

Project Number: 300058-300060-300062
300070- 300078 -300079
3700080-300082

Project Start: Jan. 1, 2017¹ **Project Duration (in years):** 1¹

Please indicate if proposal includes requests for any of the following (mark all that apply).

☒	☒	☒	☒	☒
Ship Time	ROV	AUV	Wave Glider	Mini ROV

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

☐	☐	☐	☒	☐
Feasibility/Scoping [Less than 100 days effort]	Development ²	Research	Infrastructure ²	Education
	☐	☐		
	Time Series	Institute Initiative		

Project Manager³: Chris Grech

Project Title: DMO Divisional Support

- 300058 DMO support Western Flyer
- 300060 DMO support Paragon
- 300062 DMO support Doc Ricketts
- 300070 DMO support Ventana
- 300078 DMO support AUV
- 300079 DMO support Rachel Carson
- 300080 DMO support Mini-Rov
- 300082 DMO support Wave Glider

¹ This date and number should remain the same for the duration of the project. If your project start date for 2016 is not January 1, please indicate the start date in the first cell of the milestone chart. Format for duration example: "Year 2 of 5".

² Development and infrastructure projects must complete the risk matrix (see item #5 at the end of the proposal form).

³ 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)

N/A

2) PROPOSAL

a) New Projects

N/A

b) Continuing Projects

If the proposed project includes multiple individual projects, please list each of these projects as a subheading in the proposal. For each subheading, please address the following:

300058– DMO Support R/V Western Flyer

Current status of project and results to date

A total of 127 hours of engineering labor have been used in 2016 out of a total resource request of 190. The majority of hours used were from the mechanical engineering technicians (Ferreira) supporting minor vessel modifications and repairs. This was a shipyard year which often leads to additional support requirements in this area.

Significant changes from previous project proposal

The plan for next year is to request the same labor allocations.

300060- DMO Support Paragon

Current status of project and results to date

The project has used 222 hours of support labor to date out of a request of 240 at midyear. We anticipate additional labor usage will occur during the remainder of 2016 that will exceed the request of 240. Fabrication efforts for the new winch took significantly more time than estimated and still have not addressed the build for AUV towing modifications to the boat. These efforts are planned for the second half of the year.

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This year's completed improvements included:

- Hydraulic power systems redesign has been completed, but integration is still a work in progress.
- Designing and fabricating a small scale bulwarks davit and winch deck mount completed.

Outstanding task for 2016 include the fabrication and installation of tow bar and engine guard design and fab (Bird).

Significant changes from previous project proposal

Our plan is to request additional allocation from the Mechanical tech category since it was significantly over its predicted budget 2016. The other labor categories will remain the same.

Outstanding tasks for 2017 that are forecast for the Paragon include:

Hydraulic motor exhaust guard

Antenna mounts

Bearings

Anchor plate repair

300062 – DMO Support ROV Doc Ricketts

Current status of project and results to date

A total of 37 hours of engineering labor have been used out of a 2016 total resource request of 330. Machinist numbers are low because the machine shop decided to contract these efforts to an outside vendor.

At mid-year the modified laser measuring system, second USBL hydrophone, and changes to the piloting camera tasks have been completed. Focal FO multiplexer upgrade has been re-scoped and moved to next year.

Planned improvement for the rest of the year-

Upgrade the two core data processing computers that are over 8 years old that handle ROV data management tasks such as logging and NAVPROC. This hardware has been acquired and planned for integration in the fall of 2016 by R. Schram.

Significant changes from previous project proposal

Our plan is to keep the labor request relatively the same for next year. Will reduce the ME request from 60 to 40.

Planned activity for next include –

- Development of new Fiber Optic can to increase our optical bandwidth with WDM's.
- Adding advanced ROV navigation control capability using SeeByte hardware and software.

300070 – DMO Support ROV Ventana

Current status of project and results to date

A total of 389 hours of engineering labor have been used to date out of a 2016 resource request of 730, so we appear on track with our estimates. The bulk of labor usage was from the SE group involved in the Green Seas software upgrades. Additionally, the ETech group has used all of their allocation for the same project so we may go over in this labor category.

Significant changes from previous project proposal

Plan to reduce the SE requests by 50% and lower the Etech category since the majority of the Green Sea project has been completed. Next year efforts include a new custom valve pack and thruster motor build to upgrade the suction sampler pump, which should be accomplished with an increase in Machinist allocation from 80 to 180.

300078- DMO Support AUV systems

Current status of project and results to date

The project has used 219 hours out of a total allocation of 400, so this project looks on track for mid-year allocations. The Electronic Tech group used the most time which went over the budget estimates by 36% .

These support efforts were focused on continued build and developments of the ICEBERG, 2nd Mapping AUV, I2 Mapping AUV , and new Fugro AUV systems in addition to maintenance /expedition preparation.

Significant changes from previous project proposal

No significant changes. Next year will see the continued developed of these AUV projects based on the Dorado AUV platform that will require support from the engineering department.

Our plan is to request additional Etech hours based on the 2016 burn rate and next year's build commitments for sparing PC boards / cables for multiple remote expeditions. Additionally we will reduce the ME request from 150 to 100 with the rest of the labor resources requests remaining the same.

300079- DMO Support R/V Rachel Carson

Current status of project and results to date

At mid-year the Carson has used 77 hours out of a request for 410.

The SE effort to port the existing MSBasic dive log application to a modern data base is underway, but has not been completed due to other SE priorities outside the Carson.

The vessel microwave system is support by requested EE -Okuda.

Significant changes from previous project proposal

The Carson has a planned shipyard in 2017 which usually generates additional requests in the Mtech labor budget so this category will be slightly increased. The Etech area will be reduced based on YTD usage. Our plan is to keep the rest of the labor requests the same as 2016.

Base on a request from Sonardyne Inc we have added Four days (12hr) sea days utilizing the ROV for seabed deployments and testing of their acoustic equipment. Dawe to coordinate any permit issue with MBNMS.

300080 - DMO Support Mini ROV

Current status of project and results to date

The Mini-ROV has completed a number of planned upgrades-

1. Data Sharing /Precision controls
2. Data Logging and Archiving
3. Video annotation

The project has used significantly more labor resources beyond the estimated amounts. At mid-year the project has used 51% greater resources than projected.

1347 hours vs the 890 budgeted.

These additional resources were used to complete a FOCAL optical upgrade, which enables additional bandwidth through the ROV. This enhancement will support PIV among other devices that require additional communications capability.

MINI ROV completed 8 sea days on the Rachel Carson and is scheduled for 10 days of operations in the ARTIC in 2016.

Significant changes from previous project proposal

In 2017 the Mini-ROV is proposed to be used for an ARTIC /Taiwan expedition, Hawaii operations, and Monterey Bay on MBARI vessels. Operating labor requests for this platform will come from the respective science projects. Upgrade, maintenance and repair labor will be addressed within this DMO support project. Risi is requested to support Rock's ROV station keeping software. Machinist labor is new for 2017 for supporting the build of new thruster motors. Jon Erickson is requested for analysis of the MINI ROV winch for capability with UNOLS vessels requirements.

Core System maintenance.

Based on input from D. Graves we are requesting the following resources from engineering to perform maintenance & repair of the system.

Alana Sherman 250 hours (reduced from 450)

Dale Graves 480 hours (increased from 160)

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MTech	320 hours (increased from 200)
Etech	250 hours (increased from 80)
Mike Risi	80 hours (added for 2017)
Machinist	80 hours (added for 2017)
ME (Jon)	80 hours (added for 2017)

300082 DMO Support Wave Glider

Current status of project and results to date.

The project has used only 4 hours of support from a budget of 260 at midyear. The planned Etech labor was pulled off the Gliders project for LRAUV priorities.

2016 is the first year that these two platforms have operated within DMO budget for support labor categories. This project will address engineering and technical support for 2017 maintenance, operations, and core sensors.

We anticipate a 250 day operating schedule in 2017 based on this year's commitments. Core glider operations are planned for Monterey Bay in addition to proposed missions to Station M, Canon, Hawaii, and Peru.

Significant changes from previous project proposal

Based on guidance from this year's operations we plan to request the same support resources, however we will be adding an Electrical Engineer for integration of new CO2 / Ph sensors from Sv2 to the Sv 3 platforms.

Additionally there is a proposal to add to ADCP units to the Gliders which would utilize the Software Engineering labor resources in 2017.

The project will request 8 testing sea days for the Wave Gliders using the Paragon.

c) New and Continuing Projects: Plans for 2017

Research Activities

NA

Engineering/technology development

NA

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

Western Flyer / Ricketts -

Approximately 150 total sea days

Possible Hawaiian expedition to last 3 months

Rachel Carson with Ventana / AUV's / CTD -

Approximately 130 Sea days (of which 30 days can be configured as overnight) in Monterey and proposed PNW expedition.

Planned three month shipyard

Soanrdyne acoustic testing 6 x 12 hour days

AUV – Approximately 100 days Monterey Bay and proposed expeditions that include:

- AUV mapping at Axial Seamount
- Newfoundland AUV Iceberg testing
- Artic AUV Mapping
- Taiwan AUV mapping
- Hawaii AUV mapping
- I2 AUV mapper Monterey Bay

Mini ROV - Proposed ops in Monterey/Hawaii/ Artic/ Taiwan ops.

Paragon – This platform does not have a defined limit for sea days. To be used to support numerous offshore activities.

Wave Glider- Approximately 250 operational days based on projects requests.

Sea days

At sea test days will be requested for the Western Flyer, Paragon, and Rachel Carson vessels. These days are requested for offshore testing of various vessel, ROV and autonomous platforms. Typically the dockside and test tank environments are not sufficient to provide testing to validate subsea systems before we travel on offshore missions. Examples of offshore testing would include calibration work of the USBL systems, testing core AUV and ROV systems that are not project related, and exercising of vessel engineering systems such as loading engine tests.

Isotope Usage

Project teams must provide details regarding any planned isotope use on shore, on ships, in the Sanctuary, etc. Please review the guidance on isotope usage at <http://www.mbari.org/at-sea/cruise-planning/hazardous-materials/> and policy at http://mwww.mbari.org/safety/SafetyManual/Isotope_Use_Policy.pdf, and then provide details on plans below.

NA

Specific deliverables

See field programs section above.

Milestones (see [personnel classification list](#))

[Click here to enter text]

2017 Project Start Date: MM/DD/2017	Milestone 1	Milestone 2	Milestone 3	Milestone 4	Milestone 5	Total Resources ⁴ for each resource category for all milestones listed here
Milestone Date						
Milestone Description						
EE						
SE						
ME						
EE Tech						

⁴ This number should be the same number you entered on the resource requests for this particular resource.

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SE Tech						
ME Tech						
Machine Shop						
Divers						

Budget justification

No equipment or operating budgets are requested for these support projects since it only focuses on labor and no materials. The budgets for DMO assets are covered within the DMO division in their respective operating budgets.

Project team

Our plan is to primarily task resources from the Engineering group to support the ROVs, AUVs, Gilders, Mini ROV and vessels when required. The machine shop, technicians, and engineers within these groups all contribute to support of MBARIs offshore platforms. ITD group will be requested for VARS and other video support matters as needed. IS group will be tasked with basic network infrastructure for the vessels as needed. DMO divisional support is typically coordinated with group managers D. Graves, K. Gomes, T. Ruston, and Chris Grech.

Project lab and office space requirements

In addition to any changes to current space usage, please also include anticipated office and lab needs for students, postdocs, collaborators, etc.

NA

Data storage requirements (see Todd Ruston for assistance)

NA

Data availability outside project team, uniqueness

NA

R/V Paragon Requests

If the project team will be requesting time for the R/V Paragon, please specify the operators in the group and provide estimates of their availability to operate the vessel.

NA

Export Regulation

Does the project team anticipate any foreign collaborations or international travel? If so, please identify collaborators by name, institution, and country.

Yes, AUV team travel to Newfoundland, Canada and should be covered in MBARI Iceberg project.

Yes, The Mini-ROV and Mapping AUV's will be shipped to Taiwan and Arctic which should be covered in a project by C. Paull.

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.

Yes, see above . These shipping efforts will be covered in respective science projects.

Monterey Bay National Marine Sanctuary (MBNMS)

General Permit

Projects teams need to indicate if any work will be performed that is either: (1) currently authorized under our general permit; or (2) will require that we obtain authorization. The current permit can be viewed at http://mwww.mbari.org/pco/permits/mbnms-2015-002_feb2015.pdf. Please see Mandy Allen for questions.

Is a permit with MBNMS required for your work?

Sonardyne acoustic testing is YTBD

SESAs ([General map](#))

Projects will need to indicate whether or not work will be conducted within one of the Monterey Bay National Marine Sanctuary's Ecologically Significant Areas (SESAs). An interactive map can be found on the Sanctuary's SIMoN webpages at <http://sanctuarysimon.org/maps/sesa/>. (Note: It may take a moment for the page to load, so please be patient. Also, if prompted for a login, hit "Cancel" and then you will be able to access page.) To determine if your work will occur in a SESA, specific coordinates

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can be entered using the locator function (click on the red "target" button in the toolbar at the top of the map). If your work will be conducted in one of these areas, please indicate which area, by number.

NA

Authorizations/Permits from other Agencies or Organizations

Is the project team aware of any other permits or authorizations that will be necessary to perform the proposed work? If so, please list below along with status of authorizations (obtained, pending, need to apply, etc.). Please see Mandy Allen if you have questions.

[Click here to enter authorizations needed, if applicable, or enter "None"]

Active Acoustics

We are compiling information on active acoustic use at MBARI. If the project involves using active acoustic instrumentation, please describe plans.

Additional Sonardyne acoustic testing plan off the Rachel Carson is still YTBD. Legacy Acoustic data has already been submitted.

Risk matrix (development and infrastructure projects only)

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