Revised SLEP Estimates
March 2007

Contents:

Message to Ship Operators:

In February, 2007 the following message was sent to the ship operators of *Endeavor*, *Wecoma*, *Oceanus*, *Point Sur*, and *Cape Hatteras*:

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Date: Fri, 16 Feb 2007 09:57:07 -0500
To: "Albert Suchy" <asuchy@whoi.edu>, zerrp@onid.orst.edu,
marsup@gso.uri.edu,
        rmuller@mlml.calstate.edu, jwilder@duke.edu
From: Annette DeSilva - UNOLS Office <office@unols.org>
Subject: Vessel Service Life Estimates
Cc: office@unols.org, Dave Hebert <hebert@gso.uri.edu>

Dear Al, Pete, Todd, Rich, and, John,

The next meeting of the Fleet Improvement Committee is on 20-21 March.  As
part of their effort to update the Fleet Improvement Plan, they will evaluate
the projected retirement dates of the Fleet and determine if and when service
life extension programs should be recommended.  Your assistance is requested
and we ask that you respond to the following questions:

      1)  How long can you continue operating your vessel with your present
      maintenance plan before you would need a service life extension program
      (SLEP)?

      2)  In 2004, all of the operators were polled regarding SLEP
      requirements and associated costs.  The report from this survey is
      posted on the UNOLS website at <
      http://www.unols.org/committees/fic/FIP05/retire_date_report_Oct04.PDF
      > Appendix C (page 31) includes the survey results for the Intermediate
      Ships.  Appendix D (page 70) includes the survey results for the
      Regional Ships.  Does the cost and work items identified in the 2004
      survey still represent the SLEP requirements for the ship that you
      operate?  If not, please elaborate.  As reminder, SLEPs are not
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intended to upgrade the condition or outfitting of the vessel. The purpose of the SLEP is to extend service life.

Thank you for your help. A response by March 12th is appreciated.

Annette

A follow-up message was sent a few weeks later:

Hi Everyone,

I realize that you are probably working on your SLEP estimates. As a reminder:

- The intent of a SLEP is not to upgrade the capabilities of the vessel.
- The purpose of a SLEP is to replace or upgrade equipment that will probably fail if not replaced during the designated extension period (say 5 years) and is above the normal MOSA plans.

We are interested in learning how long you can operate with your vessel before a SLEP is required. We would also like your estimate on how long the ship could operate once SLEPed (or before another SLEP was required).

I hope this helps.

Regards,
Annette

Responses from the ship operators are appended on the following pages. A summary table is provided below. It is important that the full responses from the ship operators are carefully considered when referencing the table.

UNOLS Vessel Retirement Dates and Service Life Extension Program (SLEP) Estimates										
Vessel	Year Built / Refit	Current Retirement Date	2004 Revised Retirement Date (1)	2004 5-year estimated SLEP Cost ($M)	2004 10 year estimated SLEP cost ($M) (2)	Notes	2007-Year that a SLEP is Needed	2007 Service Life with SLEPs	2007 5-year estimated SLEP Cost ($M)	2007 10 year estimated SLEP cost ($M) (2)
Vessels > 40 m										
ENDEAVOR	1976	2008	2018	$1.025	$1.5	(3)	2011	2019	$0.75	$1.35
OCEANUS	1976	2009	2019	$1.175	$1.98	(3)	2011	2021	$2.075	$3.05
WECOMA	1976	2010	2020	$1.5	$2	(3)	2010	2020	$3.695	$3.970
CAPE HATTERAS	1981	2011	2016	$2	$5	(4)	2015	2025	$0.835	$5
POINT SUR	1981	2011	2016	$2.125	$5	(4)	2011	2016	$0.785	$1.785
ATLANTIC EXPLORER	1982/2005	2026								
MELVILLE	1969 / 1991	2014	2019	$3.745	$5.295	(5)				
KNORR	1970 / 1989	2015	--	--	--	(6)				
SEWARD JOHNSON	1985	2015	2020	$5	$7.5	(5)				
NEW HORIZON	1978	2016	2021	$1.150	$1.70	(5)				
MARCUS LANGSETH	1996/2006	2025	2025	--	--					
T.G. THOMPSON	1991	2021	--	--	--	(8)				
R. REVELLE	1996	2026	--	--	--	(8)				
ATLANTIS	1997	2027	--	--	--	(8)				
KILO MOANA	2002	2032	--	$7.5	$12.5					
Vessels <40 m										
BARNES	1966	2007	--	--	--					
PELICAN	1985	2013	--	$2	--					
SPROUL	1981	2015	2020	$0.625	$1.395	(5)				
BLUE HERON	1985	2015	--	--	--					
URRACA	1986	2016								
WALTON SMITH	2000	2031	--	--	--					
SAVANNAH	2001	2032	--	--	--					

Notes:

(1) Revised retirement dates are based on the premise that SLEPs will be funded and carried out prior to the original retirement date.

(2) 10-year SLEP costs include all 5-year SLEP work items and associated costs.

(3) SLEPs are in addition to shipyard maintenance reqmts

(4) SLEP is not recommended, only if necessary extend retirement date

(5) Could extend 5 or 10 years, but SIGNIFICANT work packages required.

(6) 1-2 year life extension if needed

(8) Initial focus will be on mid-life planning - prior to predicting SLEP needs.

Todd Chlaupek, Marine Superintendent
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Dr. David Hebert
Chairman, Fleet Improvement Committee, UNOLS

The following information is submitted in response to a request from the UNOLS office Secretary regarding service life extension program (SLEP).

Question; "How long can you continue operating your vessel with your present maintenance plan before you would need a service life extension program (SLEP)?"

As reported following the 2005 NSF inspection, Endeavor is in excellent material condition. The ship can continue to operate with the current maintenance plan through the next scheduled dry docking in 2008, up until the following scheduled dry docking in 2011. At that time, we recommend performing a LIMITED (i.e. five year) SLEP, shown below. With an additional investment, shown as our ten-year SLEP, the ship can operate until at least 2019.

Question; "Does the cost and work items identified in the 2004 survey still represent the SLEP requirements for the ship that you operate?"

No. The list has been modified as follows;

2004: 5 year requirements;		2007: Updated 5 year requirements;	
Replace CPP control system	$ 150K	Replace main crane	$ 300K
Replace main crane	$ 250K	Replace A/J frame Cylinders	$ 75K
Ship's service generator upgrades	$ 150K	Piping replacement	$ 50K
Replace 3.5 KHz array	$ 25K	Winch Hydraulic overhaul	$ 100K
Piping replacement	$ 50K	Tank level indicators replacement	$ 50K
Replace trawl winch	$ 400K	Replace Oil/water separator	$ 25K
		Steering overhaul	$ 50K
		Replace Boiler heat/hot water	$ 25K
		ABS fees	$ 25K
		Naval Arch/design/stability	$ 50K
2004: 5 Year SLEP request	$ 1,025K	2007: Updated 5 year SLEP request	$ 750K

The new five year requirement assumes that the Endeavor will complete a comprehensive and major Main Engine overhaul at the end of 2007. This 60 thousand hour engine overhaul will cost approximately $ 200K, and the funds will come from the MOSA. The trawl winch does not require replacement, but rather a comprehensive overhaul. The 3.5 KHz array is operating properly, and does not require replacement. The decision to move the ship's service generator upgrade to the 10 year plan was due to both units receiving a total rewind in 2003. The ship, in the short term, can continue to operate with brush units vice solid state. The new five year requirements above are ranked in order of importance except for the ABS fees and Naval Arch fees. These fees will be incurred if any of the above work is undertaken.

2004: 10 year requirements;		2007: Updated 10 year requirements;	
Main Engine overhaul	$ 200K	Replace CPP control system	$ 200K
Bow thruster replacement	$ 250K	Ship's service generator overhaul	$ 100K
MSD replacement	$ 80K	Bow thruster overhaul	$ 100K
		Switchboard breaker work	$ 50K
		Replace Reverse osmosis unit	$ 75K
		Rehab upper stateroom to include head	$ 75K
2004: 10 year SLEP request	$ 1,555K	2007: Updated 10 year SLEP request	$ 1,350K

The 10 year requirements reflect work that will enhance the Endeavor's reliability with an expected retirement date in 2019 or later. The items are ranked in importance. The ship's service generator overhaul is a comprehensive 20 thousand hour engine rebuild with generators being removed for cleaning, dip, bake, balance, bearings, rings, and remount. The option to remove the generators, or undertake a major upgrade, has been ruled out due to several factors. The new 1800 rpm solid state units are larger and would require additional modifications to accommodate the units vice the 1200 rpm units now installed. The original Cat generators are operating satisfactorily, and will remain in service for the life of the vessel. Rehab of the upper stateroom has been an issue during the NSF inspection in recent years. It is a low priority item, however if the Endeavor will be operated for the next 10 years, this item need to be resolved.

The above figures are in addition to regularly expected maintenance expenditures for regular maintenance and dry docking and shipyard costs. This average is about 1,250K for a five year period. This figure will undoubtedly creep up over time, and might even require an occasional infusion of funds for unforeseen maintenance problems, equipment failures, and replacement if deemed more cost effective than unit rehab.

Very Respectfully, Todd Chlaupek

Vessel Survey
Vessel Projected Retirement Date and SLEP Estimates
03-09-2007

Please complete a separate survey for each vessel that your institution operates.

1. Ship Name R/V Oceanus

2. Class of Vessel (check one):

_____ Global
__√__ Ocean/Intermediate
_____ Regional
_____ Local

3. Should the retirement date of this vessel be extended? ___√_____ Yes _____ No

OCEANUS remains in excellent material and materiel condition. The retirement date can be extended past 2009. Extending the service life will require additional funding as the ship ages since many of the ship's basic systems were not upgraded or replaced during the mid-life in 1993-1994.

As to the question of when such a SLEP on Oceanus would need to start we offer the following thoughts:

WHOI has been consistent in noting the trigger for starting a service life extension on Oceanus is the point where the electrical generator engines (CAT 353 model engine and there are 2 of these engines on Oceanus) are no longer supportable/serviceable. We believe that point will come at the next scheduled overhaul of these engines after the overhaul currently planned. The current planned overhaul is this year, 2007. This would mean that the next scheduled overhaul would likely be in 2011. Therefore, we believe that a SLEP of the Oceanus would need to begin no later than the end of 2011.

Regarding an update of the 2004 input on the scope of work and costs associated with a SLEP of Oceanus WHOI provides the following input:

It is important to note that this survey focuses on maintaining the ship in an operational condition without enhancing the scientific capabilities of the Intermediate Class platforms. This presents concern within the scientific community. Every scientific oversight committee at WHOI continues to express concerns over the thought of extending the life of the Intermediate Class vessels without enhancing the scientific capabilities. The existing Intermediate Class vessels do not meet most of the Oceans Class SMRs nor do they meet several of the Regional Class SMRs. Lack of Dynamic Positioning and hull mounted full depth multi-beam systems leave the Intermediate Class vessels without the capability to support an ever-growing number of science operations. So, while not a part of this exercise, upgrading the scientific mission capabilities will need to be addressed with respective science users before extending the service life for the Intermediate Class.

Additionally, all ships of this class are on the razor sharp edge of remaining within the 300 GT threshold for classification. This situation must be assessed by a reliable and competent Naval Architect in close liaison with the USCG as any work is contemplated to extend the service life of any ships of this class. Since our original input on the focus of extending the service life of the Intermediate Class, the stability of each ship of the class has been thoroughly assessed. While having close margins, it appears that each operator has a good understanding of the stability characteristics of their vessels and that operations can continue within allowable GM curve for all operating conditions.

4. If so, what would be the revised projected retirement date? See below
(Year)

The present projected retirement date is 2009. Per the nature of this request WHOI believes that operations could continue through 2011. From that point the service life of Oceanus could be extended through both the 5-year period to 2016 and through the 10-year period to 2021. We do believe however that the ten-year period constitutes the upper limit upon which service life of all the Intermediate Class vessels should be considered and that is stretching the envelope.

It is important that a reasonable assessment of the following questions be provided:

5.a. In your best assessment, what is the estimated cost to carry out a five-year Service Life Extension Program (SLEP) for your vessel? Approximately $21.075M *

* This is in addition to the current average shipyard maintenance requirements which amount to approximately $1.25M every 5 years.

Note: Cost estimates have been discussed among all operators of Intermediate Class vessels. As noted in responses from the other Intermediate operators, costs inputs should not be viewed as anything but very rough orders of magnitude. Various jobs, upgrades, and replacements listed have not been scoped with sufficient detail to rely on the estimated estimates provided in any of our surveys. To obtain budget quality estimates, a time frame for when the upgrades would take place needs to be established. Then the jobs can be scoped with various vendors, manufacturers, Nav Archs, etc., and more reliable cost estimates established.

5.b. What work would be required for the 5-year extension?

	2004 Input	2007 Dollars
Major renovation of CPP Control System	$150K	$200K *
Major renovation (includes part replacements) Of existing Allied Crane	$150K	$200K *
Replacement of CAT 353 Ship's Service Generator Diesel Engines	$200K	$300K *
A-Frame renovations	$100K	$150K *
Piping replacements	$ 75K	$175K *
Winch – Hydro Boom renovations	$200K	$275K *
Navigational/Communication/UPS System replacements	$150K	$200K *
Steering – Rudder System Replacement	$ 0 K	$200K *
Nav Arch Design, Scoping, & Estimating Support	$0K	$ 50K
Bow Thruster replacement/upgrade	$250K#	$325K *

* Represents inflation plus added scope increases.

Was part of the 10 year SLEP Plan in 2004.

6.a. In your best assessment, what is the estimated cost to carry out a 10-year Service Life Extension Program (SLEP) for your vessel? Approximately $3.05M *

* This is in addition to the current average shipyard maintenance requirements which amount to approximately $1.25M every 5 years.

Note: Cost estimates have been discussed among all operators of Intermediate Class vessels. As noted in responses from the other Intermediate operators, cost~~s~~ inputs should not be viewed as anything but very rough orders of magnitude. Various jobs, upgrades, and replacements listed have not been scoped with sufficient detail to rely on the ~~estimated~~ estimates provided in any of our surveys. To obtain budget quality estimates, a time frame for when the upgrades would take place needs to be established. Then the jobs can be scoped with various vendors, manufacturers, Nav Archs, etc., and more reliable cost estimates established.

6.b. What work would be required for the 10-year extension?

Items in addition to the items listed for the 5 year extension:

	2004 Input	**2007 Dollars**
Main Engine upgrades	$200K	$275K *
~~Bow Thruster replacement/upgrade~~	~~$250K~~	~~$325K *~~
MSD Replacement	$ 80K	$200K *
Replacement of 3.5 and 12 kHz transducers	$ 50K	$ 75K
Deck repairs various points throughout ship	$ 75K	$200K *
Habitability/HVAC renovations *	$150K	$225K *

* Represents inflation plus scope increases.

** Arguably habitability renovations could be viewed as upgrades ~~vice~~ versus a service life extension item. Whatever this item is determined to be, if various forms of HVAC/furniture/head/bunk/general stateroom renovations are not executed within the next 10 years, it's hard to envision anyone agreeing to sail aboard any of the Intermediate vessels.

Science Mission Requirements

UNOLS would appreciate an assessment on how your vessel meets the Regional or Ocean Class SMRs. To indicate that the vessel meets the SMR parameter, place an "X" in the adjacent box. Operators of Local Class vessels can skip this section.

SMR parameter	Regional Class (RC)	Meets RC SMR	Ocean Class (OC)	Meets OC SMR
Non-crew personnel	16-20	19	20-25	
Endurance	21 days, surge to 30 (15 transit and 15 station)	30 days	40 days (20 transit and 20 station)	
Range	8,000 nm	7,000 nm	10,800 nm	
Speed	12 kts, 10 kts in SS4, 7 kts in SS5	12 kts. 14.4 kts Max	12 kts through SS4	
Sea keeping	Work in SS 4, >50% in SS 5	X	Maximize ability to work in SS 5 and higher	X
Station Keeping	Best available Dynamic positioning	NO	Dynamic position in 35 kt wind, SS 5 and 2 kts current	NO
Track-line following	Stay within 5 m of line with 25 kts wind, up to SS4, and 2 kts current	Not w/DP style track line following.	Heading deviation of less than 45 degrees with 30 kts wind, up to SS5, and 2kts current	
Crane	Load/unload up to 8000 lb to a pier; 16000 lb is desirable	Sea: Full Extension – 6,890 lbs; Retracted – 40,000 lbs. Pier: Exceeds 40,000 lbs.	Load/unload up to 20000 lb to a pier	
Towing	10000 lb at 6 kts, 20000 lb at 4 kts for several days	35,000 lbs SWL A-Frame	10000 lb at 6 kts, 25000 lb at 4 kt for several days	
Working Deck				
Stern aft of all deck houses	1000 sq ft; 1500 sq ft desirable	1,122 sq ft	1500 sq ft	
Along one side	50' x 10' area	84 ft.	80' clear deck area	
Total stern clear area	1300 sq ft	1,600 sq ft	2000 sq ft	
Laboratories				

Main dry lab	800 sq ft	595 sq ft	1000 sq ft	
Wet/hydro lab	400 sq ft	240 sq ft	400 sq ft	
Electronics/ computer lab	Separate or part of main lab	X	300 sq ft	
Res Tech work space	Separate electronics repair shop/work space for resident technicians	X	Separate electronics repair shop/work space for resident technicians	

High Bay	High bay/hanger space adjacent to aft main deck		High bay/hanger space adjacent to aft main deck	
Climate controlled space	100 sq ft		100 sq ft	
Total lab space	1000 sq ft (1500 sq ft desirable)	1,185 sq ft	2000 sq ft	
Vans	2 20'x8' deck vans, space for 1-2 smaller vans	3	2 20'x8' deck vans, space for 1-2 smaller vans (500 sq ft)	
Science Storage	400-500 cubic ft		5000 cubic ft	
Science load	At least 50 LT	40 LT	200 LT	
Workboats	16' or larger	X	At least one 16' or larger	
Real-time data acquisition system	Multibeam, ADCP, IMET, transducer wells	ADCP, IMET, ‘ducer Wells, No Multibeam	Multibeam, ADCP, IMET, transducer wells	

Thank you for your input.

Vessel Survey
Vessel Projected Retirement Date and SLEP Estimates
March 2007

Please complete a separate survey for each vessel that your institution operates.

1. **Ship Name:**
WECOMA

2. **Class of Vessel (check one):**
_____ Global
___✓___ Ocean/Intermediate
_____ Regional
_____ Local

3. **Should the retirement date of this vessel be extended?** ___✓___ Yes _____ No

With the present apparent lack of funding for a replacement vessel it appears that extending the operational life of the vessel is necessary to meet the ship time needs of the oceanographic community. The vessel's structure and major systems have been maintained in~~s~~ good shape over the years. There is~~-~~ a concern about extending the service life of these ocean going vessels in that despite the time and cost put into a SLEP, there will be many areas not addressed that may still lead to increased maintenance costs over the years. Another concern is that the ship does not~~n't~~ meet most of the "Oceans" class SMR's nor does it meet several of the "Regional" class SMR's.

To answer the question of "How long can you continue operating your vessel with your present maintenance plan before you would need a SLEP?" It is our recommendation that the SLEP items be completed by the FOFC recommended retirement date, listed as 2010. It is impossible to provide a date of when a catastrophic failure may occur. However, as the age of the machinery continues, not only does the risk of a failure increase, the cost of replacing the equipment also increases. Of particular concern are the water jackets on the ship's service generators. These have been identified as potential problem areas~~s~~, however, the only solution is to replace the entire engine block.

4. **If so, what would be the revised projected retirement date?** _See below___ (Year)

The presently projected retirement date is 2010~~1~~. From a material condition aspect there does not~~n't~~ appear to be any reason the vessel's operational life could not~~n't~~ be extended 5 years (2015~~6~~) or 10 years (2020~~1~~) beyond the presently projected date.~~.~~

It is important that a reasonable assessment of the following questions be provided:

5.a. In your best assessment, what is the estimated cost to carry out a five-year Service Life Extension Program (SLEP) for your vessel? Approximately $3.7 5M4 ~$1.5 M.

Note: The pilot house / 01 deck renovations are listed in the 5 year SLEP because we feel that if they are to be accomplished, it should occur sooner than later.

5.b. What work would be required for the 5-year extension?

Nav Arch estimating, scoping, & pollution regulation investigation/support* $ 25K
Nav Arch work for plenum and pilot house renovations. $ 175K
Pilot House, "plenum" replacement (done during mid-life on ENDEAVOR & OCEANUS) $ 1,500K500K
Replace autopilot (done during mid-life on ENDEAVOR & OCEANUS) $ 25K
Replace CPP control system. $ 75K-150K
Replace Markey DESH-6 "trawl" winch $ 250K
Replace main crane/ structural modifications.. $ 250K
Install larger A frame (includes structural modifications) $ 175K
Replace sShip's sService gGenerator replacement. (Includes switch panel replacements)upgrade $ 3150K
Renovate Habitability Spaces $ 200K
Replace laboratory decking, (similar to ENDEAVOR's. (Includes removal of cement)) $ 1250K
Replace some sanitary system pPiping renewal $ -2 50K
Spot repairs to replace deteriorated/pitted steelReplace MSD $ -20 50K
Ventilation System Restoration $ 125K
Bow Thruster Overhaul $ 250K

*Tonnage issues and pollution regulation issues could possibly be addressed Class (Oceanus) wide.

6.a. In your best assessment, what is the estimated cost to carry out a 10-year Service Life Extension Program (SLEP) for your vessel? Approximately ~$27525K2 M.

6.b. What work would be required for the 10-year extension?

Items in addition to those above would be:

Main Engine Overhaul/Upgrades~~Main Engine Upgrade~~ $ 27500K

~~Bow Tthruster Overhaulreplacement/upgrade $ 250K~~

~~3.5 and 12 kHz transducer replacement $ 50K~~

Note: Cost estimates given are at best educated guesses. They could just as easily be too high as too low. In order to get accurate price quotations, the scope of work will need to be defined, Naval Architectural design work completed, time frame for schedule of work would need to be established, and estimates would need to be requested from actual shipyards.

Science Mission Requirements

UNOLS would appreciate an assessment on how your vessel meets the Regional or Ocean Class SMRs. To indicate that the vessel meets the SMR parameter, place an "X" in the adjacent box. Operators of Local Class vessels can skip this section.

SMR parameter	Regional Class (RC)	Meets RC SMR	Ocean Class (OC)	Meets OC SMR
Non-crew personnel	16-20	18 max	20-25	~~18 Max.~~
Endurance	21 days, surge to 30 (15 transit and 15 station)	30+ days	40 days (20 transit and 20 station)	~~30+ days~~
Range	8,000 nm	~7,200	10,800 nm	~~~7,200~~
Speed	12 kts, 10 kts in SS4, 7 kts in SS5	X	12 kts through SS4	~~X~~
Sea keeping	Work in SS 4, >50% in SS 5	X	Maximize ability to work in SS 5 and higher	X
Station Keeping	Best available Dynamic positioning		Dynamic position in 35 kt wind, SS 5 and 2 kts current	~~No~~
Track-line following	Stay within 5 m of line with 25 kts wind, up to SS4, and 2 kts current	Dependent on direction	Heading deviation of less than 45 degrees with 30 kts wind, up to SS5, and 2kts current	at what speed?
Crane	Load/unload up to 8000 lb to a pier; 16000 lb is desirable	14,000	Load/unload up to 20000 lb to a pier	~~14,000~~
Towing	10000 lb at 6 kts, 20000 lb at 4 kts for several days		10000 lb at 6 kts, 25000 lb at 4 kt for several days	~~?~~
Working Deck				
Stern aft of all deck houses	1000 sq ft; 1500 sq ft desirable	~1,200	1500 sq ft	~~~1,200~~
Along one side	50' x 10' area	~50	80' clear deck area	~~~50~~
Total stern clear area	1300 sq ft	~1,500	2000 sq ft	~~~1,500~~
Laboratories				
Main dry lab	800 sq ft	576	1000 sq ft	~~576~~
Wet/hydro lab	400 sq ft	390	400 sq ft	390
Electronics/ computer lab	Separate or part of main lab	X	300 sq ft	208
Res Tech work space	Separate electronics repair shop/work space for resident technicians		Separate electronics repair shop/work space for resident technicians	~~No~~

High Bay	High bay/hanger space adjacent to aft main deck		High bay/hanger space adjacent to aft main deck	~~No~~
Climate controlled space	100 sq ft		100 sq ft	~~Labs have A/C?~~
Total lab space	1000 sq ft (1500 sq ft desirable)	1,174	2000 sq ft	~~1,174~~
Vans	2 20'x8' deck vans, space for 1-2 smaller vans	3	2 20'x8' deck vans, space for 1-2 smaller vans (500 sq ft)	~~Y, on deck~~
Science Storage	400-500 cubic ft		5000 cubic ft	~~None~~
Science load	At least 50 LT	60 LT	200 LT	~~60~~
Workboats	16' or larger	X	At least one 16' or larger	X~~Y~~
Real-time data acquisition system	Multibeam, ADCP, IMET, transducer wells		Multibeam, ADCP, IMET, transducer wells	~~No multibeam~~

Thank you for your input.

2007 *Point Sur* SLEP - Update

March 15, 2007
Dear Annette,

An update: Caterpillar representative has come and gone and will have a detailed recommendation report to me on Monday. This will include a quote for new main and aux engines for the POINT SUR as well as new gear boxes. However, because we've maintained the POINT SUR's engines so well, we should be able to run them with a similar maintenance plan for another five years after the retirement date of 2011. However, the risk of malfunction will be greater as we approach 2016. Having said that, by 2016, the engines will be fatigued enough to make them highly susceptible to major malfunction. And, they will be major polluters compared to newer engines. The next question would be; would NSF want to sell the POINT SUR at a good price after she is retired? and, how much risk are we willing to take regarding functionality as the engines approach 2016? The answer to these questions would determine when to re-power the vessel. The attached list is similar to the one I provided in 2004. I've commented on what's been done and what we plan to do with available funds. The engine quote listed is a guess but I'll have a better cost on Monday when I receive the report from Caterpillar.

I'll forward it to you ASAP.

We do not recommend a 10 year extension.

Regards,
Rich
Richard Muller, Marine Superintendent
Moss Landing Marine Laboratories

5-year extension estimated costs	
Item	Estimated Cost
Replace propellers and tail shafts.	MOSA - 2005
Replace engine/propeller control system	MOSA - 2008
Replace sewage piping	$75,000
Replace hip's wiring	$75,000
Replace refrigeration system	MOSA - 2007
Replace HVAC system	MOSA - 2006, 2008
Replace various hull/deck plates	$200,000
Replace interior decking material	$10,000
Replace trawl winch	$350,000
Replace rudders	$75,000
Subtotal	785,000

10-year extension estimated costs	
Item	Estimated Cost
Re-power the vessel, including main engines, gearboxes, auxiliary engines and generators.	$1,000,000
Subtotal	$1,000,000

Total	**$1,785,000**

2007 - *Cape Hatteras* SLEP Estimate

Annette:

We believe that CAPE HATTERAS is in good, sound condition, given her age and work history. The recent NSF Inspection; continued periodic engine rebuilds; the 2003 "refit"; last week's hull ultrasonic tests (UT) results; and several recent major equipment replacements contribute to this opinion. Therefore, we believe that the ship can be operating with the present maintenance plan until 2015, even though the end of service life projected by the Federal Oceanographic Facilities Committee (FOFC) in the 2004 report is listed as "2011".

In terms of the 2004 survey response from CAPE HATTERAS for 5- and 10-SLEP, the following comments are provided:

1. For survey question 5.b., in reference to costs for 5 year SLEP (2015-2020), we believe the $1,125,000 requirement to re-power should be dropped. The Caterpillar engines are durable and will continue to last as long as parts are available and rebuilds are conducted on schedule. Also, the $40,000 estimate for engine controls should be dropped - new engine controls were installed in late 2004.

These 2 factors reduce the 5-year SLEP estimate from $2.0 million to $835K.

2. For survey question 6.a and 6.b in reference to a 10 year SLEP, we have no present reason to change those estimates.

John

--
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