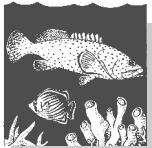


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Grouper aggregation protection in proactive Pohnpei

by Kevin L. Rhodes¹

Overfishing has been implicated in the disappearance of grouper aggregations worldwide, including the U.S. (Gilmore & Jones, 1992), Australia (Domeier & Colin, 1997), Belize (Carter, 1989), Mexico (Aguilar-Perera & Aguilar-Davila, 1996), the Caribbean (Olsen & LaPlace, 1978; Colin, 1992), western Atlantic (Sadovy, 1993) and Indo-Pacific (Wase², pers. comm.; Johannes *et al.*, 1999).

In the western Atlantic and Caribbean, overfishing has primarily been by local fishermen, whereas in the Indo-Pacific the driving force has generally been (directly or indirectly) the Hong Kong-based live reef fish trade (LRFT). Aggregation overfishing in the Indo-Pacific by locals for local consumption and sale, however, is less documented, but was recently observed by the author in Pohnpei, Micronesia, during a biological survey of marbled grouper (*Epinephelus polyphekadion*).

Until the 1960s, Pohnpei had fished aggregations under the traditional customary marine tenure system (CMTS) (Martin³, pers. comm.). Under the CMTS, only one or a few master fishermen were allowed to venture to outer reefs where grouper aggregations typically occur. Catch was limited to the small number of fish needed to feed the clan or municipality for a brief period, which by nature conferred a reasonably high level of conservation on spawning stocks (Johannes, 1978). However, after the 1960s, the CMTS gradually dissolved, such that fishing pressure on aggregations increased as access to sites throughout Pohnpei became open (Ioanis⁴, pers. comm.).

By 1997, an unabated increase in aggregation fishing pressure for local sale and consumption and reports of illegal destructive aggregation fishing by Pohnpei's only licensed LRFT operator (Kingfisher Marine Products, Inc., Hong Kong) spurred the Pohnpei Department of Resource Management and Development (DRMD) to pass its first legislation directed at grouper conservation by limiting the impacts on aggregations. Under this new law, commercial catch and sale of grouper were prohibited during March and April, although catch was allowed for subsistence, i.e., personal sale and consumption. At the same time, the DRMD developed two new marine sanctuaries at two known spawning sites: (1) at the largest known site (hereafter, Site A) for marbled grouper, dusky grouper (*Epinephelus fuscoguttatus*), and coral trout (*Plectropomus areolatus*), and (2) the second at nearby Oroluk Atoll.

In 1998–99, however, a survey of spawning sites in Pohnpei found that aggregations at Site A form outside the ban period (March–April in 1998; February–March in 1999) and that marbled and dusky grouper aggregations lay just outside sanctuary boundaries (up to 400 m).

Between 1997–99, fishermen exploited this situation and over a seven-day period in February 1999 captured an estimated total of 4,000 individuals, roughly equivalent to one-third of the aggregation. Poaching was also observed frequently during the ban period in 1998, due to a shortage of conservation officers within the DRMD.

1. University of Hong Kong, Department of Ecology & Biodiversity, Hong Kong

2. Danny Wase, Director, Marshall Islands Marine Resource Authority, Interview, July 1997.

3. Valentin Martin, Chief, Pohnpei State Department of Marine Resources, Division of Coastal and Marine Resource Management, Interview, July 1997.

4. Benito Ioanis, Statistician, Pohnpei State Department of Marine Resources, Division of Coastal and Marine Resource Management, Interview, July 1997.

Following the 1999 survey, the DRMD was provided specific information about local aggregations, enabling them to institute several effective changes to enhance grouper protection. Most important among these were: (1) the inclusion of February in the sales ban period, (2) the enactment of a sales *and* catch ban for commercial as well as subsistence purposes during February–April, (3) the expansion of the Site A sanctuary by 900 m to encompass marbled and dusky grouper aggregations, (4) the inclusion of Ant Atoll within the marine sanctuary system, (5) the hire of additional conservation officers, and (6) the involvement of the Pohnpei State Police to assist in patrols of sanctuaries during spawning months. Additional measures currently under consideration include a live reef fish ban, a grouper export ban, a ban on the catch and sale of giant grouper *Epinephelus lanceolatus*, satellite tracking of foreign vessels, and the confiscation of catch and vessels found illegally fishing in Pohnpei waters, particularly those using destructive techniques.

Clearly, Pohnpei, like neighbouring Palau, has taken a proactive approach to grouper conservation and management. This strategy appears to stem from a long-term view of resource use (by all branches of government, including a conservation-minded DRMD) that replaces short-term economic gains with a long-term view toward sustainability and self-reliance, as the local food economy depends on a steady supply of grouper for subsistence. With a diminishing supply of healthy spawning stocks within the central Pacific brought on largely by the Hong Kong-based LRFT and its destructive practices, it has become increasingly critical for local economies to ensure protection of their own resources. The loss of aggregations could affect food security and biodiversity both locally and regionally. Pohnpei, with its proactive approach to grouper conservation, has clearly positioned itself to be a leader in marine conservation and management in the region and should be looked to as a model for aggregation protection and marine resource use.

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