

Navy Common Hull Study

Update Brief

UNOLS Council Meeting
5 March 2003



*Navy Common
Hull Study*

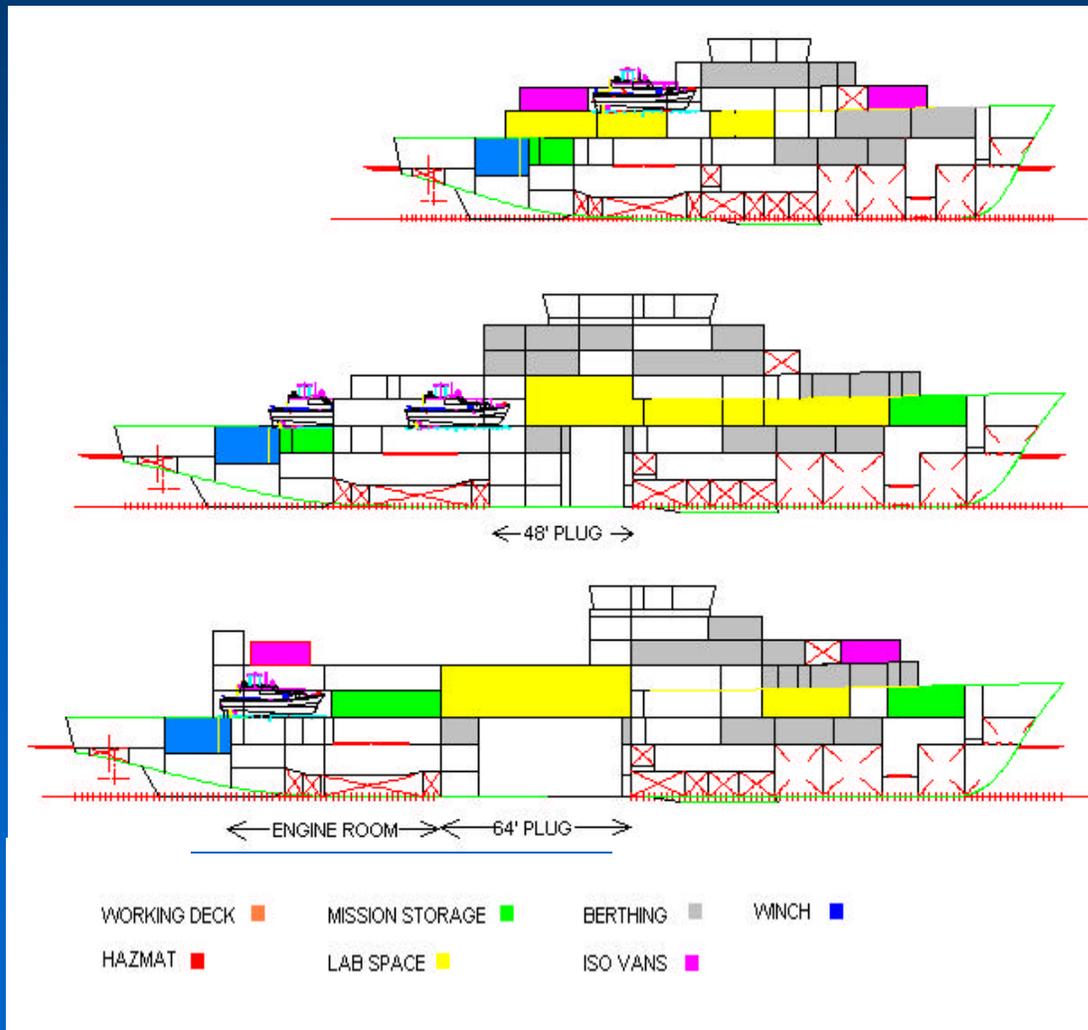
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Can Future AGOR and T-AGS Oceanographic Ships Share a Common Hull Platform ?

- *Four New Classes of Navy Oceanographic Ships Considered In The Study:*
 - 1) OCEAN Class AGOR
 - 2) T-AGS 66 (Stretched T-AGS 63 with AUV Moon Pool)
 - 3) T-AGS(X) - Battlespace Characterization Ship
 - 4) REGIONAL Class AGOR (feasibility study only; too small for common hull)
- *Study Tasks:*
 - 1) Determine ROM Platform Sizes for Each Class for 6 Hull Forms - Monohull, SWATH, SLICE, Trimaran, Catamaran, and HSV Variants
 - 2) Identify Commonality and Attempt to Find Common or Scalable Hull Forms
 - 3) Develop OCEAN and REGIONAL Class Designs To Support Cost Estimates
 - 4) Develop Estimates of Construction Cost for OCEAN and REGIONAL Classes
 - 5) Examine Feasibility of Converting T-AGS 51/52 Into OCEAN Class



T-AGS/AGOR MONOHULL VARIANT



- **OCEAN Class AGOR**

- L=207' B=48'
- T=17'
- DISPL=2,300 LT

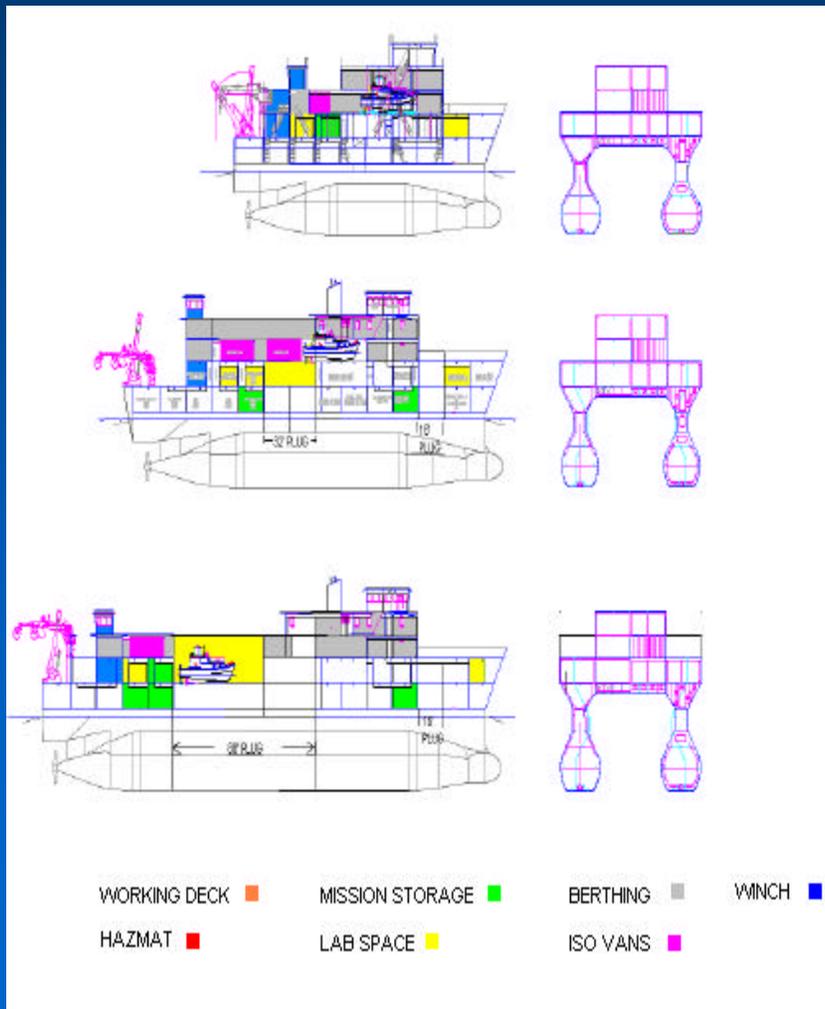
- **T-AGS 66**

- L=300' B=52.5'
- T=17'
- DISPL=3,880 LT

- **T-AGS(X)**

- L=316.7' B=54'
- T=18'
- DISPL=5,640 LT

T-AGS/AGOR SWATH VARIANT



• **OCEAN Class AGOR**

- L=160' B=88'
- T=25'
- DISPL=2,600 LT

• **T-AGS 66**

- L=220' B=88'
- T=27'
- DISPL=3,800 LT

• **T-AGS(X)**

- L=276' B=88'
- T=29'
- DISPL=5,600 LT



Common Hull Study Conclusions:

- There is minor commonality between T-AGS and AGORs, primarily in handling systems and hull mounted sensors
- Significant differences in capabilities exist:
 - Speed - Max, Sustained, and Survey (T-AGS higher)
 - Number of Accommodations (T-AGS higher)
 - Working Deck/Lab Areas (T-AGS is 2:1 over OCEAN)
 - Habitability Requirements (T-AGS Requires MSC Stds)
 - Moon Pool (T-AGS)
 - Helicopter Landing Capability – T-AGS(X)
 - Mission Electronics and Communications Systems (T-AGS has more extensive electronics and secure communications)



Common Hull Study Conclusions (cont.):

- Resulting platforms significantly different in size (T-AGS 50% longer and 150% larger in displacement)
- Common platform would result in ships not optimized for particular operations (i.e. one much too large or one much too small)
- A common hull would burden the OCEAN Class AGOR with a much larger and more expensive than necessary ship.
- Common hull not feasible



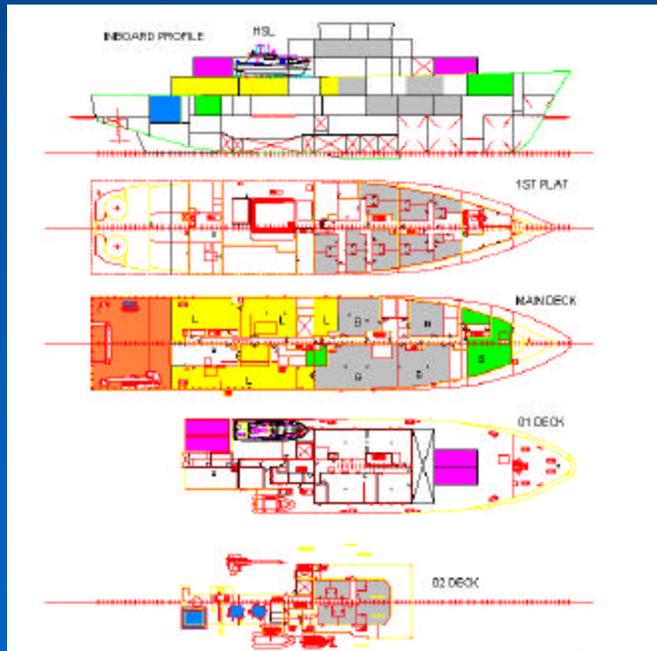
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OCEAN Class AGOR

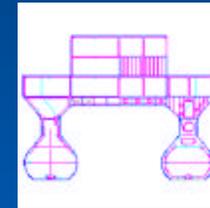
MONOHULL

Length 207 feet
Beam 48 feet
Draft 17 feet
Displacement 2,300 Tons
Speed 15 knots



SWATH

Length 160 feet
Beam 88 feet
Draft 25 feet
Displacement 2,600 Tons
Speed 15 knots





Cost Estimate Summary

- *OCEAN Class Program Cost (Lead Ship):*
 - » \$63-67M for Monohull
 - » \$70-80M for SWATH
- *REGIONAL Class Program Cost (Lead Ship):*
 - » \$28-30M for Monohull
 - » \$33-37M for SWATH



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T-AGS 51 OCEAN Class Study

- *NAVOCEANO is retiring T-AGS 51 and T-AGS 52 coastal survey ships*





T-AGS 51 falls significantly short of meeting OCEAN Class SMRs

- Ship designed for coastal survey (i.e. running survey lines and carrying HSLs)
- No dynamic positioning capability
 - Single screw, geared diesel, no bow thruster
- Accommodations for only 18 scientists (vice 25 required)
- Chine hull form designed for slower speed
- Working deck area 300 ft² vice 1,500 required
 - Working deck not designed to ruggedness or load requirement of AGOR working deck; no bolt grid
 - No space for vans
- Lab area 700 ft² vice 2,000 required
- No suitable over-side or over-stern handling equipment presently installed



T-AGS 51 OCEAN Class Study

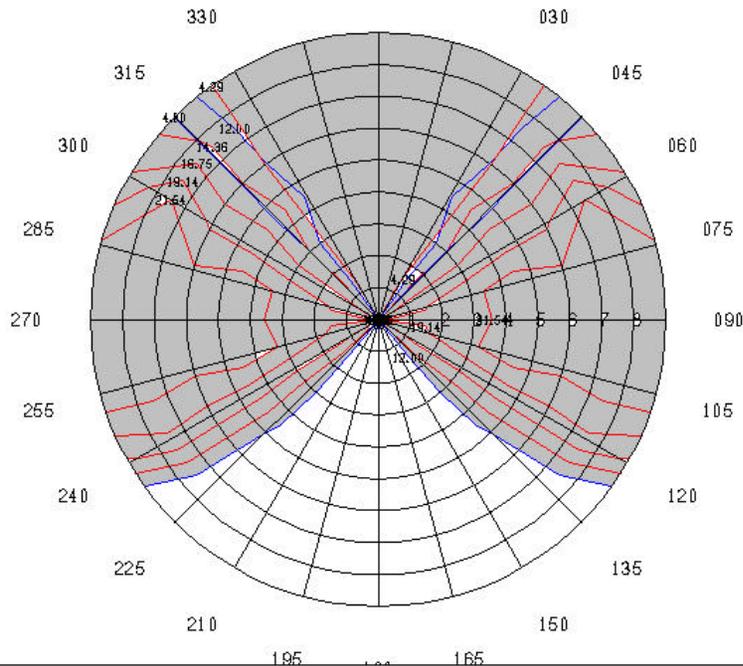
- Extensive modification required to meet OCEAN Class SMRs
 - New stern aft of midship with new propulsion plant
 - New 20 Foot long hull section
 - Bow thruster
 - Expansion of accommodations, storage
- Not economically feasible to turn a T-AGS 51 into an OCEAN Class
- Any economically feasible conversion would result in sharply reduced capabilities vs. OCEAN Class SMRs
- Expected life of converted ship ~ 20 years vice 30 years for new ship



T-AGS 51 Seakeeping Performance Most Probable Modal Period, N. Atlantic & Pacific, SS5 Longcrested Seas - Shaded Areas Exceed Motion Limits

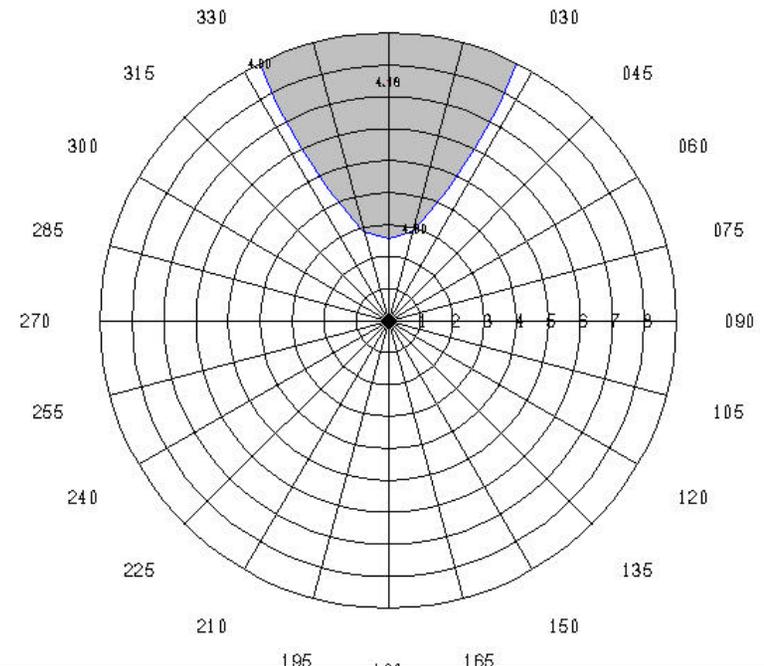
T-AGS 51 Existing

BRETSCHNEIDER SEAWAY - SIGWH = 10.70 FT, TMODAL = 9.70 SEC, LONGCRESTED Significant SA
Ship Response - VERT. ACC. AT XFP = 13.70 YCL = 22.50 ZBL = 23.00
Limits₃₄₉Operational Index₀₇₁#.2171



T-AGS 51 Lengthened with plug

BRETSCHNEIDER SEAWAY - SIGWH = 10.70 FT, TMODAL = 9.70 SEC, LONGCRESTED Significant SA
Ship Response - VERT. ACC. AT XFP = 18.95 YCL = 0.00 ZBL = 23.00
Limits₃₄₉Operational Index₀₇₁#.8857





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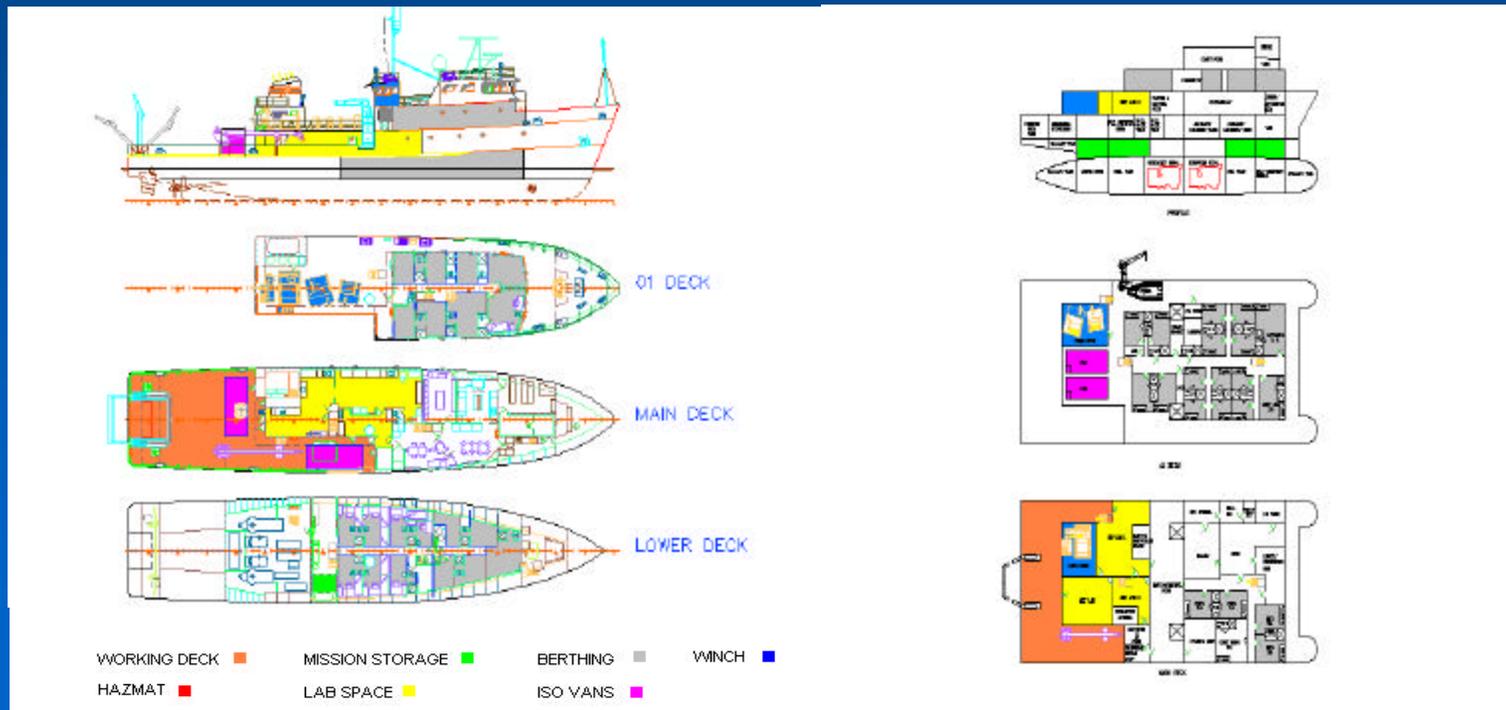
REGIONAL CLASS AGOR ROM Designs

MONOHULL

Length 160 feet
 Beam 36 feet
 Draft 12 feet
 Displacement 1,000 Tons
 Speed 14 knots

SWATH

Length 134 feet
 Beam 58 feet
 Draft 17 feet
 Displacement 1,200 Tons
 Speed 14 knots





What's Next ?

REGIONAL Class Studies:

- **Acquisition Strategy Analysis**
 - Recommend Best Approaches to Acquire the Ships
- **Refine Concept Designs**
 - \$25M Cost Cap
- **Effects of Tonnage on Regulatory Requirements**
 - Analyses to date show expected ship will be over tonnage thresholds
- **Technology Investigation**
 - Investigate technologies to improve reliability, reduce manning, and reduce life cycle cost
- **Ship Specification and Other Documentation**
 - Develop ship specification to support acquisition process



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REGIONAL Class Studies:

- Task Begins in Early March 2003
- Completion Planned for Early July 2003