



2008 Northwest Hawaiian Island Marine Debris Update

The marine debris team of the NOAA Pacific Islands Fisheries Science Center (PIFSC) Coral Reef Ecosystem Division (CRED) has successfully completed 12 seasons of debris removal in the Northwestern Hawaiian Islands (NWHI).

Derelict fishing gear (DFG), prevalent in coastal and marine habitats throughout the Hawaiian Islands, presents the hazard of a lethal entanglement to numerous marine species, most notably the critically endangered Hawaiian monk seal, the threatened green sea turtle, and the endangered humpback whale. DFG may also damage or smother sensitive reef habitat, act as a vector for the introduction of nonnative species, and poses a risk to boat navigation.



Green Sea Turtle entangled in derelict fishing gear at Pearl and Hermes Atoll



A diver works to free a net from the reef at French Frigate Shoals

PIFSC in 1996 initiated its marine debris removal effort to address a management need, as DFG was damaging habitat and causing injury to and the mortality of threatened and endangered species. From 2001–2005, the NOAA Coral Reef Conservation Program and Marine Debris Program funded an intensive, large-scale removal effort that engaged federal, state, academic, industry, and NGO partners. Led by PIFSC, this effort resulted in the removal of 511 metric tons of debris from the reefs of the NWHI.

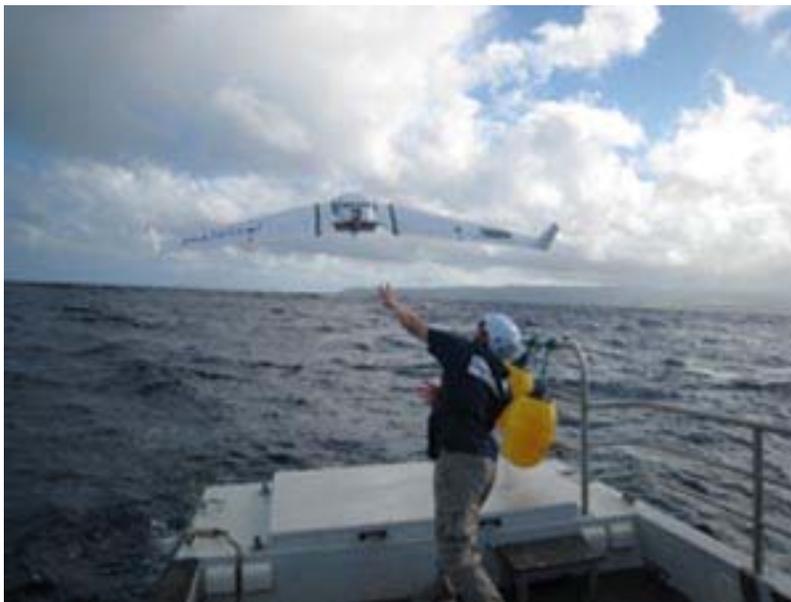
In 2006, the PIFSC marine debris team transitioned into a maintenance mode and removed over 19 metric tons of debris from the NWHI. A study in the December 2006 issue of *Marine Pollution Bulletin*, (Dameron and colleagues, CRED) determined that the annual accumulation rate for marine debris in the NWHI is at least 52 metric

tons, based on debris surveys from 2001-2005, oceanographic analyses, and benthic habitat characteristics of 85% of the islands and atolls.

Meanwhile, the Ghostnet project began in 2006. To locate DFG at sea, this endeavor used aerial surveys to ground truth high-resolution satellite imagery. This survey design used some of the known relationships between nets and convergence zones. The project has since shifted to the use of unmanned aerial systems (UAS). A UAS is designed to fly near a ship and detect floating debris. Once it finds debris, a UAS sends a GPS location to the ship from which a crew can launch a small boat to remove debris located by the UAS. This system was first field tested in March 2008 in the NWHI with little success, but designers have been working to correct issues and the system will be retested in December 2008.



Marine Debris Teams removes land debris off Laysan Island



UAS being launched from small boat during field-testing

The PIFSC marine debris team, continuing in maintenance mode, has removed 59 metric tons from the NWHI during the 2007-2008 field season. Marine debris removal to date in the NWHI, totals 599 metric tons.

This success highlights the effectiveness of the ongoing multiagency marine debris effort in Hawai`i. This particular effort was supported by the NOAA Marine Debris

Program and Coral Reef Conservation Program and numerous industry partners on O`ahu, including Schnitzer Steel Hawai`i Corp., Matson Navigation Co., Covanta Energy, Papahānaumokuākea Marine National Monument, US Coast Guard, and the Hawai`i state Department of Land and Natural Resources.

**For more information please visit our website at
www.pifsc.noaa.gov/cred/mdr.php**