

Trends in marine fish landings along the Andhra Pradesh Coast: A fifteen-year analysis with recent updates

Eldho Varghese*, J. Jayasankar, M. Muktha, H. M. Manas, Somy Kuriakose, K. G. Mini, Sindhu K. Augustine, D. Pugazhendi, R. Manjeesh, V. K. Manu and V. Sreepriya

ICAR-Central Marine Fisheries Research Institute, Kochi - 682 018, Kerala.

*E-mail: eldho.varghese@icar.org.in

Andhra Pradesh, with a coastline of about 1,053 km spanning 12 coastal districts, has a long tradition of marine fishing that has evolved from small-scale artisanal operations to modern, technology-driven fisheries. Over the decades, this transformation has significantly strengthened the marine fisheries sector of the state. Andhra Pradesh presently

supports 533 marine fishing villages and 234 marine fish landing centres, reflecting the strong socio-economic dependence of coastal communities on marine resources (CMFRI-FSI-DoF, 2020). The state witnessed substantial growth in marine fish production during the early and mid-2010s, reaching a record landing of 3.42 lakh tonnes

in 2014. However, the sector has experienced notable fluctuations in recent years, emphasising the need to analyse long-term production trends and recent developments in the fishery. Marine fisheries data from landing centres were generated using survey methodology based on a two-stage stratified random sampling design with trained data collectors (Fisheries Harbours based) with expertise in species identification, who visit landing centres according to schedules generated under the sampling design. The system ensures reliable monitoring of fisheries resources across spatial and temporal scales. Continuous improvements have further enhanced data quality, including the adoption of digital platforms such as the Fish Catch Survey and Analysis (FCSA) 2.0 application, which enables near real-time recording of landings and supports improved fisheries management and stock assessment (Mini *et al.*, 2023). The inclusion of estimated fishing-ground geolocations supports spatial estimation of catch per unit effort and biomass, contributing to the National Marine Fisheries Data Centre (NMFDC). This article examines long-term trends in marine fish landings along the Andhra Pradesh coast during the last fifteen years (2010–2024) and provides a focused assessment of the most recent three years (2022–2024) to understand emerging patterns in production, fishing practices and species composition.

Long-term trends in marine fish landings (2010–2024)

Overall, the marine fish production in Andhra Pradesh trend during 2010–2024 exhibited an initial phase of growth followed by fluctuations and a gradual decline in recent years. The yield increased steadily from 2.41 lakh t in 2010 to reach a peak of 3.42 lakh t in 2014, reflecting a period of enhanced productivity (Fig. 1). Following this, production declined considerably, reaching 1.92 lakh t in 2016, one of the lowest levels recorded recently. Although moderate improvements were observed in some years such as 2019 and 2021, the fishery did not return to the earlier peak levels. During the most recent years, production remained relatively modest and eventually declined further to 1.75 lakh t in 2024, indicating a continuing downward

trend in marine landings. These trends highlight increasing variability in fishery productivity and underline the need for strengthened monitoring and management of marine resources.

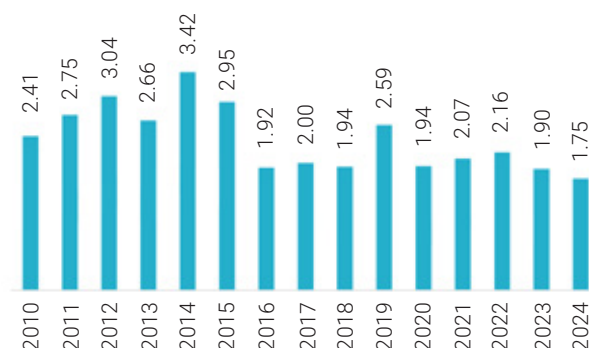


Fig. 1. Marine fish landing trends (lakh tonnes) in Andhra Pradesh during 2010–2024 period.

The quarterly landings pattern of Andhra Pradesh shows a clear and consistent seasonal structure throughout the period (Fig. 2). The first quarter (January–March) generally dominates the annual production, indicating more favourable fishing conditions or higher resource availability during this season, while the second quarter (April–June) remains the weakest phase, likely due to seasonal constraints such as weather conditions or fishing regulations. The third (July–September) and fourth (October–December) quarters contribute moderately and show relatively stable behaviour, sometimes alternating in their relative importance but always remaining between the first and second quarters. Although interannual fluctuations are evident, the overall seasonal pattern remains remarkably stable over time, and the same structure continues to persist in the recent years, suggesting that the fundamental seasonal dynamics of the fishery in the state have not undergone any major change.

From 2010 to 2012, mechanised fishing craft showed a phase of gradual growth, but from 2013 onward they began to fluctuate and eventually declined steadily towards 2024 (Fig. 3). Motorised craft, on the other hand, increased noticeably from 2010 and reached their highest presence around 2014. Although they experienced ups and downs in the following years, they continued to remain a prominent category through to 2024. In contrast, non-motorised craft displayed a continuous decline

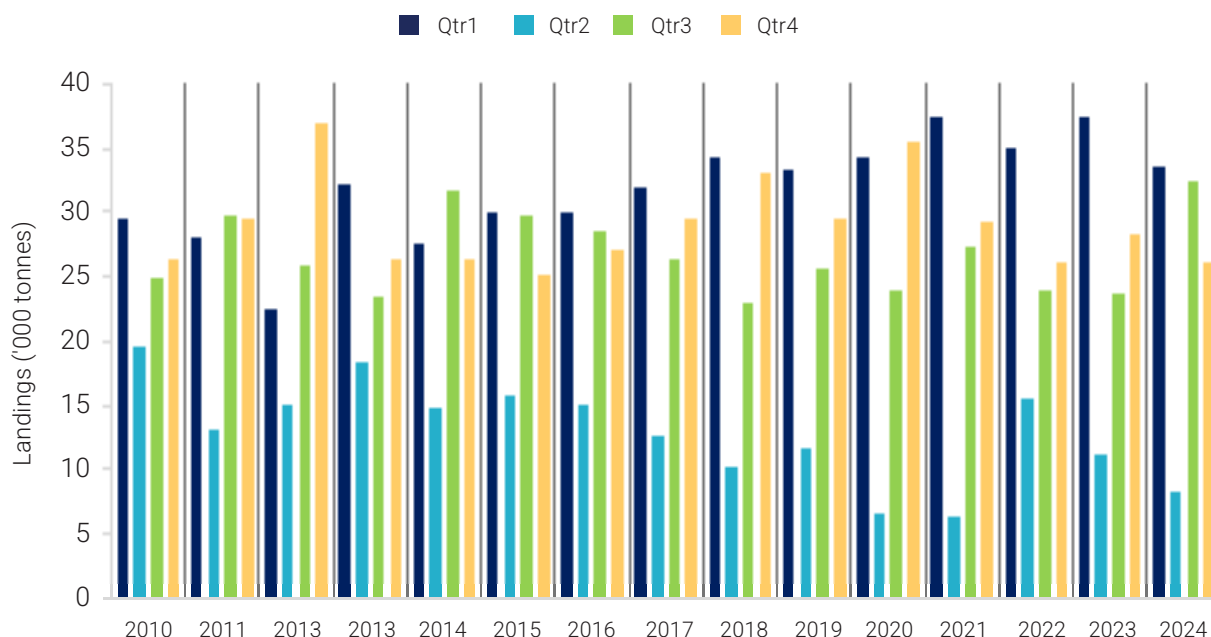


Fig. 2. Quarterly distribution of landings (in thousand tonnes) during 2010–2024 periods in Andhra Pradesh

right from 2010, with their numbers dropping significantly by the end of the period in 2024. Overall, the data reflects a clear transition over time from traditional non-motorised craft to more advanced motorised and mechanised fishing practices showcasing gradual modernisation within the sector.

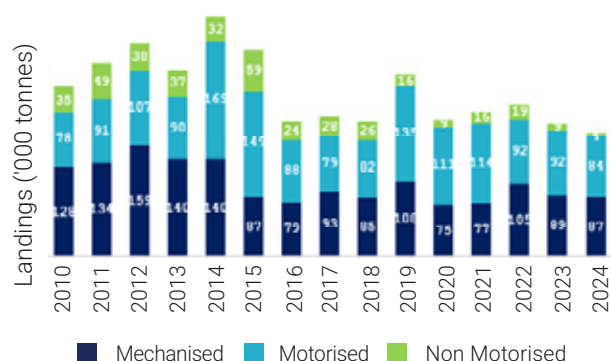


Fig. 3. Sector-wise fish landings (in thousand tonnes) during 2010–2024 period in Andhra Pradesh

From 2010 to 2024, the fisheries production trend of Andhra Pradesh shows clear fluctuations across pelagic, demersal, crustacea, and mollusca resources (Fig. 4). Pelagic species continued to contribute the largest share throughout the period, showing a noticeable rise in the early years

before gradually declining in the later part of the timeline. Demersal resources remained more stable, with only moderate ups and downs, indicating relatively steady availability of bottom-dwelling species. Crustacea, which include economically important prawns and crabs, showed strong performance in the initial years but experienced a slow downward trend later, possibly due to changes in aquaculture output, disease issues, or export

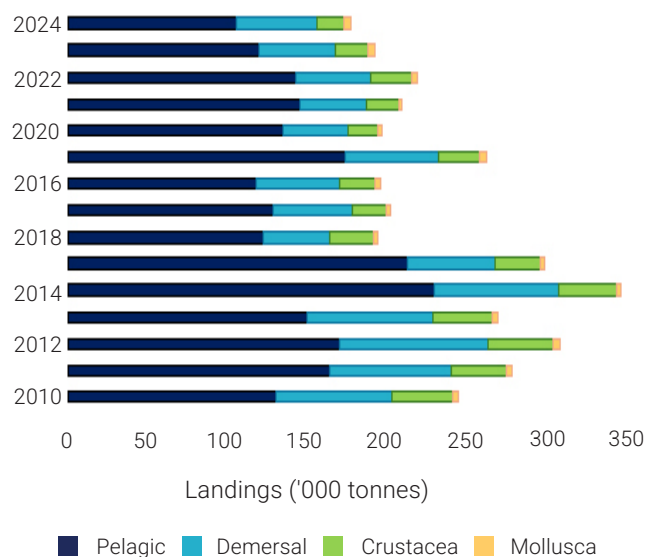


Fig. 4. Assemblage-wise marine fish landings (in thousand tonnes) during 2010–2024 period in Andhra Pradesh

market demand. Mollusca remained a small but consistent component of the marine fishery, with very minor variations over the years. Overall, while Andhra Pradesh has continued to maintain a strong position in marine fisheries, the visible decline in some categories over recent years highlights the importance of sustainable resource management, better stock assessment, and continued support to both capture fisheries and aquaculture to ensure long-term productivity. From 2010 to 2024, the catch trends of major marine species in Andhra Pradesh reveal considerable fluctuations, with certain species showing periodic highs while others declined gradually (Fig. 5). Lesser sardines showed varying contributions, with notable rises around the mid-2010s followed by sharp declines in recent years. Indian mackerel demonstrated gradual growth from 2010, reaching a peak around the mid-decade, but later exhibited inconsistent trends. Ribbonfish catches increased initially up to around 2012–2014 but showed a gradual decline thereafter. Penaeid prawns remained relatively

stable during the early years but experienced fluctuations in the latter half of the period, without major increases after 2015. Anchovies displayed a mixed pattern, with moderate levels during the early years, minor declines around the mid-decade, and inconsistency toward 2024. Croakers showed a gradual downward trend overall, with minor fluctuations but no significant recovery in later years. Tunnies experienced varied contributions, with some increases in the early and mid-2010s, but their numbers declined or stabilised at lower levels towards the end of the period. Oil sardine catches fluctuated considerably, with low presence in the early 2010s, a sharp rise around 2020–2021, followed by moderate levels in subsequent years. Overall, the data suggests species-specific variability influenced by seasonal dynamics, fishing practices, and changing ecosystem conditions.

Recent trends in marine fish landings (2022–2024)

The marine fish production of Andhra Pradesh during 2022–2024 shows a gradual decline in overall yield. After recording a relatively higher production level in 2022, the total landings decreased steadily in the following two years. This downward trend suggests a phase of reduced fishing intensity or possible variations in resource availability along the coast. Despite the decline, the state continues to maintain a significant share of marine fish production, supported mainly by mechanised and motorised sectors. The trend indicates the need for sustained management and monitoring to ensure stability and long-term sustainability of the marine fishery resources in Andhra Pradesh. The quarterly trend of marine fish production in Andhra Pradesh from 2022 to 2024 reflects clear seasonal variability, with production generally peaking during the first and third quarters. These periods likely correspond to favourable fishing conditions and higher resource availability, whereas the second quarter consistently shows lower landings, aligning with seasonal restrictions or reduced fishing activity during the monsoon period. The fourth quarter maintained moderate yields, indicating continued but slightly reduced fishing operations toward the end of the year.

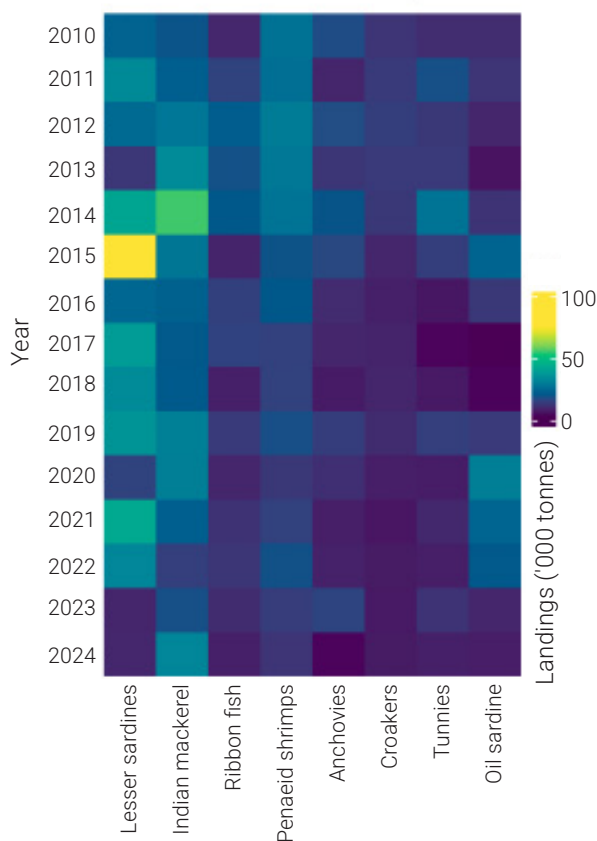


Fig. 5. Major fishery resources landed (2010–2024) in Andhra Pradesh

The craft-wise composition of marine fish production in Andhra Pradesh during 2022–2024 highlights the

continued predominance of the mechanised sector, which remained the principal contributor to total landings. The motorised sector maintained a strong and stable presence, reflecting the active participation of small and medium-scale fishers using motorised crafts along the coast. In contrast, the non-motorised sector showed a clear decline, indicating the ongoing shift away from traditional fishing methods toward more efficient, engine-powered operations. The species group composition of marine fish production in Andhra Pradesh during 2022–2024 shows a consistent dominance of pelagic resources, though with a gradual decline in their overall contribution over the three years. This suggests a reduction in the abundance or catch rates of key pelagic species such as sardines, mackerels, and anchovies. The demersal component remained relatively stable, indicating sustained exploitation of bottom-dwelling species like croakers and perches. Crustaceans, mainly penaeid prawns and crabs, showed a modest but noticeable decrease, while molluscan resources, though minimal in volume, maintained a steady presence. Lesser sardines and oil sardines, traditionally dominant in the state's pelagic catches, showed a clear decline over the period, while Indian mackerel exhibited a sharp increase in 2024, emerging as one of the key contributors in the recent year (Fig. 6). Ribbonfish and tunnies maintained moderate and relatively stable contributions, reflecting consistent availability in the catches. Penaeid prawns continued

to form an important part of the demersal and crustacean component, though with slight year-to-year fluctuations. Anchovies showed irregular trends, peaking in 2023 before declining again, while croakers contributed steadily across all three years.

The analysis of marine fish landings in Andhra Pradesh over the past 15 years, together with the recent three-year trends, reveals a clear transition from a period of high productivity in the early and mid-2010s to increasing variability and a gradual decline in recent years, culminating in the lowest recorded yield in 2024. Despite this overall decline, the seasonal pattern of the fishery has remained remarkably stable, with consistent dominance of the first quarter and reduced activity during the monsoon-affected second quarter, indicating the strong influence of environmental and operational seasonality. The sector has undergone significant structural changes, marked by a steady shift from non-motorised to motorised and mechanised fishing craft, reflecting ongoing modernisation of fishing operations. Pelagic resources continue to dominate the landings, but the recent decline in traditionally important species such as lesser sardines and oil sardines, along with increasing variability in other key groups, suggests possible changes in stock availability and ecosystem conditions, even as species like Indian mackerel show recent gains. Overall, while Andhra Pradesh remains a major

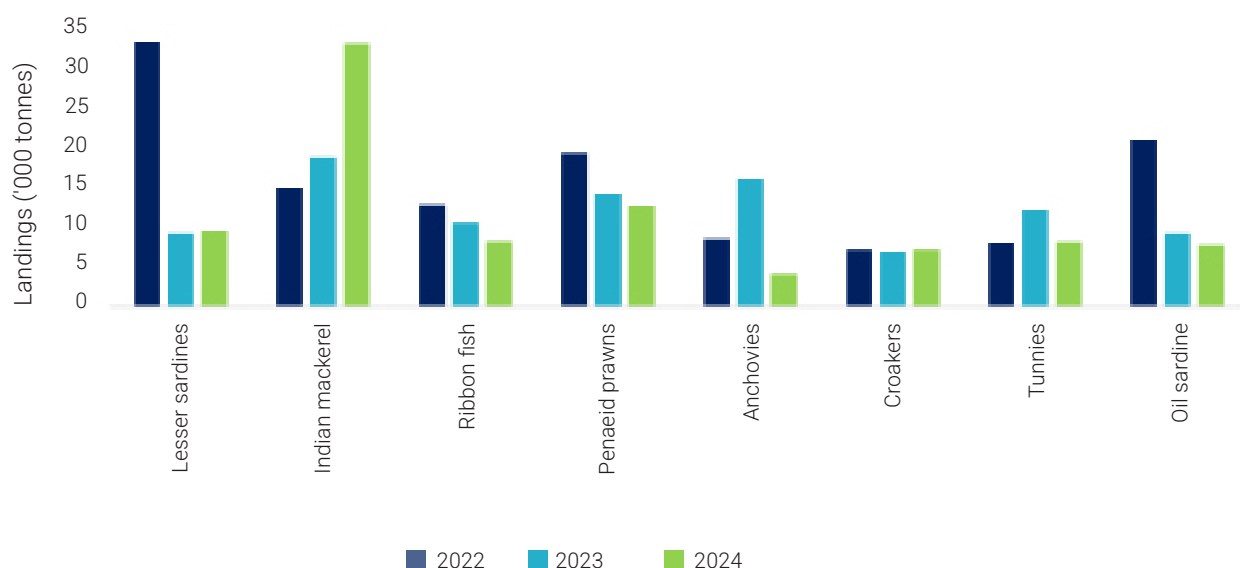


Fig. 6. Major fishery resources landings (in thousand tonnes) 2022–2024 period in Andhra Pradesh

marine fish-producing state, the observed downward trends and shifts in species composition highlight the need for strengthened monitoring, improved stock assessment, and adaptive, ecosystem-based management to ensure the long-term sustainability and resilience of its marine fisheries.

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