

Comparative Study on Sustainability of Pisciculture in Ghatanji and Yavatmal Taluka of Maharashtra

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Abstract:

In the present study, we compared the sustainability of pisciculture in Ghatanji and Yavatmal taluka in Yavatmal district of Maharashtra. We comparatively studied the fish production in four major water bodies of Ghatanji and thirteen major water bodies of Yavatmal taluka where the fishery activity is performed under government supervision. The water bodies studied are Shivni lake, Maregaon lake, Chorkund lake and Kochi lake of Ghatanji taluka and Dudhana lake, Ghatana lake, Manpur lake, Arjuna lake, Salod lake, Kharad lake, Lakhmapur lake, Jamwadi lake, Umarda lake, Kolambi lake, Varud (Yevati) lake and Takali lake, Borgaon dam of Yavatmal taluka. We found, total 20.59 metric tons of fish production from Ghatanji taluka during 2020-21, generating an income of Rs. 20,59,000, and total 36.30 metric tons of fish production from Yavatmal taluka during 2020-21, generating an income of Rs. 36,30,000 which is quite sustainable for the stakeholder of fisheries. The pisciculture in Yavatmal taluka is more sustainable than the pisciculture in Ghatanji taluka as the total fish production in Yavatmal taluka is more as compared to that of Ghatanji taluka. This is because of two reasons, firstly, the water spread area of Yavatmal taluka is more than that of Ghatanji taluka and secondly, the number of water bodies in Yavatmal taluka is nearly three times more than that of Ghatanji taluka.

Keywords: Pisciculture, Sustainability, Yavatmal

Introduction

Pisciculture in Inland fisheries are important for poverty alleviation, food security. The national average in productivity of fishes in community ponds is of 2200kg/ha/year and the national average in productivity of fishes in reservoirs is of 48 kg/ha/year. The potential yield of reservoirs at national level is 250 kg/ha/year (DAHDF, 2017). According to the report of MAFSU, the Yavatmal district has 24 % of aquaculture ponds and 14% reservoirs in Vidarbha region. According to the report of the Akola Irrigation Division, Yavatmal district has a total of 05 major water bodies, 10 medium water bodies and many minor water bodies. Yavatmal Taluka has 10 water bodies with a spread area more than 250 ha and nearly 107 water bodies with spread area less than 250 ha. Out of 16 talukas in Yavatmal district, we studied four minor water bodies of Ghatanji taluka and thirteen minor water bodies or talavs of Yavatmal taluka. In the present study, we will compare the sustainability of pisciculture in Ghatanji and Yavatmal taluka.

Material and Method

Study Area

Yavatmal district lies in the eastern region of Maharashtra and the coordinates of Yavatmal district are; North latitudes: 19.26' to 20.42' and East longitudes: 77.18' to 79.9'. Wardha and Penganga are the chief rivers of the Yavatmal district and thus the water bodies of Ghatanji and Yavatmal taluka come under Godavari-Penganga basin.

Figure 1: Map Of Yavatmal District Showing Ghatanji And Yavatmal Taluka



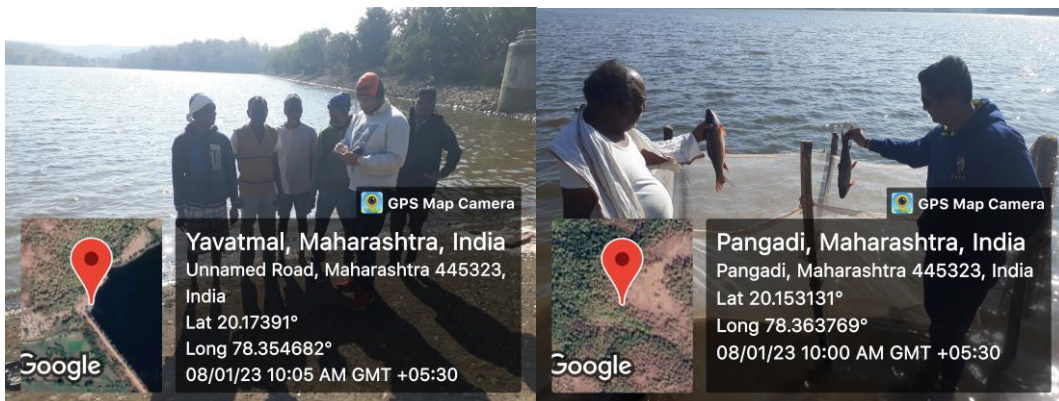
Number of waterbodies in Yavatmal Taluka

Yavatmal Taluka has 10 water bodies with a spread area more than 250 ha and nearly 107 water bodies with spread area less than 250 ha. Out of 16 talukas in Yavatmal district, we compared the 04 minor water bodies of Ghatanji taluka and 13 minor water bodies of Yavatmal taluka. The water bodies studied are Shivni lake, Maregaon lake, Chorkund lake and Kochi lake of Ghatanji taluka and Dudhana lake, Ghatana lake, Manpur lake, Arjuna lake, Salod lake, Kharad lake, Lakhmapur lake, Jamwadi lake, Umarda lake, Kolambi lake, Varud (Yevati) lake and Takali lake, Borgaon dam of Yavatmal taluka.

Period of study and Method

The data of Pisciculture collected annually, keeping in mind the fish farming activity across the year in Ghatanji and Yavatmal taluka, in selected water-bodies by administering a pre-tested interview schedule to collect data from the members of the primary Fisheries Cooperative Societies, progressive farmers, seed producers and others according to the need of study in various period of time.

Photo plate 1: Data Collection At Chorkund Dam by Scheduled Interview and Observation





Result And Discussion

After studying the fish production in selected four water bodies of Ghatanji taluka, we came to notice that Shivni has the highest fish production of 12.89 metric tons during 2020-21 and Kochi has the second highest fish production of 4.6 metric tons during 2020-21, following Maregaon and Chorkund at third and fourth place in fish production of 1.9 and 1.2 metric tons respectively. The following table indicates the fish production in the following selected water bodies of Ghatanji taluka. (Table 1)

Table 1: the Fish production in the following selected water bodies of Ghatanji taluka

Sr . No	Name Of Water Body Or Talav	Average Spread Area of Water Body (ha)	Optimum Fingerling Storage (lakhs)	Actual Fingerling Storage (lakhs)	Expected Fish Production (Metric ton)	Actual Fish Production 2018-19 (Metric ton)	Actual Fish Production 2019-20 (Metric ton)	Actual Fish Production 2020-21 (Metric ton)	Fish Production Per Hectare (Metric ton)
1	Shivni	14	0.7	0.7	21	16.516	19.842	12.89	1.1725714
2	Maregaon	14	0.7	1.6	21	2	1.6	1.9	0.1309524
3	Chorkund	27	1.14	2.8	34.2	2	2.5	1.2	0.0703704
4	Kochi	161	2.81	2.55	84.3	0	4	4.6	0.0178054

After studying the fish production in selected thirteen water bodies of Yavatmal taluka, we came to notice that Umarda has the highest fish production of 7.302 metric tons during 2020-21 and Manpur has no fish production in the previous 3 years. Takali and Lakhmapur have 6.38 and 5.22 metric tons of fish production respectively and have 2nd and 3rd highest fish production respectively in taluka during 2020-21. Jamwadi and Dudhana have 4.481 and 3.45 metric tons of fish production respectively and have 4th and 5th position in fish production respectively in taluka during 2020-21. During the same year (2020-21), Borgaon, Kharad, Kolambi, Yevati, Salod, Ghatana, Arjuna had 2.688, 2.3, 1.3, 1.3, 0.57, 0.5, 0.4 metric tons fish production respectively. Irrespective of the fish production, Takali has highest fish production per hectare i.e. 0.9329167 M.ton/ha. Dudhana has 2nd highest fish production per hectare i.e. 0.2222917. Then after,

comes the Umarda, Lakhmapur and Jamwadi with 0.1520714, 0.1296078 and 0.1267387 M.ton/ha respectively. The following table indicates the fish production in the following selected water bodies of Yavatmal taluka. (Table 2)

Table 2: the Fish production in the following selected water bodies of Yavatmal taluka

Sr . No	Name Of Water Body Or Talav	Aver age Spre ad Area of Wate r Body (ha)	Optim um Fingerl ing Storag e (lakhs)	Actual Fingerl ing Storag e (lakhs)	Expect ed Fish Produc tion (Metric ton)	Actual Fish Produc tion 2018- 19 (Metric ton)	Actual Fish Produc tion 2019-20 (Metric ton)	Actual Fish Produc tion 2020- 21 (Metric ton)	Fish Producti on Per Hectare (Metric ton)
1	Dudhana	16	0.80	1.00	24.00	2.82	4.40	3.45	0.22229 17
2	Manpur	17	0.85	0	25.50	0	0	0	0.00000 00
3	Kharad	22	1.04	1.80	31.20	1.5	1.7	2.3	0.08333
4	Ghatana	28	1.16	1.30	34.80	0.7	0	0.5	0.01428 57
5	Arjuna	28	1.16	0.30	34.80	0	0.8	0.4	0.01428 57
6	Salod	29	1.18	0.18	35.4	1.24	0.57	0.57	0.02735 63
7	Lakhmap ur	34	1.28	2.20	38.4	3.5	4.5	5.22	0.12960 78
8	Jamwadi	37	1.34	1.125	40.2	4.751	4.836	4.481	0.12673 87
9	Umarda	42	1.44	0.3205	43.2	4.225	7.634	7.302	0.15207 14
10	Kolambi	42	1.44	0.30	43.2	0.29	1.125	1.3	0.02154 76
11	Varud	49	1.58	0.64	47.4	0	0.062	1.3	0.01389 80
12	Takali	64	1.84	0.01	55.2	16.39	8.84	6.38	0.93291 67
13	Borgaon	184	3.04	3.5	91.2	2.016	2.695	2.688	0.01340 40

Sustainability

From the above study, it is observed that the annual fish production of above talavs/ water body is not upto the mark as mentioned in optimum/estimated fish production column. There is no exploitation body as the actual fish production is less as compared to the optimum fish production.

In Yavatmal taluka, the total fish production per year in studied water bodies during 2020-21 is 36.30 metric tons which is slightly less as compared to the previous year's (2019-20) annual production of 37.162 metric tons and which again slightly less as compared to the 2018-19's annual production of 37.432 metric tons. If we consider Rs. 100 per kg, the earning would be $100 \times 36.30 \times 1000 = 36,30,000$ Rs during 2020-21 and $100 \times 37.20 \times 1000 = 37,20,000$ Rs during 2019-20. Similarly, the earning would be 37,43,200 Rs during 2018-19, which is quite sustainable for the stakeholder of fisheries.

In Ghatanji taluka, the total fish production per year in studied water bodies during 2020-21 is 20.59 metric tons which is nearly 40% less as compared to the previous year's (2019-20) of annual production of 27.042 metric tons and nearly comparable to the 2018-19's annual production of 20.516 metric tons. If we consider Rs. 100 per kg, the earning would be $100 \times 20.59 \times 1000 = 20,59,000$ Rs during 2020-21 and $100 \times 27.042 \times 1000 = 27,04,200$ Rs during 2019-20. Similarly, the earning would be 20,51,600 Rs during 2018-19, which is quite sustainable for the stakeholder of fisheries.

Conclusion

The annual fish production of Yavatmal taluka during 2020-21 is 36.30 metric tons which is 15.71 metric tons more than the annual fish production of Ghatanji taluka which is 20.59 metric tons. Similarly, the annual fish production of Yavatmal taluka during 2020-21 is 37.20 metric tons which is 10.158 metric tons more than the annual fish production of Ghatanji taluka which is 27.042 metric tons. Therefore, the annual income generated through pisciculture in Yavatmal taluka is more as compared to the Ghatanji taluka which makes the pisciculture in Yavatmal taluka more sustainable than Ghatanji taluka. This is because of two reasons, firstly, the water spread area of Yavatmal taluka is more than that of Ghatanji taluka and secondly, the number of water bodies in Yavatmal taluka is nearly three times more than that of Ghatanji taluka. Beside less number of water bodies and less water spread area in Ghatanji taluka as compared to Yavatmal taluka, the annual fish production per hectare is more in Ghatanji taluka. Still, both the talukas lacked in potential yield of reservoirs at national level of 250 kg/ha/year.

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