHMAN, M. 1946. A note on the fish fry trade in Bengal. *Bull. Directorate Fish.*, Calcutta.

Centres and methods of collection of spawn and transport.

RAI, U.S. 1948a. Kakhra Dhand in the Punjab as the probable breeding ground and nursery for the Thaila fish, *Catla catla* Hamilton. *Indian J. Vet. Sci.*, **18**.

Location of a probable breeding ground and nursery area.

RAI, U.S. 1948b. Effect of the weirs at the Canal head works on the distribution of *Catla catla* Ham. in the Punjab. *J. Bombay nat. Hist. Soc.*, **47**(3): 449-454.

Spawning season, breeding migration and the need for providing facilities for breeding.

RAJ, B. SUNDARA 1914. Note on *Trygon kuhlii* and note on the breeding of *Chiloscyllium griseum* Mull. And Henle. *Rec. Indian Mus.*, **10**(4): 317-319.

Notes on the newly born youngs of *T. kuhlii*, the period of gestation and description of the eggs of *C. griseum*.

RAJ, B. SUNDARA 1916. Notes on the freshwater fish of Madras. *Ibid.*, **12**(6): 249-294.

Breeding in *Elops indicus*, *Megalops cyprinoides*, *Barbus chrysopoma*, *B. ambhibius*, *B. dorsalis*, *B. sophore*, *Rasbora daniconius* fry of *Amblypharyngodon microlepis*, breeding in *Lepidocephalichthys thermalis*, *Saccobranchus fossilis*, *Arius falcarius*, *Aplocheilus melanostigma*, its eggs and fry, *Panchax parvus*, its eggs, *Doryrhamphus brachyurus*, eggs, larvae and breeding of *Ophicephalus striatus*, of *O. punctatus*, fry of *O. gachua*, breeding and young of *Anabas scandens*, *Osphronemus goramy* breeding in *Macropodus cupanus*, breeding eggs, and fry of *Etroplus maculatus*, *E. suratensis*, breeding in *Eleotris fusca*, *Gobius (Acentrogobius) neilli*, *Glossogobius giuris*, *Gobius (Oxyurichthys) striatus* and *Mastacembelus pancalus* are given with figure and descriptions of the eggs and larvae of *Panchax parvus*, *Ophicephalus punctatus*, *O. gachua*, *Etroplus maculatus*, *Glossogobius giuris* and *Gobius (Oxyurichthys) striatus* with figures.

RAJ, B. SUNDARA 1917. On the habits of Hilsa (*Clupea ilisha*) and their artificial propagation in the coleroon. *J. Asiatic Soc. Bengal (new ser.)*, No. 2.

Artificial propagation of *Hilsa ilisha* and liberation of fry from artificially fertilized eggs.

RAJ, B. SUNDARA 1925. Experiments and research. Administration report for 1923-1924. *Madras Fish. Bull.*, **19**: 25-27.

Breeding of Gourami, stocking the fry of *Etroplus suratensis* and mullets.

RAJ, B. SUNDARA 1930. Fish breeding. Administration report for 1928-1929. *Ibid.*, **24**: 25-26.

Breeding of *Hilsa*, gourami, mullets, *Catla*, tench and English carp.

RAJ, B. SUNDARA 1931. *Osphronemus gourami* Madras Fish. Dept. Leaflet, Madras

Reference to the bird-like nest made of water weeds by *Osphronemus goramy*.

RAJ, B. SUNDARA 1939. *Osphronemus gourami*. Madras Fish. Dept Service Bull. No. 3.

Breeding and nest building.

RAJ, B. SUNDARA 1942. Dams and fisheries, Mettur and its lessons for India, *Proc. Indian Acad. Sci.*, **14B**(4): 341-358.

Effect of dams on the breeding fishes.

RAJ, B. SUNDARA 1945. The decline of Mahseer fisheries of the Kumaon lakes and a possible remedy. *Proc. nat. Inst. Sci. India*, **3**: 341-345.

Breeding of *Barbus tor* in confined waters.

RAJ, B. SUNDARA 1950. Are scales an index to the age and growth of Hilsa? *Ibid.*, **17**: 1-16.

Reference to breeding migration.

RAJ, B. SUNDARA 1955. The problem of the apparent discontinuous distribution of *Harpodon nehereus* (Hamilton). *Proc. Indian Acad. Sci.*, 1954, **40B**(2): 58-68. (Also Proc. 40th Indian Sci. Congr. Pt. 4 *Late Abstracts*: 11-12.).

Probability of spawning migration.

RAJ, B. SUNDARA 1958. Sexual dimorphism in the carp *Barbus (Puntius) curmuca* (Hamilton). *Rec. Indian Mus.*, 1955, **53**(3&4): 377-378.

Reference of pearl organs in the adult male and differences in the anal fin between males and females.

RAJ, B. SUNDARA 1962. The extraordinary breeding habits of the catfish *Mystus aor* (Hamilton) and *Mystus seenghala* (Sykes). *Proc. nat. Inst. Sci. India*, **28B**(3): 193-200 (Also Proc. 27th Indian Sci. Congr., 1940, Madras, Pt.3 Abstracts: 156).

Breeding season, breeding grounds and nursing of the young by the males.

RAJ, B. SUNDARA and R.P. CORNELIUS 1948. On the history and transport of the mirror carp in oxygen container from Ootacamund (Nilgiris) to Kumaon hills (United provinces). *Proc. 35th Indian Sci. Congr.*, (Patna), Pt.3 Abstracts: 205.

Transport of carp fingerlings.

RAJ, B. SUNDARA, S.T. MOSES, D.D. DASEN, W.K.L. SMITH, S.R. MAZUMDAR and N. AHMAD 1945. Notes on the factors influencing the spawning of Indian carps. *Proc. nat. Inst., Sci. India*. **11**(3): 324-327.

Breeding of *Barbus sarana*, *B. sophore*, *Barbus (Tor) putitora*, *Labeo* spp., *Barbus* spp., *Rasbora buchanani*, *Nuria danrica*, *Cirrhina mrigala*, *Catla catla*, *Labeo rohita* and *L. gonius*, spawning grounds and factors influencing their spawning.

RAJA, B.T.A. 1967. Some aspects of spawning biology of Indian oil sardine *Sardinella longiceps* Valenciennes. *Indian J. Fish.*, 1964, **11A**(1): 45-120 (Also *Adv. Abstr. Contr. Fish. Aquat. Sci. India*. **1**(4): 6).

Ova diameter frequencies, maturity stages, spawning season, size group of spawners and probable spawning areas.

RAJAN, S. 1968. The biology and fishery of *Pseudosciaena coibar* (Hamilton) from the Chilka lake. *Adv. Abstr. Contr. Fish. Aquat. Sci. India*, **2**(1): 9-10 (Also *Indian J. Fish.*, **11A**(2): 639-662.

Maturity and spawning season.

RAJAN, S.J. and K. MADHUSUDHANA RAO 1965. Some observations on induced breeding of major Indian carps in Andhra pradesh. *Indian J. Fish.*, 1962, **9A**(2): 627-646.

Induced spawning by pituitary hormone injections and raising three generations of carps.

RAJAN, S.J. and D.V. REDDI 1962. A note on the natural destruction of valuable fish seed. *J. Bombay nat. Hist. Soc.*, **59**(2): 668-670.

Breeding grounds of spawning, natural mortality of eggs, collection of eggs and saving them for cultural purposes.

RAJU, G. 1963. Spawning of the oceanic skipjack *Katawonus pelamis* (Linnaeus) in the Laccadive Sea. *Proc. World Sci. meet. Biol. tunas and rel. sp.* (F.A.O. Fish. Repts. No. 6, Vol.3): 1669-1682.

Spawning season and frequency, mature ova and spawning indication.

RAJU, G. 1964a. Fecundity of the oceanic skipjack *Katawonus pelamis* (Linnaeus) of Minicoy. *Proc. Symp. Scombr. Fishes.* Mandapam Camp (Mar. boil. Ass. India). 1962, Pt. II: 725-732.

Relation between, fecundity, fish length and weight.

RAJU, G. 1964b. Studies on the spawning of the oceanic skipjack *Katsuwonus pelamis* (Linnaeus) in Minicoy waters. *Ibid.*, 1962, Pt. II: 744-768.

Maturity, frequency of spawning, spawning season, sex-ratio and size at first maturity.

RAJU, N.S. and P.N. GANAPATI 1967. Distribution of fish eggs and larvae in Bay of Bengal. (Abstract) *Int. Indian ocean Exp. News lett.*, **4**(4):43.

Distribution of the eggs and larvae of *Sardinella* sp., *Bregmaceros atripinnis*, *Stolephrus heterolobus*, *Cynoglossus* sp., *Muraena* sp., *Saurida* sp. and *Myctophum* sp. and their seasons as well as localities of occurrence.

RAMAKRISHNA, K.V. and K.H. ALIKUNHI 1967. Growth and propagation of common carp (*Cyprinus carpio* L.) in India – V. Observations on the size of eggs, hatchlings and fry of parents of various size. *J. Bombay nat. Hist. Soc.*, **64**(2): 238-250 (Also *Proc. 49th Indian Sci. Congr.*, Cuttack, 1962, Pt.3 Abstracts : 392 and *Adv. Abstr. Contr. Fish. Aquat. Sci. India* **2**(1): 8).

Sizes of the eggs, hatchlings and fry of parents of various sizes and size of the hatchlings in different media.

RAMASWAMY, L.S. 1958. The hybrids of *Clarias* and *Heteropneustes*. *Proc. 45th Indian Sci. Congr.* (Madras), Pt. 3 Abstracts: 387.

Reciprocal crossing and peculiarities of the hybrids.

RAMASWAMI, L.S. and A.B. LAKSHMAN 1959. Action of Mammalian hormones on spawning of catfish and frog. *Proc. 46th Indian Sci. Congr.* (Delhi), Pt. 3 Abstracts: 378-379.

Experiments with hormone injections on gravid catfish.

RANADE, M.R. and H.G. KEVALRAMANI 1956. Experimental airshipment of carp fry in plastic bags. *Indian J. Fish.*, **3**(2):290-293.

Simple and cheap transport of carp fry by air.

RANGARAJAN, K. 1951. Some aspects of the development of *Aplocheilus melastigma*. *Proc. 38th Indian Sci. Congr.* (Bangalore), Pt.3 Abstracts: 231.

Development of the thymus gland and the effect of lithium chloride and magnesium chloride on the developing eggs.

RANGARAJAN, K. 1963. Eggs of *Oryzias melastigma* (McClelland) as material for experimental studies. *J. Zool. Soc. India*, 1962, **14**(1): 109-111 (Also *Proc. 45th Indian Sci. Congr.* Madras, 1958, Pt.3 Abstracts: 390-391).

Suitability of the eggs of *Oryzias melastigma* for experimental studies.

RANGARAJAN, K. and J. JACOB 1961. On the development of the eel-like fish, *Symbrachus bengalensis* (McClelland). *Ibid.*, 1960, **12**(2): 147-151.

Early development stages with figures.

RAO, C.N.R. 1919. Notes on the life history of two fishes, *Callichrous bimaculatus* Bloch and *Notopterus notopterus* (Pallas). *Proc. 6th Indian Sci. Congr.* (Bombay).

Life history of the two species.

RAO, H. SRNIVASA and S. L. HORA 1938. On the ecology, bionomics and systematics of the blennid fish of the genus *Andamia* Blyth. *Rec. Indian. Mus.*, **40**(4): 377-401.

Breeding season of *Andamia heteroptera* and embryonic stages with figures.

RAO, K.S.P. BHUSHANA 1963. The eggs and early development of *Caranx* sp. from Porto Novo Coast. *J. zool. Soc. India*, 1962, **14**(2):198-202.

Eggs and a few early larval stages, presumably of *Alectis indica* with figures.

RAO, K.V. NARAYANA 1964a. Observations on the bionomics of the Indian mackerel, *Rasrelliger kanagurta* (C.) caught in the Lawson's bay, near Waltair; Andra Coast. *Proc. Symp. Scombr. Fishes*, Mandapam Camp (Mar. biol. Ass. India), 1962, Pt. II: 574-585.

Maturity, spawning season and growth rate of the juveniles.

RAO, K.V. NARAYANA 1964b. An account of the ripe ovaries of some Indian tunas. *Ibid.*, Pt. II. 733-743.

Ripe ova of *Euthynnus affinis*, *Auxis thazard* and *Sarda orientalis*; their spawning season, maturity, spawning periodicity and fecundity.

RAO, K.V. NARAYANA 1965. Food of the Indian mackerel, *Rasrelliger kanagurta* (Cuvier) taken by drift-nets in the Arabian sea off Vizhingham, South Kerala. *Indian J. Fish.*, 1962, **9A**(2): 530-541.

Maturity, spawning, ripe and spent fish and probable spawning locality.

RAO, K.V. NARAYANA 1967. The flatfishes. *Cent. Mar. Fish. Res. Inst. 20th Anniv. Souv.*: 62-66.

Breeding, fecundity, eggs, larvae and metamorphosis of *Cynoglossus semifasciatus*.

RAO, K. VENKATASUBBA 1967. Some aspects of the biology of 'Ghol' *Pseudosciaena diacanthus* (Lacepede). *Adv. Abstr. Contr. Fish. Aquat. Sci. India*, **1**(1):15-16 (Also *Indian J. Fish.*, 10).

Spawning season and fecundity.

RAO, K. VIRABHADRA 1964. Distribution of the young stages of the mackerel, *Rastrelliger kanagurta* (Cuvier) in the Indian inshore waters. *Proc. Symp. Scombr. Fishes*, Mandapam Camp (Mar. biol. Ass. India), 1962, Pt. I: 469-482.

Distribution of juveniles, spawning periodicity, seasons, spawning grounds and feeding habits of juveniles.

RAO, K. VIRABHADRA and S. BASHEERUDDIN 1953. Occurrence of young mackerel, *Rastrelliger kanagurta* (Cuvier) off Madras coast. *Curr. Sci.*, **22**(6):182-183.

Spawning period and occurrence of young ones.

RAO, M. BABU 1965. Biological studies on the gizzard shad, *Andontostoma chacunda* Hamilton (Fam: Clupeidae). *J. Mar. biol. Ass. India*, **7**(1): 89-101.

Maturity, size at maturity and spawning period.

RAO, M. BABU and A. JOGLEKAR 1968. Comparative studies on *Setipinna godavariensis* Rao (Pisces: Engraulidae) from Godavari and Hooghly estuaries. *Adv. Abstr. Contr. Fish. Aquat. Sci. India*, **2**(2): 3-4 (Also *J. Mar. biol. Ass. India*, **9**(1)).

Ova diameter frequencies and spawning.

RAO, N.G.S. 1967. On the distribution of larvae, postlarvae and juveniles of fishes in the Mahanadi estuary. *Indian J. Fish.*, 1964, **11A**(1):407-422 (Also *Adv. Abstr. Contr. Fish. Aquat. Sci. India*, **1**(4): 2).

Breeding of *Hilsa ilisha* and *Eleutheronema tetradactylum*, factors influencing breeding, mullet fry collection grounds and distribution of the young stages of *Thrissoles spp.*, *T. mystax*, *T. kammalensis*, *T. purava* *Megalops cyprinoides*, *Coilia spp.*, *Lates calcarifer* and mullet species.

RAO, S. RANGA 1934. A statistical study of the growth in *Therapon jarbua* Day. *Proc. 21st Indian Sci. Congr. (Bombay)*, Pt. 3 *Abstracts*: 269.

Spawning season and migration of the first yearlings into the sea where they attain sexual maturity.

RAO, S. RANGA 1935. A study of the otoliths of *Psettodes erumei* (Bl. Schn.) *Proc. 22nd Indian Sci. Congr. (Calcutta)*. Pt. 3 *Abstracts*: 319.

Breeding season.

RAO, T. APPA 1967. Maturity and spawning habits of some sciaenids in offshore waters at Visakhapatnam. *Indian J. Fish.*, 1964, **11A**(1): 121-126 (Also *Adv. Abstr. Contr. Fish. Aquat. Sci. India*, **1**(4) 18-18).

Ova diameter frequencies and spawning in *Pseudosciaena aneus*, *P. bleekeri* and *Johnius carutta*.

RAO, V. RAMAMOohana, K.V. SEKHARAN and M.J. PRADHAN 1965. On the mackerel fishery of the Mangalore area during the period 1957-61. *Ibid.*, **9A** (2): 653-678.

Maturity studies and spawning period of *Rastrelliger kanagurta*.

REGAN, C.T. 1916. Larval and postlarval fishes. *British Mus. (Nat. Hist. J. Zool.*, **1**(4): 125-156.

Larvae of *Myctophum sp.*, *Diodon sp.*, *Synodus synodus*, *muraenid* and *ophichthyid leptocephali*, *Coryphaena sp.*, *Bothus ocellatus* etc. with figures.

REGE, M.S. and D.V. BAL 1959. A preliminary account of the fishery and biology of silver pomfret (*Pampus argenteus Euphrasen*). *Proc. 46th Indian Sci. Congr. (Delhi)*, Pt. 3 *Abstracts*: 403.

Maturity and spawning period.

RENGANATHAN, V. 1964. A preliminary note on the external gill in the hatchlings of *Mystus aor* (Ham.) from the spawning pits in Bhavanisagar reservoir. *Madras J. Fish.*, 1962, **1**: 39.

Spawning grounds, spawning months and presence of gills in the hatchlings.

RENGANATHAN, V. and M. DEVARAJ 1966. On the occurrence of a new species of *Ichthyophthirius* (Ciliata) in the fry stage murrel, *Ophicephalus marulius* (Ham.). *Ibid.*, **2**: 15-21.

Large scale mortality of the fry by the ciliate.

RENGANATHAN, V. and S.V. GANAPATI 1949. Collection, acclimatization and transport of the fry and fingerlings of the milk-fish, *Chanos chanos* (Forsk.). *Indian Fmg.*, **10**(9): 368-374.

Collection, experiments in acclimatization, mortality in transport of the fry and fingerlings.

RENGANATHAN, V. and N.V. RADHA 1966. Biology and fisheries of *Mystus (Osteobagarus) aor* (Sykes) in the Bhavanisagar reservoir. *Madras J. Fish.*, **2**: 1-15.

Maturation, fecundity, spawning, development, parental care and larval stages with figures.

RENGANATHAN, V., A. SREENIVASAN, K. UMMER and N.K. VASUDEVA 1967. Two interesting cases of spawning of major carps in confined cement tanks. *Curr. Sci.*, **36**(5): 129-131. (Also *Adv. Abstr. Contr. Fish. Aquat. Sci. India*, **1**(2): 4).

Induced breeding of rohu, mrigal, catla, kalbasu, etc. and their influence on uninjected females to spawn.

RICE, H.J. 1943. Strange breeding habits of the Cichlid fish (*Etilopius maculatus*). *J. Bombay nat. Hist. Soc.* **44**: 304-306.

Courtship, mating, egg laying, fertilization, guarding of eggs by male, transfer of eggs from place to place, hatching and protection of the young.

RIVERO, L.H. and M.J. FERNANDEZ 1954. Estados larvales y juveniles del bonito. *Cent. de invest. pesqueras* (Cuba), contribution No. 9.

Larvae from 5 mm. to 24 mm. and juveniles from 27mm. to 113 mm. of *Katsuwonus pelamis*.

RONQUILLO, I. A. 1960. Synopsis of biological data on Philippine sardines. *Proc. World Sci. meet. biol. sardines and rel. species* (FAO sp. syn.), Vol.2 :453-495.

Maturity, fecundity, spawning grounds and eggs of *Sardinella fimbriata* and spawning grounds of *S. sirm.*

ROXAS, H.A. and A.E. UMALI 1937. Freshwater farming in the Philippines. *Philipp. J. Sci.*, **63**: 433-468.

Nest building by *Osphronemus goramy*.

ROY, J.C. and R.K. DAS 1962. On the breeding of major Indian carps by the injection of pituitary gland hormone. *Proc. 49th Indian Sci. Congr.* (Cuttack). Pt. 4 *Late Abstracts*: 15.

Experiments on induced breeding.

RUSSEL, P.F. and V.P. JACOB 1939. Some experiments in the use of fish to control *Anopheles* breeding in casuarina pits. *J. Mal. Inst. India*, **2**(3):273-391.

Breeding of *Aplocheilus blockii* in small pits.

SADASIVAN, V. 1953. Preliminary observations on the biology on some clupeids occurring in the Andaman waters. *Proc. 40th Indian Sci. Congr.* (Lucknow). Pt. 3 *Late Abstracts*: 209.

Reference to breeding habits of *Clupea (H.) bulan*, *Pellona ditchoa*, *Engraulis baelama* and *Stolephorus heterolobus*.

SAHA, K.C., D.N. CHAKRABORTY, B.K. DE and S.CHAKRABORTY Jr. 1967. Studies on the salinity tolerance of fry of Indian major carps in captivity. *Indian J. Fish.*, 1964, **11A**(1): 247-248 (Also *Adv. Abstr. Contr. Fish. Aquat. Sci. India*, **1**(4): 25-26).

Salinity tolerance and rate of growth of fry in different strengths.

SAHA, K.C., D.N. CHAKRABORTY and A. MAHALANABISH 1968. Studies on the growth rate of fry of Indian major carps in high salinity. *Adv. Abstr. Contr. Fish. Aquat. Sci. India*, **2**(2):10-11 (Also *Indian J. Fish.*, , **12A**).

Growth rates of the fry of *Catla catla*, *Labeo rohita* and *Cirrhina mrigala* at different salinity ranges.

SAHA, K.C. and N.K. CHOWDHURY 1956. Studies on the mortality in spawn and fry of Indian major carps during transport. Part I. *Indian J. Fish.*, **3**(1): 119-126.

Survival of spawn and fry of carps under different media.

SAHA, K.C. and P.C. SEN 1958. Studies on the mortality in spawn and fry of Indian major carps during transport. Part 4. *Ibid.*, **5** (2):362-374.

Mortality in different types of containers during transport.

SAHA, K.C, D.P. SEN, A.K. ROY CHOWDHURI and S.K.CHAKRAVARTY 1957. Studies on the factors influencing spawning of Indian major carps in bundh fisheries. *Ibid.*, **4**(2): 284-294.

Role of the nature of water, temperature and dissolved oxygen on spawning.

SAHA, K.C., D.P. SEN and P. MAZUMDAR 1956a. Studies on the mortality in spawn and fry of Indian major carps during transport. Part 2. *Ibid.*, **3**(1): 125-134.

Rates of oxygen consumption by the fry.

SAHA, K.C., D.P. SEN and P. MAZUMDAR 1956b. Studies on the mortality of spawn and fry of Indian major carps during transport. Part 3. *Ibid.*, **3**(1): 135-140.

Adverse effect of ammonia and CO₂ on spawn.

SAIGAL, B.N. 1967. Studies on the fishery and biology of the commercial cat-fishes of the Ganga River system, II. Maturity, spawning and food of *Mystus (Osteobagrus) aor* (Hamilton). *Ibid.*, 1964, **11A**(1): 1-44 (Also *Adv. Abstr. Contr. Fish. Aquat. Sci. India*, **1**(4): 9-10).

Seasonal gonadial changes, maturity stages, ova-diameter frequencies, spawning season, spawning periodicity, sex-ratio, size at first maturity and fecundity.

SAIGAL, B.N. and M.P. MOTWANI. 1962. Studies on the fishery and biology of the commercial cat-fishes of Ganga river system. I. Early life-history, bionomics and breeding of *Mystus (Osteobagrus) Seenghala* (Sykes). *Ibid.*, 1961, **8**(1):60-74.

Breeding eggs, embryonic stages and larval development.

SAMANT, N.C.S. 1966. Observations on the collection, acclimatisation and rearing of *Mugil cephalus* Linn. in confined brackishwaters. *Orissa fish. res. invest. Bull.* 1: 16-20.

Season and method of fry collection, acclimatisation and average growth in confined brackishwater.

SAMUEL, M. 1943. Studies on the corpus luteum in *Rhinobatus granulatus* Cuv. *Proc. Indian Acad. Sci.*, **18B**: 133-156.

The ripe ovum and formation of corpus luteum.

SAMUEL, M. 1945. The corpus luteum in *Chiloscyllium grisseum* (Mull & Henle). *Ibid.*, **22B**: 113-122.

Stages in the formation of the corpus luteum.

SANZO, L. 1922. Uova e larve di *Xiphias gladius* L. *R. Com. Talass. Ital.*, **79**: 1-17.

Eggs and early larval stages with figures.

SANZO, L. 1927. Uova e larve di *Echeneis naucrates*. *Mem. R. Com. Thalass. Ital.*, **133**: 1-5.

Eggs and early larval stages with figures.

SANZO, L. 1928. Uova e larve di *Remora remora*. *Ibid.*, **133**.

Eggs and early larval stages with figures.

SANZO, L. 1930a. Larvale di *Xiphias gladius* L. di. mm. 6,4. *R. Com. Talass. Ital.*, **170**: 1-8.

A 6.40 mm. larval stages with figures.

SANZO, L. 1930b. Uova e larve di *Mugil cephalus* Cuv. Ottenute per fecondazione artificiale (Nota preventiva). *R. Com. Talass. Ital., Mem.*, **179**.

Eggs and early larval stages with figures.

SANZO, L. 1936. Contributi alla conoscenza dello svi lупpo embrionario e post-embrionario nei Mugilidi 1. Uova e larve di *Mugil cephalus* Cuv. Ottenute per fecondazione artificiale II. Uova e di *Mugil chelo* Cuv. *Ibid.*, 230.

Eggs and larvae of *Mugil cephalus* and *Mugil chelo* with figures.

SARANGHDAR, P.N. 1943. Tiger-shark, *Galeocerdo tigrinus* (Muller and Henle). *J. Bombay nat. Hist. Soc.*, **44**: 102- 110.

Breeding habits, disposition of embryos in uterus, shell membranes and unfertilized eggs and embryos in two stages of development with figures.

SARANGHDAR, P.N. 1946. On the breeding of the tiger shark (*Galeocerdo tigrinus* (Muller and Henle). *Ibid.*, **46**(1): 192-193.

Parturition stage of the female; and young.

SARBAHI, G.K. 1964. Review of the inducing experiments of the major carps of Uttar Pradesh. In *Seminar on Inland fish. Development in Uttar Pradesh*, 28-29 Jan. 1964: 74-82.

Review of experiments on induced spawning.

SARKAR, H.L. and N.K. KAUSHIK 1959. Notes on the fecundity of *Labeo Rohita* (Ham.) and *Cirrhina mrigala* (Ham.) collected during winter months. *Sci. & Cult.*, **24**(11): 529-530.

Fecundity and ova diameters.

SAROJINI, K.K. 1957. Biology and fisheries of the grey mullets of Bengal, I. Biology of *Mugil parsia* Hamilton with notes on its fishery in Bengal. *Indian J. Fish.*, **4**(1): 160-207.

Maturation, spawning, size at first maturity, sex-ratio, fecundity and early larval stages.

SAROJINI, K.K. 1958a. Biology and fisheries of the grey mullets of Bengal II. Biology of *Mugil cunnesius* Valenciennes. *Ibid.*, **5**(1): 56-76.

Maturity, spawning and fecundity.

SAROJINI, K.K. 1958b. Observations on the occurrence, collection, acclimatization, transport and survival of mullet seed in West Bengal (India). (Abstract). *Proc. Indo-Pac. Fish. Counc.*, 7th sess., 1957, Sect. II & III: 46.

Identification of the fry of *Mugil corsula*, *M. parisa*, *M. cephalus* and *M. cunnesius*.

SAROJINI, K.K. and J.C. MALHOTRA 1952. The larval development of the so-called Indian salmon, *Eleutheronema tetradactylum* (Shaw). *J. zool. Soc. India*, **4**: 63-72

Larval stages from 6 mm. to 12 mm; development of the Pectoral rays, scales and changes in the air-bladder with figures.

SATHYANESAN, A.G. 1959. Maturity and spawning in *Cirrhina reba* (Hamilton) as determined by ova diameter measurements. *Indian J. Vet. Sci.*, **29**(2 &3): 137-145.

Breeding season.

SATHYANESAN, A.G. 1961. The seasonal cycle in the gonads of *Barbus stigma* (Cuv. & Val.). *Proc. 48th Indian Sci. Congr.* (Roorkee), Pt. 3 Abstracts: 410.

Maturity and spawning as well as influence of monsoon on breeding.

SATHYANESAN, A.G. 1962. The ovarian cycle in the catfish *Mystus seenghala* (Sykes). *Proc. nat. Inst. Sci. India*, **28B**(6): 497-506.

Maturity stages, partially and fully spent conditions and spawning.

SATHYANESAN, A.G. 1964. The ova-diameter measurements in relation to spawning of *Barbus stigma* (Cuv. & Val.) in the river Ganges at Banares. *Indian J. Fish.*, 1962, **9A** (1): 197-204.

Maturity stages, ova-diameter frequencies and spawning period.

SCHAEFFER, B. and J.C. MARR 1948a. Spawning of yellow fin tuna (*Neothunnus macropterus*) and skipjack (*Katsuwonus pelamis*) in the Pacific Ocean off Central America, with descriptions of juveniles. *U.S. Dept. inst. Fish and Wildl. Serv. Fish. Bull. No.44*, Vol. 51 : 187-196.

Early juveniles of *N. Macropterus* from 14 mm. to 43 mm. and of *K. pelamis* with figures.

SCHAFFER, B. and J.C. MARR 1948b. Juvenile *Euthynnus lineatus* and *Auxis thazard* from the Pacific Ocean off Central America. *Pac. Sci.*, **2**(4):262-271.

Juveniles of *A. thazard* from 21 mm. to 68 mm. with figures.

SCHUSTER, W.H. 1949a. On the food of the *Bandeng* (*Chanos chanos* Forsk.) in Indonesian ponds. *Med. Alg. Proefst. Landb. Buitenzorg*, No. 86: 1-20 (Also in Dutch in *Landbouw, Buitenzorg*, 21 : 237-288).

Young stages.

SCHUSTER, W.H. 1949b. De visculture in de Kustvivijsers op Java (Fish culture in salt water ponds of Java). *Pub. No. 2 Onderaf Binnerviss*; Dept. van Landbouw en Visserji, Bandung.

Spawning frequency, spawning grounds, pelagic eggs, larvae, and collection, transport and culture of the fry of *Chanos chanos*.

SCHUSTER, W.H. 1952. Fish culture in brackish-water ponds of Java. *Indo-Pac. Fish. Counc. Spl. Publ.* No. 1.

Eggs, and larvae of *Chanos chanos*, collection of fry, transportation, nursery ponds and cultural methods.

SEHGAL, K.L. 1961. On some larval and juvenile stages of three species of fish from the river Jamuna at Allahabad. *J. Bombay nat. Hist. Soc.*, **58**(1):231-240.

Larval stages of *Barilius varga*, *Oxygaster gora* and *Liza cascasia* and development of scales in *L. cascasia*.

SEHGAL, K.L. and S.B. SINGH 1962. Observations on the biology of *Oxygaster gora* (Hamilton) at Allahabad, Uttar Pradesh. *Proc. 49th Indian Sci. Congr. (Cuttack)*, Pt. 3 *Abstracts*: 392.

Maturity, spawning, postlarvae and juveniles.

SEKHARAN, K.V. 1949. Feeding and maturity in relation to fats in the muscles of the rainbow sardine, *Dussumieria acuta* (Cuv. & Val.). *J. Madras Univ.*, **18B**: 38-48.

Stages of maturity and breeding cycle.

SEKHARAN, K.V. 1950. Fat contents of the muscles of the Indian herring *Pellona hoevernii* (Bleeker). *Ibid.*, **20B**: 49-65.

Maturity stages of *Pellona hoevernii*

SEKHARAN, K.V. 1955. Observations on the *Choodai* fishery of Mandapam area. *Indian J. Fish.*, **2**(1): 113-131.

Spawning season, size at first maturity and growth of young of *Sardinella albella* and *S. gibbosa*.

SEKHARAN, K.V. 1956. Variations in the fat content of the muscles of the ribbon fish, *Trichiurus haumela* (Forsk.) *J. Madras Univ.*, **25B**(3): 301-322.

Maturation and stages of maturity.

SEKHARAN, K.V. 1958. On the South Kanara coastal fishery for mackerel, *Rastrelliger kanagurta* (Cuvier) together with notes on the biology of the fish. *Indian J. Fish.*, **5**(1): 1-31.

Maturity and spawning season.

- SEKHARAN, K.V. 1965. On the mackerel fishery of the Mandapam area. *Ibid.*, 1962, **9A**(2):714-727.
Maturity.
- SEKHARAN, K.V. 1967. The "choodai". *Cent. Mar. Fish. Inst. 20th Anniv. Souv.*: 67-69.
Reference to breeding of *Sardinella albella* and *S. jussieu*.
- SELLA, M. 1911. Contributo alla conoscenza della riproduzione e dello sviluppo del pesce-spada (*Xiphias gladius* L.). *R. Com. Talass. Ital.*, **2**:1-15.
Eggs and early larval stages with figures.
- SENGUPTA, S.K. 1966. Temperature preference of fry of major Indian carps. *Proc. 2nd All India Congr. Zool.* (Varanasi), 1962, Pt. 2 : 452-453.
Temperature preference of the fry of *Labeo rohita*, *Cirrhina mrigala*, *C. reba* and *Catla catla*.
- SESHAPPA, G. 1958. Occurrence of growth checks in the scales of the Indian mackerel, *Rastrelliger canagurta* (Cuvier). *Curr. Sci.*, **27**(7): 262-263.
Suggestion of the presence of spawning marks in the scales.
- SESHAPPA, G. and B.S. BHIMACHAR 1951. Age determination studies in fishes by means of scales with special reference to the Malabar sole. *Curr. Sci.*, **20**:260-262.
Cynoglossus semifasciatus, spawning season; offspring.
- SESHAPPA, G. and B.S. BHIMACHAR 1954. Studies on the age and growth of the Malabar sole, *Cynoglossus semifasciatus* Day. *Indian J. Fish.*, **1**(1&2):145-162.
Spawning season and its relation to recruitment.
- SESHAPPA, G. and B.S. BHIMACHAR 1955. Studies on the fishery and biology of the Malabar sole, *Cynoglossus semifasciatus* Day. *Ibid.*, **2**(1):180-230.
Sex-ratio, maturity, spawning, ripe ovarian egg, the suspected eggs from plankton, larval stages, metamorphosis and a case of abnormal metamorphosis.
- SETNA, S.B. and C.V. KULKARNI 1947. The freshwater fish and fisheries of Ahmedabad. *J. Bombay nat. Hist. Soc.*, **46**(2): 126-132.
The breeding grounds of the carps such as Catla, Rohu, Mrigal and Calbasu.
- SETNA, S.B. and P.N. SARANGHDAR 1949a. Observations on the development of *Chilosyllium griseum* M. & H., *Pristis cuspidatus* Lath. and *Rhynchobatus djiddensis* (Forsk.). *Rec. Indian Mus.*, 1948, **46**(1-4): 1-23.
Developmental stages with figures.
- SETNA, S.B. and P.N. SARANGHDAR 1949b. Description, bionomics and development of *Scoliodon sorrokowah* (Cuvier). *Ibid.*, **46**(1-4):25-53.
Developmental stages with figures.
- SETNA, S.B. and P.N. SARANGHDAR 1950a. Breeding habits of Bombay Elasmobranchs. *Ibid.*, 1949, **47**(1):107-133.
Breeding of *Scoliodon palasorrah*, *S. walbeehmi*, *Hyporion macloti*, *Carcharinus limbatus*, *C. melanopterus*, *C. sorrah*, *C. menissorrah*, *C. temmincki*, *Galeocerdo tigrinus*, *Hemigaleus balfouri*, *Sphyrna blochii*, *Rhynchobatus djiddensis*, *Pristis cuspidatus*, *Dasyatis uarnak* var. *variegatus*, *D. bleekeri*, *D. walga*, *D. zugei*, *Gymnura poecilura*, *Rhinoptera javanica* and *Mobula diabolus* with figures.

SETNA, S.B. and P.N. SARANGHDAR 1950b. Studies on the development of some Bombay elasmobranchs. *Ibid.*, 1949, **47**: 203-216.

Developmental stages of *Scoliodon acutus*, *Carcharinus temmincki*, *Hemigaleus balfouri*, *Hemipristis elongatus*, *Myrimillo mustelus*, *Sphyrna blochii* and *Mobula diabolus* with figures.

SEWELL, R.B.S. 1912. Notes on the deep sea fish obtained by the R.I.M.S.S. "Investigator" during the survey season 1910-11. *Ibid.*, **7**(1): 2-6.

Eggs capsule and embryo of *Rhinochimaera*.

SHIMADA, B.M. 1951. Juvenile oceanic skipjack from the Phoenix islands. *U.S. Dept. int. Fish and Wildl. Serv. Fish. Bull.* No. 64, Vol. 52: 29-131.

Juveniles of *Katsuwonus pelamis* ranging from 20 mm. to 48mm. total length with figures. Records of juveniles from the Pacific tabulated.

SILAS, E.G. 1953. Notes on fishes from Mahabaleshwar and Wai (Satara District, Bombay State). *J. Bombay nat. Hist. Soc.*, **51**(3): 579-589.

Five postlarval stages *Puntius sahyadriensis* from 6 mm. to 13mm.

SILAS, E.G. 1963a. Synopsis of biological data on double-lined mackerel *Grammatorcynus bicarinatus* (Quoy and Gaimard) (Indo-Pacific). *Proc. World Sci. meet. Biol. tunas and rel. sp.* (FAO Fish. Repts., No.6, Vol. 2): 811-833.

Distribution of eggs, larvae and juveniles; maturity, fertilization, fecundity, spawning season and spawning grounds and larval stages with figures.

SILAS, E.G. 1963b. Synopsis of biological data on oriental bonito *Sarda orientalis* (Temminck and Schlegel) 1842 (Indian Ocean). *Ibid.*, (FAO Fish. Repts., No. 6 Vol. 2): 834-861.

Eggs, larvae and juveniles, their distribution, maturity, fecundity, spawning seasons and frequency, spawning grounds, ripe ovum and larval stages.

SILAS, E.G. 1963c. Synopsis of biological data on dogtooth tuna *Gymnosarda unicolor* (Ruppell) 1838 (Indo-Pacific). *Ibid.*, (FAO Fish. Repts., No. 6 Vol. 2): 877-896.

Maturity, spawning season and spawning.

SILAS, E.G. 1964. Aspects of the taxonomy and biology of the oriental bonito *Sarda orientalis* (Temminck and Schlegel). *Proc. Symp. Scombr. Fishes*, Mandapam camp (Mar. biol. Ass. India), 1962, Pt. I: 283-308.

Maturity, fecundity, structure of the egg, spawning season, spawning frequency and spawning grounds.

SILAS, E.G. 1964. *Cybium croockewitti* Bleeker (1950) and *C. koreanum* Kishinouye (1915) considered synonyms of *Scomberomorus guttatus* (Bloch and Schneider) with a redescription and annotated bibliography of *S. guttatus*. *Ibid.*, Pt. I: 309-342.

Breeding and development.

SIVAPRAKASAM, T.E. 1965. Observations on the maturation and spawning of the brown pomfret. *Parastromateus niger* (Bloch) in Saurashtra waters. *J. Bombay nat. Hist. Soc.*, **62**(2): 245-253.

Sivaprakasam, 1965 (Contd.)

Maturity stages, ova diameter frequencies, maturation, spawning season sex-ratio, size at first maturity and spawning grounds.

SMEDLEY, N. 1962a. A stage in the development of the tiger shark, *Stegostoma tigrinum*, *J. Malay Br. R. Asiatic Soc.*, Singapore, **4**(1): 164.

Embryonic stage.

SMEDLEY, N. 1962b. On the development of dogfish. *Chiloscyllium indicum* Gml. *Ibid.*, **4**(1): 164-166.

Early development.

SMITH, H.M. 1945. The freshwater fishes of Siam or Thailand. *U.S. Nat. Mus. Bull.*, Washington, **188**.

Nesting habits, eggs, incubation, newly hatched larva and a few older stages of *Ophicephalus striatus* and spawning ground and young ones of *Lates calcarifer*.

SMITH, J.L.B. 1949. *The sea fishes of Southern Africa*, Central News Agency Ltd., South Africa.

Eggs case and juvenile of *Stegostoma tigrinum*, birth of the young of *Aetobatus narinari*, young ones of *Apolectus niger*, *Naucrates ductor*, *Drepane punctata*, *Pomadasyss hasta*, *Scomberomorus commerson*, *Xiphias gladius*, *Dactyloptena* etc. with figures

SMITH, L.W.K. 1944. A note on the breeding habit of Katli, *Barbus (Lissochilus) hexagonolepsis* McClelland. *J. Bengal nat. Hist. Soc.*, **19**: 89-90.

Breeding habits.

SOERJODINOTO, R. 1960. Synopsis of biological data on lemuru *Clupea (Harengula) longiceps* (C.V.). *Proc. World. Sci. meet. biol. sardines and related species* (FAO sp. syn.), Vol. 2: 313-328.

Spawning season and sex-ratio in Indonesian waters.

SONI, D.D. 1959. Early development of the chondrocranium in 4.5. mm embryo of *Garra lamta* (Ham. Buch.). *Proc. 46th Indian Congr.* (Delhi), Pt. 3 *Abstracts*: 404-405.

Development of the various regions of the chondrocranium.

SONI, D.D. 1961. Cranial nerves in 4.5 mm embryo of *Garra lamta* (Ham. Buch.). *Proc. 48th Indian Congr.* (Roorkee), Pt. 3 *Abstracts*: 391.

Embryonic optic, trigeminal, facial, auditory, glossopharyngeal and vagus nerves.

SORLEY, H.T. 1933. *The marine fisheries of the Bombay Presidency*. (Reprinted 1948), Poona.

Destruction of young fish and possible remedies.

SOUTHWELL, T. 1910. A descriptive note on the capture of a large saw-fish, *Pristis cuspidatus* containing intrauterine embryos. *Spol. Zeyl.*, **6**: 137-139.

Intrauterine embryos.

SOUTHWELL, T. 1915. Report on fishery investigations in Bengal and Bihar and Orissa. *Dept. Fish., Bengal, Bihar. and Orissa. Bull.* No. 5.

Breeding and eggs of *Labeo rohita*, *Catla catla*, *Cirrhina mrigala* and *L. calbasu*; breeding grounds, habits and eggs of *Hilsa ilisha*.

SOUTHWELL, T. 1917. *Annual report of the department of fisheries, Bengal and Bihar and Orissa for the year ending 30th June 1917.* Bengal Secretariat Book Dept., Calcutta.

Breeding of *Labeo rohita*, *L. calbasu*, *Catla catla*, *Cirrhina mrigala*, ripening of the eggs and breeding of *Hilsa ilisha* and reference to life history of *Notopterus chitala*.

SOUTHWELL, T. and B. PRASHAD 1919. Notes from the Bengal fisheries laboratory No. 6. Embryological and developmental studies of Indian fishes. *Rec. Indian Mus.*, **16**: 215-240.

Two types of leptocephali, the breeding habits, stages in the embryonic and early larval development of *Notopterus chitala*; the egg case of *Chiloscyllium griseum*, the intra-uterine embryos of *Scoliodon walbeehmi*, *S. sorrakowah*, *Pristis cuspidatus*, *Rhinobats columnae*, *Trygon kuhlii*, *T. uarnak*, *Hypolophus sephen*, *Pteroplatea poecilura*, *Aetomylaeus nichofii* and general remarks on yolk stalk, placental cord, appendicula, placenta and branchial filaments.

SPENCE, R. and S.H. PRATER 1932. Game fishes of Bombay, the Deccan and the neighbouring districts of Bombay Presidency. *J. Bombay nat. Hist. Soc.* **36**(1): 29-66.

Reference to breeding of *Barbus tor*, *Barbus ambassis* and *B. filamentous*.

SPURGEON, V.D. 1945. A note on the culture of *Osphronemus goramy* (Lacepede) in cement cisterns. *Curr. Sci.*, **14**(12): 331.

Parental care and fry.

SPURGEON, V.D. 1948a. On gourami nests in a hill spring and a rocky gundam. *Ibid.*, **17**(1): 28.

Parental care of the eggs in the nests and hatchlings of *Osphronemus goramy*.

SPURGEON, V.D. 1948b. Possibilities of culturing the Nagendrum fish. *Indian Fmg.*, **9**(3): 116.

Culture of the young ones of *Osteochilus thomasi*.

SRINIVASACHAR, H.R. 1956. Development of the skull in cat fishes Part I. Development of chondrocranium in *Silonia*, *Pagasius* and *Ailia* (Schilbeidae). *Proc. nat. Inst. Sci. India*, **22B**(6): 335-356 (Also *Proc. 43rd Indian Sci. Congr.*, Agra, Pt. 4 *Late Abstracts*: 34).

Some stages of development of the chondrocranium in *S. silondia*, *P. Pangasius* and *A. Coilia*.

SRINIVASACHAR, H.R. 1957a. Cranial osteology of catfishes Part II. Development of chondrocranium in two members, *Mystus* and *Rita* of the family Bagridae. *Morph. Jahrb.*, **98**(2): 244 (Also *Proc. 44th Indian Sci. Congr.*, Calcutta, Pt.3. *Abstracts*: 323).

Development of various regions of the chondrocranium.

SRINIVASACHAR, H.R. 1957b. Development of the skull in catfishes part III. The development of chondrocranium in *Heteropneustes fossilis* (Bloch) (Heteropneustidae) and *Clarius batrachus* (Linn.) (clariidae). (Abstract in *Proc. 46th Indian Sci. Congr., Delhi 1959, Pt.3. Abstracts: 405.*

Development of the chondrocranium.

SRINIVASACHAR, H.R. 1957c. Development of the skull in catfishes part IV. The development of chondrocranium in *Arius jella* Day (Ariidae) and *Plotosus canius* Ham. (Plotosidae) with an account of their inter-relationships. *Morph. Jahrb., 1957* (Also *Proc. 45th Indian Sci. Congr., Madras, Pt.3. Abstracts: 390.*

Development of the various regions of the chondrocranium.

SRINIVASACHAR, H.R. 1958. Development of the skull in catfishes part V. Development of skull in *Heteropneustes fossilis* (Bloch). *Proc. nat. Inst. Sci. India, 24B(4): 165-190.*

Five stages in the development of the skull, jaws and hyobranchial skeleton and their ossification.

SRINIVASAN, R. 1955a. Pisciculture. *Madras forest Coll. Magaz., 31(1): 21-32.*

Breeding and development of *Etroplus suratensis* and breeding of *Osphronemus goramy*.

SRINIVASAN, R. 1955b. Conservation of inland fisheries *Ibid., 31(2): 39-51.*

Migration to spawning grounds in *Hilsa ilisha*, *Catla catla*, *Labeo rohita* and *Cirrhina mrigala* and artificial propagation.

SRINIVASAN, R., P.I. CHACKO and A.P. VALSAN 1955. A preliminary note on the utility of Sodium Phosphate in the transport of fingerlings of Indian carps. *Indian J. Fish., 2(1): 77-83.*

Fingerlings.

SRIVASTAVA, C.B. and S.J. KARAMCHANDANI 1967. Observation on the need for conditioning of carp fry for transportation. *Adv. Abstr. Contr. Fish. Aquat. Sci. India, 1(4): 25* (Also *Indian J. Fish., 1964, 11A (2): 503-520*).

Results of experiments on conditioning of carp fry.

SRIVASTAVA, D.S. and K.S. KULSHRESTHA 1961. Development of the chondrocranium in *Labeo rohita* (Ham. Buch.). *Proc. 48th Indian Sci. Congr., (Roorkee) Pt.3. Abstracts: 386-387.*

Development of chondrocranium from 5 mm. to 14.5 mm.

SRIVASTAVA, D.S. and C.B. MENON 1961. Studies on the development of the chondrocranium in *Tilapia mossambica* (Peters). *Ibid., Pt. 3 Abstracts: 387.*

Development of the chondrocranium from 4 mm. to 15.4 mm.

STEWART, F.H. 1911. Notes on cyprinidae from Tibet and Chumbi valley with a description of a new species of *Gymnocypris*. *Rec. Indian Mus., 6(2): 73-92.*

Breeding season and postlarva of *Schizopygopsis stoliczkae* and fry and ripe specimen of *Gymnocypris waddellii*.

- STOYE, F.H. 1935. *Tropical fishes for the home, their care and propagation*, New York.
Breeding habits of *Barbus chola*, *B. conchoni*, *B. ticto*, *B. stoliczkanus*, *B. gellius*, *B. phutunio*, *B. vittatus*, *B. lateristriga*, *Esomus danricus*, *Rasbora daniconius*, *Brachydanio nigrofasciatus*, *B. albolineatus*, *Oryzias melastigma*, *Aplocheilus panchax*, *A. lineatus*, *A. blockii*, *Gambusia affinis holbrooki*, *Lebistes reticulatus*, *Osphronemus goramy* and *Ambassis lala*.
- STRASBURG, D.W. 1959. An instance of natural mass mortality of larval frigate mackerel in the Hawaiian islands. *J. du Conseil*, **24**(2): 253-263.
Reports the magnitude and cause of mortality of larvae of *Auxis thazard* and for *A. thynnoides*.
- STRASBURG, D.W. 1960. Estimates of larval tuna abundance in the Central Pacific. *U.S. Dept. int. Fish and Wildl. Serv. Fish. Bull.* No. 167, Vol. 60: 228-255.
Abundance of the larvae of *Neothunnus macropterus*, *Germo alalunga* and *Katsuwonus pelamis*.
- STRASBURG, D.W. 1964. Postlarval scombroid fishes of the genera *Acanthocybium*, *Nealotus* and *Diplospinus* from the Central Pacific ocean. *Pac. Sci.*, **18**(2): 174-185.
Postlarval *Acanthocybium solandri* (23.7 mm.) with figure.
- SUBRAHMANYAM, C.B. 1964. Eggs and early development of a carangid from Madras. *J. Mar. biol. Ass. India*, **6**(1): 142-146.
Eggs and larvae upto 5 days, provisionally referred to *Caranx hippos*.
- SUBRAHMANYAM, C.B. 1968. Eggs and early development of two more carangids from Madras. *Ibid.*, 1966, **8**(1): 188-192.
Eggs and larvae upto provisionally assigned to *Caranx carangus* and *Selar kalla* with figures.
- SUDARSAN, D. 1968a. On the early development of the pipe fish, *Sygnathoides biaculeatus* (Bloch). *Ibid.*, **8**(1): 222-224 (Also *Adv. Abstr. Contr. Fish. Aquat. Sci. India*, 1967, **1**(2): 5).
Brood pouch, embryo and newly hatched larva.
- SUDARSAN, D. 1968b. Eggs and larvae of a hemirhamphid fish from Mandapam. *Ibid.*, **8**(2): 342-346 (Also *Adv. Abstr. Contr. Fish. Aquat. Sci. India*, 1967, **1**(3): 7).
Eggs, embryos, newly hatched larva and larva 140 hours old, provisionally identified as of *Hemirhamphus quoyi*.
- SUDARSAN, D. and M.E. RAJAPANDIAN 1967. Occurrence of eggs of the white bait *Anchoviella* sp. in offshore waters of Bombay. *Ibid.*, 1965, **7**(2): 471-473 (Also *Adv. Abstr. Contr. Fish. Aquat. Sci. India*, **1**(1): 34-35).
Description and location of the collection of eggs.
- SUJANSINGANI, K.H. 1957. Growth of the Indian shad, *Hilsa ilisha* (Hamilton), in the tidal stretch of the Hooghly. *Indian J. Fish.*, **4**(2): 315-335.
Monthly growth of the fish spawned in different months.

SUNDARARAJ, B.I. and L.S. RAMASWAMI 1956. Pituitary structure in relation to spawning of food fish. *Proc. 43rd Indian Sci. Congr. (Agra), Pt.4, Late Abstracts*: 33.

Experiments on induced spawning of *Saccobranchus* and *Ophicephalus*.

SUNIER, A.L.J. 1922. Contribution to the knowledge of the natural history of marine fish ponds of Batavia. *Treubia*, **2**(2-4): 57-400.

Larval stage of *Chanos chanos*, embryonic stages of *Aplochilus panchax*, *A. javanicus* and young of *A. panchax*.

SUTER, M. 1942. Observations on the breeding of *Barbus (Puntius) kolus* Sykes. *J. Bombay nat. Hist. Soc.*, **43**(3): 407-408.

Difference in the colour pattern of males and females during breeding.

SWARUP, H. 1953. On the development of the olfactory capsules in the chondrocranium of *Ophicephalus punctatus* (Bloch). *Proc. 40th Indian Sci. Congr. (Lucknow), Pt.3 Abstracts*: 204-205.

Development of the trabaculae, ethmoidal plate etc.

SWARUP, K. 1959. Seasonal variations in the ovary of *Hilsa ilisha* (Hamilton) found at Allahabad. *Proc. nat. Inst. Sci. India*, **29B**: 127-133.

Maturation.

SWARUP, K. 1962. The fecundity of the Indian shad, *Hilsa ilisha* (Hamilton). *J. zool. Soc. India*, 1961, **13**(2): 108-112.

Fecundity of *Hilsa ilisha*.

TAGAWA, M. and H. MAKU 1965. Alterations of the maturity affected by population density of the lizard fish *Saurida tumbil* (Bloch) in the East China sea (in Japanese with English synopsis). *Bull. Seikai reg. Fish. Res. Lab*, **33**: 3-12

Maturity in relation to population density.

TALWAR, P.K. 1964a. Studies on the food and feeding relationships of the half beak fishes (Hemirhamphidae) from the Gulf of Mannar and Palk Bay. *Indian J. Fish.*, 1962, **9A**(1): 1-9.

Breeding habits of spawners and spent *Hyporhamphus georgii* and *Hemirhamphus marginatus*.

TALWAR, P.K. 1964b. A contribution to the biology of the half beak, *Hyporhamphus georgii* (Cuv. & Val.). *Ibid.*, 1962, **9A**(1): 168-196.

Spawning, maturity stages, ova diameter frequencies, size at first maturity, sex-ratio and fecundity.

TALWAR, P.K. 1968. Studies on the biology of *Hemirhamphus marginatus*. (Forsk.) (Hemirhamphidae-Pisces). *Adv. Abstr. Contr. Fish. Aquat. Sci. India*, **2**(2): 7 (Also *J. Mar. Biol. Ass. India*, **9**(1)).

Sex-ratio, fecundity, maturation, spawning, eggs and larvae

- TAMPI, P.R.S. 1958a. On the food of *Chanos chanos* (Forsk.) *Indian J. Fish.*, **5**(1): 107-117.
Food of fry, fingerlings, juveniles and adults.
- THAMPI, P.R.S. 1958b. Some observations on the reproduction of the milkfish *Chanos chanos* (Forsk.). *Proc. Indian Acad. Sci.*, 1957, **46B**(4): 254-273.
Maturity stages, egg production, ova diameters, size at maturity, spawning period and breeding habits.
- TANDON, K.K. 1960. On the biology of 'Choo-parai' *Selaroides leptolepis* (Cuvier and Valenciennes). Ph.D. Thesis, Punjab university.
Maturity stages, size at first maturity, spawning season and fecundity.
- TANDON, K.K. 1961a. Size at first maturity in *Selaroides leptolepis* (Cuvier and Valenciennes) as evidenced by the occurrence of individuals in the commercial catches. *Sci. & Cult.*, **27**(5): 258-259.
Size at first maturity.
- TANDON, K.K. 1961b. Use of 'n' value of the length-weight relationship in determination of spawning seasons in *Selaroides leptolepis* Cuv. & Val. *Ibid.*, **27**(6): 308.
Spawning season.
- TANDON, K.K. 1962. Biology and fishery of 'Choo-parai' *Selaroides leptolepis* (Cuvier and Valenciennes). Part II. Biology and fishery. *Indian J. Fish.*, 1961, **8**(1): 127-144.
Maturity stages, ova diameter frequencies, size at first maturity, size-ratio, fecundity and spawning.
- TANDON, K.K. 1965. A report on the spawning of mirror carp in a garden pool. *Res. Bull. Punjab Univ. Sci.*, **16**(4): 361-362.
Spawning of mirror carp in a garden pool.
- TANING, A.V. 1926. Position du disque cephalique chez les Echenides an couds de ioutongene. *C.R. Acad. Sci. Paris*, 182.
Development of the adhesive disc in echeneids.
- TANING, A.V. 1952. On the breeding areas of the sword fish (*Xiphias*). *Pap. Mar. biol. and oceanogr., Deep sea Research Suppl.* to Vol. 3: 438-450.
Postlarval stages, 8.2, 7.9, 15.6 and 46.3 mm. of *X. gladius* and distribution of the young stages in relation to time, space and depth.
- TENNENT, J.E. 1861. *The natural history of Ceylon*, London.
Breeding habit of *Mastacembelus armatus*.
- TIWARI, S.K. and D.S. SRIVASTAVA 1965. Studies on the development of the chondrocranium of *Rasbora daniconius* (Ham. Buch.). *Proc. 51st and 52nd Indian Sci. Congr. (Calcutta)*, Pt. 3. *Abstracts*: 447.
Development of chondrocranium.
- THAM, Ah. K. 1965. Notes on the biology of the anchovy, *Stolephorus pseudoheterolobus* Hardenberg. *Bull. Nat. Mus. Singapore*, **33**(4):23-26.
Maturity, eggs, larvae and juvenile with figures.

THILLAYAMPALAM, F.M. 1948. *Scoliodon* (The shark of the Indian seas). *Indian zool. Mem.* **2** (Reprint 1958).

Early stages of *S. sorrakowah* and review of previous descriptions.

THIYAGARAJAN, V.K. 1942. On some stages in the early development of *Arius jella* (Cuv. & Val.). *Proc. 29th Indian Sci. Congr.* (Baroda), Pt. 3 *Abstracts*: 156-157.

A few stages in the early development.

THOMAS, H.S. 1870. *Report on pisciculture in South Canara*, London.

Breeding season of *Megalops cyprinoides*, *Barbus ambhibius*, *Nandus nandus*, *Rasbora rasbora* and parental care in *Ophicephalus marulius*, *O. striatus* and *Macropodus cupanus*.

THOMAS, H.S. 1887. *Tank angling*, Calcutta.

Eggs of *Haplocheilus panchax* (= *Aplocheilus blockii*).

THOMAS, H.S. 1897. *Rod in India*, Calcutta.

Migration, breeding habits and egg laying of *Barbus tor*.

THOMPSON, J.M. 1963. Synopsis of biological data on the grey mullet *Mugil cephalus* Linnaeus 1758. *CSIRO Fish. & Oceanogr.*, Fish Synopsis No. 1: 1-8.

Maturity conditions, mating, fertilization, spawning, spawning season and embryonic, larval and juvenile phases.

THOMPSON, J.M. 1966. The grey mullets. *Oceanogr. Mar. Biol. Ann. Rev.*, **4**: 301- 336.

Egg production, spawning periodicity, spawning time, mating eggs, embryonic and larval development of *Mugil cephalus*; fecundity and spawning season of *Liza parsia*, fecundity of *L. cunnesius*; spawning period in *L. dussumieri*, *L. tade*; eggs of the above species and *Valamugil seheli*, *Rhinomugil corsula* and *Liza macrolepis*.

TOOR, H.S. 1965. Biology and fishery of the pig-face bream, *Lethrinus lentjan* from Indian waters IV. Fecundity. *Res. Bull. Punjab. Univ.*, **16**(1&2): 165-169.

Fecundity.

TOOR, H.S. 1965. Biology and fishery of pig-face bream, *Lethrinus lentjan* Lacepede 2. Maturation and spawning. *Adv. Abstr. Contr. Fish. Aquat. Sci. India*, **2**(1): 6-7 (Also *Indian J. Fish.*, **11A**(2): 581-596.

Sex-ratio, maturation and spawning grounds.

TSI-GEN, S. and W.L. KLAWE 1960. Larvae and juveniles of tunas, sailfishes and swordfish (Thunnidae, Istiophoridae, Xiphiidae) from the Central and Western part of the Pacific Ocean (in Russian by the first author, translated into English by the second author). *Inter. American Tropical tuna Commission*, California.

Larvae and juveniles of *Katsuwonus pelamis*, Larvae of *Neothunnus macropterus*, larvae and juvenile of *Istiophorous gladius* and larvae of *Xiphias gladius* with figures.

TYSON, T. 1941. *Trout fishing in Kulu*, 2nd ed., Lahore.

Culture, planting of fry, 'eyed ova', hatching, care of alevins and maintenance of hatcheries for *Salmo fario*.

UCHIDA, K., S. IMAI, S. MITO et. al. (Editors) 1958. *Studies on the eggs, larvae and juveniles of Japanese fishes* (in Japanese), Kyushu University, Japan.

Eggs, larvae or juveniles of *Ilisha elongata*, *Oxyporhamphus micropterus micropterus*, *Parexocoetus mento mento*, *P. brachypterus*, *Cypselurus poecilopterus*, *Mugil cephalus*, *Upeneus benasi* and *Sillago sihama* with figures.

UCHIDA, N.R. 1963. Synopsis of biological data on frigate mackerel *Auxis thazard* (Lacepede) 1802 (Pacific Ocean). *Proc. World. Sci. meet. biol. tunas and rel. sp.* (FAO Fish. Repts. No.6, Vol.2): 241-273.

Maturity, spawning, spawning grounds, eggs, and two types of larval stages.

UEYANAGI, S. 1953. The sexual difference of the sizes of marlins (in Japanese with English abstract). *Contr. Nankai Reg. Fish. Res. Lab.*, 1 No. 14: 1-5.

Differences in the sizes of the sexes of *Xiphias gladius* and *Eumakaira nigra*.

UEYANAGI, S. 1960. On the larvae and spawning areas of the Shirokajiki, *Marlina marlina* (Jordan and Hill) (in Japanese with English summary). *Rept. Nankai Reg. Fish. Res. Lab.* No. 12: 85-96.

Larval stages from 2.5 mm. to 26.5 mm. total length and spawning areas of *Marlina marlina*.

UEYANAGI, S. 1962. On the ripe ovary of the albacore., *Germo germo* (Lacepede) taken from the Indian Ocean. *Bull. Japan Soc. Sci. Fish.*, 20(1); 1050-1053.

Ripe ovary and eggs.

UEYANAGI, S. 1963a. A study of the relationships of the Indo-Pacific istiophorids. *Rept. Nankai Reg. Fish. Res. Lab.* No. 17: 151-165.

Spawning of istiophorids.

UEYANAGI, S. 1963b. Methods for identification and discrimination of the larvae of five istiophorid species distributed in the Indo-Pacific. *Ibid.*, No. 17: 137-150.

Identifying characters of larval istiophorids

UEYANAGI, S. 1964. Description and distribution of larvae of five istiophorid species in the Indo-Pacific. *Proc. Symp. Scombr. Fishes*, Mandapam Camp (*Mar. biol. Ass. India*), 1962, Pt. I: 499-528.

Larvae of *Tetrapterus angustirostris*, *Istiophorus orientalis*, *Makaira mitsukurii*, *Eumakaira nigra* and *Marlina marlina* with figures.

UEYANAGI, S. 1966. On the red pigmentation of larval tuna and its usefulness in species identification (in Japanese with English synopsis). *Rep. Nankai Reg. Fish. Res. Lab.*, No. 24: 41-48.

Identifying features of larval tuna.

UEYANAGI, S. and H. YABE 1960. On the larva possibly referable to *Marlina marlina* (Jordan & Hill). *Rec. oceanogr. Works Japan*, 5(2): 167-173.

A 26 mm. larvae assigned to *Marlina marlina*.

UNIVERSITY OF TRAVANCORE 1948. *Department of research, Report for the septennium 1939-1946, Division of marine biology and fisheries*, Trivandrum.

Reference to breeding habits and fry of *Ophicephalus micropeltes*, *Etroplus suratensis*, breeding activities, egg laying and egg of *Chiloscyllium griseum* and fry of mullets.

UPADHYAYA, M.P. 1956a. Survival of fry in some nurseries of Uttar Pradesh. *Proc. 43rd Indian Sci. Congr.* (Agra), Pt. 4 *Late abstracts*: 29-30.

Survival of the fry of *Labeo rohita*, *L. bata*, *Cirrhina mrigala*, *C. reba*, *Catla catla* and *Chela bacailia* in nurseries.

UPADHYAYA, M.P. 1956b. Growth environments of La Martiniere college tank, Lucknow. *Ibid.*, Pt. 4 *Late Abstracts*: 30.

Effect of Physico- chemical factors on the growth of the fingerlings of *Labeo rohita* and *Cirrhina mrigala*.

VAAS, K.F. and A.E. HOFSTEDDE 1952. Studies on *Tilapia mossambica* Peters (ikan mudjair) in Indonesia. *Contr. Int. Fish. Res. St.* (Bogor), No. 1

Spawning, breeding habits and embryology.

VAN KAMPEN, P.N. 1908. Larvae of *Megalops cyprinoides*. *Bull. Dept. Ind. neerl.* (Batavia), **20**: 10-12.

Larval stages.

VARGHESE, P.V. 1967. Prolongation of spawning season in the carp *Cirrhina reba* (Ham.) by artificial light treatment. *Curr. Sci.*, **36**(17):465-467.

Prolongation of spawning season artificially.

VARGHESE, T.J. 1962. Observations on the biology of *Raconda russelliana* (Gray) *Indian J. Fish.*, 1961, **8**(1): 96-106.

Maturity stages, ova diameter frequencies, fecundity and spawning.

VARGHESE, T.J. 1963. Some observations on the biology of *Coilia borneensis* (Blkr.). *Ibid.*, 1961, **8**(1): 312-325.

Fecundity, sex-ratio, ova-diameter frequencies and spawning.

VENKATARAMAN, G. 1956. Studies on some aspects of the biology of the common anchovy, *Thrissocles mystax* (Bloch & Schneider). *Ibid.*, **3**(2): 311-333.

Size at first maturity and spawning period.

VENKATARAMAN, G. 1967. The Indian mackerel. *Cent. Mar. fish. Res. Inst. 20th Anniv. Souv*: 44-47.

Reference to spawning of *Rastrelliger kanagurta*.

VENKATARAMAN, R.S. 1944. Acclimatisation of the saltwater mullet, *Mugil seheli* to fresh- water. *Curr. Sci.*, **13**(9):239.

Acclimatisation of the fry to freshwater.

VERWEY, J. 1930. Coral reef studies I. The symbiosis between damsel fishes and sea anemones in Batavia bay. *Treubia*, **12**: 308 & 337-350.

Eggs, parental care and young fish of *Amphiprion percula*; propagation and breeding period of *A. ephippium* and *Premnas biaculeatus*.

VIJAYALAKSHMANAN, M.A., R.N. PAL, K.K. SUKUMARAN and K.V. RAMAKRISHNA 1962. Experiments on inducing spawning of Indian carps by injection of fish pituitary hormones during 1959 at Cuttack. *Proc. 49th Indian Sci. Congr.(Cuttack)*, Pt. 3 Abstracts: 394-395.

Experiments of induced spawning of *Catla catla*, *Labeo rohita* and *Cirrhina mrigala*.

VIJAYARAGHAVAN, P. 1955. Life-history and feeding habits of the spotted seer *Scomberomorus guttatus* (Bloch & Schneider). *Indian J. Fish.*, **2**(2): 360-372.

Rearing the eggs and larvae, larval stages, juveniles and food of postlarvae assigned to *Scomberomorus guttatus* with figures.

VIJAYARAGHAVAN, P. 1957. *Studies on fish-eggs and larvae of Madras Coast*, University of Madras.

Eggs and larvae assigned to *Engraulis greyi*, *Anchoviella tri*, *Deceperus russelli*, *Saurida tumbil*, *Hemirhamphus far*, two *Cynoglossus* spp; two *Caranx* spp. and postlarvae of *Cynoglossus bilineatus* and *Triacanthus brevisrostris* as well as the feeding habits of the larvae and postlarvae with figures.

VIJAYARAGHAVAN, P. 1965. Some observations on the spawning behaviour of mackerel. *Indian J. Fish.*, 1962, **9A**(2): 647-652.

Ova diameter studies, time of spawning, movements of spawners of *Rastrelliger kanagurta* and their feeding habits.

VILLADOLID, D.V. 1936. The Gourami, its cultivation in the Philippines. *Popul Bull. Dept. Agr. & Comm.* (Manila), **17**.

Breeding of *Osphronemus goramy*.

WADE, C.B. 1951. Larva of tuna and tuna-like fishes from Philippine waters. *U.S. Dept. int. Fish and Wildl. Serv. Fish Bull.* No. 57, Vol. 51: 443-485.

Larvae of *Grammatorcynus bicarinatus* from 8.5 mm. to 17.5 mm; *Neothunnus macropterus* from 5.15 mm. to 11.65 mm. *Katsuwonus pelamis* from 5 mm. to 9.1 mm. and *Auxis* sp. from 5.1 to 11.6 mm. with their distribution in space and time.

WAITE, E.R. 1904. The breeding habits of the fighting fish (*Betta pugnax* Cantor). *Rec. Austr. Mus.*, **5**.
Breeding and nesting habits.

WEBER, M. 1913. Die fische der Siboga-Expedition. *Siboga Exped.*, Leiden, **57**.

Larva of *Stomias* sp., 13 types of leptocephali, larvae of *Arnoglossus* (?), a pleuronectid, *Dactylopterus orientalis* (?), a few *Tholichthys*, stages of *Scatophagus argus* and juveniles of *Naucrates ductor* and *Therapon theraps* with figures.

WEBER, M. and L.F. De BEAUFORT 1913. *The fishes of the Indo-Australian Archipelago* (Leiden), **2**.

Larval stages of *Megalops cyprinoides*, *Albula vulpes*, *Stomias* sp., *Saurida gracilis* and *Saurus variegatus* with figures.

WEBER, M. and L.F. De BEAUFORT 1916. *The fishes of the Indo-Australian Archipelago* (Leiden), **3**.

Markings in the young ones of *Puntius binotatus* and 12 types of leptocephali.

WEBER, M. and L.F. De BEAUFORT 1922. *The fishes of the Indo-Australian Archipelago* (Leiden), **4**.

Males of *Syngnathoides biaculeatus* carrying eggs, eggs in *Ichthyocampus* spp., *Trachyrhamphus* spp., *Yozia* spp., *Halicampus* spp. and brood organ in *Hippocampus* spp., nest building and parental care in *Ophicephalus striatus* and breeding in *Osphronemus goramy*.

WEBER, M. and L.F. De BEAUFORT 1929. *The fishes of the Indo-Australian Archipelago* (Leiden), **5**.

Two larval stages of Heterosomata and bucco-branchial incubation in *Apogon*.

WEBER, M. and L.F. De BEAUFORT 1931. *The fishes of the Indo-Australian Archipelago* (Leiden), **6**.

Stages in the metamorphosis of *Naucrates ductor*.

WEBER, M. and L.F. De BEAUFORT 1939. *The fishes of the Indo-Australian Archipelago* (Leiden), **7**: 3-5.

Larval stages from 3.2 mm. stage to 16.5 mm. stage of *Scatophagus argus* with figures.

WHITEHOUSE, R.H. 1923. A statistical study of young fishes from Silvathurai lagoon, Tuticorin. *Madras Fish. Bull.*, **17**(3): 49-103.

Size range of young ones and breeding season of *Teuthis java*, *Gobius criniger*, *Lutjanus quinquelinearis*, *Lethrinus cinereus* and *Equla edentula*.

WILLEY, A. 1908. Fishery observations. *Spol. Zeyl.*, **5**: 144-152.

Nest building of *Ophicephalus striatus*.

WILLEY, A. 1909. Observations on the nests, eggs and larvae of *Ophicephalus striatus*. *Ibid.*, **6**: 108-123.

Nest, eggs and larvae.

WILLEY, A. 1910. Notes on the freshwater fisheries of Ceylon. *Ibid.*, **7**: 88-105.

Unfertilized eggs of *Barbus dorsalis*, egg laden females of *Amblypharyngodon melettina* and buccal incubation of *Arius falcarius*.

WILLIAMS, F. 1963.a. Synopsis of biological data on frigate mackerel *Auxis thazard* (Lacepede) 1802 (Indian Ocean). *Proc. World Sci. meet. biol. tunas and rel. sp.* (FAO Fish. Repts., No. 6, Vol. 2): 157-166.

Larval and spawning grounds.

WILLIAMS, F. 1963.a. Synopsis of biological data on little tuna *Euthynnus affinis* (Cantor) 1850 (Indian Ocean). *Ibid.*, . (FAO Fish. Repts., No. 6, Vol. 2): 167-179.

Maturity, spawning and sex-ratio.

WILLIAMS, F. 1967. Longline fishing for tuna off the coast of East Africa. *Indian J. Fish.*, 1963, **10A(1)**: 234-390.

Sex composition, maturity and size at first maturity of *Thunnus albacores*, maturity stage of *Katswonus pelamis*, maturity and spawning of *Istiophorus gladius* and *Tetrapterus audax*.

WILSON, H.C. 1908. Artificial propagation of Hilsa in the Coleroon. *Madras Govt. Revenue Dept. Govt. order No. 1219*, Madras.

Artificial fertilization of *Hilsa ilisha* with notes on developmental stages.

WILSON, H.C. 1920. On the methods of capture and supply of fish in the rivers of the Nilgiri district. *Madras Fish. Bull.*, **12(4)**: 135-156.

Spawning areas in Bhavani river, capture of fry and its adverse effect and spawning ground in Siruvani river.

WIMPENNY, R.S. 1932. Observations on the size and growth of two Egyptian mullets, *Mugil cephaus* (Linn), the 'bouri' and *M. capito* Cuv., the tobar. Cairo (Govt press).

Spawning of *Mugil cephalus*.

WOOLLEY, S.F. 1947. Sex of the mahseer and bokar caught in north-east India. *J. Bombay nat. Hist. Soc.*, **46**: 734.

Breeding periods of the mahseer and bokar.

WOOD-MASON, J. and A. ALCOCK 1891a. Natural history notes from H.M. Indian Marine Survey Steamer "Investigator" No.I. On the result of deep sea dredging during the season 1890-91. *Ann. Mag. Nat. Hist.*, **8(43)**: 21-22.

Gestation in *Pteroplatea micrura*, *Myliobatis nichofii* and *Trygon walga*.

WOOD-MASON, J. and A. ALCOCK 1891b. On the uterine villiform papillae of *Pteroplatea micrura* and their relation to the embryo, being natural history notes from H.M. Indian Marine Survey Steamer "Investigator". *Proc. Roy. Soc. Lond.*, **49**: 339-367.

Uterine papilla of *Pteroplatea micrura*.

WOOD-MASON, J. and A. ALCOCK 1892. Further observations on the gestation of Indian rays. *Ibid.*, **50**: 202-209.

Structure of uterus and trophonemata in *Pteroplatea micrura*, *Myliobatus nichofii* and *Trygon walga* with discussion on foetal respiration.

YABE, H. 1951. Larva of the swordfish, *Xiphias gladius*. (in Japanese with an English resume). *Jap. J. Ichth.*, **1**(4):260-263.

Three larvae from 11 to 27.4 mm. total length identified as of *Xiphias gladius*.

YABE, H. 1953a. Juveniles collected from South Seas by "Tenyo Maru" at her second tuna research voyage (Preliminary report) (in Japanese). *Contr. Nankai Reg. Fish. Res. Lab.*, **1**, No. 25: 1-14.

Larval *Katsuwonus pelamis* with figure and juveniles of *Idiacanthus fasciola*, *Istiophorus orientalis*, *Caranx* sp., *Gempylus serpens*, exocoetids, myctophids, etc.

YABE, H. 1953b. On the larvae of sailfish, *Istiophorus orientalis* collected in the South-western sea of Japan (in Japanese with English abstract). *Ibid.*, **1**, No. 6: 1-10.

A few larval stages from 3.4 to 23.5 mm. with figures.

YABE, H. and S. UEYANAGI 1961. Contributions to the study of the early life history of the tunas. *Pac. tuna biol. conf.*, Honolulu, Pap. No. VII-6.

Larvae of *Katsuwonus pelamis*, *Neothunnus macropterus*, *Auxis tapeinosoma* and *Marlina marlina*, their identification and distribution.

YABE, H., S. UEYANAGI, S. KIKAWA and H. WATANABE 1959. Study on the life history of the sword fish, *Xiphias gladius* Linnaeus (in Japanese with English summary). *Rept. Nankai Reg. Fish. Res. Lab.* No. 10: 107-150.

Ripe eggs and larval stages from 5.1 mm. to 73 mm. and a few juveniles with figures.

YABE, H., Y. YABUTA and S. UEYANAGI 1963. Comparative distribution of eggs, larvae and adults in relation to biotic and abiotic environmental factors, *Proc. World Sci. meet. biol. tunas and rel. sp.* (FAO Fish. Repts., No. 6, Vol. 3): 979-1009.

Distribution of the eggs and larvae of tunas.

YOSHIDA, O.H. 1966. Skipjack tuna spawning in the Marquesas islands and Tuamotu archipelago. *U.S. Fish. Wildl. Serv. Fish. Bull.*, **65**(2): 479-488.

Spawning of *Katsuwonus pelamis*.

YOSHIDA, O.H. and T. OTSU 1963. Synopsis of biological data on albacore *Thunnus germo* (Lacépède) 1800 (Pacific and Indian Oceans). *Proc. World Sci. meet. biol. tunas and rel. sp.* (FAO Fish. Repts., No. 6, Vol. 2): 274-318.

Maturity, fecundity, spawning seasons, spawning frequency, spawning grounds, eggs and larvae of *Thunnus germo*.

YUEN, H.S.H. and F.C. JUNE 1957. Yellowfin tuna spawning in the Central equatorial Pacific. *U.S. Dept. int. Fish. and Wildl. Serv. Fish. Bull.* No. 112, Vol. 57: 250-264.

Size at first spawning, locality and time of spawning and resorption of residual eggs in *Neothunnus macropterus*.

ZOBAIRI, A.R.K. and N.V. CHOODAMANI 1948. Life-history of the scale carp, *Cyprinus carpio* var. *communis* (Linn.). *Proc. 35th Indian Sci. Congr.* (Patna), Pt. 3 *Abstracts*: 202

Breeding season, breeding habits, fertilized egg, development of the embryo, newly hatched larva and appearance of scales.

CLASSIFIED LIST OF FISHES WITH RELEVANT REFERENCES
IN THE BIBLIOGRAPHY

Fam. ORECTOLOBIDAE

Chiloscyllium griseum Muller and
Aiyar, 1942. Henle
Aiyar and Nalini, 1938.
Jones, 1951.
Nalini, 1940.
Prasad, 1946.
Raj, 1914.
Samuel, 1945.
Setna and Saranghdar, 1949a.
Southwell and Prashad, 1919.
Uni. Travancore, 1948.

Chiloscyllium indicum (Gmelin)
Deraniyagala, 1934a, 1934b.
Jones, 1951.
Smedley, 1926b.

Stegostoma tigrinum Bonnaterre
Smith, 1949.

Stegostoma varium (Seba)
Jones, 1951.
Smedley, 1926a.

Fam. CARCHARINIDAE

Carcharinus dussumieri (Muller and
Aiyar, 1942. Henle)
Aiyar and Mahadevan, 1939.
Alcock, 1890.
Jones, 1951.
*Prasad, 1951.

Carcharinus limbatus (Muller and
Bensam, 1965b. Henle)
Jones, 1951.
Setna and Saranghdar, 1950a.

Carcharinus melanopterus (Quoy and
Alcock, 1890. Gaimard)
Chidambaram and Menon, 1946b.
Jones, 1951.
Melouk, 1949, 1957.
Setna and Saranghdar, 1950a.

Carcharinus menisorrah (Muller and
Jones, 1951. Henle)
Setna and Saranghdar, 1950a.

Carcharinus sorrah (Muller and Henle)
Jones, 1951.
Setna and Saranghdar, 1950a.

Carcharinus temminckii (Muller and
Jones, 1951. Henle)
Setna and Saranghdar, 1950a. 1950b.

Galeocerdo arcticus (Faber) =
G. tigrinus Muller and Henle
Devanesan and Chidambaram, 1948.
Jones, 1951.
Prasad, 1951.
Saranghdar, 1943, 1946.
Setna and Saranghdar, 1950a.

Galeocerdo spp.
Chidambaram and Menon, 1946b.

Hemigaleus balfouri Day
Aiyar and Mahadevan, 1939.
Jones, 1951.
Prasad, 1946, 1951.
Setna and Saranghdar, 1949b,
1950a, 1950b.

Hypoprion macloiti Muller and Henle
Jones, 1951.
Setna and Saranghdar, 1950a.

Myrnillo mustelus (Linnaeus)
Setna and Saranghdar, 1950b.

Scoliodon acutus (Ruppell)
Setna and Saranghdar, 1950b.

Scoliodon palasorrah (Cuvier)
Aiyar, 1942.
Aiyar and Mahadevan, 1939.
Jones, 1951.
Mahadevan, 1940.
Prasad, 1942, 1951.
Setna and Saranghdar, 1950a.

Scoliodon sorrakowah (Cuvier)
Aiyar, 1942.
Aiyar and Mahadevan, 1939.
Choodamani, 1941.
Jones, 1951.
*Prasad, 1942, 1951.
Setna and Saranghdar, 1949b.

*Mahadevan, 1940.

*Mahadevan, 1940.

Scoliodon sorrakowah (Contd.)
Southwell and Prashad, 1919.
Thillayambalam, 1948.

Scoliodon walbeehmi Bleeker
Aiyar and Mahadevan, 1939.
Anonymous, 1949.
Jones, 1951
Setna and Saranghdar, 1950a.
Southwell and Prashad, 1919.

Fam. SPHYRNIDAE

Sphyrna blochii (Cuvier)
Alcock, 1890.
Jones, 1951.
Setna and Saranghdar, 1950a,
1950b.

Sphyrna spp.
Chidambaram and Menon, 1946b.
Devanesan and Chidambaram, 1948.
Jones, 1951.

Fam. RHINOBATIDAE

Rhinobatus annandalei (Norman)
Day, 1889.
Jones, 1951.
Southwell and Prashad, 1919.

Rhinobatus granulatus (Cuvier)
Aiyar, 1942.
Aiyar and Mahadevan, 1939.
Jones, 1951.
Prasad, 1942, 1946, 1951.
Samuel, 1943.

Rhinobatus obtusus (Muller and
Jones, 1951. Henle)
Melouk, 1949.

Rhinobatus thouiniana (Shaw)
Aiyar and Mahadevan, 1939.
Jones, 1951.

Rhinobatus djiddensis (Forsk.)
Day, 1889.
Jones, 1951.
Melouk, 1949.
Prasad, 1951.
Setna and Saranghdar, 1949a,
1949b, 1950a.

Fam. PRISTIDAE

Hemipristis elongatus (Klunzinger)
Setna and Saranghdar, 1950b.

Pristis cuspidatus Latham
Aiyar, 1942.
Aiyar and Mahadevan, 1939.
Hussakof, 1912.
Jones, 1951.
Prasad, 1951
Setna and Saranghdar, 1950a.
Southwell, 1910

Pristis spp.
Chidambaram and Menon, 1946b.
Devanesan and Chidambaram, 1948.
Jones, 1951.

Fam. TRYGONIDAE.

Dasyatis (Amphotistius) imbricata
Jones, 1951. (Schneider)
Jones and Sujansingani, 1954.
Setna and Saranghdar, 1950a.

Dasyatis (Amphotistius) Kuhlii (Muller
Jones, 1951. and Henle)
Raj, 1914.
Southwell and Prashad, 1919.

Dasyatis (Amphotistius) zugei (Muller
Jones, 1951 and Henle)
Setna and Saranghdar, 1950a.

Dasyatis (Himantura) bleekeri (Blyth)
Alcock, 1890, 1892a.
Jones, 1951.
Setna and Saranghdar, 1950a.

Dasyatis (Himantura) Uarnak (Forsk.)
Anonymus, 1949.
Day, 1889.
Jones, 1951.
Prasad, 1946.
Southwell and Prashad, 1919.

Dasyatis (Pastinachus) sephen (Forsk.)
Anonymous, 1949.
Jones, 1951.
Jones and Sujansingani, 1954.
Southwell and Prashad, 1919.

Gymnura (Gymnura) micrura=
Pteroplatea micrura (Bloch and
Alcock, 1892b. Schneider)
Anonymous, 1949.
Day, 1889.
Jones, 1951.
Wood-Mason and Alcock, 1891.

Gymnura (Gymnura) poecilura (Shaw)
Jones, 1951.

Gymnura (Gymnura) poecilura (Contd.)
Setna and Saranghdar, 1950a.
Southwell and Prashad, 1919.

Fam. MYLIOBATIDAE

Aetobatus narinari (Euphrasen)
Gudger, 1912.
Jones, 1951.
Smith, 1949.

Aetomylaeus nichofii (Schneider)
Alcock, 1890.
Jones, 1951.
Southwell and Prashad, 1919.

Fam. RHINOPTERIDAE

Rhinoptera javanica (Mull. & Henle)
James, 1962.
Jones, 1951.
Setna and Saranghdar, 1950a.

Fam. MOBULIDAE

Mobula diabolus (Shaw)
Jones, 1951.
Setna and Saranghdar, 1950a, 1950b.

Fam. TORPEDINIDAE

Marcine brunnea Annandale
Prasad, 1946.

Narcine dipterygia (Bl. & Schn.)
Aiyar and Mahadevan, 1939.
Jones, 1951.

Narcine indica Henle
Aiyar and Mahadevan, 1939.
Jones, 1951.
Prashad, 1920.

Narcine timlei (Bloch and Schneider)
Aiyar and Mahadevan, 1939.
Jones, 1951.

Fam. CHIMAERIDAE

? *Chimaera monstrosa* (Linnaeus)
Alcock, 1892c.
Jones, 1951.
Wood-Manson and Alcock, 1891.

Fam. RHINCHIMAERIDAE

Harriotta? indica (Garman)
Dean, 1906.
Jones, 1951.
Wood-Mason and Alcock, 1891.

? *Harriotta Pinnata* Schnack
Balakrishnan, 1963b.

Rhinochimaera sp.
Jones, 1951.
Sewell, 1912.

Fam. ELOPIDAE

Elops saurus Linnaeus = *E. Indicus*
Alikunhi *et al.*, 1952. Swainson
Alikunhi and Rao, 1951b.
Basheeruddin and Nayar, 1962.
Chacko, 1949a, 1951d, 1956.
Chacko *et al.* 1953
Chacko and Ganapati, 1949c.
Delsaman, 1926f.
Ganapati *et al.*, 1950.
Gopinath, 1946b.
Jones, 1946a, 1950b, 1951.
Jones and Sujansingani, 1954.
Kuthalingam, 1958.
Nair, R.V. 1946b. 1952.
Panikkar and Nair, 1945.
Raj, 1916.

Fam. MEGALOPIDAE

Megalops cyprinoides (Broussonet)
Alikunhi, 1957b.
Alikunhi *et al.*, 1952.
Alikunhi and Rao, 1951b.
Balakrishnan, 1959.
Bal and Pradhan, 1945b, 1951.
Bapat and Bal. 1950a.
Chacko, 1949a, 1951d, 1956.
Chacko *et al.*, 1953.
Chacko and Ganapati, 1949c.
Chidambaram and Menon, 1948.
Delsman, 1926f.
Delsman and Hardenberg, 1934.
Devanesan and Chidambaram, 1948.
Ganapati *et al.*, 1950.
Gopinath, 1946b.
Hollister, 1939.
Jones, 1946a, 1950b, 1951.
Jones and Sujansingani, 1954.

Megalops cyprinoides (Contd.)

- Kuthalingam, 1958.
Panikkar and Aiyar, 1939.
Raj, 1916.
Rao, N. G. S., 1967.
Thomas, 1870,
Van Kampen, 1908.
Weber and de Beaufort, 1913.

Fam. ALBULIDAE

Albula vulpes (Linnaeus)

- Alexander, 1961.
Delsman, 1926f.
Delsman and Hardenberg, 1934.
Gopinath, 1946b.
Jones, 1951.
Weber and de Beaufort, 1913.

Fam. DUSSUMIERIDAE

Dussumieria acuta Valenciennes

- Delsman and Hardenberg, 1934.
Devanesan and Chidambaram, 1948.
Jones, 1951.
Kuthalingam, 1959c., 1961b.
Sekharan, 1949.

Dussumieria hasselti Bleeker

- Bal and Pradhan, 1945b, 1947,
1951.
Bapat and Bal, 1950.
Bhasheeruddin and Nayyar, 1962.
Chacko, 1950c.
Delsman, 1925.
Devanesan and Chacko, 1944a.
Devanesan and Chidambaram, 1948.
Dharmamba, 1960.
Gopinath, 1946b.
Jones, 1951.
Mahadevan and Chacko, 1962.

Dussumieria spp.

- Bapat, 1955.
Boonprakob, 1963.

Fam. CLUPEIDAE

Harengula bulan (Bleeker)

- Sadasivan, 1953.

Harengula punctata (Ruppel)

- Bapat and Bal, 1950.
Jones, 1951.

Harengula vittata (Valenciennes)

- Bal and Pradhan, 1945b, 1946.
Jones, 1951.

Hilsa ilisha (Hamilton)

- Chacko, 1951d, 1954b.
Chacko and Ganapati, 1949b.
Chacko, Ganapati and Zobairi, 1948.
Chacko and George, 1953.
Chacko and Krishnamurthy, 1948, 1950a.
Chacko and Zobairi, 1948.
Chacko, Zobairi and Krishnamurthy,
1948.
Chandra, 1964.
Day, 1873, 1876-1888, 1877.
Delsman, 1929c.
Devanesan, 1939, 1942.
Devanesan and Chidambaram, 1948.
Dixitulu and Chacko, 1962.
Dutt, 1966.
Hora, 1938, 1940, 1942.
Hora and Nair, 1940a, 1940b.
Jenkins, 1910, 1938.
Job, 1942.
Jones, 1946a, 1950b, 1951, 1952.
Jones and Menon, 1950b, 1951a.
Jones and Sarojini, 1952.
Jones and Sujansingani, 1951, 1954.
Karamchandani, 1961.
Kulkarni, 1950.
Majumdar, 1939.
Mathur, 1967.
Motwani, Jhingran and Karamchan-
dani, 1957.
Naidu, 1939.
Nair, K.K., 1939.
Panikkar, 1955.
Pillay, 1957, 1958, 1964.
Pillay and Ghosh, 1958.
Pillay and Rao, 1963.
Pillay, Rao, and Mathur, 1963.
Pillay and Shaw, 1949.
Prasad, Hora and Nair, 1940.
Raj, 1917, 1930, 1930.
Rao, N. G. S., 1967.
Southwell, 1915, 1917.
Srinivasan, 1955.
Sujansingani, 1957.
Swarup, 1959, 1962.
Wilson, 1908.

Hilsa kanagurta (Bleeker)

- Chacko and Krishnamurthy, 1949.
Delsman, 1926c.
Jones, 1951.

- Hilsa toli* (Valenciennes)
Bal and Pradhan, 1947, 1951.
Bapat and Bal, 1950b.
Chacko and Krishnamurthy, 1949.
Delsman, 1933c.
Jones, 1951
Pillai, 1953a.
- Ilisha elongata* (Bennet)
Bapat and Bal, 1950.
Delsman 1930.
Delsman and Hardenberg, 1934.
Jones, 1950b, 1951.
Uchida *et al.*, 1958.
- Ilisha filigera* (Valenciennes)
Bapat and Bal, 1950.
Jones, 1951.
- Ilisha Indica* (Swainson)
Basheerudhin and Nayar, 1962.
- Ilisha melastoma* (Cuvier)
Jones, 1951.
- Ilisha motius* (Hamilton)
Bal and Pradhan, 1945b, 1946,
1947, 1951.
Bapat and Bal, 1950.
Jones, 1951.
- Kowala coval (Cuvier) = *K. thoracata* (Valenciennes) = *Clupea lile* (Cuvier)
Anonymous, 1949.
Bal and Pradhan, 1945b, 1946,
1947, 1951.
Bapat and Bal, 1950b.
Delsman, 1933b.
Delsman and Hardenberg, 1934.
Devanesan and Chidambaram, 1948.
Devanesan and John, 1941.
Jones, 1951.
Mookerjee and Bhattacharya, 1950.
Nair, R.V. 1952a.
- Opisthopterus tardoore* (Cuvier)
Basheerudhin and Nayar, 1962.
Bensam, 1968c.
John, 1951.
Jones, 1951.
Radhakrishnan, 1961, 1967.
- Pellona ditchela* Valenciennes =
P. hoevenii (Bleeker)
Delsman, 1930a.
Delsman and Hardenberg, 1934.
- Sadasivan, 1953.
Sekharan, 1950.
- Pellona megaloptera* (Swainson)
Bal and Pradhan, 1951.
- Pellona* spp.
Delsman, 1929c.
Jones, 1951.
- Raconda russelliana* Gray
Varghese, 1962.
- Sardinella albella* (Valenciennes) =
Pellona brachysoma = *Ilisha brachysoma* (Bleeker)
Bal and Pradhan, 1945b, 1946, 1951.
Bapat and Bal, 1950b.
Chacko, 1950c.
Chacko and Mathew, 1956b.
Delsman, 1926c.
John, 1939.
Jones, 1951.
Nair, R.V., 1960a.
Radhakrishnan, 1961.
Sekharan, 1955, 1967.
- Sardinella clupeoides* (Bleeker)
Delsman, 1926c.
- Sardinella fimbriata* (Valenciennes)
Bapat, 1955.
Basheeruddin and Nayar, 1962.
Chacko, 1954a.
Delsman, 1926c.
Delsman and Hardenberg, 1934.
Jones, 1951.
Nair, R.V. 1960a.
Radhakrishnan, 1967b.
Ronquillo, 1960.
- Sardinella jussieu* (Lacepede) =
S. gibbosa (Bleeker)
Chacko, 1946a, 1950c.
Dharmamba, 1960.
Ganapati and Rao, 1951.
Jones, 1951.
Nair, R.V. 1960a.
- Sardinella longiceps* Valenciennes
Anonymous, 1949.
Bensam, 1965, 1967, 1968b.
Chacko, 1954a, 1955b.
Chacko and Mathew, 1956a.
Chidambaram, 1950.
Delsman, 1926c.
Devanesan, 1943.
Devanesan and Chidambaram, 1948.

Sardinella longiceps (Contd.)

Dhulkhed, 1964, 1967.
Hornell and Nayudu, 1923.
Jones, 1951.
Kuthalingam, 1959c, 1960b.
Nair, R.V., 1953, 1958, 1960a,
1960b.
Panikkar, 1955.
Prabhu, 1967.
Prabhu and Dhulkhed, 1967.
Radhakrishnan, 1968.
Raja, 1967.
Soerjodinoto, 1960.

Sardinella melanura (Cuvier)

Bal and Pradhan, 1951.
Nair, R.V., 1960a

Sardinella Sirm (Walbaum)

Basheerudhin and Nayar, 1960.
Chacko and Gnanamekalai, 1963.
Delsman, 1926c.
Gnanamekalai, 1964.
John, 1951.
Nair, R.V., 1960a
Ronquillo, 1960.

Sardinella & Clupea spp.

Boonprakob, 1963
Delsman, 1926c.
Raju and Ganapati, 1967.

Fam. DOROSOMIDAE

Anodontostoma chacunda=

Dorosoma chacunda (Hamilton)
Annigeri, 1967.
Bapat, 1955.
Basheeruddin and Nayar, 1962.
Chacko, 1950c, 1954a.
Delsman, 1926d, 1929c, 1933b.
Delsman and Hardenberg, 1934.
Devanesan and Chidambaram, 1941.
Jones, 1951.
Rao, M.B., 1965.

Nematalosa nasus =

Dorosoma nasus (Bloch)
Annigeri, 1967.
Bapat and Bal, 1950b.
Chacko, Rajagopal and
Mohanakrishnan, 1966.
Delsman, 1926d.
Jones, 1951.
Jones and Sujasingani, 1954.

Fam. ENGRAULIDAE

Anchoviella commersonii (Lacepede)

Bal and Pradhan, 1946, 1947, 1951.
Balakrishnan, 1959.
Bapat and Bal, 1950b.
Delsman, 1929c, 1931a.
Dharmamba, 1960.
Gopinath, 1946b.
Jones, 1951.

Anchoviella heterolobus (Ruppel)

Delsman, 1929c, 1931a.
Delsman and Hardenberg, 1934.
Devanesan and Varadarajan, 1942.
Jones, 1951.
Raju and Ganapati, 1967.
Sadasivan, 1953.

Anchoviella indica (Van Hasselt)

Bal and Pradhan, 1951.
Chacko, 1950c.
Delsman, 1929c, 1931a.
Jones, 1950b, 1951.
Jones and Sujasingani, 1954.

Anchoviella pseudoheterolobus (Hardenberg)

Tham, 1965.

Anchoviella tri (Bleeker)

Anonymous, 1949
Balakrishnan, 1959.
Bapat and Bal, 1950.
Delsman, 1931a.
John, 1951.
Jones, 1950b, 1951.
Vijayaraghavan, 1957.

Anchoviella = *Stolephorus* spp.

Bapat, 1955.
Boonprakob, 1963.
Chacko, 1954a.
John, 1951.
Jones, 1951.
Kuthalingam, 1958.
Nair, R.V., 1946b, 1952b, 1952c.
Panikar and Aiyar, 1939.
Panikar and Nair, 1945.
Sudarsan and Rajapandian, 1967.

Coilia borneensis (Bleeker)

Varghese, 1963.

Coilia dussumieri Valenciennes

Bal and Joshi, 1956.
Delsman, 1932b.
Delsman and Hardenberg, 1934.

- Coilia dussumieri* (Contd.)
Gadgil, 1967.
Jones, 1950b.
Jones and Menon, 1952.
Palekar and Karandikar, 1953.
- Coilia* sp.
Rao. N.G.S., 1967.
- Setipinna breviceps* (Cantor)
Delsman, 1932a.
Delsman and Hardenberg, 1934.
Jones, 1950b.
- Setipinna godavariensis* Rao
Rao and Joglekar, 1968.
- Setipinna phasa* (Hamilton)=
Engraulis telara (Hamilton)
Chandra, 1964.
Jhingran, 1963.
Jones, 1946a, 1950b, 1951
Mookerjee and Mookerjee, 1950.
Nair, K.K., 1940.
- Setipinna taty* (Valenciennes)
Delsman, 1932a.
- Thrissocles baelama* (Forsk.)
Sadasivan, 1953.
- Thrissocles dussumeiri* (Valenciennes)
Bal and Pradhan, 1951.
Bapat and Bal, 1950b.
Chacko, 1950c.
Dharmamba, 1960.
Jones, 1950b, 1951.
- Thrissocles grayi* (Bleeker)
Delsman, 1929a.
Vijayaraghavan, 1957
- Thrissocles hamiltoni* (Gray)
Bal and Pradhan, 1951.
Jones, 1950b, 1951
Masurekar and Rege, 1960.
Mookerjee and Mookerjee, 1950.
- Thrissocles kammalensis* (Bleeker)
Bal and Pradhan, 1951.
Bapat and Bal, 1950.
Jones, 1950b, 1951.
Rao. N.G.S., 1967.
- Thrissocles mystax* (Schneider)
Basheeruddin and Nayar, 1962.
Delsman, 1929a.
- Dharmamba, 1960.
Ganapati and Rao. 1962.
Gopinath, 1946a, 1946b.
Jones, 1950b, 1951.
Rao. N. G. S., 1967.
Venkatraman, 1956.
- Thrissocles Purava* (Hamilton)
Bal and Pradhan, 1951.
Bapat and Bal, 1950b.
Jones, 1946a, 1950b, 1951.
Palekar and Karandikar, 1952.
Rao. N.G.S., 1967.
- Thrissocles setirostris* (Broussonet)
Basheeruddin and Nayar, 1962.
- Thrissocles & Engraulis* spp.
Bapat, 1955.
Chacko, 1954a.
Delsman, 1929a.
Delsman and Hardenberg, 1934.
John, 1951.
Jones, 1951.
Jones and Sujansingani, 1954.
Nair, R.V., 1952b.
Panikkar and Aiyar, 1939.
Rao. N. G. S., 1967.
- Fam. ALEPOCEPHALIDAE
- Xenodermichthys guentheri* (Alcock)
Alcock, 1892c.
Jones, 1951.
- Fam. CHIROCENTRIDAE
- Chirocentrus dorab* (Forsk.)
Basheeruddin and Nayar, 1962.
Chacko, 1950c.
Delsman, 1922b, 1929c, 1930b.
Delsman and Hardenberg, 1934.
Jones, 1950b, 1951.
*Prabhu, 1953, 1954b, 1956.
- Chirocentrus nudus* Swainson = *C. hypselosoma* Bleeker
Delsman, 1930b.
Delsman and Hardenberg, 1934.
- Fam. CHANIDAE
- Chanos chanos* (Forsk.)
Adams, Montalban and Martin, 1932.
Alikunhi, 1957b.
- *Hora, 1924.

Chanos chanos (Contd.)

- Balanco and Villadolid, 1939.
 Carbine, 1948.
 Chacko, 1942, 1949a, 1950c.
 1954c. 1955a, 1956.
 Chacko, Abraham and Andal, 1953.
 Chacko and Ganapati, 1949a. 1949e.
 Chacko and Mahadevan, 1956.
 Chacko and Thomas, 1962.
 Chidambaram, 1949.
 Chidambaram and Unny, 1946.
 Delsman, 1926f, 1929b, 1929c.
 Delsman and Hardenberg, 1934.
 Devanesan and Chacko, 1944b.
 Durve and George, 1967.
 Frey, 1947.
 Ganapati and Chacko, 1950.
 Ganapati, Chacko, Srinivasan
 and Krishnamurthi, 1950.
 Herre, 1937.
 Herre and Mendoza, 1929.
 Job, 1959.
 Job and Chacko, 1947b.
 Jones, 1950b, 1951.
 Jones and Sarojini, 1952.
 Mammen, 1957.
 Mohapatra, 1966.
 Panikkar, Tampi and Viswanathan,
 1952, 1953.
 Rabanal, 1951.
 Schuster, 1949a, 1952.
 Sunier, 1922.
 Tampi, 1958a, 1958b.

Fam. SALMONIDAE

Salmo fario= *S. trutta fario*

- Ahmad, 1942. Linnaeus
 Chacko and Ganapati, 1952.
 Dhu, 1906, 1918.
 Jones, 1946a, 1950b.
 Mackay, 1944, 1945a, 1945b,
 1945c.
 Tyson, 1941.

Salmo gairdneri Richardson

- Fowke, 1938.
 Howell, 1916.
 Jones, 1946a, 1950b.
 Jones and Sarojini, 1952.
 Mackay, 1944, 1945a, 1945b.
 Molesworth and Bryant, 1921.

Fam. STOMIATIDAE

Stomias spp.

- Weber, 1913.
 Weber and de Beaufort, 1913

Fam. IDIACANTHIDAE

Idiacanthus fasciola Peters

- Balasubrahmanyam, 1968.
 Yabe, 1953a.

Fam. NOTOPTERIDAE

Notopterus chitala (Hamilton)

- Alikunhi, 1957b.
 Job, David and Das, 1955.
 Jones, 1946a, 1950b.
 Mookerjee, 1946a.
 Southwell, 1917.
 Southwell and Prashad, 1919.

Notopterus notopterus (Pallas)

- Chacko, 1951d, 1956.
 Jones, 1946a, 1950b.
 Mookerjee, 1946a.
 Mookerjee and Mazumdar, 1946a.
 Rao, C. N. R., 1919.

Fam. SYNODIDAE

Harpodon nehereus (Hamilton)

- Bapat, 1967.
 Bapat, Banerjee and Bal, 1952.
 Delsman, 1929c.
 Delsman and Hardenberg, 1934.
 Hora, 1938.
 Jones, 1951.
 Pillay, 1948b.
 Raj, 1955.

Saurida gracilis (Quoy and Gaimard)

- Jones, 1951.
 Weber and de Beaufort, 1913.

Saurida tumbil (Bloch)

- Annigeri, 1967.
 Basheerudhin and Nayar, 1962.
 Delsman, 1929c.
 Delsman and Hardenberg, 1934.
 Gopinath, 1946b.
 Jones, 1951.
 Kuthalingam, 1959c, 1959d.

- Saurida tumbil* (Contd.)
Mito, 1961.
Tagawa and Mako, 1965
Vijayaraghavan, 1957.
- Saurida* spp.
Jones, 1951.
Kuthalingam, 1958.
Raju and Ganapati, 1967.
- Saurus* sp.
Bapat, 1955.
- Synodus indicus* (Day)
Gopinath, 1946b.
Jones, 1951.
- Synodus variegatus* (Lacepede)=
S. synodus Bleeker
Jones, 1951.
Mito, 1961.
Regan, 1916.
Weber and de Beaufort, 1913.
- Synodus* spp.
Jones, 1951.
Nair, R.V., 1952a.
- Trachynocephalus myops* (Bloch and
Gopinath, 1946b. Schneider)
Jones, 1951.
Mito, 1961, 1967.
- Fam. SCOPELIDAE
- Myctophum* spp.
Bal and Pradhan, 1945b, 1951.
Delsman, 1938.
Jones, 1951.
Mito, 1961.
Raju and Ganapati, 1967.
Regan, 1916.
Yabe, 1953a.
- Fam. CYPRINIDAE
- Amblypharyngodon melettina* (Valen-
Deraniyagala, 1930b. ciennes)
Jones, 1950b.
Willey, 1910.
- Amblypharyngodon microlepis* (Bleeker)
Jones, 1946a, 1950b.
Raj, 1916.
- Amblypharyngodon mola* (Hamilton)
Jones, 1950b
Mookerjee and Basu, 1946.
- Aristichthys nobilis* (Richardson)
Alikunhi and Sukumaran, 1964.
- Barbus (Lissochilus) hexagonolepis*
Ahmad, 1946, 1948a, McClelland
Alikunhi, 1948a, 1957b.
Chacko, Kuriyan and Thygarajan, 1955.
Chacko and Kuriyan, 1949.
Hora and Nair, K.K., 1943a.
Jones, 1950b.
Smith, 1945.
Smith, 1944.
- Barbus (Puntius) ambassis* Day
Jones, 1946a, 1950b.
Spence and Prater, 1932.
- Barbus (Puntius) amphibius* (Valenciennes)
Chacko, 1951c.
Jones, 1946a, 1950b.
Raj, 1916.
Thomas, 1870.
- Barbus (Puntius) carnaticus* Jerdon
Alikunhi, 1957b.
Chacko, 1951d, 1956.
Chacko and Kuriyan, 1949b.
Day, 1876-1888.
Jones, 1946a, 1950b.
- Barbus (Puntius) chola* (Hamilton)
Jones, 1946a, 1950b.
Stoye, 1935.
- Barbus (Puntius) conchoniensis* (Hamilton)
Baake, 1930d.
Innes, 1935.
Jones, 1946a, 1950b.
Mellen and Lanier, 1935.
Mookerjee, 1946a.
Mookerjee and Ghose, 1945.
Stoye, 1935.
- Barbus (Puntius) curmuca* (Hamilton)
Abraham, 1964.
Chacko, 1950b, 1951d, 1956.
Jones, 1950b.
Raj, 1958.
- Barbus (Puntius) dorsalis* Jerdon
Deraniyagala, 1930b.
Jones, 1946a, 1950b.
Raj, 1916.
Willey, 1910.
- Barbus (Puntius) dubius* Day
Alikunhi, 1957b.
Chacko, 1951d.

- Barbus (Puntius) dubius* (Contd.)
 Chacko *et al.*, 1955.
 Choodamani and Thygarajan, 1959.
 Menon, and Radha, 1964.
- Barbus (Puntius) filamentosus* (Val.) =
B. (P.) machecola (Valenciennes)
 Deraniyagala, 1930b.
 Jones, 1946a, 1950b.
 Spence and Prater, 1932.
- Barbus (Puntius) gelius* (Hamilton)
 Innes, 1935.
 Jones, 1946a, 1950b.
 Stoye, 1935.
- Barbus (Puntius) kolus* Sykes
 Bhatnagar, 1967a.
 Jones, 1950b.
 Suter, 1942.
- Barbus (Puntius) lateristriga* (Val.)
 Jones, 1946a, 1950b.
 Mellen and Lanier, 1935.
 Stoye, 1935.
- Barbus (Puntius) melanampyx* Day
 Ganapati and Chacko, 1951b.
 Jones, 1946a, 1950b.
- Barbus (Puntius) phutunio* (Hamilton)
 Innes, 1935.
 Jones, 1946a, 1950b.
 Stoye, 1935.
- Barbus (Puntius) sahyadriensis* Silas
 Silas, 1953.
- Barbus (Puntius) sarana* (Hamilton)
B. (P.) chrysopoma Valenciennes
 Alikunhi, 1957b.
 Chacko, 1956.
 Chacko and Krishnamurthy, 1950b.
 Chaudhuri, 1962b.
 Day, 1876-1888.
 Deraniyagala, 1930b.
 Job, *et al.*, 1955.
 Jones, 1946a, 1950b.
 Khan, 1934.
 Mookerjee, 1943.
 Prashad and Mookerjee, 1930.
 Quasim and Qayyum, 1962.
 Raj, *et al.*, 1945.
- Barbus (Puntius) Stigma* (Val.)
 Day, 1876-1888.
 Ganapati and Chacko, 1951a.
 Jones, 1946a, 1950b.
 Kulshrestha and Majupuria, 1957.
 Mookerjee *et al.*, 1952.
 Mookerjee *et al.*, 1941.
 Panikkar and Aiyar, 1939.
 Qasim, 1966.
 Qayyum and Qasim, 1964.
 Raj, 1916.
 Sathynesan, 1961, 1964.
- Barbus (Puntius) terio* (Hamilton)
 Innes, 1935.
 Jones, 1946a, 1950b.
- Barbus (Puntius) ticto* (Hamilton) =
B. (P.) stoliczkanus (Day)
 Fraser, 1937.
 Ibrahim, 1957.
 Innes, 1935.
 Jones, 1946a, 1950b.
 Khan, 1938a.
 Mellen and Lanier, 1935.
 Stoye, 1935.
- Barbus (Puntius) titteya* Deraniyagala
 Deraniyagala, 1930b.
 Jones, 1946a, 1950b.
- Barbus (Puntius) vittatus* Day
 Day, 1876-1888.
 Ibrahim, 1957.
 Innes, 1935.
 Jones, 1946a, 1950b.
 Stoye, 1935.
- Barbus (Puntius) spp.*
 Chacko and George, 1953.
 Raj, *et al.*, 1945.
- Barbus (Tor) khudree* Sykes
 Lovatt, 1956.
- Barbus (Tor) mosal* var. *mahanadicus*
 Job *et al.*, 1955. David
- Barbus (Tor) putitora* (Hamilton)
 Edye, 1923.
 Jones, 1946a, 1950b.
 Jones and Sarojini, 1952.

- Barbus (Tor) putitora* (Contd.)
Quasim and Qayyum, 1962.
Raj, 1945.
Raj, *et al.*, 1945.
- Barbus (Tor) tor* (Hamilton)
Deraniyagala, 1930b.
Devanesan and Chidambaram, 1948.
Jones, 1946a, 1950b.
Khan, 1923a, 1924a, 1934, 1939b.
Nevill, 1915.
Thomas, 1897.
- Barilius auropurpureus* Annandale
Annandale, 1918.
- Barilius barila* Hamilton
Desai and Karamchandani, 1968.
- Barilius bendelisis* (Hamilton)
Chacko and Venkataraman, 1945.
Day, 1877.
Fraser, 1937.
Jones, 1946a, 1950b.
- Barilius bendelisis* var. *chedra*
Desai and Karamchandani, 1968. Hamilton
- Barilius gatensis* (Valenciennes)
Jones, 1946a, 1950b.
- Barilius vagra* Hamilton
Sehgal, 1961.
- Brachydanio albolineatus* (Blyth)
Baake, 1930b.
Jones, 1946a, 1950b.
Mellen and Lanier, 1935.
Stoye, 1935.
- Brachydanio nigrofasciatus* Day
Innes, 1935.
Jones, 1946a, 1950b.
Mellen and Lanier, 1935.
- Brachydanio rerio* (Hamilton)
Innes, 1935.
Jones, 1946a, 1950b.
Mellen and Lanier, 1935.
- Carassius auratus* (Linnaeus)
Basu, 1951c.
Chacko and Ganapati, 1949a.
Jones, 1946a, 1950b.
Khan, 1929.
Mellen and Lanier, 1935.
- Carassius carassius* (Linnaeus)
Chacko, 1951d.
- Ganapati and Chacko, 1951b.
Jones and Sarojini, 1952.
- Carps
- Alikunhi, 1957a, 1958.
Alikunhi, Chaudhuri and Ramachandran, 1951, 1955.
Alikunhi, *et al.*, 1964.
Alikunhi and Jhingran, 1951.
Basu, 1951a, 1951b, 1952b, 1952c.
Beaven, 1877.
Chaudhuri, 1959, 1963, 1964.
Chaudhuri and Alikunhi, 1957.
Chaudhuri *et al.*, 1962.
David, 1954, 1960.
Devasundaram, 1947.
Ganapati, Alikunhi and Zobairi, 1947.
Ganapati and Chacko, 1954.
Gopalakrishnan, Pal and Chakraborty, 1966.
Hora, 1944, 1945a.
Hussain, 1945.
Ibrahim, 1963.
Karamchandani, 1957.
Khan and Hussain, 1947b, 1947c.
Khan, 1959.
Khanna, 1958.
Mitra, 1956, 1957, 1958.
Mitra and Das, 1968.
Mitra and Mohapatra, 1953.
Mookerjee, 1945a, 1945b.
Mookerjee, Ganguly and Mitra, 1952.
Rahimullah, 1948.
Raj and Cornelius, 1948.
Rajan and Rao, 1965.
Ranade and Kevalramani, 1956.
Roy and Das, 1962.
Saha *et al.*, 1967.
Saha *et al.*, 1957.
Saha, Sen and Mazumdar, 1956a, 1956b.
Saha and Chowdhury, 1956.
Saha and Sen, 1958.
Sarbah, 1964.
Srinivasan, Chacko and Valsan, 1955.
Srivastava and Karamchandani, 1967.
- Catla catla* (Hamilton)
Ahmad, 1948b, 1948c, 1955.
Alikunhi, 1957b.
Alikunhi, *et al.*, 1964.
Badami and David, 1964.
Basu, 1950a, 1950b, 1951c, 1952a.
Chacko, 1951d, 1956.
Chacko and Ganapati, 1950b.
Chacko and George, 1953.

Catla catla (Contd.)

Chacko and Kuriyan, 1948b, 1949.
 Chauhan and Ramakrishnan, 1959.
 Das, B.B., 1917.
 Das, B.C., 1959, 1961.
 Das and Gupta, 1945.
 De, 1936.
 Devanesan and Chidambaram, 1948.
 Dubey and Tuli, 1961.
 Ganapati and Alikunhi, 1948a.
 Government of Madras, 1956.
 Gravely, 1931.
 Hornell, 1922b.
 Jagannadhan, 1947.
 Jhingran, 1966.
 Job and Chacko, 1947a.
 Job *et al.*, 1955.
 Jones, 1946a, 1950b.
 Jones and Sarojini, 1952.
 Karamchandani, and Pisolkar, 1968.
 Khan, 1923a, 1924a, 1934, 1942.
 Mammen and Sulochanan, 1962.
 Mitchell, 1875.
 Mitra, 1942.
 Mitra and Das, 1957.
 Mookerjee, 1943, 1946a.
 Mookerjee, *et al.*, 1946.
 Mookerjee, *et al.*, 1944a, 1948b.
 Raj, 1948a, 1948b.
 Raj, 1916.
 Raj, *et al.*, 1945.
 Renganathan, *et al.*, 1967.
 Saha, *et al.*, 1968.
 Sengupta, 1966.
 Southwell, 1915, 1917.
 Srinivasan, 1955.
 Upadhyaya, 1956a.

Chela, argentius, Day

Chacko, *et al.*, 1946.

Chela bacaila (Hamilton)

Qasim, and Qayyum, 1962.
 Upadhyaya, 1956a.

Chela, phula (Hamilton)

Alikunhi, and Chaudhuri, 1954.

Chela Untrahi (Day)

Chacko, 1951b, 1951d.

Cirrhina cirrhosa (Bloch)

Alikunhi, 1957b.

Chacko, 1951d, 1956.

Chacko and George, 1953.

Chacko and Kuriyan, 1949.

Chacko *et al.*, 1955.

Cirrhina mrigala (Hamilton)

Ahmad, 1944b, 1948b, 1948c, 1955.

Alikunhi, 1949, 1957b.

Alikunhi *et al.*, 1951.

Alikunhi *et al.*, 1964.

Basu, 1950a, 1950b, 1951c, 1951d, 1952a.

Chacko, 1951d, 1956.

Chacko and Ganapati, 1951.

Chacko and George, 1953.

Chakraborty and Singh, 1967.

Chauhan and Ramakrishnan, 1959.

Das, 1917, 1959, 1961.

Das and Gupta, 1945.

De, 1936.

Dubey and Tuli, 1961.

Husain, 1945.

Job *et al.*, 1955.

Jones, 1946a, 1950b.

Jones and Sarojini, 1952.

Khan, 1923a, 1924a, 1924b, 1926,

1934, 1938b, 1940a, 1942, 1943,
 1945a, 1947.

Lal, 1963.

Mitra and Das, 1957.

Mookerjee, 1946a.

Mookerjee, *et al.*, 1946.

Mookerjee, *et al.*, 1946b.

Qasim, and Qayyum, 1962.

Raj, *et al.*, 1945.

Renganathan, *et al.*, 1967.

Saha, *et al.*, 1968.

Sarkar and Kaushik, 1959.

Sengupta, 1966.

Southwell, 1915, 1917.

Srinivasan, 1955.

Upadhyaya, 1956a, 1956b.

Vijayalakshmanan, *et al.*, 1962.

Cirrhina reba (Hamilton)

Alikunhi, 1957b, 1958.

Alikunhi *et al.*, 1951, 1955, 1967.

Alikunhi *et al.*, 1964.

Alikunhi and Jhingran, 1951.

(Contd.)

- Cirrhina reba* (Contd.)
 Alikunhi and Rao, 1952a.
 Chacko, 1950a, 1951d, 1956.
 Chacko and George, 1953.
 Chacko and Kuriyan, 1949.
 Das, 1958.
 Ganapati and Alikunhi, 1949a.
 Ganapati *et al.*, 1948.
 Job *et al.*, 1955.
 Jones, 1946a, 1950b.
 Khan, 1923a, 1934.
 Mookerjee, 1943.
 Mookerjee, *et al.*, 1966.
 Varghese, 1963, 1967.
- Crassocheilus latia* (Hamilton)
 Das, 1961.
- Crassocheilus latius latius* (Ham.)
 Bhatnagar, 1967b.
- Ctenopharyngodon idellus* Val.
 Alikunhi *et al.*, 1952.
 Alikunhi and Sukumaran, 1964.
 Alikunhi *et al.*, 1963.
 Chaudhuri, *et al.*, 1966.
 Hickling, 1967.
- Cyprinus carpio* Linnaeus
 Alikunhi, 1957b, 1966.
 Alikunhi *et al.*, 1952.
 Chacko, 1951d, 1956.
 Jones and Sarojini, 1952.
 Rabani, 1951.
 Raj and Cornelius, 1948.
 Ramakrishnan and Alikunhi, 1967.
 Tandon, 1965.
- Cyprinus carpio* var. *communis* (Linn.)
 Alikunhi and Rao, 1948b.
 Bhatnagar, 1967b.
 Das and Pati, 1966.
 Jones, 1950b.
 Punwani, 1952.
 Zobairi and Choodamani, 1948.
- Cyprinus carpio* var. *nudus* (Linn.)
 Alikunhi and Rao, 1948b.
 Punwani, 1952.
- Cyprinus carpio* var. *specularis* (Linn.)
 Alikunhi and Rao, 1948b.
 Chacko, 1945.
 Punwani, 1952.
- Danlo malabaricus* (Jerdon)
 Jones, 1938a, 1946a, 1950b.
 Mellen and Lanier, 1935.
- Danio neilgherriensis* Day
 Day, 1876-1888.
 Jones, 1946a, 1950b.
- Esomus danricus* (Hamilton) = *Nuria danrica* (Hamilton)
 Deraniyagala, 1930a.
 Ganapati and Chacko, 1951a.
 Innes, 1935.
 Jones, 1946a, 1950b.
 Mellen and Lanier, 1935.
 Raj, *et al.*, 1945.
 Stoye, 1935.
- Garra ceylonensis ceylonensis* (Bleeker)
 Deraniyagala, 1930b.
 Jones, 1938b, 1941, 1946a, 1950b.
- Garra gotyla* (Gray)
 Bhatnagar, 1967b.
- Garra lamta* (Hamilton)
 Ganapati and Alikunhi, 1949a.
 Soni, 1959, 1961.
- Garra mullya* (Sykes)
 Fraser, 1937.
 Jones, 1941b, 1946, 1950b.
- Garra rupeculus* (McClelland)
 Hora, 1921b.
- Gymnocypris waddellii* Regan
 Jones, 1946b, 1950b.
 Stewart, 1911.
- Hypophthalmichthys molitrix* (Val)
 Alikunhi and Sukumaran, 1964.
 Alikunhi, *et al.*, 1963.
 Chaudhuri, *et al.*, 1966.
- Labeo ariza* (Hamilton)
 Chacko, 1951a, 1956.
- Labeo bata* (Hamilton)
 Alikunhi, 1956, 1957b.
 Alikunhi, *et al.*, 1960.
 Alikunhi, *et al.*, 1951.
 Basu, 1950b, 1951c.
 Bhatnagar, 1967b.
 Das, 1961.
 Das and Gupta, 1945.
 Job, *et al.*, 1955.
 Jones, 1946a, 1950b.
 Mookerjee, 1943.
 Mookerjee, *et al.*, 1944a.
 Upadhyaya, 1956a.

- Labeo boga* (Hamilton)
 Alikunhi, et al., 1962.
 Chacko, 1951d, 1956.
 Das, 1961.
 De, 1936.
 Job, et al., 1955.
- Labeo boggut* (Sykes)
 Chacko, 1951d, 1956.
 Job, et al., 1955.
 Misra, 1950.
 Pillay and Shaw, 1949.
- Labeo calbasu* (Hamilton)
 Alikunhi, 1957b.
 Alikunhi, et al., 1949.
 Alikunhi, et al., 1951.
 Alikunhi, et al., 1960.
 Chacko, 1948b, 1951d, 1956.
 Chacko and George, 1953.
 Chacko and Kuriyan, 1949b.
 Das and Mohanty, 1966.
 De, 1936.
 Job, et al., 1955.
 Jones, 1946a, 1950b.
 Khan, 1923a, 1924a, 1934.
 Mitra and Das, 1957.
 Mookerjee, 1943, 1946a.
 Mookerjee and Mazumdar, 1946a.
 Mookerjee, et al., 1944a, 1944b.
 Qasim and Qayyum, 1962.
 Renganathan, et al., 1967.
 Southwell, 1917.
- Labeo dero* (Hamilton)
 Bhatnagar, 1967b.
 Job, et al., 1955.
 Khan, 1934.
- Labeo dyochoilus* (Hamilton)
 Job, et al., 1955.
- Labeo fimbriatus* (Bloch)
 Alikunhi, 1957b.
 Chacko, 1948b, 1951d, 1956.
 Chacko and George, 1953.
 Chacko and Kuriyan, 1949b.
 Ganapati and Alikunhi, 1948a,
 1949a.
 Ganapati et al., 1948.
 Job, et al., 1955.
 Jones, 1946a, 1950b.
- Labeo goniis* (Hamilton)
 Ahmad, 1936, 1944b.
 Jones, 1946a, 1950b.
- Khan, 1923a, 1924b, 1926, 1934.
 Mookerjee, 1943, 1946a.
 Mookerjee and Ganguly, 1949.
 Mookerjee, et al., 1944a.
 Raj, et al., 1945.
- Labeo kontius* Jerdon
 Alikunhi, 1957b.
 Alikunhi and Rao, 1948a.
 Chacko, 1948b, 1951d, 1956.
 Chacko and George, 1953.
 Ganapati and Alikunhi, 1949a.
 Ganapati, et al., 1947.
 Jones, 1946a, 1950b.
- Labeo (Morulius) angra* (Hamilton)
 Ahmad, 1948b, 1948c, 1955.
 Alikunhi, 1947b.
 Alikunhi, et al., 1951.
 Alikunhi, et al., 1964.
 Alikunhi, et al., 1960.
 Basu, 1950a, 1950b, 1951c, 1951d,
 1952a.
 Chacko, 1948b, 1956.
 Chauhan and Ramakrishnan, 1959.
 Das, 1917, 1959, 1961.
 De, 1936.
 Dubey and Tuli, 1961.
 Goldschmidt, 1954.
 Husain, 1945.
 Ibrahim, 1963.
 Jones, 1946a, 1950b.
 Jones and Sarojini, 1952.
 Khan, 1923a, 1924a, 1924b, 1934,
 1942, 1945a, 1947.
 Mitra, 1942.
 Mitra and Das, 1957.
 Mookerjee, 1943, 1946a.
 Mookerjee, et al., 1946.
 Mookerjee, et al., 1946b.
 Mookerjee, et al., 1944a, 1944b
 Motwani and Bose, 1957.
 Qasim and Qayyum, 1962.
 Raj, et al., 1945.
 Renganathan, et al., 1967.
 Saha, et al., 1968.
 Sarkar and Kaushik, 1959.
 Sengupta, 1966.
 Southwell, 1915.
 Srinivasan, 1955.
 Srivastava and Kulashrestha, 1961.
 Upadhyaya, 1956a, 1956b.
 Vijayalakshmanan et al., 1962.

- Labeo*, spp.
Ganapati and Alikunhi, 1949a
Raj, *et al.*, 1945.
- Laubuca dadiburjori* (Menon)
Padmanabhan, 1959.
- Laubuca laubuca* (Hamilton)
Ganapati and Chacko, 1951a.
- Mylopharyngodon piceus* (Richardson)
Alikunhi and Sukumaran, 1964.
- Mystacoleucus ogilbii* (Sykes)
Jones, 1950b.
Rahimullah, 1944.
- Osteochilus (Osteochilichthys) thomasii* (Day)
Alikunhi, 1957b.
Chacko, 1951d, 1956.
Chacko and Kuriyan, 1948b.
Chacko, *et al.*, 1947.
Ganapati and Alikunhi, 1948a.
Jones, 1946a, 1950b.
Spurgeon, 1948a.
- Osteochilus* sp.
Ganapati and Alikunhi, 1948a.
- Oxygaster gora* (Hamilton)
Sehgal, 1961
Sehgal and Singh, 1962.
- Rasbora daniconius* (Hamilton)
Alikunhi and Rao, 1948.
Innes, 1935.
Jones, 1946a, 1950b.
Mellen and Lanier, 1935.
Raj, 1916.
Stoye, 1935.
- Rasbora elanga* (Hamilton)
Chaudhuri, 1962a.
- Rasbora labiosa* (Mukerjee).
Fraser, 1937.
Jones, 1946a, 1950b.
- Rasbora maculata* (Bleeker)
Jones, 1946a, 1950b.
Mellen and Lanier, 1935.
- Rasbora rasbora* (Hamilton)=
R. buchanaani Day
Jones, 1946a, 1950b.
Raj *et al.*, 1945.
Thomas, 1870.
- Rasbora taeniata* Ahl.
Innes, 1935.
Jones, 1946a, 1950b.
- Schizothorax plagiostoma* Heckel
Bhatnagar, 1967b.
- Thynnichthys sandkhol* (Sykes)
Alikunhi, 1957b.
Chacko, 1951d, 1956.
Chacko and Ganapati, 1950a.
Ganapati and Alikunhi, 1949a.
Moghe, 1941.
- Tinca tinca* (Bloch)
Alikunhi, 1957b.
Alikunhi and Renganathan, 1947.
Jones, 1950b.
Jones and Sarojini, 1952.
- Fam. COBITIDAE
- Botia dayi* Hora
David, 1961.
- Botia qeto* (Hamilton)
Jones, 1946a, 1950b.
- Lepidocephalus thermalis* (Val.)
Bhimachar and David, 1945.
Day, 1876-1888.
Deraniyagala, 1930b.
Ganapati and Chacko, 1951a.
Jones, 1946a, 1950b.
Raj, 1916.
- Nemachilus notostigma* Bleeker
Jones, 1946a, 1950b.
- Nemachilus zonatus* (McClelland)
Das and Moitra, 1957c.
Day, 1876-1888.
Jones, 1946a, 1950b.
- Fam. TACHYSURIDAE
- Osteiogeneiosus militaris* (Linnaeus)
Deraniyagala, 1930-1932c.
Jenkins, 1910.
Jones, 1946a, 1950b.
Jones and Sujansingani, 1954.
Pantulu, 1963.
- Tachysurus Dussumieri* (Valenciennes)
Jones, 1951.
- Tachysurus falcarius* Richardson
Jones, 1946a, 1950b.
Pertwee, 1913.
Raj, 1916.
Willey, 1910.

Tachysurus jatius (Hamilton)
Jenkins, 1910.
Jones, 1946a, 1950b.

Tachysurus Jella Day
Chidambaram, 1941.
Devanesan and Chidambaram, 1948.
Jones, 1946a, 1950b.
Thiyagarajan, 1942.

Tachysurus sagor (Hamilton)
Delsman and Hardenberg, 1934.
Jones, 1951.

Tachysurus sona (Hamilton)
Day, 1889.
Jones, 1946a, 1950b.
Singh, 1965.

Tachysurus thalassinus (Ruppel)
Jones, 1951.

Tachysurus = Arius spp.
Chacko, 1954a.
Jones and Sujansingani, 1954.

Fam. PLOTOSIDAE

Plotosus anguillaris (Bloch)
John, 1951
Jones, 1951.

Plotosus canius Hamilton
Basheeruddin and Nayar, 1962.
Chaudhuri, 1916.
Jones and Sujansingani, 1954.

Fam. SILURIDAE

Ompok bimaculatus, (Bloch)
Chaudhuri, 1962c.
Deraniyagala, 1930- 1932c.
Job *et al.*, 1955.
Jones, 1946a, 1950b.
Qasim, 1966.
Qayyum and Qasim, 1964.
Rao. C.N.R., 1919.

Ompok pabda (Hamilton)
Qasim and Qayyum, 1962.
Qayyum and Qasim, 1961.

Ompok sp.
Das, 1959.

Wallago (= Wallagonia) attu (Schneider)
Ahmad, 1934, 1944a, 1944b.
Alikunhi, 1948b.
Chacko, 1948b.
Das, 1965.
Job and Chacko, 1947.
Job *et al.*, 1955.
Jones, 1946a, 1950b.
Kapoor, 1962.
Khan, 1924a, 1924b, 1926, 1934.
Mazumdar, 1952, 1957.
Mookerjee, 1946a, 1946b.
Qasim and Qayyum, 1962.

Wallago sp.
Das, 1959.
Hora and Mookerjee, 1938.

Fam. BAGRIDAE

Gagata cenia (Hamilton)
Day, 1876-1888.
Jones, 1946a, 1950b.
Karamchandani and Desai, 1966.
Karamchandani and Motwani, 1956.

Gagata itchkeea (Sykes)
Karamchandani and Desai, 1966.

Mystus aor (Hamilton)
Job *et al.*, 1955.
Jones, 1946a, 1950b.
Raj, 1962.
Renganathan, 1964.
Renganathan and Radha, 1966.
Saigal, 1967.

Mystus, bleekeri (Day)
Bhatnagar, 1967b.
Das, 1965.

Mystus cavasius (Hamilton)
Qasim and Qayyum, 1962.

Mystus gulio (Hamilton)
Eggert, 1930.
Jones, 1946a, 1950b.
Mookerjee *et al.*, 1940.

Mystus seenghala (Sykes)
Alikunhi, 1957b.
Bhatnagar, 1967b.
Chacko, 1951d, 1956.
Job *et al.*, 1955.

- Mystus seenghala* (Contd.)
 Jones, 1946a, 1950b.
 Khan, 1934.
 Raj, 1962.
 Saigal and Motwani, 1962.
 Sathyanesan, 1962.
- Mystus vittatus* (Bloch)
 Das and Moitra, 1957a.
 Jones, 1946a, 1950b.
 Prabhu, 1954b, 1956.
 Qasim and Qayyum, 1962.
 Qayyum and Qasim, 1961.
- Mystus*, spp.
 Das, 1959.
- Rita chrysea* Day
 Job *et al.*, 1955.
- Rita, rita* (Hamilton)
 Das, 1965.
 Khan, 1934.
 Karamchandani and Motwani, 1955.
- Rita*, sp.
 Srinivasachar, 1957a.
- Fam. SISORIDAE
- Bagarius bagarius* (Hamilton)
 Das and Moitra, 1957b.
 David, 1962
 Job *et al.*, 1955.
 Karamchandani and Desai, 1966.
 Qasim and Qayyum, 1962.
- Bagarius* spp.
 Das, 1959.
 Ganapati and Alikunhi, 1949a.
- Sisor rhabdophorus* (Hamilton)
 Day, 1889.
 Jones, 1946a, 1950b.
- Fam. SCHILBEIDAE
- Ailia coilia* (Hamilton)
 Karamchandani and Motwani, 1956.
 Srinivasachar, 1956.
- Ailichthys punctata* Day
 Karamchandani and Motwani, 1956.
- Clupisoma garua* (Hamilton)
 Job *et al.*, 1955.
 Karamchandani and Motwani, 1956.
- Clupisoma montana* (Jerdon)
 Bhatnagar, 1967b.
- Eutropichthys vacha* (Hamilton)
 Qasim and Qayyum, 1962.
- Eutropichthys* sp.
 Das, 1959.
- Pangasius pangasius* (Hamilton)
 Alikunhi, 1948b.
 David., 1967.
 Job *et al.*, 1955.
 Srinivasachar, 1956
- Silonia silondia* (Hamilton)=
Silundia gangetica Cuv. & Val.
 Job *et al.*, 1955.
 Karamchandani and Desai, 1966.
 Karamchandani and Motwani, 1956.
 Mookerjee *et al.*, 1955.
 Srinivasachar, 1951.
- Fam. HETEROPNEUSTIDAE
- Heteropneustes fossilis* (Bloch)
 Alikunhi, 1957b.
 Day, 1876-1888.
 Deraniyagala, 1930-1932c.
 Ghosh and Kar, 1952.
 Jones, 1946a, 1950b.
 Qasim and Qayyum, 1962.
 Srinivasachar, 1951b, 1953
- Heteropneustes* spp.
 Das, 1959.
 Ramaswamy, 1958
 Sundararaj and Ramaswamy, 1956
- Fam. CLARIIDAE
- Clarius batrachus* (Linnaeus)
 Alikunhi, 1957b.
 Mookerjee and Mazumdar, 1950.
 Srinivasachar, 1959.
- Clarias teysmanni* Bleeker
 Deraniyagala, 1930-1932c.
 Jones, 1946a, 1950b.
- Clarias* sp.
 Das, 1959.
 Ramaswami, 1958.

Fam. ANGUILLIDAE

Anguilla japonica Temm. & Schl.
Mookerjee, *et al.*, 1952.

Anguilla nebulosa McClelland = *A. Bengalensis* (Gray and Hardwicke) =
A. elphinstonei Sykes
Ibrahim, 1961.
Jones, 1950b.
Pantulu, 1956.
Rahimullah *et al.*, 1944.

Anguilla sp.
Delsman, 1933a.
Mito, 1961.

Fam. MURAENIDAE

Muraena macrura (Bleeker)
Pantulu and Jones, 1954.

Muraena spp.
Bensam, 1968a.
Delsman, 1929c, 1933a.
Ganapati and Raju, 1961b, 1963.
Jones, 1951.
Nair, R.V., 1946a.
Nair and Bhimachar, 1950.
Panikkar and Nair, 1945.
Pantulu and Jones, 1954.
Raju and Ganapati, 1967.
Regan, 1916.

Fam. MURAENESOCIDAE

Muraenesox cinercus (Forsk.)
Gopinath, 1950.
Jones, 1951.
Nair, R.V., 1947, 1948.

Muraenesox talabon (Cantor)
Jones and Pantulu, 1952.
Nair and Mohamed, 1961b.

Muraenesox talabonoides (Bleeker)
Nair and Mohamed, 1961a.

Muraenesox spp.
Jones, 1951.
Nair, R.V., 1946a.
Panikkar and Nair, 1945.

Fam. CONGRIDAE

Congrellus anago (Schlegel)
Gopinath, 1946b, 1950.
Jones, 1951.
Jones and Pantulu, 1955.
Nair, R.V., 1948.

Uroconger lepturus (Richardson)
Jones, 1951.
Nair, R.V., 1946c, 1948.
Nair and Mohamed, 1961c.

Fam. OPHICHTHYIDAE

Leiuranus semicinctus (Lay and Bennet).
Deraniyagala, 1930a.
Jones, 1951.

Ophichthys spp.
Delsman, 1933a.
Ganapati and Raju, 1961b, 1963.
Jones and Pantulu, 1955.
Mito, 1961.
Nair and Bhimachar, 1950.
Nair and Dharmamba, 1961.
Nair and Mohamed, 1961d.
Regan, 1916.

Pisoodonophis hijala (Hamilton)
Jones, 1951.
Jones and Pantulu, 1955.
Nair, K.K., 1945.

Fam. MORINGUIDAE

Moringua (Rataboura) raitaboura (Ham.)
Jones, 1951.
Nair, R.V., 1945.

LEPTOCEPHALI

Aiyar *et al.*, 1944.
Bauchot, 1959.
Delsman, 1933a.
Deraniyagala, 1934c.
Gopinath, 1950.
Mito, 1961.
Nair, R.V., 1961.
Nair and Mohamed, 1961e.
Weber, 1913.
Weber and de Beaufort, 1916.

Fam. BELONIDAE

Tylosurus crocodilus (Lesueur)
Masurekar, 1968.

Tylosurus strongylurus (Van Hass.)
Job and Jones, 1938.
Jones, 1946c, 1950b.
Jones and Menon, 1953.
Jones and Sujansingani, 1954.
Nair, R.V., 1952b.
Panikkar and Aiyar, 1939.

Tylosurus spp.
Devanesan and Chidambaram, 1948.
Gunther, 1889.
Jones, 1951.

Fam. HEMIRHAMPHIDAE

Dermogenys burmanicus Mookerjee
Jones, 1946c, 1950b.
Mookerjee, 1935.

Hemirhamphus far (Forsk.)
Vijayaraghavan, 1957.

Hemirhamphus gaimardi (Val.)
Bhattacharya, 1916.
Job and Jones, 1938.
Jones, 1946c, 1950b.
Jones and Sujansingani, 1954.
Nair, R.V., 1952b, 1952c.
Panikkar and Aiyar, 1939.

Hemirhamphus georgii (Valenciennes)
Chidambaram and Menon, 1948.
Devanesan, 1937.
Jones, 1951.
Devanesan and Chidambaram, 1948.
Kuthalingam, 1959b.
Talwar, 1964a, 1964b.

Hemirhamphus marginatus (Forsk.)
Talwar, 1964a, 1968.

Hemirhamphus quoyi (Valenciennes)
Sudarsan, 1968b.

Hemirhamphus spp.
Balakrishnan, 1959.
Delsman, 1929c.
Delsman and Hardenberg, 1934.
Gunther, 1889.
Jones, 1951.
Kuthalingam, 1958.

Zenarchopterus buffoni (Valenciennes)
Jones and Pantulu, 1958.

Zenarchopterus ectuntio (Hamilton)
Bal and Pradhan, 1946, 1947, 1951.
Bapat and Bal, 1950.
Jones, 1946c, 1951.

Fam. EXOCOETIDAE.

Cypselurus comatus (Mitchill)
Padmanabhan, 1963.

Cypselurus coromandelensis (Hornell)
Arora and Banerji, 1957.
Balasubrahmanyam *et al.*, 1967

Cypselurus poecilopterus (Cuv. & Val.)
Uchida *et al.*, 1958

Cypselurus oligolepis (Bleeker)
Prabhu, 1954b, 1956.

Cypselurus spilopterus (Valenciennes)
Basheeruddin and Nayar, 1962.

Cypselurus spp.
Delsman and Hardenburg, 1934.
Devanesan and Chidambaram, 1948.
Hornell, 1922b.
Jones, 1951.
Nayudu, 1922.

Exocoetus volitans (Linnaeus)
Balasubrahmanyam *et al.*, 1967.

Exocoetus spp.
Mito, 1961.
Yabe, 1953a.

Oxyporhamphus micropterus micropterus
Mito, 1961 (Cuv & Val.)
Uchida, *et al.*, 1958

Parexocoetus brachypterus (Richard.)
Basheeruddin and Nayar, 1962.
Uchida, *et al.*, 1958.

Parexocoetus mento mento Val.
Uchida, *et al.*, 1958.

Fam. BREGMACEROTIDAE

Bregmaceros atripinnis Tickell
Raju and Ganapati, 1967.

Bregmaceros maccllellandi Thompson
Bal and Pradhan, 1945b, 1947.

Bregmaceros macclellandi (Contd.)
 Bapat and Bal, 1950.
 Guther, 1889.
 Jones, 1951.
 Jones and Pantulu, 1958.
 Munro, 1950.

Fam. FISTULARIDAE

Fistularia petimba Lacepede
 Mito, 1961.

Fistularia serrata Cuvier
 Delsman, 1922a, 1929c.
 Jones, 1951.

Fistularia spp.
 Balakrishnan, 1959.
 Boonprakob, 1963.
 Delsman and Hardenburg, 1934.

Fam. CENTRISCIDAE

Centriscus scutatus Linnaeus
 Jones, 1951.

Fam. SOLENOSTOMIDAE

Solenostomus cyanopterus Bleeker
 Padmanabhan, 1961.

Fam. SYNGATHIDAE

Hippocampus sp.
 Balakrishnan, 1959.

Ichthyocampus carce (Hamilton)
 Jones and Menon, 1953.
 Jones and Sujansingani, 1954.

Microphis brachyurus (Bleeker)
 Dunker, 1910.
 Jones, 1950b, 1951.

Nerophis sp.
 Kadam, 1959.

Syngnathoides biaculataeatus (Bleeker)
 Jones, 1951.
 Sudarsan, 1968a.
 Weber and de Beaufort, 1922.

Syngnathus cyanopsilus Bleeker
 Bal and Pradhan, 1947, 1951.
 Jones, 1951.

Syngnathus schlegeli Day
 Mito, 1961.

Syngnathus sp.
 Balakrishnan, 1959.

Fam. CYPRINODONTIDAE

Aphanius dispar (Ruppel)
 Jones, 1946c, 1950b.

Aplocheilus blockii (Arnold)
 Innes, 1935
 Job, 1940.
 Jones, 1946c, 1950b.
 Mellen and Lanier, 1935.
 Russel and Jacob, 1939.
 Stoye, 1935
 Thomas, 1887.

Aplocheilus lineatus (Val.)
 Chacko and Ganapati, 1949d.
 Innes, 1939.
 Job, 1940.
 Jones, 1946c, 1950b.
 Jones and Job, 1940.
 Mellen and Lanier, 1935.
 Moody, 1933
 Stoye, 1935.

Aplocheilus panchax (Hamilton)
 Chatterjee, 1934.
 Innes, 1935.
 Job, 1940.
 Jones, 1946c, 1950b.
 Jones and Sujansingani, 1954.
 Mellen and Lanier, 1935.
 Mookerjee, 1946a.
 Norlund, 1937
 Stoye, 1935.
 Sunier, 1922.

Aplocheilus sp.
 Ahl, 1929.
 Hora and Mukerji, 1938.

Oryzias melastigma (McClelland)
 Chatterjee, 1934.
 Chaudhuri, 1916b.
 Ganapati and Chacko, 1951a.
 Jenkins, 1910.
 Job, 1940.
 Jones, 1937a, 1944, 1946c, 1950b.
 Jones and Sujansingani, 1954.

Oryzias melastigma (Contd.)

Mookerjee, 1946a.
Mookerjee, *et al.*, 1955.
Panikkar and Aiyar, 1939.
Raj, 1916.
Rangarajan, 1951.
Stoye, 1935.

Fam. POECILIIDAE

Gambusia affinis (Barid and Girard)& *G. holobrookii* (Girard)

Baake, 1930c.
Chacko, 1948c.
Chacko and Venkataraman, 1947b.
Gopinath, 1943.
Jones, 1946c, 1950b.
Jones and Sarojini, 1952.
Mellen and Lanier, 1935.

Lebistes reticulatus (Peters)

Chacko, 1948d.
Jones, 1946c, 1950b
Mookerjee, *et al.*, 1940.
Purser, 1943.
Stoye, 1935.

Fam. HORAICHTHYIDAE

Horaichthys setnai Kulkarni

Jones, 1946c, 1950b.
Kulkarni, 1940.

Fam. SPHYRAENIDAE

Sphyraena jello Cuvier

Bal and Pradhan, 1945b, 1946,
1947, 1951.
Basheeruddin and Nayar, 1962.
Jones, 1951.

Sphyraena obtusata (Cuv. And Val.)

Basheeruddin and Nayar, 1962.

Fam. MUGILIDAE

Liza strongylocephalus (Richard.)

Luther, 1967a.

Mugil capito (Cuvier)

Basu, 1946.
Faozi, 1936.
Wimpenny, 1932.

Mugil cephalus Linnaeus = *M. oeur* Day

Alikunhi, 1957b.
Basu, 1946.
Breder, 1940.
Chacko, 1949a.
Faozi, 1936.
Ganapati and Chacko, 1951a.
Jacot, 1920.
Jhingran, 1958, 1959.
Jhingran and Mishra, 1965.
Jones, 1946c, 1950b, 1951.
Kuriyan, 1966.
Kuthalingam, 1959c, 1961c.
Luther, 1967a.
Nair, G.S., 1957.
Patnaik, 1966.
Pillay, 1948a.
Rabanal, 1951.
Samant, 1966.
Sanzo, 1930b, 1936.
Sarojini, 1958a.
Thompson, 1963, 1966.
Uchida *et al.*, 1958.
Wimpenny, 1932.

Mugil cunnesius Valenciennes

Luther, 1967a.
Sarojini, 1958a, 1958b.
Thompson, 1966.

Mugil dussumieri Valenciennes

Bal and Pradhan, 1946, 1947, 1951.
Chacko, 1949a.
Hora, 1924.
Jacob and Krishnamurthy, 1949b.
Jones, 1951.
Thompson, 1966.

Mugil macrolepis (Smith) =

M. troschelli Bleeker
Bal and Pradhan, 1946, 1947, 1951.
Basu, 1946.
Chidambaram and Kuriyan, 1952.
Jacob and Krishnamurthy, 1948a.
Jhingran, and Jena, 1964.
Jones, 1951.
Luther, 1967a, 1967b.
Pillay, 1947.
Thompson, 1966.

Mugil parsia (Hamilton)

Basu, 1946.
Ghosh, 1967.
Jones, 1950b.

Mugil parsia (Contd.)

Luther, 1967a.
Mookerjee, *et al.*, 1946.
Sarojini, 1957, 1958a.
Pillay, 1947.
Thompson, 1966.

Mugil tade (Forsk.)

Basu, 1946.
Luther, 1967a.
Jacob and Krishnamurthy, 1948a.
Pillay, 1947, 1954.
Thompson, 1966.

Mugil vaigiensis (Quoy and Gaimard)

Chidambaram and Kuriyan, 1952.
Devanesan and Chacko, 1943.
Jacob and Krishnamurthy, 1948a.
Luther, 1967a.
Pillay, 1947.

Mugil spp.

Basheeruddin and Nayar, 1962.
Basu, 1946.
Chacko *et al.*, 1953.
Chacko and Ganapati, 1949e.
Devanesan and Chacko, 1943.
Durve and Dharmaraja, 1968.
Gravelly, 1931.
John, 1948.
Jones, 1946c, 1950b, 1951.
Mookerjee, 1948b.
Nair, R.V. 1946b, 1952c.
Panikkar, 1952.
Panikkar and Nair, 1945
Pillay, 1949, 1953b.
Pillay and Shaw, 1949.
Rabanal, 1951.
Uni. Travancore, 1948.

Rhinomugil (= *Mugil*) *corsula* (Ham.)

Alikunhi, 1957b.
Basu, 1946.
Hora, 1938.
Jones, 1950b.
Jones and Sarojini, 1952.
Luther, 1967.
Pakrasi and Alikunhi, 1953.
Qasim and Qayyum, 1962.
Sarojini, 1958a.
Thompson, 1966.

Sicamugil (= *Mugil*) *cascasia* (Ham.)

Sehgal, 1961.

Valamugil (= *Mugil*) *seheli* (Forsk.)

Bal and Pradhan, 1947, 1951.
Basu, 1946.
Chacko, 1950c.
Chidambaram and Kuriyan, 1952.
Devanesan and Chacko, 1943.
Pillay, 1947.
Thompson, 1966.
Venkataraman, 1944.

Fam. ATHERINIDAE

Allanetta forskali (Rupp.)

Balakrishnan, 1959.
Gopinath, 1946b.
Jones, 1951.

Fam. POLYNEMIDAE

*Eleutheronema**tetradactylum* (Shaw)

Bal and Pradhan, 1951.
Bapat and Bal, 1950.
Chacko, 1949c.
Chandra, 1964.
Job and Chacko, 1947b.
Karandikar and Palekar, 1950
Kowtal, 1965.
Rao, 1967.
Sarojini and Malhotra, 1952.

Polynemus heptadactylus Cuvier

Nayak, 1965.

Polynemus indicus Shaw

Basheeruddin and Nayar, 1962
Bhatt *et al.*, 1967.
Karekar and Bal, 1960.
Kuthalingam, 1959c, 1961.
Mohamed, 1955.
Nayak, 1960.

Polynemus paradiseus Linnaeus

Chandra, 1964.
David, 1954.
Day, 1876-1888.
Jones, 1946c, 1950b.
Jones and Menon, 1953.

Polynemus sexfilis (Valenciennes)

Basheeruddin and Nayar, 1962.

Polynemus sextarius (Bl. & Schn.)
Basheeruddin and Nayar, 1962.

Polynemus sp.
Pillay and Shaw, 1949.

Fam. OPHICEPHALIDAE

Ophicephalus gachua (Hamilton)
Day, 1876-1888.
Deraniyagala, 1929.
Jones, 1946c, 1950b.
Khan, 1923b, 1924, 1934.
Mookerjee, *et al.*, 1950.
Raj, 1916.

Ophicephalus marulius (Hamilton)
Alikunhi, 1957b.
Chacko, 1948b, 1951d, 1956.
Das, 1965
Deraniyagala, 1929.
Jones, 1946c, 1950b.
Khan, 1923b, 1924a, 1924b, 1926, 1934.
Khan and Bhatia, 1923.
Mookerjee, 1946a.
Qasim and Qayyum, 1962.
Renganathan and Devaraj, 1966.
Thomas, 1870.

Ophicephalus micropeltes Cuvier
Univ. Trivancore, 1948.

Ophicephalus orientalis (Bl. & Schn.)
Deraniyagala, 1929.
Jones, 1946c, 1950b.

Ophicephalus punctatus (Bloch)
Alikunhi, 1948c.
Belsare, 1964.
Chacko, 1951d, 1956.
Day, 1876-1888.
Hosaini and Rahimullah, 1946.
Jones, 1946c, 1950b.
Kapoor, 1962.
Khan, 1934.
Mookerjee, 1946a.
Mookerjee, *et al.*, 1946a.
Qasim, 1966.
Qasim and Bhatt, 1964.
Qasim and Qayyum, 1962.
Qayyum and Qasim, 1961, 1964.
Raj, 1916.
Swarup, 1963.

Ophicephalus stewartii Playfair
Ganguly *et al.*, 1963.

Ophicephalus striatus (Bloch)
Alikunhi, 1948c, 1954, 1957b.
Bhattacharya, 1946.
Chacko, 1951d, 1956.
Iyengar, 1962.
Jones, 1946c, 1950b.
Khan, 1923b, 1924a.
Mookerjee, 1946a.
Mookerjee, *et al.*, 1948.
Pertwee, 1913.
Qasim and Qayyum, 1962.
Rahimullah, 1946a.
Raj, 1916.
Smith, 1945.
Thomas, 1870.
Weber and de Beaufort, 1922.
Willey, 1908, 1909.

Ophicephalus spp.
Devanesan and Chidambaram, 1948.
Jones, 1950b.
Puckle, 1868.
Sundararaj and Ramaswami, 1956.

Fam. HOLOCENTRIDAE

Holocentrus sp.
Jones and Kumaran, 1964a.
Mito, 1967.

Myripristis murdjan Forskal
Jones and Kumaran, 1964a.

Fam. AMPHIPNOIDAE

Amphipnous cuchia (Hamilton)
Das, 1928, 1946.
Jones, 1946c, 1950b.

Fam. SYMBRANCHIDAE

Symbranchus bengalensis (McClelland)
Rengarajan and Jacob, 1961.

Fam. CENTROPOMIDAE

Ambassis ambassis Lacepede
Gopinath, 1946b.
Jones, 1951.

Ambassis commersonii Cuvier
Jones, 1951.

Ambassis gymnocephalus (Lacepede)
Nair, G.S., 1957a.

Ambassis lala (Hamilton)
Baake, 1930a.
Innes, 1935.
Jones, 1946c, 1950b.
Stoye, 1935.

Ambassis miops, Gunther
Jones, 1946c, 1950b.
Nair, R.V., 1946b, 1952c.
Panikkar and Aiyar, 1939.
Panikkar and Nair, 1945.

Ambassis nama (Hamilton)
Jones, 1946c, 1950b.

Ambassis ranga (Hamilton)
Chaudhuri and Sewell, 1912.
Job, 1941b.
Jones, 1946c, 1950b.

Ambassis, spp.
Balakrishnan, 1959.
Delsman, 1926f.
John, 1948.
Jones, 1950b.

Fam. LATIDAE

Lates calcarifer (Bloch)
Alikunhi, 1957b.
Chacko, 1949a, 1949d, 1951d,
1956.
Chacko and Ganapati, 1949d.
Job and Chacko, 1947b.
Jones and Sujansingani, 1954.
Naidu, 1939.
Pertwee, 1913.
Rabanal, 1951.
Raj, 1916.
Rao, T.A., 1967.
Smith, 1945.

Psammoperca waigiensis (Cuvier)
Prabhu, 1954a, 1954b, 1956.

Fam. SERRANIDAE

Epinephelus diacanthus (Val.)
Bal and Pradhan, 1945b, 1946, 1947,
1951.
Jones, 1951.

Epinephelus leopardus (Lacepede)
Bal and Pradhan, 1946, 1947.
Jones, 1951.

Serranus (?= *Epinephelus*) spp.
Bal and Pradhan, 1947, 1951.
Jones, 1951.
Rabanal, 1951.

Fam. THERAPONIDAE

Pelates quadrilineatus (Bloch)
Day, 1876-1888.
Gopinath, 1946b.
Jones, 1946c, 1950b, 1951.
Munro, 1945.
Prabhu, 1954a, 1954b.

Pelates, sp.
Jones, 1951.

Therapon argenteus (Cuv. & Val.)
Bal and Pradhan, 1945b, 1946, 1947,
1951.
Bapat and Bal, 1950a.
Jones, 1951.

Therapon jarbua (Forsk.)
Bal and Pradhan, 1945b, 1947, 1951.
Basheeruddin and Nayar, 1962.
Chacko, 1949a, 1950c.
Jones, 1946c, 1950b, 1951.
Nair, R.V., 1946b, 1952b.
Panikkar and Aiyar, 1939.
Panikkar and Nair, 1945.
Prabhu, 1954b, 1956.
Rao, S. R., 1934.
Weber, 1913.
Weber and de Beaufort, 1931.

Therapon puta (Cuvier)
Prabhu, 1954b, 1955.
Chaudhuri, 1923b.

Therapon theraps, (Cuvier)
Basheeruddin and Nayar, 1962.
Day, 1876-1888.
Jones, 1946c, 1950b, 1951.
Weber, 1913.
Weber and de Beaufort, 1931.

Therapon, spp.
Jones 1951.

Fam. PRIACANTHIDAE

Priacanthus hamur (Forsk.)
Basheeruddin and Nayar, 1962.

Fam. APOGONIDAE

Apogon frenatus (Valenciennes)
Basheeruddin and Nayar, 1962.

Apogon hoeveni Bleeker
Jones, 1951.
Weber and de Beaufort, 1929.

Apogon lateralis (Bleeker)
Basheeruddin and Nayar, 1962.

Apogon wassinki (?= *A. chrysotaenia*) Bleek.
Bal and Pradhan, 1947, 1951
Jones, 1951.

Apogon sp.
Balakrishnan, 1959.

Archamia macroptera (Bleeker)
Basheeruddin and Nayar, 1962.

Fam. SILLAGINIDAE

Sillago sihama (Forsk.)
Chacko, 1949a, 1950c.
Chaudhuri, 1923b.
Gopinath, 1946b.
Hora, 1924.
Jones, 1946c, 1950b, 1951.
Jones and Sujansingani, 1954.
Palekar and Bal, 1960, 1961.
Radhakrishnan, 1954, 1957, 1961.
Uchida *et al.*, 1958.
Ueno and Fujita, 1954.

Sillago panijus (Hamilton)
Krishnayya, 1967.

Fam. LACTARIIDAE

Lactarius lactarius (Schneider)
Basheeruddin and Nayar, 1962.
Chacko, 1954a.
Chidambaram and Venkataraman, 1964.
Devanesan and Chacko, 1944c.
Jones, 1951.
Nair, R.V., 1946b, 1952b.
Panikkar and Nair, 1945.

Fam. CARANGIDAE

Alectis ciliaris (Bloch)
Delsman, 1926b.
Jones, 1951.
Weber and de Beaufort, 1931.

Alectis indica (Ruppel)
Basheeruddin and Nayar, 1962.
Delsman, 1929c.
Jones, 1951.
Rao, K.S.P.B., 1963.
Weber and de Beaufort, 1931.

Atropus atropus (Bloch)
Basheeruddin and Nayar, 1962.

Carangoides armatus (Forsk.)
Basheeruddin and Nayar, 1962.
Jones, 1951.

Carangoides malabaricus (Bloch)
Basheeruddin and Nayar, 1962.

Caranx carangus (Bloch)
Basheeruddin and Nayar, 1962.
Subrahmanyam, 1968.

Caranx djedaba (Forsk.)
Chacko and Mathew, 1955.

Caranx macrosoma (Bleeker)
Delsman, 1926b.

Caranx sexfasciatus Quoy and Gaimard
= *C. hippos* (Linnaeus)
Jones, 1951.
Subrahmanyam, 1964.

Caranx spp.
Delsman and Hardenberg, 1934.
Devanesan and Varadarajan, 1942.
Jones, 1951.
Nair, R.V., 1952a.
Vijayaraghavan, 1957.
Yabe, 1953a.

Chorinemus Iysan (Forsk.)
James, 1967c.

Chorinemus tol (Cuvier)
Basheeruddin and Nayar, 1962.

Decapterus russelli Ruppel = *Caranx kurra* Cuvier and Valenciennes.
Basheeruddin and Nayar, 1962.
Chacko and Mathew, 1915.
Chidambaram, 1943.

Decapterus russelli (Contd.)

Delsman, 1926a, 1929c.
Jones, 1951.
Vijayaraghavan, 1957.

Megalaspis cordyla (Linnaeus)

Basheeruddin and Nayar, 1962.
Datar and Bal, 1955.
Kuthalingam, 1959a, 1959c.

Naucrates ductor (Linnaeus)

Jones, 1951.
Smith, 1949.
Weber, 1913.
Weber and de Beaufort, 1931.

Selar crumenophthalmus (Bloch)

Chacko and Mathew, 1955.
Delsman, 1926a.
Devanesan and Chidambaram, 1941.
Jones, 1951.

Selar kalla (Cuvier)

Bapat and Prasad, 1952.
Chacko and Mathew, 1955.
Chidambaram, 1943.
Gopinath, 1946b.
Jones, 1951.
Kagwade, 1965.
Subrahmanyam, 1968.

Selar mate (Cuvier)

Basheeruddin and Nayar, 1962.
Kuthalingam, 1959a.

Selaroides leptolepis (Cuv.)

Bapat, 1955.
Prabhu, 1954b.
Tandon, 1960, 1961a, 1961b, 1962.

Trachynotus blochi (Lacepede)

Arora, 1951.
Basheeruddin and Nayar, 1962.

Fam. LEIOGNATHIDAE

Gazza minuta (Bloch)

Basheeruddin and Nayar, 1962.

Gazza spp.

Bal and Pradhan, 1945b, 1946,
1951.
Chacko, 1944.
Jones, 1951.

Gerres abbreviatus (Bleeker)

Basheeruddin and Nayar, 1962.

Gerres lucidus Cuvier

Jones, 1951.
Nair, R.V., 1946b, 1952c.
Panikkar and Nair, 1945.
Whitehouse, 1923.

Gerres punctatus Cuvier

Chacko, 1949a.
Jones, 1951.

Gerres setifer (Hamilton)

Basheeruddin and Nayar, 1962.

Leiognathus bindus (Valenciennes)

Balan, 1967.
Chacko, 1950c.
Jones, 1951.

Leiognathus blochii (Valenciennes)

Gopinath, 1946a, 1946b.
Jones, 1951.

Leiognathus brevirostris (Val.)

Balakrishnan, 1959.

Leiognathus equulus (Forsk.)

Basheeruddin and Nayar, 1962.
Jones, 1951.
Whitehouse, 1923.

Leiognathus fasciatus (Lacepede)

Bal and Pradhan, 1945b, 1946,
1947, 1951.
Basheeruddin and Nayar, 1962.
Jones, 1951.

Leiognathus insidiator (Bloch)

Basheeruddin and Nayar, 1962.
John, 1951.
Jones, 1951.

Leigonathus lineolatus (Val.)

John, 1951.
Jones, 1951.

Leiognathus splendens (Cuvier)

Basheeruddin and Nayar, 1962.
Jones, 1951.

Leiognathus spp

Chacko, 1944

Secutor ruconius (Hamilton)

Basheeruddin and Nayar, 1962.
John, 1951.
Jones, 1951.
Nair, R.V., 1946b, 1952c.

Fam. LUTIANIDAE

Lutjanus johnii (Bloch)
Bal and Pradhan, 1945b, 1946, 1947,
1951.
Jones, 1951.

Lutjanus lineolatus (Ruppel)
Basheeruddin and Nayar, 1962.
Chacko, 1949a.
Jones, 1951.

Lutjanus kasmira (Forsk.)
Basheeruddin and Nayar, 1962.

Fam. NEMIPYTERIDAE

Nemipterus japonicus (Bloch)
Basheeruddin and Nayar, 1962.

Fam. POMADASYDAE

Plectorhynchus crassipinus (Ruppel)
Jones, 1951.

Pomadasyg hasta Bloch
Smith, 1949.

Pomadasyg maculatus (Bloch)
Basheeruddin and Nayar, 1962.
Day, 1889.
Jones, 1951.

Fam. SCIAENIDAE

Johinius belengerii (Cuvier)
Basheeruddin and Nayar, 1962.
Gopinath, 1946b.
Jacob and Krishnamurthy, 1948b.
Jones, 1950b.

Johinus carutta (Bloch)
Jacob and Krishnamurthy, 1948b.
Rao, T.A., 1967.

Johinus dussumieri (Cuvier)=
Sciaena glauca Day
Hardenberg, 1931.
Jones, 1950b.

Otolithes argenteus (Cuvier)
Annigeri, 1967.
Jacob and Krishnamurthy, 1948b.

Otolithes maculatus (Cuvier)
Jacob and Krishnamurthy, 1948b.
Jones, 1950b.

Otolithes ruber (Schneider)
Chacko, 1950c.
Jacob and Krishnamurthy, 1948b.
Jones, 1951.

Otolithes sp.
Basheeruddin and Nayar, 1962.

Pama pama (Hamilton)
Chandra, 1964.
David, 1954.
Jones, 1951.
Karamchandani and Motwani, 1954.
Motwani *et al.*, 1954.
Pantulu and Jones, 1951.

Pseudosciaena aneus (Bloch)
John, 1951.
Jones, 1951.
Rao, T. A., 1967.

Pseudosciaena bleekeri (Day)
Rao, T.A., 1967.

Pseudosciaena coibar (Hamilton)
Bal and Pradhan, 1945b, 1951.
Jones, 1951.
Rajan, 1968.

Pseudosciaena coitor (Hamilton)
Jacob and Krishnamurthy, 1948b.
Jones, 1950b.
Karamchandani and Motwani, 1954.

Pseudosciaena diacanthus (Lacepede)
Bhatt *et al.*, 1967.
Jacob and Krishnamurthy, 1948b.
Jones, 1950b.
Rao, k. Venkatasubba, 1967.

Pseudosciaena sp.
Nair, R.V., 1952c.

Sciaena dussumieri (Valenciennes)
Basheeruddin and Nayar, 1962.

Fam. LETHRINIDAE

Lethrinus cinereus Valenciennes
Jones, 1951.
Whitehouse, 1923.

Lethrinus lentjan Lacepede
Toor, 1965, 1968.

Lethrinus nebulosus (Forsk.)
Basheeruddin and Nayar, 1962.

Lethrinus nematacanthus Bleeker
Mito, 1956, 1963b.

Fam. MULLIDAE

Parpeneus indicus (Shaw)
Basheeruddin and Nayar, 1962.

Upeneus benasi (Temm. & Schl.)
Uchida, *et al.*, 1958.

Upeneus sulphureus Cuvier
Basheeruddin and Nayar, 1962.

Upeneus taenopterus Cuvier
Basheeruddin and Nayar, 1962.

Upenoides vittatus (Forsk.)
Gopinath, 1946a.
Jones, 1951.

Fam. PEMPHERIDAE

Pempheris moluca Cuvier
Gopinath, 1946b.
Jones, 1951.

Fam. TOXOTIDAE

Toxotes chatareus (Hamilton)
Day 1876-1888.
Jones, 1946c, 1950b.

Fam. DREPANIDAE

Drepane punctata (Linnaeus)
Basheeruddin and Nayar, 1962.
Smith, 1949.

Drepane sp.,
Bapat and Bal, 1950.
Jones, 1951.

Fam. SCATOPHAGIDAE

Scatophagus argus (Bloch)
Bal and Pradhan, 1946, 1947,
1951.
Chacko, 1949a.
Day 1876-1888.
Jones, 1946c, 1950b 1951.
Hora, 1924.
Nair, R.V. 1946b, 1952c.
Panikkar and Nair, 1945.
Rabanal, 1951.

Weber, 1913.
Weber and de Beaufort, 1939.

Scatophagus argus var. *tetracanthus* (Lac.)
Bal and Pradhan, 1945b.
Day 1876-1888.
Jones, 1951.

Fam. CHAETODONTIDAE

Chaetodon spp.
Bal and Pradhan, 1945b, 1946, 1951.
Jones, 1951.

Fam. NANDIDAE

Badis badis (Hamilton)
Innes, 1935.
Jones, 1946c, 1950b.
Mellen and Lanier, 1935.
Stoye, 1935.

Nandus nandus (Hamilton)
Jones, 1946c, 1950b.
Stoye, 1935.
Thomas, 1870.

Fam. CICHLIDAE

Etroplus maculatus (Bloch)
Alikunhi, 1947.
Baake, 1929.
Chacko, 1951d, 1956.
Jerdon, 1849.
Jones, 1937a, 1937b, 1946c, 1950b.
Mellen and Lanier, 1935.
Panikkar, 1920.
Raj, 1916.
Rice, 1943.
Stoye, 1935.

Etroplus suratensis (Bloch)
Alikunhi, 1957b.
Alikunhi *et al.*, 1952.
Baskaran, 1946.
Chacko, 1949a, 1949c, 1951d.
Chako *et al.*, 1953.
Chacko and Ganapati, 1949c, 1949e.
Ganapati and Chacko, 1951a.
Ganapati *et al.*, 1950.
Government of Madras, 1956.
Job *et al.*, 1947.

- Etroplus suratensis* (Contd.)
 Job and Chacko, 1947b.
 John, 1948.
 Jones, 1937a, 1946c, 1950b, 1951.
 Jones and Sarojini, 1952.
 Jones and Sujansingani, 1954.
 Panikkar, 1920, 1924.
 Rahimullah, 1946b.
 Raj, 1916.
 Srinivasan, 1955a.
 Thomas, 1870.
 Uni. of Travancore, 1948.
 Willey, 1910.
- Etroplus* sp.
 Gravely, 1931.
- Tilapia mossambica* (Peters)
 Chacko and Krishnamurthi, 1954.
 Panikkar and Tampi, 1954.
 Srivastava and Menon, 1961.
 Vaas and Hofstede, 1952.
- Fam. POMACENTRIDAE
- Amphiprion bicinctus* (Ruppel)
 Bey and Gohar, 1948.
 Jones, 1951.
 Weber and de Beaufort, 1922.
- Amphiprion ephippium* (Bloch)
 Delsman, 1930c.
 Jones, 1951.
 Vetwey, 1930.
- Amphiprion percula* (Lacepede)
 Jones, 1951.
 Verwey, 1930.
- Amphiprion* sp.
 Jones, 1951.
 Verwey, 1930.
- Fam. LABRIDAE
- Coris aygula* Lacepede
 Jones, 1951.
- Fam. BLENNIIDAE
- Andamia heteroptera* (Bleeker)
 Jones 1951.
 Rao and Hora, 1938.
- Petroscirtes bhattacharyae* Chaud.
 Bat and Pradhan, 1946, 1947, 1951.
- Bhattacharya, 1966.
 Jones, 1937a, 1946c, 1950b, 1951.
 Jones and Sujansingani, 1954.
- Petroscirtes bipunctatus* Day
 Dutt and Rao, 1961.
- Petroscirtes punctatus* (Cuv. & Val.)
 Bal and Pradhan, 1945b, 1946, 1947,
 1951.
 Jones, 1951.
- Fam. CALLIONYMIDAE
- Callionymus fluviatilis* Day
 Jones and Menon, 1953.
- Callionymus lyra* Linnaeus
 Qasim, 1966.
- Callionymus melanopterus* Bleeker
 Jones and Pantulu, 1958.
- Fam. SIGANIIDAE
- Siganus fusceseens* (Houttuyn)
 Mito, 1967.
- Teuthis java* Linnaeus
 Basheeruddin and Nayar, 1962.
 Jones, 1951.
 Whitehouse, 1923.
- Teuthis* sp.
 Rabanal, 1951.
- Fam. ACANTHURIDAE
- Acanthurus matoides* Valenciennes
 Basheeruddin and Nayar, 1962.
- Acanthurus* sp.
 Delsman and Hardenberg, 1934.
- Fam. TRICHIURIDAE
- Eupleurogrammus intermedius* (Gray)
 James, 1963, 1967a, 1967b.
- Eupleurogrammus muticus* (Gray)
 James, 1963, 1967b.
- Lepturacanthus* (= *Trichiurus*) *savala* (Cuv.)
 Anonymous, 1949.
 Bapat and Bal, 1950a.
 Chacko, 1950c.
 Delsman, 1927.

Lepturacanthus savala (Contd.)

James, 1963, 1967.
 Jones, 1950b, 1951.
 Nair, R.V, 1946b, 1952b.
 Panikkar and Nair, 1945.
 Prabhu, 1950, 1955.
 Sekharan, 1956.

Trichiurus spp.

Boonprakob, 1963.
 Chacko, 1954.
 Delsman, 1927, 1929c.
 Jacob, 1949.
 Jones, 1951.

Fam. CORYPHAENIDAE

Coryphaena hippurus Linnaeus

Mito, 1960.

Fam. GEMPYLIDAE

Gempylus serpens Cuvier

Jones, 1960a.

Fam. SCOMBRIDAE

Subfam. SCOMBRINAE

Grammatorcynus bicarinatus (Q. & G.)

Silas, 1963a.
 Wade, 1951.

Rastrelliger brachysoma (Bleeker)

Jones and Silas, 1964.
 Jones and Rosa, 1965, 1967.

Rastrelliger Kanagurta (Cuvier)

Balakrishnan, 1957.
 Basheeruddin and Nayar, 1962
 Bennet, 1967.
 Bhimachar and George, 1953.
 Boonprakob, 1967.
 Chacko, 1954a, 1955c.
 Delsman, 1926e
 Devanesan and Chidambaram, 1948.
 Devanesan and John, 1940.
 George and Annigeri, 1960.
 George and Banerjee, 1968.
 George, *et al.*, 1950.
 Jones, 1951, 1967a.
 Jones and Kumaran, 1964c.
 Jones and Rosa, 1965, 1967.
 Jones and Silas, 1964.
 Kuthalingam, 1956.
 Noble, 1965.

Panikkar, 1955.

Pathansali, 1967.

Pradhan, 1956.

Pradhan and Rao, 1958.

Radhakrishnan, 1965, 1967.

Rao, K.V.N., 1964a, 1965, 1964.

Rao and Basheeruddin, 1953.

Rao, V.R., *et al.*, 1965.

Sekharan, 1958, 1965.

Seshappa, 1958.

Venkataraman, 1967.

Vijayaraghavan, 1965.

Rastrelliger neglectus Van Kanpen

Boonprakob, 1963.

Rastrelliger spp.

Boonprakob, 1963.

Peter, 1967.

Subfam. SCOMBEROMORINAE

Acanthocybium solandri (Cuvier)

Matsumoto, 1967.
 Strasburg, 1964.

Scomberomorus commerson (Lacepede)

Basheeruddin and Nayar, 1962.
 Chacko, 1950c.
 Jones, 1951, 1962, 1967a.
 Jones and Kumaran, 1964.
 Smith, 1949.

Scomberomorus guttatus (Bl. & Schn.)

Basheeruddin and Nayar, 1962.
 Delsman, 1931b.
 Delsman and Hardenberg, 1934.
 Jones, 1951, 1962, 1967.
 Jones and Kumaran, 1964c.
 Krishnamoorthi, 1958.
 Silas, 1964.
 Vijayaraghavan, 1955.

Scomberomorus lineolatus (Cuvier)

Jones, 1962, 1967a.
 Kuthalingam, 1959b.

Scomberomorus spp.

Devanesan and Varadarajan, 1942.
 Jones, 1951.

Subfam. THUNNINAE

Auxis thazard (Lacepede)

Jones and Kumaran, 1964c.
 Klawe, 1961b, 1963.

- Auxis thazard* (Lacepede)
 Klawe and Shimada, 1959.
 Matsumoto, 1958, 1960.
 Rao, K.V.N., 1964b.
 Schaeffer and Marr, 1948b
 Strasburg, 1959.
 Uchida, 1963.
 Williams, 1964a.
- Auxis thynnoides* Bleeker
 Jones, 1963.
 Jones and Kumaran, 1964c.
 Matsumoto, 1962.
 Strasburg, 1959.
 Yabe and Ueyanagai, 1961.
- Auxis*, spp.
 Jones, 1961, 1963, 1967a.
 Kishinouye, 1919.
 Matsumoto, 1959.
 Wade, 1951.
- Euthynnus affinis affinis* (Cantor)
 Bennet, 1967.
 Delsman, 1926e, 1931b.
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 Jones and Kumaran, 1964c.
 Rao, K.V.N., 1964b
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- Euthynnus* sp.
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- Katsuwonus Pelamis* (Linnaeus)
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 Yuen and June, 1967.
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 Kikwa and Ferraro, 1967.
 Mimura, *et al.*, 1963.
- Thunnus (Thunnus) alalunga* (Bonn.)
 Higgins, 1967.
 Kikawa and Ferraro, 1967.
 Matsumoto, 1962.
 Strasberg, 1960.
 Ueyanagi, 1962.
 Yoshida and Otsu, 1963.
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 Mito, 1967.
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 Jones and Kumaran, 1964b, 1964c.
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Makaira indica (Cuv.)

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Yabe and Ueyanagi, 1961.

Makaira nigricans Lacepede

Jones and Kumaran, 1964b, 1964c.
Morrow, 1964.
Ueyanagi, 1953, 1963b, 1964.

Tetrapturus angustirostris Tanaka

Ueyanagi, 1963b, 1964.

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Jones and Kumaran, 1964b, 1964c.
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Jones, 1958, 1965.
Jones and Kumaran, 1964b, 1964c.
Nakamura *et al.*, 1951.
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Xiphias sp.

Taning, 1952

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Pampus argenteus (Euphrasen)

Kuthalingam, 1967a.
Mito and Senta, 1967.
Rege and Bal, 1959.

Parastromateus niger (Bloch)

Basheeruddin and Nayar, 1962.
Pillay and Shaw, 1949.
Sivaprakasam, 1965.
Smith, 1949.

Stromateus sinensis (Euphrasen)

Basheeruddin and Nayar, 1962.

Day, 1889.

Jones, 1951.

Pillay and Shaw, 1949.

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Abraham, 1962.
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- Fam. KURTIDAE
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- Awaous stamineus* (Val.) = *Gobius striatus* Day.
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- Ctenogobius criniger* (Cuvier)
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- Parapocryptes separaster* (Richard.)
 Bal and Pradhan, 1945b, 1946,
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 Bapat and Bal, 1950.
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- Stigmatogobius javanicus* (Bleeker)
 Nair, G.S., 1961
- Fam. PERIOPHTHALMIDAE
- Boleophthalmus boddaerti* (Pallas)
 Jones, 1937a, 1946c, 1950b.

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Jones, 1950.
Pearse, 1932.

Fam. TRIPAUCHENIDAE

Trypauchen vagina (Bl. & Schn.)
Dandekar, 1965.

Fam. SCORPAENIDAE

Pterois linulata Schlegel
Mito, 1963a.

Pterois russeli (Bennet)
Basheeruddin and Nayar, 1962.

Scorpaena sp.
Regan, 1916.

Fam. PLATYCEPHALIDAE

Platycephalus indicus (Linnaeus)
Mito, 1963a, 1967.

Platecephalus scaber (Linnaeus)
Basheeruddin and Nayar, 1962.

Fam. MASTACEMBELIDAE

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Qasim and Qayyum, 1962.

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Fam. DACTYLOPTERIDAE

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Dactyloptena orientalis (Cuvier)
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Fam. PSETTODIDAE

Psettodes erumei (Bloch and Schneider)
Basheeruddin and Nayar, 1962.
John, 1951.
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Rao. S.R., 1935.

Fam. BOTHIDAE

Arnoglossus sp.
Weber, 1913.

Bothus (Arnoglossus) macrolophus Alcock.
John, 1951.
Jones, 1951.

Bothus (Arnoglossus) tapeinosoma
Balakrishnan, 1963a. (Bleeker)
John, 1951.
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Jones and Pantulu, 1958.

Bothus myriaster (Temm. & Schl.)
Amoka, 1962.

Bothus ocellatus Agassiz
Balakrishnan, 1963a.
Regan, 1916.

Bothus (Platophrys) pantherinus (Rupp.)
Basheeruddin and Nayar, 1962.
Gopinath, 1946b.
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Laeops guntheri Alcock
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Pseudorhombus arsius (Hamilton)
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Samaris macrolepis Norman
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Solea elongata Day
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Solea ovata (Richardson)
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John, 1951.
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John, 1951.
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Panikkar and Nair, 1945.

Fam. CYNOGLOSSIDAE

Cynoglossus bilineatus (Lacepede)
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Cynoglossus cynoglossus (Hamilton)
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Jones and Menon, 1951b.

Cynoglossus lingua Hamilton
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Jones and Menon, 1951b.
Kuthalingam, 1957, 1959c.

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Cynoglossus semifasciatus Day
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George, 1958.
Jones, 1951.
Rao. K.V.N., 1967.
Seshappa and Bhimachar, 1951,
1954, 1955.

Cynoglossus spp.

Bal and Pradhan, 1945b, 1946, 1951.
Bapat, 1955.
Jones, 1951.
Jones and Menon, 1951b.
Jones and Pantulu, 1958.
Nair, R.V., 1952b, 1952c.
Raju and Ganapati, 1967.
Vijayaraghavan, 1957.

Paraplagusia bilineata (Bloch)

Gopinath, 1946b.
John, 1951.
Jones, 1951.

Fam. ECHENEIDAE

Leptecheneis naucrates (Linnaeus)

Delsman, 1929c, 1931b.
Delsman and Hardenberg, 1934.
Gudger, 1926.
Gunther, 1889.
John, 1950.
Jones, 1951.
Sanzo, 1927.

Remora remora (Linnaeus)

Gunther, 1889.
Jones, 1951.
Sanzo, 1928.

Fam. TRIACANTHIDAE

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Bal and Pradhan, 1945b, 1946,
1947, 1951.
Basheeruddin and Nayar, 1962.
Gopinath, 1946.
Jones, 1951.
Jones and Pantulu, 1958.
Kuthalingam, 1959c, 1959e.
Vijayaraghavan, 1957.

Fam. TETRODONTIDAE

Sphaerodon lunaris (Bloch)

Basheeruddin and Nayar, 1962.

Tetrodon leopardus Day

Bal and Pradhan, 1945b, 1946,
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Jones, 1951.

Tetrodon oblongus Bleeker

Bal and Pradhan, 1945b, 1946,
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Jones, 1951.

Tetrodon spp.

Bal and Pradhan, 1945b.
Delsman, 1929c.
Jones, 1951.

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Regan, 1916.

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Antennarius marmoratus Bleeker

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Krishnamurthy, 1962.

Pegasus volitans, Linnaeus

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Bibliography

- Jones, 1946a, 1946c, 1950b, 1951, 1952, 1967a.

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- Jones, 1944.

Diseases

- Hora, 1955.
- Khan, 1939a.
- Mackay, 1945a.

Distribution

- Aiyar, *et al.*, 1936.
- Bal and Pradhan, 1945b, 1952,
- Chandra, 1964.
- Chidambaram and Menon, 1945.
- Higgins, 1967.
- Jones and Kumaran, 1963, 1964b.
- Jones and Silas, 1963.
- Klawe, 1963.
- Matsumoto, 1958.
- Menon, 1945.
- Mimura, *et al.*, 1963a.
- Peter, 1967b.
- Raju and Ganapati, 1967.
- Rao, K. Virabhadra, 1964.
- Rao, N.G.S., 1967.
- Yabe *et al.*, 1963.

Eggs (of eels)

- Nair and Bhimachar, 1950.

Enemies

- Chauhan and Ramakrishna, 1959.
- Karamchandani, 1957.
- Khan and Husain, 1947a.
- Renganathan and Devaraj, 1966.

Experimental studies

- Rangarajan, 1963.

External gills

Jones, 1937a, 1939a.
Renganathan, 1964.

External gill filaments

Bhimachar and David, 1945.

Fecundity

Boonprakob, 1967.
Dandeker, 1965.
David, 1967.
Ibrahim, 1957.
James, 1957.
Jhingran, 1963.
Joseph, 1967.
Karekar and Bal, 1960.
Khan, 1923a.
Menon and Radha, 1964.
Pantulu, 1863.
Rao, K.V.N., 1964b.
Rao, K. Venkatasubba, 1967.

Food and Feeding

Alikunhi, 1957a, 1958.
Alikunhi and Rao, 1948b.
Badami and David, 1964.
Bal and Bapat, 1949a, 1949b.
Das and Mohanty, 1966.
Das, I., 1958.
Das and Mohanty, 1966.
Kuthalingam, 1956, 1959a, 1959b.
Mitra and Das, 1957, 1968.
Mitra and Mohapatra, 1956.
Mookerjee and Bhattacharya, 1949.
Mookerjee *et al.*, 1946a.
Mookerjee *et al.*, 1946.
Qayyum and Qasim, 1964a.
Mookerjee and Gupta, 1946.
Tampi, 1958a.

Fry, fingerlings etc.

Alikunhi and Jhingran, 1951.
Durve and Dharmaraja, 1968.
Ibrahim, 1961.
Job, 1952.
Khan, 1940a.
Mitra, 1956, 1957.
Mitra and Das, 1968.
Mitra and Mohapatra, 1956
Nair, R.V., 1961.
Rahman, 1946.
Rahimullah, 1943.
Rahimullah, *et al.*, 1944.
Raj and Cornelius, 1948.

Ranada and Kevalramani, 1956.

Saha *et al.*, 1967.

Saha and Chowdhury, 1956.

Saha and Sen, 1958.

Saha *et al.*, 1956a, 1956b.

Srinivasan *et al.*, 1955.

Srivastava and Karamchandani, 1967.

Hatcheries

Chacko, 1954b.
Chacko and George, 1953.
Fowke, 1938.
Hora, 1955.
Iyengar, 1962.
Khan, 1939a.
Mackay, 1944, 1945b, 1945c.
Tyson, 1941.

Hybridization

Alikunhi *et al.*, 1963.
Ramaswamy, 1958.

Identification

Alikunhi *et al.*, 1951.
David, 1962.
Delsman 1929c.
Hora and Mookerji, 1938.
Jones and Kumaran, 1964.
Klawe and Shimada, 1959.
Matsumoto, 1960, 1966.
Mazumdar, 1957b.
Mookerjee, 1946a.
Mookerjee *et al.*, 1944a.
Ueyanagi, 1963b, 1966.

Induced breeding

Alikunhi *et al.*, 1960.
Alikunhi *et al.*, 1964.
Badami and David, 1964.
Chowadhuri and Alikunhi, 1957.
Chowdhuri *et al.*, 1962.
Rajan and Rao, 1965.
Ramaswamy and Lakshman, 1959.
Roy and Das, 1962.

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Methods of collection

Job, 1952.
Mookerjee *et al.*, 1952.

Migration (for breeding)

Chacko, 1946c, 1954b.
Chacko, 1946c.
Chacko and Krishnamurthy, 1948.
Chacko *et al.*, 1955.
Cordington, 1946.
David, 1962.

* Leptocephali – See Page 128.

Migration (Contd.)

Day, 1876-1888.
 Devanesan, 1942.
 Devasundaram, 1951.
 Hora, 1934, 1940, 1942.
 Jenkins, 1938.
 Jhingran, 1958, 1959.
 Jhingran and Mishra, 1965.
 Job, 1942.
 John, 1948.
 Jones, 1941b, 1946b.
 Khan, 1923a.
 Motwani *et al.*, 1957.
 Pillay, T.V.R., 1953a.
 Pillay, S.R. *et al.*, 1963.
 Prashad, *et al.*, 1946.
 Rai, 1948b.
 Raj, 1950, 1955.
 Thomas, 1897.

Mortality

Chauhan and Ramakrishna, 1959.
 Jhingran, 1958.
 Khan and Husain, 1947a.
 Nair, G.S., 1957b.
 Rajan and Reddi, 1962.
 Strasburg, 1959.

Nest building

Amirthalingam., 1939.
 Bhimachar *et al.*, 1944.
 Carbounier, 1876, 1877.
 Chacko, 1949b, 1951d.
 Jones, 1939b, 1940.
 Khan, 1923b.
 Kulkarni, 1943, 1946.
 Mookerjee and Mazumdar, 1950.
 Padmanabhan, 1955.
 Pal and Southwick, 1966.
 Raj, 1939.
 Roxas and Umali, 1937.
 Spurgeon, 1945, 1948a.
 Stoye, 1935.
 Waite, 1904.
 Willey, 1908.

Nurseries

Alikunhi *et al.*, 1952.
 Chacko and George, 1953.
 Chacko and Krishnamurthy, 1948.
 Ganapati and Alikunhi, 1948b.
 Howell, 1916.
 Iyengar, 1962.
 Mitra, 1957.

Raj, 1948a.

Raj, 1945.

Upadhyaya, 1956a.

*Ovoviviparity

Alcock, 1890, 1891, 1892a.
 Carbounier, 1876.
 Chacko, 1948d.
 Mookerjee, 1935.
 Raj, 1914.
 Setna and Saranghdar, 1949a, 1949b,
 1950a, 1950b.
 Southwell, 1910
 Southwell and Prashad, 1919.

Parental care

Chacko, 1951d.
 Chacko and Ganapati, 1949c.
 Chacko and Kuriyan, 1947.
 Chidambaram, 1941.
 Das, 1946.
 Deraniyagala, 1929, 1930-1932c.
 Dutt and Rao, 1961.
 Eggert, 1930.
 Gill, 1906.
 Jenkins, 1910.
 Jerdon, 1849.
 Job, 1940.
 Jones, 1937a, 1940.
 Khan, 1924a, 1926.
 Mookerjee, 1946b.
 Panikkar, N. P., 1920.
 Pertwee, 1913.
 Raj, 1916, 1962.
 Renganathan and Radha, 1966.
 Rice, 1943.
 Spurgeon, 1945, 1948a.
 Thomas, 1870.
 Verwey, 1930.
 Willey, 1908.

Physiological requirements

Basu, 1952a, 1952b.
 Motwani and Bose, 1957.
 Saha *et al.*, 1967.
 Sengupta, 1966.

Regeneration

Bensam, 1965a.
 Jones and Menon, 1952.

 * See also references under
Gambusia affinis and
Lebistes reticulatus
 on page 131.

Reproduction - general

Anonymous, 1937, 1949.
Delsman, 1929c
Gorbunova, 1967.
Jones, 1946a, 1946c.
Kikawa, 1966.
Panikkar, N.K., 1951.

Review

Jones, 1946a, 1946c.

Scales- development

Ganguly and Mookerjee, 1947.
Mookerjee, 1948a, 1948b.
Pillay, 1953b.

Sexual dimorphism

Abraham, 1964.
Bhatnagar, 1967a.
Bhowmick, 1966.
Chacko, 1950d.
Chakraborty and Singh, 1967.
Chaudhuri, 1959, 1962a.
Choodamani and Thyagarajan, 1959.
Misra, 1950.
Pillay, 1957, 1958.
Raj, 1958.
Suter, 1942.

Skeletal system

Devasundaram, 1947.
Hollister, 1939.
Kadam, 1956, 1959.
Kapoor, 1962.
Mookerjee and Ganguly, 1951a.
Mookerjee *et al.*, 1954.
Mookerjee *et al.*, 1955.
Mookerjee *et al.*, 1955.
Mookerjee *et al.*, 1953.
Mookerjee *et al.*, 1952.
Mookerjee *et al.*, 1940.
Srinivasachar, 1956, 1957a, 1957b.
Srivastava and Menon, 1961./ 1958.

Spawn mass

Ganapati and Raju, 1961a.
Nair, R.V., 1952a.

Spawning conditions

Ganapati and Alikunhi, 1948a.
Hora, 1945a.
Husain, 1945.
Job and Ganapati, 1947.

Khan and Husain, 1947b.

Khan, M.S., 1959.

Mitra, 1958.

Mookerjee, 1945b.

Rajan and Reddy, 1962.

Saha *et al.*, 1957.

Sathyanesan, 1961.

Ueyanagi, 1963a.

Wilson, 1920.

Spawning localities

Devasundaram, 1951.
Edye, 1923.
Ganapati and Chacko, 1954.
Goldschmidt, 1954.
Gopalakrishnan *et al.*, 1966.
Jones, 1946a, 1946c.
Jones and Menon, 1950a, 1950b.
Khan, 1959.
Khanna, 1958.
Rahimullah, 1948.
Setna and Kulkarni, 1947.
Wilson, 1920.

Terminology

Jones, 1950a, 1967c.

Transplantation

Ahmad, 1956.
Jones and Sarojini, 1952.

Transportation

Basu, 1950b, 1951a, 1951b,
1951c, 1952b, 1952a.
Durve and George, 1967.
Ganapati and Chacko, 1951a.
Jagannadhan, 1947.
Job, 1952.
Mammen, 1967.
Punwani, 1952.
Rahman, 1946.
Raj and Cornelius, 1948.
Ramaswamy and Lakshman, 1959.
Ranade and Kevalramani, 1956.
Renganathan and Ganapati, 1949.
Saha and Chowdhury, 1956.
Saha and Sen, 1958.
Saha *et al.*, 1956a, 1956b.
Sarojini, 1958a.
Schuster, 1949b, 1952.
Srivastava and Karamchandani, 1967.

