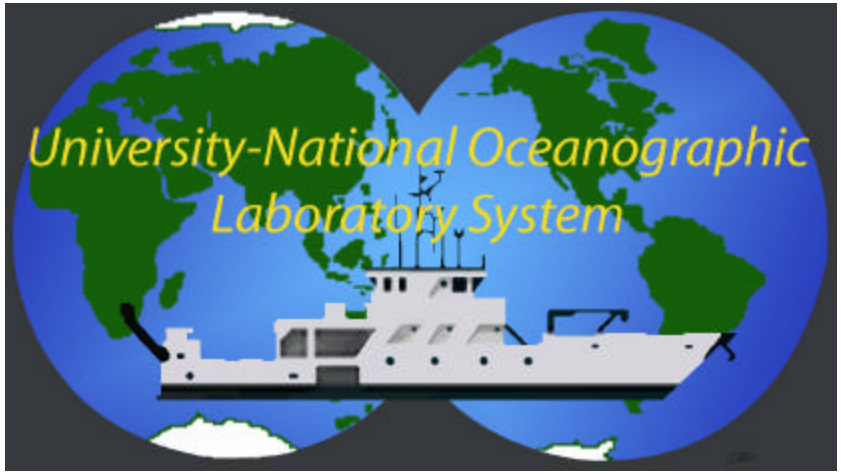
# Renewal of the Academic Fleet




**UNOLS Fleet Improvement Committee Meeting**
**Tuesday, February 26, 2002, 8:30 a.m.**

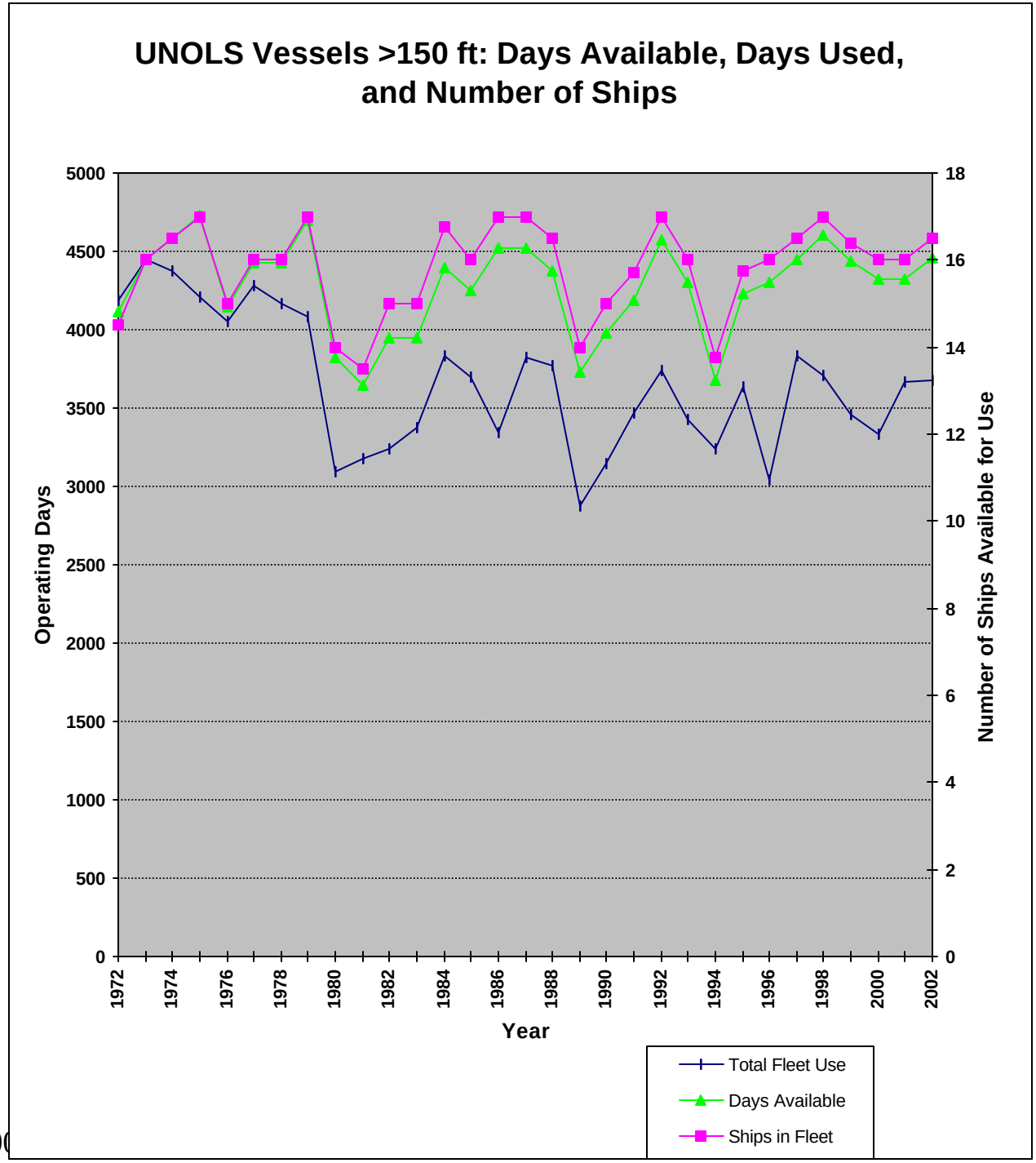
**Jacksonville, Florida**

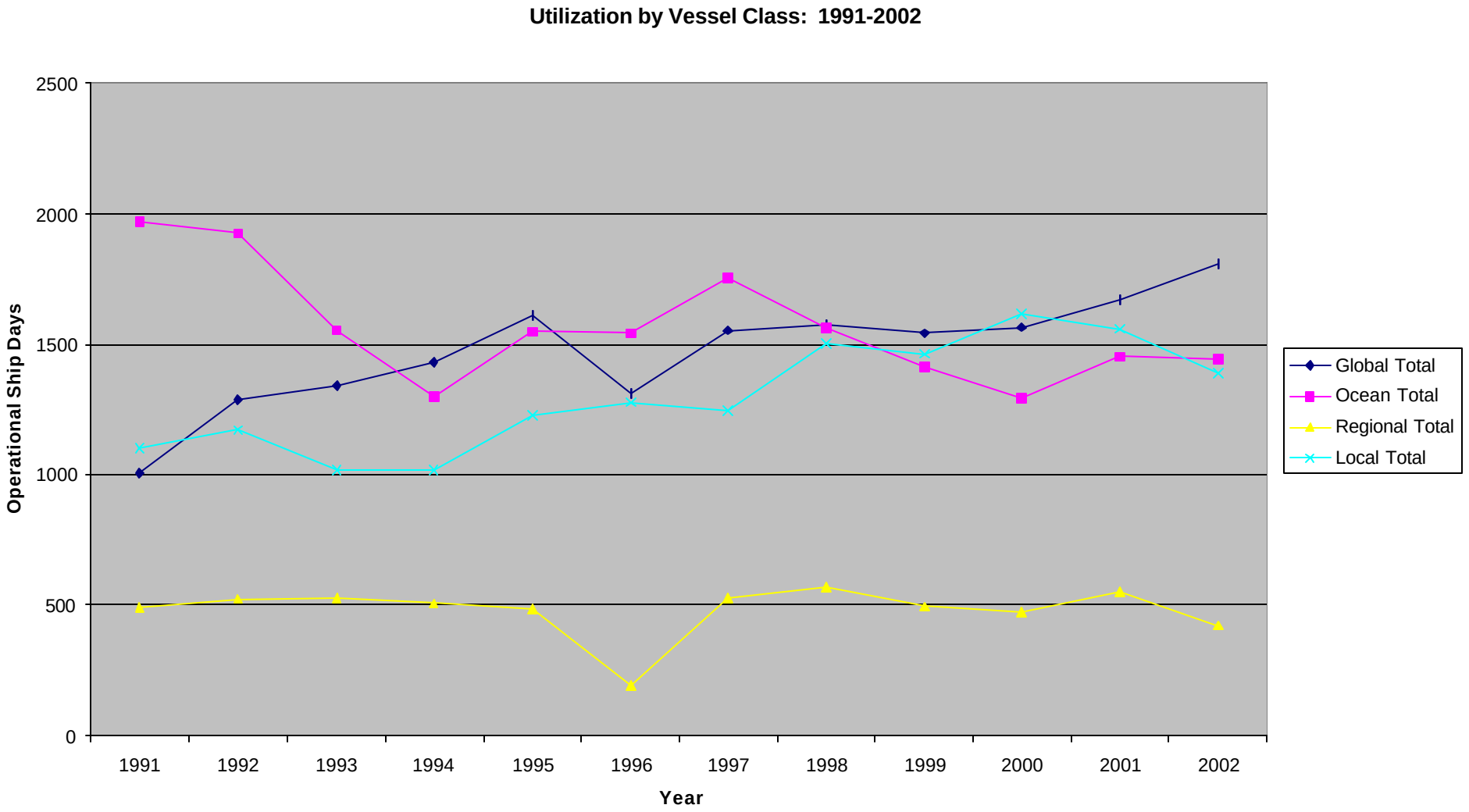
# Current Goals

- Establish a Fleet Renewal Implementation plan in concert with Navy.
- Provide suitable material (SMRs, white papers) to NSF, Navy, NOPP, other agencies and the community
- Continue to urge agencies to develop capitalization plans.
- Keep the community involved via letters to EOS etc.

# The Current Situation

- **Long-Range Planning for the UNOLS Fleet. NORLC FOFC Report.**
- **Analysis of Utilization Trends**
- **Fleet Renewal Efforts in Progress**
  - **Kilo Moana - Our SWATH Test**
  - **ARRV**
  - **Cape Henlopen**
  - **Savannah**
  - **N. Atlantic and N. Pacific *Oceans* Class Vessels (OSU/URI effort)**


UNOLS Vessels >150 ft: Days Available, Days Used, and Number of Ships
Operating Days
Number of Ships Available for Use
Year
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
18
16
14
12
10
8
6
4
2
0
1972
1974
1976
1978
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
Total Fleet Use
Days Available
Ships in Fleet


Utilization by Vessel Class: 1991-2002
Operational Ship Days
2500
2000
1500
1000
500
0
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
Year
Global Total
Ocean Total
Regional Total
Local Total

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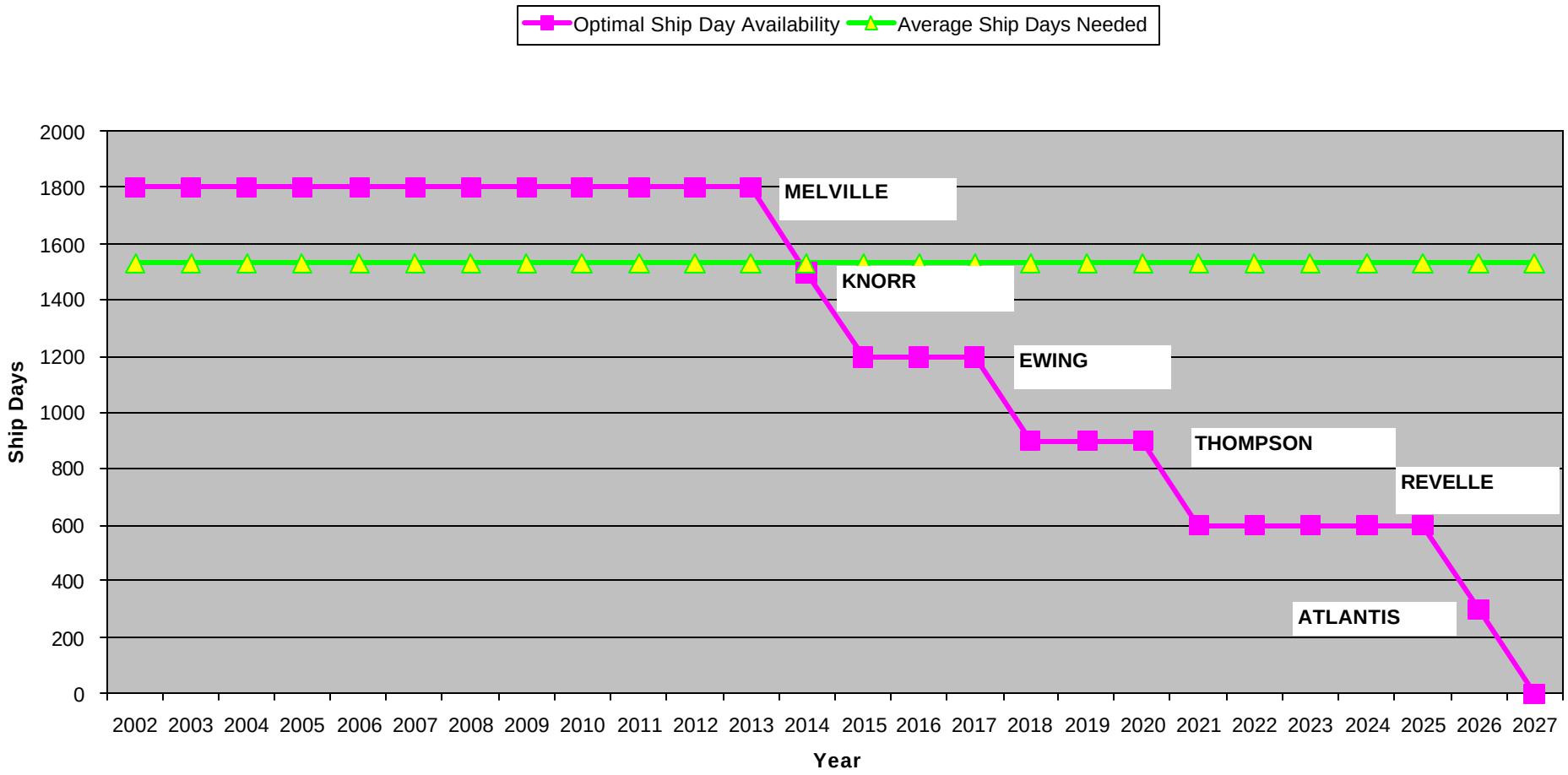
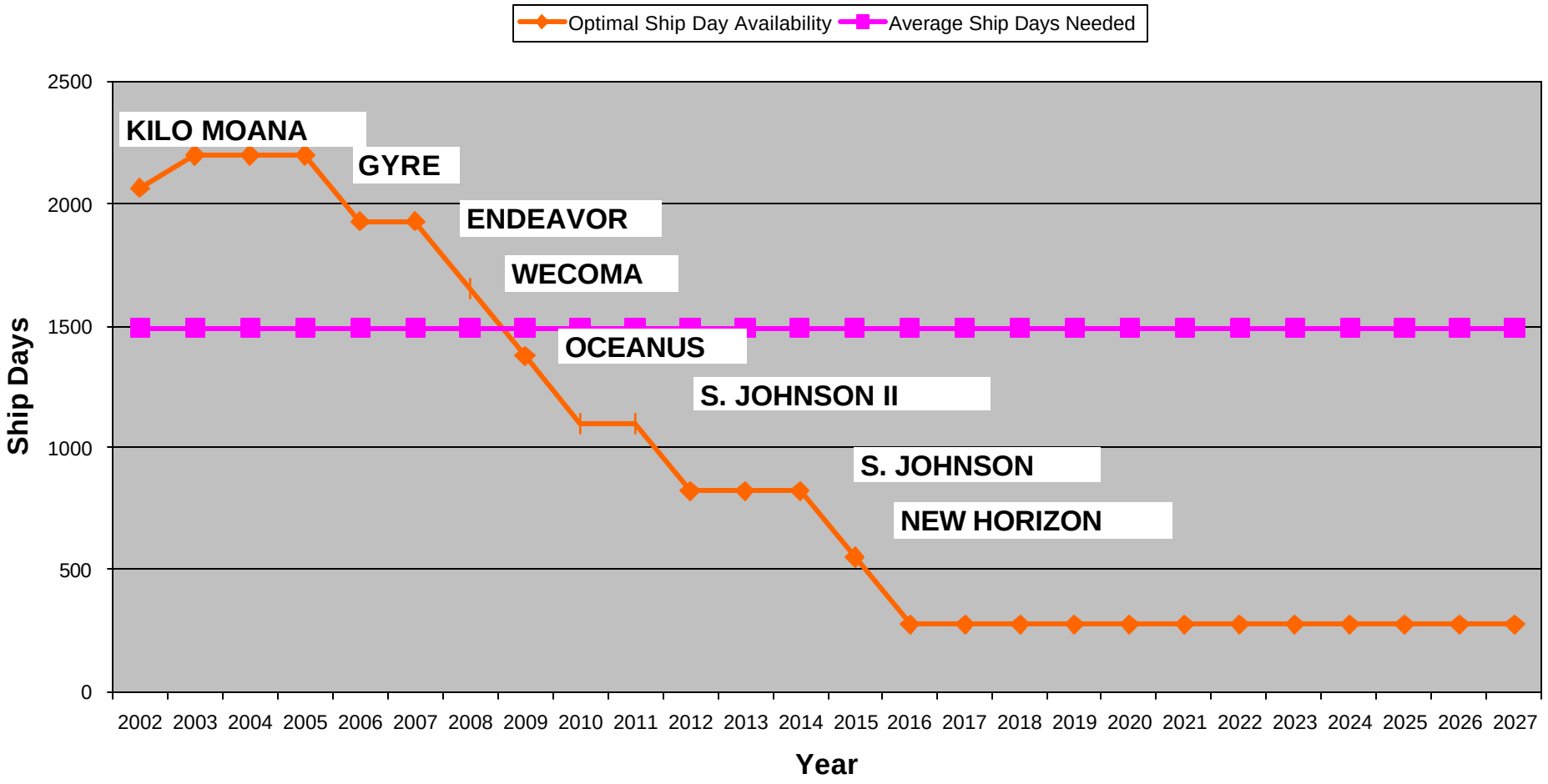
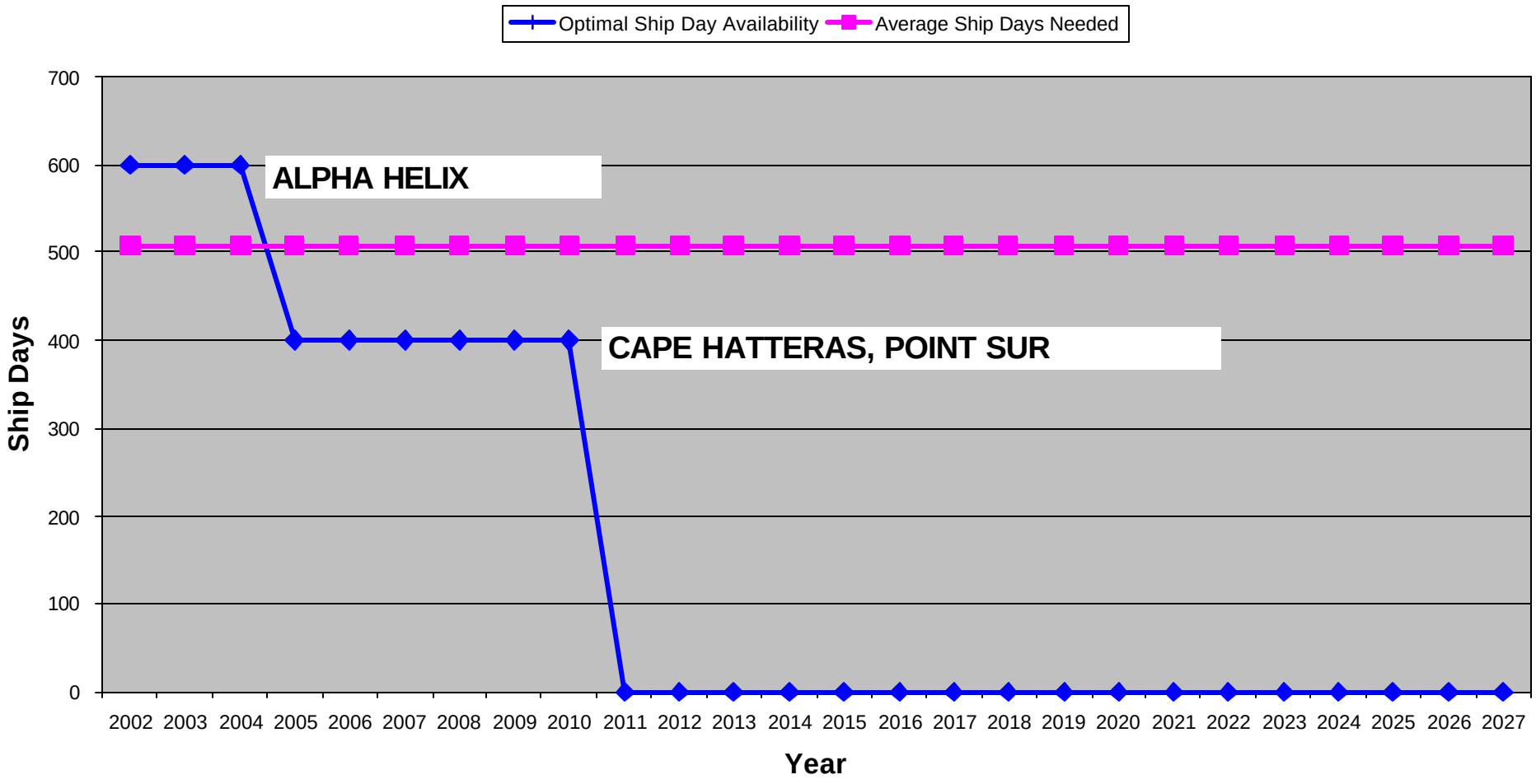
# Global - Optimal Ship Days vs Average Days Needed



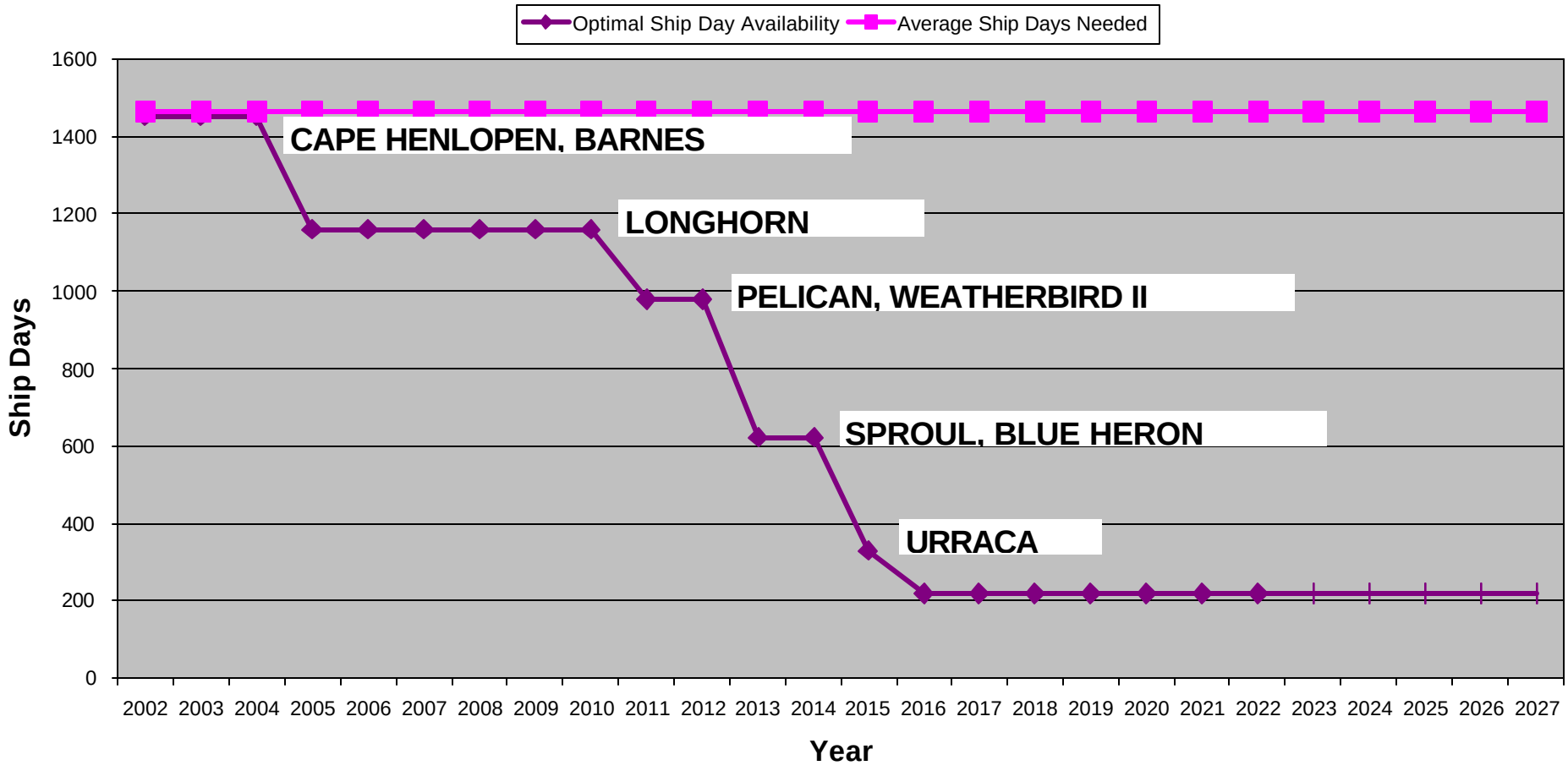
# Ocean Class - Optimal Ship Days vs Average Days Needed



# Regional Class - Optimal Ship Days vs Average Days Needed



# Local Class - Optimal Ship Days vs Average Days Needed

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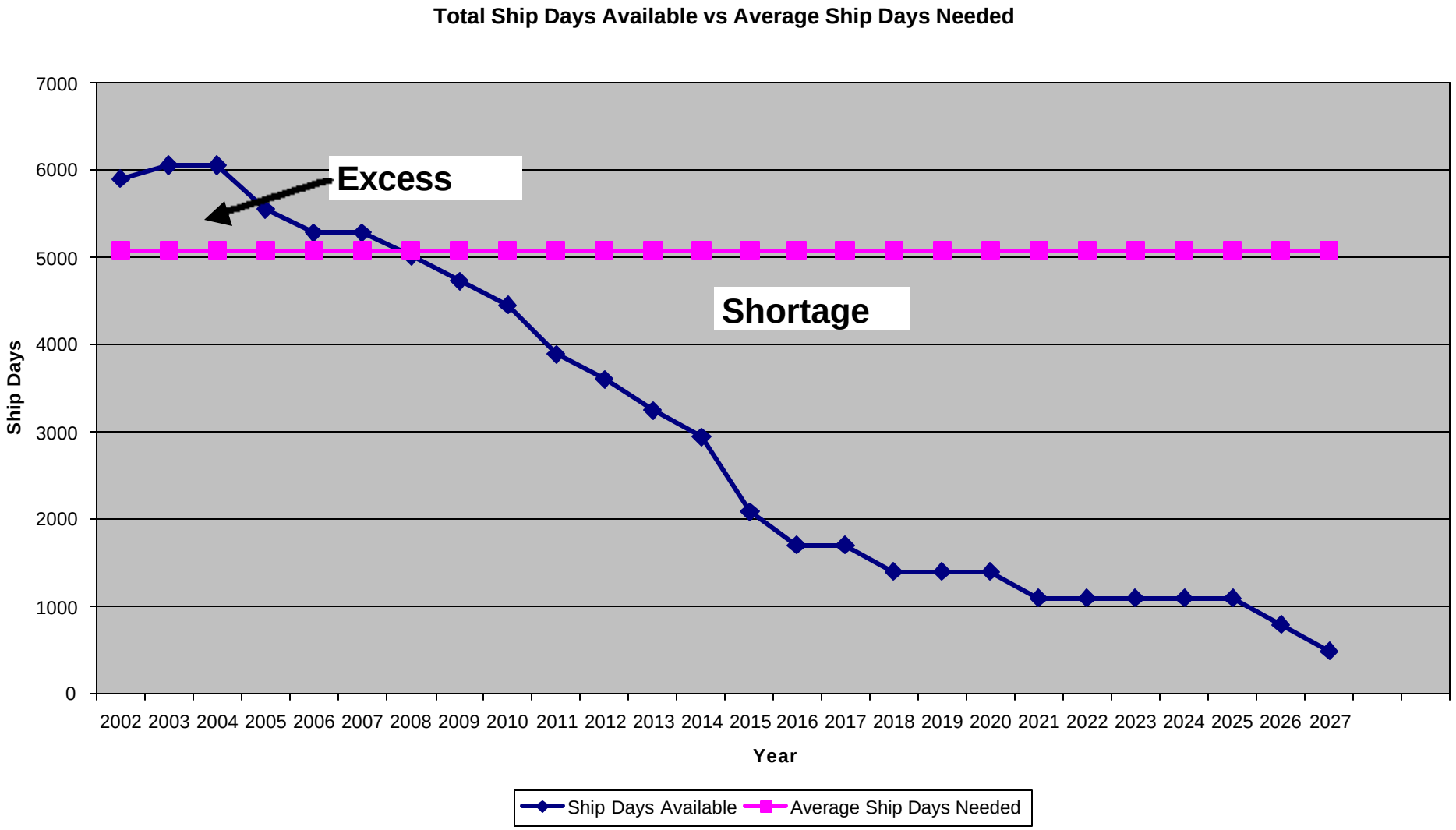
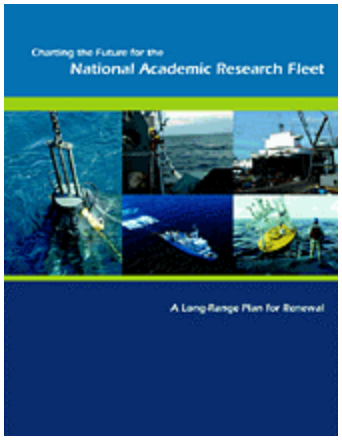

Total Ship Days Available vs Average Ship Days Needed
Excess
Shortage
Ship Days
7000
6000
5000
4000
3000
2000
1000
0
2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027
Year
Ship Days Available
Average Ship Days Needed

# Fleet Renewal Implementation Plan

- **Renewal Implementation Plan Website**
- **FOFC Fleet Renewal Implementation Plan**
- **Navy suggested approach.**

# Charting the Future for the National Academic Research Fleet – A Long-Range Plan for Renewal

- *"Building a portfolio of ship-concept designs and identifying science mission requirements (SMRs) will also be important functions undertaken to maintain a modern, technologically viable fleet capable of supporting evolving science needs."*



# FOFC Plan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# Revised FOFC Ship Classification

| Ship Performance | Global Class | Ocean Class | Regional Class | Local Class |
|---|---|---|---|---|
| Endurance | 50 days | 40 days | 30 days | 20 days |
| Range | 25,000 km | 20,000 km | 15,000 km | 10,000 km |
| Length | 70-90 m | 55-70 m | 40-55 m | < 40 m |
| Science berths | 30-35 | 20-25 | 15-20 | 15 or less |

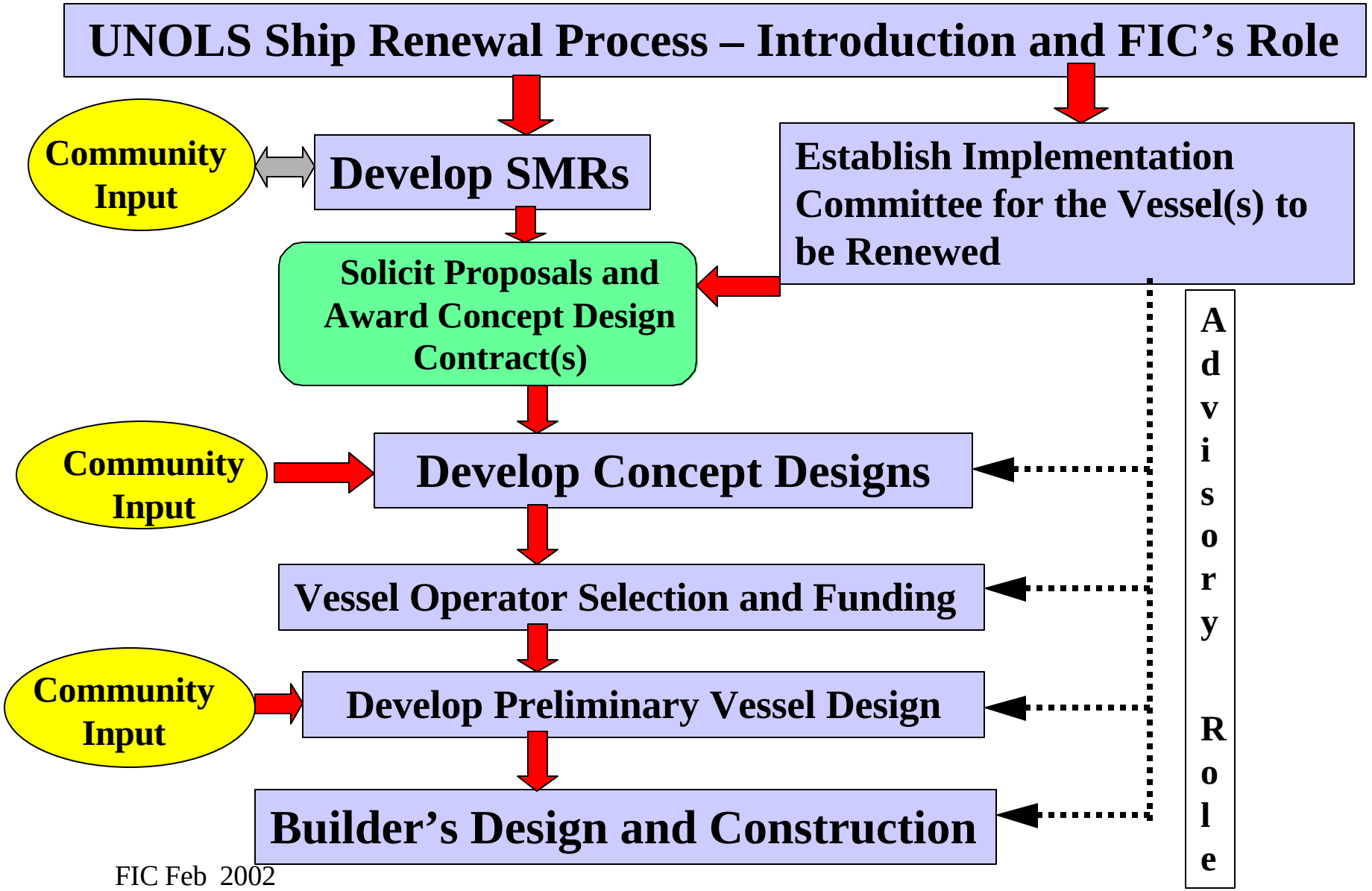
# Parallel Process Begins

- Federal Side
  - Funding scenarios (who pays?)
  - Sponsorship (who builds?)
  - Operation (something we can afford)
- Academic Side
  - Capabilities of ships.
  - Number of ships.
  - Geographic distribution
  - Keeping vitality of the distributed system intact
  - Science Mission Requirements (Where scientists shape the ship)

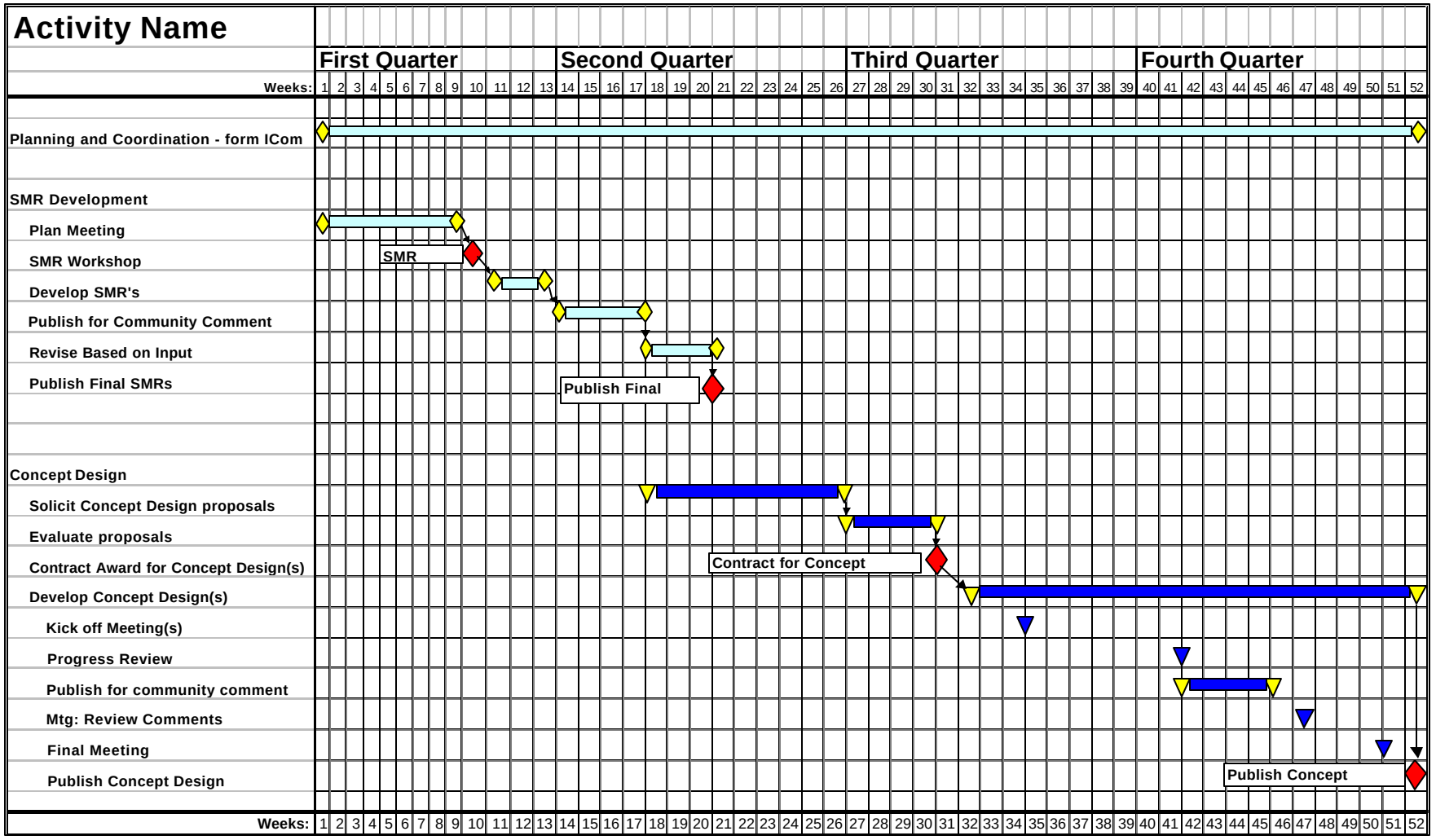
# Now the Navy Proposal

To reduce the Navy's acquisition cost for new oceanographic ships by investigating the feasibility of using a common hull platform for future T-AGS(X) and UNOLS Ocean Class ships.

# The SMR and Concept Design Process



# The SMR to Concept Design Process

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# Design/Construction Funding Schedule

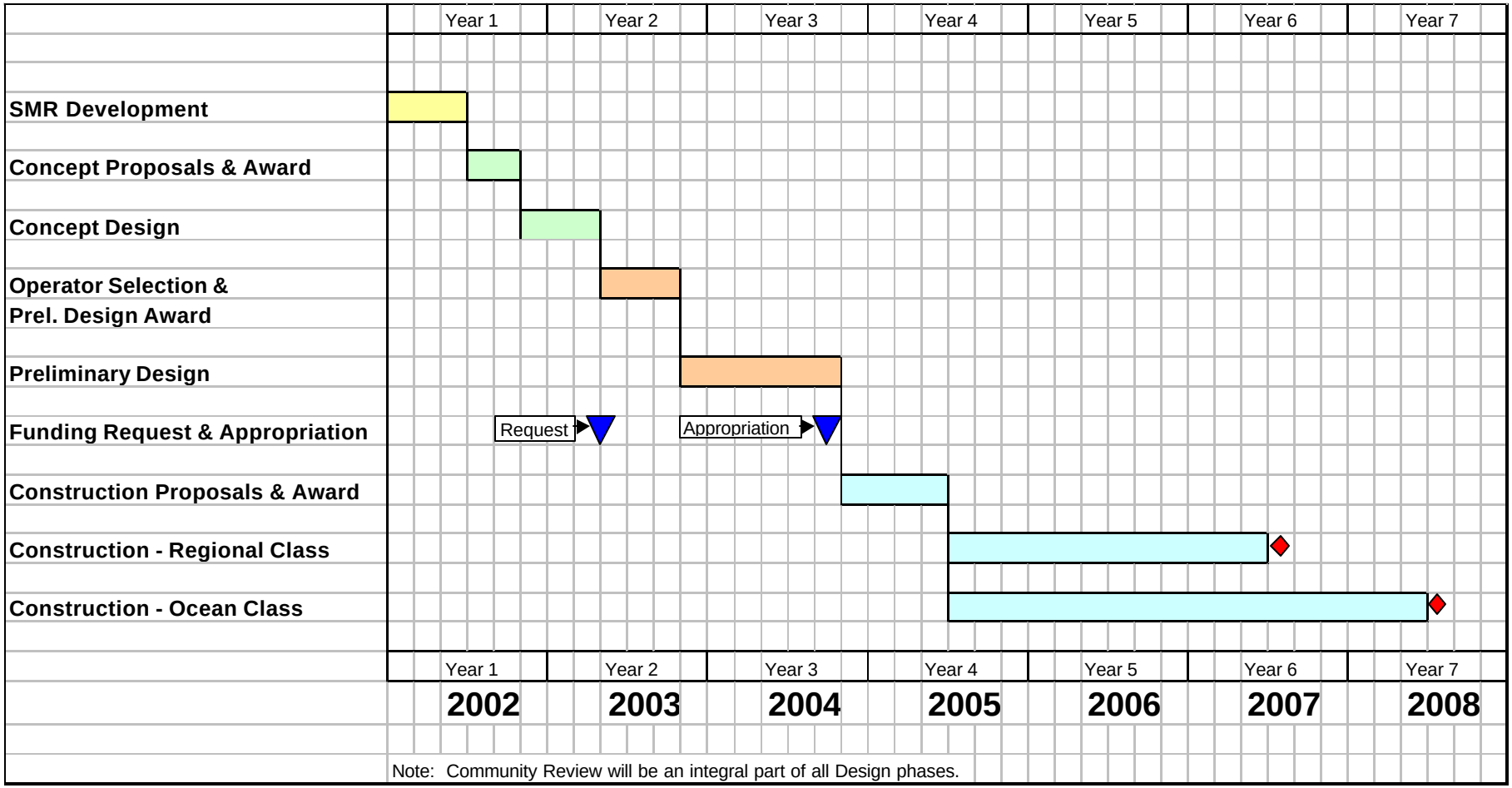
## Gulf of Mexico Regional Vessel: Needed in 2006

- 2002 (now) - Concept Funds($25K)
- Late 2003 - Preliminary Design Funding ($500K)
- Early 2003 - Construction Funding Request ($25M) –
- 10/1/04 - Construction Appropriation
- 2007 - Vessel in service

## NE Atlantic /NW Pacific Vessel: Needed in 2008

- 2002 (now) - Concept Funds($25K)
- Late 2003 - Preliminary Design Funding ($1M)
- Early 2003 - Construction Funding Request ($50M)
- 10/1/04 - Construction Appropriation
- 2008 - Vessel in service

# Design and Construction Timeline: Regional and Ocean Class



# Fleet Capitalization

- Appropriations and Funding for Fleet Renewal - Agencies
- FIC Role? What can we do?

# Community Outreach and Involvement

- Letters - EOS, etc.
- SMR Workshops.
- FIC Website.
- Ocean Sciences Town Hall.
- Recommendation
  - Regular (2/year in EOS and other society newsletters (ASLO, ?)
  - UNOLS Rep. Give specific instructions regarding contact.

# Kilo Moana Shakedown Planning

- Goal - assure adequate assessment by oceanographers for oceanographers
- Process - Test plan, test schedule, participation, end product.

# FIC Membership

- Two vacancies
  - Renewal of existing members
  - Nominations

# What will demand be?

- Effect of new technology. More buoys, gliders, and observatories and few ships?
- Most think demand will increase as new phenomena are observed.
- Funding priorities. Agencies can drive ship demand up or down. Reality is funding for field operations will stay essentially flat.

# Recent Developments

- Federal Review of Academic Fleet: UNOLS concept is OK. Asks for replacement plan.
- Federal Oceanographic Facilities Committee (FOFC) develops recommendations for fleet replacement.
- Community Review and Comment of Federal plans.
- Leads to ….FOFC Report

# New Recommended Classes

- **Global Class:** high-endurance vessels, operating worldwide.
- **Ocean Class:** Replacement for the “Intermediate” ships with vessels of increased endurance, technological capability, and number of science berths. These will be ocean-going vessels, though not globally ranging.
- **Regional Class:** ships will work in and near the continental margins and coastal zone, but with improved technology and more science berths than in current, comparably sized vessels.
- **Local Class** ships will fulfill near-shore needs that do not require larger or higher-endurance ships.

# Our proposed process

- **FIC identification of Fleet renewal needs**
- **Establish Implementation Committee (ICom) for each Vessel Class or Vessel to be constructed**
  - **Provide guidance and leadership for executing the design and construction of a vessel or class of vessels.**
- **Develop SMRs**
  - **Assess current inventory of SMRs**
  - **Develop SMR template of necessary elements**
  - **Generate (or update) general SMR's by Vessel Class**
  - **BROAD COMMUNITY INPUT**
  - **Evolve to Specific SMR's by Region, Ocean or Special Purpose**
  - **Review by ICom, FIC, community and agencies.**
  - **Finalize, publish, review and periodically update**

# Our proposed process (continued)

- **Develop Concept Designs**
  - **Based on SMRs**
  - **Solicit proposals from institution/architect teams (award may be to one or more)**
  - **Formal mechanism for community review during development**
  - **Finalize and publish**
  - **Use as a basis for operator selection and appropriation**
- **Operator Selection and Funding**
- **Develop Preliminary Designs**
- **Builder's Design and Construction**

# Latest Activities

- Discussions are progressing between ONR, Oceanographer of the Navy, NavSea and NSF regarding ways to get renewal process started.
- It is a given that the academic community will be involved.
- UNOLS/FIC assessment of best procedure for SMR process. Input from concept design groups.

# Other Present Activities

- R/V *Kilo Moana* - Construction
- Alaska Region Research Vessel – Design development
- *Cape Henlopen* Replacement
- Activities to replace ‘Ocean Class’ such as *Wecoma* and *Endeavor*
- Gulf of Mexico – initiated
- Many smaller, capable coastal vessels.

# Role of Ocean Science Community

- Participate in the SMR process. Whether you are on committees or not you can have influence.
- Talk with your UNOLS representative occasionally.
- Stay informed.

# Members of FIC

- Larry Atkinson, Chair (ODU)
- Mark Brzezinski (UCSB)
- David Hebert (URI)
- Chris Measures (U. Hawaii)
- Bill Smethie (LDEO)
- Terry Whitledge (U. Alaska)
- Joe Coburn, ex-officio (WHOI)
- Web site <http://www.unols.org/fic/> for addresses and information