DIRECTORATE FOR GEOSCIENCES

OFFICE OF POLAR PROGRAMS

Antarctic Research Vessel (ARV)

International Research Ship Operators (IRSO) Meeting

Vancouver, BC, Canada 24-26 September 2024

NSF ARV Team

Stephanie Short, ARV Program Lead

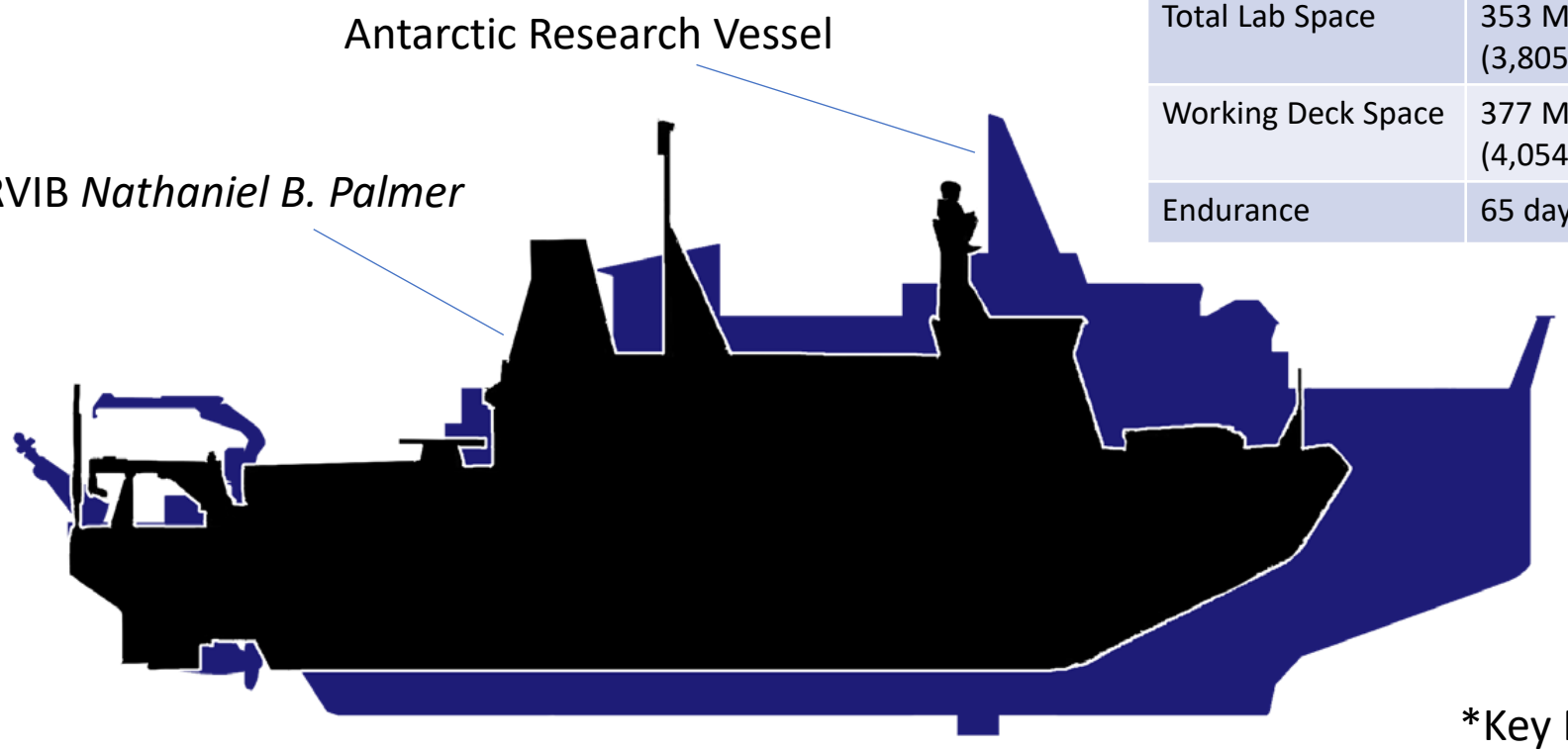
Tim McGovern, ARV Program Manager

Caitlin Jarecki ARV Assistant Program Manager (USN PEO Ships)

Mike Prince, ARV Project Manager

National Science Foundation
WHERE DISCOVERIES BEGIN

Overview



	Nathaniel B. Palmer	Antarctic Research Vessel	
Length	94M (309 ft)	111M (365 ft)	**Bigger**
Sci/Tech Berthing	45	**55***	**More scientists**
Total Lab Space	353 M^2 (3,805 ft^2)	418 M^2 (4,497 ft^2)	**More lab space**
Working Deck Space	377 M^2 (4,054 ft^2)	669 M^2 (7,197 ft^2)	**More deck space**
Endurance	65 days	**90 days***	**Longer endurance**

AND greater icebreaking capability
≥ 1.4M (4.5 ft) @ 3 kts (Polar Class 3)*

*Key Performance Parameter (KPP)
Current Design & Hull Form meets all KPPs

PC3 & Icebreaking KPP

Green = accessible; Orange = accessible with difficulty & slower speeds; Red = not accessible

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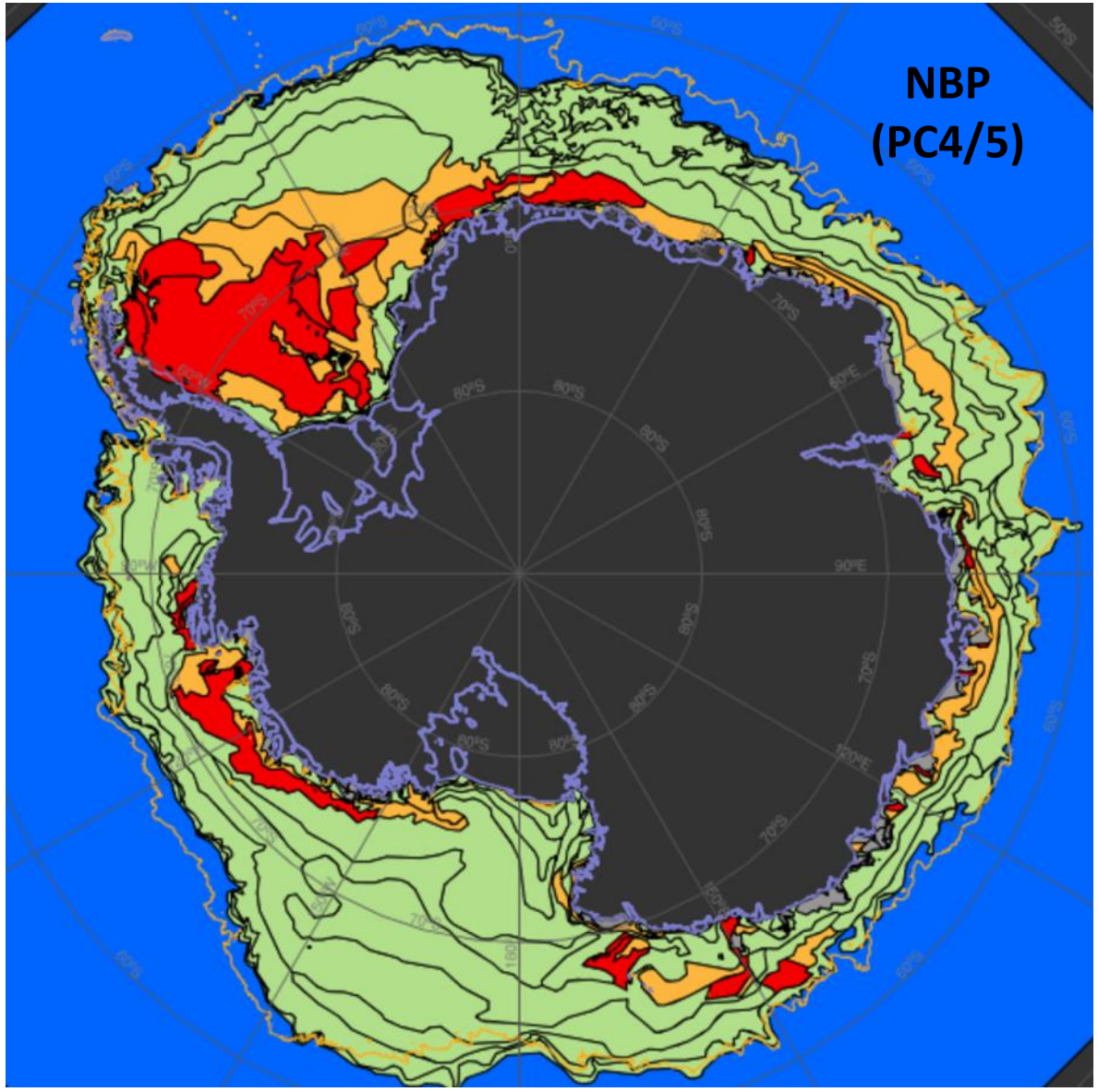
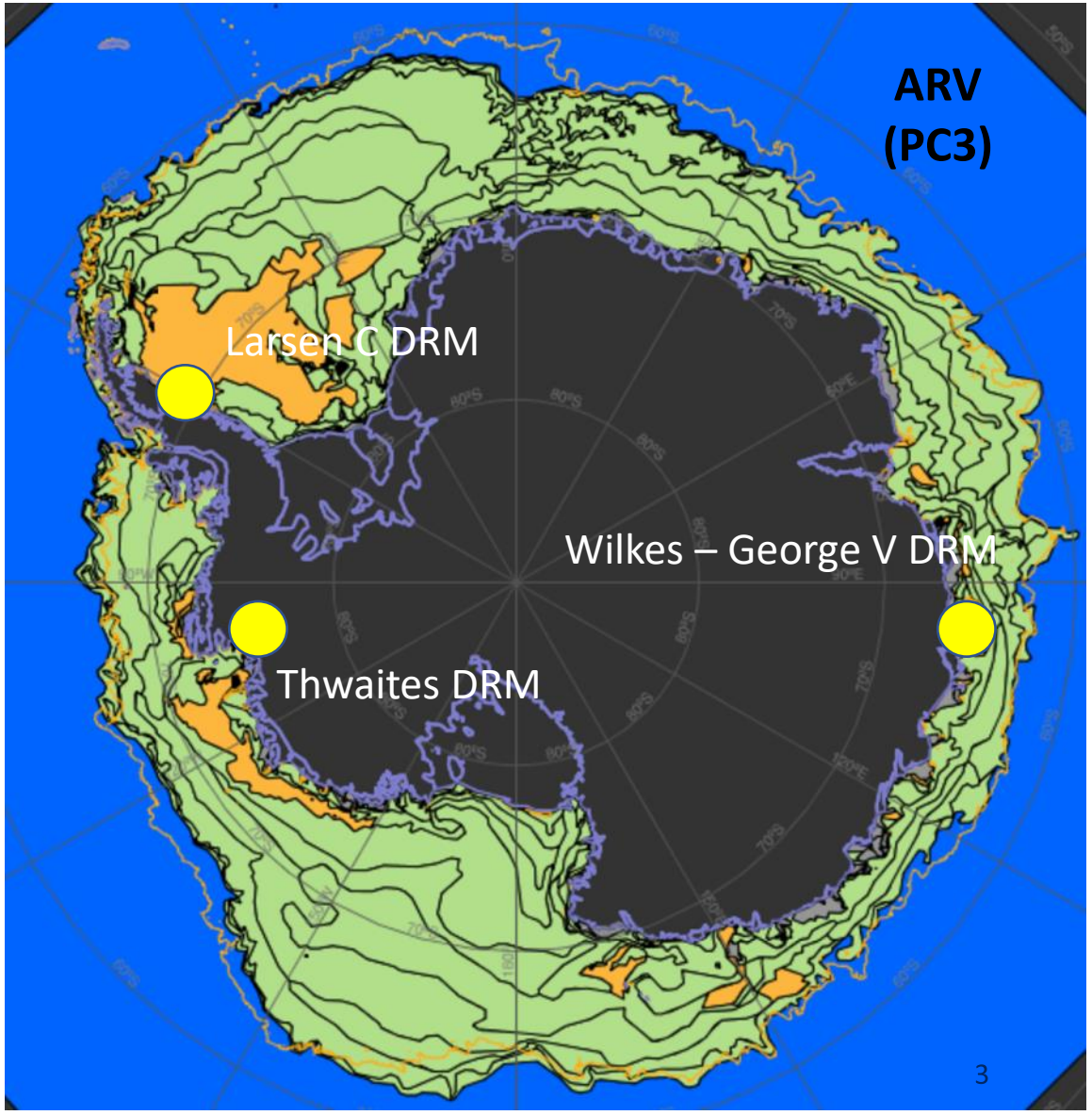
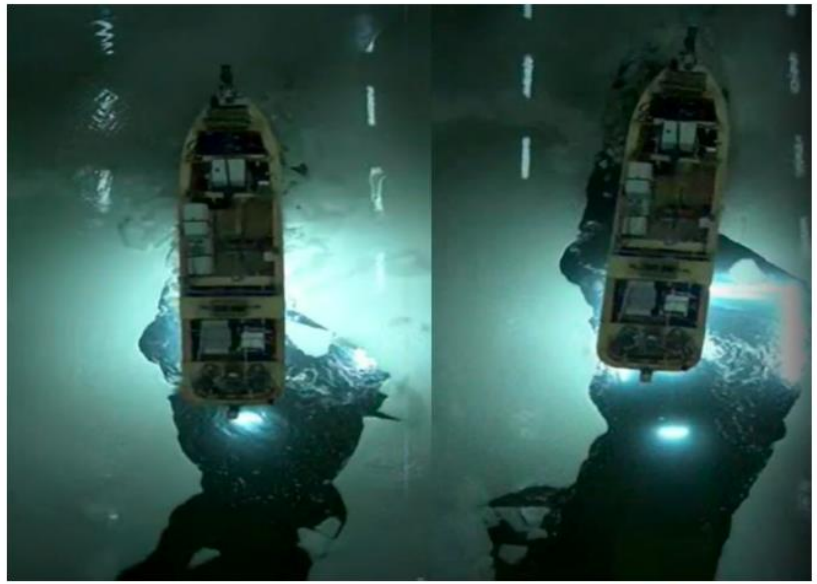




Model Test Results Showing Ice Management

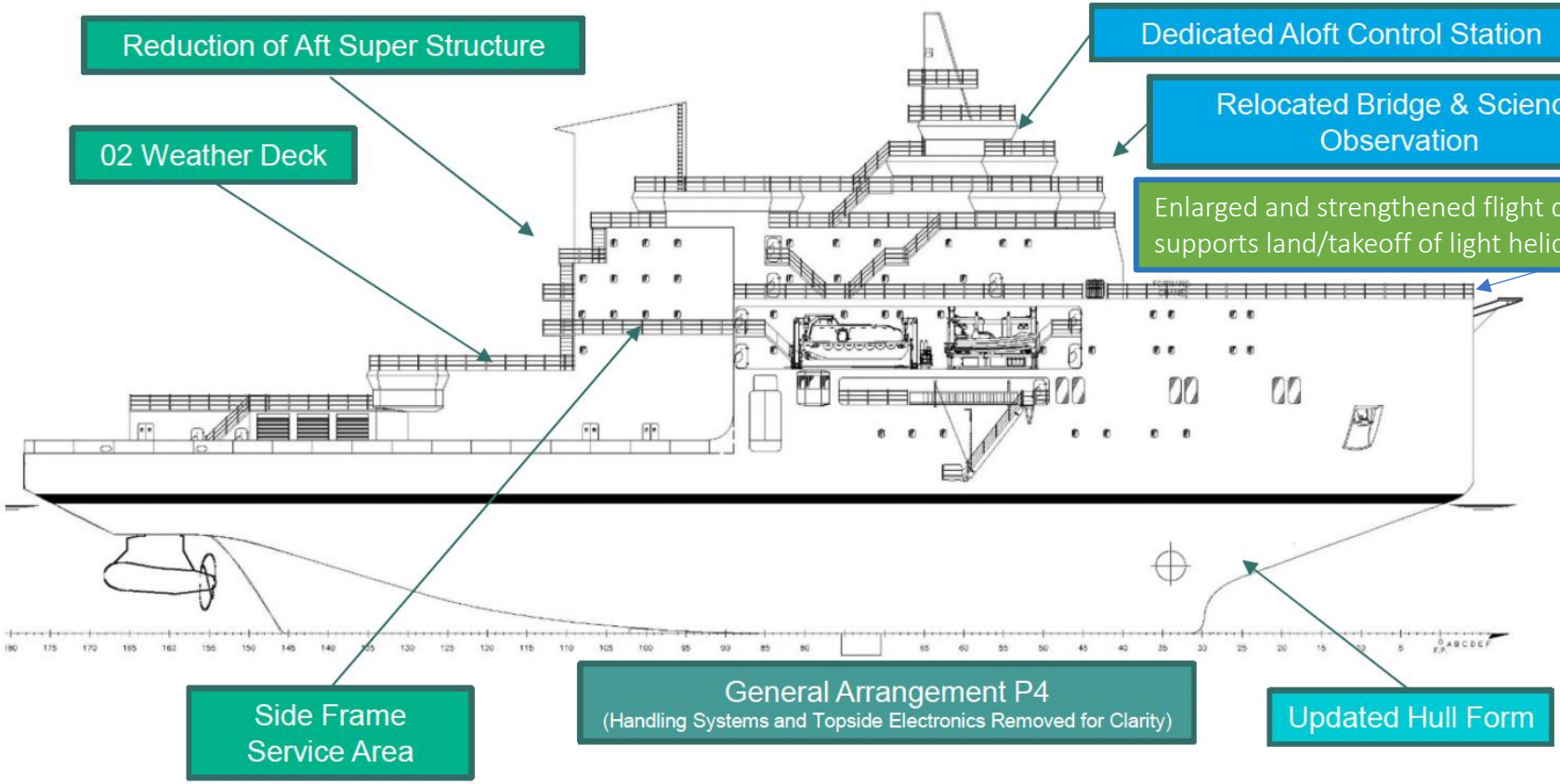


Clearing of a pool with thrusters in the HSVA Test Basin (Side Step)

R/V Sikuliaq creating pool in Ice with thrusters

Ice Management Astern in the HSVA Test Basin (30° toe-in angle)

General Arrangement – Recent Changes



Sightline Improvements
- 08 Level Aloft Control Station
- 07 & 06 Level Relocation

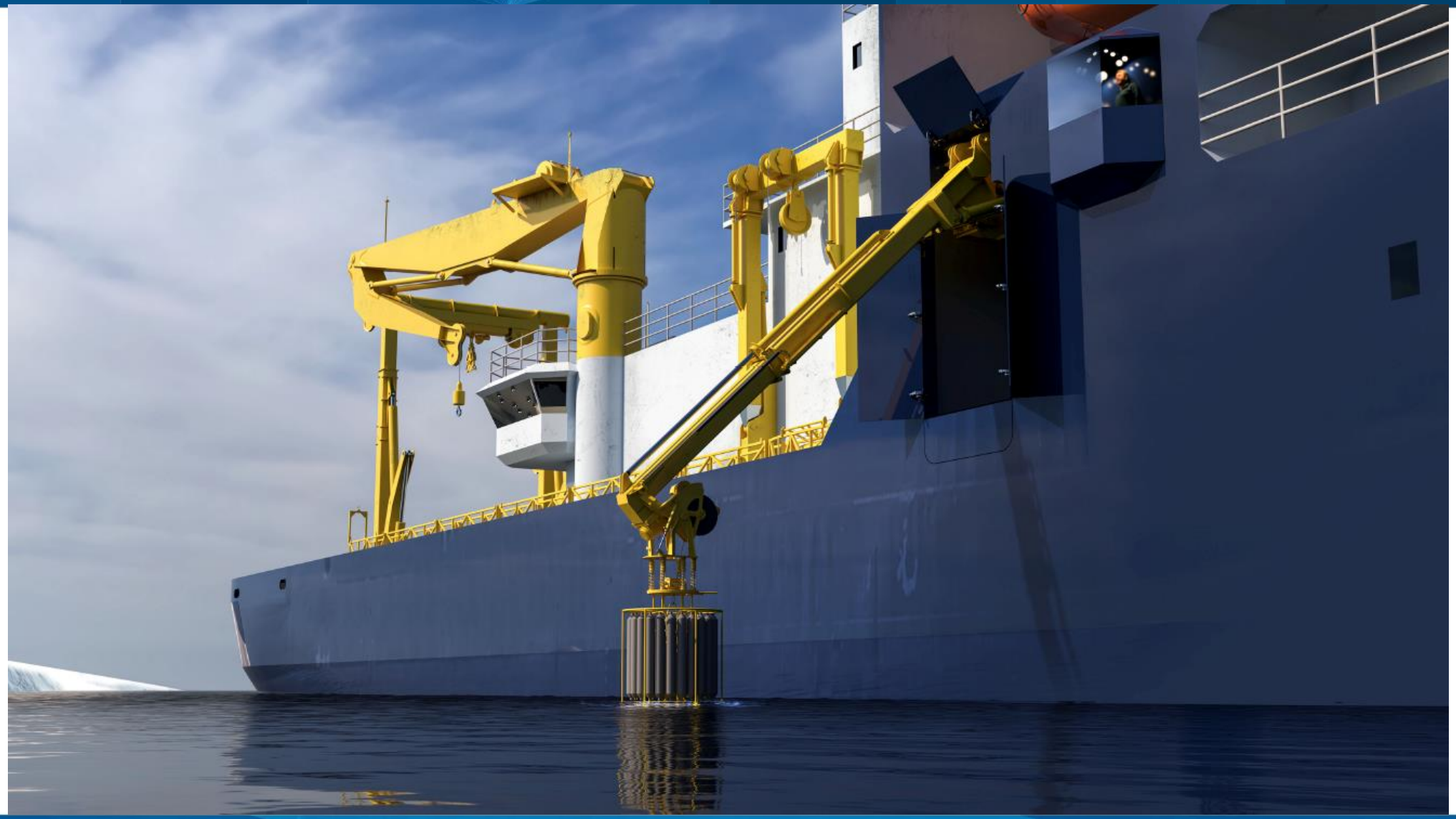
Superstructure Modifications
- Improved Incubation Area
- Creation of Side Frame Servicing Area
- Improved Range of Motion for Starboard Main Crane
- Improved Location for Flagging Block to Serve Aft A- Frame

Improved Hull Form
- Improved Bubble Sweepdown Performance
- Improved Fuel Oil Capacity

Preliminary Design Rendering

Preliminary Design Rendering

Preliminary Design Rendering



Science Community Engagement

National Academies of Sciences, Engineering, and Medicine

Future Directions for Southern Ocean and Antarctic Nearshore and Coastal Research

https://www.nationalacademies.org/our-work/future-directions-for-southern-ocean-and-antarctic-nearshore-and-coastal-research

Science Advisory Subcommittee (SASC) Reports:
https://future.usap.gov/arv-community-input/

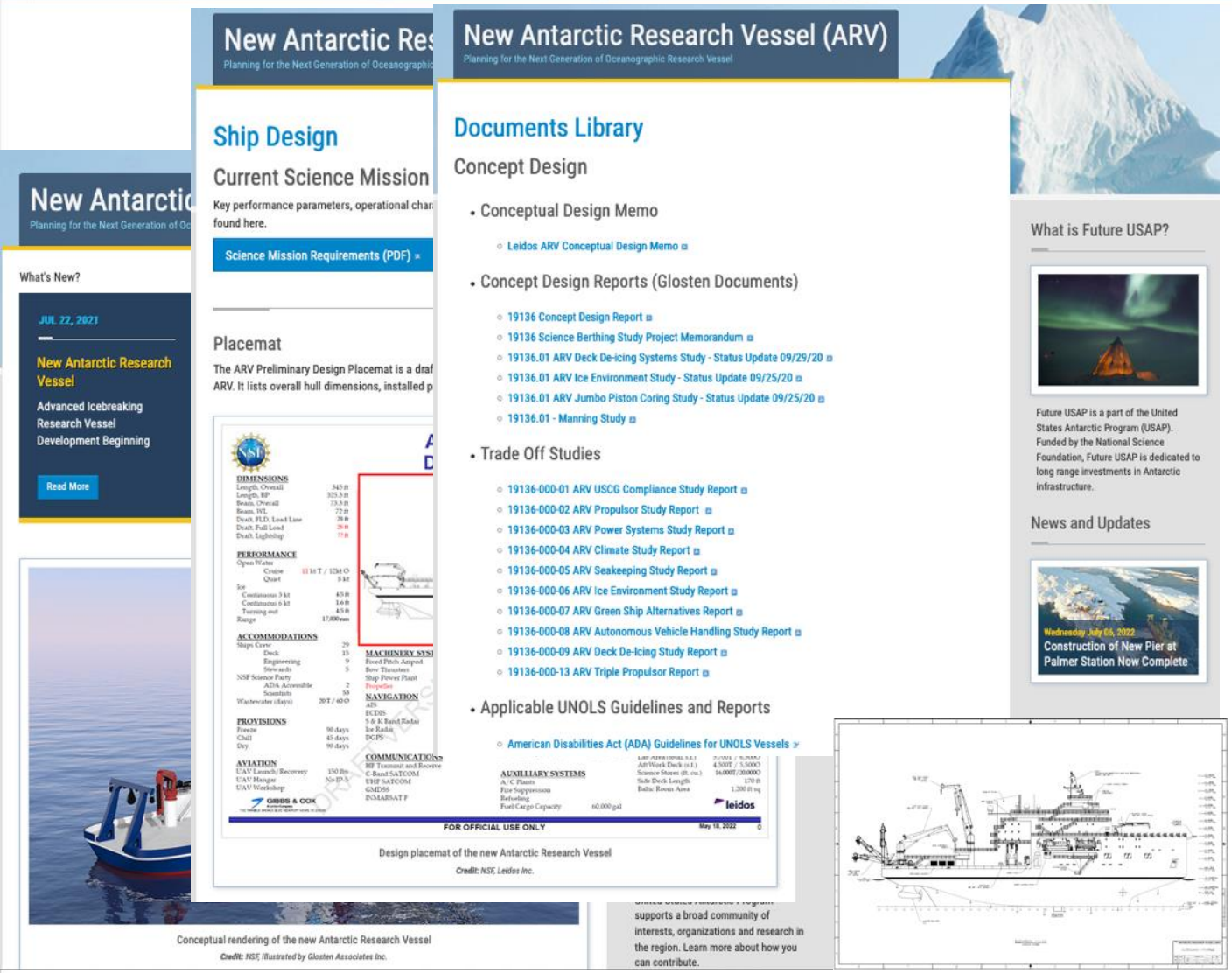
- Dr. Amy Leventer, (Chair) Colgate University
- Ms. Alice Doyle, UNOLS
- Dr. Kristin O'Brien, UAF; GEO AC Rep

Past Members

- Dr. Carlos Moffatt, Univ of Delaware
- Dr. Deborah Steinberg, VIMS
- Dr. Patricia Quinn, NOAA/PMEL
- Dr. Clare Reimers, OSU
- Dr. Bruce Appelgate, UCSD/Scripps

** Seeking nominations for 4 new members*

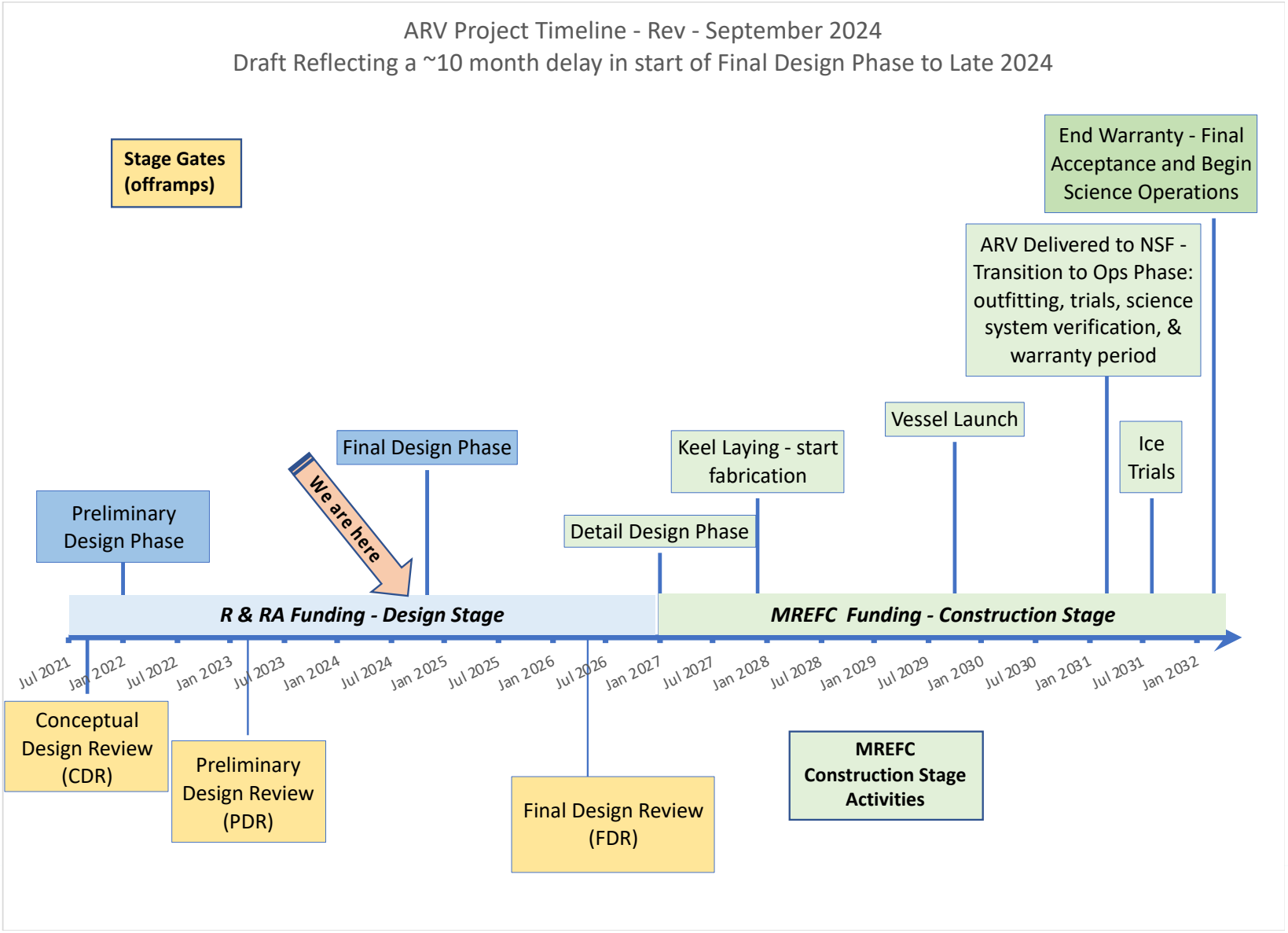
Community Outreach



future.usap.gov/arv

Current drawings and reports including SASC Reports

ARV Schedule



Next Steps:

- RFP and Selection of the Vessel Integrator to complete the project. (CY 24)
  - **RFP Closed 4/22/24**
- Final Design Phase (CY 24-26)
- Final Design Review (CY 26)
- Appropriation and Approvals to start Construction Stage (Late in CY 26)

Antarctic Research Vessel Summary

- ~20 years of sustained scientific demand
- Continued ability to support cutting edge NSF research for the next 40 years
- Enhanced capabilities over existing USAP research vessel
- Strong Teaming with Industry

Questions?