

Science Ice Trials 1999 - 2000

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USCG Healy (WAGB-20)

Science Ice Trials

1999 - 2000

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Science Trial Goals

- Evaluate Scientific capabilities of vessel under operating conditions
- Define and document design and equipment shortcomings and suggest corrective measures
- Provide prospective Scientists with a clear understanding of vessel capabilities



Trial Phases

- Warm Water Testing Phase
- Transit to Ice
- Level Ice tests
- Science Ice Trials
 - divided into 4 one week legs
 - the major scientific involvement will occur in this phase



Warm Water Testing

- Will focus on Sea Beam calibration and testing
- Navigational interfaces will be tested during this period
- Early evaluation will allow mid course corrections prior to leaving for Arctic



Transit to Ice

- Science testing is ancillary in this phase
 - Run Sea Beam underway
 - ADCP testing (not to interfere basis)
 - Navigation and Met system testing
- Helio Dynamic Interface tests
- Initial propulsion/propeller cavitation tests
- Crew training and familiarization



Level Ice Testing

- Propulsion Ice performance testing is primary objective in this phase
 - Icebreaking performance
 - Water wash system tests
 - Bollard pull tests
 - Vibration, stress and ice milling tests
- Science testing is limited in this phase



Science Ice trial Period

- Cruise will operate as a scientific operation with a Chief Scientist
- Divided into 4 legs of approximately 1 week each. Each with a particular focus
- Participating Technicians from several UNOLS institutions
- Program will emphasize performance in ice and interaction of various systems

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Science Trials Scenario

- Each leg of the Science Trial period will be conducted according to a written plan
 - Each leg will be headed by a Chief Scientist
 - A group of Technicians expert in the areas to be tested will be on board for each leg
 - The leg will be run as a science mission, however there will be no guarantee that scientifically valid data will be produced



Science Trials Scenario etd.

- Leg 1 Scenario
 - Sea Beam testing
 - Bathy 2000 Subbottom profiler testing
 - ADCP testing
 - XBT system testing
 - DSF-6000 Survey Fathometer testing



Science Trials Scenario^{edit}

- Leg 2 Scenario
 - Coring systems testing, includes piston cores from 2 alternate deck locations, box core and multicore systems
 - Deck handling systems, an evaluation of deck layout for various types of deck operations
 - core/sample handling systems, cold rooms, freezers operational testing



Science Trials Scenario^{cont.}

- Leg 3 Scenario
 - CTD systems testing, this will include a multi station CTD survey in a variety of water depths and ice conditions Carousel water sampling system testing
 - Laboratory Salinometer and lab testing
 - Flow through instrumentation, Fluorometer, Salinograph, uncontaminated seawater temperature stability measurements



Science Trials Scenario^{ent}

- Leg 4 Scenario
 - Set and retrieve mooring
 - Met system project
 - Project involving the use of above deck incubators to test location, water supply, contamination issues



Science Trials Scenario^{ent}

- Tests conducted during all scenarios
 - Ergonomic and environmental aspects of labs
 - Shipboard communications systems
 - Noise and habitability working considerations
 - Integration of Navigation and data systems
 - Versatility of scientific computer system
 - Project interaction in lab and deck spaces



Final Product

- An extensive written report to NavSea and the Coast Guard detailing scientific shortcomings and proposing solutions.
- A graphic report of system capabilities and performance aimed at prospective scientific users. This will include final data outputs as would be given the departing scientific party in an actual mission



Technical Support

- It is anticipated that the Coast Guard will use a combination of Civilian and USCG Technicians to provide long term support
- USCG has been receptive to incorporating some aspects of the UNOLS model into the support program
- There will be 4 MST's assigned to HEALY, several have already been on UNOLS ships



Science on HEALY

- HEALY is scheduled to go into service supporting funded science 1 January 2001
- HEALY will operate as a full time research vessel, not in the SOO mode of the Polar class breakers
- It is anticipated that HEALY science will follow the same peer review funding process as other UNOLS vessels



HEALY Schedule

- Original delivery date of 28 February 1999 has slipped 4 months to June 1999
- Final delivery date will determine which trial scenario will take place
 - Ship may conduct early trials in Eastern Arctic and transit the Panama Canal, finishing the science trials the following year in Alaskan waters



Schedule, ctd.

- Ship may go to the Eastern Arctic and transit the NW Passage, winter in Seattle and finish trials the following spring in Alaskan waters
- Ship may go directly to Seattle via the Panama Canal and conduct the entire trial in Alaskan waters the following year.
- The scenario chosen will depend on delivery date, ice conditions and other factors.



Accommodations:

The HEALY has permanent accommodations for 125 persons. All berthing spaces are located above the main deck.

Accommodations are provided for:

Officer	12
Scientist	35 (47 Surge capacity)
CPO	10
Enlisted	53
Surge	12
Visitor	2
Total	125



Living spaces dedicated to the Science Community include:

- Chief Scientist's stateroom and Conference Room
- Scientist's staterooms (2 person, 3 during surge capacity)
- Science Leisure Area consisting of Lounge, Library, and Conference Room

Common living spaces include:

- Central Mess room with cafeteria style service
- Laundry
- Gym
- Ship's Store
- Medical Treatment facility



Living spaces dedicated to the Ship's Crew include:

- C.O. Cabin and Stateroom
- Officer Staterooms (2 person)
- CPO Staterooms (2 person)
- Enlisted Berthing (4&6 person)
- Leisure Areas consisting of Officer Lounge, CPO Lounge, and Crew Lounge