CDR Charge Questions – Education and Public Awareness

What aspects of the OOI network architecture are specifically designed to enable education and outreach?

- The unique near real-time data access and interactivity with ORION infrastructure will open entirely new avenues for education and outreach. The innovative technology and new scientific discoveries made possible by the OOI will have the potential to invigorate science, technology, engineering, and math education in the U.S.
- Education-focused physical infrastructure may include high definition TVs (e.g. at hydrothermal vent sites), a mooring dedicated to education and public awareness, and development of visualization software to incorporate 3-dimensional digital video.
- The Cyberinfrastructure system will provide a key component in the Data Translation and Visualization facility. The DTAV will enable systematic creation of data products appropriate for educators and user-friendly visualizations shown to be most effective in promoting learning of students and the public.
- Additional information is provided in the draft ORION Education and Public Awareness Strategic Plan.

What is the cost and implementation schedule for education and outreach infrastructure?

- NSF guidelines limit the use of MREFC funds for education to applicable hardware and software needed to enhance education opportunities. The OOI has $5M for these purposes. The ORION Education and Public Awareness Committee will complete an implementation plan this fall that will include the costs and scheduling for OOI education hardware and software.

What are the staffing levels required to implement the Education and Outreach Strategic Plan for the ORION Program including plans to integrate the E&O strategy across all components of the OOI?

- The ORION Program Office currently has a subcontract with the CORE (Consortium for Oceanographic Research and Education) Education Office to provide support for ORION’s Education and Public Awareness Committee (EPAC), planning and public awareness activities.
- The ORION Office plans to hire a National Education Manager to integrate the E&O strategy. This position will be supported on NSF R&RA funds.
- It is anticipated that the IOs will contribute towards educational activities as part of in-kind contributions.
- The ORION Education and Public Awareness Strategic Plan provides recommendations on infrastructure, partnerships, leveraged resources, and key educational personnel. The EPAC Implementation plan will provide more detail on E&O development and focus on human infrastructure requirements and strategic educational ‘pressure points’ so that E&O monies will fund activities with the greatest potential impact on STEM education and public awareness.

What is the implementation plan for formal and informal education activities (including curriculum development) using data collected from OOI infrastructure that will enable students and teachers to learn from and participate in ORION science?

- A management structure is proposed in the draft Education and Public Awareness Strategic Plan.
- The ORION EPAC implementation plan will be drafted following the CDR.

What are the plans for general public outreach and activities to enable “citizen science?”
The ORION Education and Public Awareness Strategic Plan includes the following recommendations:

- The proposed Data Translation and Visualization function will disseminate near real-time, and event driven information/data products with user-friendly visualizations.
- Venues for delivery and engagement include science centers, classrooms, Internet sites, television, radio, and community programs for adults and children.
- Focus on ORION/OOI assets that are known to spark the public’ and students’ interest, such as on cutting edge technology and new discoveries; use this interest to draw audiences into deeper understandings of ocean and Earth system science.

What are the expected data and visualization products for OOI/ORION education and outreach and how they will be developed and released to the public?

- Responsibility shared among the proposed National Education Manager, proposed ORION Education and Communications Coordination Office, and the Data Translation and Visualization function.
- Data products to highlight ORION/OOI cutting-edge scientific and technology breakthroughs.
- Data and information products (including data visualization) are to be designed collaboratively by educators (central, advisory, and at-observatory) and the CI group.
- Design process will draw on the information translation models of existing observatories and other agency models (e.g., COOL/LEO15, NASA, NPS, American Museum of Natural History).

What education and outreach partnerships exist or will be developed for the ORION program?

- There are many opportunities for partnerships with existing education networks (e.g. COSEE, IOOS, GLOBE) and groups (DLESE, AMS, NEON, Earthscope) (see Fig. 4.2 in the ORION Education and Public Awareness Strategic Plan for a partial list of potential education partners). In addition, partnerships will be sought with NEPTUNE Canada, the NSF, CORE, JOI, Ocean.US, etc.
- THE EPAC Implementation Plan (to be written fall 2006) will identify priority partnerships. For example, at the ORION San Juan Workshop one innovative recommendation was for a collaborative incubator facility to advance understanding of science and technology learning through creative design and “test bed” capabilities for OOI E&PA programs and resources.