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### **Pacific Islands Region Species of Concern FY 2007 Year-End Report**

In April 2007, the National Marine Fisheries Service (NMFS) Pacific Islands Regional Office (PIRO) wrote a grant proposal to conduct field surveys for two Species of Concern (SOC), the Hawaiian reef coral (*Montipora dilatata*) and the inarticulated brachiopod (*Lingula reevii*) in Kaneohe Bay, Oahu, Hawaii. A total of ten proposals were submitted to NMFS Headquarters and seven were granted funding, including the PIRO proposal requesting funding for \$16,150.00.

In June 2007, NMFS PIRO used grant money to fund a research contract to a University of Hawaii at Manoa (UHM) professor, Dr. Cynthia Hunter, and her undergraduate marine science students. Baseline data on the coral and the brachiopod indicated that both species have declined dramatically over the past few decades and were in critical need of data collection to determine the current population size and improve our understanding of the factors for decline and the habitat requirements. The goals of the contract were to: 1) conduct extensive surveys of all suitable habitat in Kaneohe Bay, Oahu, Hawaii; 2) systematically map both species, *L. reevii* and *M. dilatata* within the bay; 3) quantify their current population size; 4) quantify the occurrence of alien/invasive algae; and 5) characterize and photodocument the habitat types (e.g. substratum, depth, rugosity, sand depth, sand grain size) to improve understanding of the habitat requirements of each species. A final report was received and data from these extensive surveys will continue to aid NMFS PIRO in implementing on-the-ground conservation (such as continuing field surveys, removing invasive alien algae, etc.) as well as directing future funding opportunities (such as genetic analysis to determine if both species are genetically distinct from other reported locations). Please see [Field Surveys for two Species of Concern in Kaneohe Bay, HI](#) (pdf, 2.53MB)

For a second year in a row in August 2007, NMFS PIRO funded the purchase of additional ecological acoustic recorders (EARs) to support the NMFS Pacific Islands Fisheries Science Center (PIFSC) in the development of passive acoustic monitoring. The EARs will facilitate the collection of acoustic information on the region's two fish SOC, the humphead wrasse (*Cheilinus undulatus*) and the bumphead parrotfish (*Bolbometopon muricatum*).

In August 2007, NMFS PIRO also issued a contract to the Waikiki Aquarium of the UHM to create an outreach and education research exhibit for both *L. reevii* and *M. dilatata*. The goals of the exhibit, with interactive graphics highlighting both species, are to: 1) increase public awareness about these species; 2) discuss the value of establishing protective measures for these species and proactively conserving the population; 3) explain the importance of collecting data on these species so that scientists and resource specialists may better manage them in the wild; and 4) describe the mutually beneficial

partnership between the Waikiki Aquarium and NMFS and how both partners have collaborated to promote the conservation of these two SOC. A second goal of this contract is to partner with Dr. Rob Toonen (UHM/Hawaii Institute of Marine Biology) to confirm the identity of the purported *M. dilatata* colonies, recently observed in June 2007 in Kaneohe Bay, Oahu, Hawaii. Colonies will be checked against established genetic markers for the species.

Finally, in 2007 NMFS PIRO worked with the national program coordinator to update the SOC fact sheets that were originally developed in 2004. The fact sheets are now more robust in information including status of the species, threats, research and data needs, and conservation actions currently being undertaken.

As for feedback from research and conservation efforts on PIR SOC during 2006, NMFS PIRO is pleased to report that through a 2006 contract with the Waikiki Aquarium, *M. dilatata* has continued to be successfully asexually propagated in captivity, providing an abundance of fragments and colonies. Through the same contract, the Waikiki Aquarium has also built a husbandry tank for *L. reevii* and begun efforts towards captive husbandry with an ultimate goal of reproduction.



Figure 1: *M. dilatata* asexual propagation tank.



Figure 2: Close up of *M. dilatata* asexual propagation tank.



Figure 3: Krista Graham (NMFS PIRO), Chris Yates (NMFS PIRO), and Norton Chang (Waikiki Aquarium) standing beside the newly created *L. reevii* husbandry tank.



Figure 4: Close up of *L. reevii* burrow holes from a single individual.

In 2006, NMFS PIRO funded NMFS PIFSC to purchase several EARs and to increase the total number of EARs currently deployed to gather acoustic information on the humphead wrasse and the bumphead parrotfish. After several years of development, NMFS PIFSC is pleased to report that acoustic time series data sets are being acquired and initial research has been successful.

NMFS PIFSC also reports that the field oceanography/instrumentation team completed a survey of Wake Atoll in 2007 as part of their mooring operations. During one of their dives, they encountered over 25 bumphead parrotfish (each > 1 m length). In addition, the field team has collected video and acoustic data of *C. undulatus* at Wake Atoll. Primary sounds from the individual that they were observing have been associated with feeding behaviors. NMFS PIRO looks forward to receiving the final reports from the 2007 field expedition. Data collected on the two fish species may improve understanding of when and why sound is made by both species, as well as use acoustic monitoring to assess population parameters such as presence/absence, spatial distribution, and temporal patterns of occurrence.