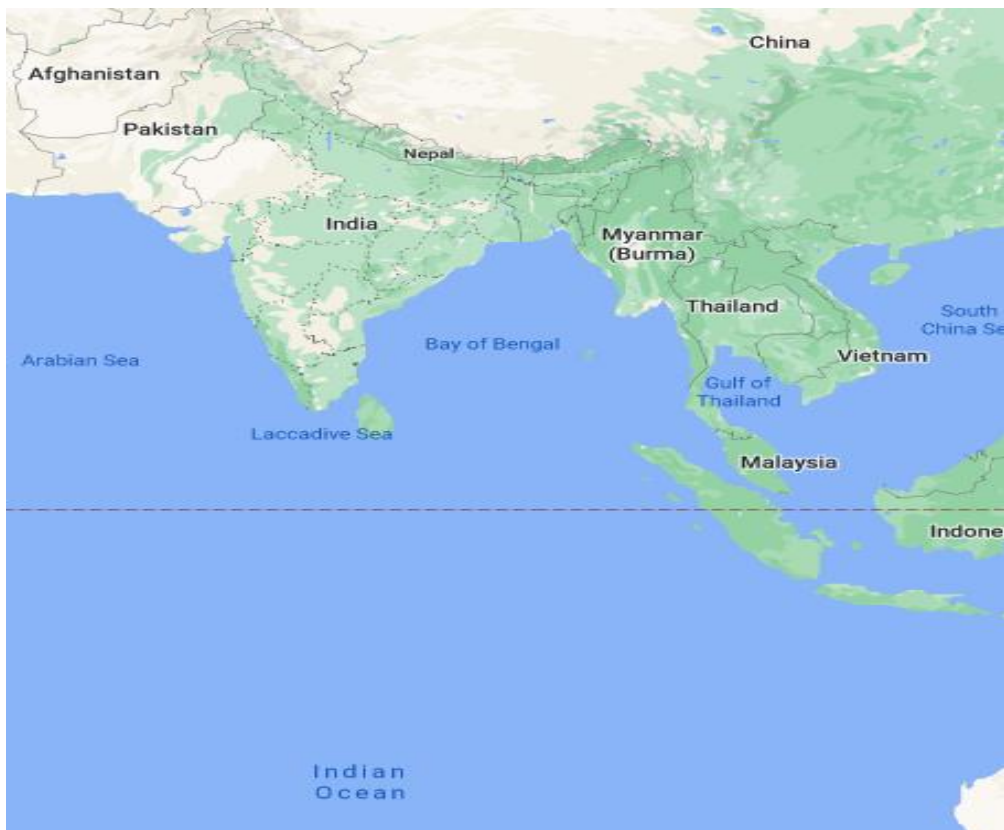


Inland Fisheries Resources of India

Inland fisheries resources of India

India is a South Asian country situated between the Himalayas in the north and the Indian Ocean in the south and flanked on either side by Pakistan and Burma. India is a federal republic covers a total area of 3287728 km². India is a land of diversity. The climate ranges from tropical heat in the south to temperate in the north. The landscape includes towering mountains, extensive alluvial plains, riverine wetlands, plateaus, deserts, coastal plains and deltas. The major physiographic divisions are the Himalayas, the IndoGangetic plains, the Vindhyas, the Satpuras, the Western Ghats, the Eastern Ghats, coastal plains, deltas and the riverine wetlands.



The inland fishery resources of the country comprise of the rivers and canals, reservoirs, tanks and ponds, estuaries, brackish water lakes, backwaters, floodplain lakes (oxbow lakes) etc. while the marine water bodies are mainly used for capture fisheries resources, the inland water bodies are widely used for culture and capture fisheries. Inland capture fisheries of India has an important place; it contributes to about 30% of the total fish production. The large network of inland water masses provides great potential for economic capture fishery.

India has a total water surface area of 3,14,400 sq. km. along with 8129 km coastline, 0.5 million km² of continental shelf and 2.02 million km² of exclusive Economic zone (EEZ). An **exclusive economic zone (EEZ)** is a sea zone prescribed by the 1982 United Nations Convention on the Law of the Sea over which a sovereign state has special rights regarding the exploration and use of marine resources, including energy production from water and wind. It stretches from the baseline out to 200 nautical miles (nmi) from the coast of the state), with water resources in the form of numerous rivers, streams, wetlands, lakes, etc., and receives an average annual rainfall of 1,100 mm. **A major part of the river stretches and canals are concentrated in the states of Uttar Pradesh, Jammu and Kashmir, Madhya Pradesh, Maharashtra, Andhra Pradesh, Karnataka and Tamil Nadu. Much of the reservoir areas falls in the states of Tamil Nadu, Karnataka, Maharashtra, Orissa, Gujarat, Andhra Pradesh, Madhya Pradesh, Uttar Pradesh and Rajasthan. Tanks and ponds are concentrated in the states of Andhra Pradesh, Karnataka, West Bengal, Arunachal Pradesh, Rajasthan and Orissa. A large part of the area under flood plain lakes and derelict water bodies is found in Kerala, Orissa, Uttar Pradesh and Assam. Brackish water areas are concentrated in the maritime states of Orissa, Kerala, West Bengal, Gujarat, Goa, Andhra Pradesh and Tamil Nadu and in the Union territory of Andman and Nicobar Islands. Total area under water bodies (excluding rivers and canals) is found to be maximum in Orissa, followed by Andhra Pradesh, Karnataka, Tamil Nadu, West Bengal, Kerala, Uttar Pradesh, Gujarat, Maharashtra, Rajasthan, Madhya Pradesh, etc. in that order.** There are several wetlands being shared with neighbouring countries too as in case of Ladakh and Sunder bans. The major river basins of the country are the Ganges, Brahmaputra, Narmada, Tapti, Godavari, Krishna and Cauvery.

Inland fisheries resources

India's inland fisheries resources are as diverse as they are plentiful, comprising rivers, floodplains, estuaries, mangroves, reservoirs and ponds. In India, inland fisheries is classified as follows: freshwater aquaculture, including the pond culture of carp; brackishwater aquaculture, involving mostly shrimp culture; and capture fisheries in rivers, estuaries, lakes, reservoirs, etc.

Inland Fisheries resources of India	
Resource	Resource
Rivers and canals	173,287 km
Floodplain lakes	202,213 ha
Freshwater ponds	2,254,000 ha

Reservoirs	3,153,366 ha
Mangroves	356,500 ha
Estuaries	285,000 ha
Brackish water ponds	1235000 ha
Swamps and other wetlands	1,097,787 ha

Capture fisheries of natural waters

Rivers

There are a large number of rivers in the country which run into a total length of 45,000 km. These rivers fall under 113 river basins having a total catchment area of 3.12 million km². There is a large network of perennial rivers, all of which are characterized by very large seasonal variations in their discharge due to seasonal rainfall and prolonged dry periods. The Indian mainland is drained by 15 major (drainage basin >20,000 km²), 45 medium (2,000 to 20,000 km²) and over 102 minor (<2,000 km²) rivers, besides numerous ephemeral streams in the western arid region. These river systems are traditionally grouped, according to their origin, into Himalayan and Peninsular rivers, or according to directions of flow into east-flowing and west-flowing rivers.

Profile of major river systems of India

River System	Name of main rivers	Approximate length (km)	States
Extra Peninsular Rivers			
Himalayan Ganges	Ganga	2,525	Uttarakhand, Uttar Pradesh, Jharkhand Bihar, West Bengal
	Ramganga	569	Uttar Pradesh
	Gomti	940	Uttar Pradesh
	Ghagra	1080	Uttar Pradesh, Bihar
	Gandak	300	Bihar
	Kosi	492	Bihar
	Subernarekha	395	Bihar, Odisha, West Bengal
	Yamuna	1376	Uttarakhand, Haryana, Delhi, Uttar Pradesh
	Chambal	1080	Madhya Pradesh, Uttar Pradesh, Rajasthan

	Tons	264	Uttarakhand
	Sone	784	Uttar Pradesh
	Ken	360	Madhya Pradesh, Uttar Pradesh
Brahmaputra	Brahmaputra	4000	Arunachal Pradesh, Assam
	Dibang, Siang, Lohit, Manas, Buri Dihang, Dhansiri, Koppili		Nagaland, Sikkim Manipur
Indus	Jhelum	400	Jammu and Kashmir
	Chenab	330	Jammu and Kashmir, Himachal Pradesh
	Beas	460	Himachal Pradesh, Punjab
	Sutlej	1450	Himachal Pradesh, Punjab
	Ravi	725	Jammu and Kashmir, Himachal Pradesh, Punjab
Peninsular Rivers			
East Coast	Mahanadi	851	Odisha, Madhya Pradesh
	Brahmani	799	Odisha, Bihar
	Godavari	1465	Maharashtra, Andhra Pradesh
	Krishna	1401	Andhra Pradesh, Karnataka, Maharashtra
	Cauvery	800	Karnataka, Tamil Nadu
	Pennar	597	Karnataka, Andhra Pradesh
	Bhima	861	Karnataka
West Coast	Narmada	1322	Maharashtra, Gujarat, Madhya Pradesh
	Tapti	720	Gujarat, Maharashtra
	Mahi	583	Gujarat
	Sabarmati	371	Gujarat, Rajasthan



Fisheries of Floodplain wetlands and lakes

Floodplain wetlands or beels are another potential fisheries resource in the states of Assam, West Bengal and Bihar, which offer scope for both culture and capture fisheries. These water-bodies play vital role for recruitment of fish stocks of the riverine system and provide nursery grounds for commercially important finfishes and shellfishes. The beels are estimated to possess potential production levels of 1,000-1,500 kg/ha/year, while the present levels remain at only 100-150 kg/ha. Rich nutrient load and availability of fish food organisms make these water-bodies ideal for culture-based fisheries leading to higher growth of stocked fish species than those of reservoirs. Further, the marginal areas of the beels can be utilized for construction of ponds or pens of suitable sizes for raising the required fingerlings. Apart from food fish, these ecosystems have large varieties of potential ornamental fish species. They need specific approaches for integrated fishery development, conservation, sport fishing and eco-tourism promotion.

States	Area ('000 ha)
West Bengal	42.5
Bihar	40.0
Assam	100.0
Uttar Pradesh	152.0
Other NE states	192.0
Total	526.5

Reservoir fisheries:

Open water that contribute to the bulk of inland fisheries production even at their minimum level of exploitation and also hold the key for increased fish production in coming years, are the reservoirs (A **reservoir** is, most commonly, an enlarged natural or artificial lake, pond, or impoundment created using a dam or lock to store water.) and floodplain wetlands. Indian reservoirs are diversified and located under different geo-climatic situations, classified as large (>5,000 ha), medium 10005000 ha) and small (<1,000 ha). With 56 large reservoirs, 180 medium reservoirs and 19,134 small reservoirs covering water area of 1.14 million ha, 0.527 million ha and 1.485 million ha, respectively.

The fish yields from the reservoirs have remained in the range of 11-15 kg/ha in case of large and medium ones, while it is scientific management of small reservoirs have shown improved yields, viz. 102-316 kg/ha, in different reservoirs across the harnesses by providing policy and technology production by more than 160%.

S. No	States	Rivers and Canals (Km)	Small, Medium & Large Reservoir		Tanks & Ponds (Ha)	Brackish Water (Ha)	Beels (Ha)	Oxbow Lakes (Ha)	Derelict Water (Ha)	Other than rivers and canals (Ha)	Total water bodies (Ha)
			Total Number	Area (ha)							
1	Andhra Pradesh	6960.49	119.00	170725.00	271167.00	60000.00				126000.00	627892.00
2	Arumachal Pradesh	30.00	1.00	160.00	3625.00			5.00	11864.00		15654.00
3	Assam	4820.00	1.00	2000.00	73065.00		100815.00		86204.00		262084.00
4	Bihar	3200.00	37.00	60000.00	93296.20			9000.00		133956.00	296252.20
5	Chhattisgarh	3573.00	0.00	84000.00	99400.00						183400.00
6	Goa	250.00	5.00	3448.00	180.00						3628.00
7	Gujarat	3865.00	1635.00	347659.00	22000.00	100000.00			12000.00		481659.00
8	Haryana	5000.00	0.00	0.00	20000.00	0.00	0.00	0.00	0.00	0.00	20000.00
9	Himachal Pradesh*	3000.00	5.00	43785.00	805.04	0.00	0.00	0.00	0.00	619.63	45209.67
10	Jammu & Kashmir	27781.00	8.00	11000.00	445.00			6000.00			17445.00
11	Jharkhand**	1800.00	401.00	121000.00	66348.00		0.00	0.00	0.00	14450.00	201798.00
12	Karnataka	5813.00	82.00	440000.00	292332.00	10000.00	0.00	0.00	0.00	0.00	742332.00
13	Kerala	3220.00	47.00	34205.00	27625.00	240000.00	74000.00	89000.00	80000.00		544830.00
14	Madhya Pradesh	17066.00	3131.00	339175.00	0.68						339175.68
15	Maharashtra	17725.00	2316.00	299000.00	148406.90	17125.15	0.00	0.00	0.00	0.00	464532.05
16	Manipur	3360.00	6.00	2142.00	11442.00	0.00	24433.00	0.00	4728.00	0.00	42745.00
17	Meghalaya	3904.12	5.00	8000.00	2000.00		220.93	61.45	53.94		10336.32
18	Mizoram	1100.00	4.00	8100.00	5468.34						13568.34
19	Nagaland	1600.00	1.00	2258.00	3425.50			1700.00			7383.50
20	Odisha	24878.33	611.00	256000.00	132832.00	430000.00	180000.00				998832.00
21	Punjab	868.00	13.00	4211.73	16220.00						20431.73
22	Rajasthan	5290.00	394.00	336871.00	93909.00						430780.00
23	Sikkim	900.00	3.00	850.00	15.70		3000.00				3865.70
24	Tamil Nadu	7420.00	61.00	570000.00	258035.00	60000.00	0.00	0.00	7000.00	0.00	895035.00
25	Telangana	1808.00	0.00	167900.00	404000.00						571900.00
26	Tripura	1266.71	2.00	5000.00	17552.07	0.00	0.00	0.00	361.44	0.00	22913.51
27	Uttarakhand***	2686.00	7.00	20587.00	861.15		300.00			347.89	22096.03
28	Uttar Pradesh	39542.00	94.00	147552.00	149933.76	0.00		12034.00	0.00	25351.00	334870.76
29	West Bengal	2526.00	52.00	28050.00	263372.00	210000.00	42082.00		26925.00		570429.00
30	A and N Islands		7.00	367.00	160.00	33000.00					33527.00
31	Chandigarh	2.00	0.00	0.00							0.00
32	Dadar & Nagar Haveli	54.00	0.00	5000.00							5000.00
33	Daman and Diu	12.00	0.00	0.00							0.00
34	Delhi	150.00	0.00	4000.00							4000.00
35	Lakshadweep	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
36	Puducherry	25.00	10.00	1678.45	340.87	37.35			1000.00		3056.67
	All India	201495.65	9058.00	3524724.18	2478263.21	1160162.50	424850.93	117800.45	230136.38	300724.52	8236662.17

Source: State Governments/Union Territory Administration

* Himachal Pradesh: Raceways-2.634 Ha, Cold water Lakes-617 Ha

**Jharkhand: 14450 Ha (Check-dams, Ahar, Coalpits & mines) & 1.0 Lakh Dobha (Av Size 10-15 decimal)

*** Uttarakhand : Natural Lakes-297 Ha, Trout Raceway-0.888, Waterlogged area-50

Data used for Handbook 2014