Fishery for large pelagics in Lakshadweep

Mohammed Koya*, K. P. Said Koya, P. Abdul Azeez, Prathibha Rohit and E. M. Abdussamad
ICAR-Central Marine Fisheries Research Institute, Kochi-682018, Kerala

*E-mail:mohamedkoya313@gmail.com

Fishermen of Minicoy in Lakshadweep islands have a history of targeting skipjack tunas with the pole & line from time immemorial. Introduction of motorised fishing crafts and popularization of pole and line fishing in other islands during the 1960s and '70s has led to fish landing grow from less than 500 ton in the 1960s to over 20,000 tons in the recent years. The recent fishery developments are recorded in this communication. The fish catch data collected by the Department of Fisheries from inhabited island using enumerators was used for the analysis. The gear wise catches recorded during onboard observations in 90 fishing operations (55 pole and line and 35 handline operations) during 2018 and 2019 is reflected. Species wise and island wise fish landing data for the year 2000 to 2019 was also used for the study along with information gathered from literature search and consultations with the fisheries department officials and the fishermen.

The estimated total fish landing of Lakshadweep in 2019 was 22 928 t of which tuna constituted 85%. Among tunas, skipjack (35.8%) and the yellowfin tuna (31.69%) were the major contributors. During 2015-2019 period, large pelagics constituted nearly 93% of the landing dominated by tunas (88%) in the total fish landing. Other large pelagics such as mahimahi, wahoo, billfishes, carangids, needlefishes, barracuda *etc* formed nearly 5% of the landing (Table 1).

Steep increase in the skipjack and yellowfin tuna landing can obviously be attributed to the recent developments in the island tuna fisheries and changing fisherman priorities based on the increasing demand for tunas in the market supply chain. November-April is the most productive period for tuna fishing in the Lakshadweep waters with the pole & line fishery contributing 65 % of the total fish landing.

The prominent fishing gear employed is hook and line, principally pole & line, hand-line and troll line in the order of importance. Use of drift gillnets is limited to the monsoon months. In the pole & line fishery catch skipjack alone constituted nearly 75% of total catch, followed by yellowfin and neritic tunas and others such as rainbow runner, mahimahi, billfishes, wahoo, sharks and trigger fishes constituted 3% only. Yellowfin tuna constituted nearly 93% of the catch in hand-lines with other resources caught being billfishes, mahimahi, rainbow runner and skipjack tuna.

Though tuna fishing is carried around all inhabited islands, historically Minicoy, Agatti and Kavaratti have been the major fish producing islands. The recent introduction of improved fishing vessels has enabled the fishermen to camp and fish in distant islands depending on the resource availability. Kadmath, Kavaratti, Agatti and Minicoy contributed 66% of the total fish landing in Lakshadweep

Table 1 Fish landings (t) in Lakshadweep (2015-2019)

Groups/Year	2015	2016	2017	2018	2019	Average	% share
Tunas	12516	23959	14154	24923	19444	18999	88
Large pelagics (Non-tuna)	785	740	842	1542	1684	1119	5
Sharks and Rays	51	59	58	72	42	56	0.01
Other pelagics	42	29	29	67	417	117	1
Perches	357	234	315	792	788	497	2
Small lagoon fishes	2458	628	422	537	555	920	4
Total landings	16209	25650	15819	27933	22929	21708	

(Fig.1). Consistent presence of tuna shoals in the vicinity of Kadmath Island having vast lagoons with abundant livebait resources and availability of ice, have made this atoll a regular camping for them since 2016. In contrast, Androth, an atoll without lagoon has historically been a non-tuna fishing island. Similarly, other smaller islands with fewer fishing crafts show a lesser contribution.

Fish landing in the islands grew from nearly 500 t in the 1960s to over 25,000 t in the year 2018 recording a steady growth rate with inter-annual fluctuations. The policy interventions right from the introduction of first ever custom-made motorised fishing craft in 1959, followed by motorisation, establishment of boat building yards, introduction of improved fishing crafts, diversified fishing methods, mechanisation in pole & line fishing, establishment of ice plants, deployment of collector vessels for fast disposal of catches at mainland have all contributed to the increase in marine fish catch (Fig. 2).

Tunas has been the major resource landed forming over 80% of the fish landed all through the years with a clear dominance of skipjack. It is principally due to their relatively higher abundance, pole and line fishing skill of the people as well as the traditional product, *Masmin* that commands a good market. The skipjack tuna touched the all-time high

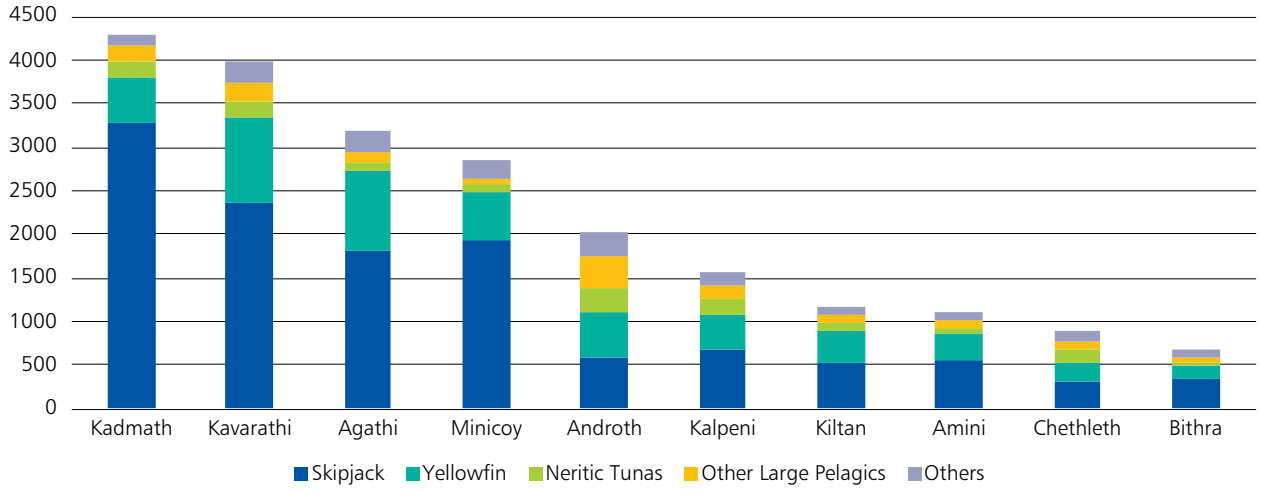

Fig. 1 Island-wise species-wise average fish landing during 2015-2019

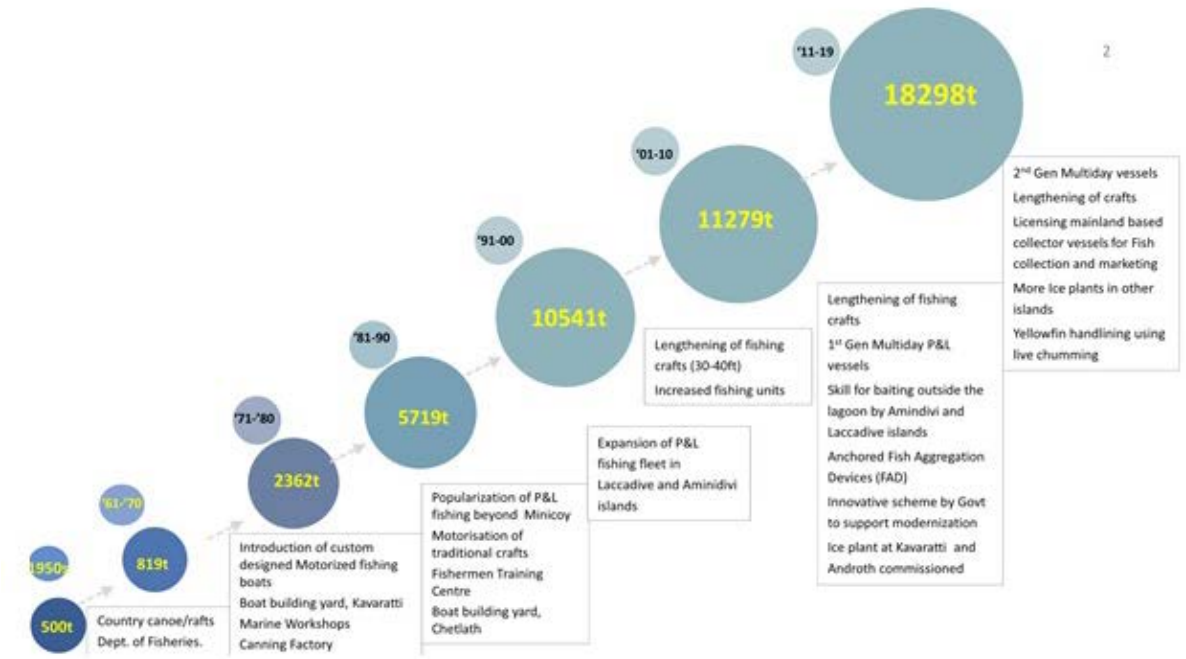

Fig. 2 Time line of fisheries development in Lakshadweep

landing of 20891 ton in 2016 with a contribution of 81% of the total fish landing. Though an abundant resource, yellowfin was not targeted, principally due to marketing concerns. Decline in skipjack tuna landing during 2010-12 period paved the way for surge in yellowfin landing to 5600 t in 2013 from the average of 810 t for the decade 2000-2010. Since then, they have emerged as an important fishery with steady increases during the past few years. Modified pole & line gear (with twin poles) and hand-line were the gears relied. A policy initiative by the U.T. Administration in 2017 to permit deployment of leased fishing vessels from mainland by the locals for collection and transportation of the catch for mainland markets further encouraged tapping of yellowfin leading to a record high landing of 10193t in 2018 which boosted the overall fish landing of Lakshadweep to touch the historic high of 27,933t. Recently, fishermen are catching yellowfin tuna using handlines with live chumming using Redtoothed trigger fish (*Odonus niger*) and other fishes like fusiliers and green chromis as livebaits.

Oceanic tuna resources have been the mainstay of fishery in the Lakshadweep islands with the estimated potential for annual harvest of tuna resources at 75,000 tons. However, the average landing for the last five years at 21,708 t is forming only around 29% of the potential. This suggests scope for enhancing tuna production from the islands. The profitability for the skipjack tuna fisheries has been decreasing in recent years due to over dependence on *masmin* which has an almost stagnant market price for last several years while the input cost, especially the fuel cost has increased significantly. This highlights the urgent need for diversification in utilisation of skipjack tuna catches. Export oriented fish processing industries of appropriate scale to meet the twin objective of economic utilisation of the resources and ensuring livelihood opportunities for the islanders is desirable. The yellowfin tuna fisheries can be expanded further to tap deep-swimming larger tunas with appropriate gear for an added objective of developing *sashimi* grade tuna.