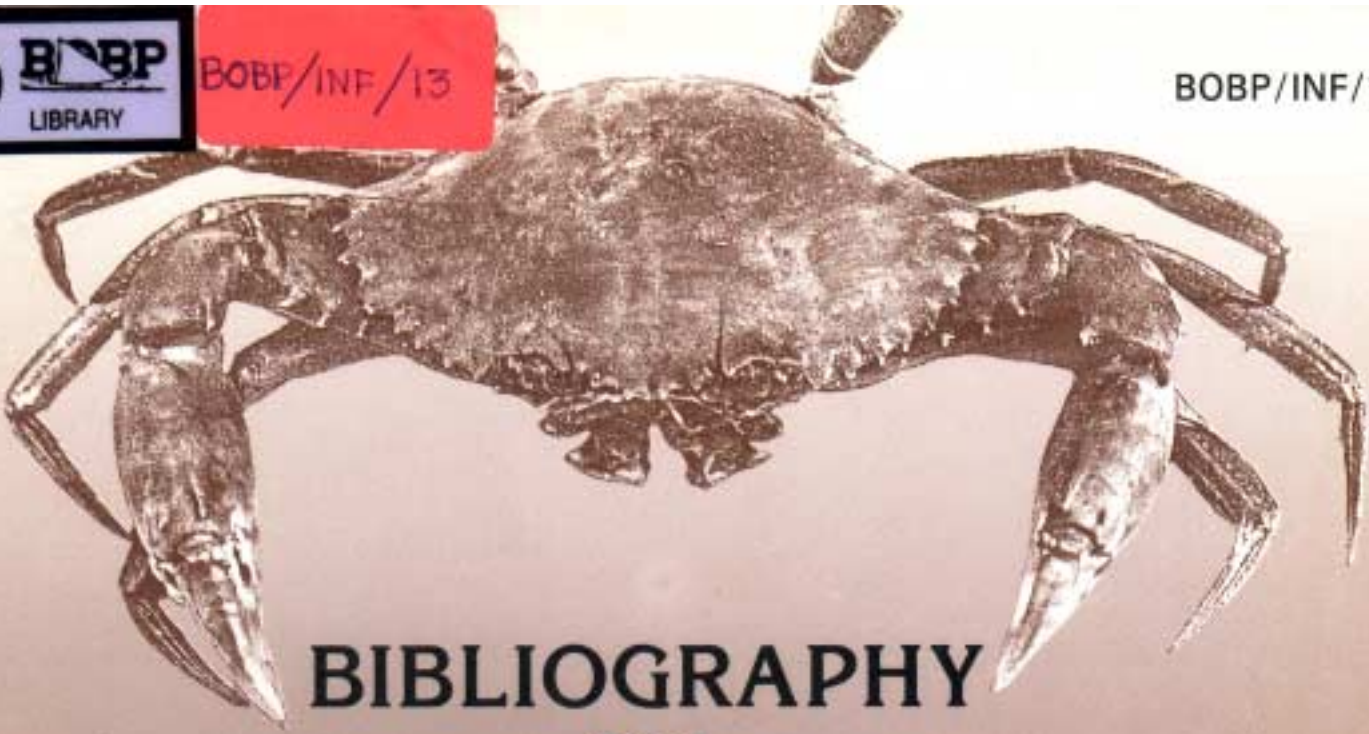




BOBP/INF/13

BOBP/INF/13



BIBLIOGRAPHY ON THE MUD CRAB

**Bibliography on the Mud Crab Culture and Trade
in the Bay of Bengal Region**

This bibliography was prepared by the Bay of Bengal Programme (BOBP) for the seminar on Mud Crab Culture and Trade in the Bay of Bengal region, which was held November 5-8, 1991 in Surat Thani, Thailand. The bibliography has been compiled from many sources, including the SEAFDEC Mud Crab Bibliography, Natural Resources Institute (NRI), U.K. database search and other relevant literature on mud crab. It deals with the biology, culture, resources, exploitation and management, diseases and parasites, marketing, preservation, processing, handling and effects of pollution on mud crab *Scylla* spp.

The bibliography may help serve as a source of information for mud crab fattening and culture entrepreneurs, traders, researchers and officials concerned with the above topics.

The Bay of Bengal Programme (BOBP) is a multi-agency regional fisheries programme which covers seven countries around the Bay of Bengal — Bangladesh, India, Indonesia, Malaysia, Maldives, Sri Lanka, Thailand. The Programme plays a catalytic and consultative role : it develops, demonstrates and promotes new techniques, technologies or ideas to help improve the conditions of small-scale fisherfolk communities in member-countries. The BOBP is sponsored by the governments of Denmark, Sweden and the United Kingdom, by member-governments in the Bay of Bengal region, and also by AGFUND (Arab Gulf Fund for United Nations Development Organizations) and UNDP (United Nations Development Programme). The main executing agency is the FAO (Food and Agriculture Organization of the United Nations).

This paper is an information document and has not been officially cleared by the governments or agencies concerned.

October 1992

CONTENTS

	<i>Page</i>
Biology	
Culture	8
Resources : Exploitation and Management	13
Diseases/Parasites	18
Marketing	19
Preservation/Processing/Handling	20
Effects of Pollution	22

ABBREVIATIONS OF JOURNAL TITLES AND PUBLISHERS

Abbreviated title	Complete title
Adv. Mar. Biol	Advances in Marine Biology
Agri. Pak	Agriculture Pakistan
All. Univ. Stud.	Allahabad University Studies
All Ind. Symp. on Invert. Reprn.	All India Symposium on Invertebrate Reproduction
Am. Zoo.	American Zoologist
Ann. Rep., Cent. Inland Fish. Res. Inst., Barrackpore	Annual Report, Central Inland Fisheries Research Institute, Barrackpore
Ann. Rep., Mindanao State Univ. Inst. Fish. Res. Dev	Annual Report, Mindanao State University Institute of Fisheries Research and Development
Ann. Rep.. Shizuoka Prefect. Fish. Expt. Stn.	Annual Report, Shizuoka Prefecture Fisheries Experimental Station
Ann. Rep., Songkhla Fish. Stn., Dept. Fish	Annual Report, Songkhla Fisheries Station, Department of Fisheries
Ann. Rep., Fish. Res.	Annual Report, Fisheries and Resources
Asian Aqua.	Asian Aquaculture
Asian Mar. Biol.	Asian Marine Biology
Aust. Fish.	Australian Fisheries
Aust. J. Mar. Fshw. Res.	Australian Journal of Marine and Freshwater Research
Aquabusiness Project Dev. and Mgmnr.	Aquabusiness Project Development and Management
Bangla. J. .Agri.	Bangladesh Journal of Agriculture
Biophys. J.	Biophysical Journal
BJDR Dierk.	Bijdragen tot de dierkunde, Leiden
Br. J. Nutr.	British Journal of Nutrition
Bull. Dept. Mar. Sci.	Bulletin of the Department of Marine Science
Bull. of Taiwan Fish. Res. Inst.	Bulletin of the Taiwan Fisheries Research Institute
Cell Tiss. Res.	Cell Tissue Research
China Fish. Monthly	China Fisheries Monthly
Ceylor. J. Sci. (Biol.Sci)	Ceylon Journal of Science. (Biological Sciences)
Chromosome Inf. Serv.	Chromosome Information Service.
CMFRI Newsl.	Central Marine Fisheries Research Institute Newsletter
Comp. Biochem. Physiol. (A. Comp. Physiol.)	Comparative Biochemistry and Physiology. Part A. Comparative Physiology
Comp. Biochem. Physiol. (B Comp. Biochem.)	Comparative Biochemistry and Physiology. Part B. Comparative Biochemistry
Dept. of P.I.	Department of Primary Industries.
Dev. Comp. Immunol	.Development in Comparative Immunology
Dept. of Zoo.	Department of Zoology
Dept. of Agri. and Narl.Res.	Department of Agriculture and Natural Resources
Fish. Res. .Ann. Rep.. Fish. Div. (Papua New Guinea)	Fisheries Research Annual Report, Fisheries Division (Papua Neu Guinea)
Fish. Res. J. Phil.	Fisheries Research Journal of the Philippines\
Fish IFarm.in the Phil	Fish Farming in the Philippines
Fish Tech., Soc. Fish. Tech.	Fisheries Technology, Society of Fisheries Technologists
Food Tech. Ausr.	Food Technology in Australia

Guam. Aqua.	Guam Aquaculture
Ind. J. Exp. Bio.	Indian Journal of Experimental Biology
Ind. J. Fish.	Indian Journal of Fisheries
Ind. J. Mar. Sci.	Indian Journal of Marine Sciences
Ind. J. For.	Indian Journal of Forestry
Ind. J. Physiol. All. Sci.	Indian Journal of Physiology and Allied Sciences
Ind. J. Zoo.	Indian Journal of Zoology
Inst. Fish. Res. Dev.	Institute of Fisheries Research and Development
Intl. J. Invert. Reprn.	International Journal of Invertebrate Reproduction
Intl. Symp. on Utilz. of Coastal Ecosystems	International Symposium on Utilization of Coastal Ecosystems
Japan Sea Farm. Assn.	Japan Sea Farming Association
J. Anim. Morphol. Physiol.	Journal of Animal Morphology and Physiology
J. Asia. Soc., Bengal	Journal of the Asiatic Society, Bengal
J. Bio. Chem.	Journal of Biological Chemistry
J. Biol. Sci.	Journal of Biological Sciences
J. Bombay Nat. Hist. Soc.	Journal of the Bombay Natural History Society
J. Comp. Physiol.	Journal of Comparative Physiology
J. Expt. Biol.	Journal of Experimental Biology
J. Expt. Mar. Biol. Ecol.	Journal of Experimental Marine Biology and Ecology
J. Expt. Zool.	Journal of Experimental Zoology
J. Fish. Dis.	Journal of Fish Diseases
J. Inland Fish. Soc. Ind.	Journal of the Inland Fisheries Society of India
J. Mar. Fish. Res	Journal of Marine Fisheries Research
Nan. of Res. Methods for Mar. Invert. Reprn.	Manual of Research Methods for Marine Invertebrate Reproduction
Mar. Agri. J.	Malaysian Agricultural Journal
Mar. Biol.	Marine Biology
Mar. Env. Res.	Marine Environmental Research
Mar. Biol. Assn. of Ind.	Marine Biological Association of India
Off. of Env. and Conserv.	Office of Environment and Conservation
Wk. J. Sci. Industrial Res.	Pakistan Journal of Science and Industrial Resources
Papua New Guinea Agri. J .	Papua New Guinea Agricultural Journal
Phil. J. Sci.	Philippine Journal of Science
Proc. IPFC	Proceedings of the Indo-Pacific Fishery Commission:
Proc. Zoo. Soc., Calcutta	Proceedings of the Zoological Society, Calcutta
Proc. of the Symp. on Coastal Aqua.	Proceedings of the Symposium on Coastal Aquaculture
Proc. of the 1st Aust. Shellfish Aqua. Conf	Proceedings of the First Australian Shellfish Aquaculture Conference
Proc of the Intl.Wkshp. on Pen and Cage Culture	Proceedings of the International Workshop on Pen and Cage Culture
Proc. Ind. Academy Sci.	Proceedings of the Indian Academy of Sciences
Progress in Invert. Reprn. and Aqua.	Progress in Invertebrate Reproduction and Aquaculture
Q. Res. Rep., SEAFDEC Aqua. Dept.	Quarterly Research Report, Southeast Asian Fisheries Development Centre Aquaculture Department

Sci. Cult.	Science Culture
Seafood Export J.	Seafood Export Journal
Symp. P. 1st Bangla. Sci. Conf	Symposium paper, First Bangladesh Science Conference
S.A.J. Zoo.	South African Journal of Zoology
SEAFDEC	Southeast Asian Fisheries Development Centre
Tech. Rep., Mindanao State Univ. Inst. Fish. Res. Dev.	Technical Report, Mindanao State University Institute of Fisheries Research and Development
Tech. Rep., N.Z. Mar. Dept. Fish.	Technical Report, New Zealand Marine Department of Fisheries
Thai Fish.Gaz.	Thai Fisheries Gazette
Trans. Mycol. Soc. Japan	Transactions of the Mycological Society of Japan
Trans. R. Soc. South Africa	Transactions of the Royal Society of South Africa
U.P. Home Econ. J	University of the Philippines Home Economics Journal
Wkshp. on Mar. Invert. Repn	Workshop on Marine Invertebrate Reproduction
Z. Mikrosk. Anat. Forsch.	Zeitschrift fuer Mikroskopisch-Anatomische Forschung
Z. Vgl. Physiol.	Zeitschrift fuer Vergleichende Physiologie
Zoo. J. Linn. Soc.	Zoological Journal of the Linnean Society

OTHER ABBREVIATIONS USED

Annex.	Annexure	Educ.	Education	Proj.	Project
Ag.	Agency	Edn.	Edition	Prog.	Programme
Anat.	Anatomy	Ed.	Editor	Plan.	Planning
Acad.	Academy	Exb.	Exhibition	Pol.	Pollution
Abs.	Abstract			Pdct	Productivity
		Fr.	French	Pub.	Publication/Published
Bklr	Booklet			p.	Page/Total pages
Bur.	Bureau	Ger.	Germany	pp.	Pages
Hr.	Branch			Rev	Review
		Inf.	Information		
Cult.	Culture/Cultural			Spl.	Special
Curr.	Current	Lab.	Laboratory	Ser.	Series/Service
Comm.	Commerce			Sem.	Seminar
Commn	Commission	Metab.	Metabolism	Sur.	Survey
Comp.	Compiled/ Compilation	Ms.	Manuscript	Stn.	Station
		.Mus.	Museum	Suppl.	Supplement
Corpn.	Corporation				
Chem.	Chemical	Natl.	Natural/National	Toxicol	Toxicology
coop.	Cooperative	Nutr.	Nutrition/Nutrient	Trng.	Training
		No.	Number	Trop.	Tropical
Div.	Division				
Dir.	Director	Oceanogr	Oceanography	Vol	Volume

BIOLOGY

- AIRAN, J.W. and KARAT, A.B.A. 1953. Amino-acids in *Scylla*. *Sci. Culr.*, 19: 92-93.
- ANON. 1968. Physiology of moulting in the edible crab *Scylla serrata*. *Mahasagar*, 1(6).
- _____. 1975. Notes on the food preferences of *Scylla serrata* (Forsk.) *Ann. Rep. Mindanao State Univ. Inst. Fish. Res. Dev.*, 1975: 121-122.
- _____. 1975. Preliminary study on the spawning and development of *Scylla serrata* (Forsk.) *Ann. Rep. Mindanao State Univ. Inst. Fish. Res. Dev.* 1975: 123-126.
- ARRIOLA, F.J. 1940. Preliminary study of the life history of *Scylla serrata*, (Forsk.) *Phil. J. Sci.* 73: 437-456.
- ARUMUGAM, M. and RAVINDRANATH, M.H. 1980. Significance of the variation in haemolymph copper-protein ratio in the crab *Scylla serrata* (Forsk.) during different hours of the day. *Experientia*, 36: 1306-1307.
- ATKINSON, J.M. 1971. Factors affecting the growth rate of Samoan crab (*Scylla serrata*) in Hawaii. *Dept. of Zoo., Univ. of Hawaii, Hawaii*. 5p.
- BARKER, P.L. and GIBSON, R. 1978. Observations on the structure of the mouth parts, histology of the alimentary tract, and digestive physiology of the mud crab *Scylla serrata* (Forsk.) (Decapoda : Portunidae). *J. Expt. Mar. Biol. Ecol.*, 32(2): 177-196.
- BHATTACHARYA, D.R. 193 1. On cytoplasmic inclusions in the oogenesis of *Scylla serrata*. *All. Univ. Stud.*, 8(2): 63-103.
- BHUIYAN, A.L. and ISLAM, M.J. 1981. Tolerance and distribution of *Scylla serrata* in response to salinity of Karnafully River Estuary. *Bangla. J. Agri.*, 6(1): 7-1 5.
- BLANCO, G.J. and LOPEZ, J.V. 1956. Philippine swimming crabs of the family Portunidae. *Dept. of Agri. and Natl. Res., Manila*, 29p.
- CHANDY, J.P. and KOLWALKAR, D.G. 1985. Evidence for cardioregulatory principle in the pericardial organ of the marine crab *Scylla serrata* (Forsk.) *Comp. Physiol. Ecol.* Vol. 10, No. 1 : 20-21.
- CHAKRABARTI, K. 1981. A growth study of the crab *Scylla serrata* (Forsk.) in the Sundarbans, India. *Ind. J. For.* June 1981. Vol. 4(2) : 102-106.
- DAS GUPTA HEM CH. 1924. On the occurrence of *Scylla serrata* (Forsk.) in the upper tertiary bed of Hathab Bhavanagar (Kathiawar). *J. Asia. Soc., Bengal*, 10: 239-241.
- DELATHIERE, S. 1988. Study of mangrove crab *Scylla serrata* in New Caledonia: Report (July 1988-January 1989), *Publ : Ostrom, Noumea (New Caledonia)*, 68 p. (French).
- DEPLEDGE, M.H., CHAN, R. and LOH, T.T. 1986. Iron distribution and transport in *Scylla serrata* (Forsk.) *Asian Mar. Biol.* No. 3 : 101-110.
- DESHMUKH, R. and RANGNEKER, P.V. 1965. Some observations on the neurosecretory system of the marine crab, *Scylla serrata* (Forsk.) *J. Biol. Sci.*, 8(1).
- _____ and RANGNEKER, P.V. 1966. Some observations on the hormonal control of chromatophores in the crab *Scylla serrata* (Forsk.) *J. Biol. Sci.*, 9: 25-29.
- _____ and RANGNEKER, P.V. 1973. Study on the control of blood sugar regulation in the marine crab *Scylla serrata*. *J. Anim. Morphol. Physiol.*, 20 (1-2): 139-149.

- DU PLESSIS, A. 1971. *Preliminary investigation into the morphological characteristics, feeding, growth, reproduction and larval rearing of Scylla serrata (Forsk.) (Decapoda: Portunidae), held in captivity.* Fish. Dev. Corp., S.A. 24p.
- ESTAMPADOR, E.P. 1949. Studies on *Scylla* (Crustacea : Portunidae), I. Revision of the genus. *Phil. J. Sci.*, 78(1): 95-109.
- ————— . 1949. *Scylla* (Crustacea : Portunidae), 11. Comparative studies on spermatogenesis and oogenesis. *Phil. J. Sci.* 78(3): 301-353.
- EZHILARASI, S. 1982. Experiments on yolk protein uptake in crustacean ovary. Wkshp on Mar. Invert. Reprn, Madras (Ind.) Oct.25, 1982. CMFRI, Spl. Publ. No. 9. **Man. of Res. Methods for Mar. Invert. Reprn.** Ed. by Subramoniam, T. : 61-63.
- and SUBRAMONIAM, T. 1982. Serological identification of vitellogenin and lipovitellin in *Scylla serrata* and *Emerita asiatica* using immunoelectrophoresis. Wkshp. on Mar. Invert. Reprn., Madras (Ind.), Oct. 25, 1982, CMFRI Spl. Publ. No. 9. **Man. of Res. Methods for Mar. Invert. Reprn.** Ed. by Subramoniam, T.: 51-58.
- and SUBRAMONIAM, T. 1982. Identification characterization of vitellogenin and lipovitellin of *Scylla serrata* and *Emerita asiatica* using disc gel electrophoresis. Wkshp on Mar. Invert. Reprn, Madras (Ind.) Oct. 25, 1982. CMFRI Spl. Publ. No. 9. **Man. of Res. Methods for Mar. Invert. Reprn.** Ed. by Subramoniam, T.: 43-48.
- and SUBRAMONIAM, T. 1982. Spermathecal activity and ovarian development in *Scylla serrata* (Forsk.) (Decapoda:Portunidae). 1st All Ind. Symp. on Invert. Reprn, Madras (Ind.) July 28-30, 1980. *Progress in Invert. Reprn. and Aqua.* Eds. Subramoniam, T.; Varadarajan, S., : 77-88.
- and SUBRAMONIAM, T. 1984. Esterase activity in *Scylla serrata* (Forsk.) during ovarian development. *J. Exp. Mar. Biol. Ecol.*, 83(1): 1-12.
- FAROOQUI, U.M. and NAGABHUSHANAN, R. 1983. Effect of reserpine, 5-hydroxytryptamine and endocrinological manipulations on ovarian maturation of a marine crab. *Experientia*, 39(1):79-81.
- and NAGABHUSHANAN, R. 1983. Biochemical variations during testis maturation in the marine crab *Scylla serrata* (Forsk.) (Crustacea, Decapoda, Portunidae). *Rev. Bras. Biol.*, Vol. 43, No. 3:257-260.
- FERNANDO, S.A. 1978. *Studies on the biology of barnacles (Crustacea : Cirripedia) of Porto Novo Region, South India.* (Ph.D. Thesis, Annamalai Univ).
- FRASER, P.J. and SANDEMAN, D.C. 1975. Effects of angular and linear accelerations on semicircular canal interneurons of the crab *Scylla serrata*. *J. Comp. Physiol.*, 96: 205-221.
- and SANDEMAN, D.C. 1975. Free hook hair and thread hair input to fiber 5 in the mud crab, *Scylla serrata*, during antennule rotation. *J. Comp. Physiol.*, 103: 291-313.
- and SANDEMAN, D.C. 1975. Three classes of input to a semicircular canal interneuron in the crab, *Scylla serrata*, and a possible output. *J. Comp. Physiol.*, 104(3): 261-271.
- GEORGE, P.C. and RAO, P.V. 1967. Annotated bibliography of the biology and fishery of the edible crabs of India. IN: *Proc. of the Symp. on Crustacean*, Ernakulam, Ind. Jan. 2-15, 1965. Part V. Mandapam Camp, Mar. Biol. Assn. of Ind.: 1548-1555. (Symp. ser. 2).
- GUPTA, R.S. and CHATTERJEE, N.B. 1976. Anatomical observation of the internal male reproduction organs of *Scylla serrata*. *Znd. J. Physiol. AN. Sci.*, 30(1):

- HACKMAN, R.H. 1974. Soluble cuticular proteins from three arthropod species: *Scylla serrata* (Decapoda: Portunidae), *Boophilus micropius* (Acarina: Ixodidae) and *Agrianome spinicollis* (Coleoptera: Cerambycidae). *Comp. Biochem. Physiol.*, 49B: 457-464.
- HANUMANTE, M.M., FAROOQUI, U.M., and NAGABHUSHANAN, R. 1979. Effect of pharmacological and endocrinological stimulations on respiration of the marine crab *Scylla serrata* (Forsk.). *Ind. J. Expt. Biol.*, 17: 964-965.
- HEASMAN, M.P., FIELDER, D.R. and SHEPHERD, R.K. 1985. Mating and spawning in the mudcrab, *Scylla serrata* (Forsk.) (Decapoda: Portunidae), in Moreton Bay, Queensland. *Aust. J. Mar. Fshw. Res.* Vol. 36, No. 6 : 773-783.
- HILL, B.J. 1975. Abundance, breeding and growth of the crab *Scylla serrata* in two South African estuaries. *Mar. Biol.* 32: 119-126.
- _____ and KOOPOWITZ, H. 1975. Heart-rate of the crab *Scylla serrata* (Forsk.) in air and in hypoxic conditions. *Comp. Biochem. Physiol.*, 52A: 385-387.
- _____ and KOOPOWITZ, H. 1976. Natural food, foregut clearance-rate and activity of the crab *Scylla serrata*. *Mar. Biol.*, 34(2): 109-116.
- _____ and KOOPOWITZ, H. 1978. Activity, track and speed of movement of the crab *Scylla serrata* in an estuary. *Mar. Biol.*, 47(2): 135-141.
- _____ and KOOPOWITZ, H. 1979. Aspects of the feeding strategy of the predatory crab, *Scylla serrata*. *Mar. Biol.*, 55(3): 209-214.
- _____ and KOOPOWITZ, H. 1979. Biology of the crab *Scylla serrata* (Forsk.) in the St. Lucia system. *Trans. R. Soc. of South Africa*, 44(1): 52-62.
- _____ and KOOPOWITZ, H. 1980. Effects of temperature on feeding and activity in the crab *Scylla serrata*. *Mar. Biol.*, 59(3): 189-192.
- HYLAND, S.J., HILL, B.J. and LEE, C.P. 1984. Movement within and between different habitats by the portunid crab *Scylla serrata*. *Mar. Biol.*, 80(1): 57-61.
- ISLAM, M. J. 1977. Brachyura of the Karnafully Estuary and northeast part of the Bay of Bengal with special reference to the biology of *Scylla serrata*. M.Sc. thesis, Dept. of Mar. Biol., Univ. of Chittagong: 160p.
- _____ and BHUIYAN, A.L. 1981-82. Temperature tolerance and its impact on the distribution of mud crab in the Karnafully River Estuary. *Bangla. J. Agric.*, 6(4) & (1): 38-46.
- JAMESON, J.D., MURUGAN, A. and NATARAJAN, P. 1982. Studies on the distribution pattern and morphometry of *Scylla serrata* (Forsk.) along Tuticorin coast. *Seafood Export J.*, Vol. 14, No. 4 : 17-20.
- JANSE, C. and SANDEMAN, D.C. 1979. The significance of canal-receptor properties for the induction of phase and gain in the fluid-filled balance organs of the crab *Scylla serrata*. *J. Comp. Physiol.*, 130(2): 101-111.
- _____ and SANDEMAN, D.C. 1979. The role of fluid-filled balance organs in the induction of phase and gain in the compensatory eye reflex of the crab *Scylla serrata*. *J. Comp. Physiol.*, 130(2) : 95-100.
- _____ and SANDEMAN, D.C. 1980. The function-of statolith-hair and free-hook-hair receptors in the statocyst of the crab, *Scylla serrata*. *J. Comp. Physiol.*, 137(1) : 51-62.

- JOEL, D.R. and SANJEEVA RAJ, P.J. 1980. Taxonomic remarks on two species of the genus *Scylla* de Haan (Portunidae : Brachyura) from Pulicat Lake. *J. Inland Fish. Soc. Ind.*, 12(2): 39-50.
- KANNAN, K. and RAVINDRANATH, M.H. 1980. Changes in protein-calcium association during different hours of a day in the haemolymph of the crab *Scylla serrata* (Forsk.). *Experientia*, 36(8): 965-966.
- KANNUPANDI, T. and PAULPANDIAN, A.L. 1975. Studies on the blood and muscle proteins of crabs of Porto Novo. *Bull. Dept. Mar., Sci., Univ. of Cochin*, 7(3) : 609-622.
- KATHIRVEL, M. 1981. Present status of taxonomy and biology of *Scylla serrata* (Forsk.). *Proc. Wkshp. on Crustacean Biochem. and Physiol. CMFRI and Univ. of Madras*: pp. 1-13.
- LEGGETT, L.M.W. 1979. A retinal substrate for colour discrimination in crabs. *J. Comp. Physiol.*, 133(2): PPO 59-166.
- _____ and STAVENGA, D.G. 1981. Diurnal changes in angular sensitivity of crab *Scylla serrata* photoreceptors. *J. Comp. Physiol. A. Sens. Neural. Behav. Physiol. B. Metab. Transp. Funct. Springer Intl., Berlin*, 1981. Vol. 144(1): 99-109.
- LE RESTE, L., FENO, L. and RAMELOSON, A. Information on, the biology and ecology of the crab *Scylla serrata* (Forsk.) in Madagascar. *Publ. by Oceanogr. Biol., Orstrom*, 24 rue Bayard, 75008 Paris, France.
- LERCH, K., AMMER, D. and OLAFSON, R.W. 1982. Crab Metallothionein — primary structures of metallothioneins 1 and 2. *J. Biol. Chem.*, Vol. 257, No. 5: 2420-2426.
- MENON, K.R. and SIVADAS, P. 1967. Blood sugar regulation in the crab *Scylla serrata*: effect of injecting eyestalk extract. *Ind. J. Expt. Biol.*, 5: 176-178.
- MIROLLI, M. 1977. Spatial decay of the responses to stretch and to injected current in the coxal receptors of the crab *Scylla*. *Biophys.J.*, 17(2): 195A.
- MITTAL, O.P. and PAHWA, S. 1982. Chromosomes of the crab, *Scylla serrata* (Forsk.) (Decapoda). *Chromosome Inf. Serv.*, Vol. 32: 14-15.
- MOMIN, M.A. and RANGNEKER, P.V. 1974. Histochemical localization of acid and alkaline phosphatases and glucose-6-phosphatases of the hepatopancreas of the crab, *Scylla serrata* (Forsk.). *J. Expt. Mar. Biol. Ecol.*, 14: 1-16.
- _____ and RANGNEKER, P.V. 1975. Histochemical localization of oxidative enzymes in the hepatopancreas of *Scylla serrata* (Forsk.) (Brachyura : Decapoda). *J. Expt. Mar. Biol. Ecol.*, 20(3): 249-264.
- _____ and RANGNEKER, P.V. 1975. Histochemical patterns of lipolytic enzymes of the hepatopancreas of *Scylla serrata* and their possible relation to eyestalk factor(s). *Zoo. J. of Linn. Soc.*, 57(1): 75-84.
- _____ and RANGNEKER, P.V. 1975. Variants in the histochemical patterns of lipids in the hepatopancreas of *Scylla serrata* (Forsk.) (Brachyura, Decapoda). *Z. Mikrosk. Anat. Forsch.* 89(1): 170-182.
- _____ and RANGNEKER, P.V. 1976. Influence of eyestalk removal on the histochemical distribution of oxidative enzymes in the cheliped muscle of *Scylla serrata* (Forsk.). *J. Expt. Mar. Biol. Ecol.*, 24(1): 83-92.
- _____ and MOMIN, V.M. 1977. Histochemical localization of glycogen and some representative enzymes of glycolytic cycle in the cheliped muscle of *Scylla serrata* (Brachyura. Decapoda). *Zoo. J. of Linn. Soc.*, 60(4): 367-380.

- MULLAINADHAN, P., RAVINDRANATH, M.H., WRIGHT, R.K. and COOPER, E.L. 1984. Crustacean defense strategies. I. Molecular weight dependent clearance of dyes in the mud crab *Scylla serrata* (Forsk.) (Portunidae:Brachyura). *Dev. Comp. Immunol.*, (USA). (Winter 1984). Vol. B(1): 41-50.
- _____ and RAVINDRANATH, M.H. 1984. Crustacean defense strategies. II. Recognition, clearance, accumulation and externalization of soluble foreign proteins by the mud crab *Scylla serrata* (Forsk.) (Portunidae:Brachyura). *Dev. Comp. Immunol.* (USA). (Summer 1984). Vol.8(3): 523-535.
- NAGABHUSHANAN, R. and RAO, K.R. 1966. Neurosecretory system of portunid crab, *Scylla serrata*, morphology, histochemistry. *J. Anat. Soc. Znd.*, 15(3): 138-144.
- _____ and FAROOQUI, U.M. 1981. Photoperiodic stimulation of ovary and testis maturation in the immature marine crab *Scylla serrata* (Forsk.). *Ind. J. Mar. Sci.* Dec. 1981. Vol. 10(4):396-398.
- _____ and FAROOQUI, U.M. 1982. Influence of photoperiod on ovarian maturation of the marine crab (*Scylla serrata*). 1st All Ind. Symp. on Invert. Repr., Madras (Ind.), July 28-30, 1980. *Progress in Invert. Repr. and Aqua.* Eds. Subramoniam, T. and Varadarajan, S.: 141-148.
- _____ and FAROOQUI, U.N. 1982. Mobilization of protein, glycogen and lipid during ovarian maturation in marine crab *Scylla serrata* (Forsk.). *Ind. J. Mar. Sci.* June 1982. Vol. II(2): 184-186.
- PILLAI, K.K. and NAIR, N.B. 1973. Observations on the breeding biology of some crabs from the southwest coast of India. IN : *Proc. Symp. on Ind. Ocean and Adjacent Seas – Their Origin, Sci. and Res. Cochin (Ind.)*, Jan 12, 1971. *Mar. Biol. Assn. of Ind. (Ind.)* 15(2): 754-770.
- PRASAD, P.N., SUDHARSHANA, R. and NEELAKANTAN, B. 1988. Feeding ecology of the mud crab *Scylla serrata* (Forsk.) from Sankari backwaters. *J. Bombay Nat. Hist. Soc.* 85(1): 79-89.
- _____, SUDHARSHANA, R. and NEELAKANTAN, B. 1988. Food and feeding habits of the mud crab *Scylla serrata* (Forsk.) (Decapoda, Portunidae) from Karwar Waters. *Ind. J. Fish.* 35(3) : 164-170.
- QUINN, N.J. and KOJIS, B.L. 1987. Reproductive biology of *scylla* spp. (Crustacea:Portunidae) from the Labu Estuary in Papua New Guinea. 2nd Intl. Symp. on Indo-Pacific Mar. Biol., Western Society of Naturalists, Univ. of Guam, June 23-28, 1986. *Bull. Mar. Sci.*, Vol. 41, No. 2 : 234-241.
- RADHAKRISHNAN, C.K. and SAMUEL, C.T. 1980. Prospects of fishery, utilization and culture of crabs in India. *Fish. Tec.* (1980) 17: 67-69.
- RAJA BAI NAIDU, K.G. 1955. Early development of *Scylla serrata* (Forsk.) de Haan and *Neptunus sanguinolentus* (Herbst). *Ind. J. Fish.*, 2(1): 67-76.
- RANGNEKER, P.V. and MADHYASTHA, M.N. 1969. Effect of eyestalk removal on the rate of oxygen consumption in the crab *Scylla serrata* (Forsk.). *J. Anim. Morphol. Physiol.*, 16(1): 84-88.
- _____ and MOMIN, M.A. 1974. Histochemical studies on the distribution and hormonal regulation of carbohydrates in the hepatopancreas of the crab *Scylla serrata* (Forsk.). *Z. Mikrosk. Anat. Forsch.*, 88: 871-883.

- _____ and MOMIN, M.A. 1975. Histochemical observations on the occurrence of glycolytic and pentose phosphate cycle enzymes in the hepatopancreas and their possible relation to eyestalk factors in the crab *Scylla serrata* (Forsk.) *Z. Mikrosk. Anat. Forsch.*, 89(1): 128-142.
- REKHA, D.D. 1968. Some aspects of biology of the marine crab, *Scylla serrata* (Forsk.). Ph.D. Thesis, Univ. of Bombay.
- SAHA, N. and RAYCHAUDHURI, D.N. 1973. Protease activity in the gut of the crab *Scylla serrata* (Forsk.). *Proc. Zoo. Soc., Calcutta*, 26: 113-119.
- SANDEMAN, D.C. 1971. Excitation and electrical coupling of four identified motoneurons in the brain of the Australian mud crab, *Scylla serrata*. *Z. Vgl. Physiol.*, 72: 111-130.
- _____ 1983. The balance and visual systems of the swimming crab: their morphology and interaction (*Scylla serrata*, *Carcinus maenas*, *Pachygrapsus crassipes*, *Leptograpsus variegatus*). *Fortschr-Zoo.: Gustav Fischer, Stuttgart, Ger.*, 1983. Vol. 28: 213-229.
- SENTHILKUMAR, N.S. and DESAI, K.M. 1978. Seasonal changes in glycogen, total lipids and cholesterol content of crabs, *Neptunus pelagicus* (Linnaeus) and *Scylla serrata* (Forsk.) of Sikka coast (Decapoda, Brachyura). *Ind. J. Zool.*, 6(1): 24-27.
- SNOW, P.J. 1981. The responses of the antennular muscles of the brachyuran *Scylla serrata* (Forsk.) (Portunidae, Brachyura) to repetitive activation of specific motoneurons. *J. Comp. Physiol. A. Sens. Neur. Behav. Physiol. Springer Intl., Berlin*, 1981. 142(2): 189-198.
- STEPHENSON, W. 1959. The Australian portunids (Crustacea: Portunidae) III. The genus *Portunus*. *Aust. J. Mar. Fshw. Res.*, 10(1): 84-124.
- _____ . 1960. Evolution and ecology of portunid crabs, with special reference to Australian species. IN: *The evolution of living organisms*. (Ed.) by G.W. Leeper, Melbourne Univ. Press: 311-327.
- _____ and CAMPBELL, B. 1960. The Australian portunids (Crustacea:Portunidae) IV. Remaining genera. *Aust. J. Mar. Fshw. Res.*, 11(1):111-115
- STOWE, S., RIBI, W.A. and SANDEMAN, D.C. 1977. Organization of the lamina ganglionaris of the crabs *Scylla serrata* and *Leptograpsus variegatus*. *Cell Tiss. Res.*, 178(4): 517-532.
- TING, Y.Y. and LIN, M.N. 1980. Primary report on the reproduction of mud crab, *Scylla serrata*. *Bull. of Taiwan Fish. Res. Inst.* (32): 553-561 (Chinese).
- TOBE, S.S., YOUNG, D.A. and KHOO, H.W. 1989. Production of methyl farnesoate by the mandibular organs of the mud crab, *Scylla serrata*: Validation of a radiochemical assay. *Gen.Comp. Endocrinol.*, Vol. 73, No. 3: 342-353.
- UMA, K. and SUBRAMONIAM, T. 1979. Histochemical characteristics of spermatophore layers of *Scylla serrata* (Forsk.) (Decapoda: Portunidae). *Intl. J. Invert. Repr.*, 1(1): 31-40.
- _____ and SUBRAMONIAM, T. 1982. Electrophoretic separation of protein fractions of seminal substances of *Scylla serrata*. *Wkshp on Mar. Invert. Repr.*, Madras (Ind.) Oct. 25, 1982. CMFRI Spec. Publ., No. 9. *Man. of Res. Methods for Mar. Invert. Repr.* Ed. by Subramoniam, T.: 117-119.
- _____ and SUBRAMONIAM, T. 1982. Permeability studies and dehiscence of spermatophores. *Wkshp on Mar. Invert. Repr.*, Madras (Ind.), Oct. 25, 1982. CMFRI Spl. Publ. No. 9. *Man. of Res. Methods for Mar. Invert. Rep.* Ed. by Subramoniam, T.: 99-101.

- _____ and SUBRAMONIAM, T. 1982. Biochemical analyses of seminal plasma and spermatophores of *Scylla serrata*. Wkshp. on Mar. Invert. Reprn., Madras (Ind.), Oct. 25, 1982. CMFRI Spl. Publ., No. 9. Man. of Res. Methods for Mar. Invert. Reprn. Ed. by Subramoniam. T.: 107-114.
- VARADARAJAN, S. 1982. Estimation of carotenoids in the ovary of the edible crab *Scylla serrata*. Wkshp. on Mar. Invert. Reprn., Madras (Ind.) Oct. 25, 1982. CMFRI Spec. Publ., No. 9. Man. of Res. Methods for Mar. Invert. Reprn. Ed. by Subramoniam, T.: 67-70.
- VEERANNAN, K.M. 1972. Respiratory metabolism of crabs from marine and estuarine habitats. I. *Scylla serrata*. Mar. Biol., 17: 284-290.
- _____. 1974. Respiratory metabolism of crabs from marine and estuarine habitats: an interspecific comparison. Mar. Biol., 26: 35-43.
- VENKATESWARAN, K., SETHURAMALINGAM, S. and NATARAJAN, R. 1981. Gut microflora of some edible crabs from Porto Novo Coast. Ind. J. Mar. Sci., 10(4): 399-401
- WAHYUNI, E. and ISMAIL, W. 1987. Living condition of *Scylla serrata* (Forsk.) around Tanjung Pasir waters, Tangerang, West Java. J. Mar. Fish. Res., No. 38: 59-68.
- WANG, GUIZHONG and LI, SHAOJING, 1989. Preliminary research for the influence of diethylstilbestrol on the growth of juvenile mud crab, *Scylla serrata* (Forsk.). Xiamen Daxue Xuebao., J. Xiamen Univ. (Nat. Sci.), Vol. 28, No. 2: 199-202.
- WILLIAMS, M.J. 1978. Opening of bivalve shells by the mud crab *Scylla serrata* (Forsk.). Aust. J. Mar. Fishw. Res., 29(5): 699-702.
- WRIGHT, K. 1990. The Mud Crab Book. Second Edn. Bright Books, PO Box 282, Bundaberg, Qld. 4670, Aust., 83p.
- ZOUTENDYK, P. and BICKERTON, I. 1988. Burrow identification of some estuarine organisms. S.A.J. Zoo. (S.A.Cydskr.Dierkd.), Vol. 23, No. 3: 235-238.

CULTURE

- ANON. 1976. *The status of aquaculture in Mauritius*. Ministry of Fisheries, Port Louis (Mauritius). Presented at Symp. on Aqua. in Africa. Accra (Ghana) Sept. 30, 1975. (No. 4, suppl. I)
- _____ . 1981. *Tamano Centre Operations Report 1981. Gazami Seed Production*. Japan Sea Farm. Assn. Internal Rep. (Japanese).
- _____ 1982. Breeding and culture of *Scylla serrata* and other portunid crabs. *Ann. Rep.*, Cent. Inland Fish. Res. Inst., Barrackpore, 1982 : 39.
- _____ 1983. Breakthrough in rearing green crab. *CMFRI Newsl.*, (20) : 1, 6.
- _____ : (1984). Brief overview of potential species for aquaculture on Guam : mangrove crabs. *Guam Aqua.*, (84-2 : 4)
- BALIAO, D.D., RODRIGUEZ, E.M. and GEROCHI, D.D. 1981. Culture of the mud crab, *Scylla serrata* (Forsk.) at different stocking densities in brackishwater ponds. *Q. Res. Rep.* SEAFDEC Aqua. Dept., 5(1) : 10-14.
- _____ . 1984. *Mud crab, "alimango" production in brackish water pond with milkfish*. IN : *Aquabusiness Project Development and Management VII*, Tigbauan, Iloilo, Feb. 8-28, 1984. Tech. papers. Tigbauan, Iloilo, SEAFDEC. 15p.
- BARDACH, J.E., RATHER, J.H.F. and MCLARNEY, W.O. 1972. Culture of crabs (Brachyura). IN : *Aquaculture : The Farming and Husbandry of Fresh water and Marine Organisms*. Wiley-Interscience, New York : 668-673.
- BENSAM, P. 1980. Culture experiment on the crab *Scylla serrata* (Forsk.) at Tuticorin during 1975-77 to assess growth and production. IN : *Proc. of the Symp. on Coastal Aqua.*, held at Cochin, January 12-18, 1980. Part 4 : Culture of other organisms, environmental studies, training, extension and legal aspects : 1183-1189.
- BLANCO, G.J. 1972. Fish seed production for intensive coastal aquaculture in the Indo-Pacific region. IN : *Coastal Aqua. in the Indo-Pacific Region*, ed. by T.V.R. Pillay. Fishing News Books. UK. : 195-207.
- BRICK, R.W. 1974. Effect of water quality, antibiotics, phytoplankton and food on survival and development of larvae of *Scylla serrata* (Crustacea : Portunidae). *Aqua.*, 3(3) : 231-244.
- BLJNDUKUL, D. 1957. Experiment on rearing *Scylla serrata*. *Thai Fish. Gaz.*, 1 : 62-82.
- CATANAOAN, C.C. 1972. Crab farm in the Philippines. *World Farm.*, 14(8) : 9.
- CHAIYAMAK, K. and PARNICHUKA, P. 1977. Experiments on rearing of mud crab, *Scylla serrata* (Forsk.) in bamboo pens. *Ann. Rep.*, Songkhla Fish. Stn., Dept. Fish., 1977 : 91-98.
- _____ and PARNICHUKA, P. 1978. Experiments on rearing of *Scylla serrata* (Forsk.) in brackishwater pond and cement pond. *Ann. Rep.*, Songkhla Fish. Stn., Dept. Fish., 1978 : 72-89.
- CHEN, H.C. and JENG, K.H. 1980. Study on the larval rearing of mud crab, *Scyllaserrata*. *China Fish. Monthl.* (329) : 3-8.
- CHEN, T.P. 1976. Crab culture. IN : *Aqua. in Taiwan*. Fishing News Books, UK. : 123-128.
- COWAN, L. 1984. Crab-farming in Australia : there's potential but some way off. *Aust. Fish.*, 43(2) : 47-50.
- _____ 1984. *Crab-farming in Japan, Taiwan and the Philippines*. Inf. Ser. Q 184009, Dept. of P.I., Qld. 4001, Aust.

- DOMINISAC, J.B. and DEJARME, H.E. 1974. Some observations on the reproduction and larval development of *Scylla serrata* (Forsk.) *Tech. Rep.*, Mindanao State Univ. Inst. Fish. Res. Dev. 1974 : 57-64.
- ESCRITOR, G.L. 1970. Report on experiments in the culture of the mud crab (*Scylla serrata*). *Proc. IPFC*, 14 : 11p.
- _____. 1972. Observations on the culture of the mud crab, *Scylla serrata*. *IN : Coastal Aqua. in the Indo-Pacific Region*. Ed. by T.V.R. Pillay. Fishing News Books, UK. : 355-361.
- GARLAND, C.D. 1988. The hatchery basis of the Australian mariculture industry. *IN : Proc. of the 1st Aust. Shellfish Aqua. Conf.* Perth (Aust.), Oct. 23, 1988. Ed. by Evans, L.H. and O'Sullivan. D : 5-16.
- GOMEZ, E.D. 1981. Potential for polyculture of Gracilaria with milkfish or crustaceans. *IN : Rep. on the Trng. Course on Gracifariu Algae* (A training subproject under FAO/UNDP project RAS/79/041 implemented through RAS/74/013) Manila, Phil., April 1-30, 1981. Eds. Trono, G.C., Jr.; Ganzon-Fortes, E. : 91-93.
- GRINO, E.G. 1977. Notes and observations on practices of culturing *Scylla serrata* in Western Visayas. *IN : Readings in Aqua. Practices*. SEAFDEC Aqua. Dept., Tigbauan, Iloilo, 2 : 154-159.
- GUTIERREZ, P.C. and MEDIANA, T.T. 1977. *Prospects of mud crab farming in the Philippines*. Bur. of Fish. and Aqua. Res., Manila, 5p.
- HARRISON, N. 1975. Development of a commercial aquaculture system for the crab *Scylla serrata*. *Sea Grant Advisory Rep.*, Univ. of Hawaii, Hawaii.
- HARVEY, M. 1990. Mud crab culture in Thailand. *JNFOFISH Intl. No. 6/1990* : 53-54.
- HEASMAN, M.P. and FIELDER, D.R. 1983. Laboratory spawning and mass rearing of the mangrove crab, *Scylla serrata* (Forsk.), from first zoea to first crab stage. *Aqua.*, 34(3-4) : 303-316.
- HILL, B.J. 1974. Salinity and temperature tolerance of zoeae of the portunid crab *Scylla serrata*. *Mar.Biol.*, 25(1) : 21-24.
- _____. 1984. Aquaculture of the mud crab (*Scylla serrata*). *Proc. Sem. on the Potential of Aqua.* held at Brisbane (Qld., Aust.) Mar. 24-25, 1983. Eds. Pollock, B.R. and Quinn, R.H. : 29-44. Conf. Wkshp. Ser., Dept. P.I., Qld., No. QC83012.
- JOEL, D.R. and SANJEEVA RAJ, P.J. 1982. The breeding of three edible portunid crabs of Pulicat Lake. *IN : Progress in Invert. Repr. and Aqua.* (Eds.) T. Subramaniam and Sudha Varadharajan. Ind. Soc. Invert. Repr., Madras : 135-140.
- KASRY, A. 1986. Effects of antibiotics and food on survival and development on larvae of mangrove crab (*Scylla serrata* (Forsk.)). *J. Penelitan Perikanan Laut, (J. Mar. Fish. Res.)*, No. 37 : 11-22.
- KUTHALINGAM, M.D.K., SUNDARARAJ and RAMADHAS, V. 1982. Utilization of mangrove ecosystem for aquaculture in India. *Intl. Symp. on Utlz. of Coastal Ecosystems : Planning, Pollution and Production*. Rio Grande (Brazil) Nov. 22, 1982. *Atlantica.*, Vol. 5, No. 2 : 68.
- LAI, QINGSHENG and ZHOU, RENJIE. 1988. The fattening technique of mud crab *Scylla serrata*. *Mar. Fish.* (China). (Jul.1988). Vol. 10(4) : 173-176. (Chinese).
- LAPIE, L.P. and LIBRERO, A.R. 1979. *Crab farming in the Philippines : A socio-economic study*. SEAFDEC-PCARR Res. Program, Los Banos. 56p.
- LAVINA, A.F. and BULING, A.S. 1977. Propagation of the mud crab *Scylla serrata* (F.) de Haan. *Q. Res. Rep.* SEAFDEC Aqua. Dept., 1(2) : 9-11.

- _____ and BULING, A.S. 1977. Semi-abstracted compilation of studies on the culture of *Scylla serrata* (Forsk.) de Haan in the Philippines. SEAFDEC Aqua. Dept., Tigbauan, Iloilo, 2 : 160-171.
- _____ and BULING, A.S. 1979. Some laboratory indications for crab fattening. Asian Aqua., 2(2) : 6.
- _____ and BULING, A.S. 1980. Notes on the biology and aquaculture of *Scylla serrata* (Forsk.) de Haan. IN : Aquabusiness Proj. Dev. and Mgmt. III, U.P., Diliman, Jul 28 - Aug 16, 1980. SEAFDEC, Iloilo. 2 : 19 p.
- LIJAUCO, M.M., PROSPERO, O.Q. and RODRIGUEZ, E.M. 1980. Polyculture of milkfish (*Chanos chanos*) and mud crab (*Scylla serrata*) at two stocking densities. Q. Res. Rep., SEAFDEC Aqua. Dept., Iloilo. 4(4) : 19-23.
- LING, S.W. 1977. Crab culture. IN : Aqua. in Southeast Asia : a historical overview. Ed. by L. Mumaw. Univ. of Washington Press, Seattle, Washington : 97-98.
- LOPEZ, J., CARLOS, M. and JOHNSON, K. 1974. Preliminary attempt at rearing alimango (*Scylla serrata*) larvae spawned in concrete hatchery tanks. 5p. (Unpublished).
- MARICHAMY, R., VENKATARAMAN, G., HAMSA, K.M.S.A., NAMMALWAR, P., SHANMUGAM, S. and BENSAM, P. 1979. Culture of fishes in cages and pens along the coastal waters of India. IN : Proc. of the Intl. Wkshp. on Pen and Cage Culture of Fish, Tigbauan (Phil.) Feb. 11, 1979 : 41-44.
- _____, MANICKARAJA, M. and RAJAPACKIAM, S. 1980. Culture of the mud crab *Scylla serrata* (Forsk.) in Tuticorin Bay. IN : Proc. of the Symp. on Coastal Aqua., Cochin, Ind., Jan. 12-18, 1980.
- _____ and RAJAPACKIAM, S. 1984. Culture of larvae of *Scylla serrata*. Mar. Fish. Inf. Serv. Tech. Ext. Serv., No. 58 : 13-15.
- MOTOH, H., de la PENA, D. and TAMPOS, E. 1977. Laboratory breeding of the mud crab *Scylla serrata* (Forsk.) through zoea and megalopa stages to the crab stage. Q. Res. Rep., SEAFDEC Aqua. Dept., 1(4) : 14-18.
- NAGABHUSHANAN, R., SAROJINI, R. and FAROOQUI, U.M. 1982. Prospect of the mud crab (*Scylla serrata*) culture in India. Intl. Symp. on Utilization of Coastal Ecosystems. : Planning, Pollution and Production. Rio Grande (Brazil), Nov. 22, 1982. Atlantica, 5(2) : 83.
- _____, SAROJINI, R. and FAROOQUI, U.M. 1984. Changes in the activity of Y-organ cells during spermatogenesis in a marine crab, *Scylla serrata* (Decapoda, Crustacea). J. Adv. Zoo., Vol. 5, No. 1 : 48-51.
- NAIDU, K.G.B. 1955. The early development of *Scylla serrata* (Forsk.) and *Neptunus sanguinolentus* (Herbst). Ind. J. Fish. (2) : 67-76.
- NAKAMO, S. 1931-1933. On culture of *Chanos chanos* (Forsk.). *Penaeus monodon* (Fabricius) and *Scylla serrata* (Forsk.) at Tainan, Formosa. Suisan-Kai : 588-602.
- NAMMALWAR, P. 1978. Blood sugar estimation in the estuarine crab *Scylla serrata* (Forsk.). Sci. Cult. 44(12) : 543-544.
- NATARAJAN, P. and THANGARAJ, G.S. 1983. Studies on the growth of edible crab *Scylla serrata* in brackishwater cage. Proc. Nat. Sem. on Cage and Pen Culture. Fish. College, TNAU, Tuticorin : 107-110

- ONG KAH SIN. 1965. Early developmental stages of *Scylla serrata* (Forsk.) (Crustacea : Portunidae) reared in the laboratory. Proc. IPFC, 11(2) : 135-146.
- _____. 1966. Observations on the post-larval life history of *Scylla serrata* (Forsk.) reared in the laboratory. Mal. Agri. J., 45(4) : 429-443.
- PAGCATIPUNAN, R. 1972. Observations on the culture of alimango, *Scylla serrata* at Camarines Norte (Philippines). IN : Coastal Aqua. in the Indo-Pacific Region. Ed. by T.V.R. Pillay. Fishing News Books, UK : 362-365.
- PANNEERSELVAM, M. and SUBRAMONIAM, T. 1982. Y-organectomy in the crab, *Scylla serrata*. Wkshp. on Mar. Invert. Repr. Madras (Ind.), Oct. 25, 1982. CMFRI. Spl. Publ. No.9. Man. of Res. Methods for Mar. Invert. Repr. Ed. by Subramoniam, T. : 143-145.
- PILLAY, T.V.R. 1990. Crayfishes and Crabs. IN Aqua. : Principles and Practices. (Ed.) T.V.R. Pillay, Fishing News Books, UK. 575p.
- PRASAD, P.N. and NEELAKANTAN, B. 1989. Maturity and breeding of the mud crab, *Scylla serrata* (Forsk.) (Decapoda : Brachyura : Portunidae). Proc. Ind. Acad. Sci. (Anim. Sci). Vol. 98, No. 5 : 345-349.
- RAJADURAI, N.R. 1991. Mud Crab grow-out and feed. *Tech. Q & A*, INFOFISH Intl. 2/1991 : 63-64.
- RAMON, K., SRINIVASAGAM, S. and KRISHNAN, S. 1980. Preliminary studies on culture of portunid crabs *Scylla serrata* and *Portunus pelagicus*. Symp. on Inland Aqua., CIFRI, Barrackpore. Abstract No. 111.
- RANGNEKER, P.V. and DESHMUKH, R.D. 1968. Effect of eyestalk removal on the ovarian growth of the marine crab *Scylla serrata* (Forsk.). J. Anim. Morphol. Physiol., 15 : 116-126.
- RAPHAEL, Y.I. 1970. *Preliminary report on the brackishwater pond culture of Scylla serrata* in Ceylon. Proc. IPFC, 14 : 1- 10.
- _____. 1972. Preliminary report on the brackishwater pond culture of *Scylla serrata* (Forsk.) in Ceylon. IN : Coastal Aqua. in the Indo-Pacific Region. ed. by T.V.R. Pillay. Fishing News Books, UK. p. 395.
- ROBLES, J.B. 1978. Observations on crab (alimango) culture. Fish. Res. J. Phil., 3(1) : 100-104.
- SIMON, C.M. 1974. Report on preliminary research on the rearing of the larvae of the crabs *Scylla serrata* (Forsk.) and *Portunus pelagicus*. Tech. Rep. Mindanao State Univ. Inst. Fish. Res. Dev., 1974 : 65-75.
- _____. 1975. Influences of type and concentration of food organisms on the survival, development and feeding behaviour of the zoea larvae of *Scylla serrata* (Crustacea, Portunidae). M.S. Thesis, Univ. of Hawaii. 59p.
- SIMON, J. and SIVADAS, P. 1978. Morphological changes in the development of ovary in the eyestalk ablated estuarine crab *Scylla serrata* (Forsk.). Mahasagar, Bull. Nat. Inst. Oceanogr., 11 : 57-62.
- _____. and SIVADAS, P. 1979. Histological changes in the oocytes of the estuarine crab *Scylla serrata* (Forsk.) after eyestalk ablation. Mahasagar, Bull. Nat. Inst. Oceanogr., 12 : 11-16.
- SRINIVASAGAM, S. et al. 1984. Experimental studies on the growth of four species of Portunidae crabs under different conditions. Seafood Export J., March 1984 : 5-10.

- TAIRA, M. 1965. Experiment on rearing of *Scylla serrata*. Ann. Rep., Shizuoka Prefect. Fish. Exp. Stn., 1965 : 171.
- TAMURA, T. 1970. Propagation of *Scylla serrata*. IN : Mar. Aqua., by M.I. Watanabe. Springfield, Virginia, Distributed by Nat. Tech. Inf. Sci., U.S. Dept. of Comm. I : 15.12-1-15, 12-3.
- TING, Y .Y ., LIN, M.N., LUO, W .S. and TSENG, B.S. 1981. Studies on the spawner rearing and reproduction of mud crab *Scylla serrata*. China Fish. Aqua. 24 : 1-7.
- TOOKWINAS, S. and YOUNGWANICHSAID, T. 1986. Mud crab culture in Surat Thani Province. Thai Fish. Gaz. Vol. 9 (4) 1986 : 377-382. (Thai, with English abstract).
- VARIKUL, V., PHUMIPHOL, S. and HONGPROMYART, M. 1972. Preliminary experiments in pond rearing and some biological studies of *Scylla serrata* (Forsk.) IN : Coastal Aqua. in the Zndo-Pacific Region. Ed. by T V R Pillay. Fishing News Books, UK. : 366-374.
- VILLALUZ, D.K. 1953. Cultivation of crabs. 1. Alimango cultivation. IN : Fish Farm. in the Phil. Bookman, Manila : 149-151.
- WAHYUNI, I.S. 1985. Hatching and rearing experiment of mangrove crab, *Scylla serrata* (Forsk.) larva. Laporan Penelitian Perikanan Laut (Mar. Fish. Res. Rep.), No. 32 : 89-92.
- WRIGHT, K. 1990. The Mud Crab Book. Second Edn., Bright Books, PO Box 282, Bundaberg, Qld. 4670 : 83p.

RESOURCES : EXPLOITATION AND MANAGEMENT

- ANON. 1976. Queensland mud crab under study. *Aust. Fish.*, 35(12) : 18.
- 1979. Mangrove crab (*Scylla serrata*). *Ann. Rep. Fish. Res. Papua New Guinea*. 1978 : 79-83.
- 1980. Mangrove crab. *Ann. Rep. Fish. Res. Papua New Guinea*, 1979 : 80-86.
- 1981. A report on the mangrove crab, *Scylla serrata*, and its utilization with particular reference to Mozambique. *FAO/GCP/MOZ/006 (SWE)*, 1981 : 8-14.
- : 1982. Mud crab studies. *Ann. Rep. Fish. Res. Papua New Guinea*, 1980/81 : 66-68.
- 1982. Fattening and growout of mud crabs. IN : *The Queensland Mud Crab Fishery*. Ed. Hill, B.J. *The Qld. Fish. Inf. Ser. FI. 8201*. 1982 : 35.
- 1983. Results of Queensland mud crab study released. *Aust. Fish.*, 42(2) : 30-35.
- ANSARI, Z.A. and HARKANTRA, S.N. 1975. Crab resources of Goa. *Seafood Export J.*, 8(3) : 21-24.
- BANNERJI, S.K. 1969. Crustacean production in India. *Bull. CMFRI.*, 14 : 259-272.
- BHUYIAN, A.L. and DAS, N.G. 1976. A preliminary study on the taxonomy of crabs (Crustacea:Brachyura) of the northeastern part of the Bay of Bengal. *Symp. P., 1st Bangla. Sci. Conf.:* B-48.
- BOONE, LEE, 1934. Scientific results of the world cruise of the yacht *Alva* 1931, William K. Vanderbilt, Commanding. *Bull. of the Vanderbilt Mar. Mus.*, Vol. 5: 210.
- CHACKO, P.I. and RAJAGOPAL, A. 1964. Hydrology and fisheries of the Ennore river system, near Madras from 'April 1960 to March 1961. *Madras J. Fish.*, 1(1): 102-104.
- CHANDRASEKARAN, V.S. and NATARAJAN, R. 1987. Availability of juveniles of the edible crab *Scylla serrata* (Forsk.) in Pichavaram Mangrove, Southern India. IN: *Aqua. Europe '87. Intl. Conf. and Intl. Exb., European Aqua. Soc., Amsterdam* : 20.
- CHHAPGAR, B.F. 1962. Crab-fishing at Bombay. *J. Bombay Nat. Hist. Soc.*, 59(1): 306-309.
- CHOPRA, B. 1939. Some food prawns and crabs of India and their fisheries. *J. Bombay Nat. Hist. Soc.*, 41(2): 221-234.
- DATTA, S.N. 1973. The edible crabs of the delta West Bengal. *Seafood Export J.*, 5(12): 25-28.
- DELATHIERE, S. 1990. Biology and exploitation of the mud crab *Scylla serrata* in New Caledonia. Ph.D Thesis: *Inst. Fr. Res. Sci. Dev. Coop., Ostrom, Noumea (New Caledonia)*. 291 p. (French).
- DELL, R.K. 1964. Large Indo-Pacific swimming crab *Scylla serrata* (Forsk.) in northern New Zealand. *Rec. N.Z. Dom. Mus. (Wellington)*, 5(8):59-62.
- DICKENSON, R.E. 1976. Preliminary report on field investigation of the mangrove crab *Scylla serrata* at Ponape. *Univ. of Guam Mar. Lab., Guam*, 13 p.
- . 1977. Occurrence and natural habitat of the mangrove crab *Scylla serrata* on Ponape and Guam, Ph.D. Thesis, *Univ. of Guam*. 79 p.
- EVANGELINE, G. and SUBBIAH, K. 1969. Hydrobiology and fishery of the Ennore Estuary from June 1965 to May 1967. *Madras J. Fish.*, 5: 139-151.

- FIELDER, D.F. and HEASMAN, M.D. 1978. *The mud crab*. Qld. Mus. Bklt: 15 p.
- FORBES, A.T. and HAY, D.G. 1988. Effects of a major cyclone on the abundance and larval recruitment of the portunid crab *Scylla serrata* (Forsk.) in the St Lucia Estuary, Natal, South Africa. *S.A. J. Mar. Sci., (S.A. Tydskr. Seewet.)*, Vol. 7 : 219-225.
- FRUSHER, S.D. 1982. *Ecology of juvenile penaeid prawns, mangrove crab (Scylla serrata) and the giant freshwater prawn (Macrobrachium rosenbergii) in the Purari Delta*. Fish. Res. and Sur. Br., Dept. of P. I., Port Moresby, Papua New Guinea, 181 p.
- _____. 1983. The ecology of juvenile penaeid prawns, mangrove crab (*Scylla serrata*) and the giant freshwater prawn (*Macrobrachium rosenbergii*) in the Purari Delta. *IN: Tropical Environment of a High Rainfall River Basin*. Ed. by T.Petr. Dr W Junk, The Hague, : 341-354.
- HEASMAN, M.P. and FIELDER, D.R. 1977. Management and exploitation of the Queensland mud crab fishery. *Aust. Fish.*, 36(8): 4-7.
- _____ and FIELDER, D.R. 1980. *Aspects of the general biology and fishery of the mud crab Scylla serrata (Forsk.) in Moreton Bay, Queensland*. Ph.D. Thesis, Univ. of Qld. 506 p.
- HILL, B.J., WILLIAMS, M.J. and DUTTON, P. 1982. Distribution of juvenile, subadult and adult *Scylla serrata* (Crustacea : Portunidae) on tidal flats in Australia. *Mar. Biol.*, 69(1) : 117-120.
- _____. 1982. *Queensland mud crab fishery*. Fortitude Valley, Qld. Fish. Resources. Br., Dept. of P. I., Qld. 54 p.
- _____. 1984. *The Queensland mud crab fishery*. Inf. Ser., Dept. of P. I., Qld. No. QI84024, 54 p.
- HIRAI, K. 1987. Fisheries biology of *Scylla serrata* in the Lake Hamana (Japan): On the characteristic of catch per unit effort and year class in 1984, 1985. *Bull. Shizuoka Pref. Fish. Expt. Stn. Mar.* 1987.No.22 : 39-53. (Japanese).
- HORA, S.L. 1935. Crab fishing at Uttarbhag, Lower Bengal. *Curr. Sci.*, 3(1): 543-546.
- JAYASURIYA, P.M.A. 1985. The present status of fin fish and crustacean fishery of Puttalam Lagoon. *J. Natl. Aquat. Res. Agency (Sri Lanka)*., Vol. 32, No. 1-2 : 94-103.
- JOEL, D.R. and SANJEEVA RAJ, P.J. 1980. Ecological distribution of some edible portunid crabs of the Pulicat Lake. *IN : Proc. Symp. on Coastal Aqua.*, Cochin, Ind., Jan. 12-18, 1980. *Mar. Biol. Assn. of Ind. Abs.* p. 16.
- JONES, S. and SUJANSINGANI, K.H. 1952. Notes on the crab fishery of the Chilka Lake. *J. Bombay Nat. Hist. Soc.*, 51(1): 128-134.
- KATHIRVEL, M. 1980. Abundance of portunid crab seeds in Cochin backwater. *IN : Proc. Symp. on Coastal Aqua.*, Cochin, Ind., Jan. 12-18, 1980. *Mar. Biol. Assn. of Ind., Abs.* p. 55.
- _____. 1983. Crab resources and prospects for crab culture. *IN: Mariculture Potential of Andaman and Nicobar Islands - An indicative survey*. Ed. by Alagarwami, K.: 66-68.
- LALITHADEVI, S. 1985. Fishery and biology of crabs of Kakinada region. *Ind. J. Fish.*, 32(1): 18-32.
- LUO, Y. and WEI, S. 1986. A study on the experimental ecology of the mud crab *Scylla serrata* (Forsk.). *Donghai Mar.Sci.* Donghai Haiyang., Vol. 4, No. 3: 91-95. (Chinese)
- MACINTOSH, D.J. 1982. Fisheries and aquaculture significance of mangrove swamps, with special reference to the Indo-West Pacific Region; 6.3 Crabs. *IN: Recent Adv. in Aqua.* Ed. by J.F. Muir and R.J. Roberts. Croom Helm, London: 61-65.

- MACNAE, W. 1968. General account of the fauna and flora of mangrove swamps and forests in the Indo-West Pacific (*Scylla serrata*). *Adv. Mar. Biol.*, 6: 214-217.
- _____. 1974. Crabs (*Scylla serrata*). IN: *Mangrove Forests and Fisheries*. Food and Agriculture Organization of the United Nations, Rome. (Ind. Ocean Fish. Commn., Ind. Ocean Prog. IOFC/DEV/74/34):22.
- MAHMOOD, N. 1977. Crustacean fauna of the Bay of Bengal of the coast of Bangladesh. Paper presented at the Biol. Wkshp. organized by Bangla. Nat. Commn. for UNESCO: 6p.
- MANIKIAM, J.S. 1967. *Occurrence of the mud crab, Scylla serrata in New Zealand*. Tech. Rep., NZ. Mar. Dept. Fish., : 24 p.
- MANOHARA RAM, B.H. and CHANDRA MOHAN, K. 1978. Some preliminary observations on the trend in commercial crab fishery of Mangalore. *Seafood Export J.*, 10(5): 25-27.
- MATILDA, C.E. and HILL, B.J. 1980. *Annotated bibliography of theportunid crab Scylla serrata (Forsk.)*. S.R. Hampson, Government Printer, Qld., 17p. (Tech. Rep., Qld. Fish. Serv.: No. 3).
- MOHANTY, S.K. 1973. Observations on the crab landings in the Chilka Lake during 1972. 3rd All Ind. Symp. on Estuarine Biol. Abs. Cent. Inst. Fish. Educ. Sour. 1 : 13.
- MOTOH, H. 1980. Family Portunidae. 28. *Scylla serrata* (Forsk.) IN: *Field Guide for the Edible Crustacea of the Philippines*. Supervised by K. Kuronoma. SEAFDEC Aqua. Dept., Tigbauan, Iloilo , : 70-71. (Also in: *Asian Aqua.*, 2(10): 5, 1979).
- MOXON, A.J. and QUINN, R.H. 1985. *Economic survey of mud crab fishermen in Southeast Queensland*. Proj. Rep., Dept. of P.I., Qld., No. Q085019, 9 p.
- MUTHIGA, N.A. 1986. Edible crabs of Kenya. *Kenya Aqua. No. 3* : 61-65.
- NGAMTA-KHOYNGAM, and NITAYA-LAUHACHINDA, 1985. Species composition of the marine crabs from small trawler catches in the east coast of Thailand. IN: *Proc. of the 23rd Nat. Conf: Poster Session*, Vol. 2. Bangkok (Thailand). 1985: 1-16. (Thai)
- OORAI, L.J. 1980. Mangrove crab, *Scylla serrata* in the Era and Purari Delta and its fishery. IN: Wkshp. on Possible Effects on the Purari Scheme on Commercial and Subsistence Crustacea Fish. in the Gulf of Papua. Dec. 12, 1979. Ed. by Gwyther, D.: 83-91. Publ: Off. of Env. and Conserv., Waigani (Papua New Guinea).
- OPNAI, L.J. 1980. The mangrove crab, *Scylla serrata*, in the Era and Purari Delta and its fishery. IN: Wkshp. on Possible Effects of the Purari Scheme on Commercial and Subsistence Crustacea Fish. in the Gulf of Papua. Dec. 12, 1979. Ed. by Gwyther, D.: 83-91. Publ: Off. of Env. and Conserv., Waigani (Papua New Guinea).
- OTOBEID, D.O. 1978. *Emang-mangrove crab (Scylla serrata)*. Mar. Res. Div. Ngatpang Municipality, Palau, 8p.
- PARIDA, N.C. 1970. *A note on the Chilka Lake crab Scylla serrata*. The Chilka Lake, Dir. of Fish. of Orissa, Cuttack : 66-69.
- PATAROS *et al.* 1987. *Management of fisheries and aquaculture in mangrove ecosystems in Thailand*. FAO Fish. Rep. No. 370 Suppl: 248p.
- PERVINE, D. 1978. *Mangrove crab (Scylla serrata) on Ponape*. Ponape Mar. Res. Div., Kelonia, Ponape, East Caroline Is., 66p.
- PIATEK, M.A. 1981. *Mangrove crab, Scylla serrata, and its utilization with particular reference to Mozambique*. Food and Agriculture Organization of the United Nations, Rome, 53p.

- PRASAD, P.N., HONNAVAR, R. and NEELAKANTAN, B. 1985. The mud crab *Scylla serrata* (Forsk.) as a pest in the prawn culture fields adjoining Kali Estuary, Karwar. *Seafood Export J.*, 17(6): 19-21.
- _____ and NEELAKANTAN, B. 1988. Morphometry of the mud crab *Scylla serrata*. *Seafood Export J.*, Vol. 20, No. 7: 19-22.
- _____ and NEELAKANTAN, B. 1989. Fishery of mud crab, *Scylla serrata* (Forsk.) from Karwar waters. *Fish. Tech., Soc. Fish. Tech., Cochin.*, Vol. 26, No. 1 : 15-18.
- _____ and NEELAKANTAN, B. 1990. Size at maturity in the male crab *Scylla serrata* as determined by chela allometry and gonad condition. *Fish. Tech., Soc. Fish. Tech., Cochin.*, Vol. 27, No. 1 : 25-29.
- _____; NEELAKANTAN, B. and KUSUMA, M.S. 1990. Distribution and abundance of the mud crab *Scylla serrata* from Karwar waters. *Env. Ecol.* Vol. 8, No. 3 : 798-804.
- RADHAKRISHNAN, C.K. 1979. Studies on the Portunid Crabs of Porto Novo (Crustacea- Decapoda: Brachyura). Ph.D. Thesis, Annamalai Univ., Tamil Nadu, Ind.
- RAO, V.P., THOMAS, M.M. and RAO, S. 1973. The crab fishery resources of India. IN: Proc. of the Symp. on Living Res. of the Seas around Ind. CMFRI Spl. Publ.: 581-591.
- RAZAFIMANDIMBY, J. 1989. Study on the crab *Scylla serrata* fisheries activities on the Malagasy northwest coast 1988. Publ: Ufish, Toliara (Madagascar). 92 p.
- REDDY, H.R.V.S. and SHANBHOGUE, S.L. 1990. Estuarine fishery resources of Uttara Kannada District, Karnataka. *Env. Ecol.* Vol. 8, No. 3 : 883-888.
- ROBERTSON, W.D. 1989. Factors affecting catches of the crab *Scylla serrata* (Forsk.) (Decapoda:Portunidae) in baited traps: Soak time, time of day and accessibility of the bait. *Estuarine Coastal Shelf Sci.*, Vol. 29, No. 2 : 161-170.
- SANDERS, M. 1989. An approach to a preliminary value for the potential annual catch per unit area for the mangrove crab *Scylla serrata*. S W10 Fish. Bull. Oct. 1989 and Dec. 1989 (RAF/87/008).
- SHANMUGAM, S. and BENSAM, P. 1980. On the fishery for the crab *Scylla serrata* (Forsk.) at Tuticorin during 1974-75. *Ind. J. Fish.*, 27(1-2): 102-110.
- SOEPADMO, E., RAO, A.N. and MACINTOSH, D.J. 1984. Ecology and productivity of Malaysian mangrove crab populations (Decapoda:Brachyura). IN: Proc. Asian Symp. on Mangrove Env. Res. and Mgmt. Univ. of Malaya and UNESCO: 354-357.
- _____ 1991. Final report of the integrated multidisciplinary survey and research programme of the Ranong Mangrove Ecosystem. RAS/86/120: 183p.
- SRINIVASAGAM, S. 1975. Studies on the edible crabs of Porto Novo waters. M.Sc. Thesis, Annamalai Univ., Tamil Nadu, Ind.
- _____ and RAMAN, K. 1985. Crab fisheries of Pulicat Lake with special reference to catches from the southern sector. Proc. Symp. on Harvest and Post-Harvest Tech. of Fish., Soc. Fish. Tech. (Ind.): 63-68.
- _____, RAMAN, K., JOSEPH, K.O., ABDULKADIR, P.M. and KRISHNAN, S. 1988. Prawn, crab and fish seed resources from brackishwater bodies of Madras. Proc: Symp. on Trop. Mar. Living Res. Mar. Biol. Assn. Ind., Abs. No. 18.
- STEPHENSON, W. and CAMPBELL, B. 1960. The Australian portunids (Crustacea : Portunidae) IV. Remaining genera. *Aust. J. Mar. Fshw. Res.* 11(I) : 73-122.

- _____ and CAMPBELL, B. 1972. An annotated checklist and key to the Indo-West-Pacific swimming crabs (Crustacea:Decapoda:Portunidae). Ed. by B.W.Collins. *R. Soc. of NZ Bull.*: No. 10. R. Soc. of NZ., Wellington, NZ, 64p.
- TAYLOR, M.L. 1984. New species of mud crab found in Western Australia. *FINS*, 17(2): 15-18.
- THOMAS, J. 1971. Crab fishery of Pulicat Lake. *J.M.B.A.*, Vol. 13(2).
- TRIVEDI, Y.A. and PATEL, M.I. 1975. Crab fishery of Gujarat. *Seafood Export J.*, 7(11): 17-19.
- TUCK, C.K. and NOR, S.M. 1986. Traditional uses of the mangrove ecosystem in Malaysia. IN: *Mangrove Ecosystem*. Occasional paper UNDP/UNESCO, Reg. Mangrove, Proj. RAS/86/120: 31p.
- VEDAVYASA RAO, P., THOMAS, M.M. and SUDHAKAR RAO, G. 1973. The crab fishery resources of the seas around India. IN: *Proc. Symp. on Living Res. of the Seas around Ind.* Mar. Biol. Assn. Ind.: 581-591.
- WEAR, R.G. 1979. The future of crustaceans. *Catch* 1979, 6(10): 32-34.
- WILLIAMS, M.J. and LEE, C.P. 1980. *Methods for determining size and sex of marketed mud crabs (Scylla serrata (Forsk.) and sand crabs (Portunus pelagicus Linnaeus) in Queensland*. Fish. Serv., North Quay, Qld. 7p. (Tech. Rep/Qld. Fish. Serv.; No. 1).
- _____ and HILL, B.J. 1982. Factors influencing pot catches and population estimates of the portunid crab *Scylla serrata*. *Mar. Biol.*, 71(2): 187-192.
- WRIGHT, K. 1990. *The Mud Crab Book*. Second Edn. Bright Books, PO Box 282, Bundaberg, Qld. 4670, Aust.: 83p.
- YAMAKAWA, H. 1978. Ecology of the crab *Scylla serrata* in Lake Hamana. *Benthos Kenren Shi*, 15/16: 41-46.

DISEASES/PARASITES

- ARUDPRAGASAM, K.D. 1967. Distribution and variation in form of the cirripede *Octolasmis cor* (Aurivillius, 1893) in relation to the respiratory current of its host *Scylla serrata*. Ceylon J.Sci. (Biol. Sci.), 7(1&2): 105-115.
- AZARIAH, J. and WESLEY, D. 1990. Toxic effects of the hemichordate (*Ptychodera flava*) extract on the haemolymph calcium of the crab (*Scylla serrata*). Abs. Intl. Symp. of Nat. Toxins, Guilin (China), May 22-25, 1989. J. Toxicol: Toxin Rev. Vol. 9, No. 1.
- BIAN, B.Z., HATAI, K., LIO-PO, G. and EGUSA, S. 1979. Studies on the fungal diseases in crustaceans. I. *Lugenidium scyllae* sp.nov. isolated from cultivated ova and larvae of the mangrove crab (*Scylla serrata*). Tran. Mycol. Soc. Japan, 20: 115-124.
- _____ and EGUSA, S. 1980. *Atkinsiella hamanaensis* sp. nov. isolated from cultivated ova of the mangrove crab, *Scylla serrata* (Forsk.). J. of Fish Diseases, 3(5): 373-385.
- BOSCHMA, H. 1949. *Sacculina beauforti* and *Loxothylacus ihlei*, two Rhizocephala of the crab *Scylla serrata* (Forsk.). Bijdragen tot de dierkunde, Leiden, 28: 41-46.
- BULLOCK, J.A. 1965. Variation in the commensal cirripede *Octolasmis cor* (Sur.) in relation to its position in the branchial chamber of *Scylla serrata* (Forsk.). Fedn. Mus. J. N. S., 9 : 84-95.
- CHONG YEN CHUNG and CHAO, TEIN MEE. 1986. Septicemias of marine crabs and shrimp. IN: Proc. of the 1st Asian Fish. Forum, Manila, Phil., May 26-31, 1986. Ed. by Maclean, J.L., Dizon, L.B., Hosillos, L.V., 331-332.
- HASHMI, S.S. and ZAIDI, S.S. 1964. Incidence of *Lepas* infestation on the gills of *Scylla serrata* in Karachi waters. Agri., Pak. 16(1)
- JEFFRIES, W.B., VORIS, H.K. and YANG, C.M. 1985. Growth of *Octolasmis cor* (Aurivillius, 1892) on the gills of *Scyllaserrata* (Forsk., 1755). Biol. Bull., Mar. Biol. Lab., Woods Hole., Vol. 169, No. 1: 291-296.
- JOEL, D.R. and SANJEEVA RAJ, P.J. 1980. Epizoic fauna of some portunid crabs of the Pulicat Lake. IN: Proc. Symp. on Coastal Aqua., Cochin, Ind., Jan. 12-18, 1980. Abs. Mar. Biol. Assn. of Ind., Cochin p.154.
- _____ and SANJEEVA RAJ, P.J. 1981. Epizoic fauna of some portunid crabs of the Pulicat Lake. J. Mar. Biol. Assn. Ind., Vol. 23, No. 1-2 : 173-180, 1981.
- KOU, G.H., LIN, Y.S., CHEN, H.C. and LO, C.E. 1984. Diseases and mortalities of cultured marine fish and shellfish in Taiwan. IN: Proc. of ROC-Japan Symp. Mariculture, Taipei (Taiwan) Dec. 14-15, 1981. Ed. by Liao, I.C., Hirano, R., 173-192.
- LIO-PO, G.D., SANVICTORES, M.E.G., BATICADOS, M.C.L. and LAVILLA, C.R. 1980. In vitro effect of fungicides on hyphal growth and sporogenesis of *Lagenidium* sp. isolated from *Penaeus monodon* larvae and *Scyllaserrata* eggs. Q. Res. Rep., Aqua. Dept., SEAFDEC Vol. 4. No. 4 : 1-6.
- PILLAI, T.G. 1972. Pests and predators in coastal aquaculture systems of the Indo-Pacific region. IN: Coastal Aqua. in the Indo-Pacific Region. Ed. by T.V.R. Pillay. Fishing News Books, UK. : 456-470.
- SAHA, N. and RAYCHAUDHURI, D.N. 1974. Note on the bacteria flora in the gut of the crab, *Scylla serrata* (Forsk.) (Crustacea : Decapoda). Sci. Cult., 39(8): 361-363.
- VENKATESWARAN, K., SETHURAMALINGAM, S. and NATARAJAN, R. 1981. Gut microflora of some edible crabs from Porto Novo coast *Charybdis cruciata*, *Podophthalmus vigil*, *Scylla serrata*, *Portunuspelagicus*, *Portunussanguinolentus*. Ind. J. Mar. Sci. Dec. 1981. Vol. 10(4) : 399-401.

MARKETING

- ANON. 1981. Success with mud crabs. *Fish Farm. Intl*, Vol. 8., No. 4 : 7-8.
- _____ 1984. *Crab – a high value product*. INFOFISH Trade News Fact Sheet No. 4/1984.
- ALVERSON, F.G. 1971. *International trade in crab*. FAO/UNDP/IOPC/DEV/71/66: 20p.
- FERDOUSE, F. 1990. Live mud crab – a Malaysian favourite. INFOFISH Intl. 6/90: 55-57.
- GLUCKSMAN, J. 1976. Investigation of some common assumptions concerning mud crab (*Scylla serrata*) marketing in Port Moresby. *Papua New Guinea Agri. J.*, 27(3): 49-52.
- MUKUNDAN, M.K., RADHAKRISHNAN, A.G., JAMES, M.A. and NAIR, M.R. 1981. Comparative study of the nutrient content of fish and shellfish. Sem. on Recent Trends in Teaching and Res. in Aqua. Biol., Bhavanagar (Ind.) Sep. 26, 1980. *Fish. Tech.*, Soc. Fish. Tech., Cochin., Vol. 18, No. 2 : 129-132.
- RADHAKRISHNAN, C.K. 1985. Crab meat and its utilization. IN : *Harvest and Post-Harvest Tech. of Fish: 545-547*.
- SIDDIQUI, P.J.A., AKBAR, Z. and QASIM, R. 1987. Biochemical composition and calorific values of the three edible species of portunid crabs from Karachi. *Pak. J. Sci. Industrial Resources*. Vol. 30, No. 2 : 119-121.
- _____ AKBAR, Z. and QASIM, R. 1988. Distribution of macro and micro-elements in marine invertebrates from Karachi. *Pak. J. Sci. Industrial Resources*. Vol. 31, No. 5 : 326-329.
- SRINIVASAGAM, S. 1979. On the nutritive values of the meat of portunid crabs. *J. Inland Fish. Soc., Ind.* 11(2) :128-131.

PRESERVATION/PROCESSING/HANDLING

- ANON. 1966. Handling and processing of frozen crab meat. *Aust. Fish. Newsl.*, May 1966.
- : 1983. Specific container and handling requirements for crabs, crayfish, lobsters, molluscs. IN: *IATA live animal regulations*, 10th Edn. 1983.
- . 1986. *The Seafood Quality Handbook* 1986. Qld. Fish. Industrial Trng. Council, Brisbane, Aust. 67p.
- 1990. Microbiological specification for quick frozen cooked crab meat. *Codex Alimentarius Commn.* June 1990: 14-15.
- BARNETT, H. 1982. Shipment of live seafood. IN: Proc. of the 1st Nat. Conf. on Seafood *Packaging and Shipping*, Nov. 15-17, 1982, Washington DC and Dec. 7-9, Nat. Fish. Inst., Seattle, Washington.
- DECLERCK, D. 1975. Canned mangrove crab (*Scylla serrata*): a product with limited shelf life. IN: 6th Proc. of the West European Technologists Assn., Ostend, Belgium, Sept. 8, 1975. 18p.
- EDWARDS, E. and EARLY, J.C. 1978. Catching, handling and processing crabs. *Torry Advisory Note* No. 26 (revised): 16.
- GANGAL, S.V. and MAGAR, N.G. 1963. Freezing of crab meat. *Food Tech.* 17(12): 1573.
- and MAGAR, N.G. 1966. Biological evaluation of crab meat (*Scylla serrata*) in the vat. *Br. J. Nutr.*, 21(1): 1-6.
- and MAGAR, N.G. 1967. Canning and storage of crab meat. *Food Tech.* 21(3): 79.
- GEORGE, C. and JAMES, M.A. 1971. Technological aspects of preservation and processing of edible shell fishes. I. Influence of season on the chemical composition of crab (*Scylla serrata*). *Fish. Tech.* 8(1): 83-88.
- and JAMES, M.A. 1971. Technological aspects of preservation and processing of edible shell fishes. II. Influence of season on the chemical composition of crab *Scyllaserrata*. *Fish. Tech.* 8(1) 83-88.
- . 1973. Technological aspects of preservation and processing of edible shell fishes. III. Factors influencing the keeping quality of crab (*Scylla serrata*) during freezing and frozen storage. *Fish. Tech.* 10(1) 15-20.
- . 1973. Technological aspects of preservation and processing of edible shell fishes. IV. Comparative efficiency of different glazes in the preservation of frozen crab meat. *Fish. Tech.* 10(2) 166-167.
- and NAIR, M.R. 1977. Technological aspects of preservation and processing of edible shellfish. IN: Proc. of the Conf. on the Handling, Processing and Marketing of Trop. *Fish.* UK, Trop. Products Inst. (Trop. Fish Symp.): 413-416.
- . 1984. *Bio-chemical changes associated with processing of shellfishes and flavour constituents of body meat and claw meat of crab*. Ph.D thesis, Cochin Univ. of Sci. and Tech., Cochin: 115 p.
- UNNITHAN, G.R. and GOPAKUMAR, K. 1986. Morphometric measurements as an index for estimating yield of meat in shellfishes. 1. Crab (*Scylla serrata* (Forsk.)). *Fish. Tech.*, Soc. Fish. Tech., Cochin, Vol. 23, No. 2 : 196-198.
- and GOPAKUMAR, K. 1987. Biochemical studies on crab *Scylla serrata*. *Fish. Tech.*, Soc. Fish. Tech., Cochin, Vol. 24, No. 1 : 57-61.

- _____ and GOPAKUMAR, K. 1988. Spoilage changes in the muscle of crab, *Scylla serrata* stored at three different temperatures. IN:Proc. of 1st 2nd. Fish. Forum. Mangalore, (Ind.), Dec. 4-8, 1988. Ed. by Joseph, M.M. : 347-349.
- _____, GOPAKUMAR, K. and PERIGREEN, P A. 1988. Frozen storage characteristics of raw and cooked crab segments, body meat and claws. Symp. on Trop. Mar. Living Resources, Mar. Biol. Assn. of Ind., CMFRI, Cochin, Jan. 1988.
- _____ and GOPAKUMAR, K. 1988. Canning of crab meat. Fishing Chimes 8(1) : 59.
- GILLESPIE, N.C., SMITH, L.G. and BURKE, J.B. 1983. Freezing of whole uncooked mud crabs (*Scylla serrata*). Food Tech. in Aust., 35(8): 370-372.
- _____, SMITH, L.G. and BURKE, J.B. 1984. Mud crabs to be frozen before cooking, but care needed. Aust. Fish., 43(2): 51-54.
- HILL, B.J. 1984. Mud crab storage and transport. Qld. Fish. Inf. Ser. FI 8201, The Qld. Mud ***Crab Industry***, 1984: 23-26.
- HOWGATE, P. 1984. The processing of crab meat for canning – Part I. INFOFISH Marketing ***Digest No. 4/1984***:48-50.
- _____. 1984. The processing of crab meat for canning – Part II. INFOFISH Marketing ***Digest No. 5/1984***: 39-41.
- RAJADURAI, N.R. 1990. How do you process whole crabs for freezing? Is a different process needed for mud crabs? INFOFISH Intl. No. 6/1990: 61-62.
- SUBASHINI, M.H. and RAVINDRANATH, M.H. 1982. Significance of periodic fluctuations in the haemolymph proteins and their catabolic products during starvation and repeated injury in *Scylla serrata* (Forsk.) J. Exp. Zoo., Vol. 222, No. 1 : 27-35.
- VASUDEO, R.B. and KEWALRAMANI, H.G. 1960. Transport of the common crab (*Scylla serrata*) in living condition. Ind. J. Fish., 7(1): 169-173.
- VIJAYAN, P.K. and BALACHANDRAN, K.K. 1981. Studies on blue discoloration in canned body meat of crab (*Scylla serrata*). Fish. Tech. 18(2): 117-122.
- VILLANUEVA, E.F. and ACEVEDO, T.P. 1976. Canning of crabmeat (*Scylla serrata*) in buffered brine. U. P. Home Econ. J., 4(2) : 25-43.
- WRIGHT, K. 1990. The Mud Crab Book. Second Edn. Bright Books, P.O. Box 282, Bundaberg, Qld. 4670, Aust. 4670 : 83p.

EFFECTS OF POLLUTION

- ARUMUGAM, M. and RAVINDRANATH, M.H. 1983. Nature and distribution of copper in green lagoon crab, *Scylla serrata* (Forsk.) *J. Expt. Mar. Biol. Ecol.*, 70(3): 271-280.
- _____ and RAVINDRANATH, M.H. 1987. Copper toxicity in the crab, *Scylla serrata*, copper levels in tissues and regulation after exposure to a copper-rich medium. *Bull. Env. Contamination and Toxicology*, Vol. 39, No. 4 : 708-715.
- BALAJI, R., MULLAINADHAN, P. and ARUMUGAM, M. 1989. In vivo binding of exogenous copper to haemolymph fractions of estuarine crab, *Scylla serrata* (Forsk.) *J. Expt. Mar. Biol. Ecol.* Vol. 128, No.3 : 241-255.
- BISWAS, R. and SHROTRI, R.V. 1987. Acute toxicities of some insecticides to the marine crab *Scylla serrata* (Forsk.) *Geobios.* Jodhpur. Vol. 14(1) : 74-76.
- CHANDY, J.P. and KOLWALKAR, D.G. 1984. Histological changes in the gill and hepatopancreas of the marine crabs *Charybdis lucifera* (Fabricius) and *Scylla serrata* (Forsk.) exposed to crude oil emulsion. *Ind. J. Mar. Sci.*, 13(1): 10-13.
- DAVENPORT, J. and WONG, T.M. 1987. Responses of adult mud crabs (*Scyllaserrata*) (Forsk.) to salinity and low oxygen tension. *Comp. Biochem. Physiol. A.*, Vol. 86A, No. 1 : 43-47.
- DHANVALE, D.M. and MASUREKAR, V.B. 1985. Some observations on the uptake of cadmium into the haemolymph of the estuarine crab *Scylla serrata* (Forsk.) *Current Poll. Researches in Znd.* Ed. Trivedy, R.K., and Goel, P.K., Karad, Ind. Env. Pub, c1985. : 255-259.
- _____ and MASUREKAR, V.B. 1986. Effect of cadmium exposure on the activity of phosphatases in the hepatopancreas of crab *Scylla serrata* (Forsk.) *Ind. J. Mar. Sci.*, Vol. 15, No. 3 : 193-194.
- _____ MASUREKAR, V.B. and GIRIDHAR, B.A. 1988. Cadmium induced inhibition of a + /K + ATPase activity in tissues of crab, *Scylla serrata* (Forsk.) *Bull. of Env. Contamination and Toxicology.* (USA), (May 1988). Vol. 40(5): 759-763.
- FLANJAK, J. 1982. Inorganic and organic arsenic in some commercial East Australian crustacea. *J. of the Sci. of Food and Agri.*, 33(6) 579-583.
- HANUMANTE, M.M., FAROOQUI, U.M. and NAGABHUSHANAN, R. 1980. Survival of the marine crab *Scylla serrata* exposed to thermal shock under different experimental conditions. *Hydrobiologia*, 75(2): 157-159.
- KRISHNARAJA, A.P., REGE, MS. and JOSHI, A.G. 1987. Toxic effects of certain heavy metals (Hg, Cd, Pb, As and Se) on the intertidal crab, *Scylla serrata*. *Mar. Env. Resources*, Vol. 21, No. 2 : 109-119.
- KULKARNI, B.G. and MASUREKAR, V.B. 1983. Acute toxicities of some petroleum hydrocarbons to crab *Scyllaserrata* (Forsk.) *Geobios.* Jodhpur, Mar. 1983. Vol. 10(2) : 63-67.
- _____ and MASUREKAR, V.B. 1984. Effects of naphthalene exposure on blood serum enzyme activities in the crab, *Scylla serrata* (Forsk.) *Ind. J. Mar. Sci.* June 1984. Vol. 13(2) : 97-98.
- _____ and KULKARNI, R.G. 1989. Hematological responses of the crab, *Scylla serrata* (Forsk.) to malathion exposure. *J. Env. Biol.*, Vol. 10, No. 4 : 367-372.
- NAGABHUSHANAN, R., SAMBASIVARAO, K. and SAROJINI, R. 1986. Acute toxicity of three heavy metals to marine edible crab, *Scylla serrata*. *J. Adv. Zoo.*, Vol. 7, No. 2 : 97-99.

- NARAYANAN, K.R., PRAGATHEESWARAN V., AJMALKHAN, S. and NATARAJAN R., 1987. Cadmium induced black pigmentation in *Scylla serrata* (Forsk.) *Seafood Export J.*, Vol. 19, No. 7 : 23-26.
- OLAFSON, R.W., KEARNS, A. and SIM, R.G. 1979. Heavy metal induction of metallothionein synthesis in the hepatopancreas of the crab, *Scylla serrata*. *Comp. Biochem. Physiol. (B. Comp. Biochem.)* 62(4), 417-424.
- _____, SIM, R.G. and BOTO, K.G. 1979. Isolation and chemical characterization of the heavy metal-binding protein metallothionein from marine invertebrates. *Comp. Biochem. Physiol. (B. Comp. Biochem.)* 62B(4) : 407-416.
- OTVOS, J.D., OLAFSON, R.W. and ARMITAGE, I.A. 1982. Structure of an invertebrate metallothionein from *Scylla serrata*. *J.Biol. Chem.*, 257(5): 2427-2431.
- RAO, K.S., NAGABHUSHANAN, R. and SAROJINI, R. 1987. Acute toxicity of some pesticides to the marine crab, *Scylla serrata*. *Env. Ecol.*, Vol. 5, No. 1 : 181-182.
- REDDY, M.S. and RAO, K.V.R. (1990). Influence of salinity on the toxicity of phosphamidon to the estuarine crab, *Scylla serrata* (Forsk.) *Bull. Env. Contamination and Toxicology*. Vol. 44, No. 6: 859-864.
- SAMBASIVARAO, K. and NAGABHUSHANAN, R. 1986. Temperature dependent toxicity of dimecron to the marine edible crab, *Scylla serrata*. *Env.Ecol.*, Vol. 4, No. 4: 597-599.
- _____ and NAGABHUSHANAN, R. 1987. Effect of organochloride Endocel on the testicular histology of the marine edible crab, *Scylla serrata*. *J.Env.Biol.*, Vol. 8, No. 2, supp.: 179-184.
- _____, NAGABHUSHANAN, R. and SAROJINI, R. 1987. Acute toxicity of some pesticides to the marine crab, *Scylla serrata*. *Env. Ecol.*, Dept. of Zoo., Kalyani Univ., Kalyani, West Bengal. Vol. 5(1): 181-182.
- _____ NAGABHUSHANAN, R. and SAROJINI, R. 1987. Effect of dimercron on the oxygen consumption of the marine edible crab, *Scylla serrata*. *Env. Ecol.*, Vol. 5, No. 3: 416-418.
- _____ KHAN, A.K., ALAM, S.M. and NAGABHUSHANAN, R. 1988. Effect of benzene on the biochemical constituents of the marine edible crab, *Scylla serrata*. *Env. Ecol.*, Vol. 6, No. 2 : 335.

PUBLICATIONS OF THE BAY OF BENGAL PROGRAMME (BOBP)

The BOBP brings out the following types of publications :

Reports (BOBP/REP/...) which describe and analyze completed activities such as seminars, annual meetings of BOBP's Advisory Committee, and subprojects in member-countries for which BOBP inputs have ended.

Working Papers (BOBP/WP/...) which are progress reports that discuss the findings of ongoing BOBP work.

Manuals and Guides (BOBP/MAG/...) which are instructional documents for specific audiences.

Information Documents (BOBP/INF/...) which are bibliographies and descriptive documents on the fisheries of member-countries in the region.

Newsletters (Bay of Bengal News) which are issued quarterly and which contain illustrated articles and features in non-technical style on BOBP work and related subjects.

Other publications which include books and other miscellaneous reports.

A list of publications from 1986 onwards is given below. A complete list of publications is available on request.

Reports (BOBP/REP/...)

23. *Summary Report of BOBP Fishing Trials and Demersal Resources Studies in Sri Lanka.* (Madras, March 1986.)
24. *Fisherwomen's Activities in Bangladesh : A Participatory Approach to Development.* P. Natpracha. (Madras, May 1986.)
25. *Attempts to Stimulate Development Activities in Fishing Communities in Adirampattinam, India.* P. Natpracha, V. L. C. Pietersz. (Madras, May 1986.)
26. *Report of the Tenth Meeting of the Advisory Committee.* Male, Maldives. 17-18 February 1986. (Madras, April 1986.)
27. *Activating Fisherwomen for Development through Trained Link Workers in Tamil Nadu, India.* E. Drewes. (Madras, May 1986.)
28. *Small-scale Aquaculture Development Project in South Thailand : Results and Impact.* E. Drewes. (Madras, May 1986.)
29. *Towards Shared Learning : An Approach to Non-formal Adult Education for Marine Fisherfolk of Tamil Nadu, India.* L. S. Saraswathi and P. Natpracha. (Madras, July 1986.)
30. *Summary Report of Fishing Trials with Large-mesh Driftnets in Bangladesh.* (Madras, May 1986.)
31. *In-service Training Programme for Marine Fisheries Extension Officers in Orissa, India.* U. Tietze. (Madras, August 1986.)
32. *Bank Credit for Artisanal Marine Fisherfolk of Orissa, India.* U. Tietze. (Madras, May 1987.)
33. *Non-formal Primary Education for Children of Marine Fisherfolk in Orissa, India.* U. Tietze, Namita Ray. (Madras, December 1987.)
34. *The Coastal Set Bagnet Fishery of Bangladesh – Fishing Trials and Investigations.* S. E. Akerman. (Madras, November 1986.)
35. *Brackishwater Shrimp Culture Demonstration in Bangladesh.* M. Karim. (Madras, December 1986.)
36. *Hilsa Investigations in Bangladesh.* (Colombo, June 1987.)
37. *High-Opening Bottom Trawling in Tamil Nadu, Gujarat and Orissa, India : A Summary of Effort and Impact.* (Madras, February 1987.)
38. *Report of the Eleventh Meeting of the Advisory Committee.* Bangkok, Thailand, March 26-28, 1987. (Madras, June 1987.)
39. *Investigations on the Mackerel and Scad Resources of the Malacca Straits.* (Colombo, December 1987.)
40. *Tuna in the Andaman Sea.* (Colombo, December 1987.)
41. *Studies of the Tuna Resource in the EEZs of Sri Lanka and Maldives.* (Colombo, May 1988.)
42. *Report of the Twelfth Meeting of the Advisory Committee.* Bhubaneswar, India, 12-15 January 1988. (Madras, April 1988.)
43. *Report of the Thirteenth Meeting of the Advisory Committee.* Penang, Malaysia, 26-28 January, 1989. (Madras, March 1989.)
44. *Report of the Fourteenth Meeting of the Advisory Committee.* Medan, Indonesia, 22-25 January, 1990. (Madras, April 1990.)
45. *Report of the Seminar on Gracilaria Production and Utilization in the Bay of Bengal Region.* (Madras, November 1990.)
46. *Exploratory Fishing for Large Pelagic Species in the Maldives.* R.C. Anderson and A. Waheed. (Madras, December 1990.)
47. *Exploratory Fishing for Large Pelagic Species in Sri Lanka.* R. Maldeniya and S.L. Suraweera. (Madras, April 1991.)
48. *Report of the Fifteenth Meeting of the Advisory Committee.* Colombo, Sri Lanka, 28-30 January, 1991. (Madras, April 1991.)
49. *Introduction of New Small Fishing Craft in Kerala.* O. Gulbrandsen and M.R. Andersen. (Madras, January 1992)
50. *Report of the Sixteenth Meeting of the Advisory Committee.* Phuket, Thailand, 20-23 January, 1992. (Madras, April 1992.)

51. *Report of the Seminar on the Mud Crab Culture and Trade in the Bay of Bengal Region, November 5-8, Surat Thani, Thailand.* (Madras, September 1992.)
52. *Feeds for Artisanal Shrimp Culture in India — Their Development and Evaluation.* John F Wood, Janet H Brown, Marlie H MacLean and Isaac Rajendran. (Madras, September 1992.)

Working Papers (BOBP/WP/...)

27. *Reducing the Fuel Costs of Small Fishing Boats.* O. Gulbrandsen. (Madras, July 1986.)
38. *Credit for Fisherfolk : The Experience in Adirampattinam, Tamil Nadu, India.* R. S. Anbarasan and O. Fernandez. (Madras, March 1986.)
42. *Fish Trap Trials in Sri Lanka.* (Based on a report by T. Hammerman). (Madras, January 1986.)
43. *Demonstration of Simple Hatchery Technology for Prawns in Sri Lanka.* (Madras, June 1986.)
44. *Pivoting Engine Installation for Beachlanding Boats.* A. Overa, R. Ravikumar. (Madras, June 1986.)
45. *Further Development of Beachlanding Craft in India and Sri Lanka.* A. Overa, R. Ravikumar, O. Gulbrandsen, G. Gowing. (Madras, July 1986.)
46. *Experimental Shrimp Farming in Ponds in Polekurru, Andhra Pradesh, India.* J. A. J. Janssen, T. Radhakrishna Murthy, B. V. Raghavulu, V. Sreekrishna. (Madras, July 1986.)
47. *Growth and Mortality of the Malaysian Cockle (Anadara granosa) under Commercial Culture : Analysis through Length-frequency Data.* Ng Fong Oon. (Madras, July 1986.)
48. *Fishing Trials with High-Opening Bottom Trawls from Chandipur, Orissa, India.* G. Pajot and B. B. Mohapatra. (Madras, October 1986.)
49. *Pen Culture of Shrimp by Fisherfolk : The BOBP Experience in Killai, Tamil Nadu, India.* E. Drewes, G. Rajappan. (Madras, April 1987.)
50. *Experiences with a Manually Operated Net-Braiding Machine in Bangladesh.* B. C. Gillgren, A. Kashem. (Madras, November 1986.)
51. *Hauling Devices for Beachlanding Craft.* A. Overa, P. A. Hemminghyth. (Madras, August 1986.)
52. *Experimental Culture of Seaweeds (Gracilaria Sp.) in Penang, Malaysia.* (Based on a report by M Doty and J Fisher). (Madras, August 1987.)
53. *Atlas of Deep Water Demersal Fishery Resources in the Bay of Bengal.* T. Nishida and K. Sivasubramaniam. (Colombo, September 1986.)
54. *Experiences with Fish Aggregating Devices in Sri Lanka.* K.T. Weerasooriya. (Madras, January 1987.)
55. *Study of Income, Indebtedness and Savings among Fisherfolk of Orissa, India.* T. Mammo. (Madras, December 1987.)
56. *Fishing Trials with Beachlanding Craft at Uppada, Andhra Pradesh, India.* L. Nyberg. (Madras, June 1987.)
57. *Identifying Extension Activities for Fisherwomen in Visakhapatnam District, Andhra Pradesh, India.* D. Tempelman. (Madras, August 1987.)
58. *Shrimp Fisheries in the Bay of Bengal.* M. Van der Knaap. (Madras, August 1989.)
59. *Fishery Statistics in the Bay of Bengal.* T. Nishida. (Colombo, August 1988.)
60. *Pen Culture of Shrimp in Chilaw, Sri Lanka.* D. Reyntjens. (Madras, April 1989.)
61. *Development of Outrigger Canoes in Sri Lanka.* O. Gulbrandsen, (Madras, November 1990.)
62. *Silvi-Pisciculture Project in Sunderbans, West Bengal: A Summary Report of BOBP's assistance.* C.L. Angell, J. Muir, (Madras, September 1990.)
63. *Shrimp Seed Collectors of Bangladesh.* (Based on a study by UBINIG.) (Madras, October 1990.)
64. *Reef Fish Resources Survey in the Maldives.* M. Van der Knaap, Z. Waheed, H. Shareef, M. Rasheed (Madras, April 1991.)
65. *Seaweed (Gracilaria Edulis) Farming in Vedalai and Chinnapalam, India.* Ineke Kalkman, Isaac Rajendran, Charles L Angell. (Madras, June 1991.)
66. *Improving Marketing Conditions for Women Fish Vendors in Besant Nagar, Madras.* K. Menezes. (Madras, April 1991.)
67. *Design and Trial of Ice Boxes for Use on Fishing Boats in Kakinada, India.* I.J. Clucas. (Madras, April 1991.)
68. *The Bv-catch from Indian Shrimp Trawlers in the Bay of Bengal : The potential for its improved utilization.* Ann Gordon. (Madras, August 1991.)
69. *Agar and Alginate Production from Seaweed in India.* J .J.W. Coppen, P. Nambiar, (Madras, June 1991.)
70. *The Kattumaram of Kothapatnam-Pallipalem. Andhra Pradesh, India — A survey of the fisheries and fisherfolk.* Dr. K. Sivasubramaniam. (Madras, December 1991.)
71. *Manual Boat Hauling Device.7 in the Maldives* (Madras, November 1992.)
72. *Giant Clams in the Maldives — A stock assessment and study of their potential for culture.* Dr. J .R. Barker. (Madras, December 1991.)
73. *Small-scale culture of the flat oyster (Ostrea folium) in Pulau Langkawi, Kedah, Malaysia,* Devakie Nair and Bjorn Lindeblad. (Madras, November 1991.)

74. *A Study of the Performance of Selected Small Fishing Craft on the East Coast of India.* Gardien El Gendy. (Madras, August 1992).
75. *Fishing Trials with Beachlanding Craft at Thirumullaivasal, Tamil Nadu, India. 1989-1992.* G. Pajot. (Madras, November 1992.)
76. *A View from the Beach – Understanding the status and needs of fisherfolk in the Meemu, Vaavu and Faafu Atolls of the Republic of Maldives.* The Extension and Projects Section of the Ministry of Fisheries and Agriculture, The Republic of Maldives. (Madras, June 1991).
77. *Development of Canoe Fisheries in Sumatera, Indonesia.* O. Gulbrandsen and G. Pajot. (Madras, April 1992).
78. *The Fisheries and Fisherfolk of Nias Island, Indonesia. A description of the fisheries and a socio-economic appraisal of the fisherfolk.* Based on reports by G. Pajot and P. Townsley. (Madras, December 1991.)
79. *Review of the Beche De Mer (Sea Cucumber) Fishery in the Maldives* by Leslie Joseph (Madras, April 1992.)
80. *Reef Fish Resources Survey in the Maldives – Phase Two* by R C Anderson, Z Waheed, M Rasheed and A Arif (Madras, April 1992)
81. *Exploratory Fishing for Large Pelagic Species in South Indian Water.* Jean Gallene and Robert Hall. (Madras, November 1992.)
82. *Cleaner Fishery Harbours in the Bay of Bengal* (Madras, April 1992)
83. *Survey of Fish Consumption in Madras. Marketing and Research Group, Madras, India.* (Madras, October 1992).

Manuals and Guides (BOBP/MAG/. .)

1. *Towards Shared Learning : Non-formal Adult Education for Marine Fisherfolk.* Trainers' Manual. (Madras, June 1985.)
2. *Towards Shared Learning : Non-formal Adult Education for Marine Fisherfolk.* Animators' Guide. (Madras, June 1985.)
3. *Fishery Statistics on the Microcomputer : A BASIC Version of Hasselblad's NORMSEP Program.* D. Pauly, N. David, J. Hertel-Wulff. (Colombo, June 1986.)
4. *Separating Mixtures of Normal Distributions : Basic programs for Bhattacharya's Method and Their Application for Fish Population Analysis.* H. Goonetilleke, K. Sivasubramaniam. (Madras, November 1987.)
5. *Bay of Bengal Fisheries Information System (BOBFINS) : User's Manual.* (Colombo, September 1987.)
8. *Extension Approaches to Coastal Fisherfolk Development in Bangladesh: Guidelines for Trainers and Field Level Fishery Extension Workers.* Department of Fisheries, Ministry of Fisheries and Livestock, Government of Bangladesh and Bay of Bengal Programme. (In Bangla). (Bangladesh, July 1992.)
10. *Our Fish, Our Wealth.* A guide to fisherfolk on resources management. in 'comic book' style (English/Tamil/Telugu) Kamala Chandrakant with K. Sivasubramaniam and Rathin Roy. (Madras, December 1991.)

Information Documents (BOBP/INF/. .)

9. *Food and Nutrition Status of Small-Scale Fisherfolk in India? East Coast States : A Desk Review and Resource Investigation.* V. Bhavani. (Madras, April 1986.)
10. *Bibliography on Gracilaria – Production and Utilization in the Bay of Bengal.* (Madras, August 1990.)
11. *Marine Small-Scale Fisheries of West Bengal : An Introduction.* (Madras, November 1990.)
12. *The Fisherfolk of Puttalam, Chilaw, Galle and Matara – A study of the economic status of the fisherfolk of four fisheries districts in Sri Lanka.* (Madras, December 1991.)
13. *Bibliography on the Mud Crab Culture and Trade in the Bay of Bengal Region.* (Madras, October 1992.)

Newsletters (Bay of Bengal News)

Quarterly

Other Publication

Artisanal Marine Fisherfolk of Orissa : Study of their Technology, Economic Status, Social Organization and Cognitive Patterns. U Tietze. (Madras)

Studies on Mesh Selectivity and Performance : The New Fish-cum-Prawn Trawl at Pesalai, Sri Lanka. BOBP/MIS/3. M.S.M. Siddeek. (Madras, September 1986.)

Mororization of Dinghy Boats in Kasafal, Orissa. BOBP/MIS/4. S. Johansen and O. Gulbrandsen. (Madras, November 1986.)

Helping Fisherfolk to Help Themselves : A Study in People's Participation. (Madras, 1990.)

For further information contact :

The Bay of Bengal Programme, Post Bag No. 1054, Madras 600 018, India.

Cable : BAYFISH Telex : 41-83 11 BOBP Fax : 044-836102.

Telephone : 836294, 836096, 836188.