

Emergence of night fishing using LED lights for live-baits in Lakshadweep

P. Abdul Azeez¹, K. Mohammed Koya², Prathibha Rohit³ and K. R. Sreenath²

¹*Veraval Regional centre of ICAR-Central Marine Fisheries Research Institute, Veraval*

²*ICAR-Central Marine Fisheries Research Institute, Kochi*

³*Mangalore Research centre of ICAR-Central Marine Fisheries Research Institute, Mangaluru*

**e-mail: azeez.cr7@gmail.com*

The pole and line fishery for skipjack tunas depends totally on consistent supply of live-bait fishes. Small sized fishes belonging to the families

clupeidae, apogonidae, pomacentridae, ceasionidae, atherinidae etc constitutes the bait fishes. These are caught from the sandy areas inside

the lagoon or coral boulders and reef flats. The pole and line fishing involves release of live-baits in to the sea to attract and retain the tuna shoals near the boat for fishing.

Live bait collection in Lakshadweep has been limited to day time unlike many other nations in the region where the baits and other fishes are attracted and collected during night with the help of lights. During a recent study in January 2018 at Agatti Island, night fishing for live-baits using LED lights was observed. Collection of baits are made late in the night to early next day (12.00 to 05.00 AM).

LED lights (12 V) are fixed to the outer side of the boat with help of 1.5-2 m long poles to attract the fishes (Fig.1). Storage batteries of capacity 12 to 24KW are used for operating the LED lights. On reaching the ground, the fishermen switch on the light and wait for the bait to aggregate under the light in sufficient quantity. Attracted by the light source, the bait fishes gradually gather near the boat. Once sufficient quantity of baits aggregate, the fishermen catch the bait using a lift net. The lift net used for collecting the aggregated baits is made up of 5 mm mesh sized 6 x 4.5 m nylon net tied with coral stone and rope at four corners. At the outset, two fishermen jumps in to the water both carrying end of one rope each while the net is left to sink to bottom by weight of the stone. Other two ends of the rope is retained in the boat. These two fishermen keep the net spread to the bottom and remain away from the boat while observing the



Fig. 1. Lights set at the outer side of the boat

bait aggregation. When sufficient bait has aggregated, the net is slowly lifted by pulling the ropes in tandem from all the four corners. As the net surfaces, the end of the net away from the boat is raised slightly faster by the swimming fishermen to prevent movement of the bait out of the net. It is then handed over to the fishermen on the boat who quickly lift the net completely out of water and transfer the bait to the bait tank.

The night fishing at present targets only the *Spratelloides delicatulus* (Fig. 2) though a closely related species *S gracilis* is also caught occasionally especially in the deeper part of the lagoon. Though many species of fishes including wrasses, half beaks, full beaks etc also get attracted to light, they mostly escape from the net during the lifting process as they don't aggregate in shoals. The bait collection is best done during dark nights *i.e* first and last quarter of the moon's phase. The fishermen carry out night collection of baits only when they are set to target tuna shoals near anchored fish aggregation devices (aFAD) or when the shoals are expected in the vicinity of the islands. Fishermen report that night collected bait has shorter survival period (4 to 5 hours) than daytime collected bait (9 to 12 hours). Hence the same cannot be used for fishing from free shoals where the shoal scouting time is normally very long. Also, the fishermen may have to fish from multiple shoals appearing at different time of the day keeping the fishing time very long. Though the FADs are often set away from the island, the fishermen complete their fishing faster as the catch



Fig. 2. Size range of *Spratelloides delicatulus* from the fishery

is almost assured near the FADs, especially when there is good aggregation and the boats are able to return of base before noon. As such, night collection of the tuna live-baits in Lakshadweep is limited to only a few days during the fishing season at present.

The by-catch is low at present mainly because the fishing is done inside the lagoon and in sandy

areas only as the target species are sprats. The catch composition may be different if the target species is any other groups such as fusiliers, cardinal fishes or damsels, that mainly inhabit the outer reef areas and live close to corals. The fishery therefore needs to be monitored further for impacts on the ecosystems.