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# Kopra Wetland: Biodiversity, Fisheries, and Community Conservation in Chhattisgarh

**Sanjay Chandravanshi[1]*, Sanjay Goswami[2], Devati[1] and N. Sarang[1]**
[1]Fisheries Polytechnic, Dau Shri Vasudev Chandrakar Kamdhenu Vishwavidyalaya, Anjora, Durg, Chhattisgarh, India
[2]College of Fisheries, Dau Shri Vasudev Chandrakar Kamdhenu Vishwavidyalaya, Anjora, Durg, Chhattisgarh, India
*Corresponding author – sanjaychandravanshi2012@gmail.com
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***Abstract***

Kopra Wetland, located in Bilaspur district, Chhattisgarh, is a rain-fed freshwater reservoir that has evolved into a biologically rich ecosystem since its construction in 1993. Functioning as a shallow lake and floodplain wetland, it supports diverse flora and fauna, including over 160 bird species, threatened waterbirds, fish, aquatic plants, and small mammals. The wetland plays a vital ecological role by regulating water through flood absorption, groundwater recharge and natural purification, while its nutrient-rich shallows provide breeding grounds for fish, sustaining both biodiversity and fisheries. Local communities rely on Kopra for livelihoods, food security and cultural practices, with traditional fishing methods forming an integral part of rural life. Despite its ecological and socio-economic importance, the wetland faces challenges from agricultural runoff, land encroachment, climate variability, and past overfishing. Conservation efforts, strengthened by its Ramsar designation in 2025, involve community-based management, regulated fishing, eco-tourism development, and government initiatives under Chhattisgarh's Anjor Vision 2047. Kopra Wetland exemplifies the harmonious integration of human livelihoods, cultural heritage, and ecological conservation, highlighting the importance of collaborative stewardship for sustainable wetland management.

**Keywords**: Wetland ecosystem, Ramsar site, Biodiversity hotspot, Fish species diversity, Seasonal hydrology, Eco-tourism, Fishing heritage

## Introduction

A wetland is a place where land and water meet. It is an area that is either always covered with water or stays wet for a long time during the year. Because the soil remains moist or flooded, special plants that love water grow there. Wetlands act like a bridge between dry land and water bodies. They include places such as marshes, swamps, lakes, rivers, mangroves and floodplains. According to the Ramsar Convention on Wetlands (1971), wetlands are areas

of marsh, peatland, or water that may be natural or man-made, permanent or temporary. The water can be still or flowing and it can be fresh, salty, or slightly salty. It also includes shallow coastal water areas where the depth at low tide does not exceed six metres (Abdenour, A., Sinan, M., & Lekhlif, B. (2025)

**Kopra Wetland – A Living Story of Water and Life**

In the heart of Chhattisgarh, near the villages of Bilaspur, lies Kopra Wetland, locally known as Kopra Reservoir or Kopra Jalashay. At first glance, it may seem like a quiet stretch of water. But for the people who live around it, Kopra is part of everyday life a place where nature and community meet. Each year, when the monsoon clouds gather and rain begins to fall, the reservoir slowly fills. Seasonal streams carry fresh water into its basin, spreading into shallow edges where sunlight warms the surface. In these calm waters, tiny plankton bloom, aquatic plants sway gently and life begins to multiply. Fish grow in these nutrient-rich waters, birds arrive to rest and feed and the wetland becomes vibrant with activity. The wetland's rhythm influences the rhythm of life for the families that live nearby. Fishermen often set out in small boats early in the morning, casting nets that have been used for centuries. at addition to providing food for the family, the catch of the day can also provide revenue at nearby markets. By doing this, Kopra subtly improves rural lives and food security. Beyond fishing, the marsh plays significant but unseen roles. When it rains a lot, it retains the water, which helps prevent floods. Long after the rains have stopped, it permits water to slowly seep into the earth, restocking wells and supporting crops. Plants and soils there store carbon and support biodiversity, including migrating birds and microbes.

Kopra Wetland (Figure 1) stands as a reminder that water bodies are not merely geographical features, they are living systems woven into human survival. Its recognition under the Ramsar Convention on Wetlands reflects its ecological and social importance. Here, conservation is not separate from community life it is part of the same story a story of water, resilience, and shared prosperity.

**Figure: 1** Images of Kopra Wetland



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**Kopra Wetland: Physical Characteristics and Ecological Setting**

In the Bilaspur district of Chhattisgarh, in the Takhatpur Block, sits the freshwater reservoir known as Kopra Wetland. Originally intended primarily as a water management project, it was constructed in 1993 for irrigation and water storage. But nature eventually molded it into something more over the years. With the help of minor seasonal streams and monsoon rains, the reservoir started to take on the appearance and characteristics of a natural wetland habitat. It now functions similarly to a floodplain wetland or shallow lake, where human activity coexists with natural processes. Wide stretches of open water reflect the sky, while the shallow, nutrient-rich backwaters around the edges quietly nurture life. These shallows are especially important they allow aquatic plants to grow, plankton to flourish and fish to breed. Birds gather along the gently sloping banks, feeding and resting in a habitat that feels increasingly natural despite its man-made origin. The productivity of the wetland comes from this balance between depth and shallowness, stillness and seasonal change.

The personality of Kopra Wetland changes with the seasons. During the monsoon, rainfall fills the reservoir, expanding its water spread and creating temporary shallow zones rich in nutrients. In the dry months, water levels slowly fall, revealing mudflats and concentrating aquatic life in deeper pools. This yearly cycle of expansion and retreat supports breeding, feeding and migration patterns of fish and birds, making the wetland dynamic rather than static. In addition to its biological significance, Kopra Wetland is nevertheless strongly connected to the nearby agricultural area. The adjacent settlements are sustained by the stored water, which also aids in agriculture and groundwater recharge. Kopra is now a significant freshwater environment that symbolizes the wider significance of wetlands acknowledged by the Ramsar Convention on Wetlands as a result of this gradual blending of human design and natural hydrology (Chandrakar *et al*. 2020)

**Ecological Importance of Kopra Wetland**

**a) Biodiversity Hotspot**

Kopra Wetland is one of the richest wildlife areas in Chhattisgarh. It hosts over 160 bird species, including about 103 resident birds and around 58 migratory species that visit during the winter (Figure 2). Besides birds, the wetland supports diverse fish, aquatic plants and small mammals, making it a lively and productive ecosystem. Some rare and threatened birds find safety here, including the endangered Egyptian Vulture, the vulnerable Common Pochard and Woolly-necked Stork, and near-threatened species like the Painted Stork and Black-headed Ibis. The presence of these species highlights Kopra Wetland's critical role in protecting biodiversity and providing safe habitats for birds that require conservation attention



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(Ramsar Convention Secretariat, 2016; Ministry of Environment, Forest and Climate Change, Government of India).


**Figure: 2** Biodiversity Hotspot of Kopra Wetland

**b) Water Regulation**

The nearby area natural water management is Kopra Wetland. Its shallow waters are kept cleaner for domestic and agricultural use by the vegetation that surrounds them, which traps sediments and contaminants. During the monsoon, the wetland absorbs excess rainwater, reducing the risk of flooding in nearby villages and farmland. This stored water is gradually released, maintaining a steady water supply. In the dry season, groundwater is recharged as water slowly seeps into the soil, supporting wells, irrigation and daily needs. This natural regulation helps sustain both agriculture and local communities throughout the year (Panickar, N. R., Anil, M. K., & Krishna, R. M. V. (2025)).

**c) Habitat for Migratory Birds and Aquatic Organisms**

For birds and other aquatic life, Kopra Wetland is a crucial place to rest and feed. The Northern Pintail, Common Teal, Wood Sandpiper, Black-tailed Godwit, and Eurasian Curlew are among the more than 50 migrating bird species that come here every winter. The marsh is used by residents such the Purple Heron and Little Cormorant, as well as threatened species like the Egyptian Vulture and Woolly-necked Stork. It forms the base of the food chain and preserves ecological equilibrium because of the variety of fish and aquatic plants that may be found in its wide waters and shallow borders. Because it is a rain-fed reservoir, it also replenishes groundwater, guaranteeing that neighbouring wells and agricultural land will have access to water during dry months. By slowing down rainfall runoff, vegetation improves infiltration and supports daily life and agriculture. (Ramsar Convention Secretariat, 2016; Chhattisgarh State Wetlands Authority, 2018).



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**Fisheries in Kopra Wetland**

The Kopra Wetland is home to a wide range of freshwater fish that are frequently seen in reservoirs in Chhattisgarh. Along with other common species like tilapia and snakeheads, larger, more well-known fish like catla (Catla catla), rohu (Labeo rohita), and mrigal (Cirrhinus mrigala) flourish here. Kopra are essential to the ecosystem and the livelihoods of the local population since they not only give the wetland life but also serve as a significant source of food and revenue.

**a) Fishing Practices**

Fishing at Kopra Wetland has long been a family tradition in the communities surrounding Bilaspur. People transmit skills and knowledge from one generation to the next by using basic tools like tiny boats and cast and gill nets. For many families, fishing is an integral part of their daily routines and local culture, serving as both a source of income and a way of life. Kopra Wetland's great biodiversity has been protected by limiting some fishing activities since it was named a Ramsar reserve in 2026. This has helped communities reconcile livelihoods with conservation by encouraging them to adopt more sustainable practices, such as seasonal fishing limitations and thorough fish stock monitoring. (Ramsar Convention Secretariat, 2026; Ministry of Environment, Forest and Climate Change, Government of India, 2026).

**b) Seasonal Patterns**

The seasons are followed when fishing at Kopra Wetland. Between October and February, following the monsoon, when water seeps into shallow regions and fish congregate, making them easier to catch, is the busiest time of year. Fish breeding is protected during specific periods, and fishing slows down during the dry season when water levels decline. The fauna in the marsh and the nearby fishing community benefit from this cyclical pattern.

**c) Breeding Support**

Fish can breed and flourish in Kopra Wetland's excellent environment. In addition to plants like Ipomoea carnea and Cyperaceae species, its shallow, nutrient-rich waters provide young fish with safe breeding sites and cover. In addition to bringing in new nutrients, seasonal floods promote the growth of plankton, which provides food for fish larvae. These natural characteristics work together to sustain the overall ecological balance of the marsh and keep fish populations healthy. (Chhattisgarh State Wetlands Authority, 2018; Ramsar Convention Secretariat, 2016).



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**Economic and Social Importance**

For many families in the villages surrounding Bilaspur, Kopra Wetland is their lifeblood. The primary source of revenue for the local community is its fish because there aren't many other options. Families use traditional methods to catch fish, which they then sell at local markets to help pay for farming supplies, school fees and everyday necessities. Fish from the wetland also provide an important source of protein. They are affordable and nutritious, supporting food security for thousands of people in the surrounding villages who may have limited access to other protein sources. In addition to its economic worth, Kopra Wetland has a strong cultural connection to the area. Harvest festivals and community events, when fishing customs and seasonal festivities unite people and cement their ties to the land and water, featuring its fish. (Ramsar Convention Secretariat, 2016; Ministry of Environment, Forest and Climate Change, Government of India, 2018).

**Challenges Facing Kopra Wetland Fisheries**

Kopra Wetland fisheries face several challenges due to human activities and environmental changes in the semi-rural areas of Bilaspur.

**a) Agricultural Runoff**

Fertilizers and pesticides from nearby farms flow into the wetland, lowering water quality and affecting fish health. Pollution from villages and settlements further increases nutrient loading, sometimes leading to excessive algae growth that harms aquatic life (Chhattisgarh State Wetlands Authority, 2018).

**b) Land Encroachment**

Expansion of farmlands and villages into the wetland's buffer zones reduces habitats, especially the shallow edges that serve as nurseries for young fish. Reclamation and fragmentation of these areas threaten the ecosystem that supports healthy fish populations (Ramsar Convention Secretariat, 2016).

**c) Climate Pressures**

Changes in rainfall patterns and erratic monsoons, linked to climate change, cause water levels to fluctuate. Prolonged dry spells can partially dry the wetland, stress fish and disrupting breeding cycles, while extreme floods may damage habitats, increasing vulnerability in the wider Mahanadi River basin (Ministry of Environment, Forest and Climate Change, Government of India, 2018).

**d) Overfishing Risks**

Fish supplies were previously decimated by unregulated fishing using small-mesh nets. Since local communities still rely on fishing for their livelihoods, enforcement gaps



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persist despite the 2026 Ramsar protections' introduction of prohibitions and sustainable management methods. (Ramsar Convention Secretariat, 2026).

**Conservation and Community Efforts at Kopra Wetland**

Kopra Wetland has gained a strong boost in conservation through its Ramsar designation in 2025, thanks to the combined efforts of the Chhattisgarh State Wetlands Authority, environmental experts, forest officials, and local communities. This recognition has encouraged community-based management, where villagers actively participate in sustainable fishing practices, monitoring fish stocks and ensuring that livelihoods and biodiversity go hand in hand.

**a) Government Initiatives**

The Chhattisgarh government Anjor Vision 2047 aims to secure Ramsar status for 20 wetlands by 2030. Through this vision, policies focus on water conservation, pollution control and habitat restoration under the Ministry of Forest and Climate Change. After Kopra Ramsar designation, specific measures were introduced, including regulated fishing and seasonal bans, to prevent overfishing while promoting alternative income sources for local communities.

**b) Eco-Tourism Opportunities**

The Kopra Wetland's worldwide designation also makes ecotourism more accessible. Through guided nature trails, birdwatching, and sustainable fishing demonstrations, visitors may take in the wetland's natural beauty while creating jobs and revenue without endangering its fragile ecosystems.

**c) Role of Citizens**

Everyone can play a part in protecting Kopra Wetland. Young people and local residents can join clean-up drives, report pollution or illegal fishing, plant native vegetation along wetland buffers, and spread awareness in schools and communities about the importance of wetlands. Small, consistent actions help ensure that Kopra remains a thriving ecosystem for both wildlife and people (Ramsar Convention Secretariat, 2026; Ministry of Environment, Forest and Climate Change, Government of India, 2026). This approach shows that effective conservation is not just about laws it’s about people, communities and shared responsibility, making Kopra Wetland a model of sustainable management and nature-based livelihood support.

**Conclusion**

The connection between nature and human life is exquisitely demonstrated by Kopra Wetland. Originally a man-made reservoir, it has developed into a flourishing environment



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that supports local livelihoods and cultural traditions while being home to a variety of fish, birds, plants and mammals. Additionally, it is essential for carbon storage, groundwater recharge, flood control and water management. Despite ongoing issues like pollution, encroachment, climate change and overfishing, conservation projects, government programs, ecotourism, and Ramsar status demonstrate how humans and nature may coexist together. Kopra Wetland is a real-life illustration of how preserving natural areas benefits biodiversity and future generations of people.

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