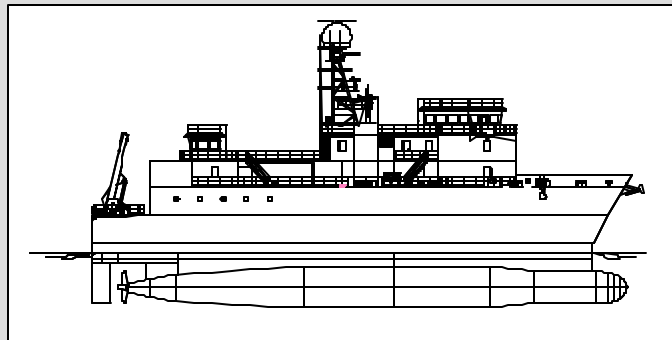
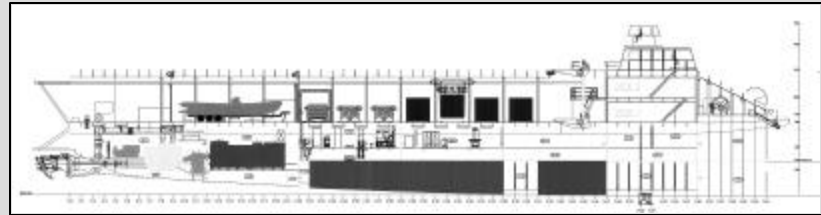
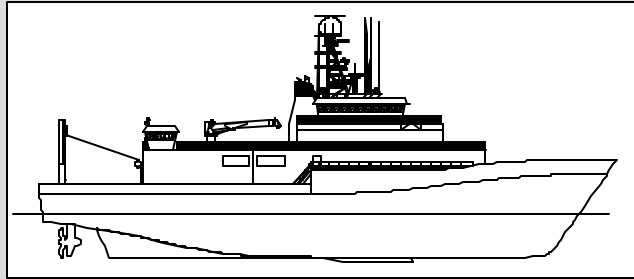


*OCEAN Class AGOR
Phase II Concept Development*



UNOLS Council Meeting

15-16 July 2004

OCEAN Class AGOR

Phase II Study

Task Overview:

- 1) *Develop Concept Designs to Meet SMRs for 3 Hull Variants:*
 - a) *Monohull*
 - b) *SWATH*
 - c) *X Craft - ONR high speed catamaran technology demonstrator*
- 2) *Investigate New Technologies To Improve Reliability, Reduce Manning, and Reduce Life Cycle Cost*
- 3) *Develop Design Criteria and Requirements to Support Future Acquisition Efforts*

Status:

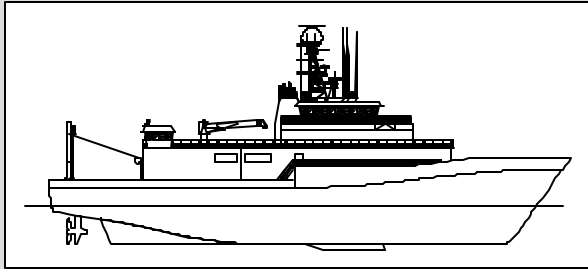
- 1) *Task Nearing Completion - Fifth and final FIC web meeting was 7 July*
- 2) *Finalizing Cost Estimates, DP Study, Technology Assessment, Report*

OCEAN Class AGOR

Phase II Study

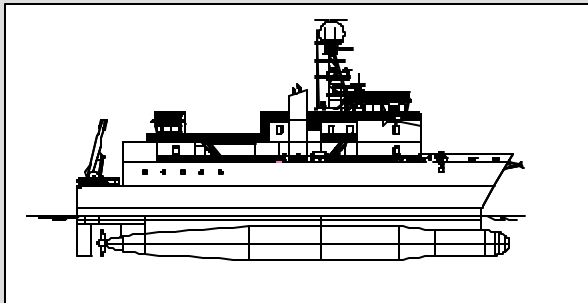
Feasibility Study Variants

MONOHULL



LOA,ft	227
LWL, ft	210
Beam WL, ft	46
Draft, ft	16.9
Displacement, LT	2500
Scientists	25
Crew	21 est.
Lab Area, sq. ft	2075
Working Deck, sq. ft	2000
Max Speed, kts	15
Cruise Speed, kts	11

SWATH



LOA,ft	186
LWL, ft	172
Beam WL, ft	88
Draft, ft	25
Displacement, LT	2750
Scientists	26
Crew	21 est.
Lab Area, sq. ft	1905
Working Deck, sq. ft	1970
Max Speed, kts	15
Cruise Speed, kts	11

X CRAFT



1,400 Ton Propeller Drive

LOA,ft	240
LWL, ft	230
Beam WL, ft	72
Draft, ft	11.8
Displacement, LT	1400
Scientists	24
Crew	21
Lab Area, sq. ft	2000
Working Deck, sq. ft	2000
Max Speed, kts	15
Cruise Speed, kts	11

2,400 Ton Propeller Drive

LOA,ft	240
LWL, ft	230
Beam WL, ft	72
Draft, ft	15
Displacement, LT	2400
Scientists	25
Crew	21
Lab Area, sq. ft	2000
Working Deck, sq. ft	2000
Max Speed, kts	15
Cruise Speed, kts	11

Note: 1,400 ton variant is based on existing X craft hull form and does not meet full SMRs

Note: 2,400 ton variant is modified to increase displacement and meets full SMRs

OCEAN Class AGOR

Phase II Study

Seakeeping Analysis - Speed Polar Diagrams

Note: Shaded Areas Represent Speed and Heading Combinations Where SMR Motion Limits For Operability Are Exceeded

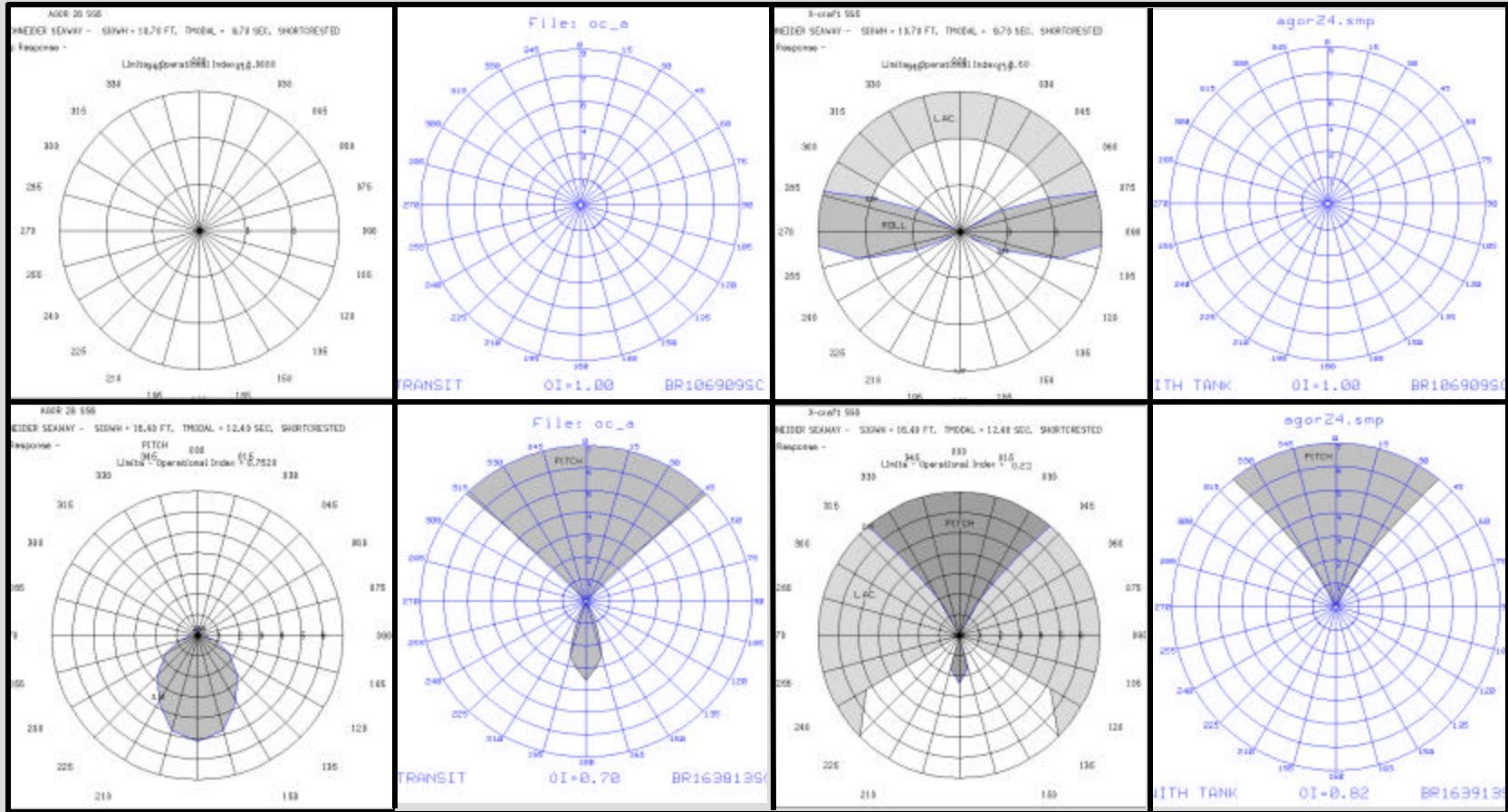
OCEAN
SWATH

OCEAN
Monohull

X-Craft
(1,400 ton)

R/V REVELLE

Sea
State
Five



Sea
State
Six

Short Crested Seas

OCEAN Class AGOR

Phase II Study

Operating Cost Analysis

Year	Large AGOR Averages				Ratio	OCEAN Class Feasibility Designs			
	2001	2002	2003	2004		Monohull	SWATH	X Craft - Z drive	X Craft - WJ
Salaries & Wages									
A. Ship's company									
1. Salaries	\$968,474	\$1,006,119	\$1,005,830	\$1,010,798					
2. Overtime	\$586,163	\$677,495	\$553,898	\$514,210					
3. Shore Leave	\$147,653	\$177,615	\$247,872	\$451,044					
4. Fringe Benefits	\$283,241	\$307,706	\$321,329	\$459,089					
TOTAL	\$1,985,532	\$2,168,936	\$2,128,929	\$2,435,141	Use 2004	\$2,435,141	\$2,435,141	\$2,435,141	\$2,435,141
B. Marine Operations Staff									
1. Salaries	\$226,602	\$243,280	\$248,220	\$232,179					
2. Overtime	\$648	\$877	\$2,821	\$0					
3. Benefits	\$56,051	\$63,798	\$71,597	\$88,990					
TOTAL	\$283,301	\$307,955	\$322,637	\$321,169	Use 2004	\$321,169	\$321,169	\$321,169	\$321,169
Repairs & Maintenance									
A. Normal Maint. & Repair	\$261,787	\$363,632	\$260,971	\$200,000	4 yr avg ratioed by disp	\$227,438	\$271,598	\$271,598	\$271,598
B. MOSA	\$423,232	\$555,250	\$442,448	\$589,600	2004 ratioed by disp	\$493,736	\$533,235	\$473,987	\$513,486
TOTAL	\$685,019	\$918,882	\$703,419	\$789,600		\$721,174	\$804,833	\$745,584	\$785,083
Other Expenses									
A. Fuel & Lube Oil	\$674,312	\$643,821	\$692,627	\$833,741	Calculated	\$692,995	\$883,208	\$1,099,200	\$1,568,039
B. Food	\$122,728	\$182,921	\$162,179	\$196,864	2004 ratioed by compl	\$161,710	\$161,710	\$161,710	\$161,710
C. Insurance	\$61,717	\$75,796	\$84,777	\$107,148	Use 2004	\$107,148	\$107,148	\$107,148	\$107,148
D. Stores Minor Equip., & Supplies	\$140,192	\$177,756	\$155,344	\$137,440	4 yr avg ratioed by compl	\$125,418	\$125,418	\$125,418	\$125,418
E. Travel									
Domestic	\$29,770	\$44,778	\$52,615	\$58,494	4 yr avg ratioed by crew	\$46,414	\$46,414	\$46,414	\$46,414
Foreign	\$134,414	\$117,258	\$77,486	\$27,131	4 yr avg ratioed by crew	\$106,038	\$106,038	\$106,038	\$106,038
F. Shore Facilities Support	\$94,579	\$109,355	\$139,566	\$168,652	Use 2004	\$168,652	\$168,652	\$168,652	\$168,652
G. Miscellaneous	\$229,409	\$297,513	\$195,684	\$180,780	4 yr avg ratioed by disp	\$189,126	\$204,256	\$181,561	\$196,691
H. Amortization									
Total	\$1,487,121	\$1,649,197	\$1,560,277	\$1,710,250		\$1,597,501	\$1,802,844	\$1,996,141	\$2,480,110
Total Direct Costs	\$3,755,954	\$4,126,089	\$4,011,843	\$5,256,160		\$5,074,985	\$5,363,987	\$5,498,035	\$6,021,503
Indirect Costs	\$596,378	\$625,818	\$606,888	\$676,311	13% of direct	\$659,748	\$697,318	\$714,745	\$782,795
Total Operating Costs	\$4,352,332	\$4,751,907	\$4,618,731	\$5,932,471		\$5,734,734	\$6,061,305	\$6,212,780	\$6,804,299
Miscellaneous Data									
A. Number of Cruises/Legs	15	18	16	18					
B. Operating Days	283	297	266	293	Avg	285	285	285	285
C. Days at Sea	247	268	242	268					
D. Maintenance Days	48	45	40	23					
E. Days Out of Service	26	0	24	6					
F. Daily Rate	\$17,722	\$19,193	\$20,108	\$20,282		\$20,145	\$21,292	\$21,824	\$23,902
Ship Particulars:									
Displacement, LT				2,985		2,500	2,700	2,400	2,600
Crew				21		21	21	21	21
Sci				35		25	25	25	25
Total Comp				56		46	46	46	46

- Monohull and SWATH Variants Meet Full SMRs
 - Monohull slightly below seakeeping SMR in sea state 6, long crested seas
 - Monohull is 75% displacement of AGOR 24 Class and SWATH is similar to KILO MOANA
 - Operating Cost Similar to GLOBALs Unless Crew Size Can Be Reduced Below 21
- X Craft Variant
 - Existing design (1,400 ton) has insufficient displacement to meet full SMRs
 - Requires significant reduction in some SMRs (range, payload) or upsize of hull displacement to approximately 2,400 tons
- Program Cost (Preliminary Estimate)
 - Monohull \$70 - 75M (in 2007\$)
 - SWATH \$85 - 89M (in 2007\$)