Resource Protection – Marine Reserves

Problem Statement

In old Hawai'i, fishing was regulated by the chiefs and closed seasons were determined by the life history of specific organisms. *Kanaka Maoli* (Hawaiians) knew when different fish were reproducing and had *kapu* seasons when certain fish couldn't be caught. Areas known as nurseries were not used for fishing.

In modern times, fishing techniques allow people to catch more fish and get to remote places more easily. Gill nets laid out across entire bays snare everything in their path. Boats equipped with radar, GPS, and sonar locate and catch more fish. Bag limits and minimum size regulations result in fishers keeping only the largest fish which are the ones that produce the most offspring (Birkeland and Friedlander 2002). Fish surveys throughout Hawai'i show a shift in biomass from large predatory fish to smaller herbivores (Birkeland and Friedlander 2002).

The main Hawaiian Islands have few marine protected areas (MPAs) or reserves and most allow some types of consumptive use. Less than 0.2 percent of coral reefs around the main islands are designated as no-take areas (Gulko and Maragos et al. 2000). With all the benefits that no-take marine reserves can provide, it is surprising that there are not more areas set aside to protect Hawaii's coral reefs.

The primary opposition to designating more reserves comes from the fishing community. In early 2003, a House bill was introduced to designate a network of marine reserves that would encompass approximately 30 percent of near shore reefs in the main Hawaiian Islands. A campaign by *Hawaii Fishing News*—claiming that no-take reserves would adversely affect commercial, recreational, and subsistence fisheries, as well as the tourism industry—resulted in defeat of the bill.

Fishing has traditionally been one of the rights of the Hawaiian people. However, many of the people fishing today are not Hawaiian and do not follow traditional methods. If people use the argument of traditional fishing rights, they should be fishing in the traditional Hawaiian way. Many fishermen respect the ocean and its resources, but some believe that the ocean holds unlimited amounts of food free for the taking.

One of the most destructive fishing methods is the use of lay or gill nets which catch everything in their path and also destroy coral when they are caught on the reef. By law, nets must be inspected at least once every two hours and unwanted and illegal catch released (State of Hawaii, Department of Land and Natural Resources et al. 2003). However, they are often left unattended for hours at a time, causing turtles and other marine life to die when entangled (Clark and Gulko, 1999).

In the past, protection has been given to individual species on the verge of local extinction without consideration of their habitat. Catch size restrictions are often arbitrary. For instance, the minimum size to catch *omilu* (*Caranx melampygus*) is 10 inches, but *omilu* do not start to reproduce until they are 12 inches. Therefore, the legal

size for taking omilu does not allow for reproduction. In addition, a 27-inch *omilu* produces 84 times more eggs than a 12-inch *omilu* (Birkeland and Friedlander 2002). By protecting the habitat, marine fishes can be protected during all life stages and are allowed to reach their full reproductive potential. In reserves, large, breeding animals are preserved and their offspring have the potential to move into nearby waters and enhance fishing outside the reserve.

The Northwest Hawaiian Islands (NWHI) were designated as the Hawaiian Islands National Wildlife Refuge in 1909 by President Teddy Roosevelt. Many "no-take" reefs extend to depths between 25 and 100 fathoms (Maragos and Gulko 2002). A reef assessment and monitoring program conducted in 2000 found that the average reef fish biomass was over 260 percent higher in the NWHI than in the main Hawaiian Islands. There were also many more apex predators compared to the main islands where the bulk of fish biomass consists of herbivores and small, low-level carnivores. Completely protected no-take reserves have been shown to enhance fisheries outside their boundaries from spillover and larval export. When previously closed areas in the Philippines were re-opened, within 18 months the catch per unit effort for several species of fish declined by an average of 64 percent (Alcala and Russ 1990).

In addition, marine reserves protect biodiversity and provide economic benefit to the community through eco-tourism. In 1998, ocean-related tourism brought in $797 million to the state of Hawai'i, and commercial near shore fisheries grossed $5 million (Clark and Gulko 1999). It appears that reef fish are more valuable when left in the ocean for divers to look at multiple times than they are when caught and eaten just once.

The main Hawaiian Islands have nine Marine Life Conservation Districts (MLCDs): three on. O'ahu (Hanauma Bay, Pupukea, Waikiki); three on the island of Hawaii. (Kealakekua Bay, Waialea Bay, Old Kona Airport);one on Maui (Honolua Bay); one on Lanai (Manele-Hulopo'e); and one at Molokini. Along the Kona coast of Hawai'i are nine Fish Replenishment Areas where aquarium fish collecting is illegal, but fishing for food is legal. On Maui, Ahihi-Kina'u is a Natural Area Reserve. Kaho'olawe is closed to fishing except on two weekends a month. There are no MPAs around Molokai or Kauai. (State of Hawaii, Department of Land and Natural Resources 2003) Existing MPAs attract large numbers of snorkelers and divers and many are being over-used (Gulko D, Maragos et al. 2000).

In the past, marine reserves were designed with little if any scientific input. Criteria for reserve locations were based on ease of establishing boundaries (such as across the mouth of a bay), ease of access for ocean recreation, and presence of scenic beauty (Linda Flanders, Marine Protected Areas Coordinator, Hawaii Division of Aquatic Resources, personal communication). Parameters that would make a marine reserve more effective have been studied recently; these include size, habitat complexity, and wave exposure (Friedlander, Brown et al. 2003).

Recommendations

A larger network of no-take marine reserves should be designated around the state both to provide a refuge for economically useful species and to ensure the preservation of marine biodiversity. This is consistent with findings of the Pew Oceans Commission (June 2003), which recommended establishment of a national system of fully protected marine reserves spread over large geographic areas to prevent habitat loss due to natural or anthropogenic disturbances. Special consideration should be given to important habitat such as coral reefs, taking into consideration all life stages of species to optimize reproduction. Given resistance by the fishing community against the designation of marine reserves, as well as a perceived lack of political will to counter this strong, vocal lobby, MACZAC recommends that the state take the initiative to designate a system of no-take marine reserves on all the main Hawaiian Islands. This should be done as soon as possible to preserve and enhance marine life populations for the future.

References

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