

Abstract Form

NOTE: Continuing Projects should enter the internal project number **and** use the project title from the previous year.

Project Number:

Project Title:

AUV GULPER

Project Manager/PI:

Drew Gashler

Lead Scientist:

John Ryan

Lead Engineer:

Farley Shane

Project Description:

The spectrum of measurements being made from the MBARI AUV is outstanding, and the science enabled by this spectrum is thus broad and multidisciplinary. However, important science remains inaccessible by underway instrument readings alone. Many important applications require a sample of water for analysis; for example plankton populations (phyto, zoo, bacterial) and materials transported into the coastal ocean from estuarine and fresh water systems, or from deep shelf waters into the euphotic zone. AUV onboard intelligence provides a unique opportunity to strategically acquire water samples within the interpretive context and real-time decision matrix of AUV sensor measurements. Intelligent water sampling with the AUV would “open the fairing” to many applied coastal water quality concerns (HABs, biological and chemical contaminants, nutrients). Indeed, MBARI’s leadership in AUV development and application is emphasized in responding to Prop. 40 RFP (Coastal Ocean Currents Monitoring Program, California State Coastal Conservancy) which has a water quality emphasis.

The ability to take a water sample aboard the AUV has been explored and sought at MBARI for years. G. Friederich has evaluated various designs and tested some. F. Shane and J. Erikson have done related water sampler engineering. In the 2002 proposal cycle, J. Ryan proposed AUV water sample acquisition as a 2003 development effort. With a 2003 focus on core vehicle development, design work on a water sampler was not sought. However, Ryan has been interviewing scientists to understand the important applications (some of which have independently arisen). Further interviews and a report that may serve as a basis for functional requirements definition are planned for 2003.

Based on a thorough determination of functional requirements, the goal of this project is to design a water acquisition system and its integration with the MBARI AUV. The objectives are to design a system that meets the needs of a multidisciplinary subset of applications and to begin testing by the end of 2004. The team assembled for this purpose includes researchers (Ryan, Friederich), hardware and software engineers

2004 Abstract Form – Internal-Only Projects (no external funding).

Deadline for Abstract submission is 8:00 a.m. on June 23rd.

(Shane, Henthorn), and operations personnel who span operations-engineering and are designing AUV mid-body systems for specialized payload (Gashler, Fuhrmann).

Abstract Phase: **LABOR** Resource Request Form

Project Title: AUV GULPER
Project Manager/PI: Drew Gashler
Lead Scientist: John Ryan
Lead Engineer: Farley Shane

Please place an “X” to the left of the resources you expect to need for this project, as well as next to “<10” (less than) or “>10” (more than) to indicate estimated need.

Research: IAG					
	Research: SAD/Software Engineer		< 10 days		> 10 days
Development					
	Development: Electrical Engineer	X	< 10 days		> 10 days
	Development: Software Engineer		< 10 days	X	> 10 days
	Development: Mechanical Engineer		< 10 days	X	> 10 days
	Development: Machinist	X	< 10 days		> 10 days
ITD					
	ITD: Video Lab/Samples Tech		< 10 days		> 10 days
	ITD: Technical Writer		< 10 days		> 10 days
DMO					
	DMO: Ocean Observatory Tech		< 10 days		> 10 days
	DMO: CTD Instrumentation Tech		< 10 days		> 10 days
	DMO: Diver		< 10 days		> 10 days
COO					
	COO: IS Administrator		< 10 days		> 10 days