

Attempting High Resolution Full Water Column Current Measurements Utilizing an Array of ADCP's off Oahu, Hawaii

Mr. Stephen Craig Cumbee

Physical Scientist, US Naval Oceanographic Office

cumbees@navo.navy.mil 228-689-8468

Abstract: The Naval Oceanographic Office was tasked in February 2001 to provide various support for the recovery effort for the Japanese fishery training vessel M/V Ehime Maru. The M/V Ehime Maru was sunk by collision with the submarine USS Greenville. Current measurements were of high importance due to the potential of an oil spill on the beaches of Hawaii and to assist moving the M/V Ehime Maru. The Ehime Maru was to be moved from a deeper location to a shallower one to allow divers to recover remains.

This paper will provide an overview of the measurements provided by the Naval Oceanographic Office, and will specifically address lessons learned from deploying an array of six 300 kHz Acoustic Doppler Current Profiler's (ADCP's). Eliminating the potential of acoustic interference between common frequency ADCP's, and range limiting factors due to clear water, in regard to array design and instrument setup, will be discussed. Although measurements were highly successful from this array, presented measurement results will clarify the differences between real ADCP measurement ranges in this location versus the planned ADCP measurement ranges. Optional configuration schemes and scenarios utilizing different frequency ADCP's will be discussed in regards to data collection optimization.