



**Naval Architects & Salvage Engineers**

**NATIONAL SCIENCE FOUNDATION  
SHIP INSPECTION PROGRAM**



**2012 RVOC MEETING**

# Purpose

The major purposes of the NSF Ship Inspection Program are:

1. To assure that the capabilities of the research vessel and technical support meet accepted scientific community standards and expectations;
2. To assure the seaworthiness and safety of research vessels supported by NSF meet or exceed the standards set forth by the *UNOLS Research Vessel Safety Standards (RVSS)*, and applicable requirements of the International Maritime Organization, American Bureau of Shipping (ABS), the Code of Federal Regulations (CFR), and the U.S. Coast Guard;
3. To ensure NSF-owned ships as capital assets, are being adequately maintained;
4. To ensure NSF-funded science is scheduled on properly outfitted and maintained vessels.



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# Schedule



## Upcoming:

- POINT SUR – May
- LANGSETH - July
- PELICAN – Sept
- BLUE HERON – Sept
- ATL EXPLR – Oct
- SHARP - Nov



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# Common Findings

- Appendix A
- Appendix B
- HAZMAT / Chemical / Lithium Battery Handling and Storage
- Vans
  - Egress/Safety Equipment
  - Lashing Arrangement
- Hydraulic Hoses
  - Tags, Standards, Replacement Schedules
- Human Factors





# Common Findings

- Maintenance and Inspection
  - policy
  - inventory of equipment
  - designated responsible person(s)
  - qualifications of personnel conducting maintenance
  - schedule of maintenance
  - specific inspection and maintenance procedures
  - logs and records of inspection and maintenance
  - procedures for identifying, tracking and correcting deficiencies



# Common Findings

- EPA Vessel General Permit
  - <http://www.uscg.mil/hq/cg5/cg522/cg5224/vgp.asp>
  - [http://cfpub.epa.gov/npdes/home.cfm?program\\_id=350](http://cfpub.epa.gov/npdes/home.cfm?program_id=350)
- Use of Plastic (PVC) Pipe
  - [MTN 01-10](#)
- Shipyard Reports
  - Summary
  - Records of clearances, NDT, etc
- Accuracy of Stability Programs





# Common Findings

- Aging Vessels
  - Steel renewal
  - Obsolete equipment/technology: Comprehensive navigation systems integration plan
  - Greening of the fleet – vessels not designed to meet current and emerging environmental considerations
    - Tankage for zero discharge
    - Tier 2/3 engines
    - <http://www.sname.org/MVEP/Home/>



# Common Findings

- Marine Vessel Environmental Performance Assessment (MVEP)

Standard methodology to assess the relative merits of environmental practices. Based on objective technical information, standard performance criteria will be provided to quantify the environmental impact of a vessel's life cycle.

Society of Naval Architects & Marine Engineers

T&R Environmental Committee Panel 10

<http://www.sname.org/MVEP/Home/>



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# Common Findings

- Crew Endurance Management
  - The ability to maintain performance within safety limits while enduring job-related physical, psychological and environmental challenges
  - System for managing the risk factors that can lead to human error and performance degradation within the unique requirements of the shipboard environment
  - <http://www.uscg.mil/hq/cg5/cg5211/cems.asp>



# Common Findings

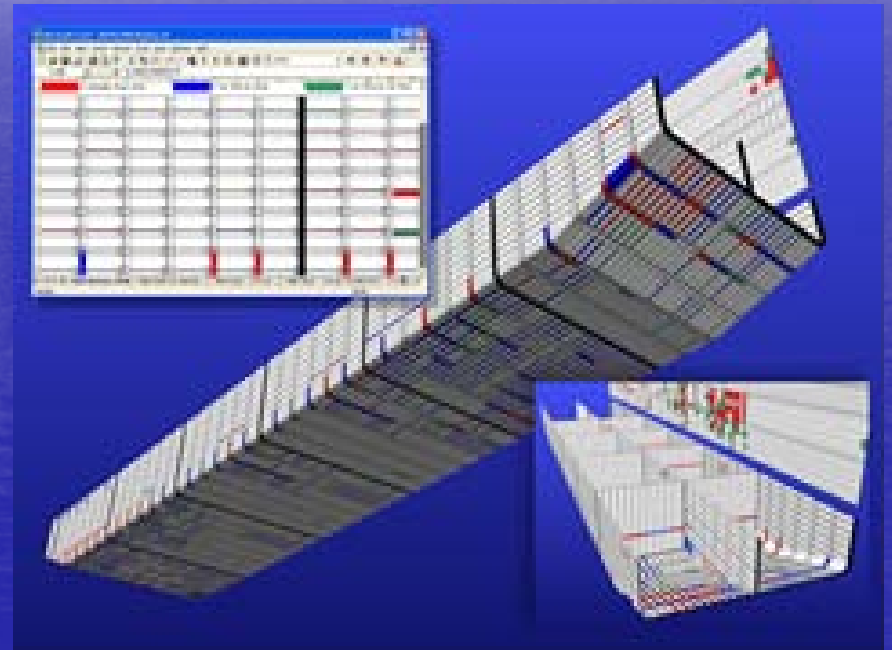
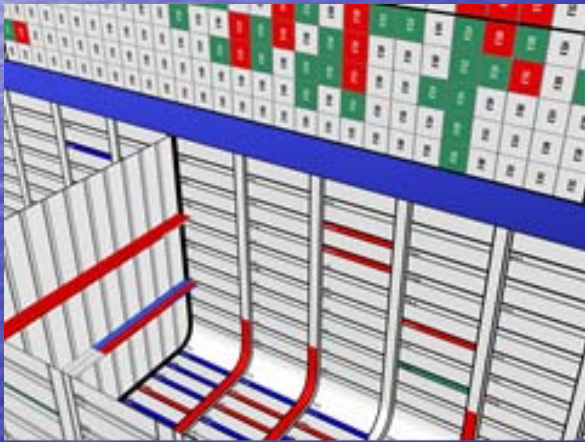
- In order to be more ADA capable vessels could make improvements in the following areas:
  - Incorporate more ADA awareness and requirements into the pre-cruise planning process.
  - Improve access to science berthing from the main deck.
  - Improve markings to access the main deck from the science berthing area.
  - Improve lighting, handrails, and retro-reflective tape in stairwells and egress routes.
  - Install visual alarms to augment audible alarms.
  - Remove obstacles in the passageways.





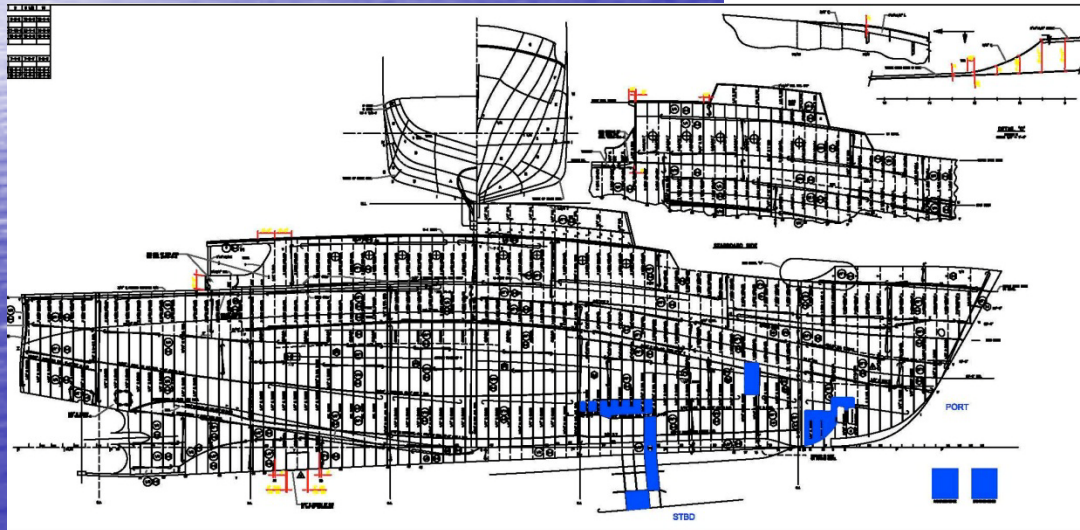
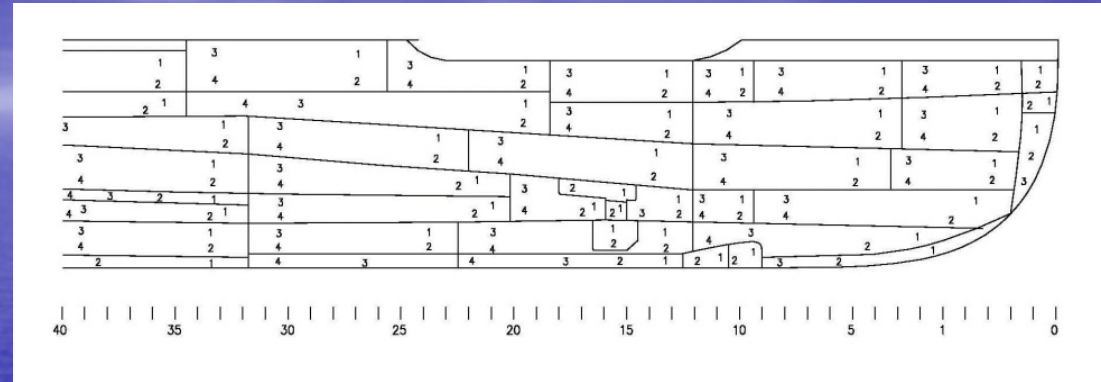
# Common Findings

- NDT Reports and Accurate Shell Expansion Plans to Document Readings and Plate Renewal



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# Best Practices: Shell Expansion Plan



SIDE SHELL PLATING  
STBD SIDE  
(LKG INBD)



# Best Practices: Science Safety Training



- Welcome Aboard
- Shipboard policies
  - Sexual harassment, drug & alcohol, environmental, etc
- General safety training information
  - RVOC Safety Training Manual & video
- Ship specific safety items
  - PowerPoint, videos, available on internet, in labs, and in staterooms



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# Best Practices: Hydraulic Hoses

- Tag provides the serial number of the item for cross reference in the Hose Log.
- Installation shall be done in a manner that will not cause damage to the hose or joint.
- The following information should be provided on the tag and/or log:
  - Hose serial number
  - Hydrostatic Test Pressure and Test Date
  - Service Life Date (Replacement Date)



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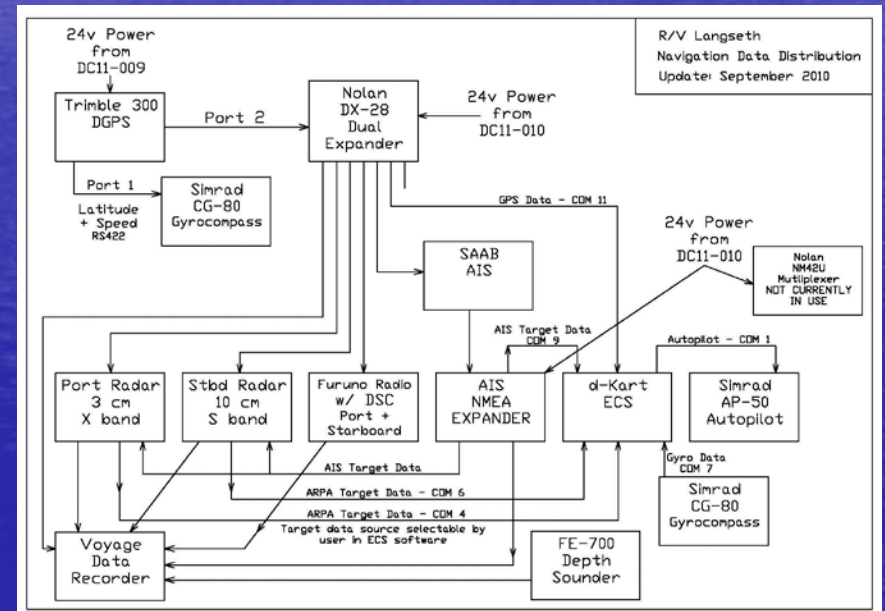
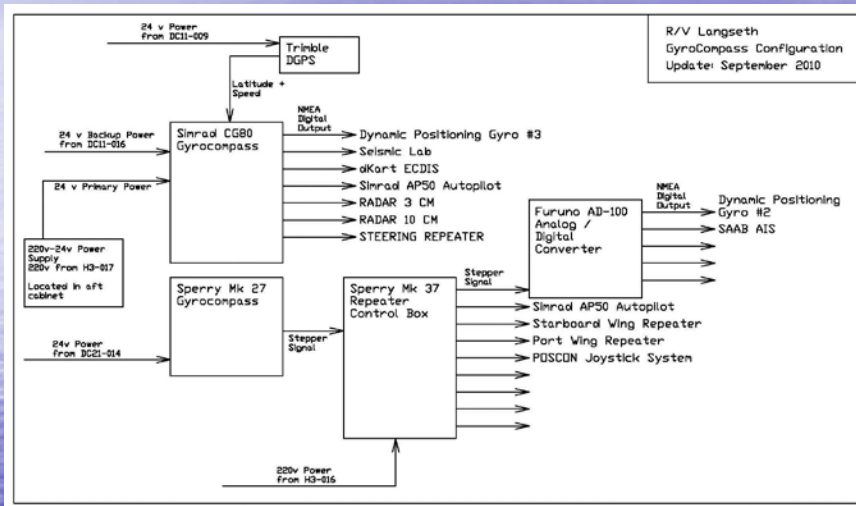
# Best Practices: Workboat Davit

The vessel has a dedicated davit for the workboat similar to SOLAS rescue boat davits. Most UNOLS vessels store their workboat on the port side of the vessel and use a starboard side or centerline crane to launch and recover it. This requires several people with tag lines passing the vessel across multiple decks and around many obstructions including the stack, vans, railings, etc. A dedicated davit allows for a faster and safer deployment by fewer crew members. It also allows the work boat to be deployed over the port side while the vessel is moored starboard side to.



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# Best Practices: System Diagrams





# Questions?

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