Octopus Fishery Management Initiatives: A Promising Approach for Managing Coastal Fisheries

Octopus as “entry point”
Fished on all coasts of the Western Indian Ocean region, octopus - Octopus cyanea - is a source of income for numerous coastal communities. As it occurs in lagoons, octopus is generally fished on foot at low tide, although in numerous locations, the increasing scarcity of the resource has driven fishers to dive over the submarine wall. Formerly considered as a low-value product that only fisher households consume, octopus from South West Indian Ocean is now widely marketed. Nowadays, the region exports over 3,000MT of octopus per year, the largest part of which is provided by Tanzania and Madagascar. The octopuses are mainly intended for the European Union market, particularly Portugal, Italy, and France.

Octopus is characterized by a relatively short life cycle (average of 18 months), as well as an exponential growth pattern under which it doubles weight every two months. A mature female will lay eggs in its den and usually die one month after they hatch. Once hatched, juveniles lead a planktonic life for two months, before returning to the lagoon to colonize it. The biology of this animal is of special interest to fisheries management as octopus seems to have potential to respond very rapidly to any biological recovery action aimed at promoting the growth phase or recruitment of stock.

The first experiences in octopus fishery management were conducted in Madagascar. Nearly 15 years ago, the villages of Southwestern Madagascar initiated voluntary closures with the help of Blue Ventures, a British NGO. At about the same time, the Government enacted a period of biological recovery of one month and a half. Although the support provided by IOC at the time (ReCoMaP programme) exclusively addressed scientific aspects, the organisation was already preparing to play a role in regional exchanges.

These experiences and the fishery’s potential to generate tangible results in a short period of time convinced IOC’s SmartFish Project to use it as the “entry point” to encouraging a full set of fishery management reforms. Since the beginning of the programme in 2011, the fishery has become a select laboratory among the “pilot” initiatives conducted by SmartFish - a project whose aim is to provide a practical and suitable framework for promoting better governance of coastal fisheries.

In Rodrigues, the promotion of an annual two-month closure across the full littoral has allowed for halting the decline of the fishery and setting up an original collaborative surveillance mechanism in collaboration with the authorities and communities. In Mauritius, the results of a voluntary closure conducted in seven coastal villages convinced the Government to implement a national-scale biological recovery, restoring the dialogue between the administration and fishers and triggering positive developments in the governance of coastal fisheries. In Zanzibar, the establishment of no fishing zones in several villages allowed for making local joint management arrangements operational by granting local fishers’ committees the possibility of deciding their own regulations.

Rodrigues: the closure mechanism achieves maturity
In Rodrigues, octopus fishing is a traditional economic activity that has become oriented on supply neighbouring Mauritius over the last decades. The elements that led the regional
The idea was to focus efforts on a “pilot area” deemed highly fishery authorities of Mauritius requested IOC’s support to regulating access to the fishery. As such, this new collaboration depends on.

The third closure had clear, short-term effects on the fishery. At the reopening following the first closure, the average catch was 214T, whereas the average size was 0.35 kg. The management of the resources they depend on, in spite of an increase in the number of licensed fishermen, because the first closure had demonstrated the feasibility of instituting sustainable management of this fishery as hoped. The third closure yielded extremely good results, although catches at reopening were not as consequential (from 383T to 508T). Similar results were noted on the second year, although catches and the average size had not been as consequential as hoped. The third closure yielded extremely good results, especially in terms of the female average weight that amounted to double of the weight at first maturity.

Political will was a decisive factor considering how unpopular the action was with some communities at the beginning of the process. The biggest successes of the “Octopus Closed Seasons” is that it convinced both fishers and administration of the political will for national-scale temporary closure. The government had to distribute roles and responsibilities among user resources and public services. To

Mauritius: in the footsteps of its little sister

The provision of welfare has led some communities to rely on it. However, the mechanism had a major weakness in that the regulations prohibited exclusively the catch of octopus - not its possession or marketing - making sanctioning extremely difficult.

Still, the data collected by the authorities indicate substantial increase in average size at national scale, i.e. from 668g (catches made over the 4 months prior to closure) to 1.532g (catches made over the first week following reopening). The catches reported by some fishers from different official landing sites of the island are also extremely encouraging as individuals and extremely rare size were fished over the first (Kg) and second (9Kg) week.

Towards a national-scale closure

The very next year, the government expressed unprecedented political will for national-scale temporary closure. The management of the “Octopus Closed Seasons” is not likely to be easy as the multitude of informal marketing circuits encouraged poaching. Indeed, the experience in Rodrigues, Mauritius does not export octopus and most of the time, the landed catches are consumed by fishers’ households or directly sold to caterers and tourist establishments. This was topped by the lack of means of FPS and the “legacy” of a certain leniency towards offenders, which significantly weaken the coastal fisheries control function. These difficulties are exacerbated by the free access to the fishery. In Rodrigues, the fact that the management is carried out by “amateur” rather than “professional” fishers (who, theoretically, are expected to report their catch), is one of the estimations of the Ministry of Fisheries, their number is tenfold higher than that of license-holding fishers.

To address this, the sensitization efforts rolled out by the administration and particular High Alert campaigns targeted not only coastal communities but also the larger public, with some messages targeted directly at consumers, as well as the numerous caterers and hotel trade operators of the island to dissuade consumption during the closure period. With respect to this, the second phase of the SmartFish Project (Phase 2) included efforts of a group of NGOs well-established in different regions of the island (MMCS, Eco-Sud, Lagon Bleu, Eco Mode Society, 

Zanzibar: promoting collaborative management

In Zanzibar, as in many places of the region, the increasing fishing pressure on coastal areas and limited means allocated to administrative and law enforcement agencies were mobilized to participate in control efforts, especially by facilitating communication between the eastern region and the 142 posts scattered around the island. Furthermore, the government refused to grant “compensations” to fishers - an act of bravery in a context where
fishing for three months, between March and June. The idea of reopening the fishery at the beginning of the month of Ramadan allowed for a potential extension of the closure period as going underwater was not allowed during the sacred month. During Ramadan, women were the only ones authorized to fish on foot at low tide, ensuring a source of income to households during this good time. The committee’s will to consider the economic needs of the community instead of limiting itself to bio-ecological considerations is worth noting.

The reopening of the fishery was a major event for the community of Kisiwa Panza and during the first two “bamvuas” (neap tides) the number of landings doubled as compared to the pre-closure “bamvua”. A production peak was also noted at the end of Ramadan, coinciding with the resumption of underwater fishing.

Happy with the results, the community of Kisiwa Panza continued monitoring the fishery and the pilot project was concurrently extended to the neighbouring village of Kuku with which it shares some fishing grounds. After two years of pilot project, these two communities had completed seven voluntary closures in three different sites. Furthermore, the SFC of the Kuku village adopted a different closure model where the designated area is permanently closed and reopened for just short periods (and a limited number of fishers) spaced by a few months. Although average sizes remain low, an increase was noted and individuals of exceptional size (9Kg) were caught.

After securing the Government’s buyout and new fundings, decision was made to expand the initiative to three other MCAs, including Unguja. The principles of co-management will be introduced in new communities, drawing on the experience built during the test phase and promoting exchanges of good practices between villages.

« Learning by doing »

Each of the three models presented had its own implementation and scope. The idea, when using the octopus fishery as “entry point” was not to set a unique model but actually use its “reactive” potential to initiate a “learning by doing” process, to trigger reflection and, ultimately, reforms of the local governance system of coastal fisheries.

There is no doubt that the involvement of fishers, whether through national consultation or a co-management approach at villager level, is the decisive factor of success of this type of initiatives. The weakness of control means in the region forces the legislator to secure resource user buyout to minimize risks and promote voluntary enforcement of regulations.

These projects oriented on the octopus fishery also offered a formidable tool for identifying bottlenecks that an ex-situ study can only catch glimpse of, as they allowed for confronting individual ambitions with field and institutional realities. As such, they largely contributed to demonstrating the rationale for the “pilot projects” developed by SmartFish (cf. Smart Sheets #27 and 28) in support of reform efforts and feeding of institutional work with practical experiences.

References