



NRC Infrastructure Studies

- JSOST:
 - Ocean Infrastructure Strategy to Meet the Nation's Needs for Ocean Research in the Year 2030
- ONR:
 - Evolution of the National Oceanographic Research Fleet
- Status:
 - Both statements of task in negotiation between sponsor and NRC



Ocean Infrastructure Strategy to Meet the Nation's Needs for Ocean Research in the Year 2030

- **Definition of infrastructure:**
 - What elements should be considered during the development and enhancement of the nation's ocean research infrastructure of 2030?
- **Priorities:**
 - In light of the ORPP themes, what *criteria* and *processes* should be used to prioritize ocean infrastructure needs?



Ocean Infrastructure Strategy to Meet the Nation's Needs for Ocean Research in the Year 2030

- Opportunities:
 - How might technological advancements affect the types and characteristics of the facilities?
 - How might expected changes in Earth systems affect demand for various assets and operational characteristics?
 - What are the near-term opportunities that are not currently supported or are only being partially supported that could make a long-term difference?



Ocean Infrastructure Strategy to Meet the Nation's Needs for Ocean Research in the Year 2030

- **Hurdles:**
 - What constraints may limit the acquisition and operation of new oceanographic platforms?
 - In a resource-constrained environment, what are essential core capabilities for the future if investment decisions must be made?
 - Are there institutional or policy barriers to facilities and infrastructure investments and improved management?



Ocean Infrastructure Strategy to Meet the Nation's Needs for Ocean Research in the Year 2030

- **Relationship with Operations:**
 - How do the infrastructure requirements for ocean research complement the requirements for operations?
 - Are today's practices adequate for transitioning research facilities and infrastructure into operational use (where appropriate)?



Ocean Infrastructure Strategy to Meet the Nation's Needs for Ocean Research in the Year 2030

- Implications for the Next Decade
 - How is the future ocean research infrastructure portfolio consistent with the needs dictated with *Charting the Course for Ocean Science*?
- A possible Phase II?
 - Community-involvement in priority setting.



Ocean Infrastructure Strategy to Meet the Nation's Needs for Ocean Research in the Year 2030

- **Federal Ocean Infrastructure Inventory**
 - Conducted by JSOST IWG on Facilities
 - Focused on shared-use assets for ORPP implementation
 - Independent of an NRC study



ONR-sponsored study: Evolution of the National Oceanographic Research Fleet

- **Background:**
 - ONR is currently in early design process for the first of two replacement ocean class ships
 - Anticipating need to respond to questions re: how rapid advancements in ocean observing technologies and rising costs will impact the future fleet relative to Navy needs.
 - NRC to lead a research community assessment of these issues.
 - Relative to JSOST study: more granular, addressing issues more unique to Navy, and time constraints of ONR need



ONR-sponsored study: Evolution of the National Oceanographic Research Fleet

- Review of issues re: UNOLS academic oceanographic fleet:
 - How will such technological advancements as AUV's and ocean observing systems affect ability to accomplish national oceanographic data collection objectives and impact the characteristics of the UNOLS fleet?
 - How will new technologies in sampling and data collection affect the design and operation of ships?
 - e.g., will AUV's augment or replace ships?



ONR-sponsored study: Evolution of the National Oceanographic Research Fleet

- Review of issues re: UNOLS academic oceanographic fleet (continued):
 - What are the most important factors determining ship design?
 - What is the appropriate balance of special purpose and general purpose ships?
 - How will evolution of modeling and remote sensing affect balance for using ships to test hypotheses vs exploration and observation?



ONR-sponsored study: Evolution of the National Oceanographic Research Fleet

- Review of issues re: UNOLS academic oceanographic fleet (continued):
 - What is the value of partnering mechanisms to support the achievement of national oceanographic research objectives?
 - How will the increasing cost of ship time impact the type of science done aboard ships?
- 18 month study