

ANNUAL REPORT

2010-11



FISHERY SURVEY OF INDIA
Govt. of India
Ministry of Agriculture
(Dept. of Animal Husbandry, Dairying & Fisheries)
Mumbai

August 2011

ANNUAL REPORT 2010-11

Compiled by	Shri Bapu. M. Raut
Edited by	Shri Premchand and Shri D. K. Gulati
Hindi translation	Smt. Meera Vellan Rajiv
Secretarial assistance	Ms. Suchitra Naik and Vishal Kharat
Cover design	Shri Ashish Kumar
Published by	Dr. K. Vijayakumaran, Director General

Fishery Survey of India
Botawala Chambers, Sir P. M. Road, Mumbai - 400 001
Fax: 022-22702270 ; Phone: 022-22617144 / 22617145
Telex 011-5778; Cable : Meena

Website: <http://www.fsi.gov.in>
E-mail: dg-fsi-mah@nic.in / fsihqm@eth.net

ANNUAL REPORT 2010-11

Contents	Page No.
1. Introduction	4
2. Operational Bases and survey vessels	5
3. Marine Fishery Resources, Assessment & Research Projects	
3.1 Demersal Resources survey & monitoring	
West coast	6
East coast	15
3.2 Pelagic Resource survey and monitoring project	23
3.3 Oceanic tuna Resource survey project	25
3.4 Experimental project	31
4. Physical Target & Achievements	32
5. Vessel-wise catches & values	33
6. Scientist participation in survey cruises	34
7. Fleet maintenance	36
8. Infrastructure facility	36
9. Training	37
10. Publications	40
11. Research activities	42
12. Administration and finance	49
13. Important events at Bases and Headquarters	
13.1 Meetings	55
13.2 Scientist participation in conference/ workshop /seminar	55
13.3 Visitors/ Delegations	61
13.4 Participation in conference / trade fair / exhibitions	62
13.5 Workshops/ open houses	65
13.6 Hindi Official Language Activities	68
14. Co-operation & Association with National & International Organizations	73
15. The Mandate of Fishery Survey of India	74
16. Abbreviations	75

INTRODUCTION

Fishery Survey of India (FSI) is the nodal agency of the Govt. of India responsible for carrying out survey and assessment of the fishery resources of the Indian EEZ and generating vital information for the sustainable exploitation of fishery resources. Besides implementation of the regular survey projects, the FSI has also carried out diversified fishing methods including experimental fishing on mesh selectivity and comparative studies to understand efficiency of gears. The FSI also played a key role in popularization of modern fishing methods in the maritime states.

This Annual Report presents the highlights of the ongoing survey activities accomplished during the year 2010-11. While accomplishing this task, the Institute has also taken care of conducting regional workshops, open-houses, exhibitions etc. for the benefit of the fishermen, the fishing industry and the end-users as a part of the extension activities in all the maritime states for the development of the marine fisheries of the respective regions. The Institute has also been acting as an interface between the Ministry of Agriculture and the State Fisheries Departments in collecting and compiling the marine fish landing statistics.

The year 2010-11 was an eventful year for the Institute in the sense that Institute had achieved another milestone by successfully conducting the Marine Fisheries Census-2010 of the Island groups of Andaman & Nicobar and Lakshadweep in collaboration with the local Administration and the Directorate of Fisheries of the two Island groups. FSI also conducted training on latest technique of the tuna longlining for fishermen with financial support from National Fisheries Development Board (NFDB), Hyderabad.

The Institute continued to impart training to the students sponsored by the CIFNET, Kochi on board survey vessels.

During the year under report, 11 vessels of the Institute collectively achieved 1607 days at sea expending a sampling effort of 2537 hours and 242488 hooks. The incidental fish catch during the survey was 104 tonnes, realizing a revenue of Rs. 17.45 lakhs as the sale proceeds. The budget grant of the Institute for the year 2010-11 was Rs. 50.84 crore and the expenditure was Rs. 44.67 crores.

2. OPERATIONAL BASES AND SURVEY VESSELS

The survey fleet of the Institute comprised of 11 vessels. Placement of these survey vessels and their specifications are furnished below:

Base/Vessels	Type of vessel	OAL (m)	GRT (t)	BHP
Mumbai Matsya Vrushti Matsya Nireekshani	Monofilament longliner Stern trawler	37.5 40.5	465 329.26	1100 2030
Mormugao Yellow Fin Sagarika	Tuna longliner Stern trawler	36 28.8	290 189	800 650
Kochi Matsya Varshini Lavanika	Trawler -cum-purse-seiner Stern trawler	36.5 24	268.8 151	1160 500
Chennai Matsya Drushti Samudrika	Monofilament longliner Stern trawler	37.5 28.8	465 189	1100 650
Visakhapatnam Matsya Shikari Matsya Darshini	Stern trawler Stern trawler	39.5 36.5	352 268.8	1740 1160
Port Blair Blue Marlin	Tuna longliner	36	290	800

3. MARINE FISHERY RESOURCES, ASSESSMENT & RESEARCH

3.1 DEMERSAL RESOURCES SURVEY AND MONITORING

WEST COAST

Project 1 **Demersal fishery resources survey, assessment and monitoring of fish stocks along North Maharashtra-Gujarat coast between latitude 18° and 23°N.**

Project components 1. Exploratory survey of demersal resources using fish trawl in 100-500 m depth.
2. Monitoring of demersal resources using fish trawl in 30-100 m depth.
3. Exploratory survey using shrimp trawl in 30-100 m depth
4. Experiments for assessment of fishing gear efficiency
5. Mesh selectivity study with cod-end cover

Gear > 34 m fish trawl
 > 45 m shrimp trawl

Vessel **Matsya Nireekshani**

Base Mumbai

Project Co-ordinator Shri P. Sivaraj, Zonal Director

Project Leader Shri A. K. Malik, Fisheries Scientist

Results

A. Catch per unit effort (kg/h)

Gear		Fish trawl		Shrimp trawl	
Depth Zone (m)		30-50	50-100	30-50	50-100
Latitude(°N)	18	95.33	113.42	117.5	70.52
	20	12.3	16	13.14	30.89

B. Species composition(%)

Gear		Fish trawl		Shrimp trawl	
Depth Zone (m)		30-50	50-100	30-50	50-100
Species	Elasmobranchs	4.76	1.37	2.30	10.31
	<i>Anguilla</i> spp.	0.36	0.32	0.37	0.20
	<i>Arius</i> spp.	12.78	36.95	10.51	7.17
	<i>Chirocentrus</i> spp.	0.08	0.01	-	-
	Lesser sardines	0.38	-	-	-
	<i>Saurida</i> spp.	0.56	0.29	0.20	1.67
	<i>Nemipterus</i> spp.	2.19	1.40	0.57	2.60
	<i>Epinephelus</i> spp.	2.29	0.82	8.82	6.87
	Pomadasyds spp.	0.08	0.02	0.68	0.49
	Red snapper	0.05	0.07	-	-
	Other perches	23.30	12.63	14.03	6.09
	Upenoids	0.26	0.44	0.24	9.33
	<i>Polynemus</i> spp.	0.15	-	0.54	-
	Dhoma	4.75	2.09	4.64	4.61
	<i>Protonibea diacanthus</i>	0.45	0.05	0.02	-
	<i>Otolithoides biuratus</i>	0.04	0.22	0.11	-
	Flat fish	0.02	-	0.07	0.20
	<i>Sphyraena</i> spp.	5.22	14.39	6.25	5.79
	Pomfrets	0.08	0.04	-	-
	Dagol	0.08	0.04	-	-
	<i>Caranx</i> spp.	1.48	0.67	3.52	0.20
	<i>Megalaspis cordyla</i>	1.39	0.52	1.76	3.73
	<i>Decapterus</i> spp.	6.81	10.12	-	3.73
<i>Trichiurus</i> spp.	9.68	4.12	6.69	16.89	
<i>Rastrelliger kanagurta</i>	11.56	5.61	24.00	5.69	
<i>Scomberomorus</i> spp.	0.24	0.06	-	-	
<i>Charybdis</i> sp.	0.92	0.37	2.33	0.59	
Cephalopods	4.41	2.84	4.87	2.85	
Other fishes	5.62	4.86	7.61	11.00	

C. Salient observations

- » The highest catch rate of 117 kg/h was recorded in 30-50 m depth zone in lat. 18°N by using shrimp trawl, whereas in fish trawl the highest catch rate of 113.50 kg/h was obtained from 50-100 m depth zone in the same latitude.
- » It is observed that *Arius* spp., *Rastrelliger kanagurta*, *Sphyraena* spp., *Trichiurus* spp. and Cephalopods were the most dominant component in all depth zones where both fish and shrimp trawl were deployed.

Fishery Survey of India

- » In 30-50 m depth zone catch was mainly constituted by *Arius* spp (12.78%) and *Rastrelliger kanagurta* (24%) whereas in 50-100 m depth zone *Arius* spp (36.95%), *Trichiurus* spp (16.89%) and *Sphyraena* spp (14.39%) was the dominant group.

D. Biological studies

Length frequency studies were done on 28 species with a sample size of 8129 specimens and 16 species were examined for biological studies like sex, maturity stages and gut content using 502 specimens.

E. Biomass estimation

Area : Latitudes 18 - 22° N

(in tonnes)

Depth Zone (m)	30-50	50-100
Elasmobranchs	1656	2635
<i>Anguilla</i> spp.	143	346
<i>Arius</i> spp.	4799	38132
<i>Chirocentrus</i> spp.	24	12
Lesser sardines	116	0
<i>Saurida</i> spp.	190	495
<i>Nemipterus</i> spp.	723	1723
<i>Epinephelus</i> spp.	1428	1657
S Pomadasys spp.	80	83
p Red snapper	17	72
e Other perches	8325	13474
c Upenoids	100	1574
i <i>Polynemus</i> spp.	92	0
e Dhoma	1806	2277
s <i>Protonibea diacanthus</i>	143	60
/ <i>Otolithoides biurateus</i>	44	286
G Flat fish	11	24
r <i>Sphyraena</i> spp.	2119	15215
o Pomfrets	24	42
u Dagol	24	48
p <i>Caranx</i> spp.	743	698
<i>Megalaspis cordyla</i>	573	978
<i>Decapterus</i> spp.	2097	10660
<i>Trichiurus</i> spp.	3531	6200
<i>Rastrelliger kanagurta</i>	5529	6343
<i>Scomberomorus</i> spp.	75	60
<i>Charybdis</i> sp.	476	441
Cephalopods	1759	3207
Other fishes	2355	6236

Fishery Survey of India

Project 2 **Demersal resources survey, assessment and monitoring of fish stocks along South-Maharashtra, Goa, Karnataka and North Kerala coast between latitude 11°N and 18°N.**

Main projects 1. Exploratory survey of demersal resources in 100-300 m depth.
2. Monitoring of demersal resources using fish trawl in 30-100 m depth.

Gear > 27 m fish trawl
> 30 m shrimp trawl

Vessel **Sagarika**

Base Mormugao

Project Co-ordinator Dr M. E. John, Zonal Director

Project Leader Dr. A. K. Bhargava, Sr. Fisheries Scientist

Results

A. Catch per unit effort (kg/h)

Gear		Fish trawl			Shrimp trawl
Depth Zone (m)		30 - 50	50 - 100	100 -300	100-300
Latitude(°N)	11	4.67	26.57	0.34	0.66
	12	21.56	136.67	72.06	1.5
	13	10	18.81	38.14	5.53
	14	22.33	9.09	0.98	22.62
	15	48.24	13.5	6.95	2.7
	16	77.78	111.78	1.92	10.77
	17	46.44	14.57	-	-

Fishery Survey of India

B. Species composition(%)

Gear		Fish trawl			Shrimp trawl
Depth Zone (m)		30 - 50	50 - 100	100 -300	100-300
Species	Elasmobranchs	1.47	0.16	0.03	-
	<i>Arius</i> spp.	6.2	2.13	-	-
	Clupeids	7.57	0.75	-	-
	<i>Priacanthus</i> spp.	-	22.18	19.54	7.84
	<i>Epinephelus</i> spp.	14.18	18.72	10.23	7.23
	<i>Leiognathus</i> spp.	3.61	-	-	-
	<i>Sphyraena</i> spp.	3.38	1.38	0.12	0.73
	<i>Pampus</i> spp.	1.78	-	-	-
	<i>Megalaspis cordyla</i>	1.55	-	-	0.48
	<i>Decapterus</i> spp.	11.38	49.97	0.64	-
	<i>Trichiurus</i> spp.	1.5	0.03	0.26	0.49
	<i>Rastrelliger kanagurta</i>	14.86	2.53	-	-
	Deep sea prawns	-	-	0.86	6.63
	Deep sea crabs	-	-	61.98	0.84
Cephalopods	8.18	0.74	1.59	9.66	
Others	24.34	1.41	4.75	66.1	

C. Salient observations

- » Highest catch rate of 136.67 kg/h was recorded during October to December 2010 in 50-100 m depth zone of lat.12° N followed by 111.78 kg/h in lat. 16° N. from the same depth zone.
- » Deep sea crabs (61.98%), *Decapterus* spp. (49.97%), *Priacanthus* spp. (22.18%) *Rastrelliger kanagurta* (14.86%) and *Epinephelus* spp. (14.18%) were the major resources.
- » Distribution of Cephalopods and *Epinephelus* spp were observed from 30-300 m depth in all latitudes surveyed during the year.
- » Highest catch rate of 89.85 kg/h of *Decapterus* spp. was recorded from latitude 16° N in 50-100 m depth zone.

D. Biological studies

Length frequency and other biological data on 9 species were collected during the year.

E. Biomass Estimation

Area : Lat.12° N - 16° N

(in tonnes)

Depth Zone (m)		30 -50	50 -100	100 -300
S p e c i e s / G r o u p	Elasmobranchs	284	222	3
	<i>Arius</i> spp.	1196	1114	-
	Clupeids	1461	390	-
	<i>Priacanthus</i> spp.	-	11546	2560
	<i>Epinephelus</i> spp.	2736	9650	1429
	<i>Leiognathus</i> spp.	696	-	-
	<i>Sphyraena</i> spp.	652	724	37
	<i>Pampus</i> spp.	343	-	-
	<i>Megalaspis cordyla</i>	294	27	13
	<i>Decapterus</i> spp.	2496	26032	76
	<i>Trichiurus</i> spp.	289	14	44
	<i>Rastrelliger kanagurta</i>	2868	1300	8
	<i>Penaeus</i> spp.	5	-	295
	<i>Charybdis</i> sp.	3873	27	7424
	Cephalopods	1627	431	489
Others	774	473	2539	

Fishery Survey of India

Project 3 Demersal fishery resources survey, assessment and monitoring along South - West coast, Wadge Bank and Gulf of Mannar

Project components 1. Demersal finfish resources survey in the South -West coast, Quilon Bank, Wadge Bank and Gulf of Mannar between latitude 7° and 10°N in 100-500 m depth
2. Monitoring of demersal resources using fish trawl in 30-100 m depths
3. Exploration of shellfish resources in 30-500 m depth
4. Exploratory survey of cephalopod resources in 30-500 m depth

Gear > Expo model fish trawl
> 47 m shrimp trawl
> Cephalopod trawl

Vessel Matsya Varshini

Base Kochi

Project co-ordinator Shri B. C.Varghese, Zonal Director

Project Leader Shri D. M. Ali, Sr. Fisheries Scientist

Results

The survey programme was deviated and the vessel was deployed for survey of Oceanic Squids in the Arabian sea under NAIP programme during 2010-11 under report.

Project 4 Demersal fishery resources survey, assessment and monitoring along South - West coast

Project components 1. Demersal finfish resources survey in 30-100 m depth
2. Shellfish resources survey in 20-100 m depth

Gear › Fish trawl

Vessel Lavanika

Base Kochi

Project co-ordinator Shri B. C. Varghese, Zonal Director

Project Leader Shri J. E. Prabhakar Raj, Fisheries Scientist
Shri N. Unnikrishnan, Jr. Fisheries Scientist

Results

A. Catch per unit effort (kg/h) in fish trawl

Depth Zone (m)		20-50	50-100
Latitude (°N)	8	15.14	10.09
	9	24.06	69.55
	10	16.04	16.67

B. Species composition(%) in fish trawl

Depth Zone (m)		30 -50	50 -100
Species / Group	Elasmobranchs	0.45	1.45
	<i>Anguilla</i> spp.	1.32	-
	Clupeids	0.67	-
	Sardines	1.27	-
	<i>Chirocentrus</i> spp.	0.28	-
	<i>Saurida</i> spp.	16.04	1.78
	<i>Priacanthus</i> spp.	0.43	0.14
	<i>Nemipterus</i> spp.	32.42	40.48
	Perches	10.22	44.8
snappers	0.69	-	

Fishery Survey of India

Depth Zone (m)		30 -50	50 -100
S p e c i e s / G r o u p	Scianids	1.66	2.41
	<i>Leiognathus</i> spp.	3.78	1.51
	<i>Lactarius</i> sp.	0.82	-
	<i>Sphyraena</i> spp.	5.04	0.48
	<i>Caranx</i> spp.	2.94	2.41
	<i>Decapterus</i> spp.	13.17	-
	<i>Trichiurus</i> spp.	0.15	-
	<i>Rastrelliger kanagurta</i>	0.88	0.38
	Balistids	1.11	-
	Puffer fish	-	1.01
	<i>Penaeus</i> spp.	0.46	-
	<i>Charybdis</i> spp.	1.29	2.41
	Cephalopods	4.76	0.75
	Others	0.26	-

C. Salient observations

- » The highest catch rate of 69.55 kg/h was recorded from 50-100 m depth zone in lat.9°N.
- » In 20-50 m the catch was mainly constituted by *Nemipterus* spp. (32.42%), *Saurida* spp. (16.04%) followed by *Decapterus* spp. (13.17%) and perches (10.22%)
- » Perches (44.80%) and *Nemipterus* spp. (40.48%) were the major component recorded in 50-100 m depth zone

EAST COAST

Project 5 Demersal fishery resources survey, assessment and monitoring along South-East coast between latitude 10°N and 16°N.

Project components

1. Exploratory survey of demersal resources using fish trawl in 100-300 m depth.
2. Monitoring of demersal resources using fish trawl and shrimp trawl in 30-100 m depth.
3. Exploratory survey of demersal resources using shrimp trawl in 30-300 m depth.
4. Exploratory survey by using cephalopod trawl in 30-100 m depth.

Gear

- › 27.5 m fish trawl
- › 30 m shrimp trawl
- › 36.2 m cephalopod trawl

Vessel Samudrika

Base Chennai

Project co-ordinator Dr A. Anrose, Zonal Director

Project leader Shri P. Tamilarasan, Fisheries Scientist

Results

A. Catch per unit effort (kg/h)

Gear		Fish trawl				Cephalopod trawl	Shrimp trawl	
Depth Zone (m)		20-30	30-50	50-100	100-200	30-50	20-30	200-300
Latitude (°N)	10	15.67	11.65	19.33	1.45	26.60	19.56	1.79
	11	18.37	18.87	44.90	0.56	17.96	21.07	1.03
	12	193.24	25.59	29.10	2.31	40.95	25.05	0.29
	13	13.93	16.66	25.48	1.87	34.85	25.43	0.67
	14	28.56	31.2	38.86	0.94	63.37	21.56	1.00
	15	54.53	57.04	23.90	2.07	24.22	19.07	1.58

Fishery Survey of India

B. Species composition (%)

Gear		Fish trawl				Cephalopod trawl	Shrimp trawl	
Depth Zone (m)		20-30	30-50	50-100	100-200	30-50	20-30	200-300
S p e c i e s / G r o u p	Elasmobranchs	2.0	3.2	3.1	-	3.1	3.2	-
	<i>Arius</i> spp.	1.4	1.5	3	-	3.2	0.5	-
	Anchovies	-	-	0.1	-	0.2	-	-
	Lesser sardine	4.5	4.7	4.4	-	5.6	2.1	-
	<i>Saurida</i> spp.	0.1	0.4	0.1	7.3	0.3	0.5	-
	<i>Priacanthus</i> spp.	-	0.1	0.5	15.4	-	-	3.7
	<i>Nemipterus</i> spp.	0.6	0.8	0.4	8.9	1.1	1.7	9.8
	Perches	0.7	1	1.2	-	1.6	1.4	-
	<i>Epinephelus</i> spp.	10.2	3.9	1.7	-	2.1	3.1	-
	Upenoids	36.2	2.6	17.3	4.1	3	4.9	-
	Polynemids	0.1	-	-	-	-	0.2	-
	Sciaenids	0.9	0.5	8.4	-	0.4	1	-
	<i>Leiognathus</i> spp.	22.2	29.1	7.9	-	17.1	13.9	-
	<i>Sphyraena</i> spp.	1.6	1.8	2.7	-	17.1	3.9	-
	Pomfrets	0.7	4.3	3.6	-	1.9	1.3	-
	<i>Megalaspis cordyla</i>	0.6	3.8	2.2	-	3.1	3.2	-
	<i>Decapterus</i> spp.	0.6	1.6	4	20.3	0.9	1.9	-
	Dagol	3.3	3.2	2.3	-	4.6	2.3	-
	Carangids	3.7	10.7	13.8	-	7	24.5	-
	<i>Trichiurus</i> spp.	2.8	2	2.3	-	2.8	4.1	-
	<i>Rastrelliger kanagurta</i>	3.1	8.3	8.6	-	17.5	9.1	-
	<i>Scomberomorus</i> spp.	0.2	1.2	2.3	-	1	1.7	-
	Deep-sea fishes	-	-	-	11.4	-	-	43.9
	<i>Chirocentrus</i> spp.	0.1	0.6	1	-	0.3	0.6	-
	<i>Gerres</i> spp.	0.3	0.1	1	-	0.7	0.3	-
	Shrimps	0.1	0.4	-	-	-	1	-
	Deep-sea shrimps	-	-	-	0.8	-	-	19.5
	<i>Charybdis</i> sp.	0.1	1.2	0.7	12.2	0.9	2.1	13.4
Cephalopods	2.7	4.9	3.5	-	3.3	7.4	2.4	
Others	1.2	8.1	3.9	19.6	1.2	4.1	7.3	

C. Salient observations

- » Highest catch rate of 193.24 kg/h was recorded from 20-30 m depth zone of lat 12°N in fish trawl.
- » A catch of 250 kg of *Sphyraena* spp. and 160 kg of *Rastrelliger kanagurta* in a single haul was recorded off Mahabalipuram at a depth of 41m during June 2010. While in July 2010 an appreciable quantity (400 kgs) of *Rastrelliger kanagurta* was caught in a single haul north off Krishnapatnam at a depth of 38 m. The size ranged between 16.0 and 24.5 cm. In the month of August 2010, 120 kg of *Caranx para* and 50 kg of *Parastromateus niger* were caught in a single haul north off Nagapattinam and off Kovalam at a depths of 46 m and 56 m respectively. Three hundred and seventy kg of *Rastrelliger faughni* were caught in a single haul north off Krishnapatnam at a depth of 38 m

during January 2011 and of 1050 kg of *Upeneus vittatus* was caught in a single haul off Palar at a depth of 33 m during February 2011.

D. Biological studies

A total of 13,501 specimens were subjected to length frequency analysis and biological studies were done on 6046 species. These information were collected on 45 species.

E. Biomass estimation

Area: Latitude 10° N -15°N

(in tonnes)

Depth Zone (m)	20-30	30-50	50-100	100-200	200-300	
Species	Elasmobranchs	13	49	112	-	-
	<i>Arius</i> spp.	8	37	109	-	-
	Anchovies	-	-	5	-	-
	Lesser sardine	22	82	259	-	-
	<i>Saurida</i> spp.	-	7	4	16	-
	<i>Priacanthus</i> spp.	-	2	28	26	1
	<i>Nemipterus</i> spp.	3	16	16	10	9
	Perches	4	16	42	-	-
	<i>Epinephelus</i> spp.	71	75	55	-	-
	Upenoids	253	66	617	4	-
	Polynemids	1	-	1	-	-
	Sciaenids	24	88	316	-	-
	<i>Leiognathus</i> spp.	125	793	407	-	-
	<i>Sphyræna</i> spp.	10	47	140	-	-
	Pomfret	3	87	278	-	-
	<i>Megalaspis cordyla</i>	2	89	115	-	-
	<i>Decapterus</i> spp.	2	43	141	23	-
	Other Carangids	17	181	562	-	-
	<i>Trichiurus</i> spp.	14	53	96	-	-
	<i>Rastrelliger kanagurta</i>	18	237	286	-	-
	<i>Scomberomorus</i> spp.	2	28	94	-	-
	Deep-sea fishes	-	-	-	21	16
	<i>Chirocentrus</i> spp.	-	8	29	-	-
	<i>Gerres</i> spp.	1	3	39	-	-
	<i>Penaeus</i> spp.	-	5	11	-	-
	Deep-sea shrimps	-	-	-	2	7
<i>Charybdis</i> sp.	-	16	20	12	6	
Cephalopods	13	101	146	-	1	
Others	4	184	129	24	3	

Fishery Survey of India

Project 6 **Demersal fishery resources survey, assessment and monitoring along upper East coast between latitude 16°N and 21°N.**

- Project components
1. Exploratory survey of demersal resources using fish trawl in 100-500 m depth.
 2. Monitoring of demersal resources using fish trawl in 30-100 m depth.
 3. Exploratory survey using shrimp trawl in 30-500 m depth.
 4. Exploratory survey by using cephalopod trawl in 30-500 m depth.
 5. Experiments for assessment of fishing gear efficiency
 6. Mesh selectivity study with codend cover

- Gear:
- › 34 m fish trawl
 - › 45 m shrimp trawl
 - › 36.2 m cephalopod trawl

Vessel **Matsya Shikari**

Base: Visakhapatnam

Project co-ordinator and leader: Dr S. K. Naik, Sr. Fisheries Scientist

Results

A. Catch per unit effort (kg/h)

Gear		Fish trawl			Shrimp trawl			Cephalopod trawl		
Depth Zone (m)		30-50	50-100	100-200	30-50	50-100	100-200	30-50	50-100	100-200
Latitude (°N)	16	58.4	63.7	11.3	50.2	38.5	-	31.4	27.6	20.0
	17	94.9	107.6	-	94.7	124.0	10.3	93.9	117.2	11.7
	18	91.8	142.7	-	119.0	173.7	-	93.6	127.2	62.2
	19	134.5	142.3	1.2	99.0	134.6	0.8	333.3	75.0	-

B. Species composition(%)

Gear		Fish trawl			Shrimp trawl			Cephalopod trawl		
Depth Zone (m)		30-50	50-100	100-200	30-50	50-100	100-200	30-50	50-100	100-200
Species / Group	Elasmobranchs	0.3	6.2	-	2.9	3.6	-	1.8	11.9	-
	<i>Anguilla</i> spp.	-	-	-	-	-	-	0.1	-	-
	<i>Arius</i> spp.	3.6	3	-	1.2	2.7	-	0.6	0.5	0.5
	Clupeids	3.2	6.5	15	1.6	0.8	0.6	2.1	0.4	0.1
	<i>Saurida</i> spp.	4	9.4	-	3	4.3	-	8.6	6.9	-
	<i>Priacanthus</i> spp.	-	2	21.4	0.3	0.2	62.3	-	0.4	38.5
	<i>Nemipterus</i> spp.	4.1	4.4	0.5	3.4	5	14.4	1.1	5.9	13.3
	Perches	5.5	5.4	-	6.6	6.9	-	2.3	2.7	-
	Upenoids	37.1	22	-	26.7	26	3.6	26.2	34.4	-
	Sciaenids	6	4.8	10.7	7.2	3.5	2.4	4.5	0.8	-
	<i>Leiognathus</i> spp.	14.9	6.8	-	9.6	9.5	-	35.1	10.5	-
	Flat fish	-	0.2	-	0.2	0.3	-	-	0.2	-
	<i>Ariomma indica</i>	0.6	0.1	10.7	-	-	1.2	-	-	0.7
	<i>Sphyraena</i> spp.	4.1	2.5	-	5.1	9.6	-	2.2	7.6	-
	Pomfrets	1.8	0.9	13.9	1.2	0.4	1.2	1	1.4	2.1
	Carangids	1.9	3.2	-	3.9	4.7	1.2	4.1	5.1	-
	<i>Megalaspis cordyla</i>	1.4	1	6.4	0.7	1.3	1.2	0.5	1.3	0.2
	<i>Decapterus</i> spp.	-	5.6	-	-	-	-	0.1	-	42.8
	Elacate/seriola	-	0.6	-	0.1	0.1	-	-	0.4	-
	<i>Trichiurus</i> spp.	1.3	1.4	-	8.1	1.1	1.2	3.5	2.8	1
	<i>Rastrelliger kanagurta</i>	1.6	5.2	-	0.8	3.4	2.4	0.2	0.7	-
	<i>Scomberomorus</i> spp.	0.1	0.2	-	0.7	0.3	-	0.2	0.6	-
	<i>Chorinemus</i> sp.	0.5	1.2	-	2.2	5.2	-	-	0.2	-
	<i>P. maculatum</i>	1.7	0.7	-	3.3	1.4	-	0.5	-	-
	<i>Gerres</i> spp.	0.7	0.6	-	0.6	2.5	-	-	1.7	-
	<i>Penaus</i> spp.	0.1	0.1	-	0.4	0.1	-	-	0.1	-
Deep-sea shrimps	-	-	-	0.4	-	-	-	-	-	
Cephalopods	3.7	3.2	5.3	5.1	3.8	2.4	1.9	2.2	0.8	
Others	1.8	2.8	16.1	5.1	3.3	6	3.5	1.3	-	

C. Salient observations

- » The highest catch rate of 333.3 kg/h was recorded from 30-50 m depth zone of lat. 19°N in cephalopod trawl.
- » In the month of August 2010 *Anguilla* spp. and striped eel catfish (*Plotosus lineatus*) reported at a depth of 52 m in lat. 17°22.2'N / 83°02.1'E while in October 2010, snubnose pampano (*Trachinotus blochi*) occurred in depth of 54 m at lat 16°52.0'N / 82°30.0'E in south of Visakhapatnam coast for the first time in survey operations.
- » In all operations *Priacanthus* spp. (21.4%, 62.3%, 38.5%) was one of the major components in 100-200 m depth zone.

Fishery Survey of India

D. Biological studies

Length frequency studies of 19 species were undertaken during the period on 22207 specimens. The biological studies were carried out on 11 species with 13820 specimens.

E. Biomass estimation

Area: Lat.16° - 19° N

(in tonnes)

Depth Zone (m)		30-50	50-100	100-200
S p e c i e s / G r o u p	Elasmobranchs	4140	2170	-
	<i>Anguilla</i> spp.	81	12	-
	<i>Arius</i> spp.	340	834	26
	Clupeids	261	315	171
	<i>Saurida</i> spp.	1277	1593	14
	<i>Priacanthus</i> spp.	491	180	1284
	<i>Nemipterus</i> spp.	606	1381	450
	Perches	552	1094	186
	Upenoids	4952	6444	19
	Sciaenids	1141	1432	61
	<i>Leiognathus</i> spp.	5427	2692	-
	Flat fish	97	70	5
	<i>Ariomma indica</i>	437	58	51
	<i>Sphyraena</i> spp.	666	1684	-
	Pomfrets	163	275	156
	Carangids	898	1124	39
	<i>Megalaspis cordyla</i>	404	457	82
	<i>Decapterus</i> spp.	12	2071	1187
	Elacate/seriola	169	171	-
	<i>Trichiurus</i> spp.	1113	1048	88
	<i>Rastrelliger kanagurta</i>	695	1197	53
	<i>Scomberomorus</i> spp.	399	115	-
	<i>Chorinemus</i> sp.	1190	409	-
<i>P. maculatum</i>	342	186	-	
<i>Gerres</i> spp.	246	584	-	
<i>Penaeus</i> spp.	54	39	-	
Deep-sea shrimps	31	-	-	
Cephalopods	951	818	138	
Others	415	807	63	

Project 7 Demersal fishery resources survey, assessment and monitoring along the upper East coast between latitude 16°N and 21°N.

Project component Survey of shrimp and demersal finfish resources along the Upper East Coast between latitude 16°N and 21°N in 30-200 m depth

Gear > Expo model fish trawl
> 34 m shrimp trawl

Vessel Matsya Darshini

Base Visakhapatnam

Project co-ordinator Dr S. K. Naik, Sr. Fisheries Scientist

Project leader Shri K. S. N. Reddy, Fishing Gear Technologist

Results

A. Catch per unit effort (kg/h)

Gear		Expo model fish trawl			Shrimp trawl		
Depth Zone (m)		30-50	50-100	100-200	30-50	50-100	100-200
Latitude(°N)	16	10.00	3.30	-	28.90	33.30	5.00
	17	48.10	116.00	10.00	61.80	95.20	66.70
	18	82.20	162.00	233.30	117.80	74.30	-
	19	98.20	189.70	6.70	-	-	-

B. Species composition (%)

Gear		Expo model fish trawl			Shrimp trawl		
Depth Zone (m)		30-50	50-100	100-200	30-50	50-100	100-200
Species	Elasmobranchs	0.9	0.2	-	2.2	1.2	-
	<i>Anguilla</i> spp.	0.1	-	-	-	-	-
	<i>Arius</i> spp.	5.1	6.4	-	3.40	1.3	-
	Clupeids	0.6	8.7	-	3.90	1	-
	<i>Saurida</i> spp.	4.70	3.8	-	5.4	4.6	-
	<i>Priacanthus</i> spp.	2.4	24.9	97.4	9.9	23.9	13
	<i>Nemipterus</i> spp.	2.4	3.2	0.3	1.9	3.4	13
	Perches	7.2	0.8	-	1.5	1.3	-
Upenoids	20.5	15.5	-	12.1	15.8	-	

Fishery Survey of India

Gear		Expo model fish trawl			Shrimp trawl		
Depth Zone (m)		30-50	50-100	100-200	30-50	50-100	100-200
S p e c i e s / G r o u p	Sciaenids	1.4	0.9	-	5.3	3.1	-
	<i>Leiognathus</i> spp.	20.4	14.3	-	32.2	20.6	-
	Flat fish	-	-	-	-	0.2	-
	<i>Ariomma indica</i>	0.5	0.3	-	0.3	-	-
	<i>Sphyraena</i> spp.	4.1	4	-	8.8	7.7	43.5
	Pomfrets	-	0.1	1.7	0.2	0.2	-
	<i>Caranx</i>	5.8	2.5	-	4.1	2.9	-
	<i>Megalaspis cordyla</i>	0.8	2.8	-	1.2	1.2	-
	<i>Decapterus</i> spp.	0.1	0.1	-	0.9	2	-
	Elacate/seriola	0.3	0.1	-	0.1	0.5	-
	<i>Trichiurus</i> spp.	3.2	0.4	0.6	0.9	1.8	3.5
	<i>Rastrelliger kanagurta</i>	4.1	4.4	-	0.2	0.9	-
	<i>Scomberomorus</i> spp.	1	0.3	-	0.6	1.1	-
	<i>Gerres</i> spp.	0.2	1.5	-	0.3	0.7	-
	<i>Chorinemus</i> sp.	-	-	-	0.1	0.1	-
	<i>P. maculatum</i>	1.9	0.1	-	1	0.6	-
	<i>Centrolophus niger</i>	-	-	-	0.7	0.1	13.9
	Cephalopods	10.3	3.2	0.1	1.7	1.6	8.7
Others	2	1.5	-	1.1	2.2	4.4	

C. Salient observations

- » The highest catch rate of 189.7 kg/h was recorded from 50-100 m depth range of lat. 19°N in expo model fish trawl.
- » *Priacanthus* spp., *Nemipterus* spp., *Trichiurus* spp. and cephalopods formed the major component of the catch in all the depth zones.
- » *Leiognathus* spp. and Upenoids were dominant in 30-50 m and 50-100 m depth zone.
- » In 100-200 m depth zone *Priacanthus* spp. (97.4%) and *Sphyraena* spp. (43.5%) were the major components.

3.2 PELAGIC RESOURCES SURVEY AND MONITORING PROJECT

Project 8 **Survey of coastal pelagic resources by mid water trawling along the upper East coast between latitude 15° N and 21° N.**

Project component Survey of coastal pelagic resources by mid water trawling along the upper East coast between latitude 15° N and 21° N in 30-200 m depth

Gear Mid-water trawl

Vessel **Matsya Darshini**

Base Visakhapatnam

Project co-ordinator Dr S. K. Naik, Sr. Fisheries Scientist

Project leader Shri K. S. N. Reddy, Fishing Gear Technologist

Results

A. Catch per unit effort (kg/h) in mid water trawl

Depth Zone (m)		30-50	50-100	100-200
Latitude(°N)	16	55.60	38.00	-
	17	51.50	58.00	2.50
	18	49.90	56.20	-
	19	122.50	49.70	-

B. Species composition (%) in mid water trawl

Depth Zone (m)		30-50	50-100	100-200
Species	Elasmobranchs	1.43	2.5	-
	<i>Arius</i> spp.	4.88	3.2	-
	Clupeids	10.43	2	-
	<i>Saurida</i> spp.	3.52	4.9	-
	<i>Priacanthus</i> spp.	0.04	0.5	-
	<i>Nemipterus</i> spp.	1.75	1.7	-
	Perches	1.24	5	-
	Upenoids	23.49	24.6	-
	Sciaenids	7.33	11.4	-
	<i>Leiognathus</i> spp.	15.44	13.8	-

Fishery Survey of India

Depth Zone (m)		30-50	50-100	100-200
S p e c i e s / G r o u p	Flat fish	0.06	0.1	-
	<i>Ariomma indica</i>	0.09	-	-
	<i>Sphyraena</i> spp.	1.81	1	-
	Pomfrets	0.55	0.3	-
	<i>Caranx</i>	2.58	3.1	-
	<i>Megalaspis cordyla</i>	2.4	2.6	-
	<i>Decapterus</i> spp.	0.13	0.6	-
	Elacate/seriola	0.31	-	-
	<i>Trichiurus</i> spp.	12.47	9.1	100
	<i>Rastrelliger kanagurta</i>	1.27	4.3	-
	<i>Scomberomorus</i> spp.	0.13	0.3	-
	<i>Gerres</i> spp.	1.57	0.7	-
	<i>Chorinemus</i> sp.	0.6	0.3	-
	<i>P. maculatum</i>	1.45	1	-
	Cephalopods	3.04	4.3	-
Others	1.99	2.7	-	

C. Salient observations

- » The highest catch rate of 122.5 kg/h was recorded from 30-50 m depth range of lat. 19°N.
- » Upenoids, *Leiognathus* spp. and *Trichiurus* spp. were the dominant component in 30-50 m and 50-100 m depth zones.
- » Only *Trichiurus* spp occurred in 100-200 m depth zone

D. Biological studies

Length frequency studies of 15 species were undertaken during the period lying 5661 specimens. The biological studies were carried out on 4117 specimens.

3.3 OCEANIC TUNA RESOURCES SURVEY PROJECTS

Project 9 **Survey of oceanic tunas and allied tuna resources using regular long line in Indian EEZ along South-West coast between latitude 04° -16°N.**

Project component Survey of oceanic tunas and allied resources by longlining in the Indian EEZ along West coast including Lakshadweep

Gear Multifilament tuna long line with 5 hooks/ basket

Vessel **Yellow Fin**

Base Mormugao

Project Co-ordinator Dr. M. E. John, Zonal Director

Project Leader Dr A. K. Bhargava, Sr. Fisheries Scientist

Results

A. Catch per unit effort

Month	Hooks operated	Hooking rate (%)			
		Total	YFT	SKJ	SWO
April 10	2500	1.00	0.70	0.10	0.20
May - July 2010	-	Main engine & bait room compressor repairs			
August 10	-	Main engine overhauling			
September 10	500	0.60	0.20	0.40	-
October 10	125	-	-	-	-
November 10	100	-	-	-	-
December 2010 - March 2011	-	Awaiting for spares for main engine gear box			

B. Salient observations

- » During April 2010 highest hooking rate of 0.70% was recorded in area 15° N/72°E

C. Biological Studies

Length frequency and other biological data of 3 species (sample size: 10) were collected during the year.

Fishery Survey of India

Project 10 **Tuna resources survey in Indian EEZ around Andaman and Nicobar Island between latitude 5° N and 15° N.**

Project components 1. Survey of oceanic tunas and allied resources by using regular tuna longline in Andaman & Nicobar waters.
2. Survey of sword fish resources by using drift longline with light sticks in Andaman & Nicobar waters.
3. Survey of bigeye tuna resources by using modified deep longline in Andaman & Nicobar waters.

Gear > Regular tuna longline with five hooks per basket
> Drift longline with 5 hooks per basket with light stick for swordfish.
> Modified deep set longline with 7/9 hooks per basket for bigeye tuna.

Vessel **Blue Marlin**

Base Port Blair

Project co-ordinator Dr L. Ramlingam, Zonal Director

Project leader Shri K. Govindraj, Sr. Fisheries Scientist

Results

A. 1 Regular tuna longlining

Months	Hooks operated	Hooking rate (%)				
		Total	Tunas	Bill Fishes	Sharks	Others
April 10	10000	0.17	-	0.03	0.03	0.11
July 10	8750	0.4	0.14	0.06	0.19	0.01
September 10	10000	0.21	0.02	0.02	0.11	0.06
December 10	10000	0.27	0.03	0.05	0.02	0.17

A. 2 Modified deep longlining for big eye tuna

Months	Hooks operated	Hooking rate (%)				
		Total	Tunas	Bill fishes	Shark	Others
October 10	10080	0.2	0.04	0.07	0.08	0.01
November 10	8820	0.35	0.02	-	0.23	0.1

A.3 Drift longline using light sticks for sword fishing

Months	Hooks operated	Hooking rate (%)				
		Total	Tunas	Swordfish	Shark	Others
March 11	8750	0.61	0.01	0.09	0.43	0.07

B. Salient observations

- » In regular tuna longline survey, in the month of July, 2010 voyage, hooking rate of 0.14% was recorded for yellowfin tuna in square 10°/93°.
- » In modified deep longline survey, during the month of November, 2010 an aggregate hooking of 0.35% was obtained. Among the commercial varieties, sharks dominated the catch with a highest hooking rate of 0.23% followed by yellowfin tuna (0.02%)
- » In drift long line survey, during the month of March 2011, an aggregate hooking of 0.61% was obtained. Sharks dominated the catch with a hooking rate of 0.43%.

Fishery Survey of India

Project 11 **Tuna resources survey using monofilament longlining in the Arabian Sea including Lakshadweep between latitude 4° N and 23°N.**

Project component Survey of oceanic tuna and allied resources using monofilament longline in the Indian EEZ

Gear Monofilament long line with 7 hooks/basket

Vessel **Matsya Vrushti**

Base Mumbai

Project Co-ordinator Shri P. Sivaraj, Zonal Director

Project Leader Shri D. K. Gulati, Sr. Fisheries Scientist

Results

A. Catch per unit effort

Month	Hooks	Total	YFT	SKJ	SAI	DOL	SHA	SWO	MAR	OTH
April 10	7290	0.58	0.23	-	0.03	0.01	0.16	0.1	0.03	0.01
May 10	4167	0.28	-	-	0.24	-	0.02	0.02	-	-
June 10	4977	0.38	0.12	0.02	0.1	-	0.1	-	0.04	-
July 10	1344	0.36	-	-	-	-	0.36	-	-	-
Aug 10	4555	0.76	0.02	-	-	0.04	0.48	0.04	0.02	0.13
Sept 10	-	-	Hydrographic winch spool winch lever repairs							
Oct 10	-	-	LSA/FFA Survey							
Nov 10	4375	0.5	0.02	-	0.002	0.04	0.27	0.02	-	0.11
Dec 10	8190	0.49	0.05	-	-	0.07	0.23	0.09	-	0.05
Jan 11	6300	0.63	0.11	-	-	0.06	0.22	0.13	0.06	0.05
Feb 11	8190	0.3	0.06	-	0.02	-	0.12	0.01	0.01	0.07
Mar 11	9450	0.25	0.07	0.01	-	0.01	0.03	0.04	0.01	0.07

B. Salient Observations

- » Aggregate hooking rate of 0.45% and yellowfin tuna hooking rate of 0.08% was obtained during the year whereas maximum hooking rate of 1.27% was recorded from the area of lat. 8°N/long. 73°E and lat. 13°N/long. 72°E.

C. Biological Studies

Biological data such as length frequency, sex ratio, gut contents, maturity stages and gonad weight were collected in respect of tunas, bill fishes and sharks by examining 218 specimens.

Project 12 Tuna resources survey using monofilament longlining in the Bay of Bengal, including international waters between latitude 10°N and 20°N.

Project components 1. Tuna resources survey using monofilament longlining in Bay of Bengal between lat.10°N and 20°N.
 2. Tuna resources survey using monofilament longlining in international water between lat.10°N and 15°N. (bounded by longitude 83°E and 85°E)
 3. Swordfish fishing by using light sticks

Gear Monofilament longline with 7 hooks per basket

Vessel Matsya Drushti

Base Chennai

Project co-ordinator Dr Anrose, Zonal Director

Project leader Shri P. S. Parasuraman, Sr. Fisheries Scientist

Results

A. Catch per unit effort

Month	Hooks operated	Hooking Rate (%)							
		Total	YFT	SKJ	MAR	SWO	SAI	SHA	OTH
April 10	9240	0.21	0.08	0.06	0.01	0.01	0.02	-	0.02
May 10	3640	0.27	0.11	-	-	-	-	-	0.16
June 10	5600	0.20	0.09	0.04	-	-	-	-	0.09
July 10	3850	0.34	0.10	0.05	0.03	-	0.08	-	0.08
Aug 10	8650	0.13	-	-	-	0.01	-	0.07	0.05
Sept 10	7980	0.44	0.08	0.08	0.01	0.03	0.04	-	0.24
Oct 10	5390	0.26	0.02	-	0.04	-	0.06	0.02	0.13
Nov 10	7560	1.28	0.76	0.32	-	0.05	-	0.01	0.11
Dec 10	5530	0.36	0.18	0.02	-	-	-	0.05	0.11
Jan 11	7560	0.82	0.16	-	-	0.16	-	0.09	0.41
Feb 11	6930	0.48	0.10	-	-	0.07	-	0.04	0.26
Mar 11	6965	0.23	0.17	0.01	-	-	0.01	-	0.03

B. Salient observations

- » The average aggregate hooking rate during the month of November 2010 was 1.28%. Yellowfin tuna accounted for 0.76%, Skipjack tuna 0.32%, Swordfish 0.1% and others 0.15%
- » During November 2010 in a single set, in the area 14°20.2'/80°32.1' off east of Krishnapatnam a record catch of 28 of Yellowfin Tuna (*Thunnus albacares*) at a hooking rate 4.44%. This was the highest hooking rate recorded during the year. The size range was 44-85 cm.
- » During the year 2010-2011, an average aggregate hooking rate of 0.44% and Yellowfin tuna hooking rate of 0.16% was recorded in the survey area between Lat 10°N-Lat 20°N.
- » The catch comprised of tunas 47.85 % (Yellowfin tuna 76% and Skipjack tuna 24%), Bill fishes 14% (Swordfish 50%, Sailfish 33% and Marlin 17%), Shark 7% and others 31%.

C. Biological studies

Biological and morphological *information* like length frequency, length-weight, sex, maturity and food and feeding habits were collected from 291 specimen constituting 14 Species (*Thunnus albacares*, *Istiophorus platypterus*, *Katsuwonus pelamis*, *Xiphias gladius*, *Alopias pelagicus*, *Makaira mazara*, *Makaira indica*, *Coryphaena hippurus*, *Carcharhinus melanopterus*, *Carcharhinus macroti*, *Iago omanensis*, *Pteroplatytrygon violacea*, *Alepisaurus ferox* and *Acanthocybium solandri*).

EXPERIMENTAL PROJECTS

Project 13 **Experimental bottom set vertical longline survey in the Indian EEZ around Andaman & Nicobar Islands between latitude 5° N and 15°N**

Project component Survey of perch resources by using bottom set vertical longline in Andaman & Nicobar waters.

Gear Bottom set vertical longline with 30 hooks per basket for perch resources.

Vessel **Blue Marlin**

Base Port Blair

Project co-ordinator Dr L. Ramlingam, Zonal Director

Project leader K. Govindraj, Sr. Fisheries Scientist

Results

A.3 Bottom set vertical longline

Months	Hooks operated	Hooking rate (%)					
		Total	Snapper	Grouper	Emperor	Shark	Others
May 10	7590	1.63	1.01	0.40	0.11	0.03	0.02
June 10	8820	2.55	1.51	0.52	0.18	0.23	0.11
January 11	10170	0.96	0.60	0.20	0.08	-	0.08
February 11	8550	1.16	0.30	0.36	0.30	0.14	0.06

B. Salient observations

- » During June 2010, an aggregate hooking rate of 2.55% was recorded in Nicobar waters. Among the commercial perch varieties snappers dominated the catch with a highest hooking rate of 1.51% followed by groupers (0.52%).
- » High quality perches were recorded at 4.2 miles east of Ross Island light house (Diglipur), 3.4 miles east of Ross Island light house near port Cornwallis (Diglipur), 10 miles west off west Island, 10 miles west off west coral bank, 10-15 miles of Car Nicobar, off Nancowry, Teressa and Great Nicobar Islands.
- » The dominance of snapper was noticed in the square 8°/93° (1.9%) followed by 13°/93°(1.83%) and 7°/93°(1.6%). Similarly the dominance of grouper was noticed in the square 13°/93°(1%) followed by 7°/93° (0.6%) and 8°/93 °(0.5%).

4. PHYSICAL TARGET AND ACHIEVEMENTS

Physical targets and achievements in terms of voyages, days out at sea, days fished and fishing effort of the survey vessels are furnished below:

Base	Vessels	Target				Achievements			
		V	SD	FD	SE	V	SD	FD	SE
Mumbai	M. Vrushti @	10	200	145	94250	10	194	104	58838
	M. Nireekshani *	10	200	160	750	7	116	64	265
Mormugao	Yellowfin @	10	190	140	87500	4	29	8	3225
	Sagarika *	10	180	144	675	4	57	46	211
Kochi	M. Varshini */#	9	180	144	675	2	39	28	560
	Lavanika *	18	180	144	675	11	111	75	357
Chennai	M. Drushti @	11	200	139	87570	12	240	143	78895
	Samudrika *	8	130	104	488	12	240	194	815
Visakhapatnam	M. Shikari *	11	210	168	788	11	165	107	416
	M. Darshini *	11	210	168	263	11	201	138	211
	**				294				262
Port Blair	Blue Marlin @	10	200	150	75000	11	215	165	66400
	&				18750				35130
Efforts	TOTAL	118	2080	1606		95	1607	1072	
* : Bottom trawling (Hours)					4314				2275
** : Mid water trawling (Hours)					294				262
@ : Tuna longline (Hooks)					344320				207358
& : Bottom-set vertical longline (Hooks)					18750				35130
*/# : Squid Jigging (Machine hours)					-				560

Note: As per survey programme, the target of fishing of Matsya Varshini was bottom trawling but in actual vessel was surveyed as squid jigging under NAIP programme

V: VOYAGES; SD: SEA DAYS; FD: FISHING DAYS; SE: SAMPLING EFFORT

5. VESSEL-WISE CATCHES AND VALUES

Catch and values registered by the FSI survey vessels during 2010-11

Base	Vessels	Catch (kg.)	Value (Rs.)
Mumbai	Matsya Vrushti	1290	67098
	Matsya Nireekshani	6459	97131
Mormugao	Yellowfin	358	6911
	Sagarika	5742	65957
Kochi	Lavanika	8174	109727
Chennai	Matsya Drushti	2607	127044
	Samudrika	8813	326482
Visakhapatnam	Matsya Shikari	37253	474591
	Matsya Darshini	29170	309045
Port Blair	Blue Marlin	4197	161325
Total		104063	1745311

6. SCIENTIST PARTICIPATION IN SURVEY CRUISES

For collection of fishery resources data, Scientists of the Institute regularly participate in survey cruises of the vessels. Details of the scientist participation during the year is as follows.

Vessels	Scientist participant	No.of cruises	Days at sea
M. Vrushti	Shri D. K. Gulati, Sr. Fisheries Scientist	1	20
	Shri A. K. Malik, Fisheries Scientist	1	20
	Shri A. E. Ayoob, Sr. Scientific Assistant	1	20
	Shri Dewanand Uikey, Sr. Scientific Assistant	1	20
	Shri R. S. Nagpure, Sr. Scientific Assistant	1	20
	Shri Hitesh Patil, Sr. Research Fellow	2	39
	Shri Kiran Mali, Sr. Research Fellow	1	15
	Shri Swapnil Shirke, Sr. Research Fellow	2	40
M. Nireekshani	Shri A. K. Malik, Fisheries Scientist	1	19
	Shri S. G. Patwari, Jr. Fisheries Scientist	2	35
	Shri Dewanand Uikey, Sr. Scientific Assistant	2	34
	Dr S. K. Dwivedi, Sr. Scientific Assistant	1	8
	Shri Jacob Thomas, Sr. Scientific Assistant	1	20
	Shri Jinoy V. G, Sr. Research Fellow	1	8
Yellow Fin	Dr A. K. Bhargava, Sr. Fisheries Scientist	1	7
	Shri Y. Tharumar, Sr. Scientific Assistant	1	5
	Shri Puran Singh, Sr. Scientific Assistant	1	6
	Shri S. O. Khairnar, Research Fellow	1	11
Sagarika	Shri A. K. Malik, Fisheries Scientist	1	2
	Shri Y. Tharumar, Sr. Scientific Assistant	1	16
	Shri Raju S. Nagpure, Sr. Scientific Assistant	1	20
	Shri Puran Singh, Sr. Scientific Assistant	1	19

M. Varshini *	Shri Jinoy V. G, Sr. Research Fellow	4	56
M. Drushti	Shri P. Tamilarasan, Fisheries Scientist	1	8
	Shri G. Nagarajan, Jr. Fisheries Scientist	4	80
	Dr J. Jeyachandra Dhas, Jr. Fisheries Scientist	2	40
	Shri C. Babu, Sr. Scientific Assistant	2	40
	Shri G. V. A. Prasad, Sr. Scientific Assistant	1	20
	Shri Sijo. P. Varghese, Sr. Scientific Assistant	1	20
	Shri Rahul B. Tailor, Sr. Scientific Assistant	1	20
Samudrika	Shri P. Tamilarasan, Fisheries Scientist	3	60
	Dr J. Jeyachandra Dhas, Jr. Fisheries Scientist	2	29
	Shri G. V. A. Prasad, Sr. Scientific Assistant	3	60
	Shri C. Babu, Sr. Scientific Assistant	2	32
	Shri M. K. Sajeewan, Sr. Scientific Assistant	1	19
	Shri A. Siva, Sr. Scientific Assistant	2	28
M. Shikari	Shri K. S. N. Reddy, Fishing Gear Technologist	1	10
	Shri N. Jagannadh, Jr. Fisheries Scientist	1	9
	Dr Ansuman Das, Jr. Fisheries Scientist	3	36
	Shri S. K. Pattnayak, Scientific Assistant	4	44
	Shri A. Siva, Sr. Scientific Assistant	4	47
	Shri V. Uma Mahesh, Data Enumerator	1	8
M. Darshini	Shri K. S. N. Reddy, Fishing Gear Technologist	1	10
	Shri N. Jagannadh, Jr. Fisheries Scientist	1	20
	Shri S. K. Pattnayak, Scientific Assistant	1	13
	Shri V. Uma Mahesh, Data Enumerator	2	15
Blue Marlin	Shri K. Govindaraj, Sr. Fisheries Scientist	7	136
	Shri A. B. Kar, Jr. Fishing Gear Technologist	2	26
	Shri H. D. Pradeep, Scientific Assistant	4	57

*: Matsya Varshini was deployed for squid jigging operation under NAIP programme during the year under report.

7. FLEET MAINTENANCE

Acquisition of Mid-water Trawlers

The Ministry had instructed to explore the possibility of constructing the two mid-water trawlers from M/s. Cochin Shipyard Limited, Kochi. Further directed to explore the possibilities to acquire the vessels on lease from the Indian entrepreneurs. The matter of construction of two mid-water trawlers had been taken up with the Cochin Shipyard Limited, Kochi and CSL has accepted the same in principal. Discussions were held with the CSL authorities on the design aspect of the vessel. The Shipyard is on the job and a tentative design along with the preliminary estimate expected soon.

8. INFRASTRUCTURE FACILITIES

Construction of Facility Research Centre at Mumbai (HQ):

The construction work is almost completed except some electrical works and A.C ducting work. The total progressive expenditure of the project is Rs. 6,26,44,480/- upto 31st March, 2011 out of the total project cost of 13.13 crores. The construction is expected to be completed during the next financial year.

Construction of Type-III & IV quarters for FSI, Port Blair

Construction of six Type-III and three Type-IV quarters for Fishery Survey of India, Port Blair is almost completed and only some ancillary works are to be attended. An amount of Rs. 1,21,84,962/- out of the project cost of Rs. 1.68 crores has been incurred upto 31st March, 2011 for this project.

Marine Engineering Division (MED), Kochi.

Fabrication of Slipway Cradle was carried out through M/s. Kerala Electrical & Allied Engineering Co. Ltd., Kochi, at an cost of Rs. 49,70,969/-. The slipway was commissioned and is working satisfactorily.

9. TRAINING

9.1 The following officers and staff attended the training programmes during the year 2010-11

Name	Designation	Subject / Institute / Place/ Period
Shri M. K. Farejiya	Mech. Marine Engineer	Training on Coating Inspection and Quality Control at Indian Institute of Technology, Mumbai, 03-05 May 2010.
Shri M. K. Sajeevan Smt. Rajashree K. Mendon Shri N. S. Madlani Smt. Sunita N. Motwani Shri Subhrajit Das Shri C. N. Raithatha Shri K. S. Ranjith	Sr. Scientific Assistant Upper Division Clerk Upper Division Clerk Stenographer Gr.I Stenographer Gr.II Lower Division Clerk Lower Division Clerk	Training on Noting, Drafting and File Management at Regional Training Centre Mumbai, 17-18 May 2010.
Dr A. Anrose	Zonal Director	Training on Decision Makers course at Indian Institute of Remote Sensing, Dehradun, 15 -18 June 2010.
Shri J. E. Prabhakar Raj Shri S. G. Patwari Shri N. Unnikrishnan Dr. S. Ramachandran Shri Jacob Thomas Shri D. E. Uikey Shri A. Shiva Shri H. D. Pradeep Shri Y. Tharumar Shri C. Babu Shri G. V. A. Prasad	Fisheries Scientist Jr. Fisheries Scientist Jr. Fisheries Scientist Sr. Scientific Assistant Sr. Scientific Assistant Sr. Scientific Assistant Sr. Scientific Assistant Sr. Scientific Assistant Sr. Scientific Assistant Sr. Scientific Assistant Sr. Scientific Assistant Sr. Scientific Assistant	Training on Scientific methods and writing at Kochi. 4 - 11 July 2010.
Smt. K. K. Ambika Shri Amal Krishna Halder	Office Superintendent Lower Division Clerk	Changes in various Rules under 6th CPC at Regional Training Centre, Mumbai, 9 - 13 August 2010.
Shri S. K. Pattnayak Dr S. K. Dwivedi Shri Puran Singh	Sr. Scientific Assistant Sr. Scientific Assistant Sr. Scientific Assistant	Training on Geo-spatial knowledge Management for Sustainable Livelihood Security at NAARM, Hyderabad, 17 - 27 August 2010.
Shri T. L. Muralidharan Shri N. S. Madlani Shri Vinod G. Naik	Office Superintendent Upper Division Clerk Upper Division Clerk	Training on Pension Rules and other benefits at RTC, Mumbai. 20-21 September 2010.
Shri A. Siva Miss. K. Bhavani Shri P. Papa Rao Shri K. N. Swamy Shri B. K. Singh	Sr. Scientific Assistant Sr. Clerk Sr. Clerk Sr. Clerk Sr. Clerk	Training on MS-Office and Internet at Datapro Computer center, Visakhapatnam. 20 December 2010 - 8 January 2011.
Shri Vinod G. Naik	Upper Division Clerk	Pension Rules & Other retirement benefits at Regional Training Centre, Mumbai, 20 - 21 September 2010.

Fishery Survey of India

Name	Designation	Subject / Institute / Place/ Period
Dr L. Ramlingam Shri K. P. Raghunath Smt. K. B. Komalam Shri Edward Kerketta Smt. K. K. Ambika Smt. K. P. Khedekar Shri B. H. Bhatt Shri M. F. X. Pinto Shri T. L. Muralidharan Smt Meera Vellan R Shri P. K. Shukla Shri Sisir Kumar Das Shri A. V. K. Jogi Raju Smt. Sunita N. Motwani Shri Uday Kumar Shri N. Varadhan Smt. P. Mallika Smt. Rajashree K. Mendon Shri S. Moni Shri P. Papa Rao Shri G. P. Pawale Shri Gopal V. Thule Shri N. S. Madlani Shri D. K. Pandya Smt. Archana N. Pradhan Shri S. C. Bala Shri Sanjeev K. Singh Shri C. N. Raithatha Shri K. S. Ranjith Shri Vishal Kharat Shri Amal Krishna Halder	Zonal Director Office Superintendent Office Superintendent Office Superintendent Office Superintendent Office Superintendent Office Superintendent Office Superintendent Jr. Hindi Translator Sr. Accountant Sr. Accountant Sr. Accountant Stenographer Gr.I Stenographer Gr.I Stenographer Gr.II Stenographer Gr.II Upper Division Clerk Upper Division Clerk Upper Division Clerk Upper Division Clerk Upper Division Clerk Upper Division Clerk Upper Division Clerk Upper Division Clerk Upper Division Clerk Upper Division Clerk Upper Division Clerk Stenographer Gr.III Lower Division Clerk Lower Division Clerk Lower Division Clerk Lower Division Clerk	Training on Roster for Reservation of Posts for the SCs, STs and OBCs at Mumbai (HQ), 18 October 2010.
Shri P. Sivaraj Dr A. K. Bhargava Shri D.M.Ali Shri K. Govindaraj Shri A. Tiburtius Shri A. K. Malik Shri L. K. Rao Dr J. J. Dhas Shri N. Jagannadh Shri K. S. N. Reddy Shri K. P. Raghunath Smt. Meera Rajeev Vellan	Zonal Director Sr. Fisheries Scientist Sr. Fisheries Scientist Sr. Fisheries Scientist Sr. Fisheries Scientist Fisheries Scientist Sr. Administrative Officer Jr. Fisheries Scientist Jr. Fisheries Scientist Fishing Gear Technologist Office Superintendent Hindi Translator	Training on Event Management- Capacity Building Programme organised by Bay of Bengal Programme at BOBP-IGO, Chennai. 25-26 October 2010.
Shri A. B. Kishore	Peon	Training on Hindi Language at Navi Mumbai, 7 October- 3 November 2010.

Name	Designation	Subject / Institute / Place/ Period
Shri A. V. Tamhane	Sr. Scientific Assistant	Training on Intensive Hindi Workshop organised by Hindi Shiksha Sansthan, New Delhi, 22 - 26 November 2010.
Shri B. L. Anjana Shri Dolamani Naik	Jr. Hindi Translator Lower Division Clerk	Computer Training in Hindi at MPT, Mormugao, 22 - 26 November 2010.
Shri K. S. N. Reddy Shri D. Bhami Reddy Shri N. Jagannadh Shri Sanatan Das Shri Sisir Kumar Das	Fishing Gear Technologist Service Engineer (Mech.) Jr. Fisheries Scientist Sr. Accountant Sr. Accountant	Training on MS-Office and Internet at Datapro Computer center, Visakhapatnam. 18 November 2010 - 1 December 2010.
Shri G. H. Paradkar	Sr. Accountant	Training on Income Tax on Salaries organised by Pay & Account Office, 2 - 3 February 2011.
Shri P. G. Wadhvani	Office Superintendent	Training on Changes in various rule under 6th Central Pay Commission at RTC, Mumbai, 9 -11 February 2011.
Shri Ashok Kadam Dr S.K. Dwivedi, Shri Hitesh Patil	Jr. Fisheries Scientist Sr. Scientific Assistant Sr. Research Fellow	Training programme on Stock Assessment at CMFRI, Cochin under NAIP Project, 07-11 March 2011.
Shri Premchand Shri P. Sivaraj Dr A. Anrose Dr A. K. Bhargava Dr S. K. Naik	Dy. Director General Zonal Director Zonal Director Sr. Fisheries Scientist Sr. Fisheries Scientist	RTI Act 2005 at Institute of Govt. Accounts & Finance, Regional Training Centre, Chennai. 14 - 15 March 2011.

9.2 Training to CIFNET trainees

As per the mandate on Human Resources Development, the Institute continued to provide on-the-job-training to CIFNET trainees. The Base-wise details of onboard training imparted are given below:

Base	No. of Trainees			
	At the beginning of the year	Appointment during the year	Completed training during the year	At the end of the year
Mumbai	3	10	1	12
Mormugao	4	-	-	4
Cochin	2	-	-	2
Chennai	4	1	-	5
Visakhapatnam	4	1	-	5
Port Blair	1	-	1	-

10. PUBLICATIONS

The Institute has been effectively disseminating the resources survey findings to the industry and other end-users through various publications like annual report, magazines, charts, special publications, bulletins, scientific papers etc. Some of the FSI Publications are also being translated into regional languages for the benefit of the local fishermen and mechanized boat operators. During the year following publications were released.

Magazine

Matsya Kiran Vol-3 (2010) (Hindi) By FSI(HQs).
Matsya Dwani-2010-11 (Hindi) By Kochi Base.

Survey Programme

Fishery Resources Survey, Assessment & Research Programme 2010-11.

Reports

Annual Report 2009-10 (December 2010).

Others

DIRECTORY OF FSI 2010

Chart: Fishery Resources of the Indian EEZ.

Book Marks on International Year of Biodiversity.

Resources Information Series - 19 issues

Four issues each from Mumbai, Chennai, Visakhapatnam and Port Blair Bases, one issue from Mormugao Base and two issue from Cochin Base were published in respective local languages for the benefit of fishermen.

Papers presented / published by Scientists

Anrose, A., M. K. Sinha, A. B. Kar and S. K. Pattnayak, 2010. Diversity of perch resources in Andaman and Nicobar waters in: *Recent trends in biodiversity of Andaman and Nicobar Islands*, ZSI, 343-359, 2010.

Anrose, A., M. K. Sinha, A. B. Kar and S. K. Pattnayak, 2010. Diversity and potential of oceanic fishery resources in Andaman and Nicobar Islands in: *Recent trends in biodiversity of Andaman and Nicobar Islands*, ZSI, 361-371, 2010.

Ramalingam, L., 2010. Marine Fishery Resources of Andaman & Nicobar Waters. Paper presented on the *Marine Wealth-Fishery* at Port Blair on 29 December 2010.

Kar, A. B., 2010. Marine Fishery Resources of Andaman & Nicobar Islands and the exploitation of these resources by diversified fishing methods and Exploitation of bottom dwelling perch resources by bottom set vertical longline. Papers presented in the Regional Workshop on *Marine Fishery Resources of Andaman & Nicobar waters* held at Hope town, Port Blair on 8 November 2010 respectively.

Varghese, Sijo P., V. S. Somvanshi and S. Varghese, 2010. Discontinuous distribution of *Alepisaurus ferox* Lowe, 1833 (Alepisauridae, Teleostei) in the Indian EEZ as revealed by the tuna longline survey. *Indian Journal of Marine Science* Vol.39 (3): 406-414.

Varghese, Sijo P., K. Vijayakumaran and V. S. Somvanshi, 2010. Trophic ecology of tunas, sharks, billfishes and allied species in the eastern Arabian Sea. Paper presented in the Sixth session of IOTC working party Ecosystem and By catch held at Mahe, Seychelles during 27-30 October 2010.

Vijayakumaran, K. and Sijo P Varghese, 2011. Update on the status of tuna fisheries in India. Paper presented in the Thirteenth session of IOTC Scientific Committee Meeting held at Mahe, Seychelles during 6-10 December 2010.

Varghese, Sijo P., S. Varghese and V. S. Somvanshi, 2011. Estimating turtle by catch in the tuna longline fishery in Indian waters. Profile of the month : IOSEA Marine Turtle Memorandum of Understanding.

Tiburtius, A. and Sijo P. Varghese, 2010. Marine Biodiversity of India. Ponfish - Souvenir released by the National Fisheries Development board, Hyderabad to commemorate the World Fisheries Day. 19-29.

Dwivedi, S.K., 2011. Application of science. Paper presented in the Marine Fisheries Exhibition on Science day at Kendriya Vidyalaya No.3 Navy Nagar, Colaba, Mumbai.

Kadam, A.S., 2011. Marine Fisheries of India. Paper presented in the Marine Fisheries Exhibition on Science day at Kendriya Vidyalaya No.3 Navy Nagar, Colaba, Mumbai.

Following two papers presented in the International conference on *Tropical Island ecosystems: Issues related to livelihood, sustainable development and climate change* during 23-26 March 2011 at Central Agricultural Research Institute (CARI), Port Blair.

Ramalingam, L., 2011. Oceanic fishery resources of Andaman & Nicobar waters with special reference to tuna fishery and its present status.

Kar, A. B., 2011. Diversity of perch resources in Andaman & Nicobar waters.

11. RESEARCH ACTIVITIES

11.1 Degrees/Awards

Following Scientist of FSI awarded the Ph. D degree under the guidance of Dr V. S. Somvanshi, former Director General of FSI.

Name/ Designation	Title
Shri Sijo P. Verghese, Sr. Scientific Assistant	<i>Tropic Ecology Of Large Predatory Fishes in west coast of Indian EEZ.</i> [Studied the diet consumption of large predators and food web in the west coast of India.] (9 September 2010)
Shri M.Vinod Kumar, Jr. Fisheries Scientist	<i>Dynamics of fishery, biology and utilization of coastal tunas occurring in North-western Indian EEZ.</i> [Studied the some aspect of biology, DNA bar coding, abundance and distribution in the western Indian EEZ], (21 February 2011).
Shri S. K. Dwivedi, Sr. Scientific Assistant	<i>Sea catfishes occurring along north-west coast of India with studies on biology and stock assessment.</i> [studied the diversity of Sea catfishes fishery, inventory of species, some biological aspects and stock assessment in the north-west coast of India], (10 March 2011).

11.2 Research leading to Ph.D degree

Shri Kiran S. Mali, Sr Research Fellow was registered for Ph.D degree under the guidance of Dr A. K. Bhargava, Sr. Fisheries Scientist during the year. Topic of thesis is *Studies on biology and growth parameters of two major Lizard fishes (Saurida spp) occurring along North-West coast (In between Latitudes 18^o 23^oN) of India.*

11.3 Inter-institutional projects

Fishery Survey of India participated in the following Research & Development projects relevant to Marine Fisheries.

11.3.1 National Agriculture Innovation Project (NAIP)

1. A Value Chain on Oceanic Tuna Fisheries in Lakshadweep sea

Objectives:

- † To evolve effective fishing methods and policies for Lakshadweep sea to increase and sustain production of oceanic tunas and related resources by assessing the status and health of the stocks and ecosystems.
- † To develop technologies on hygienic and improved handling, processing, packaging and high value product, to develop market intelligence on domestic and overseas market.
- † To transfer the new fishing and processing technologies and marketing strategies to the stakeholders and empower their efficiency and socio-economic status.
- † To ensure seafood safety and health assurance to the consumers.

Consortium Team

CPI	-	Dr. E. V. Radhakrishnan, CMFRI, Kochi
CoPI	-	Dr. T. K. Srinivasagopal, CIFT, Kochi
CoPI	-	Dr. K. Vijayakumaran, FSI, Mumbai
CoPI	-	Shri C. G. Koya, Fisheries Department, Lakshadweep

Project Associates from Fishery Survey of India

Shri P. Sivaraj, Mumbai Base
Shri D. K. Gulati, Mumbai Base
Shri Ashok Kadam, Mumbai (HQ)

Date of sanction 18th March 2008.

Duration of the project Four years.

Results:

Collected tuna data from area around Lakshadweep Island (latitude 9-13°) by participation on board the vessel Matsya Vrushti during August 2010, February 2011 and March 2011

2. Utilization Strategy for Oceanic Squids in Arabian Sea: A Value Chain Approach

Objectives:

- † To establish a new commercial jigging fishery for oceanic squids in the Central Arabian Sea and to determine the resilience of the species to exploitation.

Fishery Survey of India

- † Initiate sustainability certification of oceanic squid jigging as an eco-labelled Fishery.
- † Develop protocols for onboard preservation and processing of oceanic squids and to enhance organoleptic characteristics of oceanic squids.
- † Develop value added products from oceanic squid such as squid surmi and balls and efficient utilization of squid processing waste by developing by-product such as fish meal and chitosan
- † Determine the techno-economic feasibility of commercial distant water squid jigging operations.
- † Formulate Model bankable project/scheme on distant-water squid jigging suitable for NABARD to accelerate the flow of credit from scheduled banks by refinance.
- † Develop market intelligence on global oceanic squid markets and products. Develop export and domestic marketing channels through private partnership.

Consortium Team

CPI	-	Dr. Sunil Kumar Mohamed, CMFRI, Kochi
CoPI	-	Dr. K. Vijayakumaran, FSI, Mumbai
CoPI	-	Dr. S. Girija, NIFPHATT, Kochi
CoPI	-	Shri K. K. Asha, CIFT, Kochi

Project Associates from Fishery Survey of India

Shri B.C.Varghese, Kochi Base
Shri D. M. Ali, Kochi Base
Shri N. Unnikrishnan, Kochi Base

Duration of the project : Three years and Four months.

The materials required for the project purchased. Action initiated to recruit the Sr. Research Fellow and import of squid jigging machines.

11.3.2 Locating Tuna Habitat through satellite remote sensing collaboration with Space Applications Centre (SAC), Ahmedabad

Objectives:

- † To understand the spatial and temporal aggregation of tuna to elucidate the relationship between tuna forage, physiology, feeding behaviour environmental properties and catchability.

Principal Investigator : Dr. Beena Kumari, Scientist, MCED/MESG, SAC
Dr. K. Vijayakumaran, Director General, FSI

Duration of the project : 2008 - 12

Results:

During the period under report, tuna longline data of four vessel (Yellowfin , Matsya Vrushti, Blue Marlin and Matsya Drushti) obtained during the month of April 2010, October 2010, May 2010 and November 2010 were entered into the computer system and made contour maps for analysis of the chlorophyll and SST. Shri Kiran Mali, Research Fellow attended validation of satellite remote sensing data (chlorophyll, SST) for estimation of PFZ areas for tuna over Andaman during October 2010- March 2011 and Nicobar region and developed thirteen forecast (Potential tuna aggregation ground). The analysis of the data was carried out at SAC, Ahmedabad.

11.3.3 Isotope fingerprinting of water of India (IWIN) in collaboration with National Institute of Oceanography, Goa

Objectives:

- † To address important hydrological questions related to origin of water sources and the processes of redistribution by evapo-transpiration, stream flow generation, groundwater recharge and discharge from watershed to continental scale.
- † To give quantitative estimates of residence time of the water and vapour in each hydrological reservoir and the fluxes across them in temporally and spatially distributed manners

Role of Fishery Survey of India

Collection of surface water samples from Arabian Sea, for salinity and isotope analysis to cover all four seasons using the 6 vessels of FSI operating along the West Coast. All the equipments and data sheets to be supplied by the NIO. FSI scientists onboard the survey vessel will collect required water sample from the area of operation.

Consortium Team

Principal Investigator Dr. S. K. Gupta, Sc-SG (Rtd), Physical Research Laboratory, Ahmedabad

CPI - Dr P. M. Muraleedharan, NIO, Goa
CPI - Dr K. Vijayakumaran, FSI, Mumbai

Project Associates from Fishery Survey of India
Dr. A. K. Bhargava, Mormugao Base
Shri P. Sivaraj, Mumbai Base
Shri B. C. Varghese, Kochi Base
Shri Sijo P. Varghese, Mumbai(HQ)

Fishery Survey of India

Results

Vessels attached to Mormugao and Kochi Base of FSI collected water samples from the area of operation and recorded necessary environmental parameters in the prescribed format. Data collection will be started from Mumbai Base soon.

11.3.4 Strengthening of Database and Geographical Information System For Fisheries Sector

Objectives:

- † Interacting with Maritime States and Union Territories for improving marine landing data collection by providing necessary training on the data collection methodology, data processing and fish taxonomy, collaborating with CMFRI at different places.
- † Reconciliation of the data collected by the Maritime States/UTs in consultation with CMFRI, and to adopt suitable measures for improvements of data collection.
- † Receipt of data from all Maritime States/UTs on monthly basis to submit the same to DAHD & F, Ministry of Agriculture periodically.
- † Printing of Handbook on Taxonomy in regional languages for the benefit of Data Enumerators.
- † Participate in the Marine Fisheries Census data collection, analysis and publishing reports.

MARINE FISHERIES CENSUS 2010



As per the objectives of Strengthening of Database and Geographical Information System for Fisheries Sector, Fishery Survey of India conducted the Marine Fisheries Census in Andaman & Nicobar and Lakshadweep Island during 1st fortnight of May 2010 whereas the census on mainland was covered by the CMFRI.

To carry out Marine Fisheries Census, 75 enumerators were engaged in the A & N and whereas 40 enumerators were engaged in the Lakshadweep Islands. Engagement of enumerators and census enumeration was carried out in collaboration with the respective fisheries departments of the Islands. Sufficient number of officials were also deployed as a supervision from both FSI and Directorate of Fisheries of the respective Island Administration.

As a part of the census, the enumerators collected information on fisherfolk family including social, educational and gender-wise occupational status, details of fishing craft and fishing gear ownership. Besides, details of fishermens perception on fisheries management measure such as fishing ban, protection of endangered species and climate change were also collected. The information on infrastructure facilities available in fishing villages and other facilities for fishing industry, details of landing centre and details of mechanized craft were collected by the supervisory staff. Details of supervisors from the FSI are furnished below.



Name	Designation	HQ/Base	Island supervised
			Andaman & Nicobar Island
Shri P. S. Parsuraman	Sr. Fisheries Scientist	Chennai	Diglipur
Shri K. S. N. Reddy	Fishing Gear Technologist	Visakhapatnam	Rangat
Shri P. Tamilarasan	Fisheries Scientist	Chennai	Mayabandar/Long Island/Kadmat
Shri P. C. Rao	Statistician	Mumbai(HQ)	Havelock/Neil Island
Shri B. M. Raut	Data Processing Assistant	Mumbai(HQ)	Car Nicobar
Shri S. K. Patnayak	Sr. Scientific Assistant	Visakhapatnam	Nancowry/Kamrota/Katchal
Shri H. D. Pradeep	Sr. Scientific Assistant	Port Blair	Hut Bay
Shri A. B. Kar	Sr. Scientific Assistant	Port Blair	Port Blair(U & R)
Shri C. Babu	Sr. Scientific Assistant	Chennai	Campbell Bay
			Lakshadweep Island
Dr A. K. Bhargava,	Sr. Fisheries Scientist	Mormugao	Agatti
Shri D. K. Gulati	Sr. Fisheries Scientist	Mumbai	Kavaratti
Shri J. E. Prabhakar Raj	Fisheries Scientist	Kochi	Kiltan
Shri S. G. Patwari	Jr. Fisheries Scientist	Mumbai	Amini
Shri Ashish Kumar	Data Processing Assistant	Mumbai(HQ)	Kalpeni
Shri M. K. Sajeewan	Sr. Scientific Assistant	Mumbai(HQ)	Bitra & Chetlat
Shri Y. Tharumar	Sr. Scientific Assistant	Mormugao	Kadmath
Shri S. Ramachandran	Sr. Scientific Assistant	Kochi	Androth
Shri A. E. Ayoob	Jr. Fishing Gear Technologist	Mumbai	Minicoy

Fishery Survey of India

11.3.5 Onboard training programme for tuna longlining- NFDB funded programme

Objectives:

- † To train the fishermen on the latest technologies in tuna longlining onboard FSI survey vessels.

Duration of the project	April 2010 to March 2011
Chief Co ordinator	Shri Premchand, Deputy Director General (Fy.)
Coordinator	Shri P. Sivaraj, Zonal Director Dr A. Anrose, Zonal Director Dr L. Ramlingam, Zonal Director Shri A. Tiburtius, Sr. Fisheries Scientist

Results:

Ninety eight fishermen from various states namely Tamil Nadu (34), Andhra Pradesh (15), Maharashtra (9), Kerala (18), Lakshadweep Islands (7) and A & N Islands (15) participated onboard survey-cum-training voyages of the three tuna longliner Vessels of FSI viz., Matsya Vrushti, Matsya Drushti and Blue Marlin. They got hands-on training on various aspects of fishing operations including arrangement of various components of the gear during shooting and hauling, fabrication, rigging and repair of the longline gear. The trainees were also given practical guidance as on locating the fishing ground, collection of oceanographic parameters, biology and movement pattern of the tunas, navigational requirements during shooting, hauling, scouting, handling and preservation of the catch, tips for monitoring environmental parameters etc.

11.3.6 Vessel Monitoring System (VMS) application in fishing sector

Under the Centrally Sponsored Scheme of the Ministry of Agriculture, it was decided to have a Hub Station for MSS-RT as a fleet monitoring system for fishery organizations and fishing industry to monitor the position and speed of the vessels/ships in territorial waters of India. The key role of the MSS-RTs is for monitoring, control and surveillance as programmed at the national level. The Hub Station has been created and commissioned during the year 2010 with the help of Space Application Centre (SAC) in the campus of Western Coast Guard Headquarters, Porbandar by the Ministry of Agriculture and Fishery Survey of India has been declared as the controlling agency for the Hub Station. Most of the FSI vessels are fitted with reporting terminals onboard and has been tested successfully.

INSAT Mobile Satellite Service (MSS) Reporting System provides one way transmission, position and short messages from reporting terminals to a predefined central location (VMS Hub Station, Porbandar). The INSAT-MSS-RT is developed by ISRO for marine applications, viz., fishing vessel monitoring. A pilot study had been conducted to assess the suitability of INSAT-MSS-RT for VMS applications in fisheries sector. Necessary technical and scientific support on data collection, monitoring of the vessels, had been provided by the FSI.

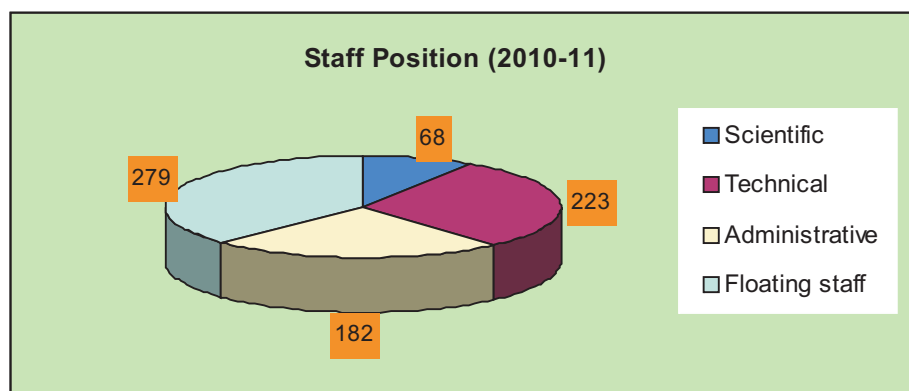
12. ADMINISTRATION AND FINANCE

Dr. K. Vijayakumaran Director General continued as Head of the institute during the year under report.

12.1 Sanctioned posts

The category-wise number of sanctioned posts are furnished below:

Group	Category	No.of Posts		
		Headquarters	Bases	Total
A	Scientific	7	26	33
	Technical	5	14	19
	Administrative	1	-	1
B	Scientific	4	18	22
	Technical	5	15	20
	Administrative	6	5	11
C	Scientific	2	11	13
	Technical	5	179	184
	Administrative	45	125	170
	Floating staff			
B	Technical	-	67	67
C	Technical	-	212	212
Total		80	672	752



Fishery Survey of India

12.2 . Officers in different stations

Name and designation of the officers of the Institutes as on 31/03/2011 are given below:

Headquarters, Mumbai

Director General	Dr K. Vijayakumaran
Deputy Director General (Fy.)	Shri Premchand
Senior Fisheries Scientist	Shri D. K. Gulati
System Analyst	Shri N. V. R. Murthy
Mechanical Marine Engineer	Shri Mahesh Kumar Farejiya
Senior Fisheries Scientist	Shri A. Tiburtius
Senior Administrative Officer	Shri L. K. Rao
Programmer	Shri Chittajallu Bhaskar
Junior Fisheries Scientist	Shri M. Vinod Kumar
Junior Fisheries Scientist	Shri Ashok S. Kadam

Mumbai Base

Zonal Director	Shri P. Sivaraj
Senior Fisheries Scientist	Shri S. M. Patil
Fisheries Scientist	Shri A. K. Malik
Junior Fisheries Scientist	Shri S. G. Patwari
Service Engineer (Mech.)	Shri Balanayak Banavat

Mormugao Base

Senior Fisheries Scientist	Dr A. K. Bhargava
Service Engineer (Mech.)	Shri C. D. Rao

Kochi Base

Zonal Director	Shri B. C. Varghese
Senior Fisheries Scientist	Shri D. M. Ali
Mechanical Marine Engineer	Shri B. S. Pandey
Junior Fisheries Scientist	Shri N. Unnikrishnan
Service Engineer (Mech.)	Shri O. T. Manoj Kumar

Chennai Base

Zonal Director
Fisheries Scientist
Service Engineer (I & C)
Junior Fisheries Scientist
Junior Fisheries Scientist

Shri A. Anrose
Shri P. Tamilarasan
Shri T. V. S. Prasad
Shri G. Nagarajan
Dr J. Jayachandra Dhas

Visakhapatnam Base

Senior Fisheries Scientist
Fishing Gear Technologist
Service Engineer (Mech.)
Junior Fisheries Scientist
Junior Fisheries Scientist

Dr S. K. Naik
Shri K. S. N. Reddy
Shri D. Bhami Reddy
Shri N. Jagannadh
Dr Ansuman Das

Port Blair Base

Zonal Director
Senior Fisheries Scientist
Service Engineer (Mech.)

Dr L. Ramlingam
Shri K. Govindraaj
Shri Dharmavir Singh

Fishery Survey of India

12.3 Budget and Accounts

The details of the Budget Grant and Expenditure of the Institute during 2010-11

(Rs. 'in thousands)

Particulars	Budget Grant	Actual Expenditure
Plan		
Revenue	370000	353053
Capital	50000	16818
Sub-Total	420000	369871
Non-plan		
Revenue	88400	76833
Sub-Total	88400	76833
Grant Total	508400	446704

12.4 Appointments

The following staff were appointed during the year

Name	Designation	Base/HQs	Date
Shri P. J. Pious	Driver Gr.II	Kochi	23.04.2010
Shri Rahul Kumar B. Tailor	Sr. Scientific Assistant	Kochi	04.08.2010
Shri B. Balanayak Banavat	Service Engineer(Mech.)	Mumbai	01.12.2010
Shri R. Malathi	Hindi Typist	Kochi	20.01.2011
Shri Josh Asokan Cheppalli	Superintendent	Kochi	24.02.2011

12.5 Transfers

The following transfers were effected during the year

Name	Designation	Base/HQ	
		From	To
Shri S. M. Patil	Sr. Fisheries Scientist	Mumbai (HQ)	Mumbai Base
Shri D. K. Gulati	Sr. Fisheries Scientist	Mumbai Base	Mumbai (HQ)
Shri N. Unnikrishnan	Jr. Fisheries Scientist	Mormugao	Kochi
Shri G. V. A. Prasad	Sr. Scientific Assistant	Chennai	Port Blair
Shri S. Kanthan	Mechanical Supervisor (Sr.)	Chennai	Port Blair
Shri P. K. Pahuja	Sr. Accountant	Mumbai	Mormugao
Shri Madhu. K. L	Skipper	Mormugao	Port Blair
Shri P. V. Mathew	Skipper	Kochi	Mormugao

Fishery Survey of India

Name	Designation	Base/HQ	
		From	To
Shri K. J. George	Mate Gr. I	Mumbai	Kochi
Shri T. K. Suresh	Sr.Deckhand	Mormugao	Kochi
Shri J. Raj	Sr.Deckhand	Kochi	Port Blair
Shri P. Ahmedjan	Netmender	Mormugao	Chennai
Shri A. B. Kishor	Peon	Mumbai	Porbandar
Shri A. K. Shamdar	Peon	Porbandar	Mumbai
Shri Y. Yella Rao	Mazadoor	Mumbai	Visakhapatnam

12.6 Promotions

The following promotions were made during the year

Name	Designation		Base /HQ
	From	To	
Shri Madhu. K. L	Mate Gr.I	Skipper	Port Blair
Shri B. S. Pandey	Assistant Engineer	Mechanical Marine Engineer	Kochi
Shri S. Talaspore	Mate Gr.I	Skipper	Chennai
Shri K. J. George	Mate Gr.I	Skipper	Kochi
Shri P. V. Mathew	Mate Gr.I	Skipper	Mormugao

12.7 Retirements

The following officers/staff retired during the year

Name	Designation	Base/HQ	Superannuation/ Voluntary	Date
Shri A. Suresh Kumar	Mate Gr.I	Chennai	Voluntary	01.04.2010
Shri K. R. Shaji	Skipper	Kochi	Voluntary	30.04.2010
Shri K. Anbalagam	Chief Engineer Gr.I	Port Blair	Superannuation	31.05.2010
Shri L. Balkrishnan	Fitter	Chennai	Superannuation	31.05.2010
Shri C. A. Gopi	Skipper	Kochi	Superannuation	31.05.2010
Shri V. K. P. Ramchandran	Carpenter	Kochi	Superannuation	31.05.2010
Shri E. Prabhakarann	Netmender	Chennai	Superannuation	30.06.2010
Shri P. Thirunath Rao	Office Superintendent	Chennai	Superannuation	31.07.2010
Shri C. S. Kanthaswamy	Chief Engineer Gr.I	Mormugao	Voluntary	10.07.2010
Shri N. D. Joshi	Watchman	Mumbai	Superannuation	31.07.2010
Shri M. V. Francis	Slipway worker	Kochi	Superannuation	31.07.2010
Shri D. Inbarajan	Mate Gr.I	Chennai	Voluntary	03.08.2010
Shri A. Kriswalt	Sr. Deckhand	Chennai	Voluntary	02.08.2010
Shri A. Ghosh	Greaser Gr. I	Visakhapatnam	Superannuation	31.08.2010

Fishery Survey of India

Name	Designation	Base/HQ	Superannuation/ Voluntary	Date
Smt. C. J. Chandnani	Office Superintendent	Mumbai (HQ)	Superannuation	30.09.2010
Shri P. S. Parasuraman	Sr. Fisheries Scientist	Chennai	Superannuation	31.10.2010
Shri K. J. George	Skipper	Kochi	Superannuation	31.10.2010
Shri Gilbert Gomes	Jr. Deckhand	Kochi	Superannuation	31.10.2010
Shri M. P. George	Crane Operator	Kochi	Superannuation	30.11.2010
Shri K. Krishnakumar	Stenographer Gr.II	Chennai	Superannuation	31.01.2011
Shri S. C. Sarkar	Milling Machine Operator	Visakhapatnam	Superannuation	30.11.2010
Shri A. Poovarasi	Office Superintendent	Chennai	Superannuation	31.12.2010
Shri M. E. John	Zonal Director	Mormugao	Superannuation	28.02.2011
Shri V. K. Dhumal	Sr. Deckhand	Mormugao	Superannuation	31.03.2011
Shri M. Chellappa	Sr. Deckhand	Kochi	Superannuation	31.03.2011
Shri K. K. Jose	Mechanic	Kochi	Superannuation	31.03.2011

13. IMPORTANT EVENTS AT BASES AND HEADQUARTERS

13.1 Meetings

Annual Review Meeting

Annual meeting for Review of Operational and Scientific Activities (ROSA) of the FSI and to finalise the fishery resources survey, assessment and research programme 2011-12 was held at Mormugao during 15-16 February 2011.

Consultative Committee Meetings

Mumbai (HQ)

The XI meeting on the Consultative Committee of the Fishery Survey of India was held at Mumbai (HQ) on 26 April 2010 under the Chairmanship of Dr K. Vijayakumaran, Director General, Fishery Survey of India.

Chennai Base

The XXIst Consultative Group Meeting of Chennai Base was held on 22 March 2011. The meeting was chaired by Shri K. Shellamuthu I.A.S, Commissioner of Fisheries, Govt. of TamilNadu

Port Blair Base

The Consultative Group Meeting of Port Blair Base was held on 6 April 2010. The meeting was chaired by Shri Tapan Mandal, IAS, Development Commissioner-cum-Secretary (Fy), A&N Administration.

13.2 Participation of Director General and Scientist in conference/ workshop / seminar etc.

13.2.1 The Director General Participation in the following:

Sl. No.	Event	Venue/Date
1	Discussion with GSI Scientists on EIA Project	Mangalore, 1 April 2010.
2	Meeting with Chief General Manager, CSL, Kochi on the specification and design aspects of Mid-water trawlers construction for FSI	Kochi, 5 April 2010.
3	Special Meeting of the sub-groups of CRPY-EEZ	
4	Discussion with Dr. Y.S. Yadava, Director, BOBP-IGO	Chennai, 17 April 2010.
5	Conference on Expert Consultation on Marine Biotechnology and Biodiversity Conservation	Goa, 21-22 April 2010.
6	National Inception Workshop of BOBLME Project at Hotel Green Park	Visakhapatnam, 6-7 May 2010.

Fishery Survey of India

Sl. No.	Event	Venue/Date
7	Meeting with ICG/GMB officials for finalizing the modalities for operationalization of the Hub station and related matter of VMS	Porbandar, 14 May 2010.
8	Meeting of the committee for decommissioning of the FSI vessel Matsya Sugandhi	Kochi, 18 May 2010.
9	Thirteenth meeting of Inter-Ministerial Empowered Committee on Marine Fisheries.	New Delhi, 21 May 2010.
10	Fifth Meeting of the Technical Advisory Committee (TAC) of The Bay of Bengal Programme Inter-Government Organisation (BOBP-IGO)	Maldives, 2-3 June 2010.
11	Submission of Interim EIA report to Geological Survey of India.	Mangalore, 9-10 June 2010.
12	Seminar on New Avenues for Fisheries and Aquaculture Development in Gujarat	Ahmedabad, 14 June 2010.
13	Discussions on collaborative project with Scientists of SAC	
14	Project Review Meeting on A value chain on oceanic tuna fishing in Lakshadweep	CMFRI, Kochi, 24 June 2010.
15	Third Meeting of the Committee for revalidation of the Potential Yield of Indian EEZ(CPRY-EEZ)	CMFRI, Kochi, 26 June 2010.
16	Training workshop on Scientific Methods and Writing at CIFNET	Kochi, 5-6 July 2010.
17	Inaguration of the IN-FISH Festival 2010 at NFDB	Hyderabad, 8 July 2010.
18	Valedictory session of the Training on Scientific Methods and Writing at CIFNET	Kochi, 10 July 2010.
19	Seventh Meeting of Technical Monitoring Committee for the Central Sector Scheme on Strengthening of Database and GIS for Fisheries Sector	Goa, 13 July 2010.
20	Discuss on with Zonal Director, Port Blair Base & Dr. Beena Kumari, SAC on Collaborative Project with SAC	Chennai, 19 July 2010.
21	Meeting on NAIP Project on Oceanic Squids	CMFRI, Kochi, 12 August 2010.
22	Discussion with Director, CMFRI on Stock Assessment Training for BOBP-member Nations	
23	Fourth Meeting of the Expert Committee for Revalidation in the Indian EEZ (CRPY-EEZ)	CMFRI, Kochi, 12-13 August 2010.
24	Meeting with Mastyafed officials for deepsea fishing vessel acquisition	Kochi, 17 August 2010.
25	Transboundary Diagnostic Analysis Consultation Planning Workshop of the BOBLME Project.	Bangkok, Thailand, 24-25 August, 2010.
26	Preparatory Workshop on Work in Fishing Sector Convention (C-188) with all Stakeholders in joint collaboration with M/o. Labour & Employment, D/o Animal Husbandry, Dairying & Fisheries and ILO	Kochi, 31 August 2010 & 1 September 2010.

Fishery Survey of India

Sl. No.	Event	Venue/Date
27	Final meeting of the Committee for Revalidation of the Potential Yield of Indian EEZ (CRPY-EEZ)	CMFRI, Kochi, 6-7 September 2010.
28	Meeting on Half Yearly Review of Operational and Scientific Activities (ROSA)	Chennai, 17-18 September 2010.
29	Discussions at the Ministry and Union Public Service Commission	New Delhi, 22 September 2010.
30	Hearing at Central Information Commission	New Delhi, 23 September 2010.
31	Signing of MoU of WIN Project at NIO	NIO, Goa, 4 October 2010.
32	Discussion about Tuna data update with Dr. M.E. John, Zonal Director, Mormugao Base	
33	Workshop on improving Communication Skill (BOBP-IGO)	Chennai, 25-26 October 2010.
34	Meeting on study of FAD related Fishery in Maldives at BOBP-IGO	
35	International Workshop on Climate Change and Island Vulnerability at Kadmat	Kadmat, Lakshadweep 28-31 October 2010.
36	International Consultation on DNA Bar Coding organized by CIFE, IFA and NBFGR, Lucknow	Pusa, New Delhi 6-7 November 2010.
37	Inspection of the proposed Fishing Harbour site	Murud-Jangira, 14 November 2010.
38	Meeting of PFZ Mission Advisory Committee	Ratnagiri, 15 November 2010.
39	Meeting of Fisheries Assessment Working Group and National Task Force of BOBLME Project	Chennai, 25-26 November 2010.
40	Seminar and Exhibition on Marine Biodiversity and Sustainable Utilisation	Goa, 30 November 2010.
41	Workshop on Census on Marine Life	CMLRE, Kochi 1 December 2010.
42	Seventh meeting of Working Group on IOTC matters	New Delhi, 2 December 2010.
43	MLR Symposium organised by CMLRE	Kochi, 3 December 2010.
44	Meeting of the Committee for decommissioning of MFV Sugundhi at MED.	
45	Thirteenth Session of the Scientific Committee of the Indian Ocean Tuna Commissioner	Victoria, Seychelles, 6-10 December 2010.
46	Meeting of Working Group for review and revision of data on tuna for submission to the IOTC	Kochi, 28 December 2010.
47	Discussion with State officials regarding BOBLME TDA Workshop	Chennai, 4 January 2011.
48	NNRMS SC-OM Meeting at NIOT	

Fishery Survey of India

Sl. No.	Event	Venue/Date
49	Discussion with state officials regarding BOBLME TDA Workshop	Port Blair, A & N, 5 January 2011.
50	Discussion with state official regarding BOBLME TDA Workshop	Kolkota, 7 January 2011.
51	Meeting convened by Joint Secretary (Fisheries) to discuss issues vis-à-vis Agenda of the COFI Session	New Delhi, 12 January 2011.
52	TDA CWS of BOBLME Project at Andaman & Nicobar Islands.	Port Blair, 24 January 2011.
53	Discussion with state officials for making arrangements for TDA CWS	Pondicherry, 26 January 2011.
54	Policy document verification meeting of BOBLME project	Chennai, 27-28 January 2011.
55	TDA CWS of BOBLME Project for Tamil Nadu & Puducherry	Puducherry, 7 February 2011.
56	Inter-Ministerial meeting on India-Sri Lanka Fisheries Co-operation.	Chennai, 8 February 2011.
57	Inter-Ministerial Empowered Committee Meeting of the Ministry of Agriculture DAHD & F	New Delhi, 14 February 2011.
58	Special Session of IOTC on Allocation Criteria	Nairobi, Kenya, 16-18 February 2011.
59	Annual Review of Operational and Scientific Activities (ROSA) meeting of FSI	Goa, 23-24 February 2011
60	Review progress of IWIN project and discussions about collaborative programme at NIO	NIO, Goa, 25 February 2011.
61	Committee meeting to discuss the reactivation / closure of Porbandar base of FSI	Porbandar, 1 March 2011.
62	Discussions at Gujarat Maritime Board and Fisheries Department, Govt. of Gujarat	Ahmedabad, 3 March, 2011
63	IOTC Compliance Committee meeting	Colombo, Sri Lanka 13-16 March 2011.
64	Consortium Advisory Committee meeting of the NAIP Projects at CMFRI	Kochi, 28 March 2011.
65	Discussion with officials of MPEDA, Kochi on using FSI longliner for training purpose	

13.2.2 Engagement of scientist

Sl No.	Participant(s)	Event	Venue and Date
1	Shri P. S. Parasuraman	Meeting of finalizing the NAIP scheme on supply of manual reel to mechanized fishing boats FRP vallam fishermen for tuna long line fishing.	Chennai, 26 April 2010 .
2	Dr A. Anrose Shri G. Nagarajan	Meeting for Fisheries Management for sustainable Livelihoods (FIMSUL)	NIOT, Chennai, 10 May 2010.
3	Shri Premchand Shri D. K. Gulati	Participated in Indian Aqua Inquest Congress and Expo-2010	CIFE, Mumbai, 26-28 May 2010.
4	Dr L. Ramalingam	Meeting of review of Tuna Mission 2009-14	Port Blair, 15 June 2010.
5	Dr L. Ramalingam Shri H. D. Pradeep,	Meeting of synergic effort towards the Vocational Training in Fisheries	Port Blair, 28 July 2010.
6	Dr Vinod Kumar	Workshop on Effective Communication	Bandos Island, Maldives. 28-30 July 2010.
7	Dr M. E. John	Forth meeting of the working group for revalidation of potential yield of Indian EEZ (CRPY- EEY)	CMFRI, Kochi, 12-13 August 2010.
8	Dr L. Ramalingam Dr A. B. Kar	Meeting on Final Draft Action Plan for Port Blair	Port Blair, 20 August 2010.
9	Shri B.C.Varghese Shri A.Tibritius	Workshop on Hygienic Management of Fishing harbors and fish landing centers	Kochi, 2-3 September 2010.
10	Dr M. E. John	Fifth meeting of the working group for revalidation of potential yield of Indian EEZ (CRPY- EEY)	CMFRI, Kochi. 5-9 September 2010
11	Dr A. K. Bhargava Shri R. S. Nagpure	Seminar on Ecosystem and biodiversity: Goan Prospective	ICAR Complex, Goa 4 September 2010
12	Dr L. Ramalingam Shri Dharmavir Singh	Meeting on Consultancy on Extension of Fish Landing Jetty at Junglighat by 75mts	Port Blair, 1 September 2010.
13	Miss. Rajasree Sanadi	Winter school on Vistas in Marine Biotechnology	CMFRI, Kochi 5-26 October 2010.
14	Shri K. Govindaraj	Meeting on selection of fishermens for study tour to mainland	Port Blair, 15 October 2010.
15	Dr A. Anrose	IOTC working party on Tropical Tunas (WPTT)	Seychelles, 18-25 October 2010.
16	Dr A. K. Bhargava	Meeting on Bay of Bengal Large Marine Ecosystem programme- Fisheries Assessment Working Group	Chennai, 25 November 2010
17	D. L. Ramalingam Dr A. B. Kar	Meeting of Supply of Deep Freezer on 50% subsidy to Fishers/Tribes in A & N Islands under RKVY	Port Blair, 19 November 2010.
18	Shri Ashok Kadam	Meeting on Rural programmes Advisory Committee under Mass Media Support to Agriculture Extension	Mumbai 26 November 2011
19	Shri Ashok Kadam	Summer on Marine Biodiversity and Sustainable utilisation	Mormugao, 30 November 2010.
20	Dr M. E. John	Meeting of Working Group for Monitoring and Review of Implementation of IOTC Resolution	New Delhi, 2 December 2010.

Fishery Survey of India

Sl No.	Participant(s)	Event	Venue and Date
21	Shri Premchand Shri Ashok S. Kadam Shri. Ashok Khita	Seminar on Esri India Nature wide Geo- vision	Mumbai, 9 December 2010
22	Dr M. E. John	Meeting of Working Group to review and Revision of data on submission to the IOTC	CMFRI, Kochi, 28 December 2010.
23	Dr L. Ramalingam Shri H. D. Pradeep	Meeting on DBT Project on Mapping of Plant Resources in Andaman and Nicobar Islands	Port Blair, 27 December 2010.
24	Dr L. Ramalingam Shri H. D. Pradeep	Seminar on Marine Wealth-Fishery	Port Blair, 29 December 2010.
25	Dr A. B. Kar	Meeting for supply of insulated Ice Boxes on subsidy to Fishers of A & N Islands	Port Blair, 15 December 2010.
26	Shri S. M. Patil	Meeting on Krishivani	Mumbai, 12 January 2011.
27	Dr A. Anrose	Bay of Bengal Large Marine Ecosystem (BOBLME) project Policy Document Verification Meeting	Chennai, 27-28 January 2011
28	Dr S. K. Naik Shri K. S. N. Reddy Dr Ansuman Das Shri A. Siva Shri S. K. Pattnayak Shri V. Uma Mahesh	Workshop on Packaging of fresh and processed fish and sea foods	Visakhapatnam, 22 January 2011.
29	Dr L. Ramalingam	Meeting of the organizing committee of TIECON 2011- International Conference on "Tropical Island Island Ecosystems- Issues related to livelihood, sustainable development and climate change	Port Blair, 10 January 2010.
30	Shri K. Govindaraj, Shri H. D. Pradeep,	Meeting of Journal of Andaman Science Association	Port Blair, 15 February 2011.
31	Dr L. Ramalingam Dr A. B. Kar,	International Conference on Tropical Island Ecosystems: Issues related to livelihood, sustainable development and climate change	Port Blair, 23-26 March 2011.
32	Shri K. S. N. Reddy	Workshop on INCOIS Ocean Information Dissemination System and Potential Fishing Zone	Visakhapatnam, 1 March 2011.

13.3 Visitors / delegation

Visitors	Position/Address	Date of Visit
Mumbai Base		
Shri O. P. Agrawal	Regional Director, Staff Selection Commission, Mumbai	24 September 2010.
Chennai Base		
Shri K.Sellamuthu	Commissioner of Fisheries, Govt. of Tamil Nadu	22 March 2011
Visakhapatnam Base		
Dr R. Mishra Dr N. Tripathy	OUAT, Rangailunda, Berhampur, Odisha	11 May 2010
Shri Vishnu Bhat	Fisheries Development Commissioner, Ministry of Agriculture, Dept. of Animal Husbandry, Dairying & Fisheries, New Delhi	24 November 2010
Shri Balbir Singh Hundal	Senior Manager, Suvarna Rekha Exports Pvt.Ltd, Visakhapatnam	25 November 2010
Shri Shankar Prasad Das	J. M. D Exports, Kolkata	22 December 2010
Dr Arabindo Ghosh	Head, Department of Zoology, Vidyasagar College, West Bengal along with faculty members and 31 students of B.Sc final year	10 January 2011
Dr B. Siva Kumari	Loyala College, Vijayawada along with three colleagues and 57 students of final year B. Sc.	10 January 2011
Port Blair Base		
Dr Beena Kumari	Scientist, Space Application Centre (SAC), Ahmedabad.	22 July 2010
Dr Anthony Fernando	Professor (Retd)., CAS in Marine Biology, Annamalai University, Porto Novo, Tamil Nadu	22 July 2010
Dr Olivia Fernando,	Professor, CAS in Marine Biology, Annamalai University, Porto Novo, Tamil Nadu	26 July 2010
Shri R. Veeriah,	Deputy Director, Directorate of Shipping Services, Andaman and Nicobar Administration, Port Blair	14 November 2010
Dr S. Kannaiyan	Senior Advisor and Chairman Advisory Board, PRIST University, Thanjavur	22 January 2011
Shri V. K. Das	Sr Hindi Officer, State Bank of India, Port Blair	15 March 2011

Fishery Survey of India

13.4 Participation in the conference/trade fair/exhibition

Fishery Survey of India participated in the following national and international exhibitions/trade fairs. During these exhibitions models of various type of fishing boat, gears, charts on survey activities, survey fleet, fishing methods and fishery resources. etc. were displayed. These exhibition benefitted scientists, executive, teachers, students, farmers and general public.

Title	Organized by	Place/Period
Indian Fish Festival -2010	National Fisheries Development Board (NFDB), Dept. of Animal Husbandry, Dairy and Fisheries, Ministry of Agriculture.	Hyderabad, Andhra Pradesh, 9-12 July 2010.
BENAQUA 2010	Govt. of West Bengal in collaboration with the National Fisheries Development Board.	Kolkata, West Bengal, 1- 4 October 2010.
India International Trade Fair	Indian trade promotion organization (ITPO).	New Delhi 14-27 November 2010.
Maha Fish Festival-2010	Govt. of India in collaboration with National Fisheries Development Board, Hyderabad.	Mumbai, Maharashtra, 26-28 December 2010.
International Year of Biodiversity	Visakhapatnam Base, Fishery Survey of India.	Visakhapatnam, Andhra Pradesh, 28-30 December 2010.
Academic Exhibition	Andhra University, Andhra Pradesh.	Visakhapatnam, 12-16 February 2010
Aqua Aquaria India	Marine Products Export Development Authority, Kochi	Chennai, Tamil Nadu 6 - 8 February 2011
Matsya Mela 2011	Dept. of Fisheries Govt. of Karnataka	Banglore, Karnataka 18-21 February 2011
Fish Festival 2011	Govt. of Kerala in collaboration with the National Fisheries Development Board.	Thiruvananthapuram, Kerala. 24-28 February 2011
Marine Fisheries Exhibition	Fishery Survey of India (HQ)	Mumbai, Maharashtra, 28 February 2011



FSI participated in National Fish Festival 'BENAQUA 2010' held at Kolkata, West Bengal during 1-4 October, 2010.

FSI participated in India International Trade Fair, held at New Delhi during 14-27 November 2010



Shri. Tarun Shridhar, IAS, Joint Secretary to the Govt. Of India visited the FSI stall at 'Maha Fish Festival' at Mumbai during 26-28 December, 2010.

Inauguration of the seminar on 'International Year of Biodiversity-2010' organised by FSI at Visakhapatnam during 28-30 December, 2010



Fishery Survey of India

Fisherman Rally

Port Blair



To create awareness among the local fishermen of Bambooflat and Hope Town Gram Panchayat about the optimum utilization of fishery resources, the advanced longline technology and the Code of Conduct for Responsible Fisheries and also to save the marine environment, Fishery Survey of India organized a fishermen rally at the Panchayat Hall of Hope Town Gram Panchayat on 8 November 2010. About 80 fishermen took part in the rally holding the placards of the

slogan written in Hindi on conservation of marine wealth and code of conduct for responsible fisheries.

Akashwani

Shri L. Ramalingam, Zonal Director, Port Blair Base of FSI delivered a talk on *FSI's activities, abundance of oceanic and perch resources in Andaman and Nicobar waters* at All India Radio which was broadcast under *Krishi Darshan* programme through AIR, Port Blair

13.5 Workshop/open house conducted by the institute

As a part of the extension activities, Fishery Survey of India's Bases organized regional workshops/ open houses at major marine fish landing centres in the maritime States.

Mumbai Base

A one day workshop on *Marine Fishery Resources of Maharashtra and Diversified Fishing Methods* was organised at College of Fisheries, Shirgaon, Ratnagiri on 16 December 2010 for the benefit of local fishermen. The workshop was inaugurated by Capt. Vinayak Ingale, Regional Port Officer, Maharashtra Maritime Board, Ratnagiri. 120 fishermen and 50 students attended the workshop.

Mormugao Base

Workshop on *Marine Biodiversity and sustainable utilization organized* at Fishery Survey India, Mormugao on 30 November 2010. Dr V. N. Nayak, Chairman, Dept. of Marine Biology, Karnataka University, P. G. Centre, Karwar was the Chief Guest. A chart on Marine Fishery Resources of the Indian EEZ prepared by Fishery Survey India was released on the occasion. During workshop, exhibition was arranged and two documentary films viz. *Cometh the Season* and *By-catch to big catch* produced for Fishery Survey India were screened for the benefit of the participants. About 75 participants including students, faculty members from Goa University and Karnataka University PG Centre, ICAR Research Complex, Goa, Goa State Fisheries Deptt., Dhempe College of Arts & Science, Panaji, Mormugao Port Trust.

Launching Ceremony of International Year of Biodiversity

In association with FSI (HQ), Mormugao Base organised a Launching Ceremony of the *International Year of Biodiversity* at the International Centre, Dona Paula, Goa on 13 July 2010. Prof. P. V. Dessai, Dean, Dept. of Life Science & Environment Goa University was the Chief Guest and Shri S. C. Verenkar, Director of Fisheries; Govt. of Goa was the Guest of Honour. Dr. K. Vijayakumaran, Director General, Fishery Survey India presided over the function.

A poster on the theme *Save Biodiversity for Sustainable Development* was released on this occasion. About 48 participants from, Ministry of Agriculture DAHD & F, New Delhi, Director, IASRI, New Delhi, Director of Fisheries, A & N Islands, Dept. of Fisheries, Goa, Maharashtra & Uttar Pradesh, faculty members of Goa University and Scientists National Informatic Centre, Goa, CMFRI, Cochin, CIFRI, Barrakpore, ICAR Complex, Goa attended the function.

Fishery Survey of India

Chennai

A one-day regional workshop on *Marine fishery resources of lower east coast of Tamil Nadu* was organized by Chennai Base on 27 September 2010 at Fisheries Training centre, Karikal, Puducherry U/T in co-ordination with the State Fisheries of Puducherry for the benefit of local fishermen. About 122 fishermen attended the workshop.

A one-day regional workshop on *Marine fishery resources of south Andhra Pradesh coast* was organized by Chennai Base of FSI on 18 March 2011 at Nizampatnam fishing harbour in co-ordination with the State Fisheries of Andhra Pradesh for the benefit of local fishermen. About 150 fishermen attended the workshop.

Port Blair Base



A one-day regional workshop on *Marine fishery resources of Andaman & Nicobar Islands* was organized in association with Department of Fisheries, A & N Administration at Hope Town Gram Panchayat Hall on 08 November 2010 to create awareness among the local fishermen of Bambooflat, Hope Town and North Bay about the optimum utilization of fishery resources, the technology to exploit the abundant oceanic resources, the code of conduct for responsible fishery and also to save the marine environment. The workshop was inaugurated by Shri B. Laxminarayan, Up Pramukh, Ferrargunj Tehsil. 120 fishermen along with PRI members from Bambooflat, Hope Town and North Bay fishing villages attended the workshop.

Open houses

Mumbai Base

An exhibition-cum-open-house was organized during the workshop on *Marine Fishery Resources of Maharashtra and Diversified Fishing Methods* at College of Fisheries, Shirgaon, Ratnagiri on onboard the survey vessel *Matsya Vrushti* on 16 December 2010, wherein the monofilament tuna longline gear, navigational equipments fitted onboard the vessel as well as the catch of oceanic tuna and allied resources were exhibited to the public. The exhibition was visited by around 300 people comprising local public, fishermen and students.

Chennai Base

As a part of the celebration of the *International year of Biodiversity 2010* an Open House and inter college quiz competition on *Marine Biodiversity* was organized by Chennai Base on 15 December 2010 at Chennai Base office for the benefit of local

Fishermen, school children, college students and public. About 520 people participated in the Open House.

An Open House was organized on 11 March 2011 at St. Joseph High School, Pulicat, Tamil Nadu for the benefit of local fishermen, school children and public. Nearly 1500 students from various schools from Pulicat and college students from Chennai and general public benefitted from the Open House.

Visakhapatnam Base

A one-day Open house was conducted on 9 November 2010 on board MFV Matsya Shikari and Matsya Darshini for the benefit of academia, fisheries professionals, fishing industries and local fishermen. Participant were explained about the FSI activities, availability of fishery resources in east coast, operational methodology of different fishing gears and use of navigational equipments.

Port Blair Base



Port Blair Base organized an Open House onboard MFV Blue Marlin on 06 January 2011 at Havelock Jetty, Havelock Island for the benefit of the school students, local fishermen and general public. Various charts and photographs depicting the information on fish and fishery resources of Andaman and Nicobar Islands, models of fishing gears, fishing equipments, fishing gear accessories, various commercial fishing

methods, life saving appliances, oceanographic instruments were on display.

13.6 Hindi Official Language Activities

13.6.1 Hindi workshop and seminar

Mumbai (HQ)

A one-day Hindi workshop was organized on 21 September 2010 to motivate and assist the staff to work in Hindi. Dr. Sunita Yadav, Assistant Director, Hindi Teaching Scheme was invited to deliver lecture on *Standard Devnagari Script, Standard spellings & grammar*. Twenty officials participated in the workshop.

A one-day Hindi Workshop was organized on 4 February 2011 to motivate the Officers to work in Hindi. Dr. Sunita Yadav, Assistant Director, Hindi Teaching Scheme, New Mumbai delivered a Lecture on *Hindi noting*. She stressed on implementation of Official Language Act, as per targets fixed for the Annual Programme.

Mumbai Base

Hindi workshop was organized by Mumbai Base on 17 September 2010. Thirty staff members attended the workshop.

Mormugao Base

Three Hindi Workshops on implementation of Official Language were conducted (on 4 October 2010, 11 November 2010 and 2 February 2011) at the Base. Shri Anant Shrimali and Smt. Sadhana Tripaty, Research Officer, Department of Official Language, Regional Implementation Office (West), Mumbai were the resource persons in the first and second workshop. Third workshop was on *Various aspects of Official Language Implementation*. Shri Rajendra Singh, Hindi Officer MPT, Mormugao, Shri Rakesh Sharma, Hindi Officer, NIO, Dona Paula, Goa, Shri R. C. Mehto, Assistant Director (OL), Central Excise Department, Panaji and Shri Inteas Ali, Supervisor (OL) Airport Authority of India, Dabillim, Goa were the resource persons.



Cochin Base

Four Hindi workshops were organized (on 22 June 2010, 11 August 2010, 14 December 2010 and 20 January 2011) at the Base. All together 32 employees participated in these workshops.

Chennai Base

Two Hindi workshops were organized on 30 August 2010 and 18 December 2010. The second workshop was on *Hindi Varnamala*. Shri Komal Singh Chowdary, Assistant Director Hindi Teaching Scheme, Chennai was the resource person in both workshop.

Visakhapatnam Base

Three Hindi workshops on *implementation of Official Language* were conducted (28 June 2010, 27 September 2010 and 31 March 2011) at the Base. Shri Srimannarayana, Asst. Director (Hindi Cell), Income Tax Office, Visakhapatnam, Shri Sarat Chandra Jha, Asst. Director and Dr Rita Trivedi, Hindi Teacher of Hindi Teaching Scheme were the resource persons.



Port Blair Base

For effective implementation of Official Language, a one-day Hindi workshop on *Official works in Hindi with the help of computer* organized on 21 December 2010. Dr Sanjeev Verma, Sr. Scientist, CARI, Port Blair was the resource person. A second workshop was organized on 15 March 2011 and Shri Vijay kumar Das, Sr. Hindi Officer, State Bank of India, Port Blair delivered a lecture on the *importance of Hindi in Nation building*.

13.6.2 Hindi Day and Hindi Fortnight Celebration

Mumbai (HQ)

The Fishery Survey of India observed *Hindi Day* on 14 September 2010 and Hindi Fortnight from 14 -28 September 2010. The inaugural function of *Hindi Day* was presided over by Dr. K. Vijayakumaran, Director General, FSI. Shri Premchand,



Dy. Director General (Fy.) read out the 'Appeal' on the occasion of *Hindi Day* received from the Hon'ble Home Minister, Shri P. Chidambaram. During the Hindi Fortnight six competitions were conducted on the curriculum viz. (1) Hindi essay writing (2) Hindi terminology ((3) Hindi poem writing (4) Hindi dictation (5) Hindi poem recitation (6) General knowledge quiz.

A total of Thirty Staff members participated in the competitions enthusiastically. The valedictory function of the *Hindi Fortnight* was held on 28 September 2010. Shri Karan Singh, Assistant Director, Hindi Teaching Scheme, New Mumbai was the Chief Guest.

Mumbai Base

Hindi Day and Hindi Fortnight were organized during 14-28 September 2010. The main function was held on 24 September 2010. Shri. O. P. Agrawal, Regional Director, Staff Selection Commission, Mumbai was the Chief Guest of the function.



Fishery Survey of India

Mormugao Base

Hindi Fortnight was observed from 14 - 28 September 2010. Dr V. P. Sharma, Principal, Kendriya Vidyalaya, Vasco was the Chief Guest and Dr. M E John, Zonal Director presided over the function. *News Reading in Hindi* and other competitions were conducted during the 15 day programme. Valedictory function was held on 28 September 2010. Lt. Col. T M Sharma, Additional Director General (Admn.), Goa Shipyard Limited, Vasco and Shri Rajendra Singh, Hindi Officer, MPT were invited as chief guest and special guest respectively. Departmental Hindi magazine *Matsyakeerti* 2nd issue was released by the guests.



Cochin Base

Hindi Fortnight was observed from 1 -13 September 2010. During the fortnight various Hindi competitions were conducted for the officers and staff members. Valedictory function held on 13 September 2010. Smt. Indira Devi, Deputy Director, (Official Language) Marine Product Export Development Authority (MPEDA), Cochin, was invited as chief guest.

Chennai Base

Hindi day was celebrated on 14 September 2010 and *Hindi fortnight* was observed from 14 - 28 September 2010. Shri. Devadasan, Dy. Director, Officer in-charge, CIFNET, Chennai was the chief guest.

Visakhapatnam Base

Hindi Fortnight was celebrated from 8-22 September 2010. During fortnight various competitions in Hindi were organised. The chief guest of the valedictory function was Shri. V. Srimannarayana, Asst. Director (Hindi Cell) Income Tax Department Visakhapatnam.

Port Blair Base

Hindi Fortnight was celebrated from 14 - 28 September 2010. The function was inaugurated by Shri R. Veeriah, Deputy Director, Directorate of Shipping Services, Andaman and Nicobar Administration. During the Fortnight various competitions like speech, noting and drafting, translation and extempore speech were conducted. Besides, a Hindi Workshop was also conducted on 27 September 2010. Shri. Ashok Singh, Sr. Teacher, Radio Commentator, News Reader and Renowned Hindi poet of the Island was the resource person. On this occasion, he emphasized on Hindi typing in computer and information on popular Hindi websites. The valedictory function of the Hindi Fortnight was held on 28 September 2010.

13.6.3 Participation in TOLIC Meetings/Workshops

Participant(S)	Meeting/workshop attended	Venue and Date
Dr K. Vijayakumaran Smt. Meera Vellan Rajiv	Meeting of Town Official Language Implementation Committee (TOLIC)	Churchgate, Mumbai, 27 April 2010.
Shri Premchand Smt. Meera Vellan Rajiv	Meeting of Town Official Language Implementation Committee (TOLIC)	Churchgate, Mumbai, 2 November 2010.
Shri A. V. Tamhane	Intensive Hindi workshop	New Delhi, 22-26 November 2010.
Dr M. E. John B. L. Anjana	Half yearly review meeting of Town Official Language Implementation Committee(TOLIC)	MPT, Mormugao, 19 November 2010.
Shri B. C. Varghese	Meeting of Town Official Language Implementation Committee (TOLIC)	Cochin, 30 November 2010.
Shri A. B. Kishore	Training in Hindi Language	Navi Mumbai, 7 October 2010 to 3 November 2010.

13.6.4 Awards

Prashasthi Patra and Aashirwad Smriti chihn

Smt. Meera Vellan Rajiv, Jr. Hindi Translator, FSI (HQ) was honoured with *Prashasthi patra* and *Aashirwad Smriti Chihn* for contribution in implementation of Hindi in official work. The prize was received by her in the Aashirwad 19th Rajbhasha Sammelan held on 29 October 2010 at Goregaon, Mumbai.

Aashirwad Rajbhasha Puraskar for Mumbai (HQ)



The Fishery Survey of India won the *Aashirwad Rajbhasha Smriti Chihn* as Second prize for doing more work in Hindi among the small Central Govt. Offices located in Mumbai. The puraskar was received on 19 November 2010 in the 19th Aashirwad Rajbhasha prize distribution function held at Films Division, Mumbai.

Rajbhasha Dakshata Shield for FSI (HQ), Mumbai.

Fishery Survey of India, Mumbai received *Rajbhasha Dakshata Shield* sponsored by Town Official Language Implementation Committee, Mumbai for Official Language Implementation among small Central Govt. Offices located in Mumbai on 2 November 2010 at Western Railway (HQ) Churchgate, Mumbai.

Fishery Survey of India

Shield for Mormugao Base

Mormugao Base bagged the shield for *Best Implementation of Official Language Policy of the Union* during the year 2008-09 from the Town Official Language Implementation Committee, Goa. The shield was presented at the half yearly review meeting of the Town Official Language Implementation Committee, (TOLIC) on 19 November 2010.

Rajbhasha Rolling Trophy for Cochin Base

Cochin Base of FSI was awarded the second prize for excellent performance in the field of Official Language Implementation among the Central Govt. offices for the year 2009-10.

Training in Hindi Typewriting

Shri B. L. Anjana, Jr. Hindi Translator and Shri Vishal K. Kharat, Lower Division Clerk passed Hindi typewriting examination under Hindi Teaching Scheme during July 2010 and August 2010 respectively

Participation in Rajbhash Prashnmanch

Shri Ashok Kadam, Jr. Fisheries Scientist & Smt. Sunita N. Motwani Jr. Stenographer Gr.II participated in *Rajbhasha Prashnmanch* held on 27 August 2010 at Western Railway HQ, Churchgate, Mumbai.

Participation in Unicode training

Smt. Meera Vellan Rajiv, Jr. Hindi Translator and Shri Vishal K. Kharat, Lower Division Clerk participated in Unicode training on Computer held at Western Railway HQ., Churchgate, Mumbai on 22 December 2010 and 17 March 2011 respectively.

Shri Ashish Kumar, Data Processing Assistant and Shri Subhrajit Das, Stenographer Gr. II. FSI (HQ) participated in the training for working in Hindi on Computer by using Unicode Software organized by Official Language and the Department of Information Technology held during 17-21 January 2011 at NPTI, Nagpur.

14. CO-OPERATION AND ASSOCIATION WITH NATIONAL AND INTERNATIONAL ACTIVITIES

The Director General /his representatives served in the following committees :

1. Research Advisory Committee (RAC) for Central Institute of Fisheries Education, Mumbai
2. Committee to consider the proposal for introduction of Vessel Monitoring System (VMS)
3. National Co-ordinator of Bay of Bengal Large Marine Ecosystem (BOBLME) Project.
4. Committee on Devising Suitable Interventions to Improve the Quality of Marine as well as Inland Fisheries Products
5. Bombay Harbour Security Committee
6. Committee on Optimum number of Fishing Vessels
7. Committee on Empowerment of Women
8. Inter-Ministerial Empowered Committee on Marine Fisheries
9. Expert Committee on Fisheries-Natural Calamities-Damages to Fishing Crafts and Implements-Assessment of Damages to Mechanized Fishing Boats
10. The NNRMS Standing Committee on Ocean Resources and Meteorology
11. Working Group constituted for monitoring and review of implementation of Indian Ocean Tuna Commission resolution
12. Working Group for review and revision of data on tuna for submission to the Indian Ocean Tuna Commission.
13. Committee to assess the impact of the fishing ban and to review its duration
14. Working Group of Expert committee for revalidation of potential fishery resources in the Indian EEZ.
15. Scientific Advisory Committee of Centre for Marine Living Resources and Ecology (CMFLRE), MoE, Kochi.
16. Technical Advisory Committee of BOBP-IGO, Chennai

15. THE MANDATE OF FSI

The Fishery Survey of India, Mumbai, under the Ministry of Agriculture, Department of Animal Husbandry, Dairying and Fisheries is the nodal agency for carrying out the survey and assessment of the marine fishery resources of the Indian EEZ within the framework of a well defined mandate. The Mandate of the Institute is tuned from time to time to match with the developmental activities of the fisheries sector as well as to meet the national and global requirements.

The present mandate of the Institute as approved by the Evaluation Committee during 2007 is detailed below:

- † Exploratory surveys, charting of fishing grounds, assessment of fish stocks in the Indian EEZ and fishery adjoining high seas and research thereof besides the specific surveys on request from the States and Union Territories.
- † Data collection and periodic re-validation of potential of fishery resources to provide advice on fishery management issues enshrined in the national, regional and global conventions and agreements and other associated activities.
- † Monitoring surveys of fishery resources in the exploited areas including coral reefs, application of Monitoring, Control and Surveillance (MCS) for regulating fishing activities and promoting Code of Conduct for Responsible Fisheries(CCRF) in the Indian EEZ.
- † Maintain Data Bank and disseminate information on fishery resources to the end - users and act as an interface between the State/UTs and the Ministry of Agriculture, Government of India for Marine and Inland fish production and related aspects.
- † Assessment of suitability of fishing gear, accessories and equipment with special reference to the preservation of environment and ecology of marine habitat.
- † Fish stock identification and bio-diversity studies including application of genetic tools and techniques.
- † Marine Fisheries forecasting including application of remote sensing for the benefit of artisanal, mechanized and industrial sectors.
- † Human Resources Development through practical training of fishing operatives, fishermen, fisheries officers and students.

16. ABBREVIATIONS

YFT	: Yellowfin tuna
SKJ	: Skipjack tuna
MAR	: Marlin
SWO	: Sword fish
SAI	: Sail fish
SHA	: Shark
OTH	: Others
DOL	: Dolphin
BOBLME	: Bay of Bengal Large Marine Ecosystem
CCRF	: Code of Conduct for Responsible Fisheries
CIFNET	: Central Institute of Fisheries Nautical Engineering & Training
CIFRI	: Central Inland Fisheries Research Institute
CIFT	: Central Institute of Fisheries Technology
CMFRI	: Cental Marine Fisheries Research Institute
CMFLRE	: Marine Living Resources and Ecology
EEZ	: Exclusive Economic Zone
GIS	: Geographical Information System
GoI	: Government of India
IFCO	: International Foster Care Organisation
IITF	: India International Trade Fair
IMS	: Indian Meteorological Society
INCOIS	: Indian National Centre for Ocean Information Science
IOTC	: Indian Ocean Tuna Commission
IOTCSC	: Indian Ocean Tuna Commission Scientific Committee
ITPO	: India Trade Promotion Organisation
MCS	: Monitoring Control and Surveillance
NASC	: National Aeronautics and Space Council
NFDB	: National Fisheries Development Board
NIC	: National Informatics Centre
NIOT	: National Institute of Ocean Technology
PSC	: Project Steering Committee
RAC	: Research Advisory Committee
RALBAM	: Recent Advances in Lobster Biology, Aquaculture and Management
SAC	: Space Applications Centre
SAC-MLRP	: Scientific Advisory Committee on Marine Living Resources Programme
SIFT	: State Institute of Fisheries Technology
TOLIC	: Town Official Language Implementation Committee