

Increasing Ocean Literacy



**with involvement of
academic ocean scientists**

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Higher Education in Ocean Sciences by the Numbers

Geosciences* Degrees Awarded in 1997

- 174,700 total
 - 66% Bachelors, 24% Masters, 10% Doctorates;
 - 82% Male, 18% Female,
 - 93% White, 1% Black, 2% Hispanic, 3% Asian, 1% Other
 - ~ 130 U.S. institutions offering Associates, Bachelors, Masters, and/or Doctorates in oceanography and related fields today.
- * Geosciences = Earth, Atmosphere and Ocean Sciences;
Ocean Sciences is small sub-set of geosciences in these samples

Researchers Role(s) in Formal & Informal Education

- Pre-college and undergraduate formal education
- K-Gray informal education
- Good approaches exist for involving scientific community
(e.g., Voyage to the Deep >>>

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EXTREME 2000

Voyage to the Deep



Presented by the University of Delaware College of Marine Studies and Sea Grant College Program and WHYY-TV with financial support from the National Science Foundation



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Researchers Roles in Education (cont.)

- However, **impediments** to researcher participation in informal education and formal education at pre-college and undergraduate levels exist.
- **Reward structure** should be changed to acknowledge contributions to pedagogical as well as research-related activities

Opportunities to Bridge Gap Between Research & Education

- Leveraging current research investment
- Integrated Ocean Observing System
 - Plans should include public & formal education communities as end-users
 - Programs exist that can serve as models for creating the interface with these groups
 - This interface should involve:
 - development of appropriate data acquisition & protocols
 - pre- & in-service teachers in IOOS-related projects
 - development of educational materials based on IOOS data

Lack of Diversity in Ocean Sciences Community

Currently

- Minorities earn 15% of BA/BS in S&E; Only 4.6 % are in the Geosciences;

Future Trends

- Percentage of under-represented minorities enrolled in undergraduate S&E programs has increased (15.7% to 21.7%) over the past two decades;
 - College-age population of "majority" students will begin declining by 2010, while the population of racial and ethnic minorities will continue to rise;
- Therefore, the opportunities will continue to exist for capturing this talent pool and the ocean sciences community should seize them.

Concluding Remarks

- **The good news is...** many programs already exist to meet the goals of increasing ocean literacy.
- **The bad news is...** funding is typically short-term and there is no national coordination of local/regional efforts.
- **What is needed is...**
 - Consistent, long-term support of a national infrastructure for marine education is needed.
 - A national system that coordinates various regional and local programs and initiatives