

Project Number: 500055

Project Start: Jan 1, 2005 **Project Duration (in years):** 1

Please indicate what type of project is being proposed (mark all that apply).

☐	☐	☐	☒	☐
Feasibility/Scoping	Development	Research	Infrastructure	Education

Project Manager/PI: Nancy Jacobsen Stout

**Project Title: ROV Video Outline
Annotation - MDUC**

1) ABSTRACT (new and continuing projects)

Project Description:

ROV “outline” video annotation has been designated a core data stream, which means that support for the collection, processing, and archiving of the data is provided on an institutional basis rather than through individual projects or divisional budgets. The primary elements of this ongoing infrastructure effort include:

- Outline video annotation of all ROV dives through ITD.
- Data archiving and dissemination through ITD.
- Data validation through a Science data “champion” and resulting scientific use.

The ROV outline video annotation team includes:

- Project manager: Nancy Jacobsen Stout. Lead scientist: David Caress
- Science data “champion”: Steve Haddock.
- Annotators: Nancy Jacobsen Stout (knowledge base), Linda Kuhnz, Lonny Lundsten, Kyra Schlining, Susan Von Thun

This project will include only the resources and expenses required to support ROV video annotations in outline mode, which is mostly limited to annotation staff time and video tape budget. A small quantity of Support Engineering and/or IS days may also be required for system hardware and database maintenance. All other Video Lab expenses and resources will be covered in the ITD Video Lab divisional budget. The final resource requirements for this project will be generated once the total number of 2005 ROV dives has been finalized. Progress reports will be provided to MDUC and the Science Data champion as requested. The Video Lab staff members also remain available to participate in research cruises, assisting the science crews and contributing to post-dive data and sample processing. Gaining this exposure to advanced scientific theories and field procedures facilitates improved understanding of the research mission, ultimately enriching the quality of the video-related data.

2) PROPOSAL

a) The problem addressed (new projects only)

Statement of the problem

[Enter text here]

Why it is important

[Enter text here]

Present state of art/understanding

[Enter text here]

How it relates/contributes to MBARI’s mission and strategic plan

[Enter text here]

b) Approach to the problem (new and continuing projects)

Status of project

Outline annotations continue on a daily basis as in previous years. We are beginning to incorporate components of the new VARS system, ensuring data is accurately transferred and the system meets the basic annotation needs.

Results to date

VARS database in MS SQL is the primary product. Numerous presentations, theses, posters, publications, etc. by internal scientists, interns and collaborators have used the annotation data from our database.

Publications (from the last 5 years)

n/a

Plans for 2005

Engineering/technology development

The new Video Annotation and Reference System (VARS) is expected to be delivered by the end of 2004. The year 2005 will involve testing, fine tuning and maintenance of the system to ensure successful integration into the video lab, science labs and aboard the ships.

Field programs

All MBARI ROV missions continue to be recorded on Digital Betacam (standard for all footage) and HD-D5 (selects only). Video annotation software tools are currently being used aboard the Point Lobos and Western Flyer and in the Video Lab. They are also used on some in individual desktops (without a video player connection).

Data reduction and analysis

All ROV dive video recordings are annotated in 'Outline' mode by the Video Lab staff. The resulting database is used by MBARI science staff and their colleagues for hypothesis generation, object or event identification, and further scientific analysis.

MDUC Core Data Stream Review: We currently have in place some of the data that will be required for the MDUC outline video annotation core data review and will work with the MDUC Chair, Dave Caress, and our data champion, Steve Haddock, as required to complete this review. Given the current schedules of video lab staff members, we will likely not have time to resume work on this review material until at least the beginning of November.

HD Recording: The idea of having an HD hard drive recording system would be ideal. We currently use broadcast quality full-resolution HD (Panasonic HD D-5 format), which provides

the highest-quality imagery required by our scientists. Unfortunately, however, the technology required to record this format to hard drive has not yet been fully realized in the professional video industry. Satellite receivers systems like the one Mike Pinto refers to (e.g., DISH Player DVR-921) record HDTV, which is a highly compressed consumer format (e.g. 25 hours stored on 250GB). To store MBARI's HD D-5 format would require significantly more space and incur a much higher cost. For example, our new HD editor has a storage capacity of 3.5 TB, which stores only 6 to 7 hours of HD D-5 at one time, costs nearly \$10,000 for just the RAID. Members of the video lab staff attend the National Association of Broadcasters meeting nearly every year and we definitely will continue to research the advancing technology, but expect that it is at least 3-5 years in the future.

Significant changes from previous project proposal (continuing projects only)

None

c) Specific deliverables (new and continuing projects)

The video tape archive and related annotation database serve to document the events of MBARI's ROV missions. These results contribute to the production of scientific, educational, and technical publications and presentations.

d) Project team (new and continuing projects)

- Project manager: Nancy Jacobsen Stout (Video Lab Supervisor, ITD)
- Lead scientist: David Caress (MDUC, Science)
- Science data "champion": Steven Haddock (Video Data Champion, Science)
- Annotators: Nancy Jacobsen Stout (KB Manager), Linda Kuhnz, Lonny Lundsten, Kyra Schlining, Susan von Thun

e) Project lab space (new and continuing projects)

- MBARI Video and Digital Labs and tape vault in Building A
- Shipboard installations of the VARS annotation software
- Video Tape Vault in Building G
- Off-site storage of video tape copies (Iron Mountain, Hollywood, Ca)

3) BUDGET JUSTIFICATION (new and continuing projects)

This project is expected to operate in 2005 as it currently does. The project budget will include only the primary resources and expenses required to annotate the ROV video in outline mode and to maintain and quality check the annotation database; this primarily will include annotation staff time and video tape expenses. All other Video Lab expenses will be covered either in the ITD Video Lab divisional budget, or in other project budgets (e.g. projects requiring video annotation in "full" rather than "outline" mode).

The following budget estimates are based on 150 Ventana (average 5-hour duration) and 150 Tiburon (average 10-hour duration) dives projected for 2004:

2005 Proposal Form – Internal-Only Projects

Submission Deadlines: Phase I – August 30th, Phase II – October 4th.

- Approximately 300 days for video analysis and processing by video annotation staff. An additional 50 days of video staff time are being requested to complete normal quality control tasks.
- Approximately \$90,000 will be required to purchase Digital Betacam video tapes (@ ~\$30 each), which is the primary video archive format required for ‘Outline’ annotation (includes S&H, dubs, etc).
- HD Tape Budget: As requested, \$12,000, which we estimated would be required to purchase HD tapes for recording selected segments from the *ROV Tiburon* for the second half of the year, has been moved from the ITD Video Lab (divisional) budget to this project, making the total requested budget \$102,000. [This will also cover the HD tapes required for *ROV Ventana*.]

4) MILESTONES (new and continuing projects)

Daily: Each video annotation staff member will annotate 4 hours per day each day she/he is at work. The video staff will work with the Video Annotation Data Champion as needed to address questions and concerns regarding the annotation process or scientific value and usefulness of this data.

Periodically: The video lab will provide reports as requested and the video data “champion” will validate the quality of the video data by providing reports to the MDUC committee, as necessary.

	Milestone 1	Milestone 2	Milestone 3	Milestone 4	Milestone 5	Total Resources ¹ for each resource category for all milestones listed here
Milestone Date						
Milestone Description						
EE						
SE						
ME						
Machine Shop						

¹ This number should be the same number you entered on the resource requests for this particular resource.