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MPA Perspective: Indo-Pacific Should Protect More Reef Fish Spawning Aggregation Sites

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Many different species of coral reef food fish aggregate at the same locations each year in order to spawn. Groupers are best known for this habit because they tend to stay at such sites for 1-2 weeks per lunar month during the spawning season. Snappers, jacks, emperors, and surgeonfish are among the food fishes that also use such sites.

In the case of groupers, spawning aggregations have been completely obliterated by overfishing at a number of locations in both the Atlantic and the Pacific (reviewed by Johannes et al. 1999). In recent years, moreover, fishers in the billion dollar live reef food fish industry -- centered in Southeast Asia and spreading into the Pacific and Indian Ocean islands -- have started to target spawning aggregations.

Proponents of marine protected areas routinely assert that their most important function is to protect spawning stock biomass and improve recruitment to fished areas by means of larval dispersal. Yet, with rare exceptions, the locations of important spawning aggregation sites seem almost never to have been taken into account by MPA planners in the tropical Indo-Pacific. Even Australia, with the biggest coral reef in the world, is only now beginning to consider the need for protecting spawning aggregations. In contrast, most Caribbean countries, which do not have the problem of the live reef food fish trade to contend with, nevertheless employ a host of measures to protect their reef fish spawning aggregations (reviewed by Johannes et al. 1999).

The tiny Pacific island country of Palau is 20 years ahead of the rest of the tropical Indo-Pacific in giving legal protection to a spawning aggregation site. Palauans, like many other Pacific islanders, had a variety of traditional marine resource management practices -- including the protection of spawning aggregations -- through placing taboos on them. But traditional authority has weakened in the past half-century and government regulation was sought by Palauan fishermen to help fill the vacuum.

Accordingly, in 1976, Palau passed a law to prohibit fishing from April through July in Ngerumekaol Channel, Palau's best known spawning aggregation site. Fishermen volunteered that this was the peak season for spawning aggregations of three species of groupers; for about ten days prior to the new moon they aggregate there by the thousands in order to spawn. Recent research has shown, moreover, that more than 50 other species of reef fish spawn there, including snappers and unicorn fish. The last of these is the single most important fish in the commercial reef catch (Johannes et al. 1999).

While Palau is still feeling its way towards optimum protection for this important reef fish spawning aggregation site, it is nevertheless well ahead of the rest of the tropical Indo-Pacific in this regard and provides an example from which other countries can learn. The small Micronesian state of Pohnpei has recently moved to protect its grouper spawning aggregations -- apparently the only other state in the tropical Indo-Pacific to protect important reef fish spawning aggregation.

Why have the locations of important spawning aggregation sites almost never been taken into consideration when delineating marine protected areas in the Indo-Pacific, nor have other measures, such as closed seasons, been taken to protect them? Some fisheries managers say that they do not have adequate data to prove that they are threatened.

There are two responses to this:

1. Waiting for adequate data will, in many cases, mean waiting forever; there are vast areas of tropical nearshore waters where obtaining such data is impractical or too expensive, and will remain so indefinitely (Johannes 1998).
2. Where data have been collected, the track record of grouper (and snapper) fisheries is poor; typically they are the first reef fish stocks to collapse in response to increasing fishing pressure.

Under the circumstances, precautionary protection of reef fish spawning aggregations is not merely appropriate; in many areas of the tropical Indo-Pacific, it is vital.

References:

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