

STATUS OF FISH SPAWN PROSPECTING IN RIVER GANGA

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Fish spawn collection is a popular and traditional method of fishing from the river across the country. A large number of fishers depend on the collection of spawns as a major source of income for their daily livelihood. This activity helps to improve economic conditions of the fishers as well as spawn collectors. A good number of intermediaries are also involved actively in the marketing system of spawn. The introduction of advanced technology such as Bundh breeding and Chinese circular hatchery, are causes of decreasing tendency of spawn collection. Another major factor is cost-efficacy which is considerably higher in the case of riverine spawn collection than that of spawn production. River Ganga was the source of 91.67 % of fish spawn during 1964-65. However, the availability of spawn of Indian Major Carps has been decreased to a greater extent, around 51.21% during 1956-67 and 16.04 % from 2005 to 2015. The declining pattern of spawn abundance and IMC stocks is attributed to large-scale juvenile and spawn exploitation which may be influenced by habitat degradation, indiscriminate destructive fishing practices and pollution in the riverine ecosystem. The feeding and breeding habitat of fishes in and around the Ganga River has been degraded drastically thus, affect the spawning behaviour of the fish population. Therefore, to investigate the present status of fish spawn availability in river Ganga, ICAR-CIFRI initiated a study on 'Qualitative and quantitative evaluation of fish spawn of river Ganga.

Methods

Collection Devices (Gears): Description of Gear: The

shooting net used for spawn collection is chiefly made of nylon and is having common tail cum Hapa chamber which is generally made up of cotton (gamchas) or synthetic clothes (sarees) which also act as a short-term storage chamber of spawn. The length of the net diversely varies from 280 to 660 cm. The width of the net varies from 240 to 564 cm. The ring diameter varies from 17 to 24 cm. The net is operated at a depth of 2.5 to 10.2 ft. For this purpose, there are altogether 7-9 bamboos used during the operation of the shooting net.

Fish Seed Production in River Ganga

The previous reports on fish spawn availability from the river have indicated decreasing trend (10%) of wild IMC spawn in the period 2005-2009 in percent contribution compared to other fish stocks (90 %) as reported by Das et al.¹. On the other hand, a considerable decline in fish seed availability has also been noticed from 78.62 % (1960's) to 34.48% (2004)². The number of fish spawns (approx.) varies greatly depending upon the time of commencement of the monsoon. Generally, the entire Ganga river basin receives heavy rainfall (80%) during the period from June to September with an average of 1200 mm³. However, recent studies have indicated a decrease in rainfall by 56 % over 133 districts along the entire Ganga basin largely due to climate change ⁴. As a result, the river experiences several floods during the collection period i.e. extending for 30 days. The bulk appearance of the spawn is observed only during the first two floods during the peak season, while the remaining yield only traces of spawn. The first flood which plays a pivotal role in the maximum collection of spawn commences very late nowadays owing to delayed monsoon. However, on the other side, the operation also reaches its peak when the river water appears a reddish tinge in color owing to the addition of water from the

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river Son from the north in Bihar near Patna. It appears generally in the last week of July and retains till the 1st week of August. This is the reason behind the shorter span of collection time. The appearances of new and full moons also play a vital role in the huge availability of spawn as recorded from a few places. Overall, the collection reaches up to 10 bati /day/ net from 4 bati /day/ net.

Quantitative and Qualitative Evaluation of Fish Spawn

The studies carried out in the present survey focused upon both qualitative and quantitative production output of fish seed from the river. The average fish spawn production has been estimated to be only 21 ml (435 million) from the middle and lower stretch of River Ganga. A qualitative investigation was undertaken from the lower stretch of the river viz. Farakka, Lalgola, and Guptipara in West Bengal indicated a total of 46 species belonging to 36 genera 19 families, and 8 orders during 2018-19. The species identification has been carried out solely from a representative sample from three different designated sites of the river. The site Guptipara has been confronted with maximum availability of fish species (0.38%) followed by Farakka (0.36%) and Lalgola (0.25%) respectively. Contribution from the economically important catfishes was merely 4.33 % signifying less abundance of the species during the sampling period. In the reared fish samples only 30 % of the sample was of Indian Major Carps and among the cyprinids, the contribution of Indian Major Carps was only 43 %.

Major Threats for the Ganga Spawn Production:

Construction of Dam, Barrages, and Hydropower Projects : Construction of Dams Barrages and hydropower projects leads to hindrance in the riverine flow which causes a reduction in the riverine spawn production of native fishes of the river as riverine flow is an important factor for their breeding and migration.

Changing Pattern of Rainfall and Increase in Temperature: The rising temperature of the environment affects the breeding pattern of the native fish fauna. Discontinuous rainfall pattern also leads to irregular spawning of IMC in the river ecosystem.

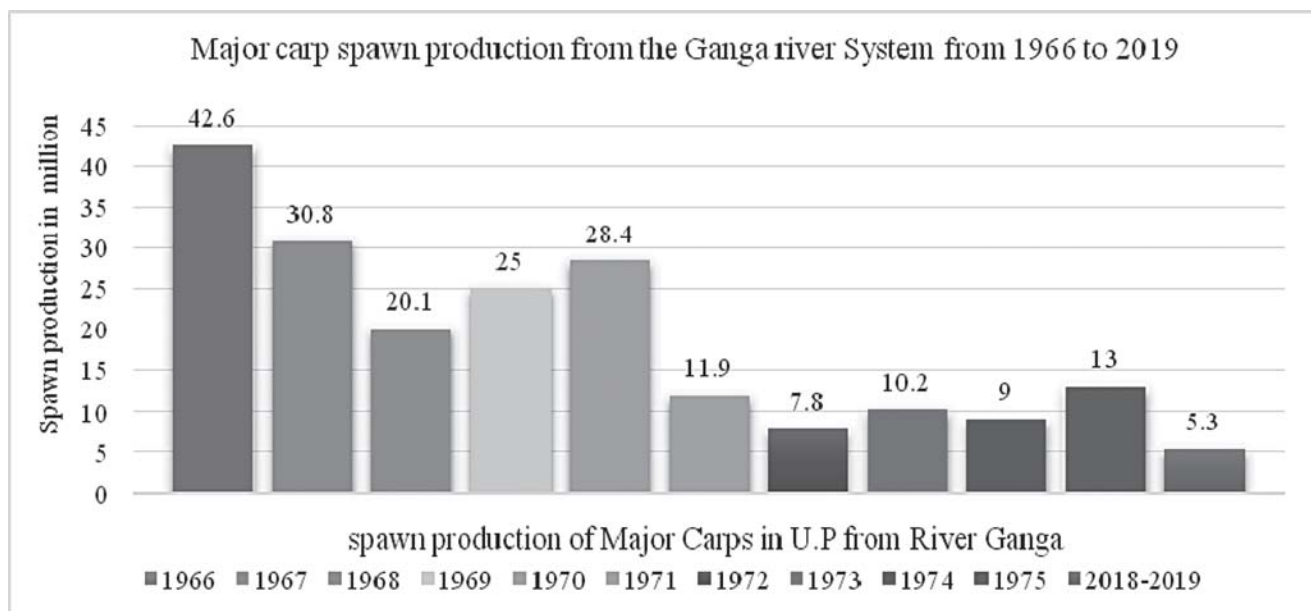
Fragmentation of Hydrological Connectivity Between Rivers and Wetlands: Wetlands are considered as kidneys of the riverine system which play a vital role in the rejuvenation of the riverine system. But day by day the hydrological connectivity of the river is getting lost with the river due to various issues, which create a scarcity of breeding and nursery area for native fish fauna.

Increasing Pollution Level

With the advancement in society, the process of industrialization is also getting increased and wastes from the major industries are carried to the river system which enhanced the pollution level in the river.

Conclusion

Several floodplains which serve as breeding and nursery grounds of fish have already lost their connection



Source: Jhingran and Ghosh, 1978⁵ (upto 1975 data)

with main channel of Ganges and tributaries due to several factors. Therefore, towards restoring those critical habitats, efforts should be translated into social and political actions as early as possible. Moreover, efforts should be made to check the sediment flow by extensive plantation of native trees, shrubs, etc. on the riverbank and adjoining catchment area. Community-based sensitization and action plans for conserving the native stock of aquatic biota are needed. The concept of River sanctuary/protected area might be developed at potential breeding and nursery ground to avoid human disturbance. Enforcement of fishing rules particularly during the monsoon period should be monitored strictly. River ranching can be a sustainable management approach for conserving and restoration of native fish stock in the Ganga River. □

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