Searching for sustainability – skipjack tuna fisheries in the Lakshadweep

By Wenzel Pinto (India)

We were just back from our dive and Hasan – our boat captain – was pointing to the distance, while Saheer readied the boat. 'That way! They're feeding!' yelled Hasan. It seemed like nothing more than a dark patch of water in the distance, but as we approached, I saw how turbulent the water was. Without a moment to waste, I donned my mask and dived into the sea. I was awestruck. Hundreds of fish, more than half a metre long, zipped past me. They seemed almost like blue-silver torpedoes being fired in all directions. It was a shoal of skipjack tuna, and they were in a manic feeding frenzy. They swam with such vigour and chaos that in their wake they left an illusion of a boiling sea!

I clambered onto the boat a few minutes later, speechless after what I had just witnessed. Hasan and Saheer, both fishermen by profession, had managed to snag a couple of tuna. Surprisingly though, they used unbaited hooks to catch them! This was my first insight into the fascinating tuna fishery of Lakshadweep.

Fishing is the mainstay in Lakshadweep, a densely populated archipelago just off the west coast of India. While the islanders also fish for reef fish and several tuna species, skipjack tuna is the dominant fishery there. Since the commercialisation of Lakshadweep's tuna fisheries in the early 1960s, it has become an integral part of their economy and culture. Although tuna fisheries have been given a bad rap as being unsustainable, their combination of tuna species choice and fishing technique make Lakshadweep's fisheries truly sustainable.

Skipjack tuna (Katsuwonus pelamis) are large, silvery, predatory fish with highly streamlined bodies. They can grow up to a metre in length, weigh more than 20 kilograms and can be found in shoals of up to 50,000 individuals. They spawn year-round and are found all across the tropical open oceans. These traits allow for skipjack to be the third largest fishery in the world, and yet not be threatened by overfishing.

The skipjack tuna fishery in Lakshadweep practices a technique called pole and line fishing. It is a centuries-old technique, thought to have originated in the Maldives. It is highly skill-dependent and uses key aspects of animal behaviour to maximise fish catch.

The first step – capturing live bait. A number of species of small fish are caught for this purpose, including red-toothed triggerfish, sprat, anthias, cardinalfish and fusiliers. These fish are lured using meat from tuna discards (a neat way to reduce waste), following which they are captured alive using lift nets or encircling nets. They are then kept in bait boxes – large netted boxes that float just below the water's surface – until the fishermen are ready to go to sea. Before setting out, the fish are filled into a large tank in the middle of the boat with a constant flow of sea-water.

The second step – locating a tuna shoal. Fishermen set out to the open sea on the lookout for large tuna shoals. 'One of the best spots to head to is Pitti Bird Sanctuary,' says Hasan. 'We go there not for the tuna, but for the birds. Gulls and terns track the same food as the tuna, so you often see them feeding together. We follow the birds, and they lead us to the fish. It's much easier than trying to search for the tuna ourselves.'

The final step – fishing. On spotting a shoal, the fishermen slow down the boat and take advantage of the tuna's chaotic feeding behaviour. They incite a feeding frenzy in the water by throwing live bait into the water in the wake of the boat, coaxing the flurry of fish to follow. To hook the tuna, the fishermen use unbaited and barbless hooks on long lines, tied to 10-

foot-long poles. Lines are cast into the water and snapped back with a quick jerk of the hand. The tuna, darting around wildly in their frenzy, are unable to distinguish fish hook from food, and bite onto the hooks before being whisked out of the water. With another quick snap forward, the line loses tension and the barbless hook promptly releases the fish onto the deck of the boat. With no time to waste, the fisher casts again. Six to eight fishermen stand side by side, fishing as much as they can until the frenzy ends.

The tuna is brought back, divided amongst the fishermen, and a small percentage of the catch sold fresh. In Lakshadweep more than 70% of the catch is made into maas – a local preparation of tuna, involving boiling the meat for an entire day, smoking it over a fire, and then drying it out in the sun. This preparation is made to preserve the tuna, and finds its way into several traditional island recipes. A large proportion of the tuna caught is exported as maas to parts of coastal India and Sri Lanka.

A major issue faced by conventional marine fisheries techniques is bycatch. Bycatch are fish or other fauna, caught unintentionally as a side-effect of the fishing technique. They are of too little value to be sold and are often removed from the nets, then discarded into the open ocean, dead or dying. Lakshadweep's skipjack fishery is a target fishery, catching nothing more than skipjack and the bait required to lure them.

Thanks in part to the industrialisation of commercial fisheries, more than 34% of the world's marine fisheries are now classified as overfished. This poses a threat to the delicate balance of marine ecosystems and to the billions who depend on fish for food and employment. In stark contrast to the massive decline in Atlantic blue-fin tuna populations, Lakshadweep's skipjack tuna populations are stable. Sustainable fishing practices, like those of the skipjack fishery of Lakshadweep, are necessary for striking a balance between long-term profitability and ecosystem health.