

Project Number: 901304

Project Start: Jan. 1, 2013

Project Duration (in years): 1

Please indicate what type of project is being proposed (mark only one).

☒

Feasibility/Scoping
[Less than 100 days effort]

☐

Development¹

☐

Research

☐

Infrastructure¹

☐

Education

☐

Time Series

☐

**Institute
Initiative**

Project Manager²: Ken Smith

Principal Investigators: Francisco Chavez, Bruce Robison, Ken Smith

Lead Scientists: All the above

Lead Engineers: Alana Sherman, Kevin Gomes

**Project Title: An integrated
MBARI time-series program**

¹ Development and infrastructure projects must complete the risk matrix (see item #5 at the end of the proposal form).

² Not all projects will require all four titles to be filled in. Please indicate individuals only for those titles that are appropriate for your project.

1) ABSTRACT (new projects only)

Ocean time-series studies are critical to our understanding of the impacts of climate and human-derived pressures on pelagic and benthic ecosystems. However, such studies require considerable resources to maintain consistent long-term records. The three time-series projects at MBARI are no exceptions. We propose a feasibility scoping project to evaluate the integration of these three efforts to increase the scientific and technological contributions while decreasing the required resources in their maintenance.

2) PROPOSAL

a) New Projects

Statement of the problem, why it is important

MBARI presently has three ongoing time-series projects:

- *The Monterey Bay Time-Series* is focused on the upper water column and collects data from multiple sites, relying on hydrocasts, moorings, AUVs/gliders, satellites and models.
- *The Midwater Time-Series* collects data from mid-depths in Monterey Bay, using video transects by ROVs.
- *The Pelagic-Benthic Coupling project* collects data from the water column/benthic interface, using free-vehicle sediment traps and cameras, Benthic Rover, AUVs and ROVs .

We propose a feasibility/scoping project to determine if we can integrate these three efforts, or at least find ways to link their data. Each project is presently focused on a different habitat and each employs different technologies, but together they cover the entire oceanic habitat from surface to benthos. We wish to explore options for scientific coordination and technology development that might occur between projects. Our goals are to increase the scientific and technological impacts of our time-series projects, while also increasing efficiency and reducing costs. This proposal is a direct result of the Technology Roadmap process.

How does it relate/contribute to MBARI's mission and strategic plan?

The existing time-series projects strongly contribute to three research themes in the strategic plan:
1) Ocean visualization, 2) Ecosystem dynamics and 3) Ocean biogeochemistry.

How does it relate/contribute to the Packard Foundation's Ocean Visions Grantmaking policies?

(See http://mwww.mbari.org/oed/OED_Documents3.htm#Packard for documents.)

The existing time-series projects contribute principally to one objective of the Packard Foundation, "Enhanced scientific understanding of the functioning of marine ecosystems".

Approach to the problem

Presently, there are three independent long time-series studies being conducted at MBARI. Through regular communication between the principal contributors to each program we will explore the integration of these three efforts into a sustainable MBARI time-series program.

Publications (from other projects over the last 5 years)

All publications are listed in our individual time-series proposals and not duplicated here.

b) Continuing Projects

c) New and Continuing Projects: Plans for 2013

Research Activities

Integration of the three MBARI time-series project will require regular communication between the principal contributors of the three time-series projects. We propose monthly meetings to explore the following issues:

1. Integration of existing data from the three time-series studies
2. Identify critical measurements from each time-series that should be sustained in the future.
3. Identify geographic locations, existing or future, that would best suit continued time-series studies.
4. Identify critical instrumentation that could be common to each time-series.
5. Identify new instrumentation in concert with the emerging Technology Roadmap that could be deployed at each time series site to increase data collection efficiency while decreasing demand on ship-time.
6. Identify external collaborators for formal involvement in integrated time-series studies that could contribute expertise not present within MBARI.
7. Write white-paper document summarizing the results of our integration efforts

Engineering/technology development

1. Integration of existing data from the three time-series studies with support from Kevin Gomes (120 hours).
2. Identify critical instrumentation that could be common to each itme-series (Alana Sherman, 40 hours; Brett Hobson, 20 hours)
3. Identify new instrumentation in concert with the emerging Technology Roadmap that could be deployed at each time series site (Alana Sherman, 40 hours; Brett Hobson, 20 hours).

Field programs (detail ship requirements/deployments/diver requirements)

None requested

Specific deliverables

Integrated approach to time-series studies at MBARI documented in white-paper report.

2013 Proposal Process – Internal-Only Projects
Submission Deadlines: Phase I – August 2nd, Phase II – September 6th

Milestones (see last page for personnel classification list)

	Milestone 1	Milestone 2	Milestone 3	Milestone 4	Milestone 5	Total Resources³ for each resource category for all milestones listed here
Milestone Date	Summer-fall 2013	Spring 2013	Spring 2013	Spring 2013	Summer-fall 2013	
Milestone Description	Research Activity #1	Research Activity #2	Research Activity #3	Research Activity #4	Research Activities #5, 6, 7	
EE				A.S. 40	A.S. 40	80
SE	K.G. 120					120
ME				B.H. 20	B.H. 20	40
EE Tech						
SE Tech						
ME Tech						
Machine Shop						
Divers						

Budget justification

No funding requested

Project team

Francisco Chavez, Bruce Robison, Ken Smith, Alana Sherman, Kevin Gomes, Brett Hobson

Project lab space

None required

Data availability outside project team, uniqueness

³ This number should be the same number you entered on the resource requests for this particular resource.

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Final white-paper report

Export Regulation

None

Does the project team plan or anticipate export controlled purchases, shipments, or transfers of items (e.g., research instruments, proprietary data, hand-carried tools or samples) outside the U.S. temporarily or permanently? If yes, please identify country or countries and indicate whether these items will remain under MBARI control while abroad or controlled by others. Will the items be exported to more than one country? Please include foreign collaborator information as described above.

No

Risk matrix (development and infrastructure projects only)

	Technical Risk	Organizational Risk	Tech Transfer Risk	Labor Estimate Risk
High				
Medium				
Low	X	X	X	X

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Personnel Classifications

Engineer - Mechanical Engineer (Reg)	Engineer - Electrical Engineer (Reg)	Engineer - Software Engineer (Reg)	Engineer - Mechanical Tech (Reg)	Engineer - Electrical Tech (Reg)	Engineer - Software Tech (Reg)	Observ Support Technician (Reg)	Science – Software Engineer (Reg)
Jim Birch (2/3) Larry Bird Francois Cazenave Jon Erickson Dale Graves (2/3)	Mark Chaffey Scott Jensen Chad Key Denis Klimov Paul McGill	Dave Caress Danelle Cline Duane Edgington(2/3) Kevin Gomes (2/3) Kent Headley (2/3)	John Ferreira Frank Flores Mike Parker Jim Schofield	Paul Coenen Tom Marion Jim Montgomery Jose Rosal	Karen S	Mike Kelley Jared Figurski	Mike Godin Frederic Py
Andy Hamilton (2/3) Brett Hobson Bill Kirkwood Doug Pargett Farley Shane	Ed Mellinger Craig Okuda Alana Sherman	Rich Henthorn Bob Herlien Brian Kieft Thom Maughan Mike McCann Rob McEwen Tom O'Reilly Wayne Radochonski Mike Risi Brent Roman Carlos Rueda- Velasquez Brian Schlining Rich Schramm					Science – Mechanical Engineer (Reg)
							Gene Massion