

**Hawaii Fisheries Disaster Relief Program
Research Summary Report**

Date Summary Report prepared:

- 1. Researcher's Name:** Frank Parrish
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- 2. Title of Project** Age and growth validation of Gold Coral – FDRP 657781

- 3. Fishery Targeted:** Precious coral fishery

- 4. Award received:** \$229,957.00
Actual amount spent: All but \$120.04

5. Project Objectives:

To re-measure marked gold coral colonies to verify the 6 cm/year growth rate used to manage the harvesting of gold coral in the Precious Coral Fishery Management Plan. Samples of the coral were collected for radiometric dating to refine radiometric estimates.

6. Describe how the objectives were met.

The bulk of the funds went to pay for ship (RV Kai imikai-o-Kanaloa) and submersible time (Pisces submersible) to visit the 6 coral beds to measure the corals, collect samples, and pick up environmental data loggers. The allocated travel funds were used to pay the co-PI's (Brendan Roark) travel from the west coast to Hawaii to participate in the field work. Some money was used to buy replacement data loggers and some was used to pay for the radiometric assays run on the collected gold coral samples.

The funds were spent as originally planned in the proposal.

7. Discuss differences between work anticipated in your proposal and work that was actually completed.

There were no differences in work anticipated and that performed.

8. Discuss differences between expected and actual costs.

There were no differences in expected and actual costs. Money for an additional dive was awarded by FDRP at the end of the project to provide another visit to Makapuu so the data loggers could be recovered.

Hawaii Fisheries Disaster Relief Program
Final Report

1. **Researcher's Name:** Anthony Montgomery
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2. **Title of Project:** Black Coral Density and Uncertain Taxonomy: What are the implications for the black coral fishery?

3. **Fishery Targeted:** Precious Corals

4. **Award received:** \$100,387.00
Actual amount spent: \$99,787.42

5. **Project Objectives:** The objectives were to complete three submersible dives in order to measure black coral density for each species. These surveys allow density per species to be determined below 70 meters depth in order to compare to shallow water populations above 70 meters. The hypothesis was that the species assemblage was significantly different below 70 meters depth compared to above 70 meters depth. In addition, representative samples were collected in order to have identification made by morphological and genetic methods. The samples are being examined blindly in order for all identifications (in situ, morphological, and genetic) to be done independent.

6. **Describe how the objectives were met.** Three submersible dives were conducted at depths of 70 to 120 meters. Ten transects were completed and 26 samples were collected. Each sample was preserved in DMSO, EtOH, 4% Formalin, and dried skeletons. Dried Skeletons were sent to Dr. Dennis Opresko for morphological identification while genetic samples (DMSO and EtOH) were sent to Dr. Scott France for genetic examination. Genetic analysis is still ongoing (not currently funded under this grant) while morphological analysis is completed.

Preliminary results show that greater than 90% of the individuals counted were *Antipathes grandis* which is a somewhat uncommon species in shallow water. However, the remaining 10% was identified as *Antipathes dichotoma* in the field while later morphological results suggest the majority of those samples were *Aphanipathes* sp. This suggests there is little *Antipathes dichotoma* present in the depths below 70 meters. *Antipathes dichotoma* is the commercially preferred species. This research helps define the extent of the population of the preferred harvested species, *A. dichotoma*.

7. **Discuss differences between work anticipated in your proposal and work that was actually completed.** There were no differences in work anticipated and that performed.

8. **Discuss differences between expected and actual costs.** Actual costs were slightly lower due to invoicing from the University of Hawaii ship time (very small difference).

9. **List all publications, posters, brochures, and other informational material published with project funding. Submit copies of publications to JIMAR**
The project is still being worked up with finishing the mapping data from the submersible dive and completion of the genetic analysis (complemented by other funding sources). The final product will be written up and prepared for a peer-reviewed publication. In addition, this data will be highly valuable for both the State of Hawaii and the Federal agencies involved in the management of the black coral fishery.