

# **STATE OF THE INDIAN FISHERIES & AQUACULTURE**

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- The fisheries and aquaculture sector – a vital source of Nutritious food, Income and Livelihood for hundreds of millions people around the world
- As a concentrated source of protein, essential fatty acids and micronutrients, fish is important for diversified and healthy diets.
- World **per capita fish supply** reached a new record high of 20 kg in 2014 (India – 6 kg) (FAO, 2016)
- This is due to the **vigorous growth in aquaculture**
- Aquaculture provides **half of all fish for human consumption**
- Fish remains among the most traded food commodities worldwide, worth almost **US\$130 billion in 2012**.
- From 2007 to 2014, the global fish production had continuously increased from about 140.7 million MT to **167.2 MT**

## WORLD FISHERIES AND AQUACULTURE PRODUCTION AND UTILIZATION

	2009	2010	2011	2012	2013	2014
	<i>(Million tonnes)</i>					
<b>PRODUCTION</b>						
<b>Capture</b>						
Inland	10.5	11.3	11.1	11.6	11.7	11.9
Marine	79.7	77.9	82.6	79.7	81.0	81.5
<b>Total capture</b>	<b>90.2</b>	<b>89.1</b>	<b>93.7</b>	<b>91.3</b>	<b>92.7</b>	<b>93.4</b>
<b>Aquaculture</b>						
Inland	34.3	36.9	38.6	42.0	44.8	47.1
Marine	21.4	22.1	23.2	24.4	25.5	26.7
<b>Total aquaculture</b>	<b>55.7</b>	<b>59.0</b>	<b>61.8</b>	<b>66.5</b>	<b>70.3</b>	<b>73.8</b>
<b>TOTAL</b>	<b>145.9</b>	<b>148.1</b>	<b>155.5</b>	<b>157.8</b>	<b>162.9</b>	<b>167.2</b>
<b>UTILIZATION<sup>1</sup></b>						
Human consumption	123.8	128.1	130.8	136.9	141.5	146.3
Non-food uses	22.0	20.0	24.7	20.9	21.4	20.9
Population ( <i>billions</i> )	6.8	6.9	7.0	7.1	7.2	7.3
Per capita food fish supply ( <i>kg</i> )	18.1	18.5	18.6	19.3	19.7	20.1

Note: Excluding aquatic plants. Totals may not match due to rounding.

<sup>1</sup> Data in this section for 2014 are provisional estimates.

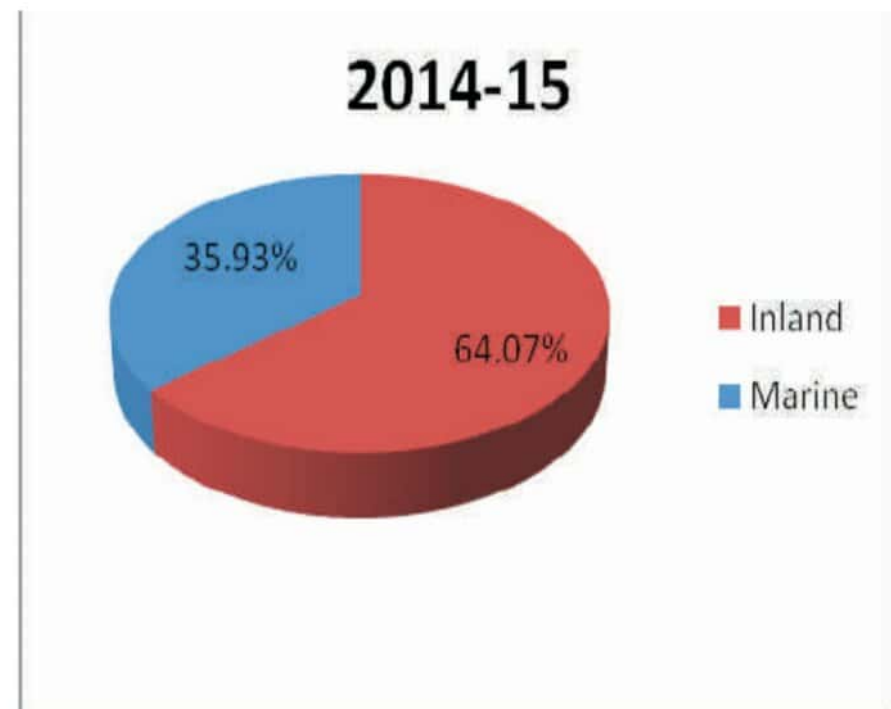
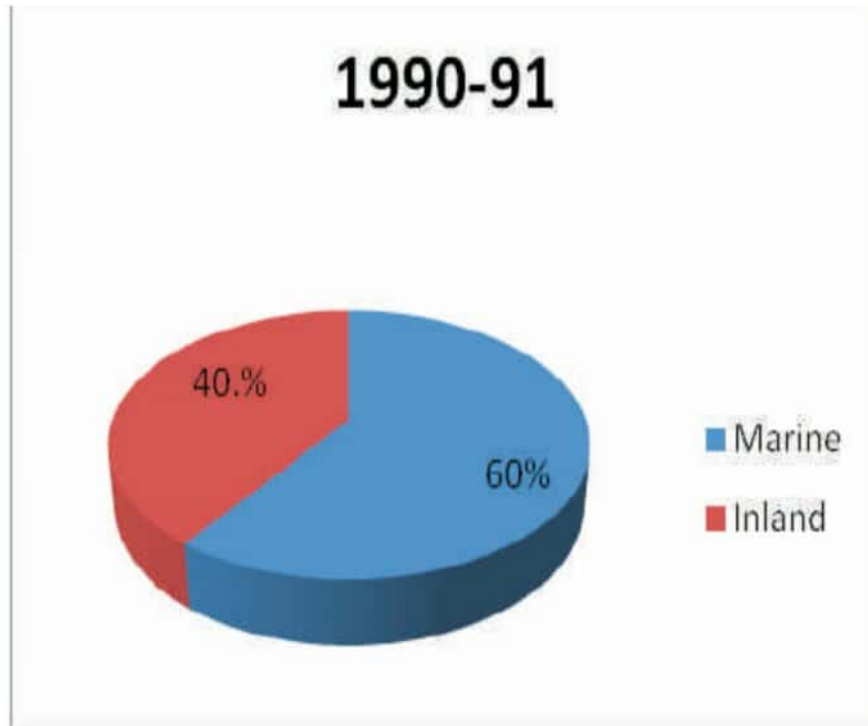
## **OVERVIEW OF INDIAN FISHERIES**

- India is the 2<sup>nd</sup> largest fish producing country in the world (**167.2 MT**)
- Also 2<sup>nd</sup> largest Aquaculture nation in the world (China- **58.795 MT**)
- Total fish production of India during 2014-15 is **10.16 MT**
  - **6.51 MT** from Inland sector
  - **3.65 MT** from Marine sector

- Fisheries is a sunrise sector with varied resources and potential
- Engaging more than 15 million people at the primary level and many more along the value chain
- Transformation of fisheries sector from traditional to commercial has led to an increase in production
- 0.75MT in 1950-51 to 10.164 MT during 2014-15
- Export Earning from the sector is Rs. 33,442 crore in 2014-15
- Contribute about 0.9% to National GDP and 5.17% to the Agricultural GDP (2014-15)

## Historical Scenario (Indian Fisheries):

- ❖ Indian fisheries reveals a shift from Marine dominated production to Inland fisheries production
- ❖ At present Inland fisheries contribution is 64.07% to the total fish production of the country

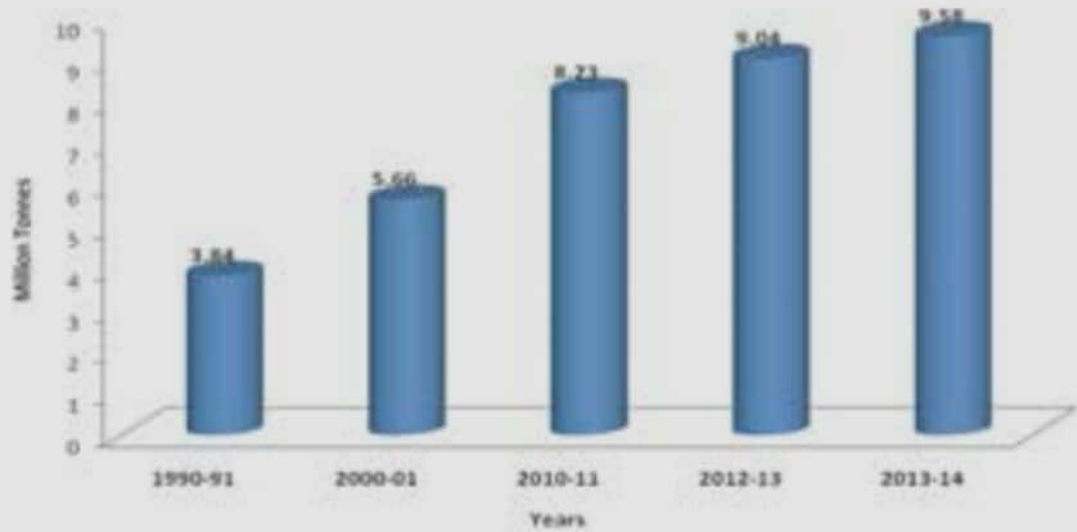


- ❖ Within Inland fisheries there is a shift from capture fisheries to the Aquaculture during last two decade
- ❖ Freshwater Aquaculture share 34% in inland fisheries (1980-90) increased to 80% in recent years
- ❖ About 65 million Hector Area of water brought under fish farming covering 1.1million beneficiaries
- ❖ Currently the annual yield is around 3.0 tonnes/ha.

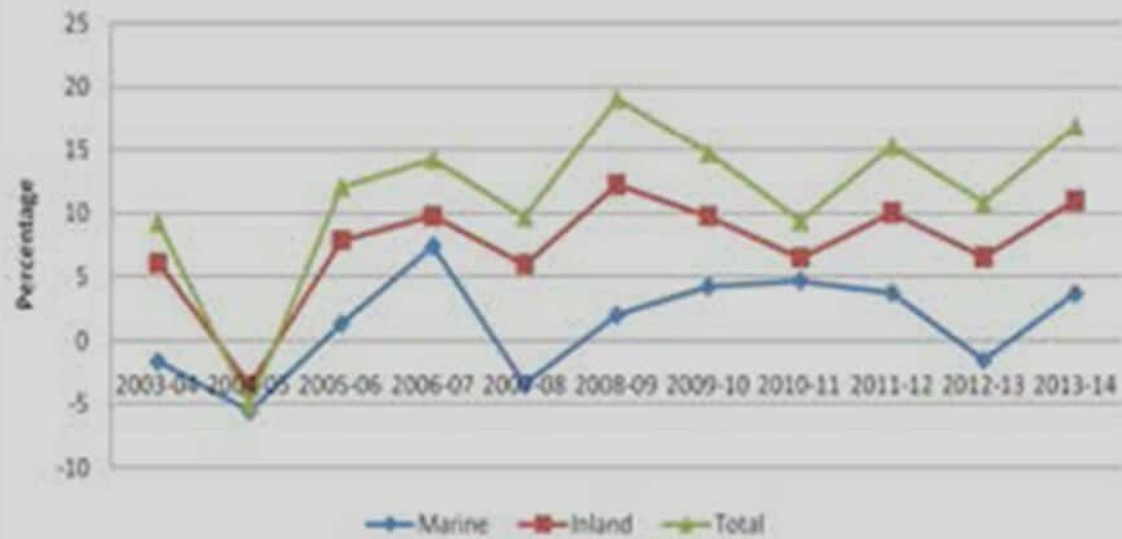
- Population growth, increasing affluence and changing dietary habits have led to rapid **rise in global demand for food**
- FAO (2009) forecasts the need to increase **food production** by **over 40% by 2030** and over **70% by 2050**.
- **Indian fisheries sector** has made great strides in the **last five decades** showing **eight fold increase**; from **0.75 MMT** in 1950-51 to **9.04 MMT** in 2013 & **9.58** in 2014 **MMT**.
- India produce about 5.68% of the global fish production, and is the **2<sup>nd</sup> largest fish producing** nation in the world.
- ❖ India is also a major producer of fish through **aquaculture and ranks second** in the world after China
- ❖ The total fish production during 2013-14 (provisional) is at **9.58 million tonnes (MT)**
- ❖ With a contribution of **6.14 MT** from **inland sector** and **3.44 MT** from **marine sector** respectively.
- ❖ The fish production has increased since 1990-91 from **3.84 MT** in 1990-91 to **9.58 MT** in 2013-14
- ❖ The growth in fish production, has shown an increasing trend. However, a constant growth has been observed in marine sector since 2008-09.



### Fish Production (Million Tonnes)

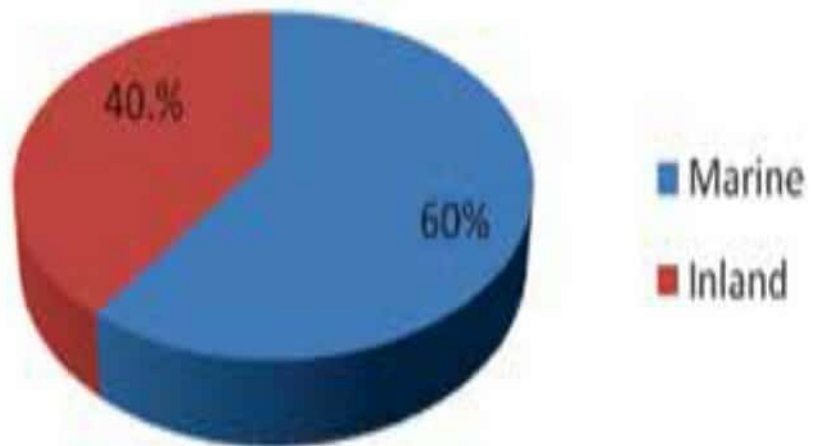


### Growth (%) In Fish Production

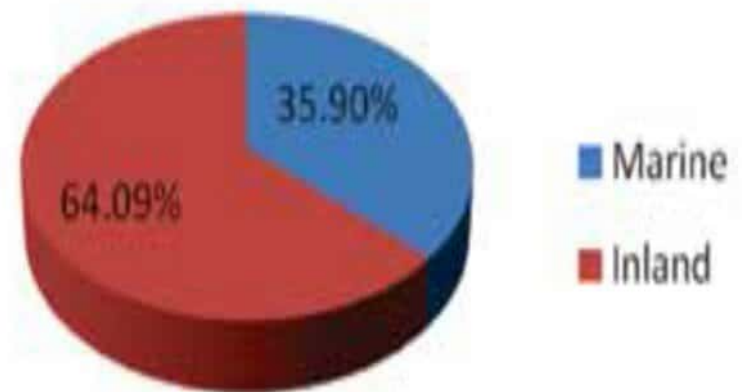


- The sector contributes about 0.92% to the overall Gross Value Added (GVA) and 5.58% of the agricultural GVA at current prices for the year 2013-14. **GVA = GDP + subsidies - (direct, sales) taxes**
- Fish products also form a significant commodity for overseas trade. During 2013-14, **Export aggregated to 9,83,756 tonnes in volume** and **valued at Rs. 30,213 crore** recording **an increase of 5.98%** in quantity and **60.23% in rupees** over previous year.
- The historical scenario of Indian fisheries reveals a **paradigm shift from marine dominated fisheries to a scenario where inland fisheries has emerged as a major contributor to the overall fish production in the country.**
- As seen in the following graph, **inland fisheries presently has a share of 64.09% in total fish production of the country.**

**1990-91**



**2013-14**



## THRUST AREAS

- Inland fishery today is dominated mainly by the freshwater fishery.
- In order to enhance production, there is a need for **diversification of fish production system** in other areas like integrated fish farming, cold water fisheries, riverine fisheries, capture fisheries, brackish water fisheries etc.
- The recent measures therefore have targeted Intensive Aquaculture in ponds and tanks through integrated fish farming, carp polyculture, freshwater prawn culture, running water fish culture and development of riverine fisheries.
- **Expansion of area** under aquaculture has to become an important option to boost fish production.
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- In this context, **derelict water bodies** could be immensely useful and could be an important resource to boost fish production for meeting the future fish demand of the country.
- There are **about 1.3 million hectares of beels and other derelict water bodies in the countries** (Coastal Odisha for instance, is endowed with large areas of unutilized water bodies like derelict canals and drains. Similarly, Brahmaputra basin of Assam have enormous beels lying idle).

- Bringing these water bodies into the ambit of fisheries will boost fish production tremendously and hence expansion of fisheries in these water bodies is one of the focus areas for increasing fish production.
- **Reservoirs**, which are largely untapped in India, have great potential for development of fisheries. **Reservoir Fisheries Development is therefore a thrust area**. By promoting technologies like **cage culture** the productivity of the reservoirs can be enhanced manifold. Due to **large initial investment**, this technology has so far not been successfully implemented in India.
- The Government recognizes **the need for availability of quality seed and feed** for sustained growth in inland fish production in the long run.
- As per an estimate, **the total fish seed required for optimal stocking in the existing ponds, new ponds and reservoirs is about 48,000 million fry**. As against this, the **current seed production is about 41,450 million fry**.
- Thus there is **a gap of about 6,550 million fry**. Setting up of brood banks and hatcheries across the country, therefore is a priority area

- Responsible aquaculture and prevention and management of aquatic diseases, organic farming, and induced breeding are some of the other challenges to be addressed in this sector **for improving productivity**.

## INLAND WATER RESOURCES OF INDIA

Sl. No.	State/Uts	Rivers & Canals (kms.)	Reservoirs (Lakh Ha)	Tanks & Ponds (Lakh Ha)	Flood plain Lakes & Derelict Water bodies (Lakh Ha)	Brackish Water (Lakh Ha)	Total Water Bodies (Lakh Ha)
1.	Andhra Pradesh	11514	2.34	5.17	-	0.6	8.11
2.	Arunachal Pradesh	2000	-	2.76	0.42	-	3.18
3.	Assam	4820	0.02	0.23	1.1	-	1.35
4.	Bihar	3200	0.6	0.95	0.05	-	1.6
5.	Chhattisgarh	3573	0.84	0.63	-	-	1.47
6.	Goa	250	0.03	0.03	-	Neg.	0.06
7.	Gujarat	3865	2.43	0.71	0.12	1	4.26
8.	Haryana	5000	Neg.	0.1	0.1	-	0.2
9.	Himachal Pradesh	3000	0.42	0.01	-	-	0.43
10.	Jammu & Kashmir	27781	0.07	0.17	0.06	-	0.3
11.	Jharkhand	4200	0.94	0.29	-	-	1.23
12.	Karnataka	9000	4.4	2.9	-	0.1	7.4
13.	Kerala	3092	0.3	0.3	2.43	2.4	5.43
14.	Madhya Pradesh	17088	2.27	0.6	-	-	2.87
15.	Maharashtra	16000	2.99	0.72	-	0.12	3.83
16.	Manipur	3360	0.01	0.05	0.04	-	0.1
17.	Meghalaya	5600	0.08	0.02	Neg.	-	0.1
18.	Mizoram	1395	-	0.02	-	-	0.02
19.	Nagaland	1600	0.17	0.5	Neg.	-	0.67
20.	Odisha	4500	2.56	1.23	1.8	4.3	9.89

Sl. No.	State/Uts	Rivers & Canals (kms.)	Reservoirs (Lakh Ha)	Tanks & Ponds (Lakh Ha)	Flood plain Lakes & Derelict Water bodies (Lakh Ha)	Brackish Water (Lakh Ha)	Total Water Bodies (Lakh Ha)
21.	Punjab	15270	Neg.	0.07	-	-	0.07
22.	Rajasthan	5290	1.2	1.8	-	-	3
23.	Sikkim	900	-	-	0.03	-	0.03
24.	Tamil Nadu	7420	5.7	0.56	0.07	0.6	6.93
25.	Tripura	1200	0.05	0.13	-	-	0.18
26.	Uttar Pradesh	28500	1.38	1.61	1.33	-	4.32
27.	Uttarakhand	2686	0.2	0.006	0.003	-	0.209
28.	West Bengal	2526	0.17	2.76	0.42	2.1	5.45
29.	A & N Islands	-	0.00367	0.0016	-	0.33	0.33527
30.	Chandigarh	2	-	Neg.	Neg.	-	0
31.	Dadra and Nagar Haveli	54	0.05	-	-	-	0.05
32.	Daman and Diu	12	-	Neg.	-	Neg.	0
33.	Delhi	150	0.04	-	-	-	0.04
34.	Lakshadweep	-	-	-	-	-	0
35.	Puducherry	247	-	Neg.	0.01	Neg.	0.01
	<b>Total</b>	<b>195095</b>	<b>29.26367</b>	<b>24.3276</b>	<b>7.983</b>	<b>11.55</b>	<b>73.12427</b>

**Source:** State Governments/ Union Territories.



# MARINE FISHERIES RESOURCES OF INDIA

Source: Marine Fisheries Census, 2005.

State/Union Territory	Approx. Length of Coast Line (Kms.)	Continental Shelf ('000 Sq. Kms.)	Number of Landing Centres	Number of Fishing Villages	Number of Fishermen families	Fisherfolk population
Andhra Pradesh	974	33	353	555	163427	605428
Goa	104	10	33	39	2189	10545
Gujarat	1600	184	121	247	62231	336181
Karnataka	300	27	96	144	30713	167429
Kerala	590	40	187	222	118937	610165
Maharashtra	720	112	152	456	81492	386259
Odisha	480	26	73	813	114238	605514
Tamil Nadu	1076	41	407	573	192697	802912
West Bengal*	158	17	59	188	76981	380138
A & N Islands	1912	35	16	134	4861	22188
Daman & Diu	27	0	5	11	7374	40016
Lakshadweep	132	4	10	10	5338	34811
Puducherry	45	1	25	40	14271	54627
<b>Total</b>	<b>8118</b>	<b>530</b>	<b>1537</b>	<b>3432</b>	<b>874749</b>	<b>4056213</b>

## STATE-WISE FISH PRODUCTION DURING THE PERIOD 2006-07 TO 2013-14

(In ₹000 tonnes)

State/Union Territory	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14 (P)
1. Andhra Pradesh	856.93	1,010.08	1,252.78	1293.85	1368.202	1603.17	1808.08	2018.42
2. Arunachal Pradesh	2.77	2.83	2.88	2.65	3.15	3.3	3.71	0.61
3. Assam	181.48	190.32	200.15	218.82	227.242	228.62	254.27	266.7
4. Bihar	267.04	319.1	300.65	297.4	299.91	344.47	400.14	432.3
5. Chhattisgarh	137.75	139.37	158.7	174.24	228.207	250.7	255.61	284.95
6. Goa	102.39	33.43	86.21	84.33	93.27	89.96	77.88	114.06
7. Gujarat	747.33	721.91	765.9	771.52	774.902	783.72	788.49	793.42
8. Haryana	60.08	67.24	76.29	100.46	96.195	106	111.48	116.9
9. Himachal Pradesh	6.89	7.85	7.79	7.75	7.381	8.05	8.56	9.83
10. Jammu & Kashmir	19.2	17.33	19.27	18.94	19.7	19.85	19.95	19.98
11. Jharkhand	34.27	67.89	75.8	70.5	71.886	91.68	96.6	104.82
12. Karnataka	292.46	297.69	361.85	408.05	526.579	546.44	525.57	555.31
13. Kerala	677.63	667.33	685.99	663.12	681.613	693.21	679.74	708.65
14. Madhya Pradesh	65.04	63.89	68.47	66.12	56.451	75.41	85.17	96.26
15. Maharashtra	595.94	556.45	523.1	538.35	595.249	578.79	586.37	602.68
16. Manipur	18.61	18.6	18.8	19.2	20.2	22.22	24.5	28.54
17. Meghalaya	5.49	4	3.96	4.21	4.557	4.77	5.42	5.75
18. Mizoram	3.76	3.76	2.89	3.04	2.901	2.93	5.43	5.94
19. Nagaland	5.8	5.8	6.18	6.36	6.585	6.84	7.13	7.47
20. Odisha	342.04	349.48	374.82	370.54	386.185	381.83	410.14	413.79

State/Union Territory	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14 (P)
21. Punjab	86.7	78.73	86.21	122.86	97.04	97.62	99.13	104.02
22. Rajasthan	22.2	25.7	24.1	26.91	28.2	47.85	55.16	35.1
23. Sikkim	0.15	0.18	0.17	0.17	0.18	0.28	0.49	0.42
24. Tamil Nadu	542.28	559.36	534.17	534.17	614.809	611.49	620.4	624.3
25. Tripura	28.63	36.25	36	42.27	49.231	53.34	57.46	61.95
26. Uttar Pradesh	306.73	325.95	349.27	392.93	417.479	429.72	449.75	464.47
27. Uttarakhand	3.03	3.09	3.16	3.49	3.818	3.83	3.85	3.89
28. West Bengal	1,359.10	1,447.26	1484	1505	1443.259	1472.05	1490.02	1580.65
29. A & N Islands	28.68	28.68	32.49	33.19	33.921	35.26	36.62	36.95
30. Chandigarh	0.17	0.21	0.24	0.24	0.242	0.1	0.05	0.11
31. Dadra & Nagar Haveli	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
32. Daman & Diu	16.41	26.36	14.14	15.88	16.975	17.43	19.01	19.01
33. Delhi	0.61	0.61	0.72	0.71	0.82	0.74	0.69	0.87
34. Lakshadweep	11.75	11.04	12.59	12.37	12.372	12.37	12.37	18.72
35. Puducherry	39.66	39.01	40.3	41.94	41.949	42.4	41.07	42.08
<b>Total</b>	<b>6,869.05</b>	<b>7,126.83</b>	<b>7,616.09</b>	<b>7851.61</b>	<b>8230.71</b>	<b>8666.49</b>	<b>9040.36</b>	<b>9578.97</b>

## FISH SEED PRODUCTION

Year	Fish Seed (In Million Fry)
XI Plan	
2007-08	24,143
2008-09	32,177
2009-10	29,313
2010-11	34,993
2011-12	36,566
XII Plan	
2012-13	34,922
2013-14(P)	41,450

**Fisheries Institutes** under the control of the Department of Animal Husbandry, Dairying & Fisheries, Ministry of Agriculture and Farmers Welfare, Government of India:

- Central Institute of Fisheries, Nautical & Engineering Training (CIFNET), Cochin
- Central Institute of Coastal Engineering for Fishery, (CICEF), Bangalore
- Fishery Survey of India (FSI), Mumbai
- National Institute of Fisheries Post Harvest Technology and Training (NIFPHATT), Cochin
- Coastal Aquaculture Authority (CAA), Chennai
- National Fisheries Development Board (NFDB), Hyderabad
- National Federation of Fishers Cooperatives Ltd. (FISHCOPFED), New Delhi

## **Fisheries Research Institutes**

under Indian Council of Agricultural Research, New Delhi,  
Under Ministry of Agriculture, Govt. of India

- ❑ Central Inland Fisheries Research Institute (CIFRI), Barrackpore, Kolkata, West Bengal
- ❑ Central Marine Fisheries Research Institute (CMFRI), Cochin, Kerala
- ❑ Central Institute of Freshwater Aquaculture (CIFA), Kaushalyaganga, Bhubaneswar, Odisha
- ❑ Central Institute of Brackishwater Aquaculture (CIBA), Chennai, Tamil Nadu
- ❑ Central Institute of Fisheries Education (CIFE), Mumbai, Maharashtra
- ❑ National Bureau of Fish Genetic Resources (NBFGR), Lucknow, Uttar Pradesh
- ❑ Central Institute of Fisheries Technology (CIFT), Cochin, Kerala
- ❑ Directorate of Coldwater Fisheries Research (DCFR), Bhimtal, Uttarakhand

