Brief Communication

Appraisal of Marine fisheries in Karnataka during 2017-2022

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Karnataka's coastline stretches 300 km between Mangalore in Dakshina Kannada district and Karwar in Uttara Kannada district and marine fisheries play a vital role in the economy of the state. The state of Karnataka recorded 5.5 lakh landings in 2017, which was a record high when compared to prior years. These observations were drawn from the in-house research project "Georeferenced online information system for marine fisheries on GIS platform to formulate management strategies for sustainable harvest of resources" (FRA/GIS/01). The marine fish landings reduced to 4.5 lakh t in 2018 (17% reduction) and further increased to 5 lakh tonnes t (5% increase) in 2019 and again reduced to 3.7 lakh t in 2020 (25% reduction). Compared to the landings in 2020 the marine fish landings in 2021 showed an improvement to reach 5.5 lakh t (47% increase). During 2021, though the pandemic situation continued during the first half, fishing activities were not prohibited. However, there was loss of fishing days due to frequent cyclonic weather conditions along Karnataka coast. The steep hike in fuel price during the year discouraged fishers engaged in mechanised fishing to voluntarily stop fishing on some days. The marine fish landings in Karnataka registered a new record, with all-time high estimate of 6.95 lakh t in 2022, ranking second in terms of national marine fish landings. The state witnessed a noticeable hike in landings of about 1.44 lakh t during 2022 when compared to 2021. The Indian mackerel, which was primarily caught in purse seine and multiday trawl net, attained nearly 2-fold hike from last year's catch to reach 1.22 lakh t. Revival of Oil sardine landings from meagre 3378 t to 0.46 lakh t was also noticed. A marked increase in landings was observed in Mangalore (43%) and Malpe (22%) fisheries harbours during 2022.

The main characteristic of marine fisheries in Karnataka is

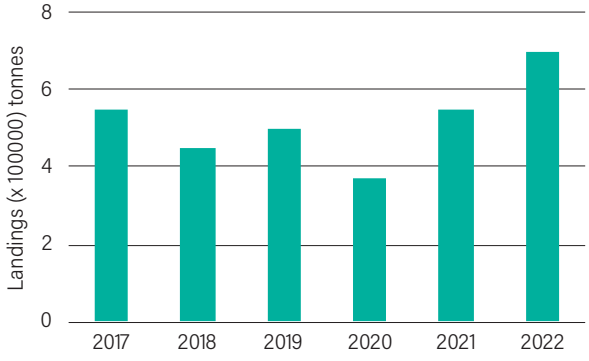

Fig. 1. Year-wise fish landings in Karnataka=

the predominance of finfishes (more than 90%). The pelagic resources continued to be the major component of the finfishes in the state. During the period of 2017–2022, pelagic fish made up 65% of landings in 2017 and 50% in 2019, respectively. The contribution ranged from 55% to 62% in 2020–2022. A rise in demersal resources was noticed during 2019. Over time, the contribution of crustaceans ranged from 3% to 6%, while that of molluscs landed was 4% to 6%.

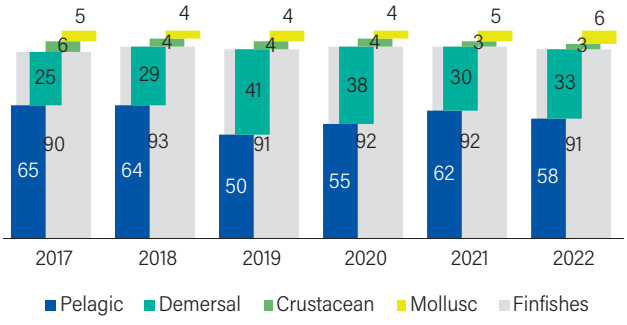

Fig. 2. Contribution (%) of pelagic, demersal, crustacean and molluscs in Karnataka

Table 1. Top 5 resources that were landed between 2017 and 2022

2017	Indian Mackerel	Oil sardine	Priacanthus	Scads	Threadfin breams
2018	Indian Mackerel	*Odonus niger*	Oil sardine	Threadfin breams	Scads
2019	*Odonus niger*	Threadfin breams	Lizardfishes	Scads	Indian Mackerel
2020	Threadfin breams	Indian Mackerel	Lizardfishes	*Odonus niger*	Lesser sardines
2021	Scads	Threadfin breams	Indian Mackerel	Lizardfishes	Cephalopods
2022	Indian Mackerel	Threadfin breams	Scads	Oil sardine	Ribbon Fishes

Indian mackerel consistently held the top three spots, but in 2019 the major setback was observed in the landings of Indian Mackerel, was shifted to the 5th position in 2019. Huge landings of *Priacanthus* spp. were observed in 2017 but later on the landings decreased. There was an unusual fishery for *Odonus niger* (red-toothed trigger fish) along the Karnataka coast during 2018 and 2019 and it was the primary contributor in 2019. Red-toothed trigger fish is a reef-associated species widely distributed in the tropical region of Indo-Pacific and is the only member of genus *Odonus*. This fish was landed in stray quantities of 300-500 t during 2008-09 along the coast of Karnataka, but did not form regular fishery until 2015. Later, the catch substantially increased to 1,62,398 t during 2019 to emerge as a top resource in the state (32% of total fish landings). The entire catch of *Odonus niger* was utilized for fishmeal production until 2017. Later, the surumi plants procured part of it landed in fresh condition for the preparation of surumi, which is exported for the production of analogue products. The increased demand of fishmeal and surumi plants have encouraged the fishers engaged in multi-day trawl boats to target this fish. Throughout the study period, scads and threadfin breams consistently ranked in the top 5 resources. Other important resources which contributed remarkably to the landings of the state were lizard fishes, lesser sardines, cephalopods and ribbonfishes.

Indian mackerel, threadfin breams, scads, Indian oil sardine, other perches, lizard fishes, other carangids and ribbonfishes were the major 8 resources landed in terms of quantity during the whole period 2017-2022. Karnataka saw a decline in sardine catch from about 98,000 t in 2017 to 40,000 t in 2018. The sardine catch came down precipitously to 12,400 t in 2019 and merely 1065 in 2020–the lowest ever in the state. After three-year lull, Indian oil sardines have returned in huge numbers to the Karnataka coast with a landing of 46,400 t in 2022.

Mechanised sector contributed more than 94% of the estimated marine fish landings in Karnataka during 2017-2022 and the contribution of motorised sector varied between 3% to 8%. Non-motorised sector contributed relatively little (1%) to the total marine fish landings in the state.

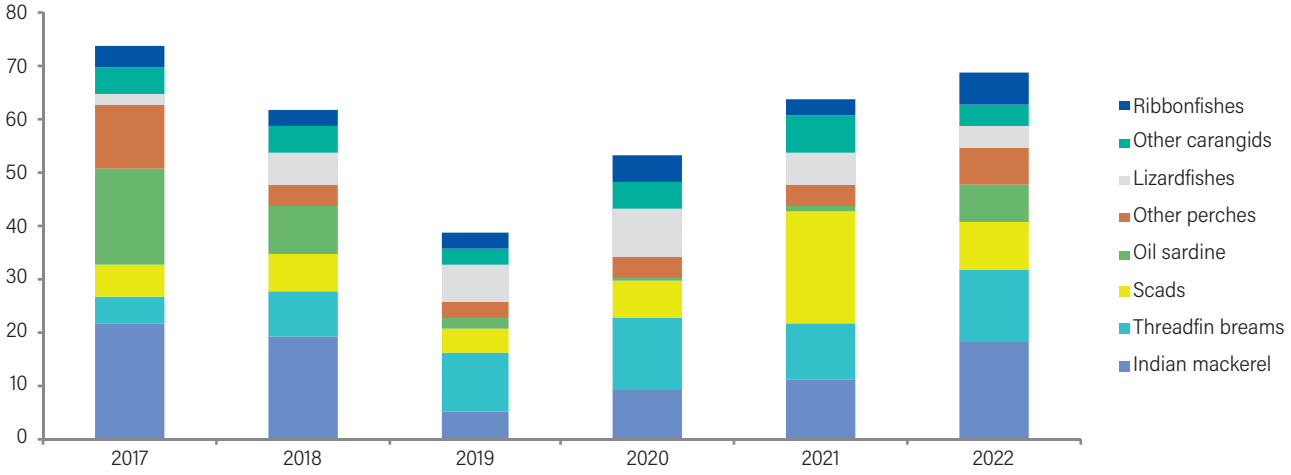

Fig. 3. Major species harvested with landings (in %) year-wise fish landings in Karnataka

Fig. 4. Contribution (%) of different sectors to the total landings in Karnataka year-wise fish landings in Karnataka

While analysing the gearwise contribution, the major gears which contributed to the landings in the state were trawl nets, seine nets and gill nets. Mechanised sector comprising mainly trawlers and purse seiners was the major contributor to the catch in the state. The average contribution by the multi-day trawlnets was about 68% of the total landings of the mechanised sector during 2017-2022, which varied from 2.78 lakh t in 2018 to 4.72 lakh t in 2022. The contribution by mechanised purse seine was also remarkable which varied from 40,000 t to 1.95 lakh t during this period. Ring seiners and gillnetters were the major contributors in the motorised sector with 3% and 2% of the total landings respectively.

The three major maritime districts of Karnataka are Dakshina Kannada, Udupi and Uttara Kannada. Dakshina Kannada district has a coastal line of 42 km from Talapady in South to Mulky in the North. Udupi district stretches from Kodi Hejamady to Gangoli with 98 km of coastline. Uttara Kannada has the longest coastline of 162 km. During 2017-2022,

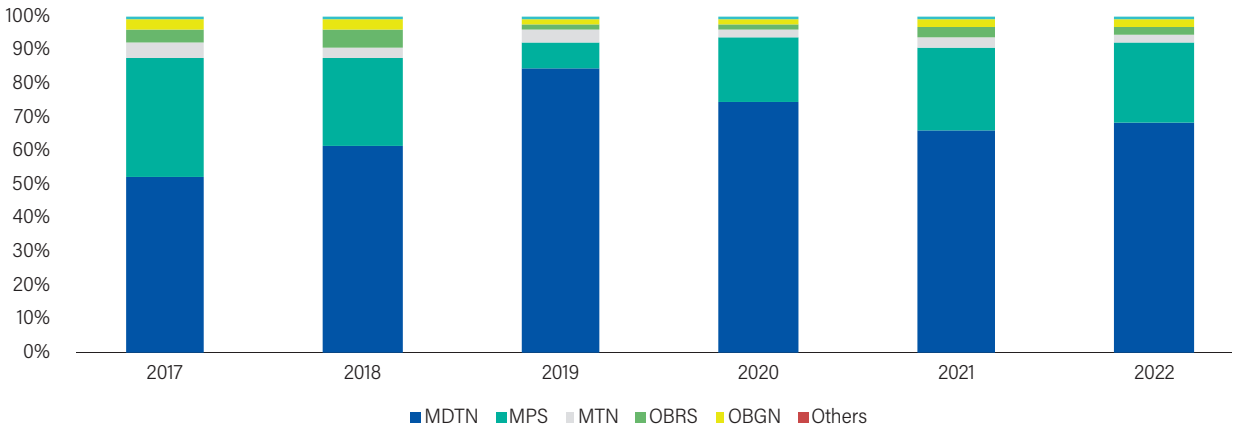

Fig. 5. Contribution (%) of different gears to the total landings in Karnataka year-wise fish landings in Karnataka

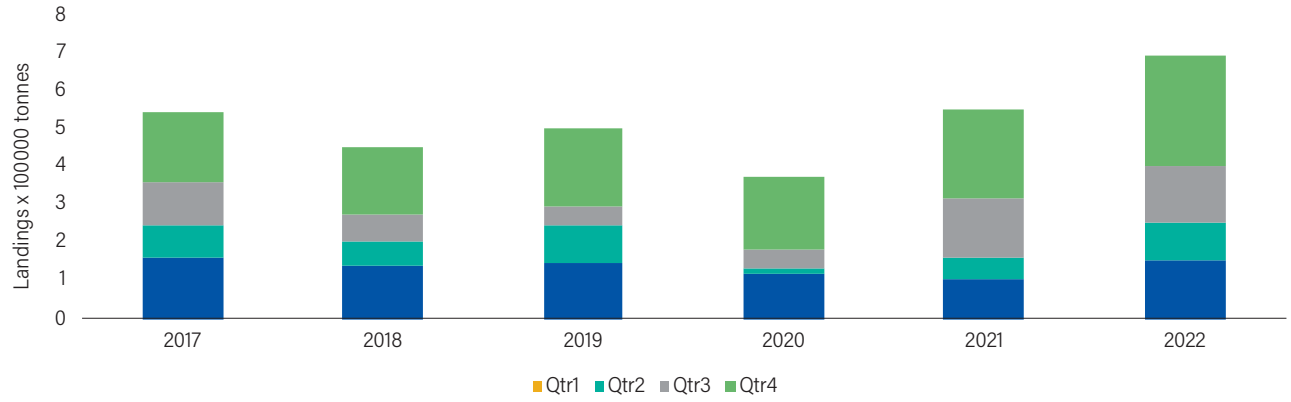

Fig. 6. Seasonal pattern in landings year-wise fish landings in Karnataka

Dakshina Kannada led in the state, contributing 44% of the landings followed by Udupi, 41%. The remaining 15% was contributed by Uttara Kannada. Mangalore and Malpe, the prime harbours contributed about 80% of the total landings of the state. A seasonal study of the landings revealed that the fourth quarter of 2013 (October- December) has been the most productive and the second quarter (April - June) was least for obvious reasons such as seasonal fishing ban due to existing Marine Fishing Regulations. It can also be noticed that on an average the first and fourth quarters contributed around 68%.

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