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A Study on the Ecology of Freshwater Fishes of West Bengal

Buddhadeb Jana,

Research Scholar Department of Zoology in OPJS University, Rajasthan

Research Guide Dr. Kamalesh Kumar,

Associate professor department of Zoology in OPJS University, Rajasthan

ABSTRACT

West Bengal, cradled between the Himalayas and the Bay of Bengal, boasts a vibrant tapestry of freshwater ecosystems – rivers, floodplain wetlands (beels), ponds, and reservoirs. This remarkable diversity forms the canvas for a rich and diverse fish fauna, estimated to include over 267 species. Understanding the ecology of these fishes is crucial, not only for their conservation but also for the well-being of the entire aquatic ecosystem. The fishes of West Bengal occupy a diverse range of habitats, each with its unique characteristics. Flowing rivers like the Ganges, Brahmaputra, and their tributaries support migratory species like the Hilsa shad and the mahseer. Still waters of beels teem with carps, catfish, and mudskippers, adapting to seasonal variations in water levels and oxygen availability. Ornamental fish like the danio and the betta thrive in the stagnant waters of ponds, while reservoirs host introduced species like the rainbow trout. The intricate food web forms the lifeblood of this aquatic world. Plankton-feeding fishes like the silver barb form the base, supporting insectivores like the catfish and the ambulius. Predators like the murrel and the snakehead occupy the top, keeping populations in check. This delicate balance ensures the health and stability of the ecosystem. These fishes play a critical role in maintaining the ecological balance. They control insect populations, scavenge organic matter, and disperse plant seeds, contributing to the health of aquatic vegetation. Fish also serve as prey for birds, reptiles, and mammals, forming vital links in the food chain.

KEYWORDS:

Ecology, Fresh, Water, Fishes

INTRODUCTION

West Bengal, a state supported by the Himalayas and the Bay of Bengal, brags a dynamic embroidery of freshwater biological systems - streams, floodplain wetlands (beels), lakes, and repositories. These diverse habitats support a wonderful variety of freshwater fish, assessed at more than 267 species, assuming a significant part in the environmental equilibrium and occupations of millions. Understanding their ecology is essential for their preservation and maintainable use. (Chandra, 2019)

The freshwater fish local area in West Bengal is an orchestra of different families, with Cyprinidae (carps) being the most noticeable, trailed by Siluriformes (catfishes) and Perciformes (roosts). Inside these families, a kaleidoscope of diverse species flourishes. From the lofty mahseer, exploring the quick flows of the Himalayas, to the mudskippers, breathing air and strolling ashore, every species involves a one of a kind specialty, adding to the environment's usefulness.

The diverse habitats offer differing conditions, shaping the existences of their occupants. Streams, with their streaming water and differed profundities, give passages to relocation, generating grounds, and haven for diverse species. Beels, with their occasional changes, go about as nurseries and taking care of reason for some. Lakes and supplies, however man-made, additionally add to the variety, supporting fish culture and giving asylums.

From the luminous greatness of the Pinnacle Mahseer to the fragile sizes of the Luxurious Puntius, these oceanic animals assume a fundamental part in the state's ecology and economy. In any case, this sea-going legacy faces a disturbing danger: diminishing populaces and habitat debasement. The requirement for deliberate endeavors towards freshwater fish protection in West Bengal is fundamental. (Yadava, 2015)

The fate of West Bengal's freshwater fishes depends on quick activity. Stricter contamination control measures, reasonable water the board rehearses, and capable fishing are vital. Reestablishing and safeguarding basic habitats, for example, beels and producing grounds, is fundamental. Local area commitment and mindfulness missions can encourage a feeling of pride and engage neighborhood networks to partake in preservation endeavors.

Tragically, this amicable dance of life faces serious dangers. Contamination from modern effluents, horticultural spillover, and homegrown waste debases water quality, affecting fish wellbeing and rearing. Habitat misfortune because of infringement, dam development, and sand mining further sections populaces and disturbs relocation designs. Overfishing, especially during reproducing seasons, comes down on weak species.

Dams, sand mining, infringement, and modern waste release contribute fundamentally to habitat misfortune and corruption. Streams like the Damodar and the Mayurakshi, once overflowing with life, experience the ill effects of decreased water stream and expanded contamination, choking out amphibian environments.

Disastrous fishing rehearses like electrofishing and the utilization of fine-coincided nets aimlessly catch target species as well as adolescents and imperiled assortments, seriously affecting populace solidity.

Fish are a vital wellspring of protein and micronutrients for millions in West Bengal, particularly in provincial networks. Their downfall can intensify hunger and food uncertainty. Freshwater fish structure crucial connections in the oceanic food web. Their vanishing disturbs hunter prey elements, affecting other amphibian life and environment wellbeing. Fisheries contribute altogether to West Bengal's economy, giving work to fishermen and supporting subordinate enterprises. The downfall of fish stocks endangers these livelihoods and monetary advantages. (Dhawan, 2020)

REVIEW OF RELATED LITERATURE

Barman et al. (2017): Stricter implementation of existing regulations against overfishing, habitat obliteration, and contamination is vital. Reasonable fishing rehearses and dependable water the board should be supported. Drives to reestablish debased waterways, wetlands, and lakes are fundamental. This incorporates afforestation, diminishing sand mining, and advancing mindful garbage removal rehearses.

Canciyal et al. (2017): Advancing supportable hydroponics rehearses like fish reproducing in controlled conditions can decrease tension on wild populaces and turn out elective revenue hotspots for fishermen. Teaching and engaging nearby networks about the significance of fish preservation and including them in dynamic cycles are urgent for long haul achievement. Consistent exploration on fish populaces, habitat wellbeing, and dangers is imperative for illuminating powerful protection procedures.

Das et al. (2015): The existences of these fish are complicatedly connected. Predatory species like the hilsa feed on more modest fish, keeping up with populaces under tight restraints. Bottom dwellers like the catfish search, cleaning the environment. Herbivorous species like the mahseer control sea-going vegetation, guaranteeing balance. This complicated snare of communications supports the wellbeing of the amphibian biological system.

Jhingran et al. (2016): Notwithstanding their natural and monetary significance, freshwater fishes in West Bengal face a few dangers. Habitat corruption because of contamination, sand mining, and obtrusive species presentation upsets their fragile equilibrium.

Kaur et al. (2020): Overfishing, especially during reproducing seasons, compromises the populaces of monetarily significant species. Environmental change, with its eccentric precipitation examples and increasing temperatures, adds further pressure.

Bhattacharya et al. (2018): Protection endeavors are vital to guarantee the endurance of these sea-going fortunes. Safeguarding and reestablishing habitats, directing fishing rehearsals, and advancing reasonable hydroponics are fundamental stages. Local area commitment and mindfulness missions can encourage a feeling of obligation for the prosperity of these essential assets.

RESEARCH METHODOLOGY

The current research work was done in West Bengal state where the ecology of fresh water fishes was analyzed from the fresh water sources like Ganga, Brahmaputra, and Teesta rivers.

Ecology of Freshwater Fishes of West Bengal

The state's freshwater material incorporates powerful waterways like the Ganga, Brahmaputra, and Teesta, rambling floodplains with incalculable beels (oxbow lakes), and tranquil repositories. Every habitat cultivates unmistakable fish networks, adjusted to its extraordinary attributes.

Rivers: Fast-flowing rivers like the Ganga hold mahseer, catfish, and hilsa, while slower sections harbor carp, catfish, and prawn species.

Beels: These seasonal wetlands are breeding grounds for carps, mudskippers, and the endangered Ganges shark. Submerged vegetation provides shelter and food for these diverse communities.

Reservoirs: These man-made lakes offer calm waters for commercially important carps, catfish, and exotic species like mrigal and grass carp.

Within these habitats, the fishes play crucial roles:

Omnivores: Carp dominate the scene, feeding on detritus and plankton, maintaining water quality.

Carnivores: Predatory fish like mahseer and catfish keep populations in check, ensuring ecological balance.

Herbivores: Grazing fish like mullet control algae growth, shaping the underwater landscape.

West Bengal, a dynamic embroidery of waterways, wetlands, and lakes, harbors a rich biodiversity of freshwater fishes. These sea-going jewels, numbering more than 260 species, act as indispensable marks of environment wellbeing, a pivotal wellspring of protein for millions, and even fuel a flourishing decorative fish exchange. Be that as it may, their sparkling scales veil a cruel reality: a huge part of these fish face the danger of eradication because of different anthropogenic tensions. This paper digs into the basic requirement for freshwater fish preservation in West Bengal and investigates possible procedures to guarantee their proceeds with endurance.

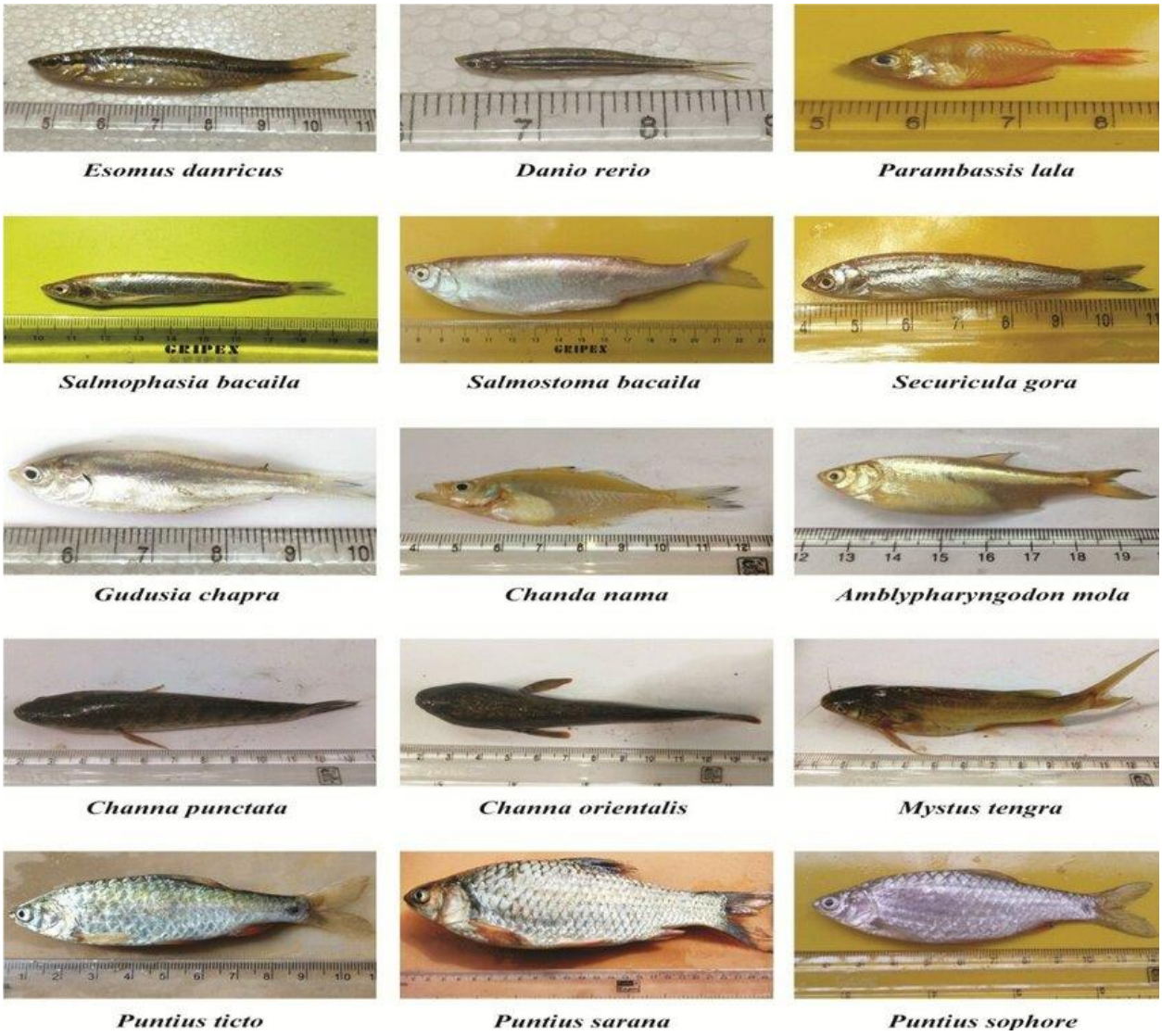

Fig 1:Some fresh water fishes

Source: researchgate.in

The essential dangers to these oceanic miracles are diverse. Habitat misfortune because of contamination, sand mining, and infringement on riverbanks disturbs favorable places and crucial food sources. Unreasonable fishing works on, including overfishing and the utilization of damaging stuff, crush populaces before they can recharge. The presentation of obtrusive outsider species further disturbs the fragile environmental equilibrium, outcompeting local fish for assets and in any event, going after them. Furthermore, environmental change worsens these difficulties, modifying water temperatures, stream examples, and oxygen levels, making endurance considerably more unstable.

The outcomes of inaction are critical. The deficiency of freshwater fish species wouldn't just obliterate the biological system, yet in addition have flowing consequences for jobs and food security. Millions of individuals in West Bengal depend on these fish as an essential wellspring of protein, especially in country regions. The downfall of fish populaces would intensify lack of healthy sustenance and destitution, while likewise influencing the decorative fish exchange, a huge monetary supporter of the state.

Consequently, atrocity is important to defend these oceanic fortunes. A multi-pronged methodology is vital, beginning with habitat reclamation and insurance. Drives like afforestation along riverbanks, stricter guidelines on sand mining, and the making of safeguarded regions can give basic asylums to fish to flourish. Reasonable fishing works on, including gear limitations, get standards, and shut seasons, should be executed and implemented to guarantee dependable collecting. Moreover, public mindfulness missions can teach networks about the worth of freshwater fish and empower capable utilization decisions.

Innovative headways can likewise assume a pivotal part. Fish cultivating utilizing maintainable practices can give elective kinds of revenue and lessen tension on wild populaces. High level checking procedures can follow fish populaces and assist with distinguishing arising dangers early. Furthermore, innovative work endeavors zeroed in on reproducing endangered species in imprisonment can offer a help for populaces near the precarious edge of breakdown.

Cooperation is fundamental for progress. Drawing in partners like fishers, neighborhood networks, government organizations, and exploration establishments in the protection cycle is pivotal. By cooperating, a far reaching plan can be created and executed, guaranteeing that the fate of West Bengal's freshwater fish is a dynamic reality.

The protection of freshwater fish in West Bengal isn't simply an ecological objective, yet an issue of social and monetary prosperity. By perceiving the dangers, executing compelling procedures, and encouraging coordinated effort, we can guarantee that these amphibian miracles keep on gracing our streams, lakes, and plates for a long time into the future. Allow us to stand firm today, guaranteeing that the fish of West Bengal don't simply swim for their lives, yet swim for a flourishing future.

Conclusion:

The freshwater fishes of West Bengal are not just fascinating creatures; they are integral threads in the intricate tapestry of life. Understanding their ecology, appreciating their contributions, and recognizing the threats they face are essential steps towards ensuring their survival and preserving the health of our aquatic ecosystems. Only

through collective action can we ensure that the dance of life continues, for the benefit of future generations and the environment.

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