



## UNIVERSITY-NATIONAL OCEANOGRAPHIC LABORATORY SYSTEM

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### LETTER TO THE COMMUNITY Addition of *ABE* into the National Deep Submergence Facility

Over the past 10 years there has been a growing demand by the ocean community for flexible autonomous underwater vehicles (AUV's) to conduct a variety of science missions in the deep sea. To help address this challenge, two years ago operators of the AUV called the Autonomous Benthic Explorer (*ABE*) asked the DEep Submergence Steering Committee (DESSC) to consider incorporation of *ABE* into the National Deep Submergence Facility (NDSF). Concomitant with this request, the National Science Foundation requested DESSC to formulate guidelines for incorporating new assets into the NDSF. These criteria are now approved by the UNOLS Council and are available online at <http://www.unols.org/committees/dessc/index.html>.

At the May 2006 DESSC meeting, the operators of *ABE* (Woods Hole Oceanographic Institution) presented a proposal for incorporation of *ABE* into the NDSF concurrent with the removal of the towed systems *DSL-120A* and *Argo II*. The *DSL-120A* will cease to be a formal part of the NDSF in 2007. To meet future challenges associated with deep-sea exploration and research, the operators also requested that the second generation AUV *Sentry* replace *ABE* as soon as *Sentry* becomes fully operational. The committee reviewed and endorsed this proposal and passed this recommendation on for consideration at the June 21-22 UNOLS Council meeting. On June 21, the UNOLS Council unanimously approved incorporation of *ABE* into the NDSF and the replacement of *ABE* by *Sentry* in ~2008.

The flexibility and reliability of *ABE* has made this vehicle a favorite of the community for mapping, exploration, and geophysical and water column studies and there is very strong community support for bringing *ABE* into the NDSF. Missions flown by *ABE* are routinely highly successful. They have led to the collection of 1) some of the highest resolution, highest quality seafloor bathymetry obtained within the ocean basins; 2) the discovery and efficient mapping of new hydrothermal vent fields (e.g., Lau Basin); 3) novel heat flow and geochemical studies of hydrothermal plumes; and 4) detailed photographic imagery of the seafloor that allows preliminary assessment of biological communities. *ABE* is also well suited for flying in highly rugged terrain (e.g. vertical and overhanging ledges and 60 m tall chimneys at Lost City). The AUV is a proven asset on interdisciplinary cruises and its synchronous use with *Jason* and *Alvin* allow extremely efficient and cost effective use of ship time.

*ABE* has completed over 180 missions completed and it is anticipated that this demand will only continue to grow. *ABE* has been the AUV workhorse for the science community and new technological developments incorporated into and planned for *Sentry* will help NDSF meet upcoming challenges associated with rapid response expeditions, ocean observatories, and a growing demand by biological oceanographers for detailed observations.

*ABE* will be available as part of NDSF for field programs in 2008 and beyond. Requests for *ABE* as part of NSF proposals can be made online <http://www.gso.uri.edu/unols/ship/shiptime.html> through the UNOLS Ship Time Request Form. Researchers interested in using *ABE* can find out more information about its capabilities, data products, and ship requirements at <http://www.whoi.edu/marops/vehicles/auv>. For current information about *ABE* and access to the *DLS-120A* system, please contact the Chief Scientist for Deep Submergence (Chris German: cgerman@whoi.edu).