



# Summary of Findings

## Four-Year Assessment: Ka'upulehu Marine Reserve, 2020

The coastal fishing grounds of Ka'upulehu were renowned for their abundance of fish, lobster, octopus, and limpets, but coral cover and fish abundance at Ka'upulehu had been declining since at least the early 1990s. The Ka'upulehu Marine Life Advisory Committee (KMLAC) has been working to reverse those declines for decades. After years of thoughtful planning, the KMLAC worked with the State Division of Aquatic Resources (DAR) to establish a 10-year no-take rest area to give economically and culturally important fish species a chance to recover, so that sustainable fishing could start again from a place of abundance. In 2016, the State established the Ka'upulehu Marine Reserve with overwhelming public support. While the area is resting, the community is working to develop a fisheries management plan to maintain healthy, sustainable fisheries once the Reserve is re-opened to fishing in 2026.

The Nature Conservancy has supported the community's efforts by supplying rigorous scientific information on the status and trends of Ka'upulehu's nearshore reefs and fisheries. Since 2009, we have surveyed more than 1,260 transects, creating one of the strongest datasets to assess marine resources in Hawai'i. This information established a statistically robust baseline and is helping to determine how fish stocks and the reef are changing in response to the rest period. The findings reported here reflect the results from our surveys of 163 sites in and adjacent to the Reserve in October - November, 2020.



*The Ka'upulehu Marine Reserve was established to give economically and culturally important fish species a chance to recover, so that sustainable fishing could start again from a place of abundance. The Reserve extends 3.6 miles from Kikāua Point to Kalaemanō.*

### Key Findings: Significant Increases in Key Fish Populations

Our surveys confirmed much larger increases in fish inside the Reserve than in adjacent areas outside the Reserve, especially for species prized by fishers. Specifically, in the four years since the Reserve was established.

- **Total fish biomass (the combined weight of all fish) has increased by 173% inside** compared to 73% outside the Reserve.
- **Biomass of resource fish (highly-prized food fish) has increased by 256% inside** compared to 91% outside the Reserve:
  - ◆ **Biomass of surgeonfish species prized by fishers has increased 310% inside** compared to 116% outside of the Reserve.
  - ◆ **Biomass of prime spawners (large, sexually mature resource fish that produce the most offspring) has increased by 612% inside** compared to 172% outside the Reserve.



## Key Findings: Signs of Coral Recovery

*The State did not implement management actions that would directly affect corals in the Reserve, so any benefits that accrue over the years will occur indirectly, e.g., through greater numbers of herbivores aiding coral recovery by reducing algal overgrowth.*

- Following a statewide coral bleaching event in 2015, **coral cover decreased 44%**, from 27.4% pre-bleaching to 15.3% post-bleaching.
- **Coral cover continues to slowly increase** and reached about 20% by 2020.
- **Coral recovery exhibited similar rates both inside and outside the Reserve.**

*In 2022, the State identified Ka'ūpūlehu as a priority area for coral restoration to aid reef recovery.*

## Moving Forward

These findings suggest the 10-year rest period is providing significant positive benefits to reef fish within the rest area, and indicate that the Ka'ūpūlehu Marine Reserve is on track to achieve its 10-year goal of substantially increasing resource fish populations to sustain managed harvest. Scientists predict that fish populations will continue to grow throughout the remainder of the rest period, though different species will increase at different rates due to factors such as growth rates, age of first reproduction, and movement patterns.

Because the Ka'ūpūlehu Marine Reserve represents an important example for community-based management in Hawai'i, rigorous monitoring of the effectiveness of these new regulations, documenting the benefits and challenges, and widely sharing the results will be essential to informing future management efforts in West Hawai'i and across the state. The information will also increase our understanding of natural reef processes and inform the community's efforts to develop a fisheries management plan that allows fishing to resume at the end of the 10-year rest period in a way that sustains the health of the fishery, the reef, and the community that depends on it.

## For Additional Information

Contact Dr. Eric Conklin, TNC Hawai'i Marine Science Director, at [econklin@tnc.org](mailto:econklin@tnc.org) or 808-587-6230.

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*“We didn't want to wait until the fish were gone, then try to fix that. If we wait now, we have a good basis for the fish to replenish themselves, for abundance to return. So we set out to use deep culture and the best science available to us, to try wait, to make better, to open and enjoy the ono.”*

Hannah Kihalani Springer  
Kama'āina and KMLAC Member



## How You Can Help

The Ka'ūpūlehu Marine Life Advisory Committee (KMLAC) is a group of local landowners, businesses, advocacy groups, and families with ancestral ties to the area that have been working for more than two decades to restore coral reefs and fish populations through improved collaborative management with the State. You can support their efforts by supporting the development of a sustainable fisheries management plan for the Ka'ūpūlehu Marine Reserve to guide the sustainable use and stewardship of marine resources.