

**UNOLS**  
**Fleet Improvement Plan**  
**2005**

**PRELIMINARY**

UNOLS Fleet Trends and Projections

February 17, 2005

# UNOLS Fleet Improvement Plan Outline

- Executive Summary / Intro
- Identify Future Science Initiatives:
  - Physical - Dave
  - Biological - Terry
  - MG&G - Niall
  - Chemical – Jim B
  - Education – Clare
  - Ocean Engineering -
  - Cross cutting initiatives (Observatories (broad)) – Jim C
- Current Fleet Composition and Utilization  
Trends - Office
  - Current Fleet Description
  - Updated vessel retirement dates and SLEP costs
  - Fleet Trends
    - Geographical utilization

# UNOLS Fleet Improvement Plan Outline

- Future Fleet Projections – Office and others
  - UNOLS and FOFC Plan Fleet Projections -
  - Ship Construction Plans and realistic timelines
  - Addition of other facility projections (Ocean observatory, etc)
  - Other Facilities – aircraft, deep submergence facilities
  - Scheduling and operating modes
  - Shortfalls:
    - Differences between FOFC and UNOLS FIP
    - Consequences of not carrying out SLEPs
    - Tradeoffs between various scenarios - Peter
  - Extensions and expansions beyond the FOFC Plan
  - Future Fleet Composition
- Fleet Budget Projections and Requirements
  - Ship Construction Cost
  - Future Fleet operating cost estimates
- Recommendations

# FIP 2005 Timeline

- Finalize outline and assignments– 15 November
- Coordinate with FOFC - winter
- Draft text and prepare projections – 28 Feb 05
- First Draft – March Council Meeting
- Community review – April 1-30, 2005
- Second draft – Spring/Summer Council Meeting
- Circulate second draft for comment – Sept 1
- Final draft – September 30, 2005

# Current Fleet Description

## The UNOLS Fleet (2005): Ship Characteristics

SHIP/CLASS	Operator	Owner	BUILT	CONV/ Mid-Life	LOA	Conv/ Mid-life LOA	ORIGINAL SCIENCE BUNKS	Conv/Mid-Life SCI. BUNKS
<b>GLOBAL SHIPS</b>								
MELVILLE	SIO	NAVY	1969	1991	245	279	25	38
KNORR	WHOI	NAVY	1970	1989	245	279	25	34
T.G. THOMPSON	UWASH	NAVY	1991		274		36	
ATLANTIS	WHOI	Navy	1997		274		22	
R. REVELLE	SIO	NAVY	1996		274		37	
EWING	LDEO	NSF	1983	1990	239		32	
* MARCUS LANGSETH	LDEO			2005	235		34	
<b>INTERMEDIATE/Ocean SHIPS</b>								
SEWARD JOHNSON	HBOI	HBOI	1985	1994	170	204	20	29
KILO MOANA	UHAWAII	NAVY	2002		186		30	
WECOMA	OSU	NSF	1976	1994	177	185	16	20
ENDEAVOR	URI	NSF	1977	1993	177	184	16	18
GYRE	TAMU	TAMU	1973	1980	174	182	11	23
OCEANUS	WHOI	NSF	1976	1994	177		12	18
NEW HORIZON	SIO	SIO	1978	1996	170		13	19
SEWARD JOHNSON II	HBOI	HBOI	1982	1988	168		20	
<b>Regional Ships</b>								
POINT SUR	MLML	NSF	1981		135		12	
CAPE HATTERAS	DUKE	NSF	1981	2004	135		12	
ALPHA HELIX	SIO/UAK	UAK	1966	1984	133		12	15
<b>LOCAL/NEAR-SHORE SHIPS</b>								
R. SPROUL	SIO	SIO	1981	1985	125		12	
CAPE HENLOPEN	UDEL	UDEL	1976		120		12	
WEATHERBIRD II	BBSR	BBSR	1981	1993	115		10	12
PELICAN	LUMCON	LUMCON	1985	2003	105		15	
LONGHORN	UT	UT	1971	1986	80	105	10	12
WALTON SMITH	UMIAMI	UMIAMI	2000		96		16	
URRACA	STRI	STRI	1986	1994	96		10	
SAVANNAH	SKID/UG	SKID/UG	2001		92		20	
BLUE HERON	UMINN	UMINN	1985	1999	86		5	
BARNES	UWASH	NSF	1966	1984	66		6	

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

UNOLS Vessel Retirement Dates and Service Life Extension Program (SLEP) Estimates							
Vessel	Year Built / Refit	Length (ft)	FOFC Retirement Date	Revised Retirement Date (1)	5-year estimated SLEP Cost (\$M) (2)	10-year estimated SLEP cost (\$M) (3)	Notes
<b>Vessels &gt; 40 m</b>							
ALPHA HELIX	1996	133	2005	2008	--	--	
GYRE	1973	182	2006	2011	\$1.335	\$3.235	
ENDEAVOR	1976	184	2008	2018	\$1.025	\$1.5	
OCEANUS	1976	177	2009	2019	\$1.175	\$1.98	
WECOMA	1976	185	2010	2020	\$1.5	\$2	
CAPE HATTERAS	1981	135	2011	2016	\$2	\$5	
POINT SUR	1981	135	2011	2016	\$2.125	\$5	
SEWARD JOHNSON II	1982	161	2012	2017	\$5	\$8.5	
MELVILLE	1969 / 1991	279	2014	2019	\$3.745	\$5.295	
KNORR	1970 / 1989	279	2015	--	--	--	(4)
SEWARD JOHNSON	1985	204	2015	2020	\$5	\$7.5	
NEW HORIZON	1978	170	2016	2021	\$1.150	\$1.70	
EWING	1983 / 1990	239	2018	2005	--	--	(5)
EWING Replacement	1996/2006	235	xx	2025	--	--	
T.G. THOMPSON	1991	274	2021	--	--	--	(6)
R. REVELLE	1996	274	2026	--	--	--	(6)
ATLANTIS	1997	274	2027	--	--	--	(6)
KILO MOANA	2002	186	2032	--	\$7.5	\$12.5	
<b>Vessels &lt;40 m</b>							
BARNES	1966	66	2005	--	--	--	
CAPE HENLOPEN	1976	120	2005	--	--	--	
LONGHORN	1971	105	2011	--	\$4 - \$5	\$6 - \$8	
WEATHERBIRD II	1981	115	2013	--	--	--	
PELICAN	1985	105	2013	--	\$2	--	
SPROUL	1981	125	2015	2020	\$0.625	\$1.395	
BLUE HERON	1985	86	2015	--	--	--	
URRACA	1986	96	2016	--	--	--	
WALTON SMITH	2000	96	2031	--	--	--	
SAVANNAH	2001	91	2032	--	--	--	

# NOTES FOR SLEP ESTIMATES

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

(2) SLEPs are in addition to shipyard maintenance requirements

(3) 10-year SLEP costs include all 5-year SLEP work items and associated costs.

(4) 1-2 year life extension if needed

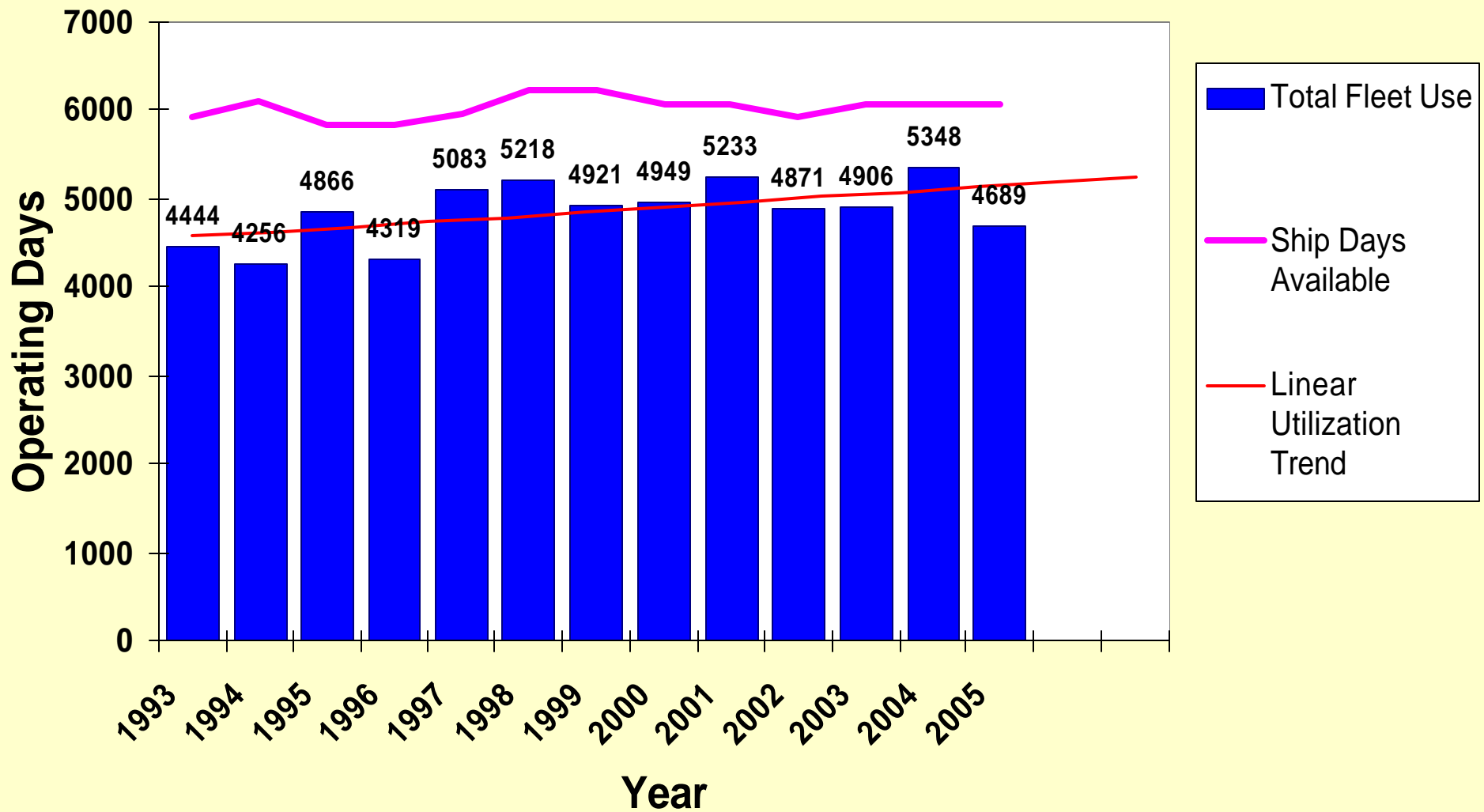
(5) EWING to be replaced with new Seismic Vessel

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

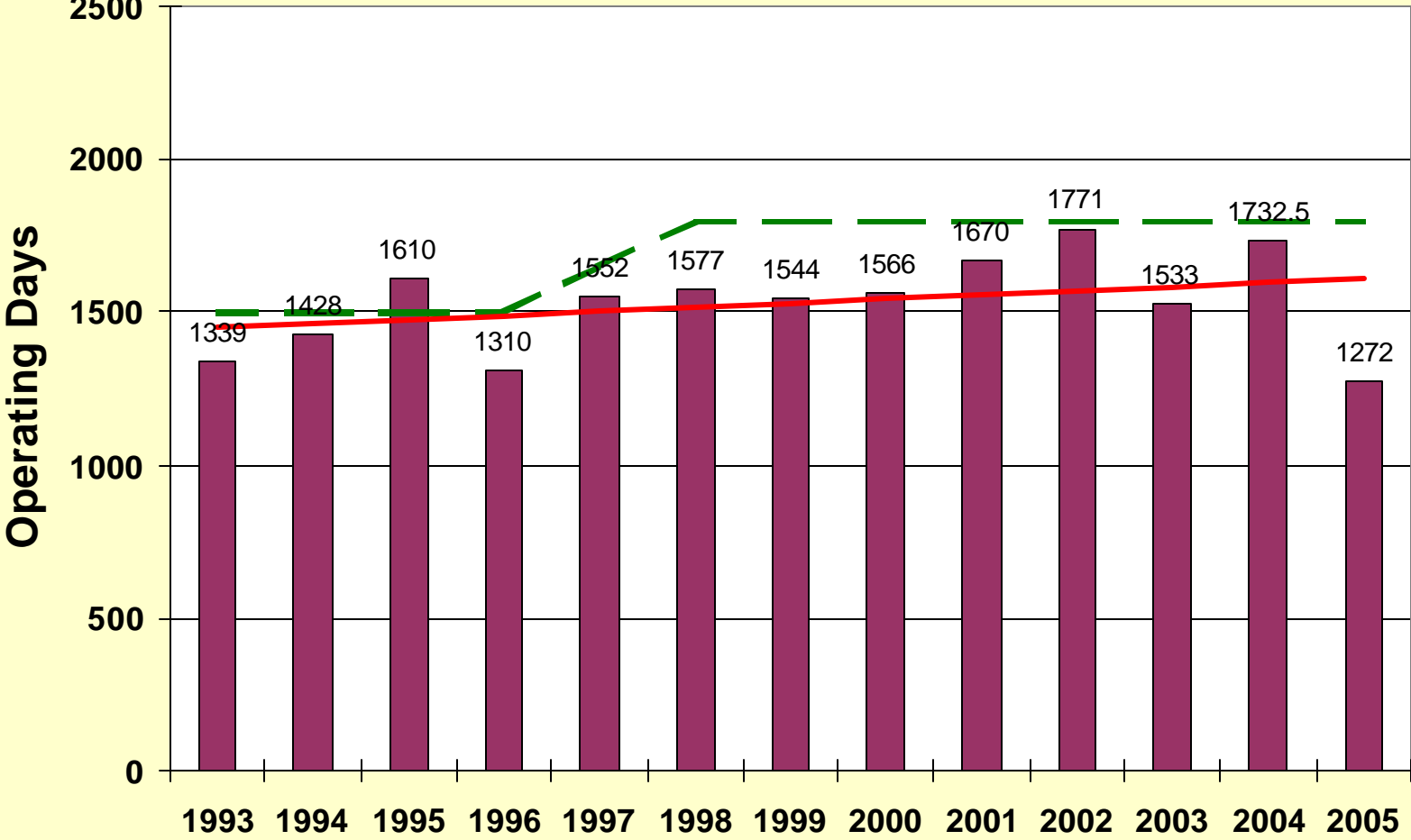
# Fleet Trends

- Utilization – Total and by Class
- Geographic Utilization Trends
- Agency Support

# Fleet Utilization Trends: 1993 - 2005

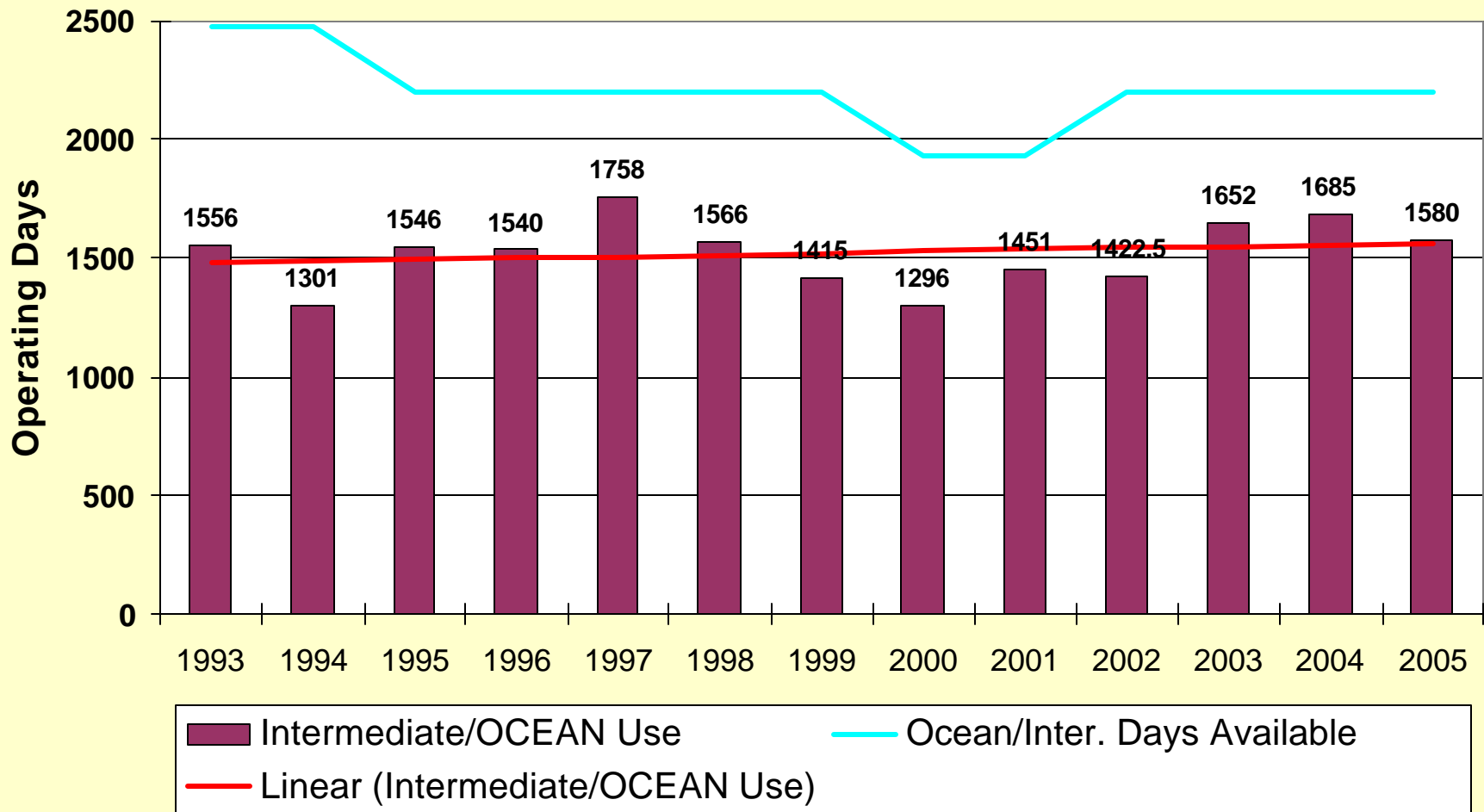


# Global Utilization Trends

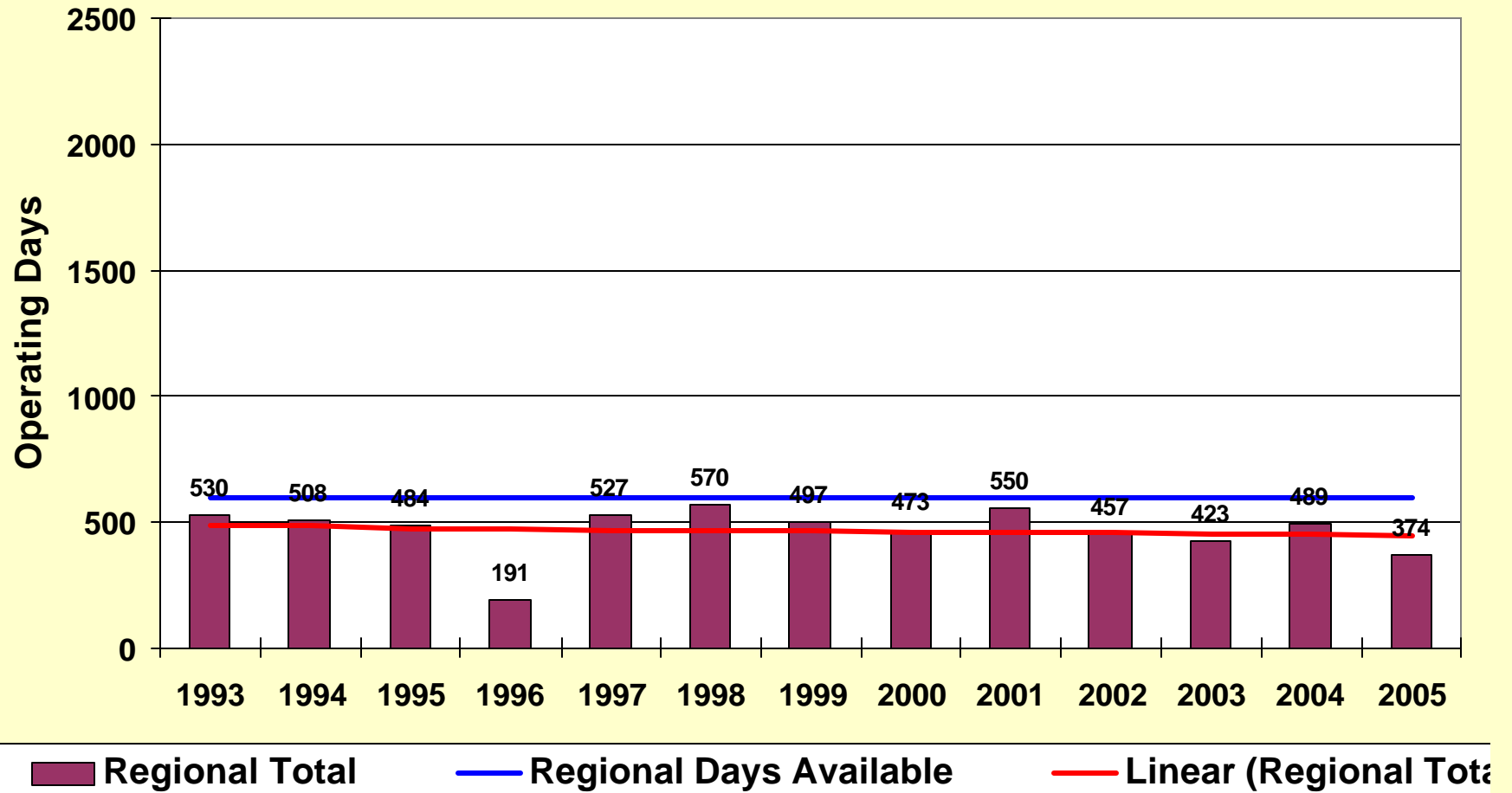


Legend:   
 ■ Large/GLOBAL Use   
 — Global Days Available   
 — Linear (Large/GLOBAL Use)

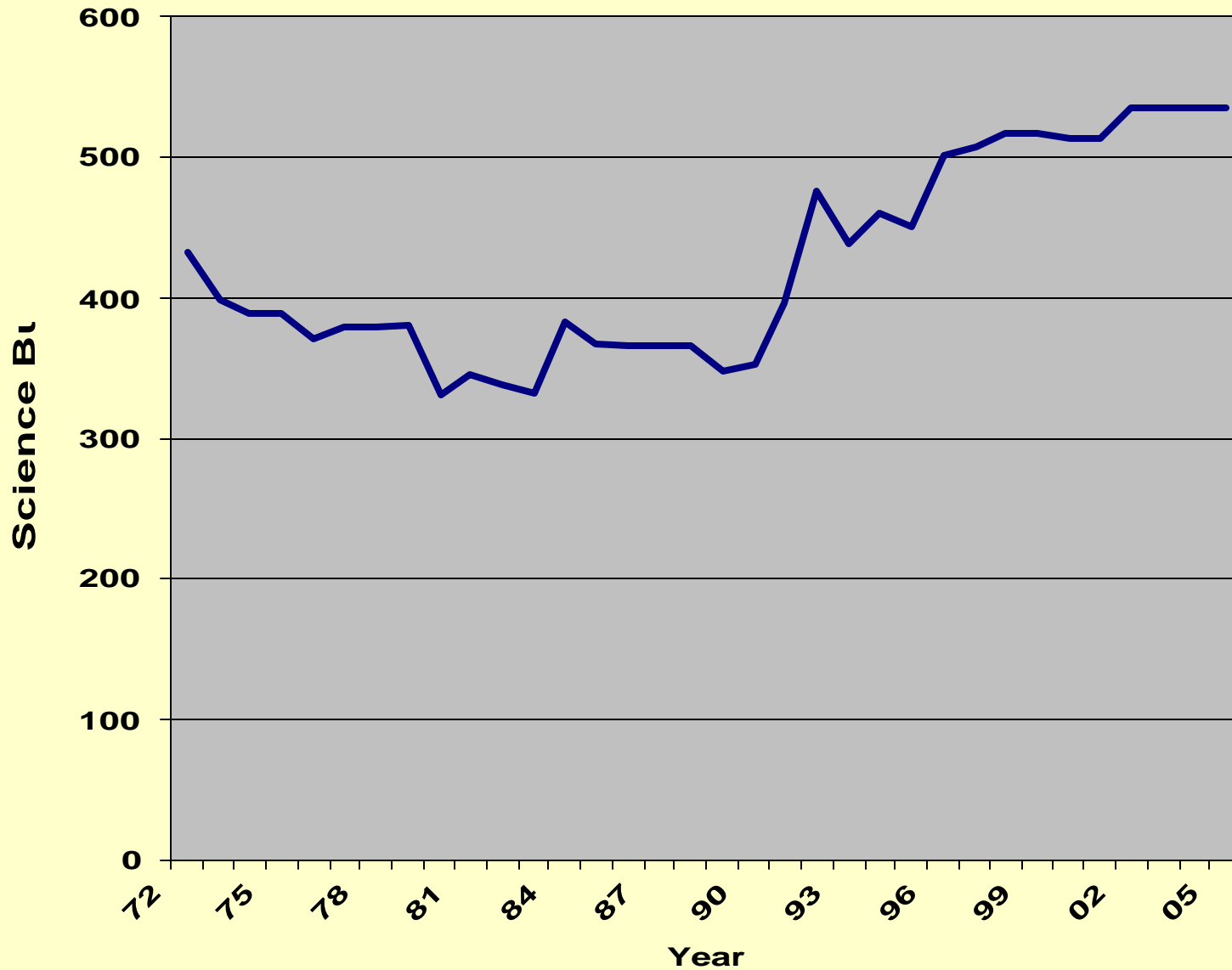
# Intermediate/Ocean Class Utilization



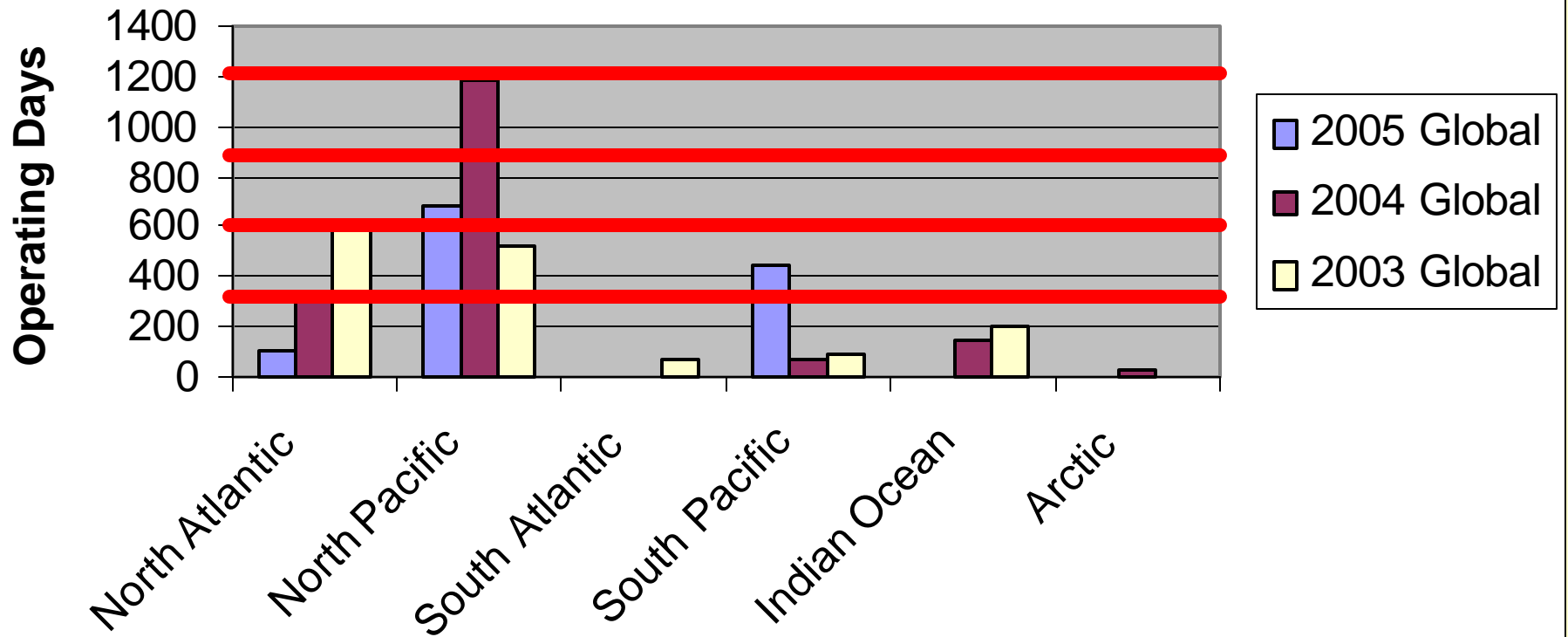
# Regional Class Utilization



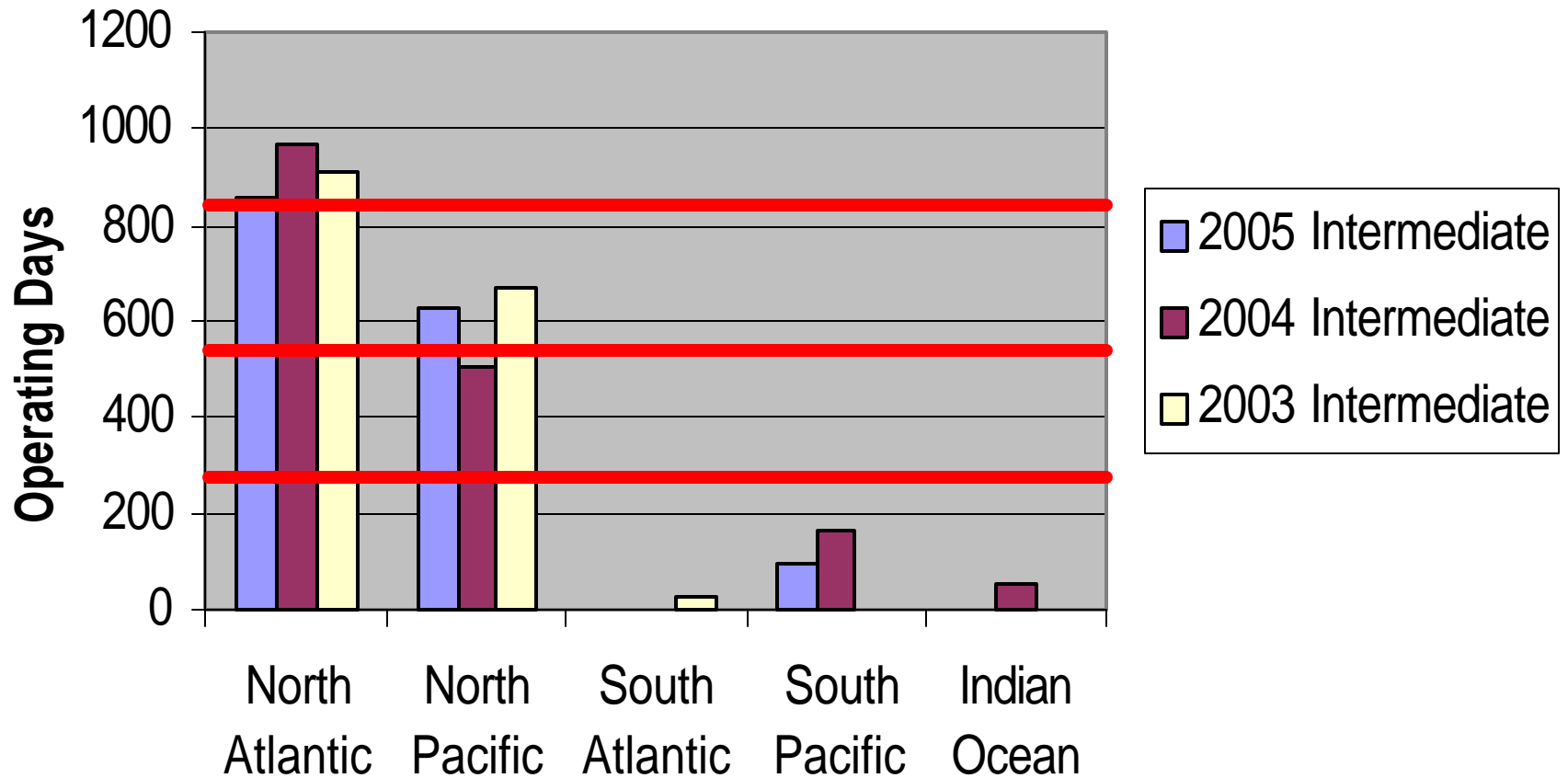
# UNOLS Science Berths Available



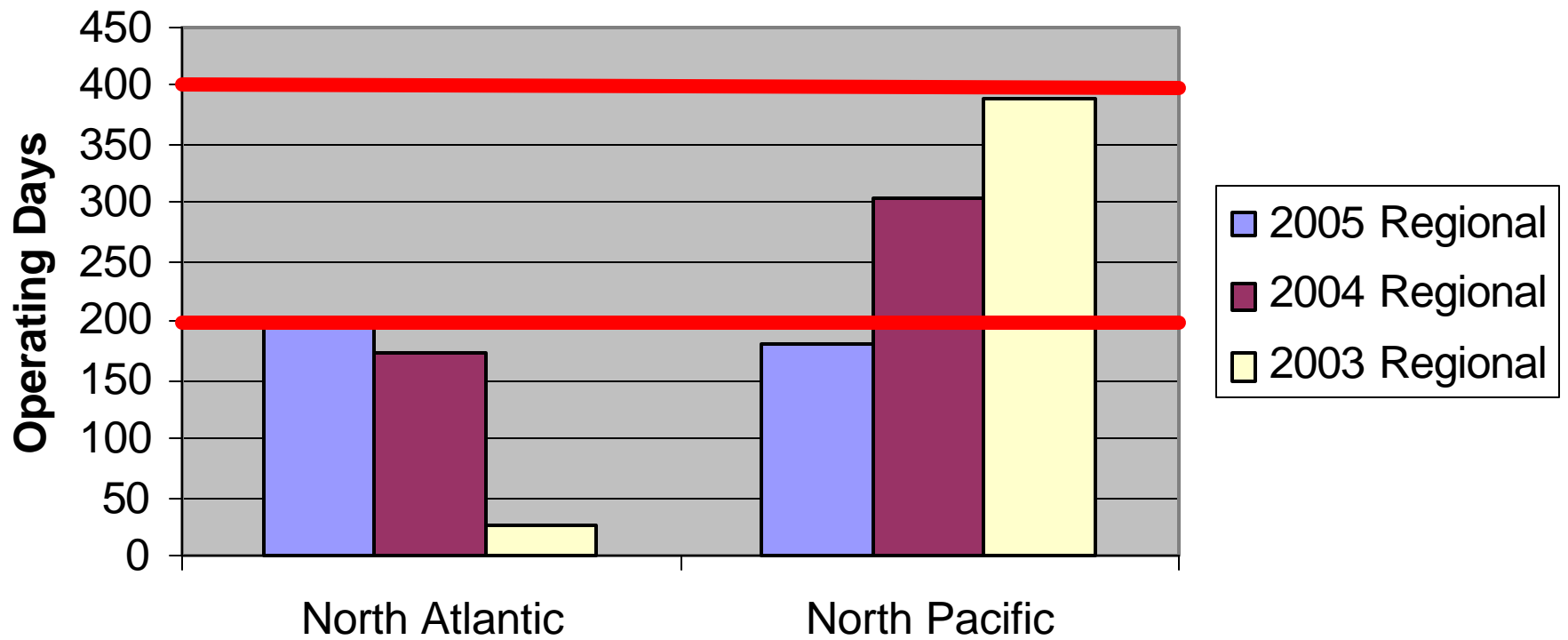
## Geographic Distribution - Global Ship Time



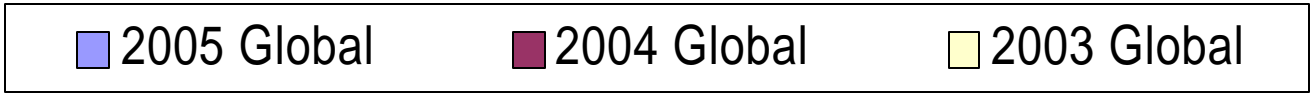
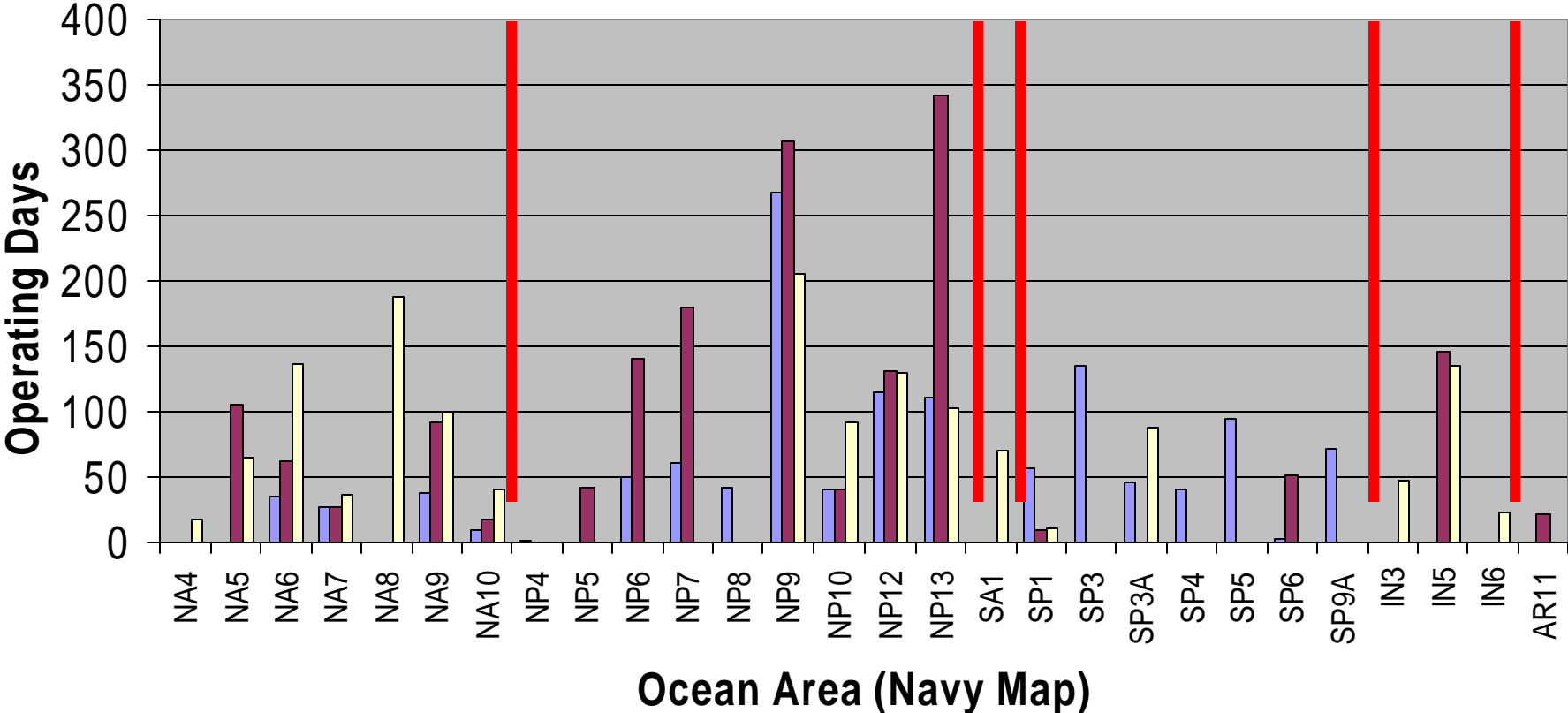
## Geographic Distribution - Intermediate Shiptime



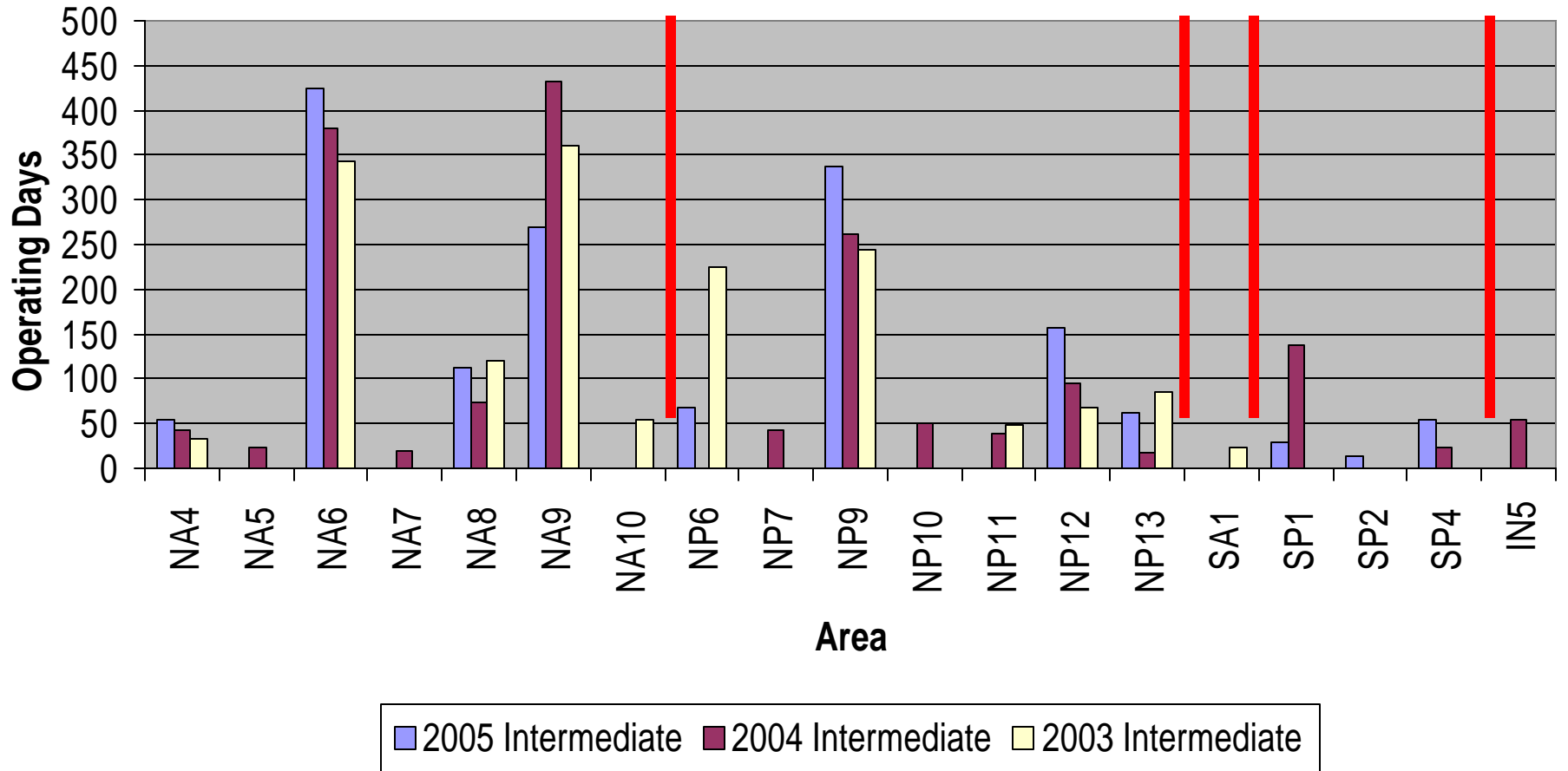
## Geographic Distribution - Regional Shiptime



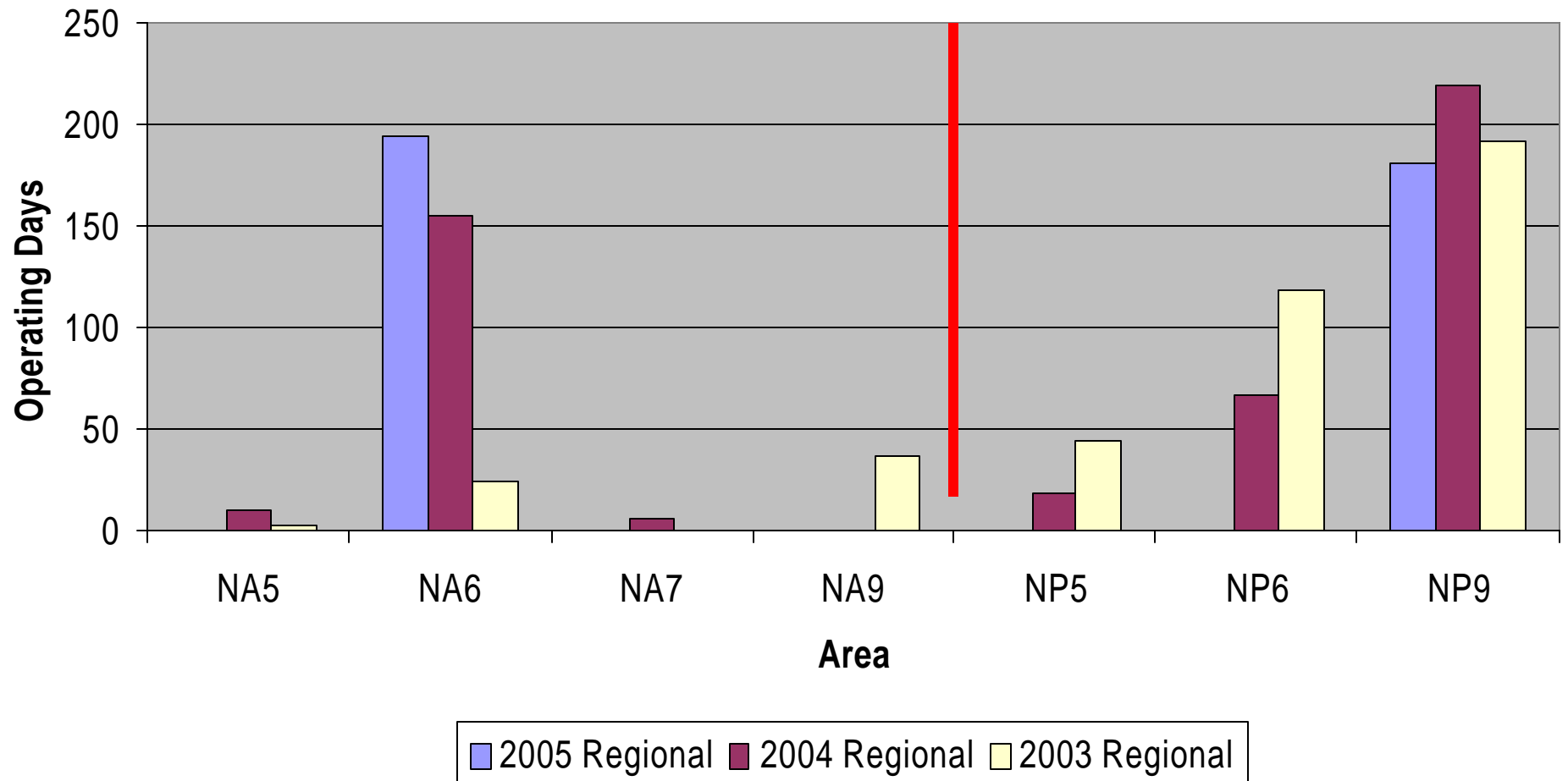
# Geographic Distribution of Global Shiptime



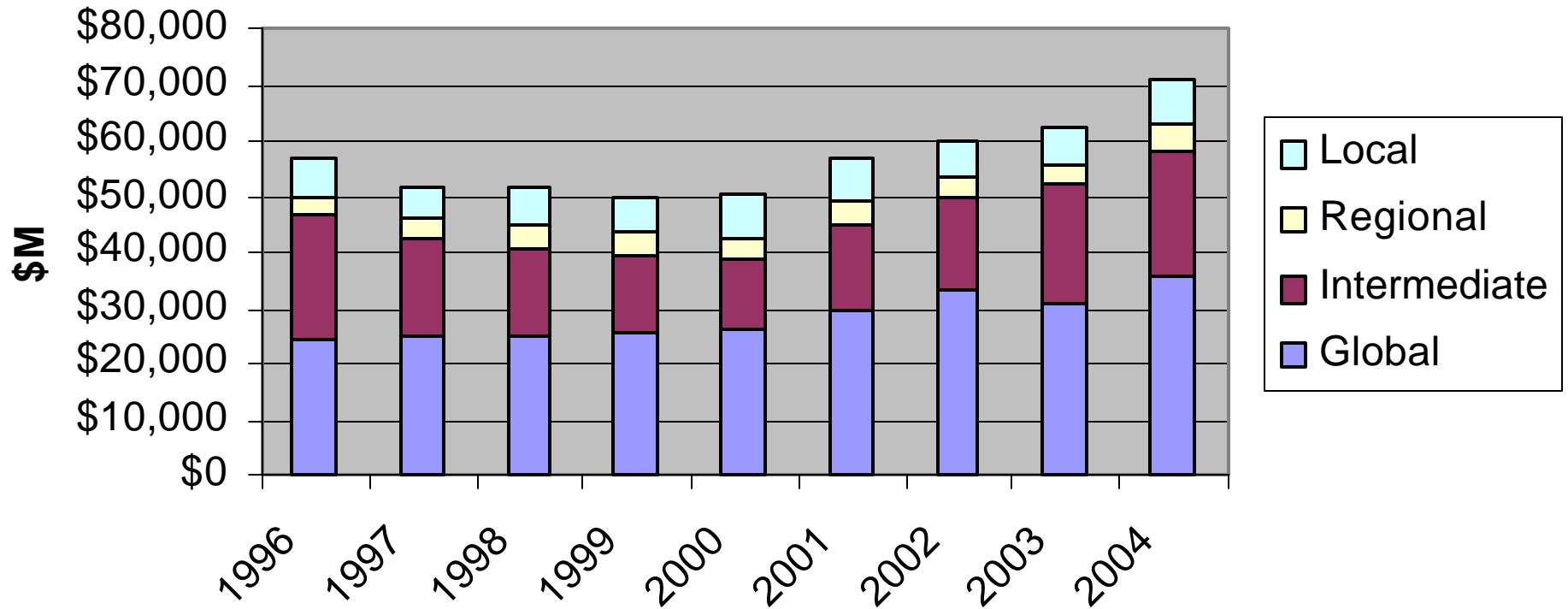
## Gegraphic Distribution of Intermediate Shiptime



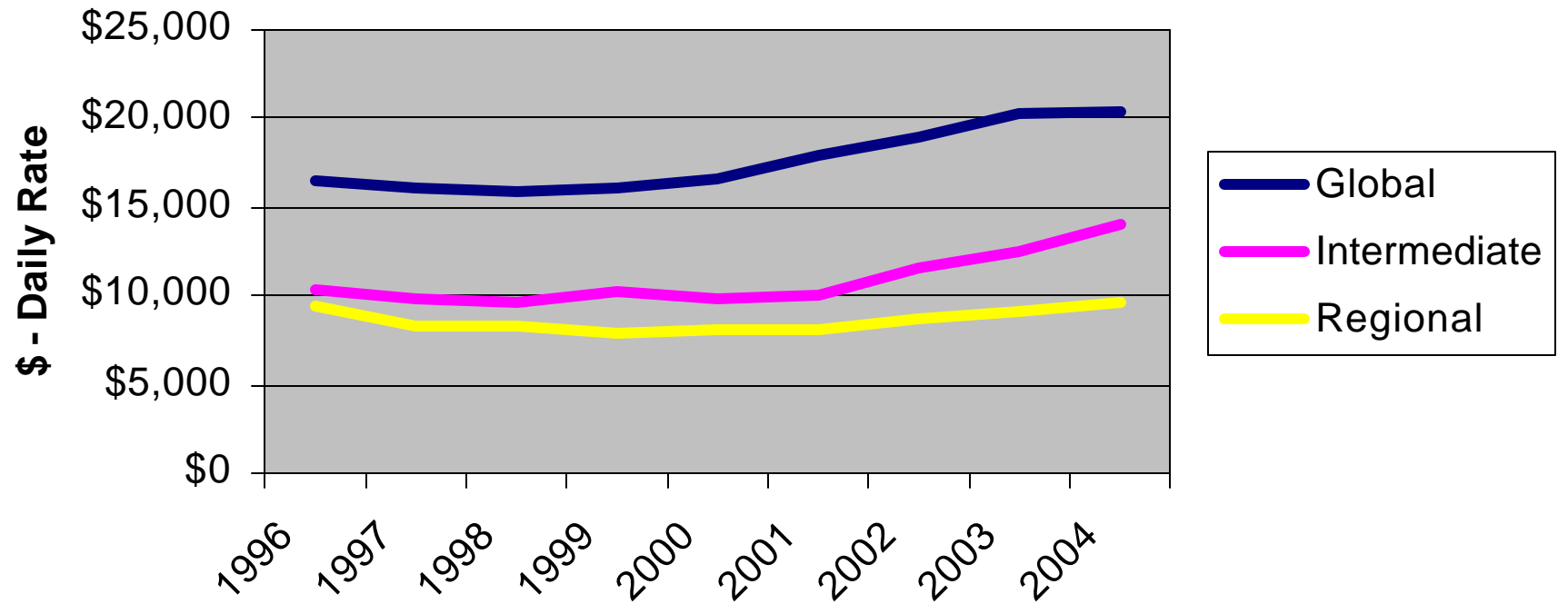
## Geographic Distribution of Regional Shiptime



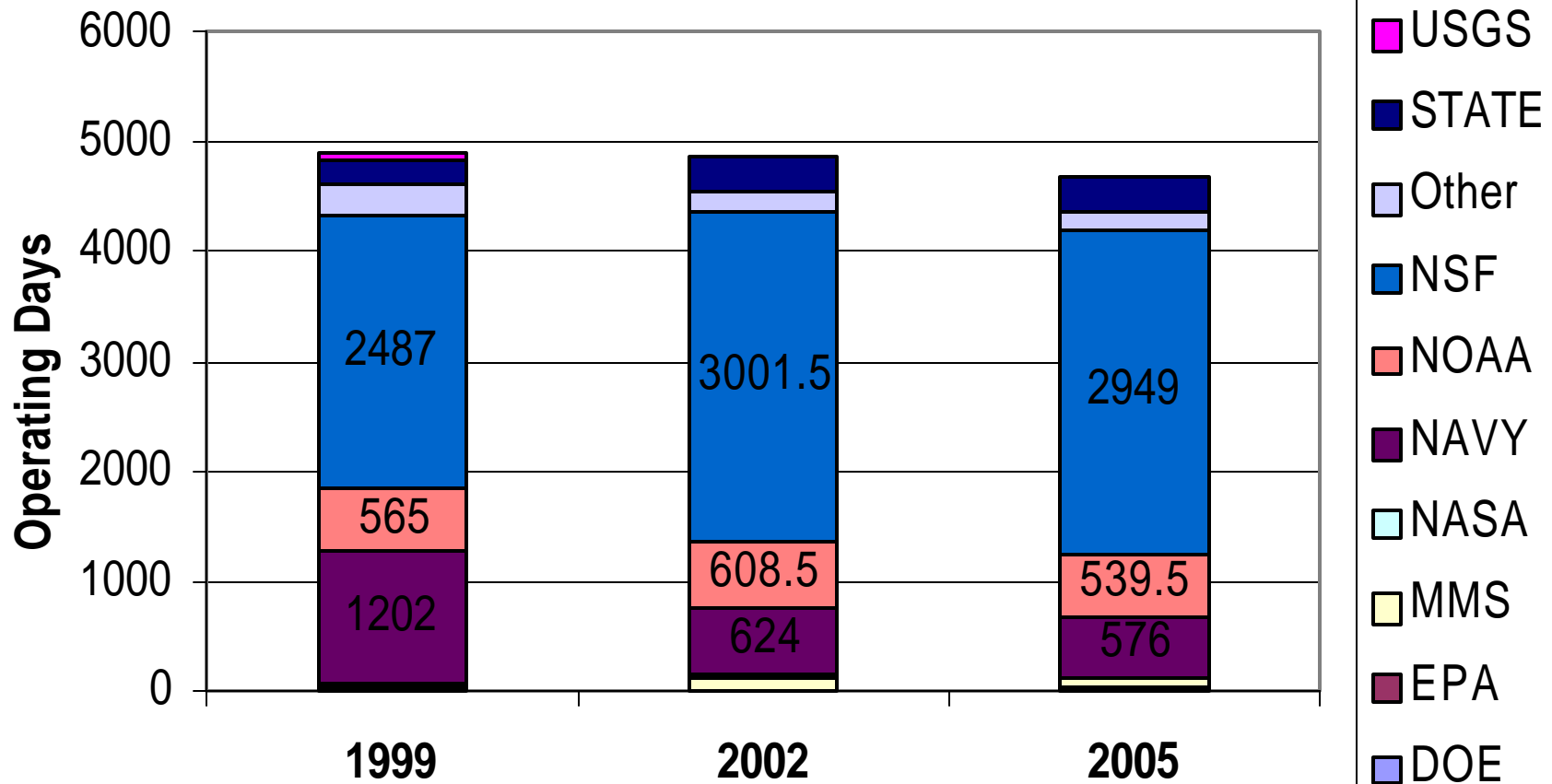
## Fleet Cost by Class



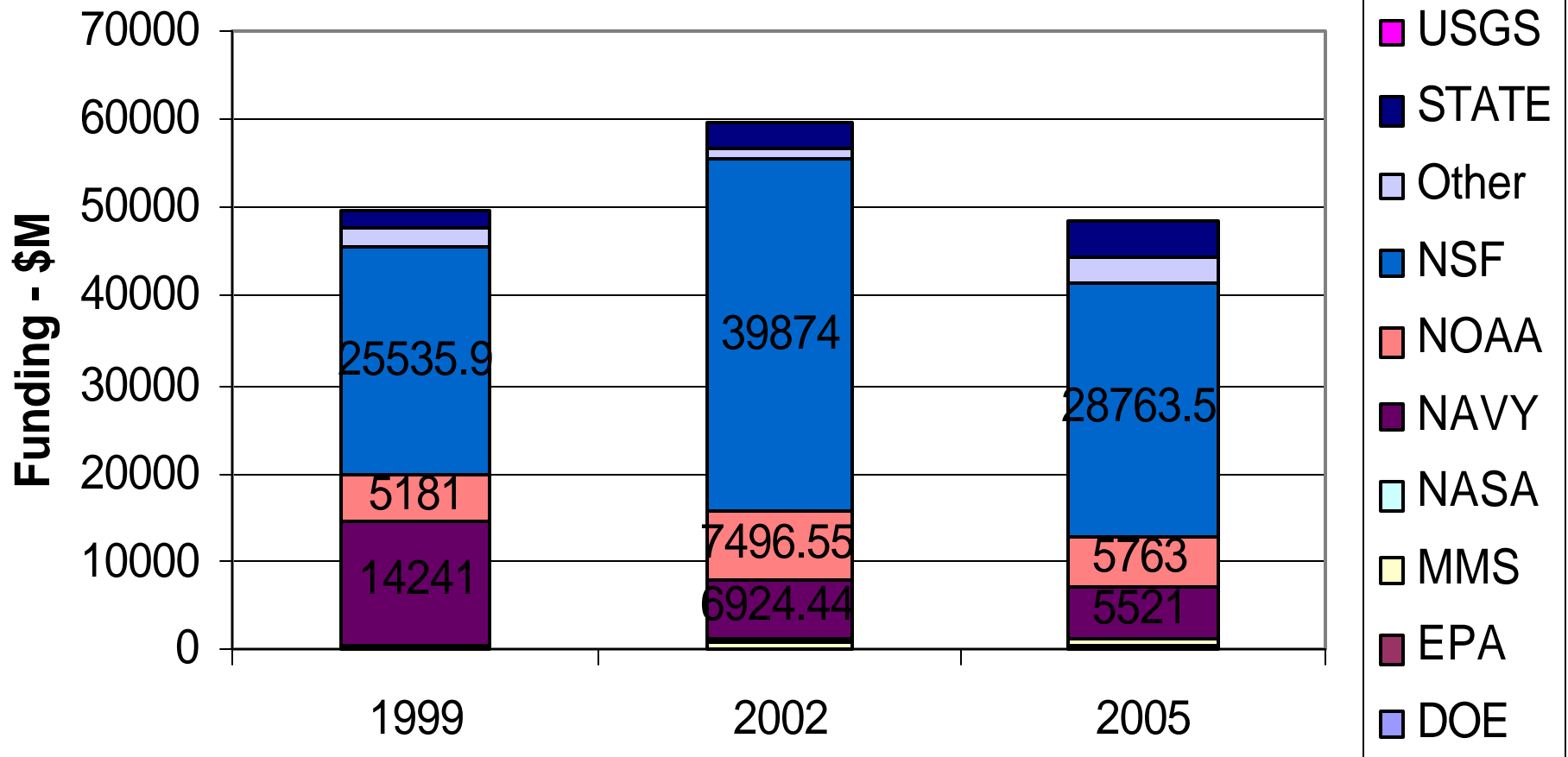
## Average Daily Rates



## Agency Support - Breakdown by Days



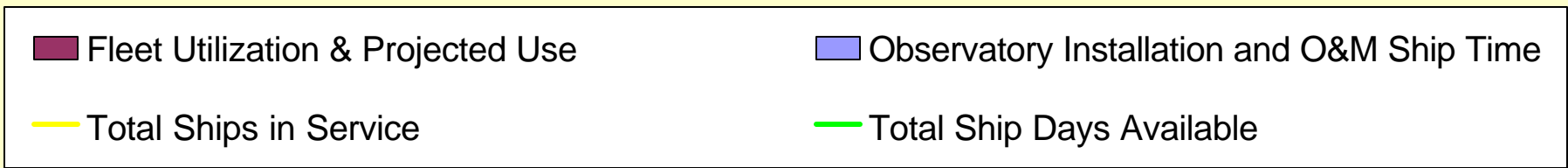
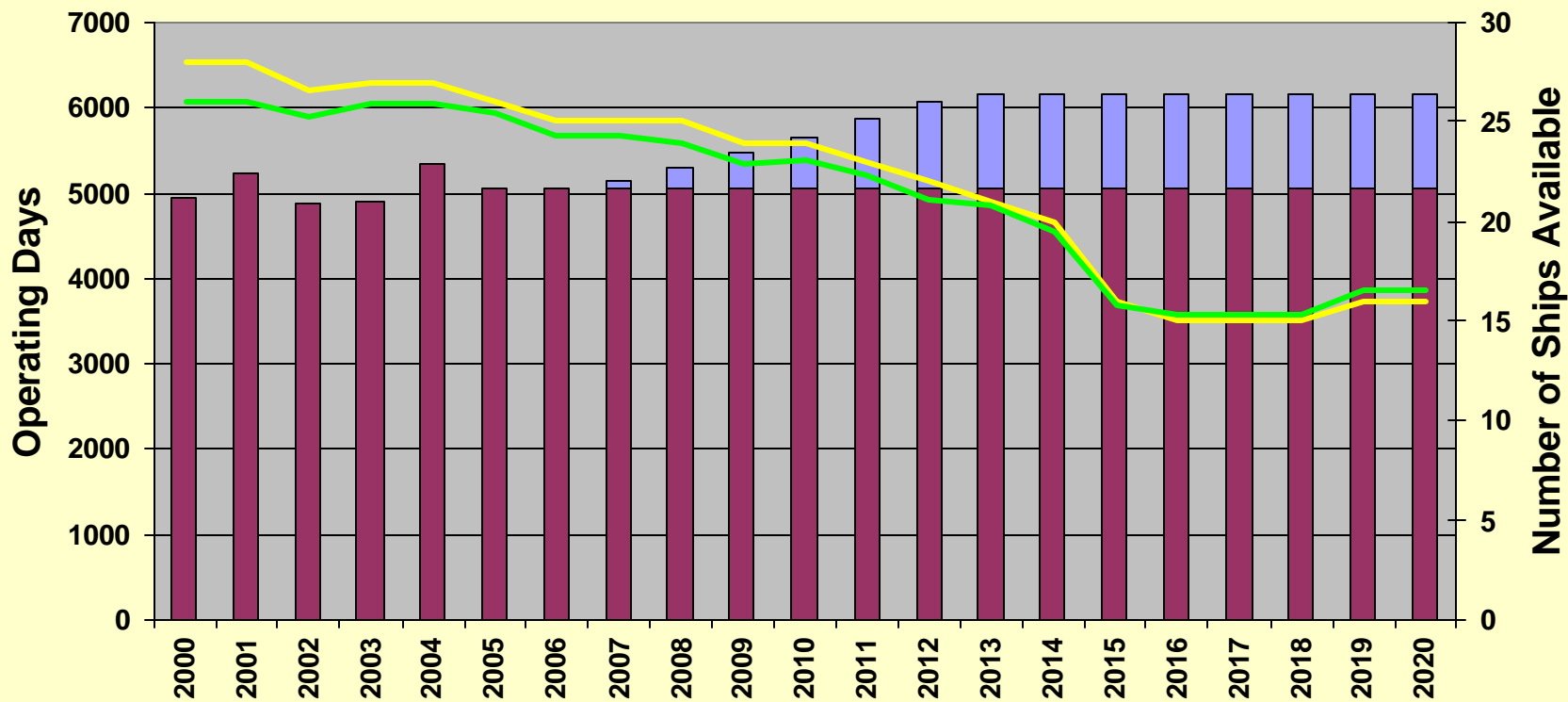
## Agency Support - Breakdown by Cost



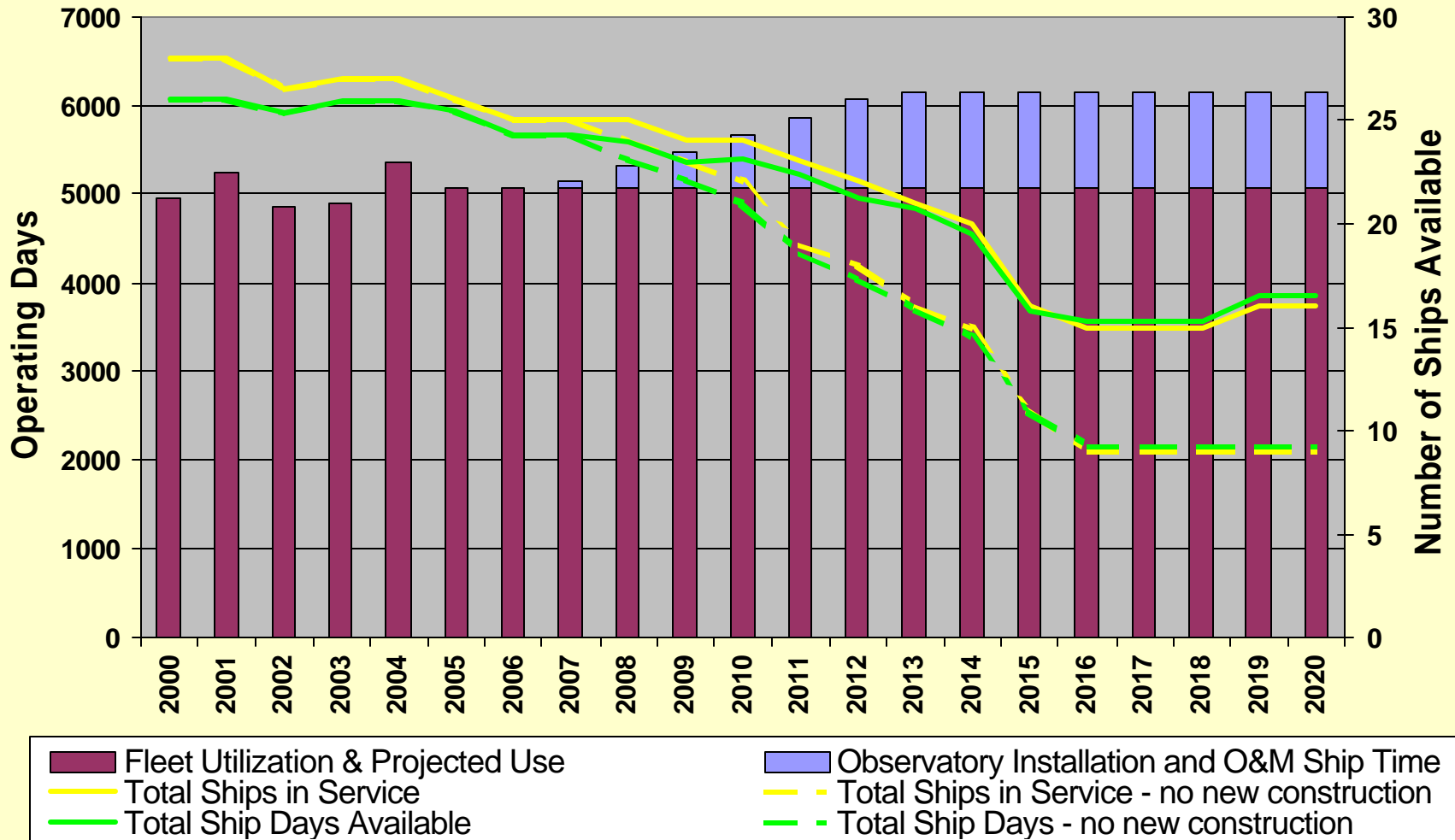
# Fleet Projections

- UNOLS Fleet Projections with Observatories
- Estimated cost of operating Fleet in 2020
- Ship Construction Plans and realistic timelines
- Fleet Construction Costs with SLEPs as needed.

# UNOLS Fleet Utilization and Projections (2000 - 2020)



# UNOLS Fleet Utilization and Projections (2000 - 2020)



Note: Dashed lines represent available ship days and ships if there is no new construction of Regional Class (3) and Ocean Class (4) vessels. The ARRV, CHRV, and *Marcus Langseth* are included in the projections.

# Notes about Projections

- Ocean Observatory facility needs:
  - Projections based on Chave Report estimates
  - Installation deferred one year from 2006 to 2007
- Global Ships: *Marcus Langseth* replaces *Ewing*
- Ocean Class:
  - ARRV deferred one year. Operations begin mid-2009.
  - 4 new Ocean Class Ships are built, but dates for entering service have been modified from those in FOFC plan. New dates are:
    - NE Atlantic = 2010
    - NW Pacific = 2013
    - SE Atlantic = 2016
    - SW Pacific = 2019

# Notes – Continued...

- Regional Class > 40m:
  - *Alpha Helix* stays in service until ARRV comes on-line.
  - 3 new Regional Ships are built, but dates for entering service have been revised from FOFC Plan as follows:
    - RC ship 1 = 2008
    - RC ship 2 = 2010
    - RC ship 3 = 2012
- Regional Ships <40m and Local Ships:
  - CHR V replaces *Cape Henlopen* in 2006.
  - No other new construction for ships <40m is included.

# Estimated Operating Costs

2004

2020

class	ship	dayrate	total days	Total Cost	FOFC 2020	Days	dayrate	Total Cost
global	atlantis	\$21,282	291	\$6,193,062	atlantis	300	\$21,282	\$6,384,600
global	ewing	\$18,300	243.5	\$4,456,050	new seismic	300	\$30,000	\$9,000,000
global	knorr	\$20,675	277	\$5,726,975				\$0
global	melville	\$20,338	299	\$6,081,062				\$0
global	revelle	\$20,652	311	\$6,422,772	revelle	300	\$20,652	\$6,195,600
global	thompson	\$21,586	311	\$6,713,246	thompson	300	\$21,586	\$6,475,800
6 ships	<b>2004 GLOBAL TOTAL</b>			<b>1732.5</b>	<b>\$35,593,167</b>	4 ships	<b>1200</b>	<b>\$28,056,000</b>
class	ship	dayrate	total days	Total Cost	ship	total days	dayrate	Total Cost
ocean	endeavor	\$10,979	233	\$2,558,107	NE Atlantic	275	\$22,500	\$6,187,500
ocean	gyre	\$11,500	89	\$1,023,500				\$0
ocean	kilo moana	\$18,000	309	\$5,562,000	kilo moana	275	\$18,000	\$4,950,000
ocean	new horizon	\$14,402	191	\$2,750,782	SW Pacific	275	\$22,500	\$6,187,500
ocean	oceanus	\$12,214	231	\$2,821,434				\$0
ocean	SJ I	\$12,300	192	\$2,361,600	SE Atlantic	275	\$22,500	\$6,187,500
ocean	SJ II	\$12,300	223	\$2,742,900	ARRV	275	\$22,817	\$6,274,675
ocean	wecoma	\$12,815	217	\$2,780,855	NW Pacific	275	\$22,500	\$6,187,500
8 ships	<b>2004 OCEAN TOTAL</b>			<b>1685</b>	<b>\$22,601,178</b>	6 ships	<b>1650</b>	<b>\$35,974,675</b>

# Estimated Operating Costs

2004

2020

class	ship	dayrate	total days	Total Cost		ship	total days	dayrate	Total Cost
regional	alpha helix	\$10,910	133	\$1,451,030					\$0
regional	hatteras	\$9,750	171	\$1,667,250		Atlantic	200	\$10,000	\$2,000,000
regional	henlopen	\$6,226	173	\$1,077,098		CHRV	180	\$8,000	\$1,440,000
regional	longhorn	\$5,500	96	\$528,000					\$0
regional	pelican	\$4,665	235	\$1,096,275		Gulf of Mex	200	\$10,000	\$2,000,000
regional	pt sur	\$8,115	185	\$1,501,275		Pacific	200	\$10,000	\$2,000,000
regional	sproul	\$6,981	120	\$837,720					\$0
regional	weatherbird	\$8,491	159	\$1,350,069					\$0
8 ships	<b>2004 REGIONAL TOTAL</b>			<b>1272</b>	<b>\$9,508,717</b>	4 ships	<b>780</b>		<b>\$7,440,000</b>
class	ship	dayrate	total days	Total Cost		ship	total days	dayrate	Total Cost
local	blue heron	\$4,400	42.5	\$187,000		local	110	\$4,000	\$440,000
local	clif. Barnes	\$2,262	113	\$255,606		local	110	\$4,000	\$440,000
local	savannah	\$4,600	155	\$713,000		savannah	110	\$4,600	\$506,000
local	uracca	\$3,701	132	\$488,532		local	110	\$4,000	\$440,000
local	walton smith	\$6,801	221	\$1,503,021		walton smith	110	\$6,801	\$748,110
5 ships	<b>2004 LOCAL TOTAL</b>			<b>663.5</b>	<b>\$3,147,159</b>	5 ships	<b>550</b>		<b>\$2,574,110</b>
<b>2004 TOTALS</b>			<b>5353</b>	<b>\$70,850,221</b>		<b>2020 Totals</b>	<b>4180</b>		<b>\$74,044,785</b>

## Project Design and Construction (Next 10 years)

