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SMALL BOAT CRUISE REPORT

VESSEL: *RV Huki Pono*, Cruise AUV1101

CRUISE PERIOD: March 20 - 26, 2011

AREA OF OPERATION: South and West Oahu, Hawaii

TYPE OF OPERATION: Autonomous Underwater Vehicle Optical Surveys

ITINERARY:

20 March — At 0830, Personnel form NOAA's Pacific Islands Fisheries Science Center (PIFSC), and Northwest Fisheries Science Center (NWFSC) started mobilizing AUV equipment at University of Hawaii Marine Center, Snug Harbor. Collaborators from Woods Hole Oceanographic Institution realized that new video camera they brought out was not the camera intended for PIFSC, and made arrangement to have our camera shipped to us by Tuesday. At 1300, half the team started a camera calibration. At 1500, loaded AUV on the stake bed truck and transported to Pier 26.

21 March — At 0800, loaded AUV on to the back deck of Sea Engineering's vessel R/V Huki Pono. At 0900, R/V Huki Pono left Pier 26 and tied up at the floating pier at Snug Harbor. Setup AUV acquisition electronics and over the side pole on R/V Huki Pono. At 1300, ran ballasting & servo tests. At 1600, met in Marine Center's conference room to go over how to run Fish_Rock photo processing software.

22 March — At 0830, ran through final check and setup for AUV mission. At 1100, left the pier at Snug to run a open water test dive. During the dive a GoPro camera was attached to the vehicle as an experiment. The maximum depth the dive reached was 136 m, far deeper than the advertised 60 m maximum depth rating of the of the GoPro but the housing held up and the camera acquired high definition video. This test mission ran smoothly but was aborted early to save the GoPro and return to port at the scheduled time.

23 March — At 0800, the new video camera arrived from Woods Hole. Run several bench tests with the new camera to test its functionality. Mounted the camera on the AUV on the forward strut and looking forward. Attempted to run the new camera

connected to the vehicle but the AUV's internal computer continually rebooted. WHOI personnel concluded that the DC-DC converter is a likely to be the problem, and that it may need to be replace or reconfigured.

24 March Underway at 7:30 for Barber's Point and arrived at Barber's Point Pier ~9:20 due generator issues. Got underway from Barber's Point at 10:45 after running through a deck test, plugging in the aft camera, and other pre-dive checks. Arrived on site and launched Seabed. Early on the last leg of the mission the AUV suddenly got veered southwest of the line (~40 m) but came back on after a few minutes. Aborted mission when the AUV suddenly started moving backwards, possibly being pushed by currents, into a wall. Recovered vehicle and headed to port. At 1600, Liz, Erica, and Frances disembarked at Barber's Point and R/V Huki Pono returned to Snug Harbor.

25 March At 7:30 started pre-mission checklist etc. Got underway at 9:30, after having problems with a hidden characters in the configuration file. Started having problems with the vehicle rebooting once on deck but decided to try running a mission. Tried to run the same mission twice and both times the vehicle rebooted and returned to the surface. Ended operations for the day.

MISSIONS AND RESULTS:

A. This mission was, in part, designed to test capabilities of the new forward looking video camera.

1. The new camera could not be installed and tested on the vehicle. Connecting the new camera caused the vehicle to continually reboot. A possible reason for the reboots is the current draw required to start the new camera in addition to the existing equipment is too great for the current configuration of the battery system. The new camera, batteries, and electronics container were sent back to WHOI for analysis and reconfiguration.

B. Another mission goal was to continue capturing images of benthic substrate for habitat mapping.

1. The mission on March 24th was able to run for most of its planned dive. However, the downward facing camera malfunctioned and only collected 2 pixel by 2 pixel images. The angled camera functioned properly and collected the proper sized images, which will be analyzed over the next few months.

C. As time allowed, the AUV was to capture images of proposed heat exchange pipeline site.

1. Due to reboot issues on Friday, images where not taken. We plan to return to this site if time allows on future missions.

SCIENTIFIC PERSONNEL:

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Figures

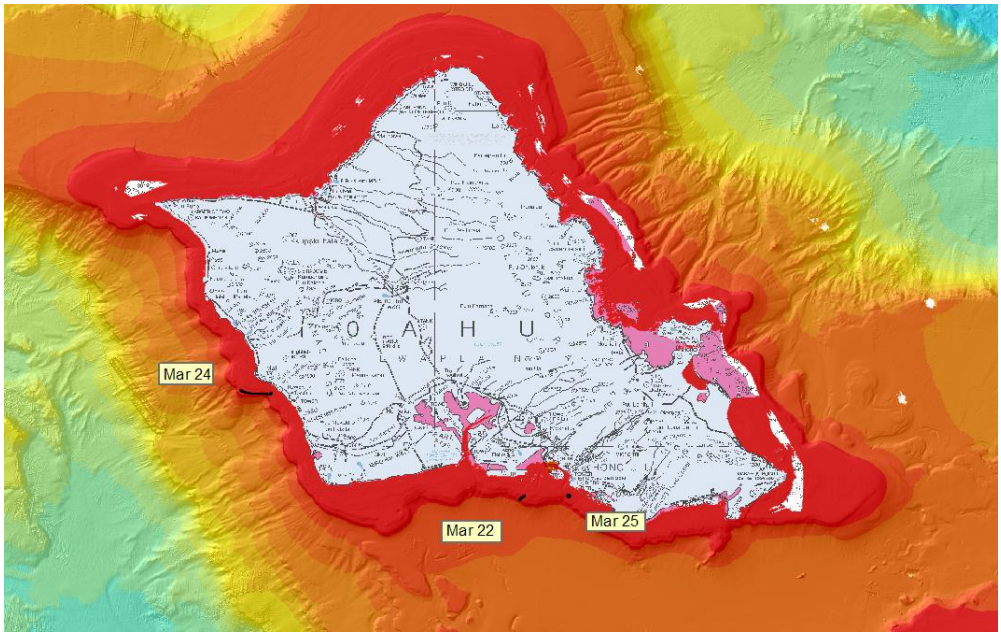

Figure 1: AUV1101 Track Lines