



ANNUAL REPORT

2009-10



Fishery Survey of India
Department of Animal Husbandry, Dairying & Fisheries
Government of India
Mumbai

ANNUAL REPORT

2009-10



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

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ANNUAL REPORT 2009-10

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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	17
3.2 Pelagic Resource survey and monitoring	23
3.3 Oceanic tuna Resource survey	25
3.4 Experimental project	31
4. Physical Target & Achievements	33
5. Vessel-wise catches & values	34
6. Scientist participation in survey cruises	35
7. Fleet maintenance	37
8. Infrastructure facility	37
9. Training	38
10. Publications	41
11. Research activities	43
12. Administration and finance	46
13. Important events at Bases and Headquarters	
13.1 Meetings	53
13.2 Scientist participation in workshop / seminar / symposium & working parties	54
13.3 Visitors/ Delegations	58
13.4 Participation in conference / trade fair / exhibitions	60
13.5 Workshops/ open houses	62
13.6 Computerization of the Institute	64
13.7 Hindi Official Language Activities	65
14. Co-operation & Association with National & International Organizations	70
15. The Mandate of Fishery Survey of India	71
16. Abbreviations	72



INTRODUCTION

Fishery Survey of India (FSI), 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 2009-10. 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. Under the Central Sector Scheme on Strengthening of Database and Geographical Information System for Fisheries Sector, a handbook for field identification of fish species occurring in the Indian seas was published during the year.

The Institute continued to impart onboard training to the students sponsored by the CIFNET, Kochi on board survey vessels and training was also provided to fishermen in deep-sea fishing / tuna longlining.

During the year under report, 12 vessels of the Institute collectively achieved 1470 days at sea expending a sampling effort of 2576 hours and 170023 hooks. The incidental fish catch during the survey was 96.6 tonnes, realizing a revenue of Rs. 18.14 lakhs as the sale proceeds. The Budget grant of the Institute for the year 2009-10 was Rs. 49.35 crore and the expenditure was Rs. 47.57 crores.



2. OPERATIONAL BASES AND SURVEY VESSELS

The survey fleet of the Institute comprised of 12 vessels. Placement of these survey vessels and their major 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 Matsya Sugundhi	Trawler -cum-purse-seiner Stern trawler Longliner-cum-squid jigger	36.5 24 31.5	268.8 151 245.8	1160 500 650
Chennai Matsya Drushti Matsya 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 30-500 m depth
4. Experimental fishing using resource- specific trawls for cephalopods, pomfrets, polynemids, mackerel, horse mackerel, nemipterids, priacanthids, deep-sea shrimps and lobsters.
5. Mesh selectivity study with cod-end cover
6. Experiments for comparative study of fishing gear and vessel combination.
7. Experiments for assessment of fishing gear efficiency

Gear

- › 34 m fish trawl
- › 45 m shrimp trawl
- › Resource specific gear

Vessel **Matsya Nireekshani**

Base Mumbai

Project Co-ordinator Shri D. K. Gulati, Sr. Fisheries Scientist

Project Leader Shri A. K. Malik, Jr. Fisheries Scientist

Results

A. Catch per unit effort (kg/h)

Latitude (°N)	Gear/Depth zone(m)					
	Fish trawl			Shrimp trawl		
	30-50	50-100	100-200	30-50	50-100	100-200
18	55.17	-	-	-	70.6	-
19	66.33	78.86	-	-	-	320
20	186.17	80.22	39.67	164.67	42.67	-



B. Species composition(%)

Species/group	Gear/Depth zone(m)					
	Fish trawl			Shrimp trawl		
	30-50	50-100	100-200	30-50	50-100	100-200
Elasmobranchs	5.98	1.84	4.2	2.02	2.06	-
<i>Arius</i> spp	39.74	35.06	29.41	34.41	27.94	-
<i>Chirocentrus</i> spp	0.09	0.33	-	0.40	-	-
<i>Anchovies</i> spp	2.58	-	-	0.81	-	-
<i>Saurida</i> spp	0.18	0.83	-	-	4.12	2.08
<i>Priacanthus</i> spp	0.37	0.83	1.68	-	1.47	1.04
<i>Nemipterus</i> spp	2.94	2.50	1.68	1.21	7.65	-
<i>Epinephelus</i> spp	0.28	0.17	1.68	0.40	1.18	-
Other perches	9.38	5.18	4.20	22.27	16.18	-
Upenoids	0.64	1.00	16.81	2.02	0.59	-
<i>Sphyræna</i> spp	3.77	1.00	2.52	0.81	4.41	-
<i>Megalaspis cordyla</i>	4.42	3.01	-	0.81	2.06	-
<i>Decapterus</i> spp	0.37	15.36	3.36	0.81	1.47	93.75
<i>Trichiurus</i> spp	0.64	2.00	0.84	-	0.29	-
<i>Rastrelliger kanagurta</i>	10.49	9.35	21.01	26.32	7.35	0.21
Dagol	0.28	-	1.68	-	1.18	-
Lesser sardines	0.28	11.69	-	-	2.94	2.08
Dhoma	6.99	4.34	0.84	0.81	0.59	-
Ghol	2.21	1.34	-	2.02	5.29	-
Polynemids	1.66	0.67	-	2.43	1.76	-
Cephalopods	3.77	2.34	9.24	2.43	7.06	0.21
Other fishes	2.94	1.17	0.84	-	4.41	0.42

C. Salient observations

- » The highest catch rate of 320 kg/h was recorded in 100-200 m depth zone in lat. 19°N by using shrimp trawl, whereas in fish trawl the highest catch rate of 180.15 kg/h was obtained from 30-50 m depth zone of lat. 20° N.
- » It is observed that *Arius* spp were the most dominant component in all depth zone except 100-200 m depth operated by shrimp trawl.
- » In fish trawl operation *Arius* spp (39.74%), *Rastrelliger kanagurta* (10.49%) and Dhoma (6.99%) were the dominant group in the 30-50 m depth zone whereas in 50-100 m depth zone the catch was dominated by *Arius* spp (35.06%), *Decapterus* spp(15.36%), Lesser Sardines (11.69%)and *Rastrelliger kanagurta* (9.35%). In 100-200 m depth zone *Arius* spp (29.41%) and Upenoids (16.81%) were the dominant component.



- » In shrimp trawl operation in the depth zone of 30-50 m, the catch was dominated by *Arius* spp (34.41%) followed by *Rastrelliger kanagurta* (26.32%).
- » In 50-100 m depth zone the catch was mainly constituted by *Arius* spp (27.94%) Followed by *Rastrelliger kanagurta* (7.35%) and Ghol (5.29%). In 100-200 m depth zone *Decapterus* spp (93.75%) was the dominant group.

D. Biological studies

Length frequency studies were done on 14 species with a sample size of 2281 specimens and 24 species were examined for biological studies like sex, maturity stages and gut content analysis comprising of 2281 specimens.

E. Biomass estimation

Area : Latitudes 18 - 22° N

(in tonnes)

Species/group	Depth zone (m)		
	30-50	50-100	100-200
Elasmobranchs	2378	1598	183
<i>Arius</i> spp	17562	27073	1282
<i>Chirocentrus</i> spp	68	178	-
<i>Anchovies</i> spp	1019	-	-
<i>Saurida</i> spp	68	1687	366
<i>Priacanthus</i> spp	136	888	256
<i>Nemipterus</i> spp	1189	3639	110
<i>Epinephelus</i> spp	136	444	73
Other perches	5333	7634	183
Upenoids	408	710	733
<i>Sphyraena</i> spp	1461	1864	110
<i>Megalaspis cordyla</i>	1699	2219	-
<i>Decapterus</i> spp	204	8610	16633
<i>Trichiurus</i> spp	238	1154	37
<i>Rastrelliger kanagurta</i>	6080	7190	953
Dagol	102	355	73
Lesser sardines	102	7101	366
Dhoma	2650	2485	37
Ghol	985	2308	-
Polynemids	815	888	-
Cephalopods	1597	3373	440
Other fishes	1087	1953	110

**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 project

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)**

Latitude (°N)	Gear / Depth Zone (m)		
	Fish trawl		
	30 - 50	50 - 100	100 -300
12	-	10.33	6.49
13	43.83	10.67	-
14	9.85	23.26	-
15	21.19	32.86	-
16	44.64	38.17	-

B. Species composition (%)

Species/Group	Gear / Depth Zone (m)		
	Fish trawl		
	30 -50	50 -100	100 -300
Elasmobranchs	0.05	0.16	-
Clupeids	0.58	0.55	-
<i>Saurida</i> spp.	3.68	7.39	
<i>Priacanthus</i> spp	-	0.51	40
<i>Nemipterus</i> spp	10.14	9.93	-
<i>Epinephelus</i> spp	0.46	1.06	-
<i>Pampus</i> spp	1.62	0.31	-



Species/Group	Gear / Depth Zone (m)		
	Fish trawl		
	30 -50	50 -100	100 -300
<i>Sphyraena</i> spp	8.04	3.56	-
<i>Caranx</i> spp	0.89	0.78	-
<i>Megalaspis cordyla</i>	0.66	1.96	-
<i>Decapterus</i> spp	2.69	5.2	-
<i>Trichiurus</i> spp	13.97	9.07	-
<i>Rastrelliger kanagurta</i>	17.78	8.06	-
<i>Scomberomorus</i> spp	1.93	1.06	-
<i>Penaeus</i> spp	0.94	0.31	-
Cephalopods	9.58	18.07	40
Others	30.54	32.03	20

C. Salient observations

- » Highest catch rate of 44.64 kg/h was recorded from 30 -50 m depth zone in Lat.16°N.
- » *Rastrelliger kanagurta* (17.78%), *Trichiurus* spp(13.97%) and *Nemipterus* spp (10.14) were the major component in 30-50 m depth zone whereas Cephalopods (18.07%), *Nemipterus* spp (9.9%), *Trichiurus* spp (9.1%) and *Rastrelliger kanagurta* (8.0%) were dominated the catch from 50 -100m depth zone.
- » *Priacanthus* spp and Cephalopods were recorded from 100-200 m depth zone.

D. Biological studies

Length frequency data of 11 species with a sample size of 3993 specimens and biological data of 11 species with a sample size of 96 specimens were collected during the year.

E. Biomass Estimation

Area : Lat.12° N - 16° N

(in tonnes)

Species/Group	Depth Zone (m)		
	30 -50	50 -100	100 -300
Elasmobranchs	2	42	-
Clupeids	47	137	-
<i>Saurida</i> spp	294	1861	348
<i>Priacanthus</i> spp	-	128	348
<i>Nemipterus</i> spp	813	250	-



Species/Group	Depth Zone (m)		
	30 -50	50 -100	100 -300
<i>Epinephelus</i> spp	36	26	-
<i>Pampus</i> spp	128	77	-
<i>Sphyraena</i> spp	644	900	-
<i>Caranx</i> spp	70	197	-
<i>Megalaspis cordyla</i>	53	488	-
<i>Decapterus</i> spp	215	1312	-
<i>Trichiurus</i> spp	1118	2290	-
<i>Rastrelliger kanagurta</i>	1183	2033	-
<i>Scomberomorus</i> spp	112	265	-
<i>Penaeus</i> spp	75	77	-
Cephalopods	768	4555	-
Others	2448	977	174



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

Project components

1. Demersal fin fish 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 depth
3. Exploration of Shell fish resources in 30-500 m depth
4. Exploratory survey of cephalopod resources in 30-50 m depth
5. Experimental fishing using resources specific trawl for perches and nemipterids

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

Catch per unit effort (kg/h)

Latitude (°N)	Gear / Depth Zone (m)			
	Expo model fish trawl			Shrimp trawl
	30 - 50	50 - 100	100-200	200-500
7	49.42	279.00	131.50	690.00
8	156.86	98.40	955.03	156.27
9	210.83	192.64	192.64	269.67
10	111.25	141.37	-	77.11



B. Species composition (%)

Species/Group	Gear / Depth Zone (m)			
	Expo model fish trawl			Shrimp trawl
	30 -50	50 -100	100-200	200-500
Elasmobranchs	5.02	1.73	0.98	4.14
<i>Saurida</i> spp	3.22	3.92	0.01	0.42
<i>Priacanthus</i> spp	0.31	9.36	13.13	-
<i>Nemipterus</i> spp	8.39	9.83	3.35	-
Perches	0.86	1.33	0.02	-
Sciaenids	1.3	-	-	-
<i>Leiognathus</i> spp	0.26	0.47	-	-
<i>Sphyræna</i> spp	1.4	0.56	-	-
Pomfrets	0.8	0.63	-	-
<i>Caranx</i> spp	0.64	0.69	0.52	-
<i>Megalaspis cordyla</i>	0.46	0.51	-	-
<i>Decapterus</i> spp	8.02	2.45	-	-
<i>Rachycentron canadum</i>	-	0.07	-	-
<i>Trichiurus</i> spp	0.8	-	-	1.64
<i>Rastrelliger kanagurta</i>	1.12	0.52	-	-
<i>Scomberomorus</i> spp	0.29	0.06	-	-
Deep-sea fishes	0.01	5.18	10.93	57.99
Balistids	24.08	15.23	-	-
Deep-sea shrimps	-	0.16	14.06	3.75
Crabs	16.64	10.92	53.96	26.76
Cephalopods	4.14	13.42	0.11	2.55
Others	22.26	22.94	2.92	2.76

C. Salient observations

- » The highest catch rate of 955.03 kg/h was recorded from 100-200 m depth of lat 8°N by expo - model fish trawl followed by the catch rate of 690 kg/h from 200-500m depth of lat.7°N by shrimp trawl.
- » High catch rate of deep-sea fishes were recorded in 200-500 m depth zone of lat. 7°N during the year under report.
- » The Swimming crab (*Charybdis smithii*) was recorded in all depth zones and its contribution to the total catch was in the range of 11-54%. During February 2010 Cruise, in single haul about 5 tons of Swimming crab was recorded in 100-200m depth zone of lat.9°N



- » Specimen of *Neoharriota pinnata* belonging to the family *Rhinochimaeridae* was recorded during June and August 2009 cruises from lat. 10°N in 400-510 m depth zone. Besides, a single juvenile and an egg capsule were recorded during February 2010 cruise from the same area and depth zone. Occurrence of juvenile and egg capsule indicates that fish breed during the above period.
- » The catch composition of deep-sea resources was finfishes (63.77%), crustaceans (30.51%) and cephalopods (2.55%)

D. Biological studies

Length frequency data of 7 species with a sample size of 3485 specimen and biological data of 7 species with a sample size of 445 were collected during the year.

E. Biomass estimation

Area: Lat. 7° N - 10° N

(in tonnes)

Species/Group	Depth zone(m)			
	30 -50	50 -100	100-200	200-500
Elasmobranchs	1124	951	736	2996
<i>Saurida</i> spp	721	2150	8	301
<i>Priacanthus</i> spp	69	5139	9865	2
<i>Nemipterus</i> spp	1878	5397	2519	-
Perches	192	732	16	-
Sciaenids	291	-	-	-
<i>Leiognathus</i> spp	59	256	-	-
<i>Sphyræna</i> spp	313	310	-	-
Pomfrets	178	348	-	-
<i>Caranx</i> spp	143	376	392	-
<i>Megalaspis cordyla</i>	87	267	-	-
<i>Decapterus</i> spp	1795	1348	-	-
<i>Rachycentron canadum</i>	19	41	-	-
<i>Trichiurus</i> spp	179	2	-	1191
<i>Rastrelliger kanagurta</i>	250	285	-	-
<i>Scomberomorus</i> spp	65	33	-	-
Deep-sea fishes	-	2857	8208	41990
Balistids	5390	8363	-	-
Deep-sea shrimps	-	85	10563	2718
Crabs	3725	5995	40529	19381
Cephalopods	926	7368	85	1843
Others	4984	12593	2190	1996



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

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

Gear › 700 mesh fish trawl
› 28 m shrimp trawl

Vessel Lavanika

Base Kochi

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

Project Leader Shri J. E. Prabhakar Raj, Fisheries Scientist

Results

A. Catch per unit effort (kg/h)

Latitude (°N)	Gear / Depth Zone (m)	
	Fish trawl	
	30 - 50	50 - 100
8	26.25	51.35
9	50.64	42.33
10	78.90	25.00

B. Species composition (%)

Species/Group	Gear / Depth Zone (m)	
	Fish trawl	
	30 -50	50 -100
Elasmobranchs	2.77	14.08
<i>Chirocentrus</i> spp	0.82	-
<i>Saurida</i> spp	6.68	9.83
<i>Priacanthus</i> spp	0.04	0.85
<i>Nemipterus</i> spp	14.54	19.42
Perches	3.64	0.21
<i>Leiognathus</i> spp	7.25	0.13
<i>Sphyraena</i> spp	12.34	0.04
Pomfrets	0.25	-
<i>Caranx</i> spp	3.27	0.38



Species/Group	Gear / Depth Zone (m)	
	Fish trawl	
	30 -50	50 -100
<i>Megalaspis cordyla</i>	0.08	-
<i>Decapterus</i> spp	18.96	6.67
<i>Trichiurus</i> spp	0.4	1.05
<i>Rastrelliger kanagurta</i>	1.99	-
<i>Scomberomorus</i> spp	0.08	-
Balistids	4.17	3.1
<i>Sardines</i>	3.89	0.76
Cephalopods	6.22	2.36
<i>Crabs</i>	11.43	40.24
Others	0.42	0.89

C. Salient observations

- » The highest catch rate of 78.90 kg/h was recorded from 30-50 m depth zone of lat.10°N.
- » *Decapterus* spp (18.96%), *Nemipterus* spp (14.54%), *Swimming crabs* (11.43%) and *Sphyraena* spp (12.43%) were the major component recorded in 30-50 m depth zone.
- » In 50-100 m *Swimming crabs* constituted (40.24%) of the total fish catch followed by *Nemipterus* spp (19.42%), Elasmobranchs (14.08%)

**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
 - › Resources specific gear

Vessel M.F.V. Samudrika

Base Chennai

Project co-ordinator Shri P. Sivaraj, Zonal Director

Project leader Shri S. A. Rajkumar, Fisheries Scientist

Results**A. Catch per unit effort (kg/h)**

Latitude (°N)	Gear/ Depth Zone (m)				
	Fish trawl			Cephalopod trawl	Shrimp trawl
	30-50	50-100	100-200	30-50	200-300
10	33.43	15.74	1.09	18.47	1.93
11	52.62	8.62	1.04	21.64	2.06
12	19.86	8.93	1.73	41.57	0.66
13	23.9	17.88	155.55	43.07	-
14	20.72	24	3.33	92.66	6.76
15	24.35	44.69	8.57	45.48	0.88

**B. Species composition (%)**

Species/Group	Gear/Depth zone(m)				
	Fish trawl			Cephalopod trawl	Shrimp trawl
	30-50	50-100	100-200	30-50	200-300
Elasmobranchs	6.65	2.65	-	2.33	-
<i>Arius</i> spp	1.11	1.73	-	0.59	-
Clupeids	2.61	3.86	-	4.28	-
Anchovies	0.8	0.14	-	0.19	-
<i>Saurida</i> spp	0.2	0.14	-	0.04	-
<i>Priacanthus</i> spp	0.02	0.49	90.91	-	5.33
<i>Nemipterus</i> spp	1.09	7.43	0.29	1.97	-
Perches	5.79	7.95	-	2.34	-
Upenoids	17.2	4.09	-	1.01	-
<i>Leiognathus</i> spp	11.37	15.91	-	10.9	-
<i>Sphyræna</i> spp	1.63	1.52	-	0.94	-
Pomfret	9.3	7.72	-	7.6	-
<i>Megalaspis cordyla</i>	1.46	0.8	-	1.26	-
<i>Decapterus</i> spp	5.58	2.56	6	8.34	5.33
Other Carangids	13.47	14.99	-	13.6	-
<i>Trichiurus</i> spp	0.91	1.12	-	12.5	-
<i>Rastrelliger kanagurta</i>	8.65	4.2	-	12.06	-
<i>Scomberomorus</i> spp	0.76	0.51	-	0.28	-
Gerrids	1.02	0.63	-	0.51	-
Lesser sardines	2.26	4.03	-	4.02	-
Deep-sea fishes	-	-	1.52	-	25.33
Jelly fish	2.18	9.54	0.21	4.41	57.33
Polynemids	-	-	-	5.77	-
Cephalopods	3.42	6.63	-	3.61	-
Deep-sea shrimps	-	-	0.5	-	6.66
<i>Charybdis</i> sp	0.71	0.77	0.54	0.1	-
Others	1.74	0.46	-	1.24	-

C. Salient observations

- » Highest catch rate of 155.55 kg/h was recorded from 100-200 m depth zone of lat 13° N by using fish trawl.
- » Abundance of *Trichiurus* spp was observed about one tonne in a single haul in cephalopod trawl at the depth range of 42-45 m off Krishnapatnam during the month of May 2009.



- » More than two tonnes of *Priacanthus* spp was landed in a single haul off Pulicat at a depth range of 125-130 m during January 2010 and also about 700 kgs of polynemids was caught in a single haul from north off Krishnapatnam.

D. Biological studies

A total of 13,255 Nos. of specimens were subjected to length frequency analysis and biological studies of total 44 species comprising a sample size of 5387 specimens were carried out during the period.

E. Biomass estimation

Area: Latitude 10° N -15° N

(in tonnes)

Species/Group	Gear/Depth Zone(m)				
	Fish trawl			Cephalopod trawl	Shrimp trawl
	30-50	50-100	100-200	30-50	200-300
Elasmobranchs	166501	114937	-	28671	-
<i>Arius</i> spp	18441	28465	-	6494	-
Clupeids	51953	75177	-	50018	-
Anchovies	17932	2966	-	2943	-
<i>Saurida</i> spp	4533	3391	-	482	-
<i>Priacanthus</i> spp	867	7235	1472842	-	2930
<i>Nemipterus</i> spp	24592	119163	5340	31696	-
Perches	131201	221081	-	36273	-
Upenoids	676491	99269	-	15640	-
<i>Leiognathus</i> spp	261641	355425	-	165619	-
<i>Sphyræna</i> spp	35358	58146	-	12898	-
Pomfret	155289	158524	-	103758	-
<i>Megalaspis cordyla</i>	26986	13143	-	15704	-
<i>Decapterus</i> spp	139453	85346	109397	119875	4412
Other Carangids	272515	339293	-	180482	-
<i>Trichiurus</i> spp	20295	26377	-	131429	-
<i>Rastrelliger kanagurta</i>	236055	93212	-	177923	-
<i>Scomberomorus</i> spp	16993	17548	-	4231	-
Gerrids	23069	14598	-	7749	-
Lesser sardines	60027	74865	-	61879	-
Deep-sea fishes	-	-	20050	-	16862
Jelly fishes	32295	136098	9246	38243	29985
Polynemids	-	-	-	65037	-
Deep-sea shrimps	-	-	13902	-	5310
<i>Charybdis</i> sp	15720	14387	11546	1198	-
Others	29827	15664	-	21353	-

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

- | | |
|-------------------|---|
| Project component | <ol style="list-style-type: none"> 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 Shri Premchand, Zonal Director

Project leader Dr. S. K. Naik, Sr. Fisheries Scientist

Results

A. Catch per unit effort (kg/h)

Latitude (° N)	Gear/Depth zone(m)								
	Fish trawl			Shrimp trawl			Cephalopod trawl		
	30-50	50-100	100-200	30-50	50-100	100-200	30-50	50-100	100-200
16	78.40	51.50	52.4	12.00	36.00	0.80	69.70	132.6	6.7
17	75.50	41.70	1.70	121.4	115.4	34.8	54.80	135.8	2.0
18	126.7	98.70	-	77.90	202.9	-	206.4	225.8	-
19	213.3	317.3	2.0	191.3	121.6	-	-	-	-



B. Species composition(%)

Species / Groups	Gear/Depth zone(m)								
	Fish trawl			Shrimp trawl			Cephalopod trawl		
	30-50	50-100	100-200	30-50	50-100	100-200	30-50	50-100	100-200
Elasmobranchs	6.5	6.9	-	2.6	5.1	-	2.3	0.1	-
<i>Arius</i> spp	5.2	2.7	0.2	0.2	-	-	1.2	0.3	-
Eels	0.1	-	-	1.2	6.8	11.9	2.9	4.8	-
Clupeids	0.6	0.8	-	2.8	0.6	-	2.3	6.5	-
<i>Saurida</i> spp	2.8	10.8	-	-	-	0.4	-	1	-
<i>Priacanthus</i> spp	-	8.5	11.5	5.3	4.7	-	0.1	-	-
<i>Nemipterus</i> spp	1.7	6.3	0.2	4.7	1.4	-	5.6	0.7	-
Perches	2.4	5.9	-	9.5	3.8	-	0.8	0.2	-
<i>Pomadasys maculatum</i>	7.5	2.2	-	0.2	0.2	-	1	0.4	-
<i>Leiognathus</i> spp	27.8	8.2	-	-	-	0.1	-	-	2.8
<i>Ariomma indica</i>	-	0.9	-	12.7	11.9	-	-	0.4	-
<i>Sphyræna</i> spp	0.3	2.6	-	4.8	6.2	-	4.9	5.7	-
Pomfrets	0.2	0.1	-	0.2	0.8	-	3.5	3.6	-
Carangids	7	4.9	-	1.7	3.9	-	1.9	6	-
<i>Megalaspis cordyla</i>	0.3	0.4	-	1	0.1	-	0.6	0.4	-
<i>Decapterus</i> spp	0.2	3.3	84.4	0.5	0.2	-	0.2	-	-
<i>Rachycentron canadum</i>	0.1	0.1	-	0.7	3.6	9.8	2.6	42.3	94.2
<i>Trichiurus</i> spp	1.9	0.8	-	1.2	7	-	1.4	1.3	-
<i>Rastrelliger kanagurta</i>	0.6	3.8	-	0.7	3.4	-	0.4	4.6	-
<i>Scomberomorus</i> spp	-	0.3	-	21.7	22.3	-	20.3	9.8	-
Upenoids	21.1	16.4	-	2.4	1.4	-	0.1	4.3	-
<i>Centrolophus niger</i>	-	3.9	-	0.4	0.2	-	32.7	3.5	-
Sciaenids	4.1	3.1	3.1	0.2	4.1	71	12	1.7	-
<i>Chorinemus</i> sp	-	1.7	-	21.7	5.9	0.8	0.1	1.8	-
Deep-sea shrimps	0.1	0.1	-	-	2	-	1.4	0.5	-
<i>Mene maculata</i>	1.8	-	-	2.1	3.1	6	1.8	0.1	2.9
Gerrids	1.5	0.1	-	1.5	1.3	-	-	-	-
Cephalopods	3.5	4.6	0.6	-	-	-	-	-	-
Others	2.7	0.6	-	-	-	-	-	-	-

C. Salient observations

- » The highest catch rate of 317.3 kg/h was recorded from 50-100 m depth range of lat. 19°N by sampling with fish trawl.
- » During the month of June 2009 a good catch rate of 1390 kg/h was registered in a single haul with cephalopod trawl from the depth of 43m of lat.18°N. The catch was mainly contributed by *Leiognathus* spp (57.5%), *Saurida* spp (21.1%) and Upenoids (16.7%).
- » In 100-200 m depth zone *Decapterus* spp (84.4%), Sciaenids (71%) and *Rachycentron canadum* (94.2%) were the main components in operation by fish trawl, shrimp trawl and cephalopod trawl respectively.



D. Biological studies

Length frequency studies of 24 species were undertaken during the period under report from a sample size of 25,747. The biological studies were carried out for 11 species with a sample size of 19,145 specimens.

E. Biomass estimation

Area: Lat.16° - 19° N

(in tonnes)

Species	Depth zone(m)		
	30-50	50-100	100-200
Elasmobranchs	349	1400	-
<i>Arius</i> spp	776	1189	3
Eels	38	7	-
Clupeids	422	279	-
<i>Saurida</i> spp	1569	1779	-
<i>Priacanthus</i> spp	135	5459	943
<i>Nemipterus</i> spp	289	2922	248
Perches	362	1655	-
<i>Pomadasys maculatum</i>	654	597	-
<i>Leiognathus</i> spp	5170	2496	-
<i>Ariomma indica</i>	-	150	-
<i>Sphyræna</i> spp	133	499	-
Pomfret	38	62	-
Carangids	2188	1100	-
<i>Megalaspis cordyla</i>	113	98	-
<i>Decapterus</i> spp	270	1578	639
<i>Rachycentron canadum</i>	4	11	-
<i>Trichiurus</i> spp	507	512	-
<i>Rastrelliger kanagurta</i>	64	968	-
<i>Scomberomorus</i> spp	59	54	-
Upenoids	3573	5538	-
<i>Centrolophus niger</i>	-	4519	-
Sciaenids	1351	1504	64
Flat fish	96	17	8
Deep-sea fishes	39	61	-
<i>Chorinemus</i> sp	64	253	-
Deep-sea shrimp	-	3	7
<i>Mene maculata</i>	103	-	-
Gerrids	144	341	-
Cephalopods	469	866	128
Others	1040	178	7



3.2 PELAGIC RESOURCES SURVEY AND MONITORING PROJECT

Project 7 **Survey of coastal pelagic resources by mid-water trawling along upper East coast between latitude 15°N and 21°N.**

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

Gear 21.95 m x 21.95 m mid water trawl

Vessel **Matsya Darshini**

Base Visakhapatnam

Project co-ordinator Shri Premchand, Zonal Director

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

Results

A. Catch per unit effort (kg/h)

Latitude (° N)	Gear/Depth zone (m)		
	Mid-water trawl		
	30-50	50-100	100-200
16	16.3	9	-
17	26.7	47.8	-
18	27.6	15.38	6
19	15.9	-	23.5

B. Species composition (%)

Species / Groups	Gear/Depth zone (m)		
	Mid-water trawl		
	30-50	50-100	100-200
<i>Arius</i> spp	2.7	1.5	-
Clupeids	0.4	18.7	-
<i>Saurida</i> spp	6.6	1.5	-
<i>Priacanthus</i> spp	-	0.4	-
<i>Nemipterus</i> spp	6.3	3.6	-
Perches	4.1	2.7	-
<i>Pomadasys maculatum</i>	0.4	1.6	-



Species / Groups	Gear/Depth zone (m)		
	Mid-water trawl		
	30-50	50-100	100-200
Upenoids	12	7.9	-
<i>Leiognathus</i> spp	30.7	10.9	-
<i>Sphyræna</i> spp	3	0.5	-
Pomfrets	0.8	0.7	-
<i>Caranx</i>	8.1	2.7	-
<i>Megalaspis cordyla</i>	0.4	0.6	-
<i>Decapterus</i> spp	5.5	32.1	-
<i>Rachycentron canadum</i>	0.1	-	-
<i>Trichiurus</i> spp	1.1	0.4	-
<i>Rastrelliger kanagurta</i>	0.7	2.7	-
<i>Scomberomorus</i> spp	0.9	1.9	-
Sciaenids	2.8	1.7	-
<i>Chorinemus</i> sp	0.8	0.1	-
Flat fish	0.1	-	-
Gerrids	1.2	0.9	-
Cephalopods	10.1	3	-
Others	1.3	3.9	100

C. Salient observations

- » The highest catch rate of 47.8 kg/h was recorded from 50-100 m depth zone of lat. 17°N.
- » *Leiognathus* spp dominated the catch with 30.7% followed by Upenoids (12%) and Cephalopods (10.1%) in the depth zone of 30-50 m where as in 50-100 m depth zone the catch was dominated by *Decapterus* spp (32.1%), Upenoids (18.7%) and *Leiognathus* spp (10.9%).
- » In the month of February 2010 the highest catch of 260 kg was recorded in a single haul in the area lat 17°16.1'N and Long 82°50.1'E at the depth of 53 m and catch was dominated by *Decapterus* spp (96.1%).

D. Biological Studies

Length frequency studies was done on 18 species with 4,345 specimens. The biological studies of various parameters were also carried out for 11 species on 3375 specimens.



3.3 OCEANIC TUNA RESOURCES SURVEY PROJECTS

Project 8 **Survey of oceanic and allied resources using regular long line in Indian EEZ along South-West coast between latitude 04° -16°N.**

Project component Survey of oceanic 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. L. Ramalingam, Sr. Fisheries Scientist

Results

A. Catch per unit effort

Month	Hooks operated	Hooking rate (%)									
		Total	YFT	SKJ	SAI	MAR	SWO	SHA	DOL	RAY	OTH
April 09	5050	0.63	-	-	0.22	-	0.28	-	0.02	-	-
May	3450	0.38	-	-	0.23	-	0.57	-	-	-	0.06
June to November	The vessel was under dry docking repairs at CSL, Cochin during the period.										
December	1790	0.18	-	-	0.06	-	-	-	0.06	-	0.06
January 10	6000	0.29	0.07	-	0.05	0.02	0.03	0.05	-	0.05	0.02
February	6030	0.16	-	0.02	0.02	0.02	0.05	0.05	-	-	-
March	5000	0.40	0.06	0.02	0.02	0.02	0.22	-	-	-	-

B. Salient observations

- » Highest aggregate hooking rate (0.63%) was recorded during April 2009 followed by 0.40% in March 2010.
- » Sword fish was the main catch component during the month of April & May 2009

C. Biological Studies

Length frequency and other biological data of nine species (sample size of 96) were collected during the year.



Project 9 **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 water.
 2. Survey of sword fish resources by using drift longline with light sticks in Andaman & Nicobar water.
 3. Survey of bigeye tuna resources by using modified deep longline in Andaman & Nicobar water.
- Gear** › Regular tuna longline with five hooks per basket
 › Drift longline with 5 hooks per basket with light stick for sword fish.
 › Modified deep set longline with 7/9 hooks per basket for bigeye tuna.

Vessel **Blue Marlin**

Base Port Blair

Project co-ordinator Shri A. Anrose, 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
September 09	8750	0.30	0.05	0.01	0.08	0.13
November 09	10000	0.25	0.10	0.11	0.04	-
January 10	8750	0.61	0.10	0.05	0.24	0.21
February 10	10000	0.24	0.01	0.02	0.08	0.13
March 10	8750	0.31	0.06	-	0.20	0.09

A.2 Modified deep longlining for bigeye tuna

Months	Hooks operated	Hooking rate (%)				
		Total	Tunas	Bill fishes	Shark	Others
October 09	8820	0.4	0.11	0.05	0.22	0.01
December 09	9450	0.45	0.06	0.05	0.18	0.24



B. Salient observations

- » An aggregate hooking rate of 1.6% was obtained from the square lat.6°/long.94° followed by 1.3% from the square lat. 9°/long.92°. A hooking rate of 0.3% for yellowfin tuna was recorded from the squares lat. 10°/long. 93°, lat.7°/long.94° and lat.8°/long.94°.
- » During November 2009 voyage, a hooking rate of 1% for yellowfin tuna was recorded from the square 12°/92° (west off south bank) followed by 0.4% from the square 9°/89°(west off Car Nicobar).
- » The highest aggregate hooking rate of 2.78% was obtained from the square 8°/93° followed by 2.12% from the square 8°/92° and 1.27% from the square 7°/93° during the month of August 2009.



Project 10 **Tuna resources survey using monofilament longlining in the Arabian sea including Lakshadweep between latitude 4° N and 23°N.**

Project components 1. Survey of oceanic tuna and allied resources using monofilament long line in the Indian EEZ
2. Programme for bottom topography sampling, studies of environment parameters and plankton collection for one day/cruise in Tsunami affected areas.

Gear Monofilament long line with 7 hooks/basket

Vessel **Matsya Vrushti**

Base Mumbai

Project Co-ordinator Shri D.K.Gulati, Senior Fisheries Scientist

Project Leader Shri S.G.Patwari, Jr. Fisheries Scientist

Results

A. Catch per unit effort

Month	Hooks	YFT	SKJ	SAI	DOL	SHA	SWO	Total
April 09	2546	0.04	0.04	0.27	0.08	0.27	0.08	0.82
May 09 to March 10	The vessel was under drydocking repairs during the period.							

B. Salient Observations

- » Aggregate hooking rate of 0.82% and tuna hooking rate of 0.08% was obtained during the month of April 2009.
- » Maximum hooking rate of 1.35% was recorded from the area of lat. 8°N/ long. 68°E
- » The catch was comprised of Sail fish & Shark (33.33% each), Dolphin fish & Sword fish (9.52% each) and Yellowfin tuna & Skipjack tuna (4.76%) each.

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.



Project 11

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. Sword fish fishing by using light sticks
 4. Operation by using TDR

Gear Mono-filament longline with 7 hooks per basket

Vessel Matsya Drushti

Base Chennai

Project co-ordinator Shri P. Sivaraj, 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 09	8540	0.16	0.07	0.03	0.01	0.01	-	0.01	0.02
May 09	6300	0.13	0.01	-	-	0.03	0.03	0.01	0.03
June 09	5040	0.09	0.05	-	-	-	-	-	0.03
July 09	7560	0.1	-	-	0.01	0.01	-	-	0.07
Aug 09	7280	0.27	0.09	-	0.02	-	-	0.02	0.12
Sept 09	9450	0.06	0.01	-	-	0.01	-	-	0.04
Oct 09	5040	0.21	0.21	-	-	-	-	-	0.01
Nov 09	6650	0.4	0.37	0.03	-	-	-	-	-
Dec 09	Dry docking repairs at Ms Cochin Ship Yard Ltd, Cochin								
Jan 10									
Feb 10	1610	0.24	0.06	0.06	0.06	0.06	-	-	-
Mar 10	7700	0.16	0.03	-	-	0.02	-	-	0.1



B. Salient observations

- » An aggregate hooking rate of 0.17% was recorded for all fishes along the East coast of Indian EEZ.
- » The highest hooking rate of 0.37% for yellow fin tuna was recorded during the Month of November 2009.
- » An aggregate hooking rate of 0.08% for yellow fin tuna was recorded along the east coast of Indian EEZ.
- » A Black Marlin (*Makaira indica*) of fork length 151 cm and total length 294 cm weighing about 120 kg was caught in the area south off Chennai during February 2010 cruise.

C. Biological studies

Biological parameters such as length frequency, length-weight, sex, maturity and food and feeding habits were studied for 13 species viz. *Thunnus albacares*, *Istiophorus platypterus*, *Katsuwonus pelamis*, *Xiphias gladius*, *Alopias pelagicus*, *Makaira mazara*, *Makaira indica*, *Carcharhinus limbatus*, *Coryphaena hippurus*, *Euthynnus affinis*, *Sphyrna jello*, *Carcharhinus longimanus* and *Sphyrna* spp. using 117 specimens.



3.4 EXPERIMENTAL PROJECTS

Project 12 **Experimental trap and handline fishing for rock cods along South - West coast including Quilon bank, Wadge bank and Gulf of Mannar between latitude 7°N and 11°N.**

Gear Hand line/traps

Vessel **Matsya Sugundhi**

Base Kochi

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

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

Results

A. Trap fishing for rock cods

Latitude (°N)	Depth range(m)	No.of traps Operated	Species composition		
			Rock cods	Perches	Others
7	60-120	20	6	30	-
8		154	84	54	1
9		368	178	15	8
10		324	363	26	7
11		22	4	-	-

B. Hand line fishing for rock cods

Latitude (°N)	Depth range(m)	Fishing efforts(Hrs)	Species composition	
			Rock cods	Perches
7	45-73	13.2	2	2
8	60-95	25.3	9	-
9	38-60	19.25	-	-
10	44-70	4.33	-	-

C. Salient observations

- » Total 776 fishes were caught of which rock cods constituted 81.83%, other perches 16.11% and other fishes 2.06%. Most of the rock cods were recorded from lat.10°N at the rate of one fish per trap
- » *Epinephelus diacanthus* is the main species occurred during the year.

Tuna resources survey using monofilament longlining in the Arabian sea including Lakshadweep between latitude 4° N and 23°N

Project components	1.. Survey of perch resources by using bottom set vertical longline in Andaman & Nicobar waters.
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- › Bottom set vertical longline with 30 hooks per basket for perch resources.

Vessel Blue Marlin

Base	Port Blair
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18
19	19
20	20
21	21
22	22
23	23
24	24
25	25
26	26
27	27
28	28
29	29
30	30
31	31
32	32
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Project co-ordinator Shri A. Anrose, 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
August 09	9810	1.48	0.5	0.51	0.08	0.39

B. Salient observations

- » During the period under report, bottom set vertical longline for perch resources was operated in the EEZ around Andaman & Nicobar Island and East coast of India.
- » In the bottom set vertical longline operations during August 2009, the highest hooking rate (0.97%) of snappers was obtained in the square 8°/93° followed by 8°/92° (0.76%) and 7°/93° (0.5%).
- » The Groupers were recorded with a highest hooking rate of 1.4% in the square lat.8°/long.93° followed by the square lat.8°/long.92° (0.91%).
- » High quality perches were also recorded east off Trinkat Island, off Nancowry Islands and west off Katchal Island.



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	148	96200	1	11	5	2553
	M. Nireekshani*	9	180	144	675	1	11	7	32
Mormugao	Yellowfin @	9	180	130	81250	6	107	58	27320
	Sagarika *	8	160	128	600	3	38	27	113
Kochi	M. Sugundhi #	10	200	160	3840	12	183	142	139
	\$				1600				1061
	M. Varshini *	11	220	176	825	11	169	126	507
	Lavanika *	22	220	176	825	20	187	140	703
Chennai	M. Drushti @	10	200	142	89460	10	175	108	65820
	Samudrika *	11	220	176	825	12	235	179	752
Visakhapatnam	M. Shikari *	10	200	160	750	8	134	90	346
	M. Darshini **	10	200	160	420	4	63	44	123
Port Blair	Blue Marlin @	10	200	150	75000	8	157	119	74330
	&				18900				-
Efforts	TOTAL	130	2380	1850		96	1470	1045	
* : Bottom trawling					4500				2453
** : Mid water trawling					420				123
# : Hand line fishing (Hrs)					3840				139
\$: Trap fishing (No. of traps)					1600				1061
@ : Tuna longline(Hooks)					341910				170023
& : Bottom-set vertical longline (Hooks)					18900				-

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 2009-10

Base	Vessels	Catch(Kg)	Value (Rs.)
Mumbai	M. Vrushti	3110	129576
	M. Nireekshani	1972	29512
Mormugao	Sagarika	1245	32201
	Yellowfin	239	3605
Kochi	M. Varshini	23704	317513
	Lavanika	15384	200879
	M. Sugundhi	433	9427
Chennai	M. Drushti	1539	54998
	Samudrika	11134	472536
Visakhapatnam	M. Shikari	30507	354661
	M. Darshini	3231	30576
Port Blair	Blue Marlin	4113	179407



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 Kiran Desai, Data Enumerator	1	11
M. Nireekshani	Shri Dewanand Uikey, Sr. Scientific Assistant	1	11
Yellow Fin	Shri N. Unnikrishnan, Jr. Fisheries Scientist	1	15
	Shri Y. Tharumar, Sr. Scientific Assistant	1	19
	Shri Devanand E. Uikey, Sr. Scientific Assistant	1	17
	Shri Raju S. Nagpure, Sr. Scientific Assistant	1	20
	Shri Mahadev Kokane, Jr. Fishing Gear Technologist	1	16
Sagarika	Shri N. Unnikrishnan, Jr. Fisheries Scientist	1	17
	Shri Puran Singh, Sr. Scientific Assistant	2	21
M. Varshini	Shri J. E. Prabhakar Raj, Fisheries Scientist	2	32
	Shri A. J. Chembian, Sr. Scientific Assistant	2	28
	Shri Jacob Thomas, Sr. Scientific Assistant	3	39
	Dr. S. Ramachandran, Sr. Scientific Assistant	3	36
	Shri C. Babu, Sr. Scientific Assistant	1	20
	Shri Jinoy V. G, Sr. Research Fellow	1	3
M. Sugundhi	Dr. S. Ramachandran, Sr. Scientific Assistant	2	37
	Shri Jacob Thomas, Sr. Scientific Assistant	1	14
	Shri Jinoy V. G, Sr. Research Fellow	1	14
M. Drushti	Shri P. Tamilarasan, Fisheries Scientist	1	20
	Shri G. Nagarajan, Jr. Fisheries Scientist	4	75
	Dr. J. Jeyachandra Dhas, Jr. Fisheries Scientist	2	25
	Shri C. Babu, Sr. Scientific Assistant	1	16
	Shri H. D. Pradeep, Sr. Scientific Assistant	1	19
	Shri. A. Siva, Data Enumerator	1	20
M. Samudrika	Shri P. Tamilarasan, Fisheries Scientist	3	60
	Shri G. Nagarajan, Jr. Fisheries Scientist	1	20
	Dr. J. Jeyachandra Dhas, Jr. Fisheries Scientist	2	40
	Shri G. V. A. Prasad, Sr. Scientific Assistant	4	78
	Shri C. Babu, Sr. Scientific Assistant	1	20
	Shri H. D. Pradeep, Sr. Scientific Assistant	1	17



Vessels	Scientist participant	No. of cruises	Days at sea
M. Shikari	Dr S. K. Naik, Sr. Fisheries Scientist	1	4
	Shri K. S. N. Reddy, Fishing Gear Technologist	1	20
	Dr. Ansuman Das, Jr. Fisheries Scientist	1	20
	Shri N. Jagannadh, Jr. Fisheries Scientist	1	20
	Shri V. Uma Mahesh, Data Enumerator	3	36
	Shri A. Siva, Sr. Scientific Assistant	1	14
M. Darshini	Shri A. Siva, Sr. Scientific Assistant	2	26
	Shri S. K. Pattnayak, Sr. Scientific Assistant	1	19
	Shri V. Uma Mahesh, Data Enumerator	1	18
Blue Marlin	Shri K. Govindaraj, Fisheries Scientist	5	100
	Shri A. B. Kar, Jr. Fishing Gear Technologist	2	37
	Shri H. D. Pradeep, Sr. Scientific Assistant	1	20



7. FLEET MAINTENANCE

Acquisition of Mid-water Trawlers

As per the directives of the Ministry, FSI had re-floated the global tender for acquisition of two mid-water trawlers in the month of April 2009. The due date for submission of the tenders was fixed as 9 June 2009. In response, three tenders were received from the overseas as well as Indian party. Technical Committee constituted for scrutinizing the tender met three times and concluded that the three bids are not technically fulfilling the requirement and hence disqualified all the three bids. The above matter was referred to the Ministry for necessary approval in order to return the EMD and price Bids to the Bidders.

8. INFRASTRUCTURE FACILITIES

Construction of Facility Research Centre at Mumbai (HQ)

The Hon'ble High Court of Mumbai had dismissed the PILs filed by Mrs. Ameeta Shah & others, against the construction and permitted the FSI to construct the said Facility Centre up to Ground + 3 floors. Accordingly, FSI provided the funds to the tune of Rs. 3.61 crores to the CPWD for the year 2009-10 towards the civil & electrical works. The construction work is in progress.

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

Construction of six numbers of Type-III and three numbers of Type-IV quarters for FSI, Port Blair, is under progress. During the current financial year, FSI had provided an amount of Rs. 25 lakhs towards the said project. Out of which an amount of Rs. 10.62 lakh was spent during the year.



9. TRAINING

9.1 The following officers and staff attended the training programmes during the year 2009-10

Name	Designation	Subject / Institute / Period
Shri C. K. Vaghela Shri D. M. Gaikawad Shri V. S. Sumra Shri Ajay U. Khairmode Shri S. N. Gurkha Smt. Shanta A. Solanki	Peon Peon Peon Peon Watchman Safaiwala	In-house training on General Office Procedure at FSI, Mumbai (HQ). 15-30 June 2009.
Shri T. L. Muralidharan Shri Edward Kerketta Shri K. P. Raghunath Shri S. D. Rasam Ms. Vandana Waghmare	Office Superintendent Office Superintendent Office Superintendent Office Superintendent Upper Division Clerk	Feature of Modified ACP Scheme at Regional Centre Mumbai. 20-21 July 2009.
Shri B. J. Naik Shri K. A. Chodenkar Shri P. Ahmedjan	Netmender Netmender Netmender	In - Office Orientation Training for Group 'D' RTC, Mumbai. 4 August - 3 September 2009.
Shri J. Jeyachandra Dhas Shri Bapu M. Raut Shri S. K. Dwivedi	Jr. Fisheries Scientist Data Processing Assistant Sr. Scientific Assistant	Resources Use Management Techniques & Interfaces in Extension and Information Technology Approaches at Central Institute of Brackishwater Aquaculture (CIBA), Chennai, 01-11 September 2009.
Shri. D. K. Gulati	Sr. Fisheries Scientist	Training programme on 'Procurement related Matter & Financial Management under World Bank Project of NAIP' at CIFE, Mumbai, 23-24 September 2009
Smt. Rajashree K. Mendon Smt. Archana N. Pradhan	Upper Division Clerk Upper Division Clerk	Feature of Modified ACP Scheme at Regional Centre, Mumbai. 04 - 05 November 2009
Shri M. K. Sajeevan	Sr. Scientific Assistant	Training on Fisheries Data Collection and Analysis at the Wageningen International, Netherlands. 02-20 November 2009
Shri D. M. Ali Shri K. P. Raghunath Shri G. V. K. Pillai	Sr. Fisheries Scientist Office Superintendent Stenographer	Training on Administrative law and court procedure, duties and responsibilities of the Central Government counsel and official at Kochi, 14-15 November 2009
Shri A. Tiburtius Shri D. K. Gulati Shri P. C. Rao Shri S. G. Patwari Shri B.M.Raut Shri Ashish Kumar Shri Devanand Uikey	Sr. Fisheries Scientist Sr. Fisheries Scientist Statistician Jr. Fisheries Scientist Data Processing Assistant Data Processing Assistant Sr. Scientific Assistant	Training on Marine Fisheries Census - 2010 held at CMFRI Regional Centre, Mumbai. 30 November 2009
Shri K. S. N. Reddy Shri N. Jagannadh Shi V. Uma Mahesh	Fishing Gear Technologist Jr. Fisheries Scientist Data Enumerator	Training on Marine Fisheries Census, 2010 at CMFRI Regional Centre, Visakhapatnam, 30 November 2009



Name	Designation	Subject / Institute / Period
Shri P. Tamilarasan Shri G. V. A. Prasad	Fisheries Scientist Sr. Scientific Assistant	Training on Marine Fisheries Census-2010 held at CMFRI Regional Centre, Chennai, 3- 5 December 2009
Shri K. C Hariharan Shri Dhulo V. Kharvat Shri P. K. Sahu	Peon Peon Watchman	Orientation Training for Group 'D' at RTC Mumbai. 7-18 December 2009.
Smt. Nalini A. Bagde	Jr. Hindi Translator	Training for working in Hindi by using Hindi software at National Power Training Institute, Nagpur. 21-26 December 2009
Shri Sanjeev Kumar Singh Shri Gopal W. Thule Kum. Vandana Waghmare	Stenographer Gr.III Upper Division Clerk Upper Division Clerk	Training for working in Hindi by using Hindi software at National Power Training Institute, Nagpur. 4 - 8 January 2010
Shri Santhosh Babu P. P.	Lower division Clerk	Training for working in Hindi by using Hindi software at National Power Training Institute, Bangalore, 07-18 January 2010
Shri K. N. Swamy Shri B. K. Singh Shri Ashish K. Khare Shri Amit Kumar Saha	Upper Division Clerk Hindi Typist Jr. Hindi Translator Lower Division Clerk	Training for working in Hindi on Computer by using Hindi software at National Power Training Institute, Bangalore, 18 -23 January 2010.
Shri Premchand Shri Edward Kerketta	Dy. Director General(Fy.) Office Superintendent	Dynamic Right to Information Act at Regional Training Centre, Mumbai. 27 January 2010
Shri Ashok Kumar Khita	Mechanical Supervisor (Sr.)	Management Development Programme on Inventory Management at National Institute of Industrial Engineering Chennai, 15-19 February 2010.
Shri Mahesh Kumar Farejiya	Mechanical Marine Engineer	Management Development Programme on Material Management at National Institute of Industrial Engineering Chennai, 22-26 February 2010.
Shri P. Tamilarasan Shri C. Babu	Fisheries Scientist Sr. Scientific Assistant	Training on Marine Fisheries Census-2010 at CMFRI Regional Centre, Chennai, 15-16 March 2010
Dr. S. K. Naik Dr. Ansuman Das Shri S. K. Pattnayak	Sr. Fisheries Scientist Jr. Fisheries Scientist Sr. Scientific Assistant	Trainers training course sponsored by FISCOFED at CIFNET, Visakhapatnam. 18-21 March 2010.
Shri P. C. Rao Shri B.M.Raut Shri S. G. Patwari Shri A.E.Ayoob	Statistician Data Processing Assistant Jr. Fisheries Scientist Jr. Fishing Gear Technologist	Training on Marine Fisheries Census-2010 at CMFRI Regional Centre, Mumbai, 18-19 March 2010
Shri K. S. N. Reddy Shri S. K. Pattnayak	Fishing Gear Technologist Sr. Scientific Assistant	Training on Marine Fisheries Census-2010 at CMFRI Regional Centre, Visakhapatnam, 22-23 March 2010
Shri A. B. Kar Shri H. D. Pradeep	Jr. Fishing Gear Technologist Sr. Scientific Assistant	Training on Marine Fisheries Census-2010 at CMFRI Regional Centre, Chennai, 25 March 2010



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	4	1	2	3
Mormugao	4	3	3	4
Cochin	5	4	6	3
Chennai	4	5	5	4
Visakhapatnam	4	1	-	5
Port Blair	2	-	1	1

9.3 Training imparted



Fishery Survey of India organized one week training programme on Marine Fisheries sponsored by National Fisheries Development Board, Hyderabad during 2-7 November 2009 at FSI (HQ) Mumbai for the benefit of fisheries officials from maritime States. Five Officials attended the training programme. The programme

consisted twenty courses on various topics including practicals besides field visit to the landing centres and local fisheries Institutes.

A one week training programme on *Data collection, Taxonomy, Marine Engineering, Navigation and Fishing Gear* sponsored by National Fisheries Development Board, Hyderabad was organized at Fishery Survey of India, Mumbai (HQ) during 7-13 December 2009 for the benefit of the State Fisheries Officials.



A total 14 Officials from six maritime States and two UTs attended the training programme. The programme consisted 20 courses on various aspects including practicals besides field visit to the landing centres and local fisheries Institutes.

Training-cum-workshop on CMFRI methodology of data collection and fish taxonomy was organised by FSI(HQ) at Fish Training Farm Ela, Goa during 4-5 December 2009 for the benefit of State Fisheries Officials including the newly recruited Data Enumerators.



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 Darpan Vol- II (Hindi) published by FSI, Mumbai Base.
Matsya Kirti (Hindi) published by FSI, Mormugao Base.

Survey Programme

Fishery Resources Survey, Assessment & Research Programme 2009-10.

Reports

Annual Report 2008-09 (December 2009)

Handbook for field identification of fish species occurring in the Indian seas under the Central Sector Scheme on Strengthening of Database and Geographical Information System for Fisheries Sector (May 2009).

Resources Information Series - 21 issues

Four issues each from Chennai, Visakhapatnam and Kochi Bases, three issues from Port Blair and two issues each from Mumbai and Mormugao Bases were published in respective local languages.

Papers presented / published by Scientists

John, M. E and B. C. Varghese, 2009. Decline in CPUE of oceanic sharks in the Indian EEZ: urgent need for precautionary approach. Paper presented in the IOTC working party on *Ecosystems and bycatch*, 12-14 October 2009, Mombasa, Kenya.

John, M. E and N. G. K. Pillai, 2009. Current status of tuna fisheries in India. Paper presented at the 12th meeting of the Scientific Committee of the Indian Ocean Tuna Commission; 30 November - 04 December 2009, Seychelles.

Sajeevan, M. K., V. S. Somvanshi and J. R. Nair, 2009. Deep-sea teleostean species diversity off the South West coast of India (7° - 10° Lat.). *Asian Fisheries Science* 2221:617-629.

Kumari, B., Raman, M. and Mali, K. (2009). Locating tuna forage ground through satellite remote sensing, *International Journal of Remote Sensing*, 30: 22, 5977-5988



Sajeevan, M. K and S. K. Naik, 2009. Fisheries Management and Legislation in India - Challenges ahead. Paper presented at the National Seminar on *Indian Marine Fisheries- Sustainability at Cross Road* College of Fisheries, Karnataka Veterinary, Animal & Fisheries Sciences University, Bidar, Mangalore, 22-23 December 2009.

Ramchandran S. and B. C. Varghese, 2009. New records of *Priacanthus sagittarius* stames, 1988 from Indian water with taxonomic account. *J. Mar. Biol Asso.* 51(2): 217-222

Anrose, A., P. Sivaraj, J. C. Dhas, G. V. A. Prasad and C. Babu, 2010. Distribution and abundance of deep sea spiny lobster *Puerulus sewelli* in the Indian EEZ. Paper presented in the *International Conference on Recent Advances in Lobster Biology and Aquaculture and Management (RALBAM)* NIOT, Chennai, 5 January 2010.

Ramalingam, L. and A. B. Kar, 2010. Tuna fishery resources of A&N Islands. Paper presented at the workshop on *Promotion of Tuna fishing and allied activities of A&N Islands* held at the conference hall of State Bank of India, Port Blair, 10 March 2010.

Ramalingam, L., 2010. Fishery resources of Andaman & Nicobar Islands. Paper presented at the National Seminar on *Challenges for Sustainable Management of Fishery Resources of Indian EEZ* at Visakhapatnam organized by Forum of Fisheries Professionals, Visakhapatnam, 20 January 2010.

Vijayakumaran, K., Premchand, S. M. Patil, M. Vinodkumar, A. S. Kadam, M. K. Sajeevan, S. K. Dwivedi and S. O. Khairnar, 2010. Status of threatened and near threatened marine fishes of India - strategies for conservation and management. Paper presented at the National Conference on *Biodiversity and Conservation of Nature and Natural Resources* held at Solapur, Maharashtra during 29-30 January 2010.

Anrose, A and P. S. Parasuraman, 2010. Tuna resources, fishing methods and survey results by FSI vessel and monofilament tuna long lining. Paper presented at the stake holders meeting of Tuna organized by Fisheries Institute of Technology and Training (FITT), Chennai, 29 March 2010.

Sijo P. Varghese, K. Vijayakumaran, M. Vinodkumar, and V. Mhatre, 2010. On the first report of two parasites from the large pelagic predatory fishes of Indian EEZ. In: *National Symposium on Parasite Taxonomy, Biodiversity and Fish Health: Environmental Health*, Book of Abstracts, Helminthological Society of India, Visakhapatnam, 12-13 March 2010.

Sijo P. Varghese, S. Varghese and V. S. Somvanshi, 2010. Impact of tuna longline fishery on the sea turtles of Indian seas. *Current Science*: 98 (10): 1378-1384.

Vijayakumaran, K. and Kiran Mali, 2010. Role of FSI in Marine Research and Development. Paper presented at the workshop on *Ocean Colour Remote Sensing* held at Space Application Centre, Ahmedabad, 18-19 March 2010



11. RESEARCH ACTIVITIES

11.1 Degrees/Awards

Shri A. Anrose, Zonal Director, Chennai Base was awarded with the Ph.D. Degree on 15 March 2010 by the University of Madras for his thesis entitled *Studies on deepsea shrimps around peninsular India*. Shri A. Anrose worked under the guidance of Dr. V. S. Somvanshi, the former Director General, FSI. He studied the diversity, abundance, stock assessment and some aspects of the biology of these relatively new resources of the South- West coast of India.

Shri M. Vinodkumar, Jr. Fisheries Scientist was awarded the Young Scientist award for the scientific paper on *Status of threatened and near threatened marine fishes of India - Strategies for Conservation and Management* during the National Conference on Biodiversity and Conservation of Nature and Natural Resources held during 29-30 January 2010 at Solapur, Maharashtra.

11.2 Inter-institutional projects

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

11.2.1 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 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.

Collected tuna data from area around Lakshadweep Island by participation on board the vessel Matsya Vrushti

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.
- † 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.
- † 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, 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 A. John Chembian, 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 Sr. Research Fellow and import of squid jigging machines.



11.2.2 Locating Tuna Habitat through satellite remote sensing in 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

The analysis of the data collected was carried out at SAC, Ahmedabad.

11.2.3 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.

The data enumerators are regularly collecting data by visiting landing centres / markets on biology, gear and market related aspects of marine fisheries.

A training programme was conducted during 2009-10 on data collection and estimation for the benefit of data enumerators recruited under the scheme.

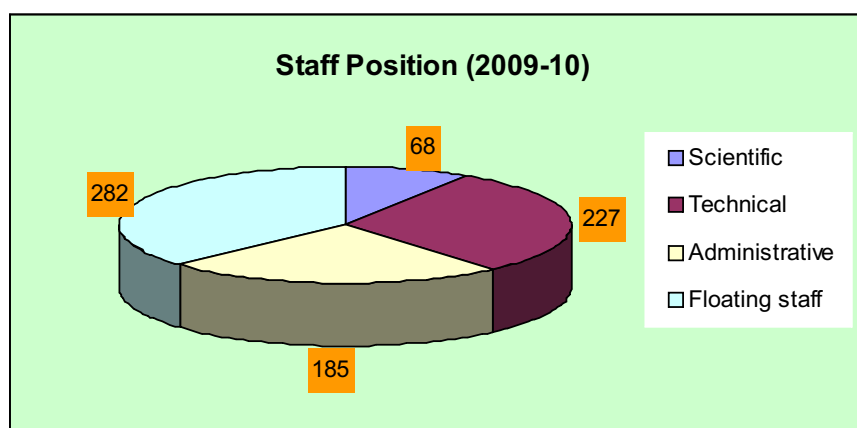


12. ADMINISTRATION AND FINANCE

Dr V. S. Somvanshi, Shri K. Gopalakrishnan, Shri M. K. R. Nair, Shri Premchand, DG.I/C and Dr. K. Vijayakumaran served as Director General of FSI during the year under report.

12.1 Sanctioned posts

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	6	121	127
	Administrative	34	79	113
D	Technical	-	61	61
	Administrative	11	49	60
	Floating staff			
B	Technical	-	68	68
C	Technical	-	214	214
Total		81	681	762





12.2 . Officers in different stations

Name and designation of the officers of the Institutes as on 31/03/2010 are given below:

Headquarters, Mumbai

Director General	Dr. V. S. Somvanshi (04.08.1995 - 31.05.09)
Director General	Shri K. Goapalkrishnan (01.06.2009 - 30.06.2009)
Director General	Shri M. K. R. Nair (01.07.2009 - 31.08.2009)
Director General (I/C)	Shri Premchand (08.09.2009 - 08.10.2010)
Director General	Dr. K. Vijayakumaran (09.10.2009 to till date)
Deputy Director General (Fy.)	Shri K. Gopalakrishnan (22.09.2003- 30.05.2009)
Deputy Director General (Fy.)	Shri Premchand (09.10.2009 to till date)
Director (Eng.)	Shri T. E. Venkatachalam (12.04.2006 - 31.08.2009)
Director (Eng.)	Shri M. Syamasundar (03.11.2009 - 31.12.2009)
Mechanical Marine Engineer	Shri Mahesh Kumar Farejiya
Senior Fisheries Scientist	Shri S. M. Patil
Senior Fisheries Scientist	Shri A. Tiburtius
System Analyst	Shri N. V. R. Murthy
Fisheries Scientist	Dr. (Mrs.) S. Varghese
Statistician	Shri Chalapati Rao Pittala
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
Assistant Account Officer	Shri N. Thirupalu

Mumbai Base

Zonal Director	Shri P. Sivaraj
Senior Fisheries Scientist	Shri D. K. Gulati
Junior Fisheries Scientist	Shri A. K. Malik
Junior Fisheries Scientist	Shri S. G. Patwari

Mormugao Base

Zonal Director	Dr M. E. John
Senior Fisheries Scientist	Dr A. K. Bhargava
Junior Fisheries Scientist	Shri N. Unnikrishnan
Service Engineer (Mech.)	Shri C. D. Rao

Kochi Base

Zonal Director	Shri B. C. Varghese
Senior Fisheries Scientist	Shri D. M. Ali
Service Engineer (Mech.)	Shri A. Kuppusamy

Fishery Survey of India



Chennai Base

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

Shri A. Anrose
Shri P. S. Parasuraman
Shri S. A. Rajkumar
Shri P. Tamilarasan
Dr. J. Jayachandra Dhas
Shri T. V. S. Prasad

Visakhapatnam Base

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

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

Port Blair Base

Zonal Director
Senior Fisheries Scientist
Junior Fisheries Scientist
Service Engineer (Mech.)

Dr. L. Ramlingam
Shri K. Govindraj
Shri M. K. Sinha
Shri Dharmvir Singh



12.3 Budget and Accounts

The details of the Budget Grant and Expenditure of the Institute during 2009-10

(Rs. 'in thousands)

Particulars	Budget Grant	Actual Expenditure
Plan		
Revenue	352900	348726
Capital	40000	38786
Sub-Total	392900	387512
Non-plan		
Revenue	100600	88218
Sub-Total	100600	88218
Grant Total	493500	475730

12.4 Appointments

The following staff were appointed during the year

Name	Designation	Base/HQ	Date
Shri. A. Siva	Sr. Scientific Assistant	Visakhapatnam	12.10.2009
Ms. Sanadi Rajashree	Sr. Scientific Assistant	Mumbai (HQ)	09.12.2009
Shri Subrajit Das	Stenographer Gr. III	Mumbai (HQ)	23.04.2009
Shri A. K. Tarai	Peon	Visakhapatnam	22.03.2010

12.5 Promotions

The following promotions were made during the year

Name	Designation		Base /Hqs
	From	To	
Shri K. Gopalakrishnan	Dy. Director General (Fy.)	Director General	Mumbai (HQ)
Shri B. Premchand	Zonal Director	Dy. Director General(Fy.)	Mumbai (HQ)
Shri M. Shyamasundar	Mechanical Marine Engineer	Director (Eng.)	Mumbai (HQ)
Shri M. K. Farejiya	Service Engineer (Mech.)	Mechanical Marine Engineer	Kochi
Dr. L. Ramalingam	Sr. Fisheries Scientist	Zonal Director	Port Blair
Shri A. Tiburtius	Fisheries Scientist	Sr.Fisheries Scientist	Mumbai (HQ)
Shri K. Govindaraj	Fisheries Scientist	Sr.Fisheries Scientist	Port Blair
Shri A. K. Malik	Jr. Fisheries Scientist	Fisheries Scientist	Mumbai
Shri P. Tamilarasan	Jr. Fisheries Scientist	Fisheries Scientist	Chennai
Shri. C. S. Sethumadhavan	Mate, Gr.I	Skipper	Visakhapatnam
Shri T. A. Shanmugham	Mate, Gr.I	Skipper	Mumbai



Name	Designation		Base /Hqs
	From	To	
Shri C. A. Gopi	Mate, Gr.I	Skipper	Kochi
Shri M. F. X. Pinto	Upper Division Clerk	Office Superintendent	Mumbai (HQ)
Smt. K. K. Ambika	Upper Division Clerk	Office Superintendent	Mormugao
Shri K. B. Komalam	Upper Division Clerk	Office Superintendent	Kochi
Smt. A. Poovarasi	Upper Division Clerk	Office Superintendent	Chennai
Shri Sisir Kumar Das	Upper Division Clerk	Accountant	Visakhapatnam
Shri. A.P. Udayappan	Bosun (C)	Mate, Gr.I	Visakhapatnam
Shri K. S. Joseph Paul	Bosun (C)	Mate Gr.I	Port Blair
Shri D. Inbarajan	Bosun (C)	Mate Gr.I	Chennai
Shri S. C. Bala	Lower Division Clerk	Upper Division Clerk	Mumbai (HQ)
Miss. K. Bhavani	Lower Division Clerk	Upper Division Clerk	Visakhapatnam
Shri K. N. Swamy	Lower Division Clerk	Upper Division Clerk	Visakhapatnam
Smt C. C. Devaki	Lower Division Clerk	Upper Division Clerk	Kochi
Shri T .R. Jayaprakash	Lower Division Clerk	Upper Division Clerk	Kochi
Shri Vinod G. Naik	Lower Division Clerk	Upper Division Clerk	Mormugao
Shri B. Suresh Kumar	Lower Division Clerk	Upper Division Clerk	Port Blair
Ms. Archana N. Pradhan	Lower Division Clerk	Upper Division Clerk	Mumbai (HQ)
Ms. Aruna Vinod Kumar	Lower Division Clerk	Upper Division Clerk	Mumbai (HQ)
Shri Vishal K. Kharat	Lab Assistant	Lower Division Clerk	Mumbai (HQ)
Shri T.V.Chandrashekhhar	Peon	Lower Division Clerk	Port Blair
Shri Dolamani Naik	Peon	Lower Division Clerk	Mormugao
Shri T. V. C. Shekar	Peon	Lower Division Clerk	Port Blair
Shri C. K. Vaghela	Peon	Daftry	Mumbai (HQ)
Shri C. P. Gopalan	Peon	Daftry	Kochi
Shri. S. Appa Rao	Jeep Driver Gr.II	Jeep Driver, Gr.I	Visakhapatnam

12.6 Transfers

The following transfers were effected during the year

Name	Designation	Base/HQ	
		From	To
Shri Premchand	Zonal Director	Visakhapatnam	Mumbai (HQ)
Shri P. Sivaraj	Zonal Director	Chennai	Mumbai
Shri A. Anrose	Zonal Director	Port Blair	Chennai
Dr L. Ramalingam	Zonal Director	Mormugao	Port Blair
Shri M. K. Farejiya	Mechanical Marine Engineer	Kochi	Mumbai (HQ)
Shri J. K. Kuriakose	Chief Engineer Gr. I	Mormugao	Kochi
Shri C.S.Kanthaswamy	Chief Engineer Gr. I	Kochi	Mormugao
Shri M. Samsundar	Chief Engineer Gr. I	Visakhapatnam	Chennai
Shri S. K. Pattanayak	Sr. Scientific Assistant	Port Blair	Visakhapatnam
Shri H. D. Pradeep	Sr. Scientific Assistant	Chennai	Port Blair
Shri C. Babu	Sr. Scientific Assistant	Kochi	Chennai



Name	Designation	Base/HQ	
		From	To
Shri. B. H. Bhatt	Office Superintendent	Mumbai	Chennai
Shri J. G. Ohol	Accountant	Mumbai(HQ)	Port Blair
Shri Gopakumaran Nair	Upper Division Clerk	Mumbai (HQ)	Kochi
Shri K. Venkateswara Rao	Lower Division Clerk	Visakhapatnam	Port Blair
Shri C. N. Raithatha	Lower Division Clerk	Porbandar	Mumbai (HQ)
Shri V. B. Sankaran	Fitter	Mormugao	Visakhapatnam
Shri P. Ramakrishna	Mechanic	Kochi	Visakhapatnam
Shri T. Gajanan	Sr. Deckhand	Chennai	Kochi
Shri. A. Rajan	Sr. Deckhand-Cum-Cook	Mumbai	Kochi
Shri G. M. Sohani	Jeep Driver	Mumbai	Mumbai (HQ)

12.7 Retirements

The following officers/staff were retired during the year

Name	Designation	Base/HQ	Date	Superannuation/ Voluntary
Shri C. Periasamy	Skipper	Port Blair	30.04.2009	Superannuation
Shri Sugundhi Behera	Fitter	Visakhapatnam	30.04.2009	Superannuation
Dr. V. S. Somavanshi	Director General	Mumbai(HQ)	31.05.2009	Superannuation
Shri P. K. Bhaskara Banu	Sr. Deckhand-cook	Kochi	31.05.2009	Superannuation
Shri K. K. Hariharan	Topas	Kochi	31.05.2009	Superannuation
Shri P. P. Raju	Welder Gr.I	Kochi	31.05.2009	Superannuation
Shri T. K. Mani	Lascar	Kochi	31.05.2009	Superannuation
Shri G. Enga Reddy	MMO	Chennai	31.05.2009	Superannuation
Shri K. Gopalakrishnan	Director General	Mumbai(HQ)	30.06.2009	Superannuation
Dr. (Smt.) S. Varghese	Fisheries Scientist	Mumbai(HQ)	30.06.2009	Superannuation
Shri N. Thirupalu	Assistant Account Officer	Mumbai(HQ)	30.06.2009	Superannuation
Shri G. M. Bhatia	Office Superintendent	Mumbai(HQ)	30.06.2009	Superannuation
Shri T. E. Venkatachalam	Director (Engg.)	Mumbai(HQ)	31.08.2009	Superannuation
Shri T. K. Sahadevan	Skipper	Mormugao	31.08.2009	Superannuation
Shri P. Muthalagu	Sr. Deckhand	Chennai	31.08.2009	Superannuation
Smt. Shobha Patil	Upper Division Clerk	Mumbai	21.08.2009	Voluntary
Shri P. M. Varkey	Mechanic	Kochi	31.08.2009	Superannuation
Shri. B. D. Gharani	Sr. Deckhand	Visakhapatnam	30.09.2009	Superannuation
Shri M. R. Somasundaran	Stenographer Gr.I	Mumbai(HQ)	30.10.2009	Superannuation
Shri N. K. Krishnan Kutty	Assistant Foreman	Kochi	31.10.2009	Superannuation
Shri G. Bullabhai	Welder Gr.I	Chennai	31.10.2009	Superannuation
Shri Ch. Appanna	Sr. Deckhand	Visakhapatnam	31.10.2009	Superannuation
Shri. A.K. Roy	Sr. Deckhand	Visakhapatnam	30.11.2009	Superannuation
Shri S. A. Rajakumar	Fisheries Scientist	Chennai	30.11.2009	Superannuation
Shri M. Syamasundar	Director (Engg.)	Mumbai(HQ)	31.12.2009	Superannuation



Name	Designation	Base/HQ	Date	Superannuation/ Voluntary
Smt R. P. Balchandani	Upper Division Clerk	Mumbai(HQ)	31.12.2009	Superannuation
Shri D. C. Thacker	Dafttry	Porbandar	31.12.2009	Sperannuation
Shri B. J. Thomas	Foreman (workshop)	Kochi	31.12.2009	Sperannuation
Shri E. Appa Rao	Fitter	Visakhapatnam	31.01.2010	Superannuation
Shri P. Haridas	Skipper	Kochi	31.01.2010	Superannuation
Shri K. D. Ouseph	Netmender	Kochi	31.01.2010	Superannuation
Shri. Victor Kujur	Sr. Deckhand	Visakhapatnam	28.02.2010	Superannuation
Shri S. D. Rasam	Office Superintendent	Mumbai	28.02.2010	Superannuation
Shri T. Kaliappan	Sr.Deckhand	Chennai	31.03.2010	Superannuation

12.8 We Remember

We remember with profound grief the untimely demise of our colleague Shri K. A. Chidambaram, Slipway worker of Kochi Base of FSI on 22 April 2009.



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 2010-11 was held at Mumbai during 15-16 April 2010.

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

The XIX meeting on the Consultative Committee of Chennai Zonal Base of Fishery Survey of India was conducted on 22 April 2009 under the Chairmanship of Shri Shambhu Kallollikar, I.A.S., Commissioner of Fisheries, Govt. of Tamil Nadu. The XX meeting of the Consultative Committee was held on 30 March 2010

Visakhapatnam

Meeting of the Consultative Committee of the Visakhapatnam Zonal Base of Fishery Survey of India was conducted on 28 January 2010 under the Chairmanship of Dr. Manmohan Singh, I.A.S., Commissioner of Fisheries, Govt. of Andhra Pradesh.

Meeting of FSI Scientists

A meeting of the Scientific staff of Fishery Survey of India was held on 03 February 2010 at FSI, Mumbai(HQ) under the Chairmanship of Dr. K.Vijayakumaran, Director General. The objective of the meeting was to review the scientific activities of the Institute, standardise the data collection procedure, formulate a system for proper analysis of data and to promote overall scientific activities of the Institute.

Meeting of Vessels Staff and Shore Engineers

A meeting of the engineers and vessels staff of FSI was convened by the Director General to review the operational aspects of vessels on 8 March 2010 at Kochi. Skippers and key operational staff of each survey vessel presented their views on the condition of the vessels, difficulties in implementation of survey programmes and suggestions for improving the quality survey.



13.2 Scientist participation in workshop / seminar / symposium & working parties

13.2.1 Participation in National events

Dr S. K. Naik, Sr. Fisheries Scientist and Shri D. Bhami Reddy, Service Engineer (Mech.) attended the workshop on *Visakhapatnam Sustainable City Review* conducted by the SIPU International, Stockholm, Sweden and the Greater Visakhapatnam Municipal Corporation, at Visakhapatnam on 26 June 2009.

Shri S. M. Patil, Senior Fisheries Scientist and S.K. Dwivedi, Senior Scientific Assistant participated in the National workshop on *Advances in Aquaculture & Fisheries, Perspectives, Prospects and Challenges* on 3 July 2009 organized during ILDEX- India Aquaculture -2009 at ITPO, Pragati Maidan, New Delhi.

Dr S. Ramchandran, Scientific Assistant participated in the National Seminar on *Sagar Sangam 2009* organised by IFCO and presented a paper on *Possibilities of extension of fishing activities to Indian EEZ* at Trivandram during 8-9 August 2009

Shri Manoj Kumar O. T., Service Engineer (Mechanic) attended the National Seminar on *Indian River-Sea Vessels: A Holistic Approach* organized by the Institute of Marine Engineers (India), Cochin Branch on 16 December 2009 at Cochin.

Dr S. K. Naik, Senior Fisheries Scientist participated in the National seminar on *Indian Marine Fisheries- Sustainability* at College of Fisheries, Karnataka Veterinary Animal & Fisheries Sciences University, Bidar, Mangalore on 22-23 December 2009.

Dr A. Anrose, Zonal Director and Shri C.Babu, Sr.Scientific Assistant attended the International conference on *Recent Advances in Lobster Biology, Aquaculture and Management* (RALBAM)-2010 held at NIOT, Chennai on 5 January 2010 and presented a paper on Distribution and abundance on deep sea spiny lobster *Puerulus swelli* in the Indian EEZ.

Dr K. Vijayakumaran, Director General attended the workshop on *Kutch Coast, People, Environment and Livelihood* at Bhuj, Kutch District, Gujarat during 7-8 January 2010.

Shri M. Vinodkumar, Jr. Fisheries Scientist and A. K. Malik, Fisheries Scientist attended a workshop on *Disaster Management* organised by Indian Meteorological Society at Kalina Campus of Mumbai University during 7-8 January 2010.

Dr K. Vijayakumaran, Director General participated in awareness campaign regarding deployment of the Wave Rider Buoy off Ratnagiri organised by INCOIS in co-ordination with CCMB, Ratnagiri and Stakeholder's meeting at Ratnagiri during 12-13 January 2010.



Dr K. Vijayakumaran, Director General, Dr L. Ramalingam, Zonal Director, Port Blair Base, Dr S. K. Naik, Senior Fisheries Scientist, Shri. K. S. N. Reddy, Fishing Gear Technologist, Shri N. Jagannadh, Jr. Fisheries Scientist, Dr Ansuman Das, Jr. Fisheries Scientist, Shri A. Siva, Sr. Scientific Assistant and Shri V. U. Mahesh, Data Enumerator participated in one day National Seminar on *Challenges for Sustainable Management of Fishery Resources of Indian EEZ* at Andhra University, Visakhapatnam on 20 January 2010 organized by Forum of Fisheries Professionals, Visakhapatnam.

Dr K. Vijayakumaran, Director General participated in the meeting of the Scientific Advisory Committee on Marine Living Resources Programme (SAC-MLRP) at Kochi during 22-23 January 2010.

Shri K. Govindaraj, Sr. Fisheries Scientist attended the workshop on *Stranding of Marine Mammals* during 21 - 23 January 2010 at CMFRI, Kochi sponsored by the Indo-US Science and Technology Forum, New Delhi.

Dr K. Vijayakumaran, Director General participated in Stakeholders meeting discussing on the Draft Fisheries Bill at NASC, Pusa, New Delhi on 28 January 2010.

Dr K. Vijayakumaran, Director General participated in the meeting of Consultative Committee on Hilsa at Central Inland Fisheries Research Institute (CIFRI), Barrackpore on 1 February 2010.

Dr K. Vijayakumaran, Director General participated in Stakeholders meeting discussing on the Draft Fisheries Bill at NASC, Pusa, New Delhi on 12 February 2010.

Dr K. Vijayakumaran, Director General participated in Sixth Meeting of the Working Group constituted for Monitoring and Review of Implementation of IOTC Resolutions at Krishi Bhavan, New Delhi on 15 February 2010.

Dr K. Vijayakumaran, Director General participated in the SAFARI TRG CHL meeting at CIFT, Kochi on 19 February 2010.

Dr K. Vijayakumaran, Director General participated in the meeting of the Technical Committee to Assess the Impact of Fishing Ban and Review its duration at CMFRI, Kochi on 20 February 2010.

Dr K. Vijayakumaran, Director General participated in discussion at Geological Survey of India, Mangalore, on Environment impact assessment in the continental shelf of Kerala during 22-23 February 2010.



Dr L. Ramalingam, Zonal Director along with Shri Dharamvir Singh, Service Engineer (Mech.) attended the National Workshop on *Coconut Based Farming System in Andaman & Nicobar Islands* conducted by the High Value Agricultural Development Agency, Directorate of Agriculture, A & N Islands held at the Conference hall of Megapode Nest, Port Blair on 10 February 2010.

Shri Benjamin C. Varghese, Zonal Director attended the Management Development Programme on *Leadership for Innovation in Agriculture* held at IIM campus at Lucknow during 22-26 February 2010.

Dr L. Ramalingam, Zonal Director along with Shri A. B. Kar, Jr. FGT and Shri H. D. Pradeep, Sr. Scientific Assistant attended the National Seminar on *Applied Chemistry in Marine Sciences: Current & Future Trends* during 24-25 February 2010 at Deptt. of Ocean Studies & Marine Biology, Pondicherry University, Brookshabad, Port Blair jointly organized by the Deptt. of Ocean Studies & Marine Biology, Pondicherry University and Indian Society of Applied Geochemists (ISAG) Hyderabad.

Dr K. Vijayakumaran, Director General participated in the meeting with the Chairman, MPEDA, Kochi for discussing various issues regarding the conversion of trawlers to tuna longliners and the Second Meeting of the Expert Committee for Revalidation of Potential Fishery Resources in the Indian EEZ at CMFRI, Kochi on 9 March 2010.

Shri M. Vinod Kumar, Jr. Fisheries Scientist participated in the National Symposium on *parasite taxonomy, biodiversity and fish health environmental impact* organised by the Department of Zoology, Andhra University during 12-13 March 2010 at Visakhapatnam.

Dr K. Vijayakumaran, Director General, along with Shri Kiran S. Mali, Sr. Research Fellow attended an Indo-Australian Workshop on *Ocean Colour Remote Sensing* during 18-19 March 2010 at Space Application Centre (SAC), Ahmedabad.

Dr Ansuman Das, Jr. Fisheries Scientist and Shri Sujit Kumar Pattnayak, Sr. Scientific Assistant attended the trainers training course sponsored by FISCOFED held at CIFNET, Visakhapatnam on 18-22 March 2010.

Dr A. Anrose, Zonal Director participated in the Workshop on Fisheries Resources Management organized by Tamil Nadu Corporation for Development of Women on 23 March 2010.

Dr K. Vijayakumaran, Director General attended the Consultative meeting to develop project document for availing FAO's assistance during 23-25 March 2010 at NFDB, Hyderabad.



Dr K. Vijayakumaran, Director General attended a de-briefing meeting on possible collaboration with the FAO in the Chamber of Joint Secretary (Fy.), Ministry of Agriculture, New Delhi on 26 March 2010.

13.2.2 Participation in International Forums

Dr M. E. John, Zonal Director participated in the 13th Session of the Indian Ocean Tuna Commission Scientific Committee (IOTCSC) of the IOTC from 30 November to 5 December 2009 held in Seychelles.

Shri Benjamin C. Varghese, Zonal Director participated in Indian Ocean Tuna Commission (IOTC) Working Group on *Tropical Tuna, Ecosystem and By- catch* held in Mombasa, Kenya during 12-23 October 2009

Shri M. K. Sajeevan, Sr. Scientific Assistant attended a short training programme on Fisheries Data Collection and Analysis at the Wageningen International, Netherlands during 02-20 November 2009.

Dr K. Vijayakumaran along with Dr S. N. Singh and Dr Madhumita Mukharjee participated in the meeting of the *Second Regional Consultation on preparation of Management Plan for Hilsa Fisheries* (RC-HF-2) held at Chittagong, Bangladesh during 7-8 February 2010.

Dr K. Vijayakumaran along with Dr J. R. Bhatt of Ministry of Environment and Forests, Government of India participated in the *First Meeting of the Project Steering Committee (PSC) of the Bay of Bengal Large Marine Ecosystem (BOBLME) Project* during 3-4 March 2010 at Dhaka, Bangladesh.

Dr M. E. John, Zonal Director participated in the 14th Session of the Indian Ocean Tuna Commission (IOTC) held during 1- 5 March 2010 in Busan, Republic of Korea.



13.3 Visitors / delegation

Mormugao Base

12 students of the Deptt. of Marine Biology, Karnataka University Post Graduate Centre, Kodibag, Karwar visited Mormugao Base on 26 March 2010

Cochin Base

Shri Tarun Shridhar, IAS, Joint Secretary (Fy.) Ministry of Agriculture, New Delhi visited Cochin Base of FSI on 19 June 2009.

Shri V. K. Jain, Deputy Secretary, Ministry of Agriculture, New Delhi visited Base office on 2 and 4 October 2009.

Shri Tim Huntigton, Moody Marine International, U. K. C/o M/s Moon Fishery(India) Pvt .Ltd. Alleppy visited the Base on 26 November 2009

Chennai Base

Shri Shambu Kallolika IAS., Commissioner of Fisheries, Govt. of Tamilnadu visited Chennai Base office on 22 April 2009 and chaired the XIX meeting of the Consultative Committee of Chennai Base.

Shri S. Rajagopal, IRS, Dy. Commissioner of Customs (Imports), Chennai visited as Chief Guest on 6 November 2009 on the occasion of vigilance awareness week.

Visakhapatnam Base

Dr. T. C. Diana, Faculty, Deptt. of Zoology, Andhra University, Visakhapatnam visited the Base museum and departmental survey vessels on 2 April 2009 with 16 students of M.Sc Fisheries Science .

Dr. Bhola Singh and Shri Narayana Singh, Faculties of Motihari College, Motihari, Bihar visited Base office on 8 April 2009 with 15 students of B.Sc Industrial Fisheries.

Shri Jagadeeswara Rao, Spl. Correspondent, The Hindu and Shri K. V. G. Srinivas, Correspondent, Andhra Bhoomi news paper visited Base office for collecting information on impact of uniform ban for 62 days on fisheries on 17 June 2009

Shri B. Sudarsanam, Joint Director of Fisheries, Govt. of Andhra Pradesh, Visakhapatnam visited to collect the information regarding Fishery Survey of India's activities in Marine Fisheries on 07 August 2009.



Fishery Survey of India

Dr M. Lakshmipathi, PI & Reader, Shri D. N. R., Govt. College For Women, Palakol, Andhra Pradesh visited to Base to collect the information on marine fisheries and activities of FSI on 2 September 2009.

Shri Sanjay Koli, Chairman, Vasai Macchimar, Mumbai and Shri Ashwin Jungi, President, Macchimar Bata Association, Porbandar visited to collect fishery charts and information on Tuna Fisheries on 10 September 2009.

Shri A.Venkateswara Rao, Dist. Co-Ordinator, National Children's Science Congress, Vizianagaram & Shri P.V.Srinivas Rao, Fishery Development Officer, Bhogapuram, Vizianagaram visited to collect information on Marine Fisheries of India on 21 October 2009.

Dr Motilal Gupta, Chairman, Industrial Fish and Fisheries (IFF), Jawaharlal Nehru college, Rohtas, Bihar along with 28 students of final year B.Sc. visited to collect information on activity of Fishery Survey of India and marine fisheries of India on 19 November 2009.

Shri. G. M. Srirangam, Head of Department of Zoology, Andhra Loyala College, Vizianagaram with 4 other faculty members and 54 students of IIIrd year B.Sc (Zoology) visited to Base as part of their course on 11 January 2010.



A Thai Mission, comprising of ten delegates from Thailand, headed by Mr.Tawee Doonwanich, Expert in Fishing Gear, visited the Base office along with Dr. P. Paul Pandian, Dy. Commissioner (Fy.), New Delhi on 4 February 2010.

Port Blair Base

Shri P. Mukherjee, Anthropologist, Anthropological Survey of India, Kolkata and Shri M. R. Bhattacharya, DAVP visited Port Blair Base on 12 May 2009.

Dr Kamal Sharma, Scientist, CARI visited Base office on 29 September 2009 and collected information on the fishery potential of Andaman & Nicobar Islands.



13.4 Participation in the conference/trade fair/exhibition

ILDEX-EXPO-2009

The Fishery Survey of India, Mumbai participated in ILDEX-2009, an International Expo- 2009 at ITPO, Pragati Maidan, New Delhi during 2-4 July 2009.

INFISH- 2009

The Fishery Survey of India, Mumbai participated in the INFISH - 2009 organized by National Fisheries Development Board, Hyderabad at People's Plaza, Necklace road, Hyderabad during 11-13 July 2009.

India International Trade Fair (IITF) - 2009



Fishery Survey of India participated in the IITF- 2009 organized by ITPO, New Delhi at Pragati Maidan during 14-27 November 2009. Various charts pertaining to survey activities, survey fleet, fishing methods, fishery resources, fishing gear models, models of vessels etc were displayed. About one lakh people visited the stall. Dignitaries from different countries viz China, Denmark, United State of America, Myanmar and Brazil also visited the stall. Scientists and

Executives from Various Institutes, Professors, Teachers & Students from various States Universities, Colleges, Schools and Farmers from various States went around the exhibition.

National Conference on Biodiversity and Conservation

The Fishery Survey of India (HQ), Mumbai Scientists participated in the National Conference on *Biodiversity and Conservation of Nature and Natural Resources* held during 29-30 January 2010 at Dayanand College of Arts and Science, Solapur (Maharashtra). During the conference, two scientific papers were presented by Fishery Survey of India scientist are as follows-

- 1) *Current status of marine fish diversity: conservation and management along North -West coast of India.*
- 2) *Status of threatened and near threatened marine fishes of India: strategies for conservation and management*



Swastriya Bharat 2009

The Cochin Base of FSI participated in the Swastriya Bharat 2009 exhibition organized by Swadeshi Science Movement at Kochi during 12-16 November 2009.

Akashvani Talk Show/Information Bulletins through AIR/DDK

Shri S. M. Patil, Sr. Fisheries Scientist delivered a talk on Oceanic Fishery Resources broadcasted by Akashvani on 30 October 2009.

Kochi Base of FSI, broadcasted three information bulletins on marine fishery resources off Kerala coast through Krishivani programme of All India Radio.

Port Blair Base of FSI broadcasted three information bulletins on oceanic fishery resources of Andaman & Nicobar Islands through All India Radio. News item on the availability of tuna resources in and around A & N Islands was also published in local daily.



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 maritime states. During the year under report following workshops were organized.

Workshops:

Mormugao Base

A workshop on *Marine Fisheries of Karnataka: Resources and Sustainable Utilization* was conducted on 18 February 2010 at Meenugaru Samudhaya Bhavan, Fishing Harbour, Malpe, Udupi, Karnataka. The workshop was inaugurated by Dr. Y. Basavaraju, Dean, College of Fisheries, Mangalore. Shri. Harish Kumar Assistant Director of Fisheries, Govt of Karnataka, Udupi presided over the function. The workshop focused on the urgent need to reduce fishing efforts in the coastal sector, The scope for augmenting production of the oceanic resources and the need for following sustainable fishing practices in accordance with the guidelines contained in the Code of Conduct for Responsible Fisheries (CCRF).



About 120 participants from various fisheries associations viz. Trawl Boat Fishermen Co-op society, Malpe, Fishermen Co-op Society, Deep Sea Boat Owners Co-op Society, Kota, Purse Seine Fishermen Co-op Society, Malpe, Fisher Women Co-op Society, Dakshina Kannada & Udupi, Fish Marketing Federation, Karnataka Fisheries Development Corporation, Malpe, Fishermen Union, Small Trawl Boat Owners Association, Deep Sea Boat Owner Union, Fisheries Merchant Association, Fishermen Labour Union and Scheduled Caste Fisherwomen Co-op Society, attended the workshop. The fishermen evinced keen interest on the different subjects, particularly on longline fishing and oceanic tuna resources.

Chennai Base

A workshop on *Tuna resources of Andhra Pradesh coast* was held at Vadarevu, Prakasam District, Andhra Pradesh in collaboration with Andhra Pradesh State Fisheries Department on 8 December 2009 for the benefit of local fishermen. The workshop was organized to disseminate survey findings and provide technical tips on exploitation of tuna resources to the end users. Representatives from fishing industry, fisherfolk and other agencies attended the workshop.



Fishery Survey of India

A workshop on *Marine fishery resources off Tamil Nadu coast* was held at Cudallore, Tamil Nadu on 16 February 2010 in co-ordination with the State Fisheries of Tamil Nadu for the benefit of local fishermen. About 100 fishermen attended the workshop.



Visakhapatnam Base

A Regional workshop on *Marine Fisheries Resources of Upper East Coast of India with special reference to Odisha Coast* was organized at Youth Hostel, Puri, Odisha followed by a Stakeholders Meet on 05 March 2010. During the workshop, the fishermen were appraised on the fishery resources availability, seasonality, their sustainable utilisation etc. Scientist of the Base.



The Visakhapatnam and Port Blair Base of Fishery Survey of India jointly organized a workshop on *Marine Fishery Resources of East Coast of India* at State Institute of Fishery Technology (SIFT) Kakinada, Andhra Pradesh on 25 March 2010. The workshop was inaugurated by Shri. Prakasa Rao, Principal, SIFT, Kakinada. About 108 fishermen of the fishing villages of

Kakinada attended the workshop.

Port Blair Base

To create awareness among the local fishermen of Padmanavapur and Betapur about the optimum utilization of fishery resources, the technology to exploit the abundant oceanic resources, the code of conduct for responsible fishery and marine environment, a regional workshop on *Marine fishery resources of A & N Islands* as well as a *fishermen rally* was organized in association with Department of Fisheries, A & N Administration at Betapur on 19 February 2010. The workshop was inaugurated by Smt Shantha Kumari, Pradhan, Sivapuram Gram Panchayat, and presided by Shri J. Chandrasekhar, Asst. Director of Fisheries, A & N Islands.



Open houses

Kochi Base

An open house on *FSI activities and marine resources* was conducted on 9 March 2010 at Marine Engineering Division of FSI Ernakulam for the benefit of students and public. The students from various colleges and schools visited the open house. Models of crafts and gears, fishery charts, preserved specimens of rare fishes and deepsea shrimps caught during the exploratory surveys were displayed. A film show on fishing methods and activities Of FSI was also arranged.



Chennai Base



An open house on FSI activities was organized on 26 February 2010 at Govt. High School, Ennore, Chennai for the benefit of local fishermen, school children and general public. About 200 people participated in the open house.

An open house was conducted on 5 March 2010 at the Base office as well as on board the vessels Matsya Durshti and M.F.V.Samudrika. About

300 students from various colleges and schools from Chennai were benefitted from the open houses

13.6 Computerization of the Institute

The Institute was equipped with database server to maintain scientific data related to fishery, biological study and survey vessels information of FSI and respective application software.

The Client-Server software development by the National Informatic Centre (NIC) for various modules identified by the Institutes is in progress. Some of the modules are already accepted by the Institute for adopting in the respective fields. The application on web based GIS entrusted to NIIT GIS Limited through NIC Pune is in development stage.

Further, the Institute is maintaining the website <http://fsi.gov.in> in Hindi and English.



13.7 Hindi Official Language Activities

Hindi workshop and seminar

Mumbai (HQ)

In the first quarter, a Hindi Workshop was organized on 18 June 2009. Smt. Susmita Bhattacharya, Research Officer delivered lecture on different aspects of official language implementation. She gave practical training on some useful notings in official work. An interaction session was also held, during which many queries raised by the participants were answered. Sixteen employees actively participated in the workshop.

In the second quarter, a Hindi Workshop was conducted on 16 September 2009 on writing of Hindi Notings. The topic covered in the workshop was correspondence and noting in official Hindi. Dr. Sunita Yadav, Assistant Director, Hindi Teaching Scheme, presented the topic *writing of Hindi noting*. Seventeen officials participated in the workshop.

In the third quarter, a Hindi Workshop was conducted on 15 December 2009 in association with Hindi Teaching Scheme, New Mumbai. The topic of the workshop was *Hindi correspondence and standard spellings*. Dr. Sunita Yadav, Assistant Director, Hindi Teaching Scheme was invited to deliver lecture on the above subject. She gave practical training to prepare letters in Hindi. Sixteen employees actively participated in the workshop.

A computer training in Unicode was conducted on 29 March 2010 in order to increase the use of Hindi through computers by the employees. This training was arranged in association with C-DAC, Pune. Shri Rajendra Varma, Assistant Director, C-DAC was the resource person. He enlightened the participants on basic knowledge of Unicode. Eight employees participated in the training programme.

Mormugao

A Hindi Workshop was organised by Mormugao Base of FSI on 26 May 2009 to motivate and assist the staff to work in Hindi. Dr. M. L. Gupta, Dy. Director (Implementation), Regional Implementation Office, Official Language Deptt. Mumbai was invited to deliver a lecture on Official Language Implementation. In his address, he requested to change the attitude towards Hindi and advised to do official work in simple Hindi without any hesitation.

The Second Hindi workshop was organised on 10 June 2009 at Mormugao Base. Shri S. B. Prabhu Desai, Deputy Manager (Official Language), Goa Shipyard Ltd. Vasco was the resource person.

A third Hindi workshop was organized on 29 November 2009 by Mormugao Base of FSI. Shri D.S.Rawath, Dy.Director (Official Language), Ministry of Agriculture,

Fishery Survey of India



Dept. of Animal Husbandry, Dairying and Fisheries, New Delhi and Shri Rajesh Ranjan, Hindi Translator, Ministry of Agriculture, Dept. of Animal Husbandry, Dairying and Fisheries, New Delhi, were present at the workshop. Shri D. S. Rawath, spoke on the *Journey of Hindi as official Language, constitution of Parliament Committee on Official Language, Official Language Act 1963*, the documents covered under section 3 (3) of Official Language Act 1963 and the use of Official Hindi in day to day official work.

Two Hindi workshop *Unicode and its utility & Unicode and its importance* was arranged on 11 December 2009 and 20 March 2010 in association with C-DAC, Pune. Shri Rajendra Varma, Assistant Director, C-DAC, Pune was the resource person.

Visakhapatnam Base

A Hindi workshop was organized on 11 February 2010 at Visakhapatnam Base of FSI, Smt. Vishal Varma, Superintendent, DRM, Visakhapatnam delivered lecture on Official Language Implementation. In her address, she stressed the need to comply the orders of section 3 (3) of Official Language Act 1963.



Port Blair

A Hindi workshop was organized on 22 June 2009 at Port Blair Base of FSI. Shri Kishan singh, Senior Hindi Translator was invited to give lecture on Section 3(3) of the Official Language Act 1963 and Noting & Drafting in Official work.



As a part of the Official Language Implementation, a Hindi workshop was organized on 30 December 2009 at Port Blair Base of FSI. Shri Deepak Chandra Tiwari, Hindi Translator, Doordarshan Kendra was the Chief Guest on this occasion. He delivered lecture on *Hindi alphabets and construction of words & sentences*.

A Hindi workshop on *noting & drafting* was organised on 4 March 2010 to help the staff members to overcome the difficulties while writing Hindi notings. On this occasion Shri Ajay Singh, Sr. Hindi Translator, Directorate of Education, Andaman & Nicobar participated as a resource person. The practical training on some useful notings in official work was given to the staff members. Apart from this, he enlightened the employee about the papers covered under section 3 (3) of Official Language Act 1963.



Hindi Day and Hindi Fortnight Celebration

Mumbai (HQ)

The Fishery Survey of India (HQ) observed *Hindi Day* on 14 September 2009 and *Hindi Fortnight* from 1 September 2009 to 15 September 2009. During this period most of the official works were carried out in Hindi. A competition in Hindi Translation was conducted for the employees belonging to Region 'A' & 'B'. 'Hindi dictation' was conducted for the employees belonging to region 'C'. A Quiz competition was conducted on Official Language Rules & General Knowledge for all the employees belonging to region 'A', 'B' & 'C'. Competitions in terminology and Hindi poem writing were also conducted during this period. There was an overwhelming participation with enthusiasm in the competitions.



The valedictory function of the Hindi Fortnight was held on 15 September 2009. On this day poem recitation was arranged and seven employees participated by reciting the poems written by them. Apart from the various competitions conducted during the Hindi Fortnight, the FSI has a scheme of writing file noting in Hindi. Under the scheme each

Officer/staff maintains an account of the number of notings made on the files and on the basis of no. of notings, 1st, 2nd and 3rd prize are given. The Chief Guest Shri Rajeshwar Prasad Uniyal, Deputy Director (OL), Central Institute of Fisheries Education, Mumbai gave away the prizes to the winners.

Mumbai Base

Mumbai base of FSI organized *Hindi day* and *Hindi Fortnight* during 1-15 September 2009. During this period various programme were arranged. Valedictory function was held on 7 October 2009.

Mormugao Base

Hindi Fortnight was observed at Mormugao Base of FSI during 14-28 September 2009. Shri S. S. Mishra, Commandant, Central Industrial Security Force inaugurated the Hindi Fortnight on 14 September 2009. Shri Rajendra Singh, Secretary, Town Official Language Implementation Committee, South Goa was the



Special Guest. On this occasion a elocution competition on the topic *environment pollution and its remedies* was conducted. During the function the first Hindi Journal of Mormugao Base *Matsya Keerti* was released. During Hindi Fortnight a quiz competition in Official Language, Noting & Drafting and Debate were conducted on 18 September 2009 and 25 September 2009 respectively. The valedictory function of Hindi Fortnight was held on 30 September 2009.



Visakhapatnam Base

The Visakhapatnam Base of FSI organised *Hindi Fortnight* during 5 - 19 September 2009. On the occasion a competitions were held on Hindi Elocution, Hindi Translation and Hindi Music. Valedictory function was held on 19 September 2009. Shri R. Rameshwar Rao, Hindi Translator, Aakashvani, Visakhapatnam was the Chief Guest. Dr. S. K. Naik, Sr. Fisheries Scientist Presided over the function. The Chief Guest in his address said that we should be proud of doing our work in Hindi. The Chief Guest gave away the prizes to the winners of the various competitions.

Port Blair Base

The Base celebrated *Hindi Day* on 14 September 2009 and *Hindi Fortnight* during 14-28 September 2009. Hindi day was inaugurated by Dr. Raghunath, the Officer-in-charge, Zoological Survey of India. Shri Ajay Kumar Debata, Assistant Executive Engineer, Light House & Light Ships Dept. was the Guest of Honour. The Chief Guest in his address, requested for the effective implementation of the official language policy in the office. On the same day an elocution competition on the topic Role of Hindi in India's freedom of struggle conducted.

As a part of *Hindi Fortnight*, competition on Noting & drafting, dictation, translation and on the spot elocution were conducted. The valedictory function was held on 29 September 2009. Shri Inder Raj Singh, Commandant, CISF was the Chief Guest. In his address, he said that *Today Hindi is a strong and major language not only in India but also in the whole World.*

Participation in TOLIC Meeting / Conference / Workshops

Dr. V. S. Somvanshi, Director General, FSI participated in the Town Official Language Implementation Committee Meeting held on 21 April 2009 at Western Railway (HQ), Mumbai.

Smt. Sunita N. Motwani, Jr. Stenographer Gr.II and Shri Rupesh Shanker Saxena, LDC participated in *Rajbhasha Prashnamanch* held on 12 August 2009 at Central Railway HQ. Chhatrapati Shivaji Terminus, Mumbai.

Shri Premchand, Deputy Director General (Fy) participated in the Town Official Language Implementation Committee Meeting held on 16 October 2009 at Western Railway (HQ) Churchgate, Mumbai

Dr M. E. John, Zonal Director, Shri B. L. Anjana, Jr. Hindi Translator and Dr L. Ramlingam, Sr. Fisheries Scientist participated in the Town Official Language Implementation Committee Meeting on 26 May 2009 and 24 October 2009 at MPT, Mormugao.



Felicitation to Retired OLIC members

Six members of the Official Language Implementation Committee of the FSI including the Chairman Dr. V. S. Somvanshi, Director General, Shri K. Gopalakrishnan, Dy. Director General (FY), Dr. (Smt.) S. Varghese, Fisheries Scientist, Shri T. E. Venkatachalam, Director (Eng), Shri N. Thirupalu, Assistant Accounts Officer and Shri G. M. Bhatia, Assistant retired on superannuation after serving for several years as member in the Official Language Implementation Committee. On the occasion of the OLIC meeting held on 15 May 2009 all the six members were felicitated.

AWARDS

Aashirwad Rajbhasha Puraskar for Mumbai (HQ)

The Fishery Survey of India won the Aashirwad Rajbhasha Smriti Chihn as II Prize for doing more work in Hindi among the Small Central Govt. Offices located at Mumbai. Shri Premchand, Deputy Director General (Fy). Shri L. Kesava Rao, Sr. Administrative Officer and Smt. Meera Vellan Rajiv, Jr. Hindi Translator jointly received the puraskar on 21 November 2009 in the 18th Aashirwad Rajbhasha Prize distribution function held at Aakashwani, Churchgate, Mumbai.

Prashasthi Patra and Ashirwad Smriti Chihn

Shri L. Kesava Rao, Sr. Administrative Officer, FSI, (HQ) was honoured with Prashasthi Patra and Ashirwad Smriti Chihn for implementation of Hindi in official work. The prize was received by him in the Aashirwad 18th Rajbhasha Sammelan held on 9 November 2009 at Goregaon, Mumbai.

Commendation Certificates

Mormugao Base of FSI awarded a Commendation Certificate for Securing Second Position among Civilian Offices situated in the South Goa by Town Official Language Implementation Committee. This award presented in the half yearly review meeting of TOLIC held on 24 November 2009 at MPT, Goa.

Mormugao Base of FSI awarded Second Best Office among Civilian Offices situated in the West Zone (Goa, Maharashtra, Gujarat and Daman & Diu.) by Deptt. Official Language, Ministry of Home Affairs, New Delhi. The above shield was received by Dr. A. K. Bhargava, Sr. Fisheries Scientist. Shri B. L. Anjana, Jr. Hindi Translator also received a *Commendation Certificate* from Shri Ajay Makan, Hon'ble Union Home Minister of the State at Daman on 27 March 2010.



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. Expert committee for revalidation of potential fishery resources in the Indian EEZ.



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
EEZ	: Exclusive Economic Zone
GIS	: Geographical Information System
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

