

## Marine Fish Monitoring

### Network Parks Where Fish are Monitored

- National Park of American Samoa
- War in the Pacific NHP
- Kaloko-Honokōhau NHP
- Kalaupapa NHP

### Importance

Marine fish are a vital resource to Pacific island human populations. However, fish stocks throughout the Pacific are threatened by overfishing, habitat loss, and environmental changes. Recent technological advances in fishing techniques and gear lead to increased catch, especially of predatory fish like sharks, groupers, and snappers as well as large wrasses and parrotfish. These advances, among other factors, have led to declines in fish biomass and species shifts in fish communities. Fish communities are an important component of coral reef ecosystems. Shifts in fish communities can have long lasting impacts on coral reef systems as a whole. Moreover, because of the significant role that fish play in this system, and their potential for exploitation, it is crucially important to monitor this resource.

### Long-Term Monitoring

Monitoring of marine fish is focused on daytime, non-cryptic species, in the 10 – 20 meter (approximately 30 to 60 feet) depth range. The process consists of a single diver swimming a 25 meter transect while identifying, counting, and sizing all of the fish noted within that transect. If necessary due to significant diversity, a second pass of the transect is conducted. In this case, the first pass focuses on the more transient fish and the second pass focuses on the territorial fish species.

### Monitoring Objective

The primary objective of this monitoring effort is to annually determine the density, biomass, size, and community structure of reef fishes at sites randomly selected over hard seafloors in an area between the 10 and 20 meter depths.

### Management Applications

Obtaining trend information through monitoring will allow managers to understand what changes are occurring within this community and at what rate. This enables managers to target potential problem areas that can be addressed, both within and external to park jurisdictional boundaries.



Schooling spadefish search the reef for food.



Fish sampling sites in the Asan Marine Unit in War in the Pacific National Historical Park. The cross-hatching indicates the targeted sampling area while the red dots indicate actual sampling locations.



Bigeye scad in a baitball enjoy the safety of numbers.



Diversity of fish on a coral reef in American Samoa illustrates the many niches fish species occupy in the reef ecosystem.



A clownfish seeking shelter in an anemone is just a part of the complex coral reef ecosystem at risk.

Network website: <http://science.nature.nps.gov/im/units/pacn/>

Resource website: [http://science.nature.nps.gov/im/units/pacn/monitoring/vs\\_fish\\_marine.cfm](http://science.nature.nps.gov/im/units/pacn/monitoring/vs_fish_marine.cfm)