

# **UNOLS Fleet Improvement Committee Meeting**



**October 4, 2006**

**UNOLS Office – Reports**

# FIC Meeting Agenda – October 4, 2006

- **Accept the minutes and Review FIC Action/Task List from March meeting**
- **Fleet Renewal Activities:** - Regional Class, ARRV, Ocean Class
- **FOFC Long-Range Fleet Renewal Plan Status and Recommendations**
- **Ocean Observatories Status report – ORION and IOOS**
- **Global Science Mission Requirements (SMRs) Update**
- **Load Handling Systems**
- **American's with Disabilities Act (ADA) Guidelines**
- **Fleet Improvement Plan (FIP) – Review and Discussion**
- **Review FIC Action Items and Assignments**
- **Other business - FIC membership and Winter Meeting Dates**

# FIC Action/Task List (from March 2006 Meeting)

Task Description	Action/Status
<b>Regional Class - Stay informed</b>	FIC
<b>Ocean Class Planning</b> – Provided input as requested	FIC and OCSC
<b>KILO MOANA Actions:</b>	
<ul style="list-style-type: none"> <li>• Contact Brian Taylor to keep abreast of Handling System details</li> </ul>	Dave Hebert
<ul style="list-style-type: none"> <li>• Draft EOS or other appropriate article</li> </ul>	D. Hebert/B. Taylor
<b>Design and Constructions Efforts</b> - Stay engaged in ongoing design and construction efforts (ARRV, <i>Langseth</i> Conversion, etc.)	FIC

# FIC Action/Task List

## (From March 2006 Meeting)

<b>Task Description</b>	<b>Action/Status</b>
<b>Global Class:</b> Update SMRs	Global Class SMR Cmt
<b>2005 Fleet Improvement Plan:</b> <ul style="list-style-type: none"> <li>• Complete all writing assignments and have next draft available for review prior to then next meeting.</li> </ul>	FIC
<b>ADA Guidelines:</b>	
<ul style="list-style-type: none"> <li>• Provide preliminary recommendations to NSF for Regional Class Construction effort</li> </ul>	ADAC - Complete
<ul style="list-style-type: none"> <li>• Provide draft UNOLS Fleet Guidelines (Structural and Procedural) in Fall 2005</li> </ul>	ADAC

# FIC Action/Task List

## (From March 2006 Meeting)

<b>Task Description</b>	<b>Action/Status</b>
<b>Ocean Observatories</b> – Stay in contact with ORION Office.	Dave Hebert
<b>FIC Membership</b> –Replacements are needed. Announce a call for nominations.	Complete – M. Conte and A. Hine appointed.
<b>Definition of UNOLS Ship Classes</b> – Re-examine the UNOLS ship class definitions and determine the appropriate classification for each ship in the fleet. This will need to be carried out in conjunction with FOFC, so that the Fleet Improvement Plan and the FOFC Plan are consistent.	FIC - Complete

# General Purpose Global Vessel SMR and Mid Life Refit Considerations



**2006 - *THOMPSON***

Bruce Howe (UW), Chair



**2011 - *REVELLE***



**2012 - *ATLANTIS***

# Global Class Science Mission Requirements

- **Community Survey - In Progress:**

<[http://www.unols.org/committees/fic/global/GCSMR\\_Survey\\_Form.asp](http://www.unols.org/committees/fic/global/GCSMR_Survey_Form.asp)>

- **Project Website:**

<[http://www.unols.org/committees/fic/global/global\\_smr.html](http://www.unols.org/committees/fic/global/global_smr.html)>

# **Mid-Refit Improvements**

- **New Approach to Implementing Improvements**
- **Input from Operators**



# ***Kilo Moana Handling System***

- System manufacturer - Caley Ocean Systems (Glasgow)
- Delivery Status - ?
- Jason 2 test on KM: 17-21 November, 2006.

# Fleet Improvement Plan

- Review Status of Working Draft
- Discuss the changes in the Federal plans (Ocean Class and Ocean Observatories) and how they will impact utilization projections and needs
- Compare recommendations of the draft FOFC (IWG-F) plan with that of the draft 2006 FIP
- Identify areas where additional information is needed.
- Review draft document – changes since the last meeting.
- Review assignments
- Review timeline – Schedule Phone Conferences

# **Table of Contents**

## **UNOLS Fleet Improvement Plan — 2006**

### **Executive Summary**

### **I. Introduction**

### **II. Identify Future Science Initiatives:**

A. Introduction

B. Physical

C. Biological

D. MG&G

E. Chemical

F. Education and Public Outreach

G. Large Science Program Initiatives and Cross cutting Initiatives

H. Summary

# **Table of Contents**

## **UNOLS Fleet Improvement Plan — 2006**

### **III. UNOLS, the Current Facility Composition and Utilization**

- A. The Role of UNOLS in Fleet Planning and Facility Management**
- B. Current UNOLS Facility Description**
- C. Facility Scheduling process**
- D. Fleet Trends**

### **IV. Future Fleet Utilization Projections and Future Requirements?**

- A. The FOFC Long Range Plan**
- B. Comparison of Current UNOLS Fleet with the FOFC Fleet of 2025**
- C. Future Facility Needs and Projections**
- D. Facilities Required to Meet Future Science needs – 2025 Fleet Composition**
- E. Other (Non-UNOLS Ship) Facility Projections**

# FIC Fleet Improvement Plan

## Reclassification of UNOLS Ship Classes:

### GLOBAL CLASS

[Full Operating Year  
(FOY) = 300 days]

- *Atlantis*
- *Knorr*
- *Marcus Langseth*
- *Melville*
- *Revelle*
- *Thompson*

### OCEAN CLASS

[FOY = 275 days]

- *ARRV*
- *Kilo Moana*

# FIC Fleet Improvement Plan

## Reclassification of UNOLS Ship Classes:

### INTERMEDIATE

#### CLASS

[FOY = 250 days]

- *Endeavor*
- *New Horizon*
- *Oceanus*
- *Seward Johnson*
- *Wecoma*

### REGIONAL CLASS

[FOY = 200 days]

- *Alpha Helix (retired 06)*
- *Cape Hatteras*
- *Point Sur*
- *Atlantic Explorer*

# FIC Fleet Improvement Plan

## Reclassification of UNOLS Ship Classes:

### REGIONAL COASTAL CLASS

[FOY = 180 days]

- *Longhorn (retire 2006)*
- *Pelican*
- *Hugh R. Sharp*
- *Sproul*
- *Walton Smith*

### LOCAL CLASS

[FOY 110 days]

- *Blue Heron*
- *Clifford A. Barnes*
- *Savannah*
- *Urraca*

# Working Draft Status

- Review Project Website:  
<[http://www.unols.org/committees/fic/Fip05/FIP2005\\_Outline.html](http://www.unols.org/committees/fic/Fip05/FIP2005_Outline.html)>

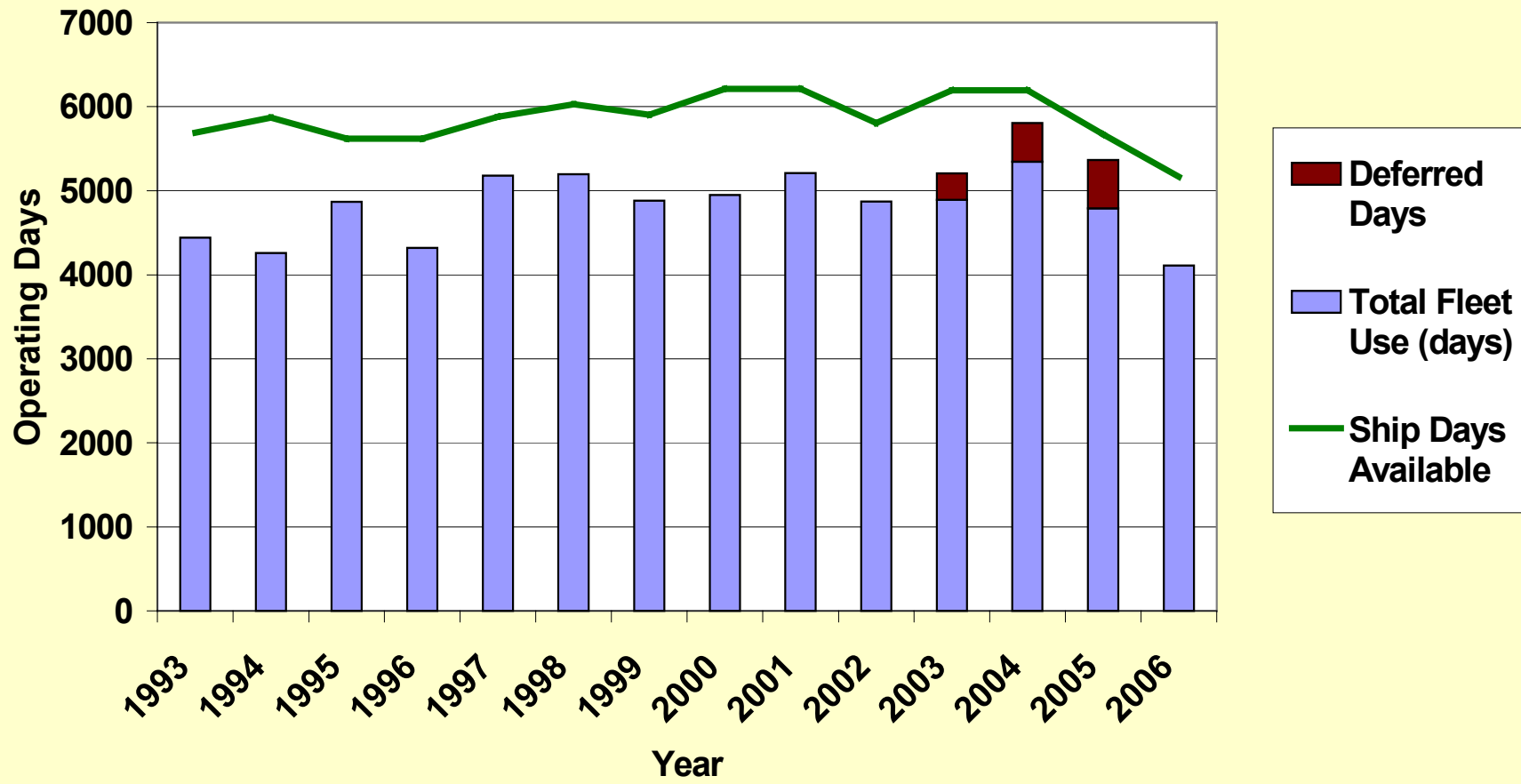


# Federal Plans: Questions, Changes and Impacts

- Two Ocean Class ships versus 4 ships
- Ocean Class Ship Construction Timeline
- Global Class Mid-Life Refits
- Service Life Extension Plans – Intermediate Vessels?
- Are the 2 Ocean vessels replacing Intermediates or *Knorr/Melville*?
- Vessel Retirement Dates – Are adjustments needed?
- Ocean Observatories – Timelines and Scale?

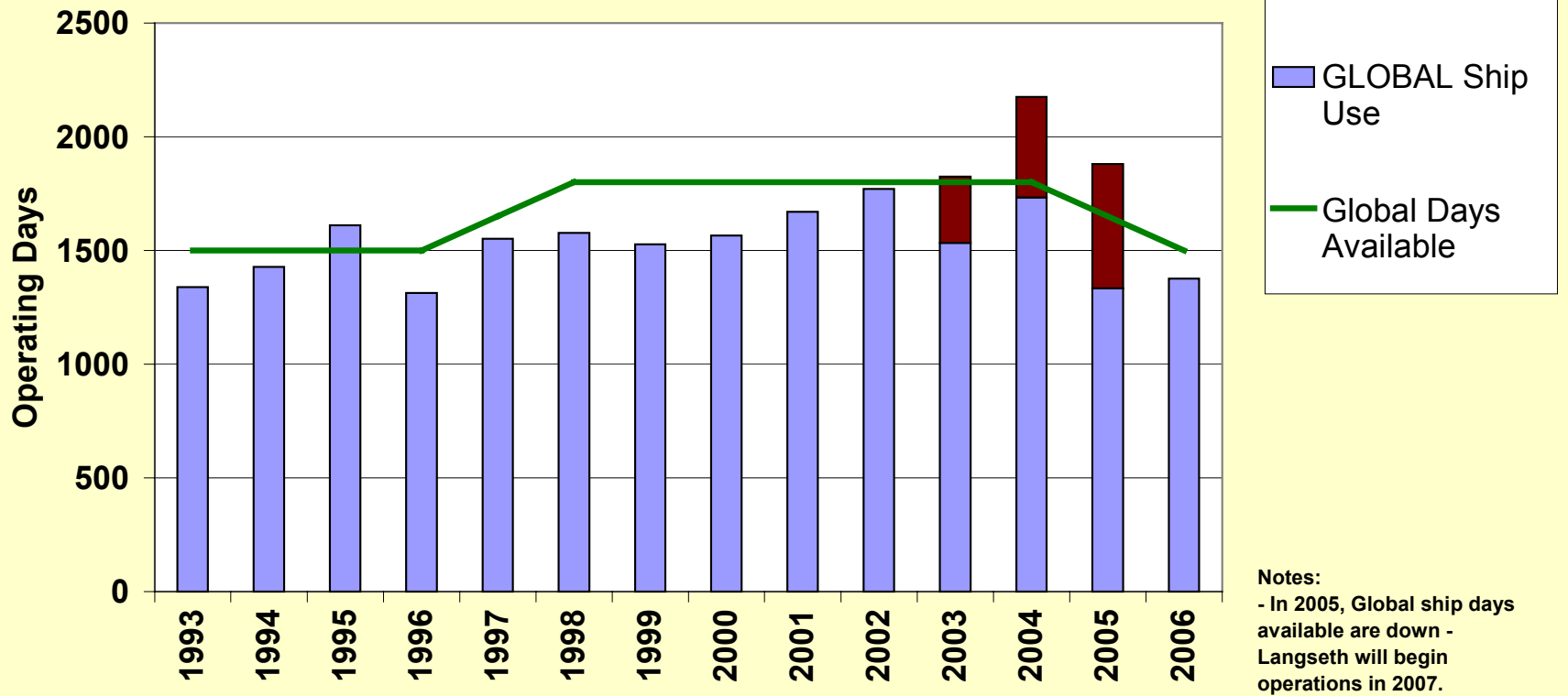
# Fleet Utilization

UNOLS Fleet Utilization



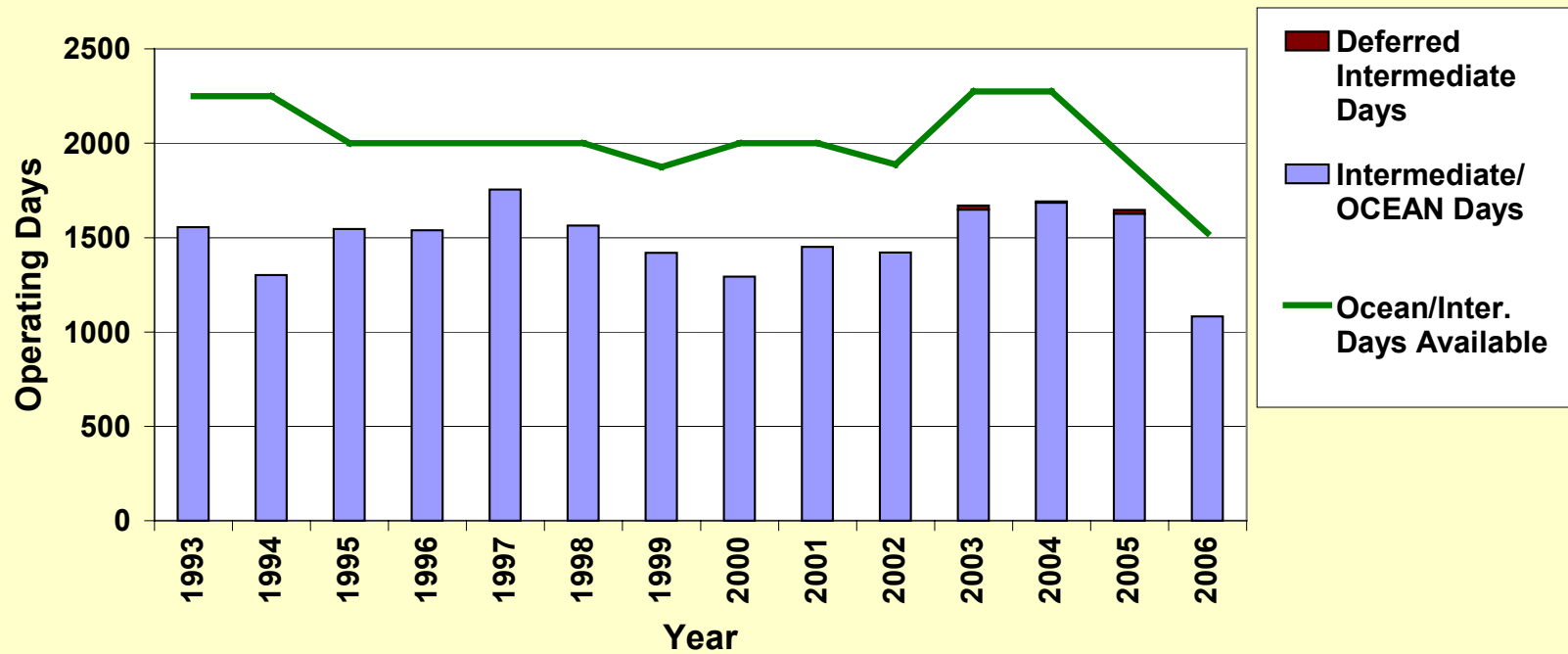
# Fleet Utilization

## Global Ship Utilization (1993 - 2006)



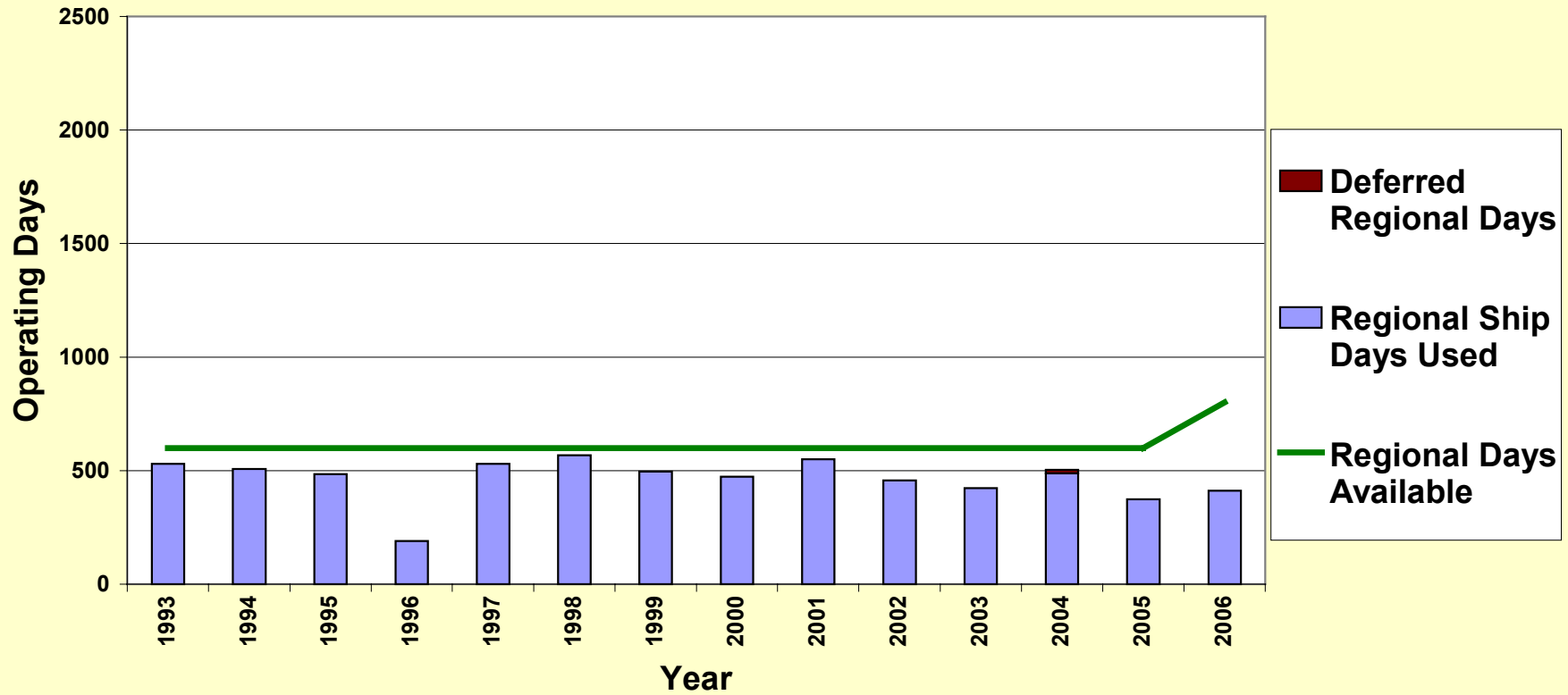
# Fleet Utilization

## Intermediate/Ocean Class Utilization (1993 - 2006)

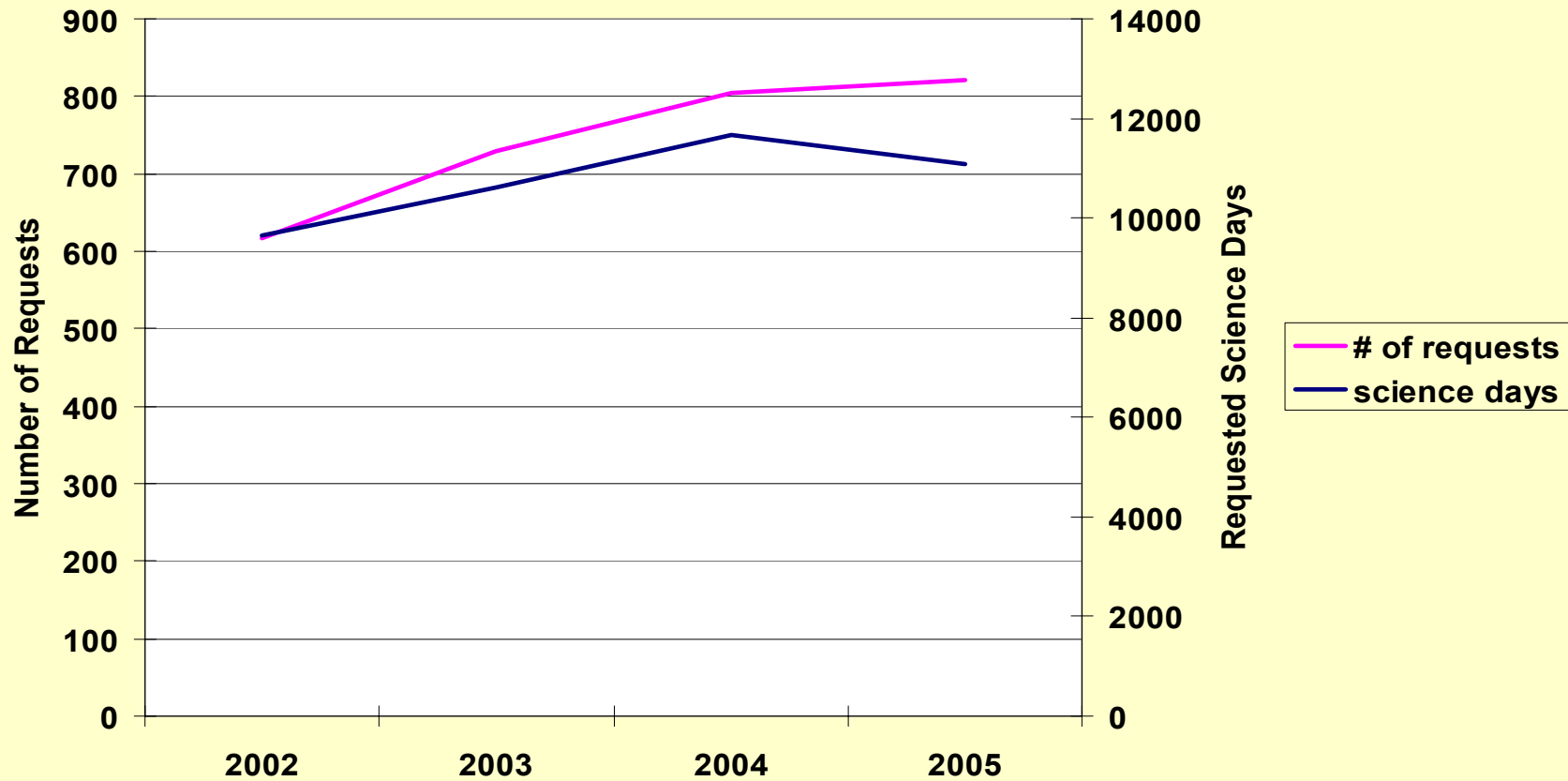


# Fleet Utilization

## Regional Class Utilization (1993 - 2006)

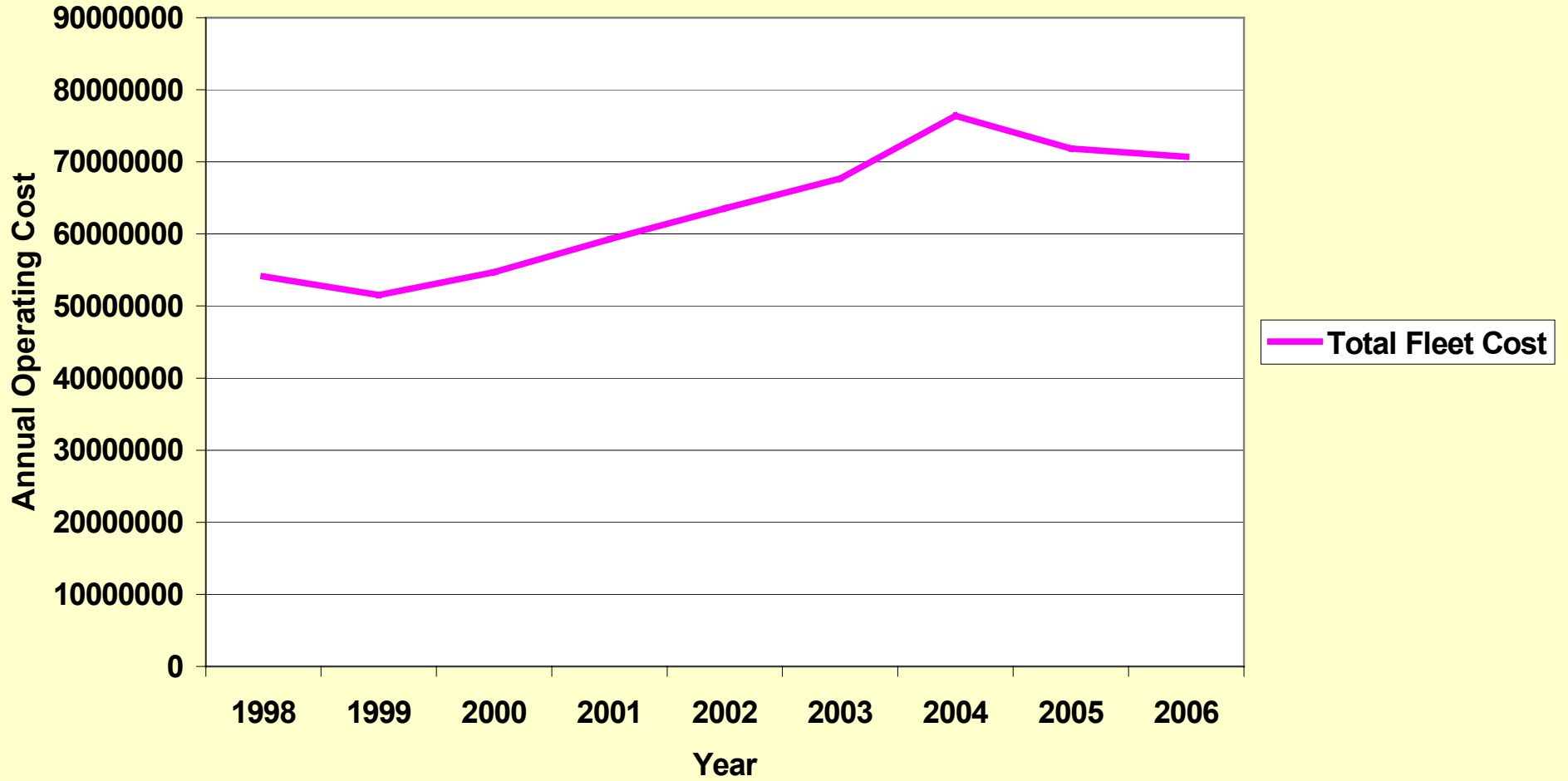


# UNOLS Ship Time Demand

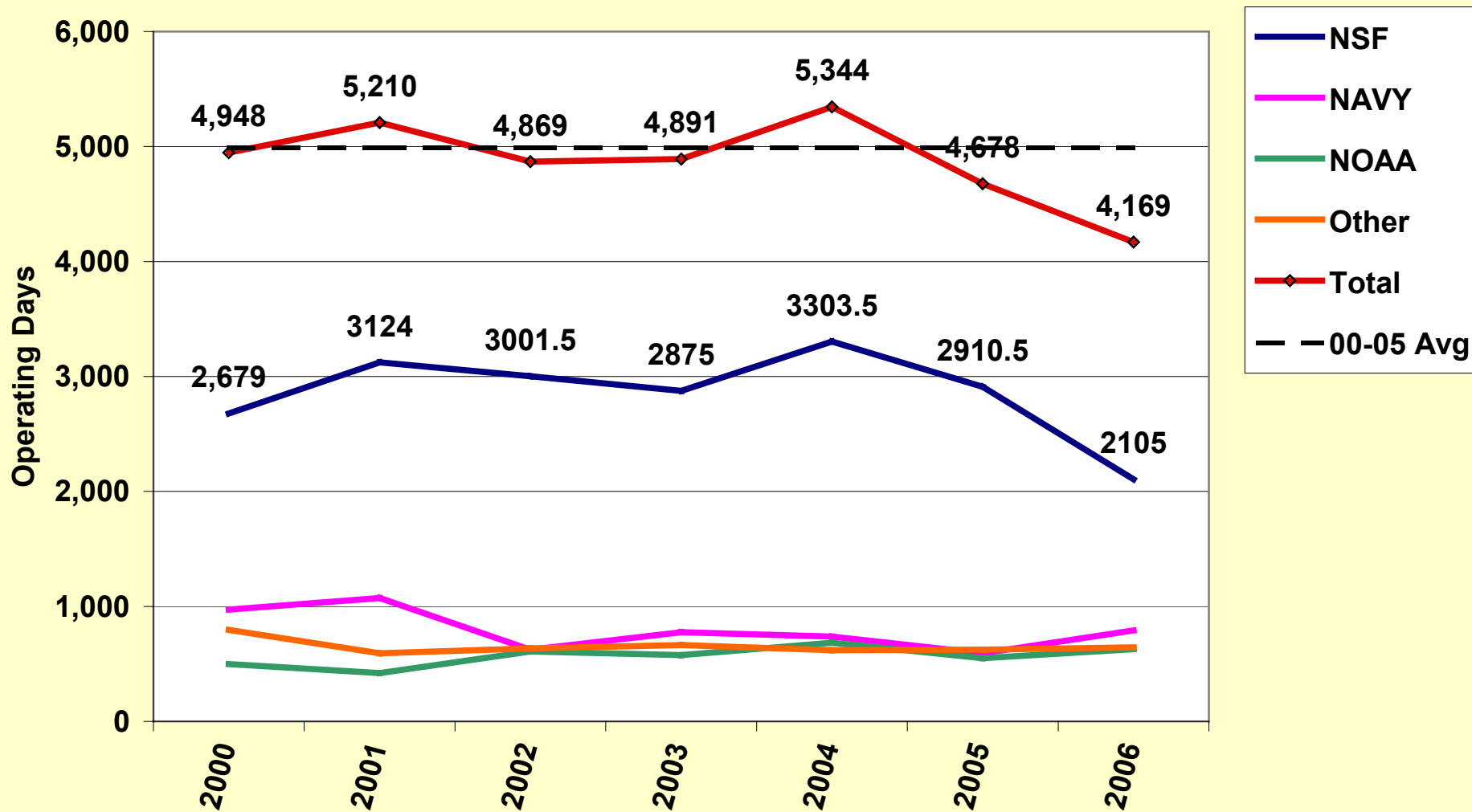


Not Updated

## Fleet Cost: 1996 - 2006

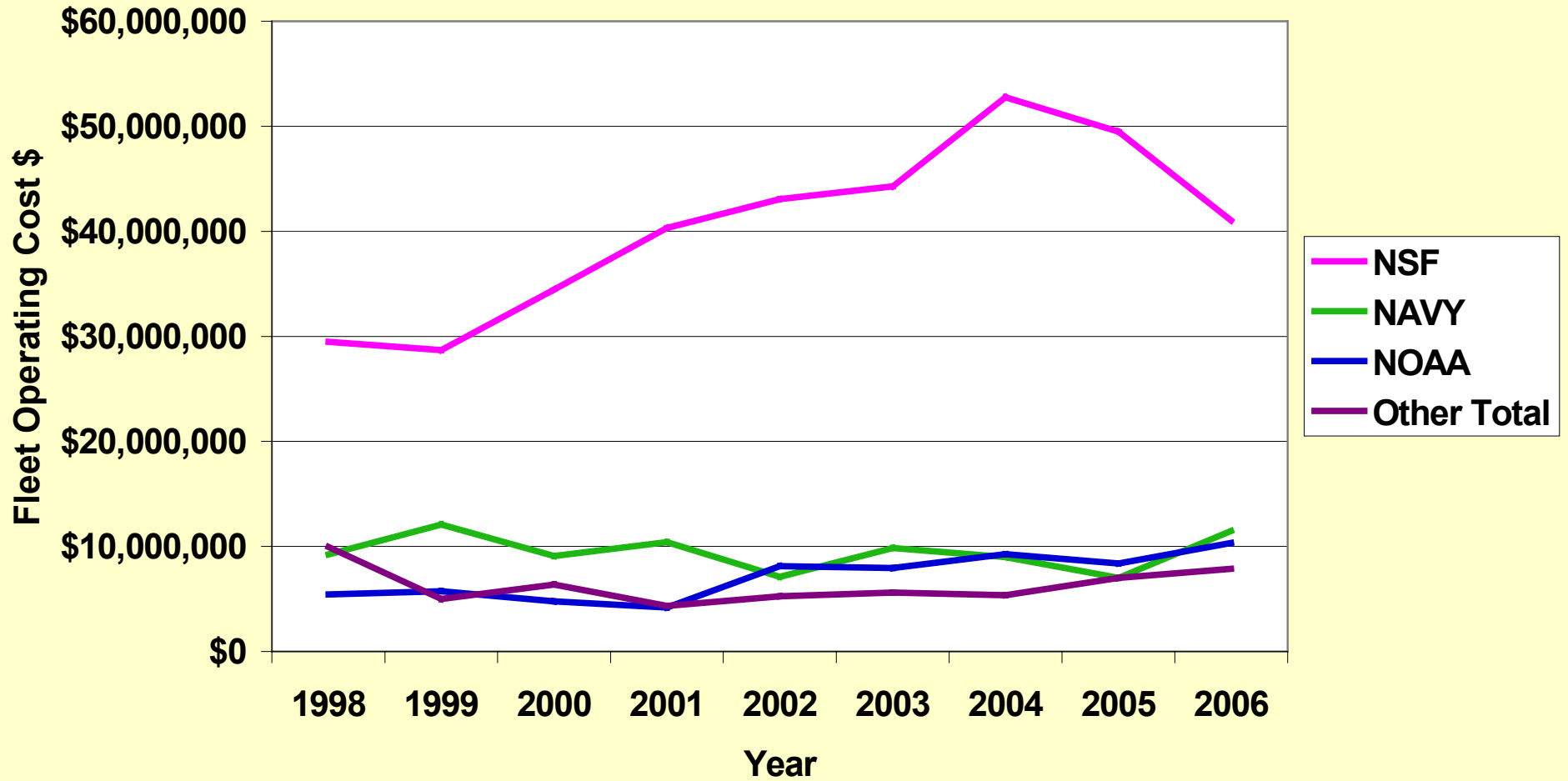


UNOLS Fleet Utilization (2000 - 2006)

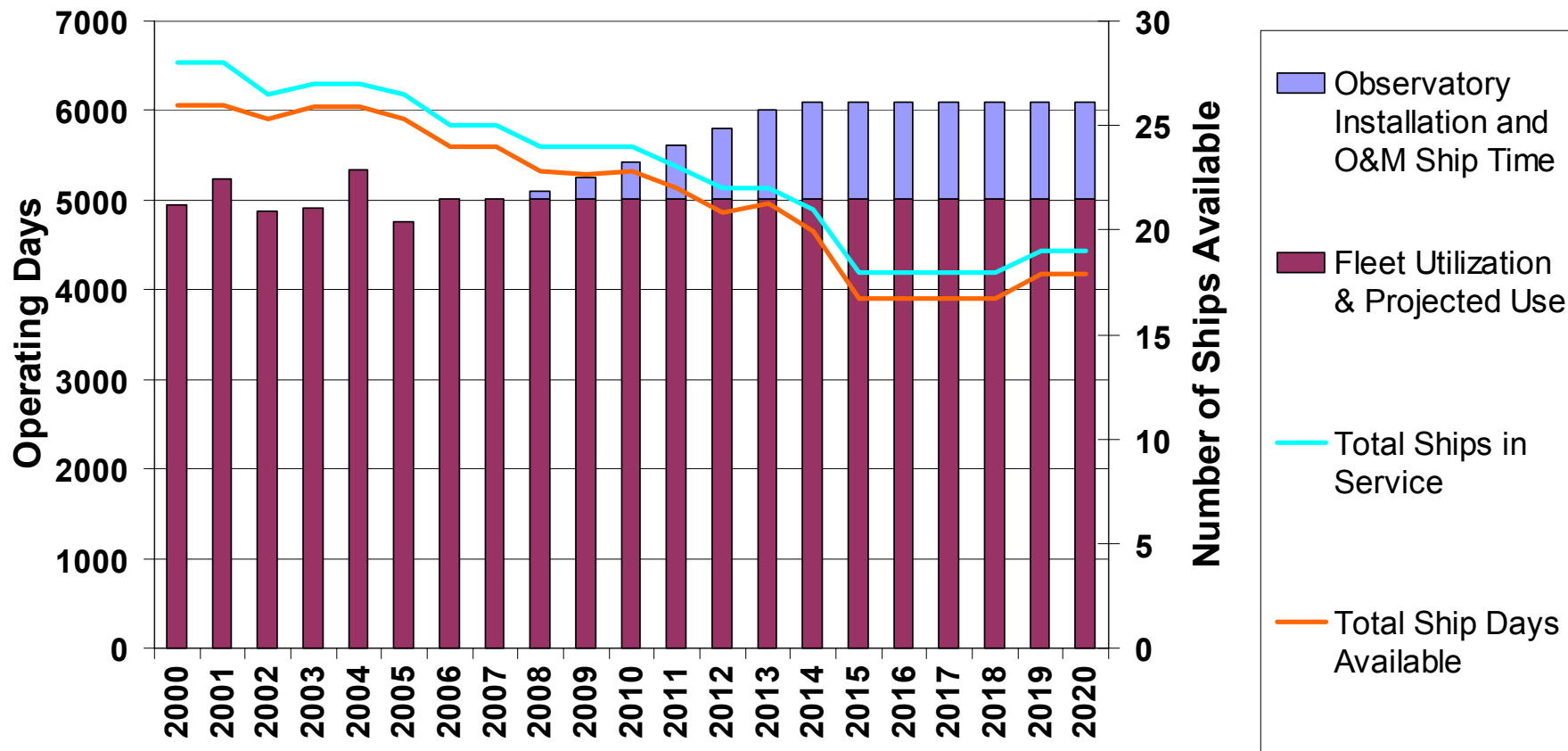




## Fleet Operating Cost - by Agency

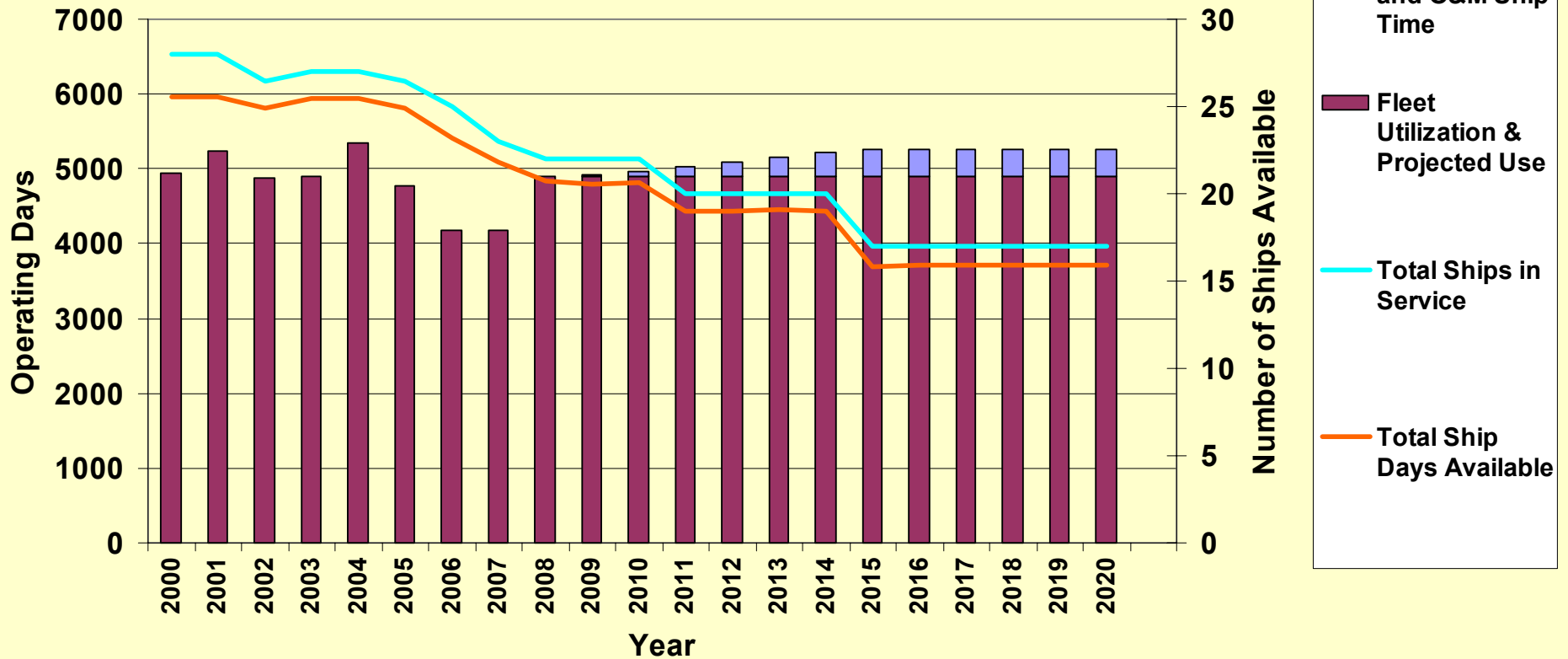


## UNOLS Fleet Utilization and Projections (2000 - 2020)



From March FIC Meeting

## UNOLS Fleet Utilization and Projections (2000 - 2020)



New Projection with 2 Ocean Class Ships

# Current Fleet vs. 2020 Fleet

**Current UNOLS Fleet (>40m)**

Class	Number of Ships	Total # Science Berths in 2005	Days Available	Avg Op Days Used (03-06)
Global	6	199	1800	1494
Ocean	1	30	275	250
Intermediate	5	104	1250	1497
Regional	4	61	800	422
<b>Fleet Total</b>	<b>16</b>	<b>394</b>	<b>4125</b>	<b>3663</b>

**2020 Fleet**

Number of Ships	Total # Science Berths (1)	Available Days
4	130	1200
4	106	1100
0	0	0
4	80	800
<b>12</b>	<b>316</b>	<b>3100</b>

Notes: 1) Berths: Ocean Class = 25, *Kilo Moana* =30, ARR V = 26  
Regional = 20

UNOLS Vessel Retirement Dates  
and Service Life Extension  
Program Estimates

# Update Vessel Retirement Dates

In 2004 the UNOLS Vessel Operators were polled:

- Should vessel retirement dates be extended? And if so:
  - Service Life Extension Program (SLEP) cost estimate for 5-year extension
  - SLEP cost estimate for 10-year extension
- How do the capabilities of their current ships compare to the Ocean Class and Regional Class SMRs?

# Vessel Retirement Dates and SLEP Estimates

Nine UNOLS ships >40 m have retirement dates prior to 2020 and are potential candidates for a SLEP:

- Most of the ships (>40m) can have their lifetimes extended 5 and possibly 10 years for an estimated cost of \$1.025M-\$5M per ship for a 5-year life extension.
- Extension of retirement dates for most vessels <40m is not recommended.
- The immediate focus for ships with retirement dates past 2020 is on mid-life refit planning.

# Revised Retirement Dates

## Preliminary Findings

- The SLEP estimates focus on maintaining the ship in an operational condition without enhancing the scientific capabilities of the platform.
  - The existing Intermediate Class vessels do not meet most of the desired Ocean Class SMRs
  - Regional Class ships fall short of the Regional Class SMRs in many areas.
- Maintaining the current UNOLS fleet vessels beyond their designed service life will significantly impede the advance of ocean science relative to that possible with new ships that meet the SMR specifications.



## UNOLS Vessel Retirement Dates and Service Life Extension Program (SLEP)

<b>Vessel</b>	<b>Year Built / Refit</b>	<b>Length (ft)</b>	<b>FOFC Retirement Date</b>	<b>Revised Retirement Date (1)</b>	<b>5-year estimated SLEP Cost (\$M) (2)</b>
<b>Vessels &gt; 40 m</b>					
ENDEAVOR	1976	184	2008	2018	\$1.025
OCEANUS	1976	177	2009	2019	\$1.175
WECOMA	1976	185	2010	2020	\$1.5
CAPE HATTERAS	1981	135	2011	2016	\$2
POINT SUR	1981	135	2011	2016	\$2.125
MELVILLE	1969 / 1991	279	2014	2019	\$3.745
KNORR	1970 / 1989	279	2015	--	--
SEWARD JOHNSON	1985	204	2015	2020	\$5
NEW HORIZON	1978	170	2016	2021	\$1.150
LANGSETH	1996/2006	235	2025	--	--
T.G. THOMPSON	1991	274	2021	--	--
SEWARD JOHNSON II	1982	161	2026	--	--
R. REVELLE	1996	274	2026	--	--
ATLANTIS	1997	274	2027	--	--
KILO MOANA	2002	186	2032	--	\$7.5

## UNOLS Vessel Retirement Dates and Service Life Extension Program (SLEP) Estimates

<b>Vessel</b>	<b>Year Built / Refit</b>	<b>Length (ft)</b>	<b>FOFC Retirement Date</b>	<b>Revised Retirement Date (1)</b>	<b>5-year estimated SLEP Cost (\$M) (2)</b>
<b>Vessels &lt;40 m</b>					
<b>CAPE HENLOPEN</b>	1976	120	2005	--	--
<b>WEATHERBIRD II</b>	1981	115	2013	--	--
<b>PELICAN</b>	1985	105	2013	--	\$2
<b>SPROUL</b>	1981	125	2015	2020	\$0.625
<b>BLUE HERON</b>	1985	86	2015	--	--
<b>URRACA</b>	1986	96	2016		
<b>WALTON SMITH</b>	2000	96	2031	--	--
<b>SAVANNAH</b>	2001	91	2032	--	--

# SMR Inconsistencies - Global

SMR parameter	Sea Keeping		Station Keeping		Track-line following		Crane		Towing	
	RC	OC	RC	OC	RC	OC	RC	OC	RC	OC
	Work in SS 4, >50% in SS 5	Maximize ability to work in SS 5 and higher	Best available Dynamic positioning	Dynamic position in 35 kt wind, SS 5 and 2 kts current	Stay within 5 m of line with 25 kts wind, up to SS4, and 2 kts current	Heading deviation of less than 45 degrees with 30 kts wind, up to SS5, and 2kts current	Load/unload up to 8000 lb to a pier; 16000 lb is desirable	Load/unload up to 20000 lb to a pier	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
<u>GLOBAL SHIPS</u>										
MELVILLE		X		X		X				X
KNORR	X			yes, has SDP-10 which meets this SMR		contains superb high & low speed Track Mode using SDP-10 DP system		6' / 60,000, 70' / 8,000 ft/lbs		20,000 lbs portable A-frame
ATLANTIS	X		X		X			10' / 42000, 65' / 3400 ft/lbs		

# SMR Inconsistencies - Global

SMR parameter	Laboratories				Science load	
	Wet/hydro lab		Electronics/ computer lab			
	RC	OC	RC	OC	RC	OC
	400 sq ft	400 sq ft	Separate or part of main lab	300 sq ft	At least 50 LT	200 LT
<u>GLOBAL SHIPS</u>						
MELVILLE				X		X
KNORR	320				175 LT	
ATLANTIS		880		750	150 LT	

# FIP Assignments and Timeline

Propose: Series of short phone conferences to review specific sections.

# FIC Membership

- **David Hebert, URI (Chair) – [at-large, 9/06] PO**
- **Newell Garfield, SFSU – [Non-op, 9/06] PO**
- **Jim Cochran, LDEO – [At-large, 9/07] MG&G**
- **Terry Whitley, U Alaska – [Operator, 9/07] BIO/Chem**
- **Clare E. Reimers, OSU – [Operator, 1/09] Chem**
- **Bauer, Jim, VIMS – [Non-Operator, 9/06] Chem/Bio**
- **Maureen Conte, BBSR – [Operator, 9/09] BioGeoChm**
- **Al Hine, USF – [Non-Operator, 9/09] Geology**
- **Marc Willis, RVTEC Rep (ex-officio)**
- **Al Suchy, RVOC Rep (ex-officio)**

