Ocean Class AGOR

Baseline and Priorities

Mission Equipment Specification (MES)

Update and Response to FIC Input

08 March 2011

Mission Equipment Systems

Ocean Class AGOR designs are being developed based on the MES contract attachment (J-6). This Mission Equipment Specification was based on SMRs and Navy/ONR requirements. Ships will be designed and built to accommodate all items in the MES as modified by any changes. The System Specifications and MES attachment include providing space, weight, power, and other services for the following mission equipment including the transducer mounting locations. Also included are science cableways, audio/ video network and seawater system components.

MES equipment will be Government Furnished (GFE) after delivery.

a. Multibeam Survey System: Deep & Mid Water
b. Sub-bottom Profiler
c. Single Beam Survey System
d. Acoustic Doppler Current Profilers (3)
e. Sonar Synchronization Unit
f. Acoustic Navigation and Tracking System (Gantry installed during construction)
g. Attitude, Heading, and Reference System
h. Sea Surface Sound Velocity System
i. Broadband System
j. Acoustic Monitoring System
k. Uncontaminated Sea Water System*
l. Printing Equipment

* A separate seawater system for incubators is included in the specifications.

Mission Equipment Acquisition Strategy

- The shipyard design and construction contract provides:
  - Infrastructure required for installing mission equipment.
  - Winches, cranes and over-the-side handing equipment
- Mission Equipment and other science outfitting will be:
  - Government Furnished Equipment (GFE)
  - Purchased closer to delivery and installed just after delivery
  - Installed by operators and/or through separate contracts including a separate drydocking after delivery. (possible option for ship builder to bid on installation)
- Funding Sources for Mission Equipment:
  - The Navy ship construction budget (SCN) for required baseline equipment.
  - Not all desired equipment can be purchased with the SCN funds due to prior budget cuts.
  - Guided by priorities other funding sources will be pursued for remaining equipment (Priorities 1, 2, & 3)
  - Cross decking of some components is possible.

Mission Equipment Systems Planning

- Navy is seeking consensus on the Proposed Baseline Mission Equipment and prioritization of the remaining mission equipment (Navy, NSF, UNOLS (Operators and FIC))
  - FIC feedback received
  - FIC is generally in agreement with Navy, WHOI, SIO priorities
- Feedback and recommendations from FIC and NSF requested at the same time on the potential alternative equipment specifications.
  - Some alternatives to the originally specified equipment are being considered.
- Strategies for Priority 1, 2, 3 equipment will take into account opportunities for cross-decking equipment from existing vessels and alternate funding sources.
  - Planning will continue during Phase II
- MES Acquisition management and installation support costs are included in the budget strategies and these costs will be refined as we move forward.

Response to FIC Input on MES

- The FIC is generally satisfied with the proposed MES and priority levels.
  - Current MES plans and priority levels discussed later in presentation – future changes will be reviewed with FIC and the OCAC.
- Navy response to FIC provided as a memo at March 2011 FIC meeting that details Navy's position or answer to questions (summarized here):
  - An Echosounder/Sub-bottom – planning on Knudsen 3260, some design changes
  - Acoustic Monitoring system – Navy requirement, measures and monitor acoustic performance at relatively low cost.
  - Mid-water Multi-Beam alternative (EM70) – Staying with EM710
  - Systems "designed and installed by operators" after delivery – All of the MES are GFE from separate funds and installed "after delivery." HiPAP gantry exception.
  - Uncontaminated Seawater – Some were incorporated into the specs (cleaning solution) and others in Phase II – detail design and regulatory approvals.
  - SONAR Synchronization Unit – Priority one as a budget measure and because systems can operate without it.
  - HiPAP Gantry System – This or equal will be installed during construction.
  - Benthose Telisonar Sytem – agree with FIC, over the side or in spare wells.
  - EK60 – Agree this is a higher priority, may require design changes and funding.

Mission Equipment Prioritization

System	Priority Level	Planned Installation/Notes
Deep Water Multi-Beam System	Baseline	EM122 both ships; in the design
Echosounder/Sub-bottom profiler 12 & 3.5 kHz with space available for 33 and 200 kHz if required. (design: 12, 38, 120 & 200 kHz)	Baseline	Knudsen 3260 – Ship is designed for Kongsberg EA600 and SBP120, some modifications to Transducer mounting/wells needed in phase II
Attitude, Heading, Reference System	Baseline	POS MV or IXSEA system
Broadband Satellite Communications	Baseline	FBB/Ka Band and/or C-Band
ADCP – 38 kHz	Baseline	New capability for deep water; transducer well included in design.
Acoustic Monitoring System – Mantech system that will verify acoustic performance during trials.	Baseline	Ships designed for this system, relatively low cost to be installed during construction.

Mission Equipment Prioritization

System	Priority Level	Planned Installation/Notes
Uncontaminated Seawater system – design and construction includes valves, piping and pumps – remainder installed by operators after delivery.	Baseline	Low cost/cross deck – piping, valves, pumps – specs modified to include some but not all FIC recommendation.
Sound Velocity Measurement	Baseline	Calculated from SeaBird TSG
Mid-water Multi-Beam System	One	EM 710 per spec in the designs
SONAR Synchronization Unit	One	Kongsberg system
ADCP – 300 kHz	One	Transducer well included in design; Possible Cross-Deck Item
Scientific Echo-sounder for mid-water/ fisheries work	One or Two	EK60 multi-frequency unit, using many of the same transducers
Acoustic Transponder Navigation System Transducer and Electronics	Two	SONARDYNE USBL or IXSEA GAPS

Mission Equipment Prioritization

System	Priority Level	Planned Installation/Notes
Printing/plotting Equipment	Two	To be defined later – possible cross deck items. Designs include space, weight and power reservations for this equipment.
UW Acoustic Communications System – no dedicated transducer well included in design, however the capability of utilizing such a system is consistent with the SMR.	Three	Benthos Telesonar system – this or similar systems are likely user supplied or operator supplied and either deployed over the side or installed as needed in spare transducer wells.
ADCP – 75 kHz – transducer well included in design	Three	Possible Cross-Deck Item, 150 kHz may also be available and could be used in place of the 75 kHz as needed.