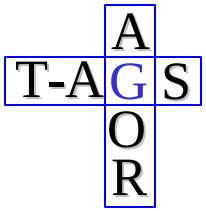
Common Hull

Common Hull Study Conclusions:

- Platform sizes were developed for a 6 different hull types to meet T-AGS and AGOR mission requirements
- There is minor commonality between T-AGS and AGORs, primarily in mission handling systems and hull mounted sensors
- Significant Differences In Capabilities Exist:
    - Speed - Max, Sustained, and Survey
    - Number of Accommodations
    - Working Deck/Lab Areas (T-AGS is 2:1 over OCEAN)
    - Habitability Requirements (T-AGS Requires MSC)
    - Moon Pool (T-AGS)
    - Helicopter Landing Capability – T-AGS(X)
    - Mission Electronics and Communications Systems



Common Hull

- Resulting platforms significantly different in size (T-AGS 50% longer and 150% larger displacement)
- Common platform would result in ships not optimized for particular operations
- A common hull would burden the OCEAN Class AGOR with a much larger and more expensive than necessary ship.
- If based on scalable hull, resulting platforms would be poorly optimized for their particular operating profiles and day rates would suffer
- Common hull not feasible

Cost Estimate Summary

- OCEAN Class Program Cost Estimated to Be (Lead Ship):
  - » $63M to $67M for Monohull
  - » $70M to $80M for SWATH

- REGIONAL Class Program Cost Estimated to Be (Lead Ship):
  - » $28M to $30M for Monohull
  - » $33M to $37M for SWATH

- **Existing T-AGS 51 falls significantly short of meeting OCEAN Class SMRs**
  - Ship designed as a coastal survey ship
  - No dynamic positioning capability
    - Single screw, geared diesel, no bow thruster
  - Accommodations for only 18 scientists (vice 25 required)
  - Day rate expected to be slightly higher (3-4%) than new OCEAN Class
    - Chine hull form designed for slower speed
  - Working deck area 300 ft^2 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 ft^2 vice 2,000 required
  - Handling Systems
    - No suitable over-side or over-stern handling equipment presently installed
    - Need to install aft A frame and side hydroboom (including underdeck strengthening)
    - No suitable winches currently installed

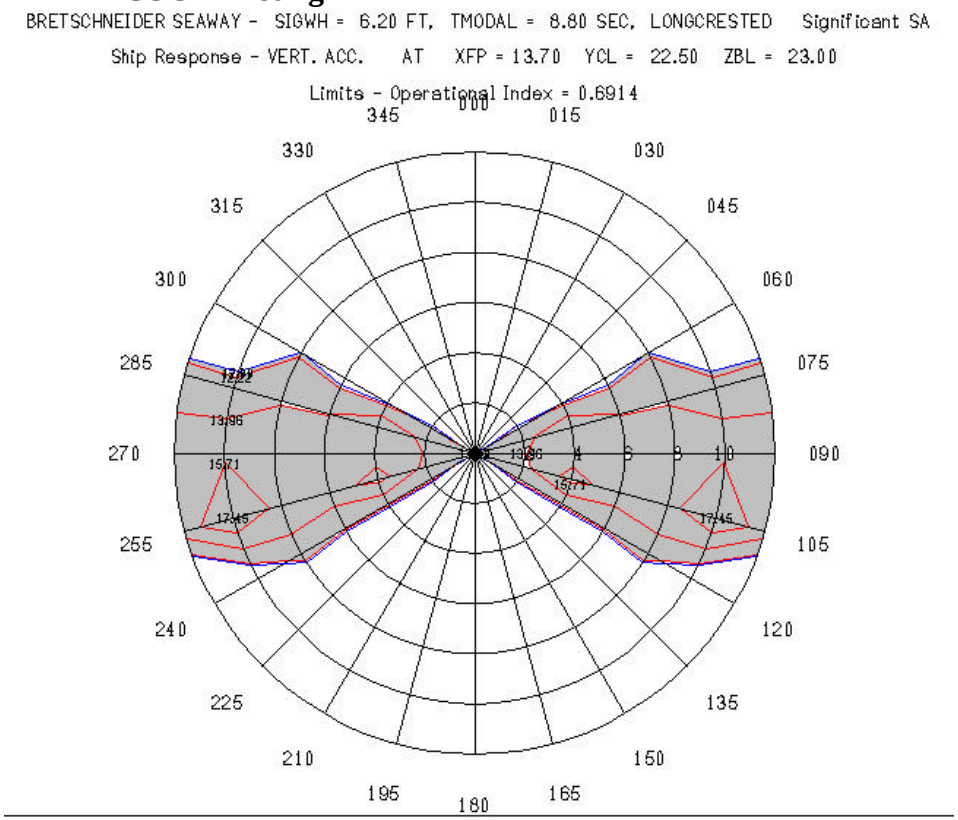
- **Extensive modification of T-AGS 51 would required to meet even the basic SMRs (DPS, Science Accommodations, Day Rate)**
  - New stern aft of midship with new propulsion plant
  - New 20 Foot long hull section
  - Bow thruster
  - Expansion of accommodations, storage
- Not economically feasible to 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
- Converted Ship Meets Stability Requirements

T-AGS 51 Seakeeping Performance

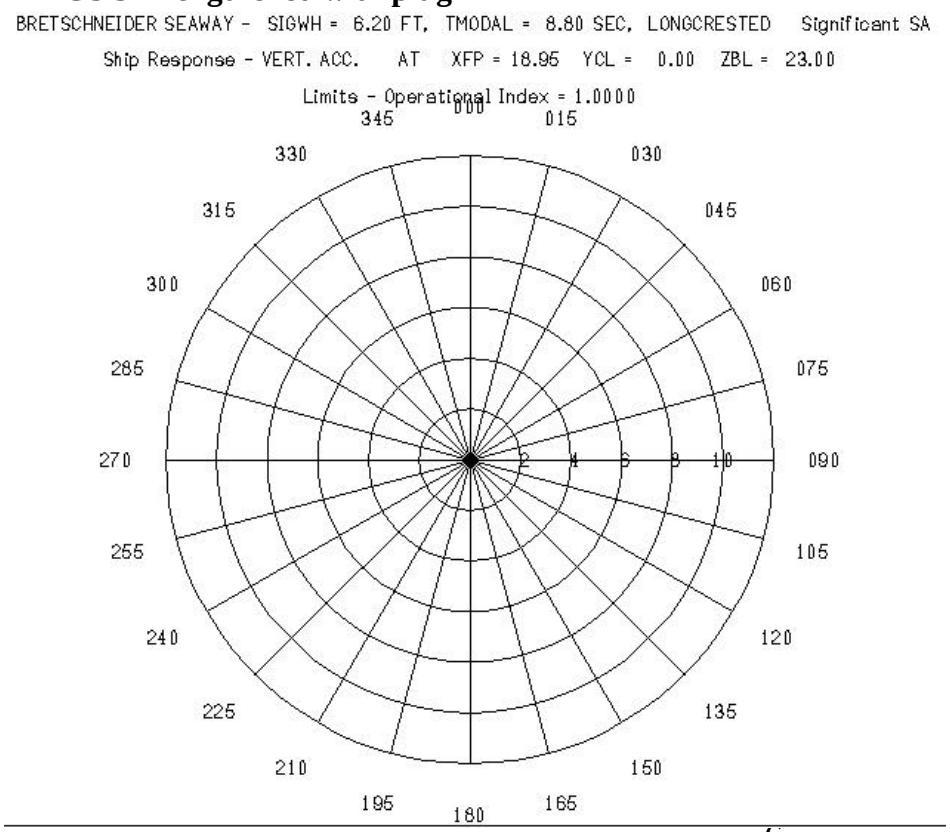
Most Probable Modal Period, N. Atlantic & Pacific, SS4

Longcrested Seas - Shaded Areas Exceed Motion Limits

T-AGS 51 Existing



T-AGS 51 Lengthened with plug

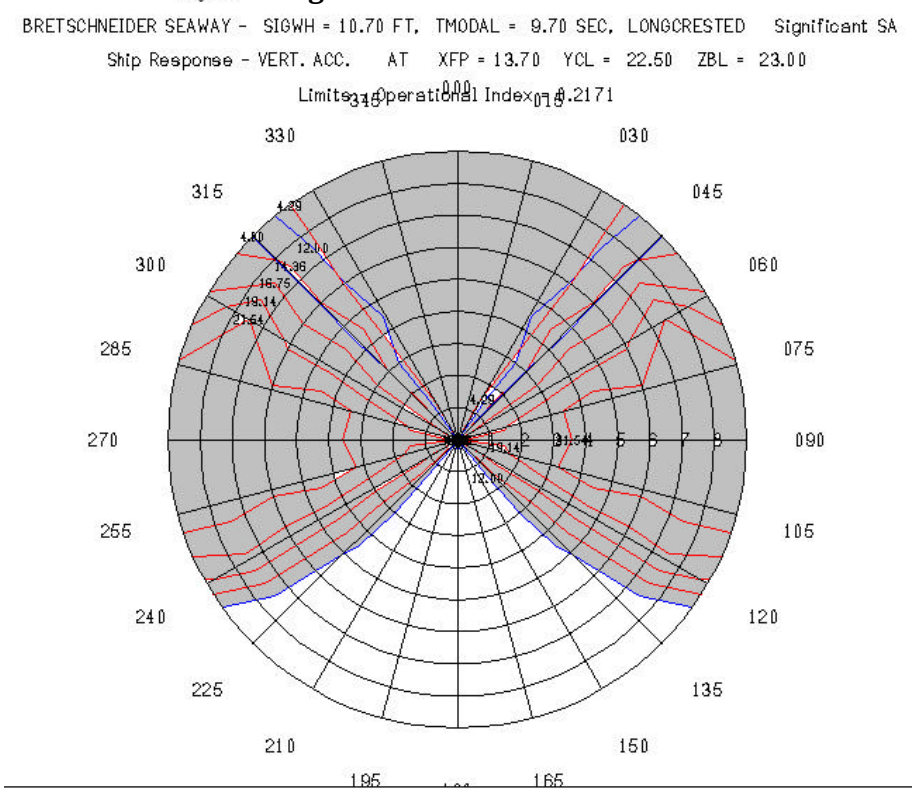


T-AGS 51 Seakeeping Performance

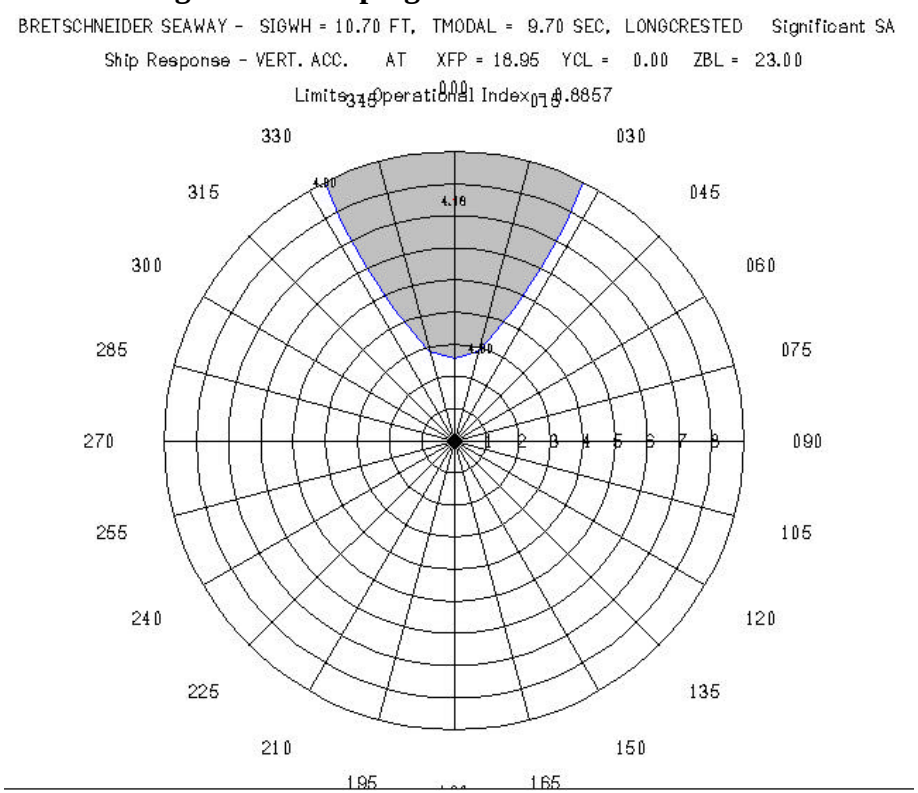
Most Probable Modal Period, N. Atlantic & Pacific, SS5

Longcrested Seas - Shaded Areas Exceed Motion Limits

T-AGS 51 Existing



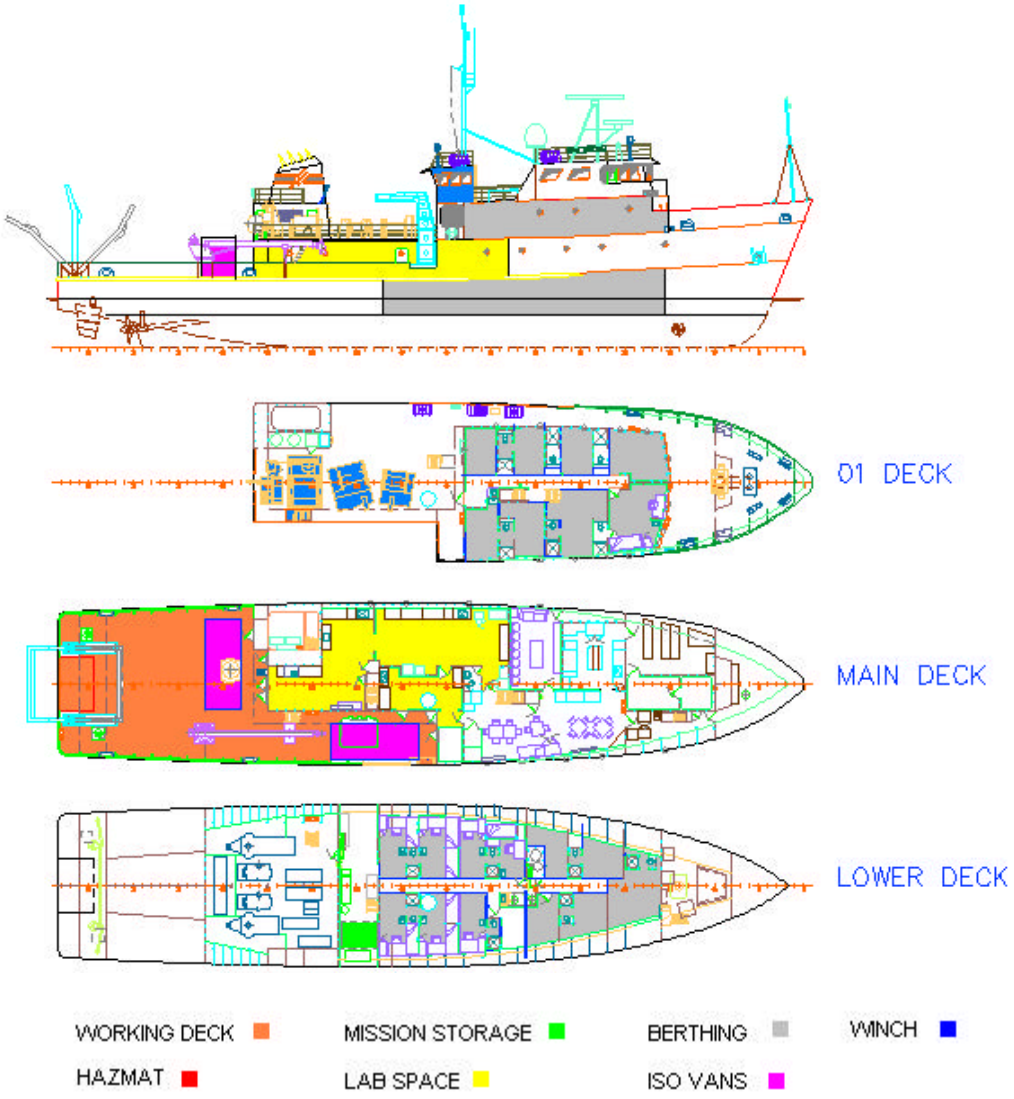
T-AGS 51 Lengthened with plug



Common Hull

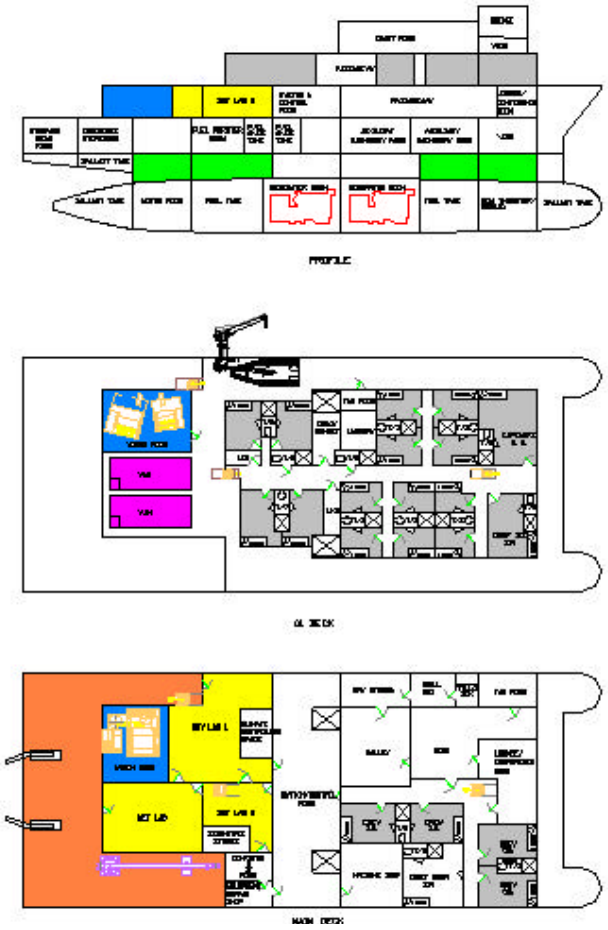
T-AGOS

Common Hull
REGIONAL MONOHULL



T-AGOS

Common Hull
REGIONAL SWATH



WORKING DECK ■ MISSION STORAGE ■ BERTHING ■ WINCH ■

HAZMAT ■ LAB SPACE ■ ISO VANS ■

Common Hull

- Acquisition Strategy Analysis:
  - Develop a selection of acquisition strategies that could be used for procurement of the REGIONAL Class AGOR.
  - Identify approaches that have the potential for reducing cost and/or accelerating schedule.

- Refine the REGIONAL Class Concept Designs Within the $25M Cost Cap
  - Refine the ROM design to be affordable within the $25M cost cap.
  - Provide recommendations on most suitable hull type (monohull or SWATH)
  - Identify requirements that drive cost and alternatives to reduce cost

T-AGOR

Common Hull

- Effects of Tonnage on Regulatory Requirements and Life Cycle Cost
  - Analyze regulatory body requirements of domestic and international tonnage relative to ship size
- Technologies to Optimize Reliability, Manning, and Life Cycle Cost
  - Identify and investigate technologies to improve reliability, reduce manning, and reduce life cycle cost
- Ship Specification and Other Documentation to Support Acquisition
  - Develop documentation suitable for supporting initiation of the acquisition process