SUSTAINABLE FISHERIES IN ANDHRA PRADESH: ADDRESSING OVERFISHING AND ECOSYSTEM DEGRADATION

Dr. Dr.SAI

Lecturer in
Economics
Dr. V.S. Krishna Govt. Degree College (A)
Visakhapatnam.

Dr.ECCLESTON
Lecturer in Economics
Visakha Govt. Degree and P.G. College for Women(A)
Visakhapatnam.

Abstract:

Sustainable fisheries are essential for ensuring long-term fish populations and the health of marine ecosystems. In Andhra Pradesh, a state that leads India in both fish production and seafood exports, sustainable fishing practices are crucial to managing the marine fisheries sector effectively. This study examines the current challenges to sustainable fisheries in the state, including overfishing, environmental degradation, bycatch, and the dominance of mechanized fishing sectors. The research highlights the need for comprehensive governance frameworks, improved fishing practices, and policy interventions to mitigate the negative impacts of overfishing. Additionally, it explores the role of technology, such as bycatch reduction devices, and the importance of seasonal and area closures for preserving marine biodiversity. Recommendations include replacing aging mechanized boats, implementing mesh size regulations, and improving monitoring systems. The study aims to provide actionable strategies to promote sustainability, ensuring that the fisheries sector remains economically viable and ecologically responsible for future generations.

Key words: Bycatch, Over fishing, Ecosystems, Environmental degradation, Sustainability.

Introduction

A sustainable fishery is one in which fishing practices do not cause the fish population to decline over time and harvesting occurs at a sustainable rate. Fisheries sustainability integrates theoretical fields like population dynamics with practical approaches like individual fishing quotas to prevent overfishing, lobbying for appropriate laws and policies to curb illegal and destructive fishing, creating protected areas, reviving collapsed fisheries, integrating all externalities associated with harvesting marine ecosystems into fishery economics, educating stakeholders and the general public, and creating independent certification programs.

Objectives of the study:

1. To define sustainable fisheries management and explore the key principles in it.
2. To examine the problems in attaining sustainable fisheries.
3. To examine the role of governance and policy frameworks in promoting sustainability in fisheries.
4. To propose actionable recommendations for improving sustainable practices in fisheries.

Review of literature:

Leela Edwin and Saly N Thomas, in their study on Responsible fishing and sustainability, examined various practices implemented in India for achieving sustainable fisheries according the Food and Agricultural Organisation of United States standards and analysed the concept of green fishing and its relevance in environmental protection. Code of conduct for Sustainable fisheries in India adopted at the Workshop on Sustainable Livelihoods and Environment Management of Coastal Ecosystems Organised by M. S. Swaminathan Research Foundation, Chennai in collaboration with FA0 Bay of Bengal Programme, Chennai and International Ocean Institute, Operational Centre (India) suggested various recommendations on sustainable fisheries. M.R. Boopendranath Principal Scientist - Retd., Fishing Technology Division, ICAR-CIFT, Kochi, studied on FAO Code of Conduct for Responsible Fisheries - Fishing Operations, examined with regard to sustainable technologies for responsible fishing. The present paper examines the various problems in attaining sustainable fishing practices in Andhra Pradesh and to suggest recommendations for promoting sustainable fisheries.

According to CEIE data, The fish production in Andhra Pradesh is 5,106.000 Million Tons in the financial year 2023-24. For the same year the all India production is 17,545.000 million Tons. The Marine Products Export Development Authority (MPEDA) has exported 17,81,602metric tonnes of seafood worth ₹60,523 crore during 2023-24, of which Andhra Pradesh has contributed about 32%. Andhra Pradesh stands in the first place both in production and exports of seafood in the country. In this regard it is very much needed to analyse the sustainable fishing practices in Andhra Pradesh.

Problems in sustainable fisheries:

The marine fishery of Andhra Pradesh is contributed by mechanized, motorized and traditional sectors with the motorized and mechanized sectors slowly and steadily replacing the traditional sector. However the maximum marine fish landings were obtained from the mechanized sector

(60%), followed by the motorized sector (30%) and the artisanal sector (10%). The marine fisheries sector of Andhra Pradesh is vulnerable to overexploitation of marine resources, environmental degradation and climate change. Thus this sector deserves to be nurtured and managed effectively keeping in mind the challenges faced by the sector.

Over fishing: There has been an uncontrolled increase in fishing effort in Andhra Pradesh over the last decade. In an effort to maximize their returns and suit specific situations, fishermen have adopted new designs in fishing crafts and gears. Trawlers and gillnetters became larger in length; trawl nets with suitable modifications targeting specific resources came into existence viz., shrimp trawl net, ribbonfish trawl net and cephalopod trawl net; increase in horsepower of engine are some of the important changes that have taken place in the last few years.

Old mechanised boats: Use of all mechanized fishing vessels older than 15 years of old fishing boats is both economically inefficient and a hazard to the life of fishermen.

Bycatch in trawls: Trawl bycatch affects ecosystem and diversity causing physical damage and habitat loss. Bycatch form 41.1% of the total trawl catch in Visakhapatnam. Juveniles of various species are captured in large quantities by trawl nets and contribute 63.6% to the total trawl catch.

Ring Seine fishing

Ring seine fishing units are increasing at an alarming pace in coastal districts of northern Andhra Pradesh. Ring seine with very small meshes are operated in the inshore waters of these districts and as a result, their catch is composed almost entirely of juveniles and sub-adults of oil sardine, mackerel and lesser sardines. Growth overfishing is the consequence of this irrational removal of juveniles from the fishery. These forage fishes play a critical role in the ecosystem by transferring energy from low to upper trophic levels.

Recommendations:

Replacement of all mechanized fishing vessels older than 15 years: All mechanized boats which are beyond 15 years in age should be replaced with new boats.

Cage culture: Cage Culture, also known as cage aquaculture, is a method of raising fish in a mesh enclosure within a body of water. Fish are kept in a cage made of netting that's suspended in a body of water, such as a lake, river, or ocean. The cage allows water to flow freely between the fish and the surrounding water, while keeping the fish contained. Cage culture can be an

economically and environmentally sound way to raise fish. It can help reduce pressure on other resources by making efficient use of water bodies. Cage culture can also be a low-impact farming practice that emits little carbon.

Mesh size regulations Mesh size regulations -Mesh size regulations in the trawl cod ends (40 mm, square mesh) should be strictly implemented and followed to reduce fishing of juvenile fish. Use of Bycatch Reduction Devices (BRDs) should be advocated vigorously.

Registration of fishing gears - Registration of fishing gears All fishing gears used in the marine sector should be registered with the State Fisheries Department with codes for each type of gear. Eventually this can lead the way for restrictions on maximum size of gear and number of gear carried by each craft

Restriction on number of ring seines Restriction on number of ring seines - Though ring seines are thought to be an efficient gear for capturing shoaling pelagic fish, the current fishing technique using this gear is to drag the net over the bottom of the sea, thereby disturbing the benthos and substrate. The mesh sizes are too small to allow escapement of juvenile fish. Hence the number of ring seines should be restricted in the state with mesh size restrictions in place

Seasonal closure of fishing - Seasonal closure of fishing Closed fishing season of 60 days is already in place; however, stricter implementation of the reserved zone for traditional fishers (up to 8 km from shore) should be carried out. This will prevent indiscriminate exploitation of brooders and juvenile fish which inhabit the coastal, nutrient-rich waters. Fishermen can provide inputs on season closures for vulnerable groups which can then be incorporated into fishery management plans. g. Area closures for fishing/Marine Protected Areas.

Area closures for fishing/Marine Protected Areas - The estuaries of Godavari and Gosthani at Bhairavapalem, the Krishna estuary at Machilipatnam, the Kandaleru estuary at Krishnapattinam, the Vamsadhara estuary at Kalingapatnam, the Vasishta - Godavari estuary at Antarvedipalem and the estuaries of Pennar, Swarnamukhi and Sarada are home to brooders and juveniles of a vast array of fin and shellfishes and should be closed for fishing during certain months of the year. Similarly nursery areas of sharks can be protected. Voluntary area closures by fishermen would go a long way in sustaining fishery resources of the state.

Increasing use of economic efficient gears and fishing techniques and fishing techniques: Fishing units with high factor productivity growth targeting high value resources increases the efficiency of fishing operations and needs encouragement. Tuna long liners targeting tuna and

other large pelagics have to be promoted for higher economic returns to the fisherfolk and to make fishing operations more lucrative and profitable.

Improved Monitoring, Control and Surveillance (MCS) System: Currently there is a very limited system of monitoring, control and surveillance of marine fishing vessels and their operation in Andhra Pradesh. The MCS system should be improved with Logbook system and Trip registration.

Conclusion:

Sustainable fisheries management in Andhra Pradesh faces several significant challenges, including overfishing, the decline in traditional fishing practices, and the negative environmental impacts of mechanized and ring seine fishing. However, there are promising solutions that can be implemented to enhance sustainability. Key recommendations include the replacement of old fishing vessels, stricter regulations on mesh sizes, and the promotion of environmentally efficient fishing techniques. Moreover, the establishment of Marine Protected Areas (MPAs) and seasonal fishing closures can help safeguard vulnerable marine ecosystems, while improved monitoring systems will ensure better enforcement of these measures. By embracing both technological innovations and stronger policy frameworks, Andhra Pradesh has the potential to lead the country in sustainable fisheries management, balancing the economic needs of the fishing community with the imperative to protect marine biodiversity. Implementing these recommendations will contribute to a more sustainable and resilient fisheries sector that supports both the environment and the livelihoods of local communities.

References:

1. Code of conduct for Sustainable fisheries in India adopted at the Workshop on Sustainable Livelihoods and Environment Management of Coastal Ecosystems Organised by M. S. Swaminathan Research Foundation, Chennai
2. Leela Edwin and Saly N Thomas, Responsible fishing and sustainability, Indian Farming 70(11): 57–59; November 2020
3. M.R. Boopendranath Principal Scientist - Retd., Fishing Technology Division, ICAR-CIFT, Kochi, in the study on FAO Code of Conduct for Responsible Fisheries
4. CEIE data
5. Policy guidance on sustaining the marine fisheries of Andhra Pradesh CMFRI Marine Fisheries Policy Series No. 9.