

Inland Fish Production in India: A Spatial Analysis

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ABSTRACT

As a tool for decision-makers and managers in the fisheries and aquaculture industries, GIS (Geographic Information System) facilitates the evaluation of resources, the estimation of carrying capacities, and the implementation of regulations for the ecologically and economically sound use of aquatic resources. GIS is now widely used in limnology and other branches of aquatic research. By its very nature, water is always changing. This means that water features are always evolving. Technological developments have provided scientists with tools to improve many facets of scientific study, from satellite surveillance of animals to computer mapping of environments (D. Schindler, 2011), allowing them to keep up with these shifts. In this investigation, we utilized GIS to simplify data collection and provide context for the fish industry's trading pattern

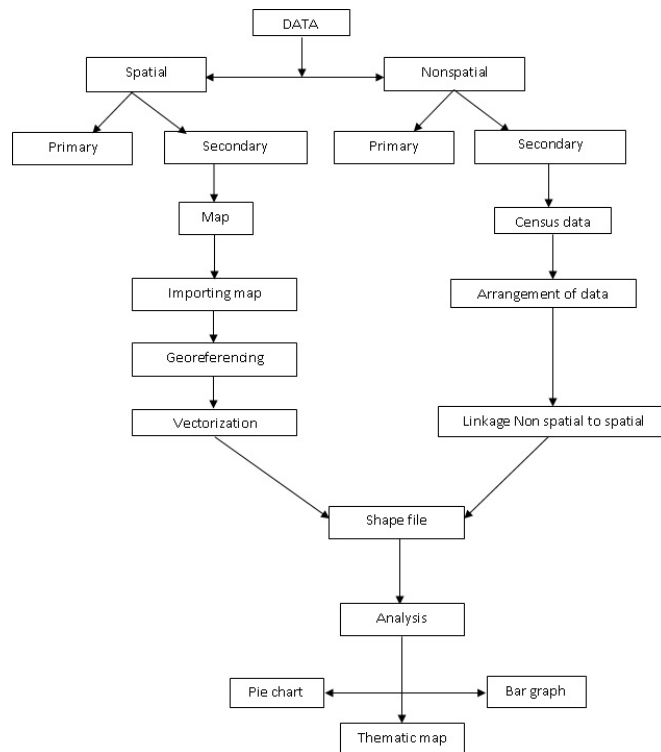
.Key words: Geospatial, GIS, satellite, wildlife etc.

INTRODUCTION

A GIS is a computer program that can collect, organize, analyze, and display any kind of geographical information. It's a great help when you need to analyze and model a certain region in accordance with certain requirements. Thus, by using GIS, we may streamline any study, and it will aid us in visualizing, interpreting, and comprehending data to uncover connections, patterns, and trends in the fishing company, as well as other similar sectors. Natural resource and environmental management are two of the many fields where GIS may be useful. Due to its conceptual roots in a terrestrial setting, using this method in marine habitats is not without its difficulties. In the fields of fisheries and aquaculture, GIS has been shown to be an invaluable aid in planning and management. A comprehensive Ecosystem Approach may therefore be used to fisheries and aquaculture, allowing for the incorporation of vast quantities of data into the decision-making process and the introduction of novel methods of understanding integrated management of fisheries and aquaculture within the larger environmental context.

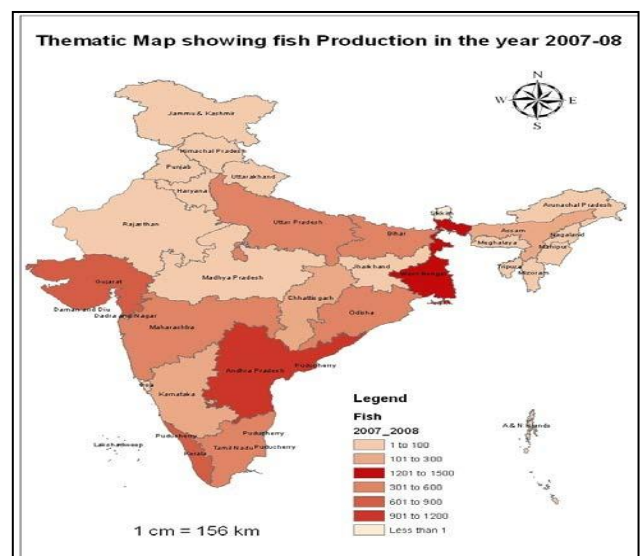
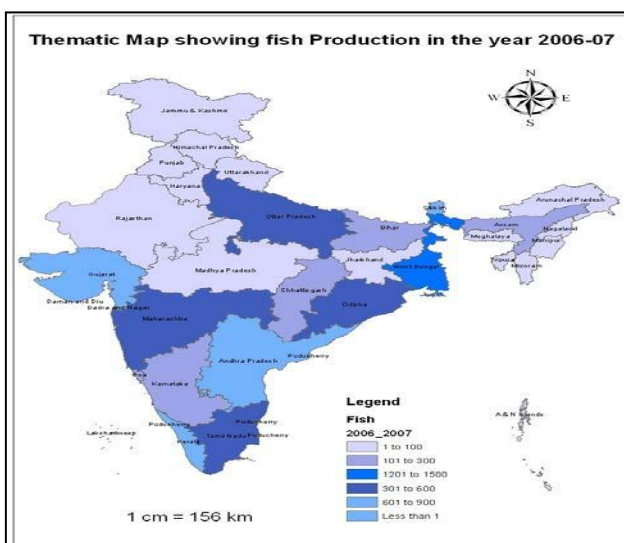
MATERIALS AND METHODS

The informational system's viability is predicated on the veracity, accuracy, and accessibility of its data. In order to do a GIS analysis There is a need for both spatial and non-spatial data at the same time. This information might be main data or secondary data.



RESULTS:

As per data, map shows West Bengal, Andhra Pradesh, Gujrat & Kerela holds 1st four positions in

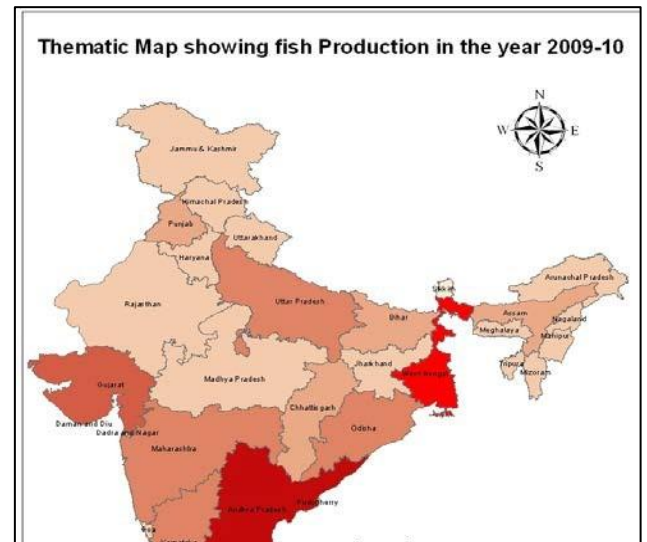
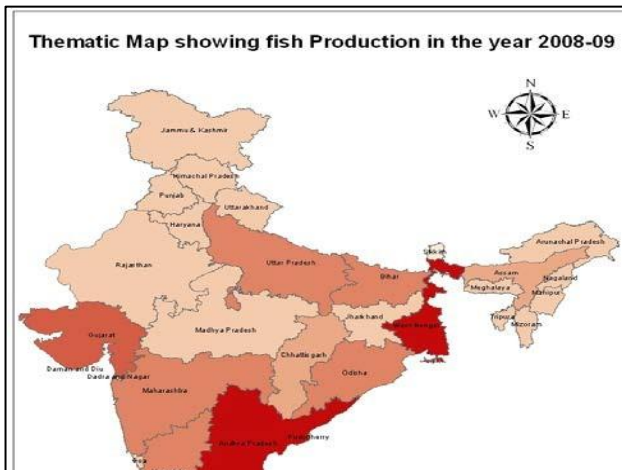


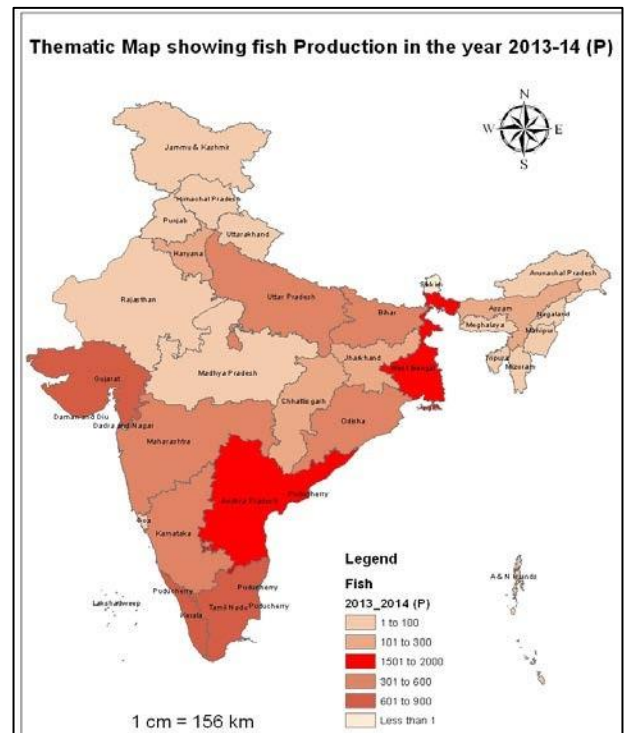
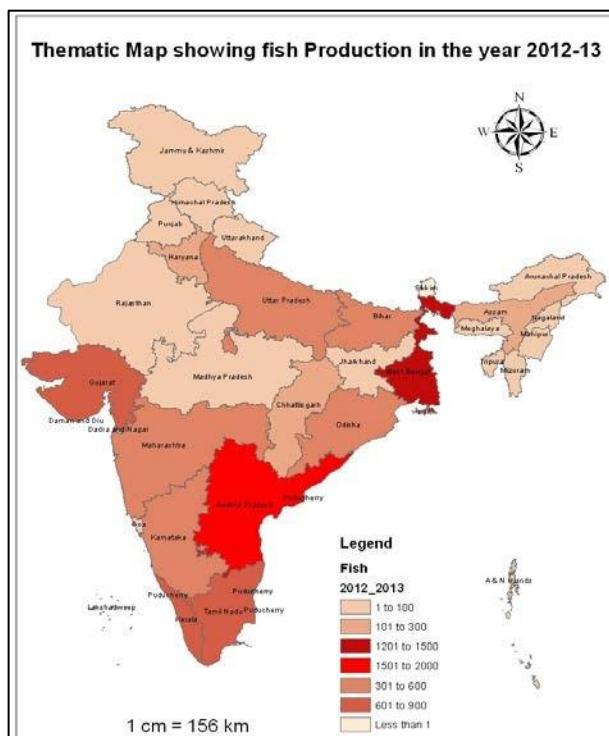
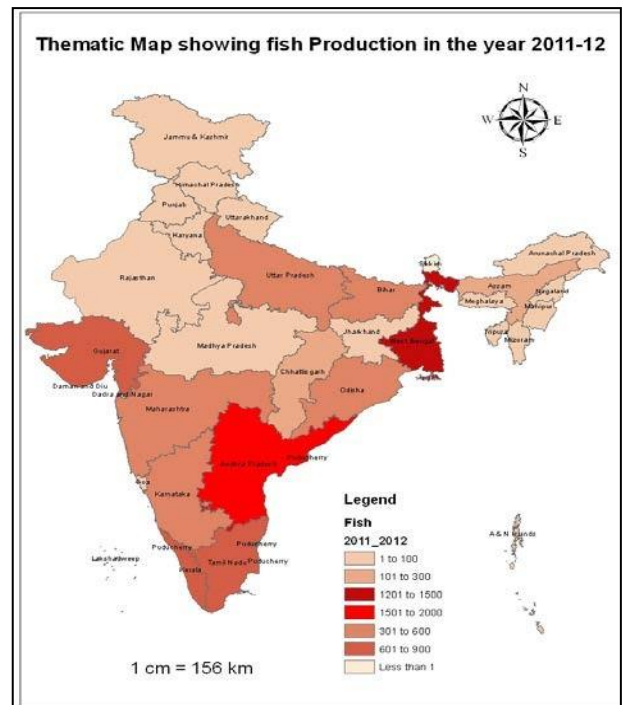
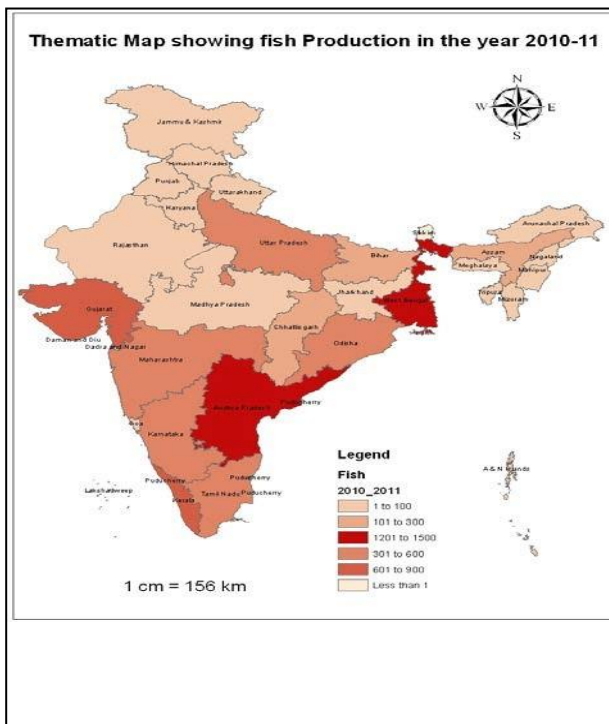
State-wise Inland Fish Production from 2006 to 2014.

✓ Maharashtra & Tamil Nadu alternately occupies 5th and 6th position in Inland Fish

Production during the period (2006 to 2014).

- ✓ Odisha, Uttar Pradesh, Karnataka & Bihar always gets position in between 7th to 10th position in Inland Fish Production for the same period (2006 to 2014).
- ✓ Assam holds 11th position in Inland Fish Production during from the year 2006 to 2010. But from 2011 till now its shifted to 12th position as Chattisgarh is forwarding and now and improved more in production than Assam from 2011 till now.





DISCUSSION

The Country has vast potential for fisheries in view of our long coastline of about 8,118 kms apart from the inland water resources. As per the estimates of CSO, the value of output from fisheries sector at current price was about 91,541 crore during 2012-13 which is about 4.36% of the value of agricultural and allied sector output at current price. India is the second largest producer of fish and the second largest producer of fresh water fish in the world. Fish production has increased from 41.57 lakh tonnes (24.47 lakh tonnes for marine and 17.10 lakh tonnes for inland fisheries) in 1991-92 to 90.40 lakh tonnes (33.21 lakh tonnes for marine and 57.19 lakh tonnes for inland fisheries) in 2012-13. Fishery business has enormous potential to accelerate Indian Economy by earning foreign currency as well as it may also reopen a door for young entrepreneurs to do fishery business if a systematic way is followed.

CONCLUSION

A subfield of classical study, Fishery Science is now integrated with the Geographic Information Systems (GIS) industry to facilitate simpler and more engaging interpretation. In reality, with the help of such a technological tool, we can map out the world in front of us on the screen and make the most informed choice. With the help of this piece of technology, we can map out the world in front of us on the screen and make the most informed choice.

TABLES:

Table 1: Inland water Resources of India

Source: Annual Report, 2014. Department of Animal husbandry, Dairying & Fisheries, Ministry of Agriculture, Government 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	1.14	1.8	4.3	9.8
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	0.01	0	-	0.21
28	West Bengal	2526	0.17	2.76	0.42	2.1	5.45
29	A & N Islands	-	0	0	-	0.33	0.34
30	Chandigarh	2	-	Neg.	Neg.	-	0
31	Dadra and Nagar Haveli	54	0.05	-	-	-	0.05
32	Daman and Diu	12	-	Neg.	-	Neg.	0.00
33	Delhi	150	0.04	-	-	-	0.04
34	Lakshadweep	-	-	-	-	-	0
35	Puducherry	247	-	Neg.	0.01	Neg.	0.01
	Total	195095	29.26	24.24	7.98	11.55	73.03

Table 2: State-wise Inland Fish Production ('000 tonnes) (2006–2014)

Source: Annual Report, 2014. Department of Animal husbandry, Dairying & Fisheries, Ministry of Agriculture, Government of India

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	1930.49
2. Arunachal Pradesh	2.77	2.83	2.88	2.65	3.15	3.3	3.71	2.89
3. Assam	181.48	190.32	200.15	218.82	227.242	228.62	254.27	263.09
4. Bihar	267.04	319.1	300.65	297.4	299.91	344.47	400.14	465.99
5. Chhattisgarh	137.75	139.37	158.7	174.24	228.207	250.7	255.61	281.55
6. Goa	102.39	33.43	86.21	84.33	93.27	89.96	77.88	92.66
7. Gujarat	747.33	721.91	765.9	771.52	774.902	783.72	788.49	793.11
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	8.76
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	106.56
12. Karnataka	292.46	297.69	361.85	408.05	526.579	546.44	525.57	492.06

13. Kerala	677.63	667.33	685.99	663.12	681.613	693.21	679.74	664.45
14. Madhya Pradesh	65.04	63.89	68.47	66.12	56.451	75.41	85.17	90.17
15. Maharashtra	595.94	556.45	523.1	538.35	595.249	578.79	586.37	583.87
16. Manipur	18.61	18.6	18.8	19.2	20.2	22.22	24.5	26.92
17. Meghalaya	5.49	4	3.96	4.21	4.557	4.77	5.42	5.89
18. Mizoram	3.76	3.76	2.89	3.04	2.901	2.93	5.43	5.87
19. Nagaland	5.8	5.8	6.18	6.36	6.585	6.84	7.13	7.15
20. Odisha	342.04	349.48	374.82	370.54	386.185	381.83	410.14	414.64
21. Punjab	86.7	78.73	86.21	122.86	97.04	97.62	99.13	100.3
22. Rajasthan	22.2	25.7	24.1	26.91	28.2	47.85	55.16	56.31
23. Sikkim	0.15	0.18	0.17	0.17	0.18	0.28	0.49	0.46
24. Tamil Nadu	542.28	559.36	534.17	534.17	614.809	611.49	620.4	620.51
25. Tripura	28.63	36.25	36	42.27	49.231	53.34	57.46	60.2
26. Uttar Pradesh	306.73	325.95	349.27	392.93	417.479	429.72	449.75	461.72
27. Uttarakhand	3.03	3.09	3.16	3.49	3.818	3.83	3.85	3.85
28. West Bengal	1,359.10	1,447.26	1484	1505	1443.259	1472.05	1490.02	1636.68
29. A & N Islands	28.68	28.68	32.49	33.19	33.921	35.26	36.62	39.39
30. Chandigarh	0.17	0.21	0.24	0.24	0.242	0.1	0.05	0.09
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	0.69
34. Lakshadweep	11.75	11.04	12.59	12.37	12.372	12.37	12.37	12.37
35. Puducherry	39.66	39.01	40.3	41.94	41.949	42.4	41.07	41.17
Total	6,869.05	7,126.83	7,616.09	7851.61	8230.71	8666.49	9040.36	9425.8

Table 3: Top 12 State for Inland Fish Production ('000 tonnes) (2006–2014)

	2006/07	2007/08	2008/09	2009/10
1	West Bengal 1,359.10	West Bengal 1,447.26	West Bengal 1484	West Bengal 1505
2	Andhra Pradesh 856.93	Andhra Pradesh 1,010.08	Andhra Pradesh 1,252.78	Andhra Pradesh 1293.85
3	Gujarat 747.33	Gujarat 721.91	Gujarat 765.9	Gujarat 771.52
4	Kerala 677.63	Kerala 667.33	Kerala 685.99	Kerala 663.12
5	Maharashtra 595.94	Tamil Nadu 559.36	Tamil Nadu 534.17	Maharashtra 538.35
6	Tamil Nadu 542.28	Maharashtra 556.45	Maharashtra 523.1	Tamil Nadu 534.17
7	Odisha 342.04	Odisha 349.48	Odisha 374.82	Karnataka 408.05
8	Uttar Pradesh 306.73	Uttar Pradesh 325.95	Karnataka 361.85	Uttar Pradesh 392.93
9	Karnataka 292.46	Bihar 319.1	Uttar Pradesh 349.27	Odisha 370.54

10	Bihar	267.04	Karnataka	297.69	Bihar	300.65	Bihar	297.4
11	Assam	181.48	Assam	190.32	Assam	200.15	Assam	218.82
12	Chhattisgarh	137.75	Chhattisgarh	139.37	Chhattisgarh	158.7	Chhattisgarh	174.24

	2010/11	2011/12	2012/13	2013/14
1	West Bengal	1443.26	Andhra Pradesh	1603.17
2	Andhra Pradesh	1368.2	West Bengal	1472.05
3	Gujarat	774.902	Gujarat	783.72
4	Kerala	681.613	Kerala	693.21
5	Tamil Nadu	614.809	Tamil Nadu	611.49
6	Maharashtra	595.249	Maharashtra	578.79
7	Karnataka	526.579	Karnataka	546.44
8	Uttar Pradesh	417.479	Uttar Pradesh	429.72
9	Odisha	386.185	Odisha	381.83
10	Bihar	299.91	Bihar	344.47
11	Chhattisgarh	228.207	Chhattisgarh	250.7
12	Assam	227.242	Assam	228.62

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