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Summary of Findings
2014 Coral Reef and Fish Surveys: Polanui, Maui

Fed by fresh water streams and shoreline springs along Maui's Lāhaina coastline, Polanui's reef, called Nā Papalimu O Pi'ilani, was known for its abundance of fish and edible limu (algae). But like other Hawaiian reefs adjacent to high population centers, it now shows signs of significant human impact associated with sediment, runoff, overharvest, and recreational overuse.

The Nature Conservancy conducted surveys measuring the size, distribution, and abundance of coral and reef fish at depths of 10-60 ft in 2012, 2013, and 2014. The 2014 findings discussed here are contrasted with previous years to highlight changes in coral and fish populations. This valuable baseline data will inform management and restoration of the reef.

Key Findings: Polanui's Fish

• Total fish biomass (weight of all fish) was significantly lower than in 2012. It was lower than all other sites surveyed on Maui and among the lowest of 40+ sites surveyed across Hawai'i.

• The biomass of target fish (those highly prized and harvested) was significantly lower than that found in 2012 and was the lowest of 40+ sites surveyed across Hawai'i.

• The biomass of prime spawners (fish with the highest reproductive potential) is among the lowest in Hawai'i.

• Apex predators (species at the top of the food chain) were not observed at Polanui in 2014.

Bigger Fish Make More Fish

Older, larger fish produce more and healthier larvae and are responsible for the vast majority of reproduction. A 27-inch 'ōmilu, for example, makes 86 times the number of eggs produced by an 'ōmilu half its size.

14 inch 'Ōmilu   27 inch 'Ōmilu

Total Fish Biomass At Sites Surveyed Around Hawai'i

Polanui has the lowest fish biomass in Hawai'i, meaning its fish are smaller or fewer when compared to other sites surveyed around the state. Surveys at Polanui also reveal that fish biomass declined between 2012 and 2014.
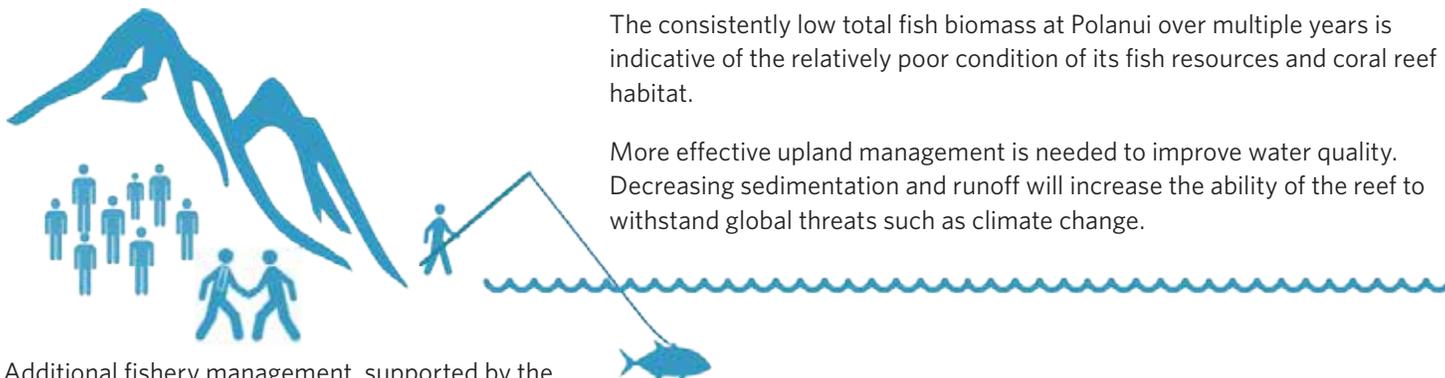
Key Findings: Polanui's Corals

- There were 12 species of coral observed at depths of 10-60 ft and average coral cover was about 20%.

- Turf algae, which can smother or stress reefs, was common, covering 92% of the bottom in shallow water. Sand and silt covered as much as 80% of the bottom at deeper sites.

- Several species of coral showed evidence of paling, bleaching, disease (e.g., growth anomalies), and "pink tissue," which is a characteristic response to stress.

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Unlike healthier reefs on Maui's southwest coast (top left), coral at Polanui showed evidence of stress, including pink tissue (top right). Turf algae and sediment surrounding the corals (left), likely the result of runoff and poor water quality, impedes recovery and the growth of new coral.

Management Recommendations

The consistently low total fish biomass at Polanui over multiple years is indicative of the relatively poor condition of its fish resources and coral reef habitat.

More effective upland management is needed to improve water quality. Decreasing sedimentation and runoff will increase the ability of the reef to withstand global threats such as climate change.

Additional fishery management, supported by the community and adequately enforced, is needed to halt further declines in fish populations and promote recovery.

Additional research is needed to determine whether the changes in fish populations observed between 2012 and 2014 are associated with natural variability or represent a continuing downward trend at Polanui.

For Additional Information

Contact Roxie Sylva, The Nature Conservancy's Maui Marine Coordinator, at rsylva@tnc.org or 808-856-7669.

How You Can Help

Polanui Hiu is building an engaged community of volunteer citizen scientists who help monitor reef fish populations. Group members and community volunteers (pictured with Nature Conservancy staff) meet the first Saturday of the month at the Lindsey 'Ohana residence at 393 Front Street to conduct the surveys. Stop by or contact Ekolu Lindsey at polanuihiu@hawaii.rr.com, facebook.com/polanuihiucmma, @polanuihiu, or 808-276-5593 to learn about Polanui Hiu's activities and explore ways to get involved.

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