



# CENTRE OF ADVANCED FACULTY TRAINING FISHERIES SCIENCE Central Institute of Fisheries Education, Mumbai

## Introduction:

The premier *alma mater* for fisheries in India, CIFE was established in 1961 as an inservice training centre mainly to impart proficient training and education to the fisheries professionals where trainees were exposed to various operative learning strategies so as to equip them to face the challenges of the fisheries sector. By year 1979, CIFE came under the administrative control of Indian Council of Agricultural Research. In recognition of its yeomen services and expertise, CIFE was deservingly conferred the Deemed-to-be-University status by UGC in 1989. Subsequently the scope and mandate have been widened to include education as well as research. This fostered a positive atmosphere to different stakeholders and facilitated them to fulfill their career objectives and goals. CIFE has made its mark in a knowledge driven economy and in the process of enriching the quality of fisheries education, the academic programs offered by CIFE were accredited by ICAR and UGC. CIFE, since then, has been providing a rich curriculum mixed with a wide range of extra-curricular activities for holistic development of fisheries professionals. CIFE continues to be a global player in fisheries academics and research by creating globally competent students and faculty through world class education. In view of this, the ICAR, New Delhi sanctioned the only CAFT in Fisheries Science to be established at CIFE, Mumbai during 1994 vide F.No:1-2/93(CAS)/UNDP Dated 11.11.1994

## Objective of CAFT

To impart trainers training in specialized aspects of fisheries and allied sciences for improving faculty competence.

## Faculty Name and Designation (as on 30.09.2011)

A total of 48 Scientists are identified as Faculty Strength / Expertise in different aspects of Fisheries Science

S. No.	Name of the Employee	Designation
1.	Dr. W.S. Lakra	Director
2.	Dr.R.S.Biradar	Jt. Director
3.	Dr.C.S.Purushothaman	HOD
4.	Dr.S.K.Chakraborty	HOD
5.	Dr.A.K.Pal	HOD
6.	Dr.Gopal Krishna	HOD
7.	Dr. S. Dam Roy	HOD
8.	Dr. M. Krishnan	HOD
9.	Dr. M.P.Singh Kohli	PS
10.	Dr.K.K.Jain	PS
11.	Dr.(Mrs.)Neelam Saharan	PS
12.	Dr.(Mrs.)Kiran Dube Rawat	PS
13.	Dr.S.N.Ojha	PS
14.	Dr.K.V.Rajendran	PS
15.	Dr.G.Venkateshwarlu	PS

16.	Dr.N.K.Chadha	PS
17.	Dr.(Mrs.) Sheela Immanuel	PS
18.	Dr.Nalini Ranjan Kumar	PS
19.	Dr.Binaya Bhusan Nayak	PS
20.	Dr.(Mrs.)Latha Shenoy	Sr.Scientist
21.	Dr.Geetanjali Deshmukhe	Sr.Scientist
22.	Dr.(Mrs.) Aparna Chaudhari	Sr.Scientist
23.	Dr.P.K.Pandey	Sr.Scientist
24.	Dr.N.P.Sahu	Sr.Scientist
25.	Dr.V.K.Tiwari	Sr.Scientist
26.	Dr.S. Jahageerdar	Sr.Scientist
27.	Dr.Arpita Sharma	Sr.Scientist
28.	Dr.K.Pani Prasad	Sr.Scientist
29.	Dr.Subhendu Datta	Sr.Scientist
30.	Dr.R.P.Raman	Sr.Scientist
31.	Dr.Parimal Sardar	Sr.Scientist
32.	Dr.A.K.Reddy	Sr.Scientist
33.	Dr.R.S.Rana	Sr.Scientist
34.	Dr.Ashok Kumar Jaiswar	Sr.Scientist
35.	Dr.Subodh Gupta	Sr.Scientist
36.	Dr.Chandra Prakash	Sr.Scientist
37.	Dr.Rupam Sharma	Sr.Scientist
38.	Dr.Sumanta Kumar Mishra	Sr.Scientist
39.	Dr.Gayatri Tripathi	Sr.Scientist
40.	Dr.Satya Prakash Shukla	Sr.Scientist
41.	Dr. P.K.Roy	Sr.Scientist
42.	Dr. Swadesh Prakash	Sr.Scientist
43.	Dr. M. Makesh	Sr.Scientist
44.	Dr. Zeba Jaffar Abidi	Sr.Scientist
45.	Dr. Subrata Dasgupta	Sr.Scientist
46.	Dr. Asha T. Landge	Sr.Scientist
47.	Dr.A.Vennila	Sr. Scientist
48.	Dr. C.S. Chaturvedi	Sr. Scientist

### Human Resource Development

Particulars of Short courses / training program for HRD conducted during XI Plan

S.No	Name of the Program	Period	No. of Participants		
			Internal	External	Total
1.	Development of Brood and Gene Bank for Aquaculture Production and Genetic Conserveation	13 Feb.- 03Mar., 2012			14
2.	Advanced analytical Techniques for Aquatic Environment	2010-11	2	15	17

3.	Fisheries Resource Management	2009-10	1	18	19
4.	Recombinant DNA Technology: Idea to Products	2008-09	3	6	9
5.	Alternate Aquaculture Technologies in the Context of Present Aquaculture Scenario	2007-08	3	9	12

**Infrastructure development:** Nil

**Renovation of Lecture room / laboratories** Nil

**Library upgraded:** Yes. A separate library under CAFT is developed. In addition, CIFE has a National Library in fisheries

#### **Awards and Recognition to the CAFT**

Dr. R.P.Raman, Senior Scientist, CIFE Mumbai was awarded Congress of Zoology Gold Medal by the Zoological Society of India (ZSI) for his outstanding research and academic contributions in Fisheries Science (Fish Diseases) in December, 2010.

Dr. K. Pani Prasad, Senior Scientist of Aquatic Environment & Health Management Division, CIFE, Mumbai was awarded Fellowship by the Zoological Society of India (ZSI) for his outstanding research and academic contributions in Fisheries Science (Fish Diseases) in December, 2010.

Dr. Archana Sinha, Principal Scientist and OIC Kolkata Center, CIFE was awarded Congress of Zoology Gold Medal by the Zoological Society of India (ZSI) for her outstanding research and academic contributions in Fisheries Science (Aquaculture) in December, 2010.

Dr. V.K. Tiwari, Senior Scientist, Aquaculture Division, CIFE, Mumbai of was conferred with Fellow of Association for the Advancement of Zoology, Allahabad (F.A.A.Z.) in January 2011.

Dr. Archana Sinha, Principal Scientist and OIC Kolkata Center, CIFE was conferred with Fellowship of BIOVED Research Society, Allahabad in recognition of her outstanding scientific contributions in the field of Human Resource Development, Aquaculture and Ornamental Fisheries.

A.P. Muralidhar, Dr. M.P.S.Kohli, Dr. K.Pani Prasad, Dr. Geetanjali Deshmukhe, Dr. Shayamla Dr. A.K.Reddy, V.Harikrishna, received Best Poster Award for the paper entitled "Seaweeds: A Potential feed ingredient for Aquaculture" during the X- Agricultural Science Congress held at NBFGR, Lucknow during 10-12, February, 2011.

Dr. G.H. Pailan, Sr. Scientist, Kolkata Center, CIFE received First Prize for the Poster entitled "Seafood technology-from Ocean to table-a value chain-is it true?" presented in National Symposium on Emerging Innovative Technologies for Assurance of Quality and Safety in Processed Food, held at Indian Institute of Technology, Kharagpur from 24-25 February, 2011.

Srinandan.C.S, Glen D'souza, B. B. Nayak, Anuradha S. Nerurkar received the Best Poster award for Influence of different carbon sources and high nitrate on biofilm community structure in denitrifying conditions during 51st annual conference of Association of

Microbiologists of India held from 14-17 December 2010, Birla Institute of Technology, Mesra, Ranchi, Jharkhand.

Dr. K. Pani Prasad, Senior Scientist of Aquatic Environment & Health Management Division, CIFE, Mumbai was elected as Vice President, Zoological Society of India from 1 April 2010

Dr. Paramita Banerjee Sawant, Scientist, won the “Special Mention Award” for presentation of the paper on “Sustainable aquaculture for development” in the National Workshop on Advances in Aquaculture and Fisheries : Perspectives, Prospects and Challenges at ILDEX India Expo 2009, Aquaculture, ITPO, Pragati Maidan, New Delhi, jointly organized by the Ministry of Agriculture, ICAR, ILDEX and STE, during July 3-4, 2009.

Dr. Arpita Sharma, Sr. Scientist was awarded Best Senior Scientist award and Gold Medal in 20<sup>th</sup> All India Zoological Congress held at CIFE, Mumbai during December 29–31, 2009.

Dr. K. V. Rajendran, Principal Scientist received the Dr. V.R.P. Sinha Medal 2009 of the Zoological Society of India, Bodh Gaya during 20<sup>th</sup> All India Zoological Congress held at CIFE, Mumbai from 29–31 December, 2009.

Ms. Rekha Das (Ph.D.FBT-361 : 2009-2012 batch) of Fish Genetics and Biotechnology Division got the best poster presentation award during 20<sup>th</sup> All India Zoological Congress held during December 29–31, 2009 at CIFE, Mumbai.

Dr. R.P. Raman, Sr. Scientist of Aquatic Environment & Health Management Division, CIFE Mumbai was awarded Gold Medal and Honorary Fellowship of the Indian Academy of Environmental Sciences (IAES), Haridwar by the Chief Guest Shri Pradeep Tamta, Hon'ble Member of Parliament (Loksabha) and Dr. Swatantra Kumar, Vice Chancellor of Gurukula Kangri University, Haridwar on February 19, 2010.

Dr. G. Venkateshwarlu was awarded the “Best Presentation” for a concept paper on 'Development of nano-delivery carriers for lipophilic bioactive molecules’ in Brainstorming session on “Applications of Nanotechnology in Agricultural Sciences” organized by Indian Institute of Spices Research Calicut and CIFE, Mumbai during March 27-28, 2010.

## **Publications**

### **International Journal 2008**

Gupta, S. K., Pal, A. K., Sahu, N. P., Dalvi, R., Kumar, V and Mukherjee, S. C. 2008. Microbial levan in the diet of *Labeo rohita* (Hamilton) juveniles: Effect on non-specific immunity and histopathological changes after challenge with *Aeromonas hydrophilla*. *J. Fish Dis.*, 31: 649-657.

Kanagarajan, U., Bragadeeswaran, S. and Venkateshvaran, K., 2008. Some toxinological aspects of starfish *Stellaster equestris* (Retzius). *J. Venom. Anim. Toxins Incl. Trop. Dis.*, 14: 435-449.

Kithsiri, H. M. P. and Venkateshwarlu, G., 2008. Evaluation of potential use of feeder guppies as a source of highly unsaturated fatty acids for high value fishes. *Sri Lanka J. Aquat. Sci.*, 13: 51-62.

Kumar, R., Mukherjee, S. C., Ranjan, R. and Nayak, S. K., 2008. Enhanced innate immune parameters in *Labeo rohita* (Ham.) following oral administration of *Bacillus subtilis*. *Fish Shellfish Immunol.*, 24(2): 168-172.

Sarma, K., Pal, A. K., Ayyappan, S., Das, T., Manush, S. M., Debnath, D., Baruah, K., 2008. Acclimation of *Anabas testudineus* (Bloch) to three test temperatures influences thermal tolerance and oxygen consumption. *Fish Physiol. Biochem.*, DOI:10.1007/s10695-008-9293-3.

- Tejpal, C. S., Pal, A. K., Sahu N. P., Jha, A. K., Muthappa, N. A., Sagar, V. and Rajan, M. G., 2008. Dietary supplementation of L-tryptophan mitigates crowding stress and augments the growth in *Cirrhinus mrigala* fingerlings. *Aquaculture*, DOI: 10.1016/j.aquaculture.2008.09.014.
- Vartak, V. R., Lakra, W. S., Chaudhari, A. and Mukherjee, S. C., 2008. Genetic characterization of portunid crabs *Scylla serrata* and *Scylla tranquebarica* from the west coast of India using random amplified polymorphic DNA markers. *Asian Fish. Sci.*, 21: 275-284.
- Yengkokpam, S., Pal, A. K., Sahu, N. P., Jain, K. K., Dalvi, R., Misra, S., Debnath, D., 2008. Metabolic modulation in *Labeo rohita* fingerlings during starvation: Hsp70 expression and oxygen consumption, *Aquaculture*, DOI: 10.1016/j.aquaculture.2008.08.034.

## 2009

- Andrews, S. R., Sahu, N. P., Pal, A. K. and Kumar, S., (2009). Haematological modulation and growth of *Labeo rohita* fingerlings: effect of dietary mannan oligosaccharide, yeast extract, protein hydrolysate and chlorella. *Aquaculture Research*. 41 (1): 61-69.
- Banerjee Sawant, Paramita and Raje, Sadashiv Gopal, 2009. Morphometry and length weight relationship of the Catfishes *Arius caelatus* (Valenciennes, 1840) and *Arius thalassinus* (Ruppell, 1837) off Mumbai, Veraval and Vishakhapatnam coasts. *Asian Fisheries Science*, 22 : 215-228.
- Baruah, K., Pal, A. K., Sahu, N. P., Debnath, D., Yengkokpam, S., Norouzitallab, P. and Sorgeloos, P., (2009). Dietary crude protein, citric acid and microbial phytase interacts to influence the hemato-immunological parameters of Rohu, *Labeo rohita*, juveniles. *Journal of World Aquaculture Society*. 40 (6) 824-831.
- Chatterjee, N., Pal, A. K., Das, T., Dalvi, R., Mohammad, M. S., Sarma, K., Mukherjee, S. C. and Baruah, K., (2010). Effect of stocking density and journey length on the welfare of rohu (*Labeo rohita hamilton*) fry. *Aquaculture International*. (In Press) DOI: 10.1007/s10499-009-9309-8.
- Dalvi, R. S., Pal, A. K., Tiwari, L. R., Das, T. and Baruah, K., (2009). Thermal tolerance and oxygen consumption rates of the catfish *Horabagrus brachysoma* (Günther) acclimated to different temperatures. *Aquaculture* 295: 116–119.
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- Kumar, S., Sahu, N. P., Pal, A.K., Sagar, V., Sinha, A. K. and Baruah, K., (2009). Modulation of key metabolic enzyme of *Labeo rohita* (hamilton) juvenile: Effect of dietary starch type, protein level and exogenous  $\alpha$ -amylase in the diet. *Fish Physiology and Biochemistry*. 35(2), 301-315.
- Manas, R. B., Makesh, M., Rajendran K. V., Mukherjee, S. C., (2009). Characterization of IgM of Indian major carps and their cross-reactivity with anti-fish IgM antibodies. *Fish & Shellfish Immunology* 26, 275-278.
- Manush, S. M. and Pal, A.K., (2009). Anesthetic effect of eugenol and menthol on handling stress in *Macrobrachium rosenbergii*. *Aquaculture*, 298 (1-2), 162-167.
- Mishra, P. S., Lakra, W. S., Chaudhari, A. and Gopal Krishna., (2009). Genetic diversity in *Metapenaeus dobsoni* using RAPD analysis. *Biochemical Genetics*, Biochemical Genetics, 47: 421-426.

- Mujumdar, R. K, and Basu, S., (2009). Evaluation of the influence of inert atmosphere packaging on the quality of salt – fermented Indian Shad. *Int. J. Food Sci. Technol.*, 44(12), 2554-2560.
- Purushottama, G. B., Venkateshvaran, K., Pani Prasad K., Nalini, P. Bioactivities of extracts from the marine sponge *Halichondria panacea*, (2009). *The Journal of Venomous Animals and Toxins including Tropical Diseases*. vol.15 no.3: 444-459.
- Sardar, P., Abid, M., Radhawa, H. S. and Prabhakar, S. K., (2009). Effect of dietary lysine and methionine supplementation on growth, nutrient utilization, carcass composition and haemato-biochemical status in Indian major carp, Rohu (*Labeo rohita* H.) fed soy protein based diet. *Aquaculture Nutrition*, 15:339-346.
- Tejpal, C. S., Pal, A. K., Sahu, N. P., Jha, A. K., Muthappa, N. A. and Vidya, S., (2009). Dietary supplementation of l-tryptophan mitigates crowding stress and augments the growth in *cirrhinus mrigala* fingerlings. *Aquaculture*, 293(3-4), 272-277.
- Vidya Sagar, Sahu, N. P., Pal, A. K., Jain, K. K. and Venugopal, G., (2009). Growth and digestive enzymes of *Macrobrachium rosenbergii* juveniles: effect of different stocktypes and dietary protein levels under a similar culture environment. *Aquaculture Research*. 40 (12):1383-1393.

## 2010

- Akhtar, M. S., Pal, A. K., Sahu, N. P., Alexander, C., Gupta, S. K., Choudhary, A. K., Jha, A. K. and Rajan, M. G., 2010. Stress mitigating and immunomodulatory effect of dietary pyridoxine in *Labeo rohita* (Hamilton) fingerlings. *Aquaculture Research*, 41: 991–1002.
- Akhtar, M.S., Pal A.K., Sahu N.P., Alexander C., and Meena, D. K., 2011. Dietary pyridoxine enhances thermal tolerance of *Labeo rohita* (Hamilton) fingerlings reared under endosulfan stress, *Journal of Thermal Biology*, 36:84-88.
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- Baite Janglenmang, Verma A.K., Chandra Prakash, Chandrakant M.H. and Saharan N., 2010. Effect of light intensity on growth, survival and skin colour of gold fish. (*Carassius auratus* Linnaeus). *J. Aqua Trop*. 25(1-2):53-65.
- Barse A.V., T. Chakrabarti, Ghosh T. K., Pal A. K., Neeraj Kumar, Raman R. P., Jadhao S. B., 2010. Vitellogenin Induction and Histo-metabolic Changes following Exposure of *Cyprinus carpio* to Methyl Paraben. *Asian-Australasian J Animal Sciences*. 23(12):1557-1559.
- Chavali Gopal, Gopalapillay Gopikrishna, Gopal Krishna, Jahageerdar Shrinivas, Morten Rye, Ben J. Hayes, Sivagnanam Paulpandi, Remanibhaskaran P. Kiran, Subramaniapillai M. Pillai, Pitchaiyappan Ravichandran, Alphis G. Ponniah and Dilip Kumar., 2010. Weight and time of onset of female-superior sexual dimorphism in pond reared *Penaeus monodon*. *Aquaculture*, 300: 237-239.
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- genetic variation for resistance to the white spot syndrome virus in Indian populations of *Penaeus monodon*. *Aquaculture Research*, Doi:10.1111.41:872-877.
- Indra Mani & Ravindra Kumar & Basdeo Kushwaha & Mamta Singh & Naresh S. Nagpure & Pramod K. Srivastava & Wazir S. Lakra 2010. Cytogenetic characterization of an endemic mahseer, *Tor mosal mahanadicus* (David, 1953; Teleostei : Cyprinidae). *Nucleus* 53:109-114.
- Kumar, V., Sahu, N. P., Pal, A. K., Kumar, S., Sagar, V., Sinha, A. K., Ranjan, J., Baruah, K., 2010. Modulation of key enzymes of glycolysis, gluconeogenesis, amino acid catabolism and TCA cycle of a tropical freshwater fish, *Labeo rohita* fed gelatinized and non-gelatinized starch diet, *Fish Physiology and Biochemistry*. 36(3): 491-99.
- Kumar, V., Sahu, N.P., Pal, A. K., Kumar S., Vidya Sagar, A. K. Sinha, Jayant Ranjan. 2010. Nucleic Acid Content Changes of a Tropical Freshwater Fish *Labeo rohita* Fed Gelatinized and Non-gelatinized Starch Diet. *Journal of World Aquaculture Society*. 41 (2):270-277.
- Lakra, W.S. and M. Goswami, 2011. Development and characterization of a continuous cell line PSCF from *Puntius sophor*. *Journal of Fish Biology* : 78 (4) 987-1001.
- Lakra, W.S., M. Goswami, Akhilesh Singh, Premsagar Mishra, N. Gayathri and N.S. Nagpure, 2010. Genetic characterization of *Metapenaeus affinis* (H.M. Edwards, 1837) using RAPD markers. *Mol. Biol. Rep.* 37(8): 3757-3761
- Lakra, W.S., M. Goswami and U.K. Sarkar, 2010. Conservation Biology of Indian Mahseers. *Indian Journal of Animal Sciences*. 80(4) (Suppl. I): 98-108.
- Lakra, W.S., T. Raja Swaminathan, K. P. Joy 2011. Development, characterization, conservation and storage of fish cell lines: a review. *Fish Physiol Biochem*. 37:1-20.
- Lakra, W.S., Mahender Verma, Mukunda Goswami, Kuldeep Lal, Vindya Mohindra, Peyush Punia, A. Gopalakrishnan, Karanveer Singh, Robert Ward, Paul Hebert, 2011. DNA Barcoding Indian Marine Fishes. *Molecular Ecology Resources (Formerly Molecular Ecology Notes)*. 11(1):60-71.
- Lakra, W.S., T. Raja Swaminathan, G. Rathore, M. Goswami, Kamalendra and S. Kapoor, 2010. Development and characterization of three new diploid cell lines from *Labeo rohita* (Ham.). *Biotechnology Progress*. 26(4): 1008-1013.
- M. K. Datta, Ratan K. Saha, J. R. Dhanze, Chandra Prakash, Verma A. K. and Saharan, N. 2010. Role of Cation Exchange Capacity (CEC) in Pond Soil Acidity And Primary Productivity For Yield Enhancement. *J. of Aquaculture in the Tropics*. 25 (1-2) 2010, 1-8.
- Mandal, S. C., Sahu, N.P. Kohli, M.P.S., Das, P., Gupta, S.K. & Munilkumar, S., 2010. Replacement of live feed by formulated feed: Effect on the growth and spawning performance of Siamese fighting fish (*Betta splendens*, Regan, 1910). *Aquaculture Research*. 41:1707-1716.
- Maria Habib, Lakra, W.S., Vindhya Mohindra, Praveen Khar, A. S. Barma, Akanksha Singh, Kuldeep K. Lal, Peyush Punia, Asif A. Khan 2011. Evaluation of cytochrome b mtDNA sequences in genetic diversity studies of *Channa marulius* (Channidae: Perciformes). *Mol. Biol. Rep.* 38:841-846.
- Muralidhar A.P., Syamala Karthireddy, Chandra Prakash, Kalidas C. and Naik R. Prasad, 2010. Comparative studies on fatty acid composition of Three Marine Macroalgae Collected from Mandapam Region: South East Coast of India. *World Applied Sciences Journal*, 11 (8): 958-965.
- Neeraj Kumar, P Antony J Prabhu, Pal AK, Remya S, Aklakur Md, Rana R. S., Jadhao S. B. 2011. Anti-oxidative and Immuno-hematological status of *Tilapia* (*Oreochromis mossambicus*) during acute toxicity test of endosulfan. *Pesticide Biochemistry & Physiology*. 99(1): 45-52.
- Prusty A.K., Kohli M.P.S., Sahu N.P., Pal A.K., Saharan N., Mohapatra S., Gupta S.K., 2011. Effect of short term exposure of fenvalerate on biochemical and haematological responses in

- Labeo rohita (Hamilton) fingerlings. *Pesticide Biochemistry and Physiology*, 100:124-129.
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- Sajina, A. M., Chakraborty S. K., Jaiswar A. K., Pazhayamadam D.G. and Deepa Sudheesan. 2011. Stock structure analysis of *Megalaspis cordyla* (Linnaeus, 1758) along the Indian coast based on truss network analysis, *Fisheries Research*. 108:100-105.
- Sharma, K., Pal A. K., Ayyappan, S., Das, T., Manush, S. M. Debnath, D, Baruah, K., 2010. Acclimation of *Anabas testudineus* (Bloch) to three test temperatures influences thermal tolerance and oxygen consumption. *Fish Physiol Biochem* 36:85–90.
- Sukumaran K., Pal, A. K., Sahu, N.P, Jahageerdar S., Khambadakone, S, Debnath, D., 2010. Influence of dietary phosphorus on mineralization and morphology of Indian major carp, catla (*Catla catla*) fingerlings. *Aquacult Int*, DOI 10.1007/s10499-010-9392-x.

### **Indian Journals (2008)**

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- Balasubramanian, A., Chakraborty, S. K., Venkateshvaran, K., Meenakumari, B., Boopendranath, M. R. and Pravin, P., 2008. Certain biological aspects of *Carangoides ferdau* (Forsskal, 1775) and *Scomberoides lysan* (Forsskal, 1775) caught from drift gillnets off Kanyakumari coast. *Fishery Technol.*, 45(2): 155–162.
- Bose Dasgupta, S., Das, B. B., Sengupta, S., Ganguly, A. Roy, A. Dey, S., Tripathi, G., Dinda, B., Majumder, H. K., 2008. The caspase-independent algorithm of programmed cell death in *Leishmania* induced by baicalein: the role of LdEndoG, LdFEN-1 and LdTatD as a DNA degradosome. *Cell death differentiation*, 15(10): 1629-1640.
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- Datta, S. N., Chakraborty, S. K., Jaiswar, A. K. and Saker, Y., 2009. Plankton dynamics in coastal waters of NCPA, Mumbai, India. *Environ. Ecol.*, 27(1): 190-195.
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#### Financial Statement (Expenditure) (in Rs)

Head	2007-08	2008-09	2009-10	2010-11	2011-12 Upto Sept, 2011
Operating cost of training	5,53,668	5,36,479	89,814	3,75,000	0
Recurring Contingency	2,92,213	3,14,016	1,48,179	1,99,997	0
Non recurring contingency TA	53,100	68,690	13,650	29,993	0
Library	0	0	29,175	29,634	0
Staff salary	70,897	3,30,218	3,24,020	3,92,156	1,92,712
<b>Total</b>	<b>9,69,878</b>	<b>12,49,433</b>	<b>6,04,838</b>	<b>10,26,720</b>	<b>1,92,712</b>