DIRECTORATE FOR GEOSCIENCES

OFFICE OF POLAR PROGRAMS

Antarctic Research Vessel (ARV)

UNOLS AICC Meeting

12 January 2023

NSF ARV Team

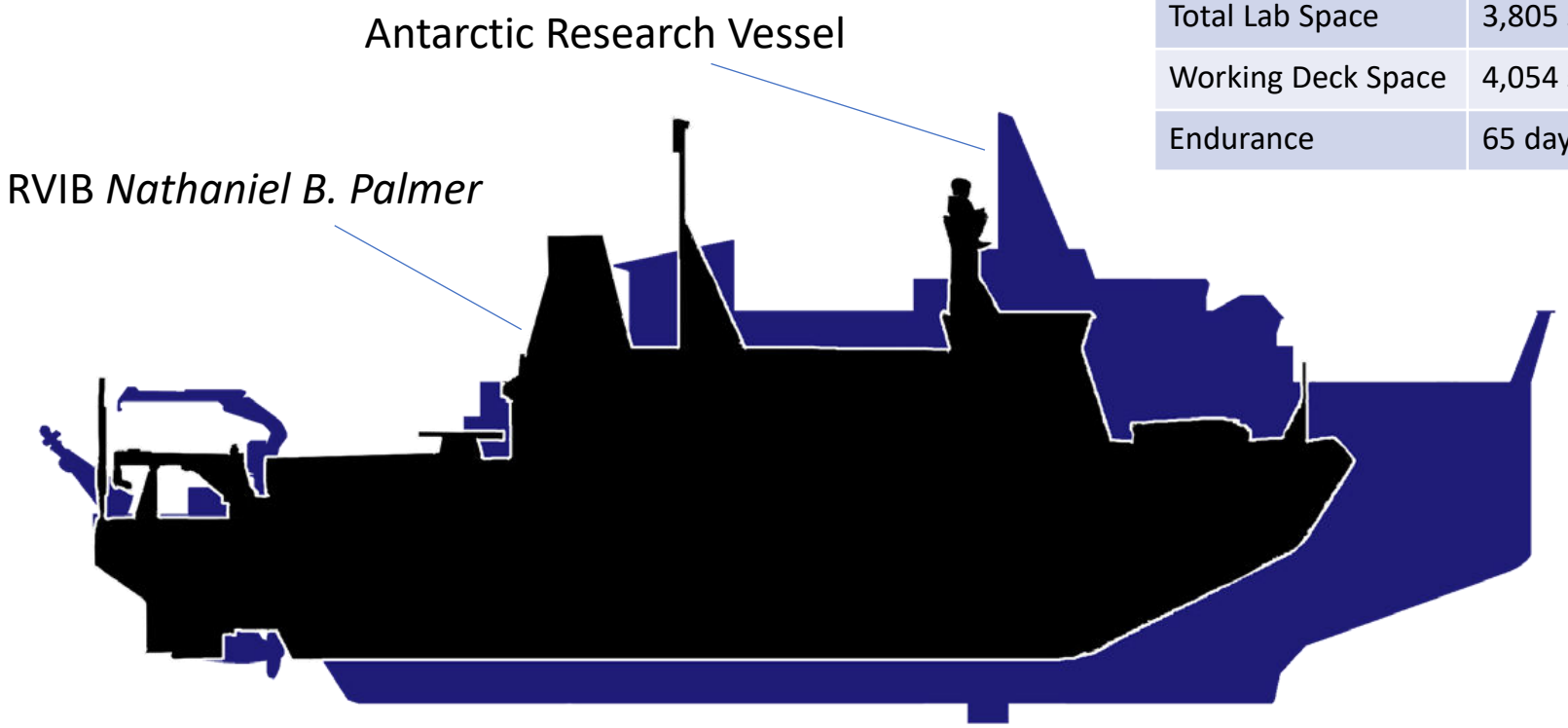
Stephanie Short, ARV Program Lead

Tim McGovern, ARV Program Manager

Mike Prince, ARV Project Manager

National Science Foundation
WHERE DISCOVERIES BEGIN

Overview



	Nathaniel B. Palmer	Antarctic Research Vessel	
Length	309 ft	365 ft	**Bigger**
Sci/Tech Berthing	45	**55***	**More scientists**
Total Lab Space	3,805 sq ft	4,497 sq ft	**More lab space**
Working Deck Space	4,054 sq ft	7,197 sq ft	**More deck space**
Endurance	65 days	**90 days***	**Longer endurance**

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

*Key Performance Parameter

PC3 & Icebreaking KPP

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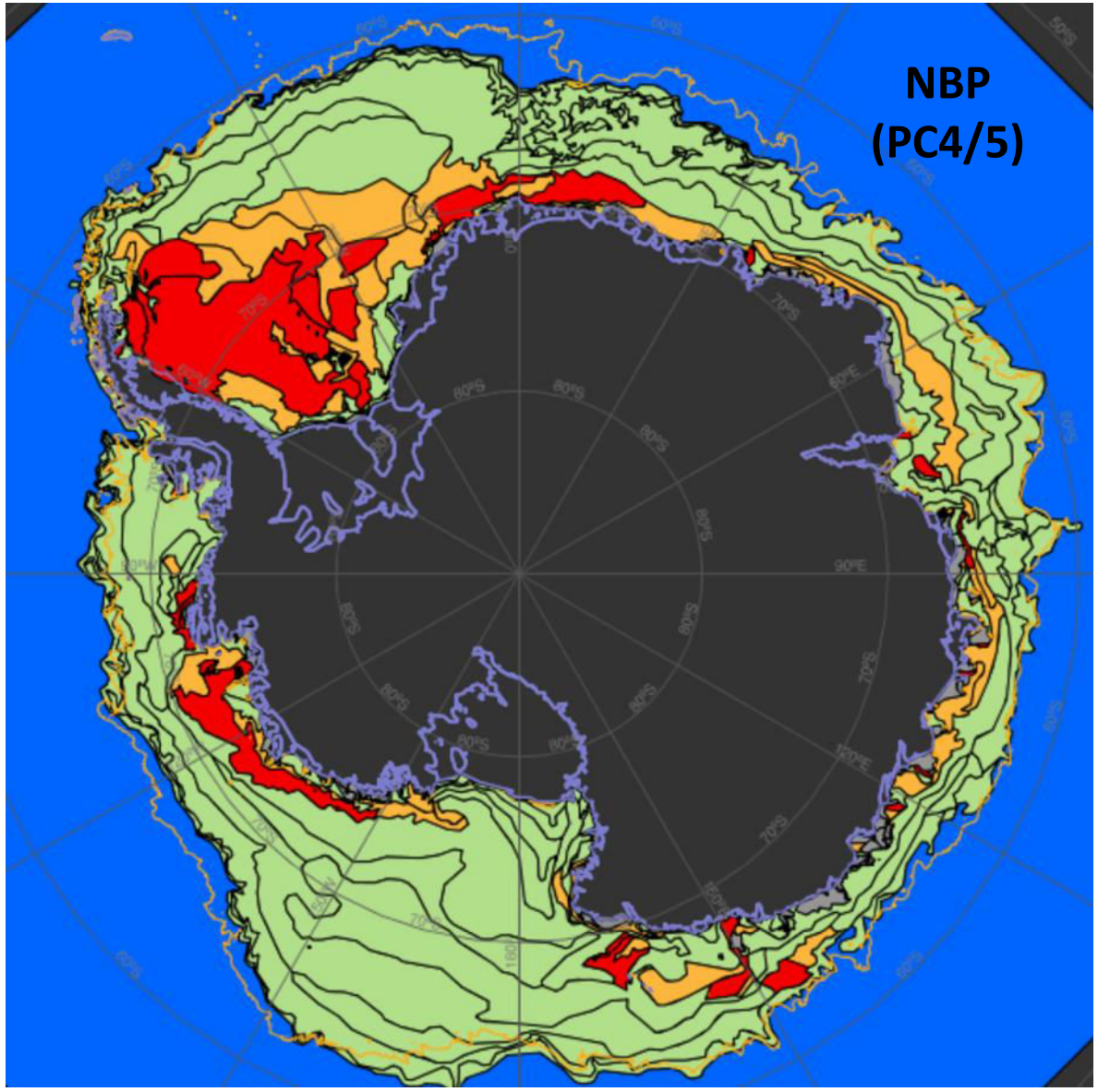
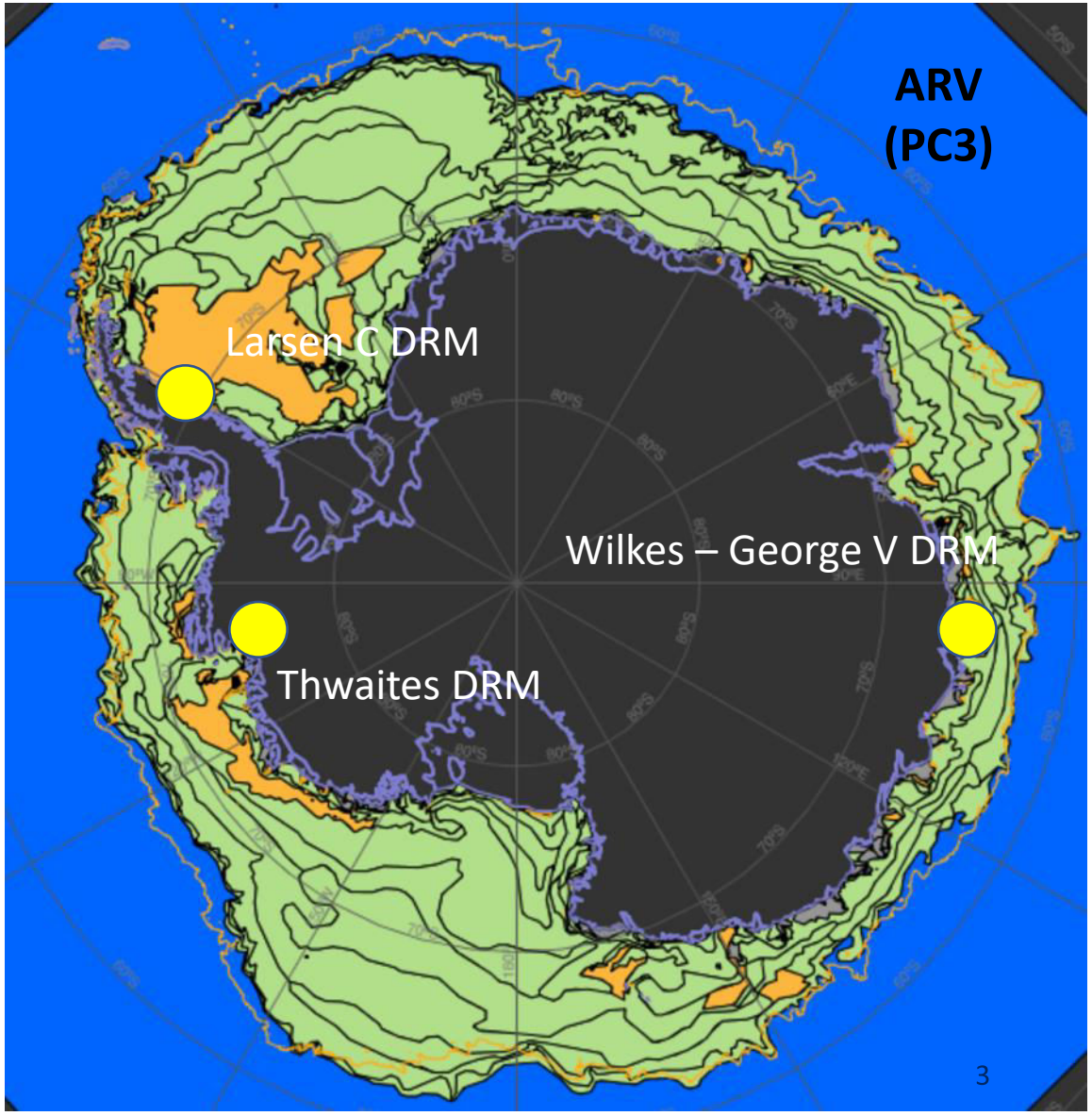




Key Characteristics and Capabilities

LOA	365’ (111 m)
LBP	349’ (106 m)
Beam (max)	80’ (24 m)
Draft	32’ 6” (9.9 m)
Displacement (full load w/345 LT SLA)	13,004 LT
Accommodations with one ADA stateroom	55 Science 29 Crew
Range	17,000 nm
Endurance	90 Days
Speed	11-12 kts cruise 14 kts Max

Characteristics

- Large Configurable Labs
- Science Sea Water System
- Baltic Room – CTD Operations
- Science Staging Bay – Back Deck Operations
- UAV/Aviation Deck and forward Hanger
- Marine Mammal and Sea Bird Observation Area (enclosed)
- Science Container Hold (8ea 20’ ISO containers)
- Box Keel sonars w/ Ice Windows
- Retractable Center Board (Drop Keel) sonars w/o Ice Windows
- Science Support Small Boats (4)

Capability

- 40m – 50m Piston Coring System
- Coring and Oceanographic Traction Winches
- Primary and Secondary Hydrographic Winches
- CTD Launch and Recovery System (LARS)
- 20 ton Stern and Starboard A-Frames
- 7,000+ sq ft Aft Working Deck
- 170 ft open Starboard Deck
- 8,000+ sq ft Main Deck Lab space

Classification

ABS ✠ A1
Oceanographic

AMS
ILM

ACCU
BWT+

Unrestricted service
CCO-Polar

HAB++(WB)
ENVIRO

ESS-LIBATTERY
HYBRID IEPS

ILM
UWILD

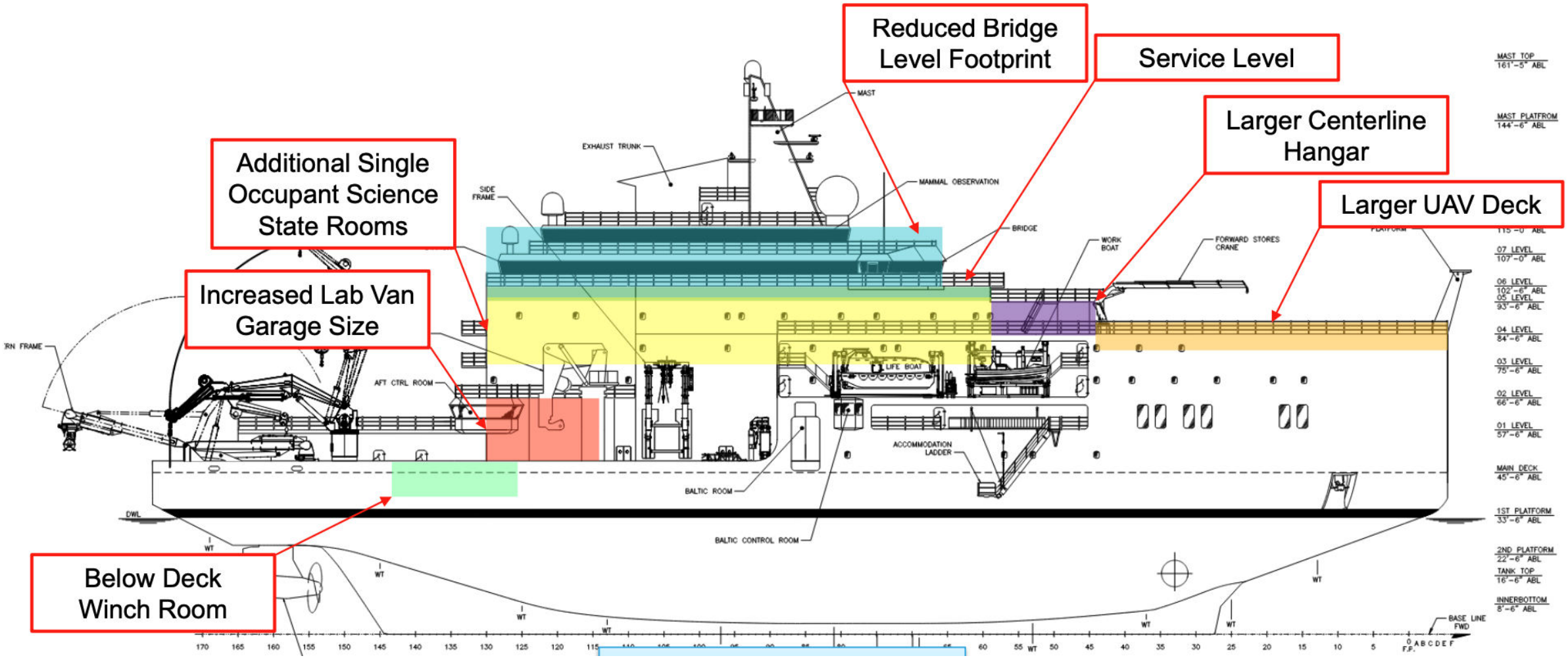
Ice Class
PC3

NIBS

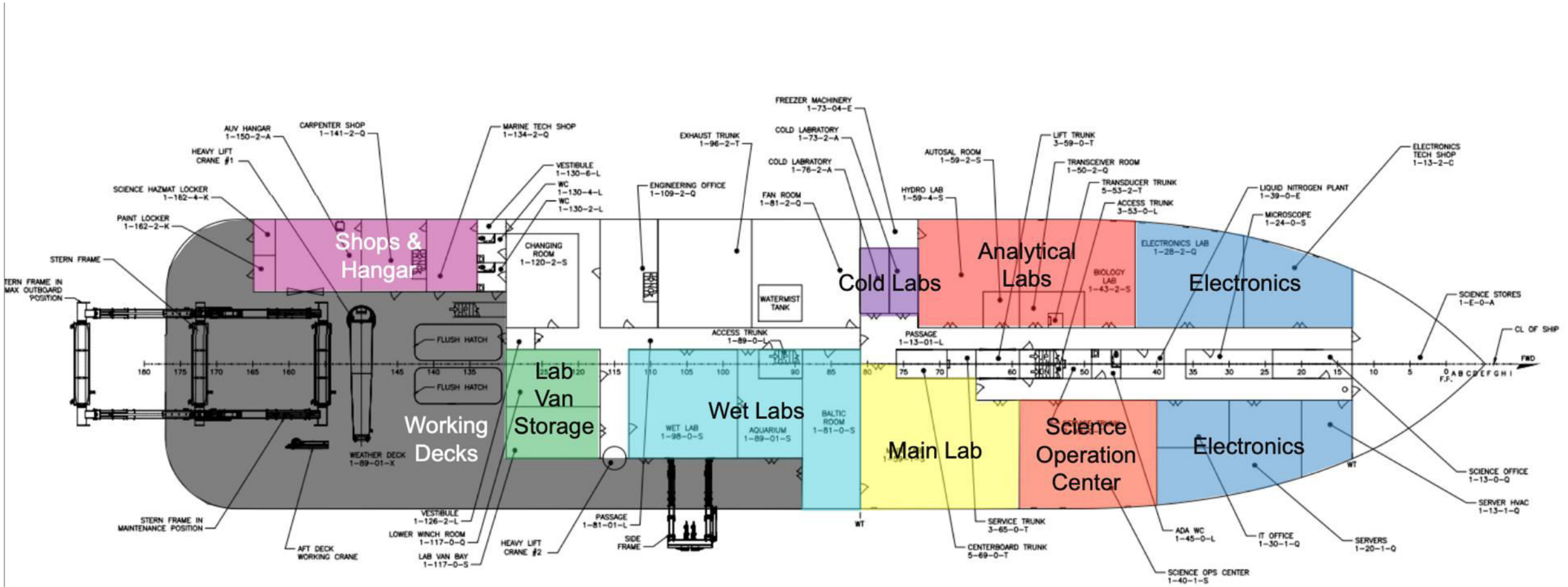
DPS 1

CS 2

General Arrangement – Recent Changes



General Arrangement – Main Deck



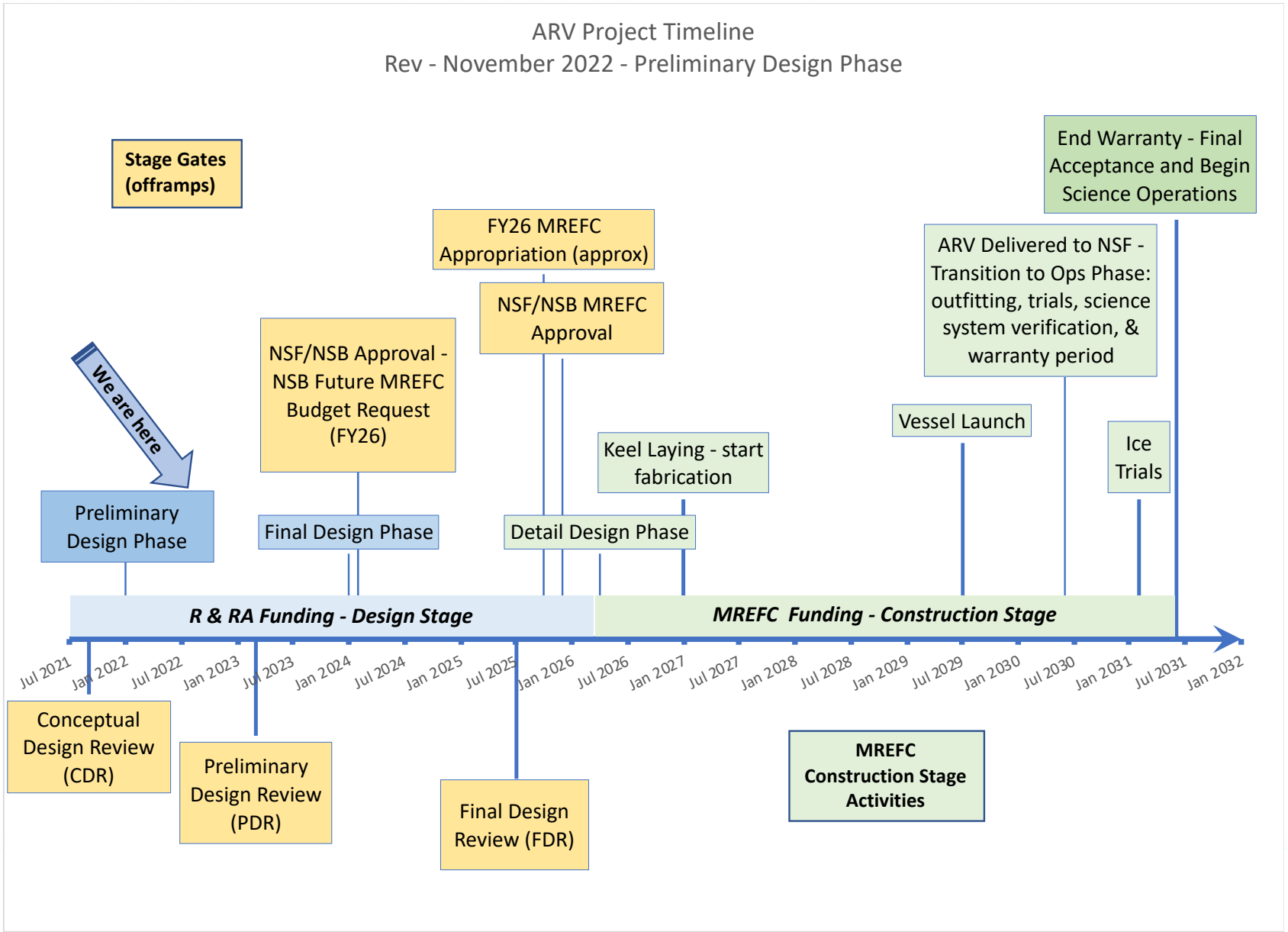
Over 7,000 sq. ft aft working deck

Preliminary Design Rendering

Preliminary Design Rendering

Preliminary Design Rendering

ARV Schedule



Science Community Engagement

Science & Technical Advisors (STAs)

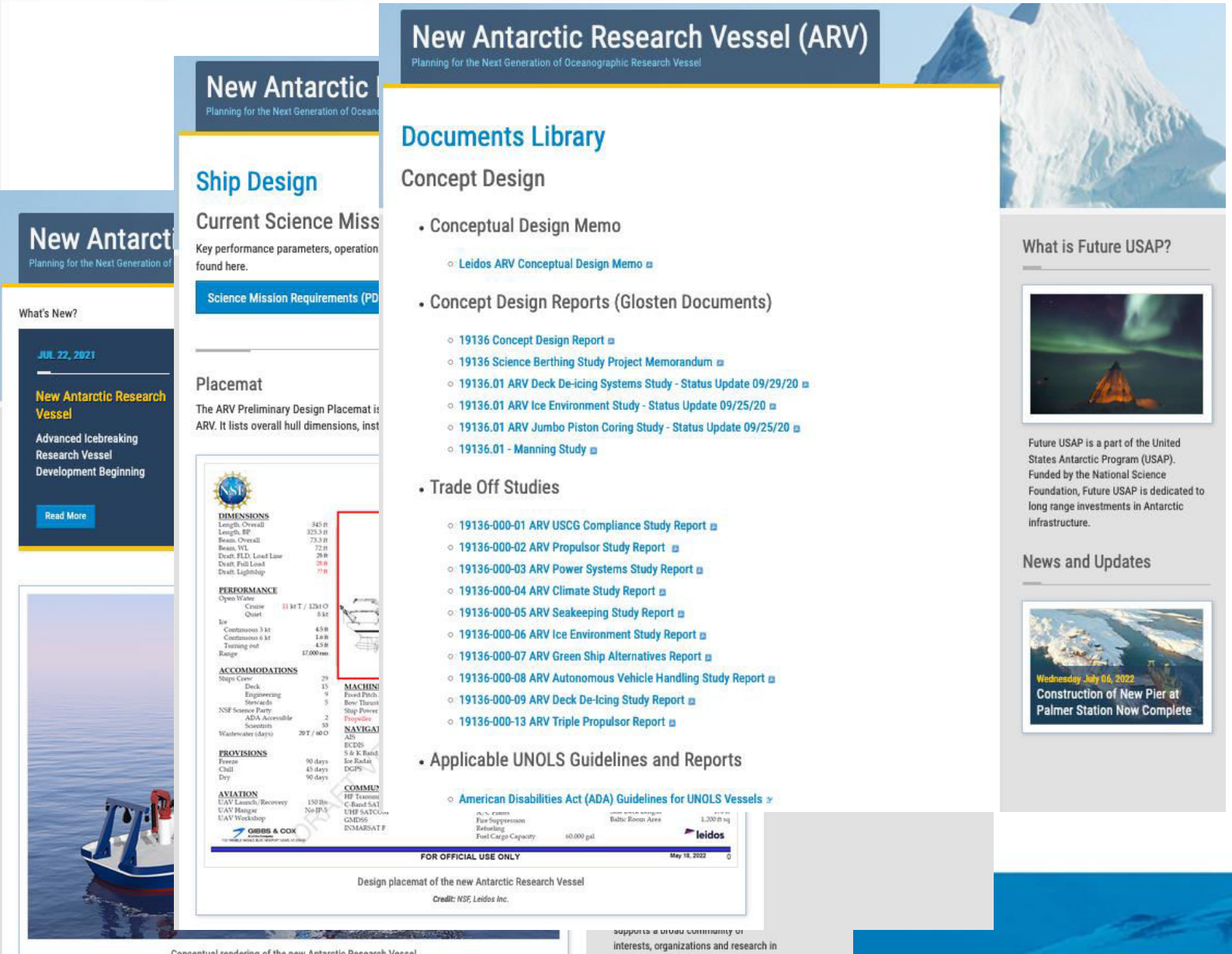
2-10 individuals
Broad range of scientific & technical backgrounds, including:

- ✓ USCG icebreaker development & operations
- ✓ Naval Sea Systems Command shipbuilding
- ✓ Academic institution researchers
- ✓ Scientific technical managers
- ✓ Research vessel operators

Science Advisory Subcommittee (SASC)

- Dr. Amy Leventer, (Chair) Colgate University
- Dr. Bruce Appelgate, UCSD/Scripps
- Ms. Alice Doyle, UNOLS
- Dr. Carlos Moffatt, Univ of Delaware
- Dr. Patricia Quinn, NOAA/PMEL
- Dr. Clare Reimers, OSU
- Dr. Deborah Steinberg, VIMS
- Dr. Kristin O'Brien, UAF; OPP AC

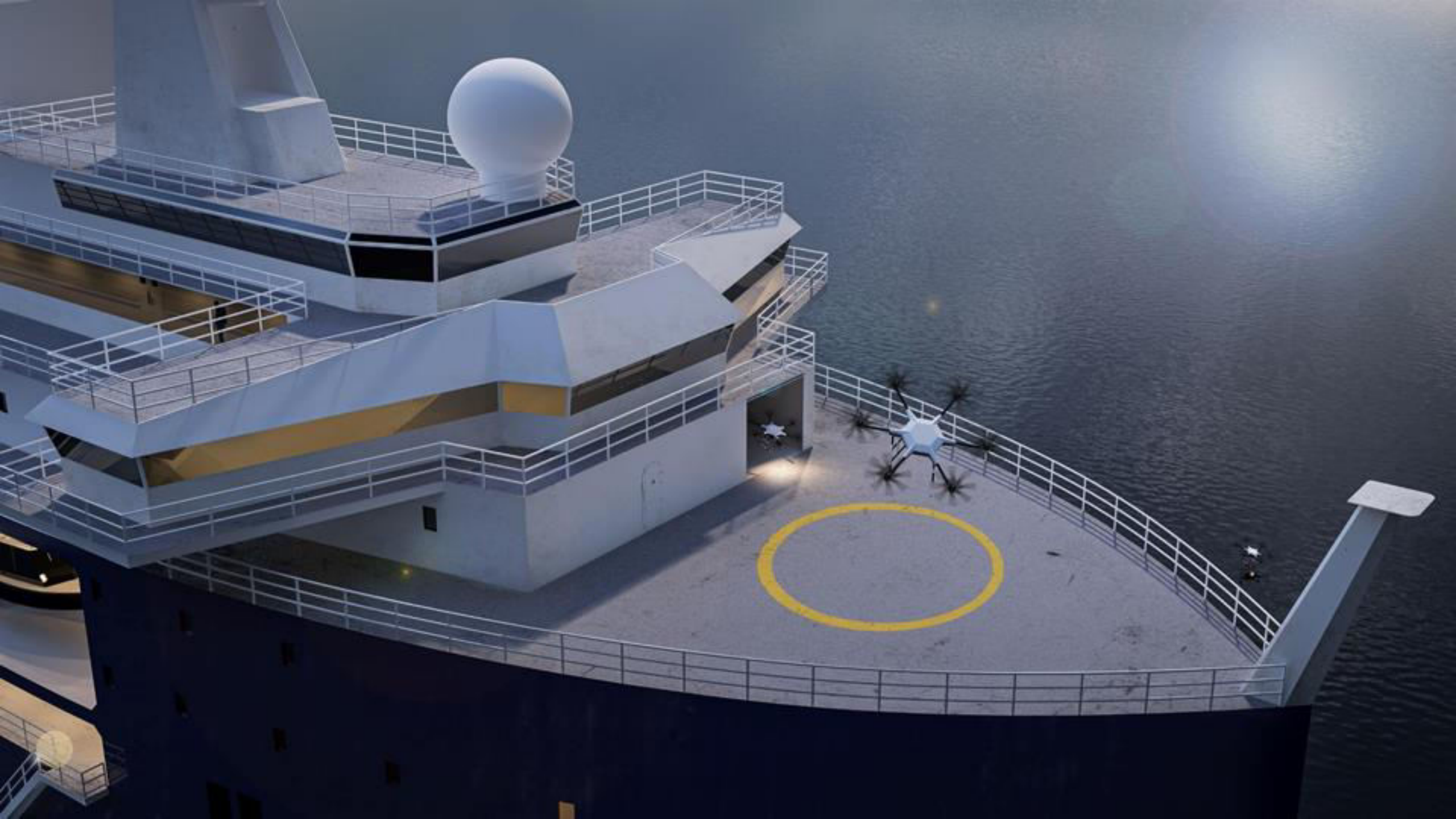
Community Outreach

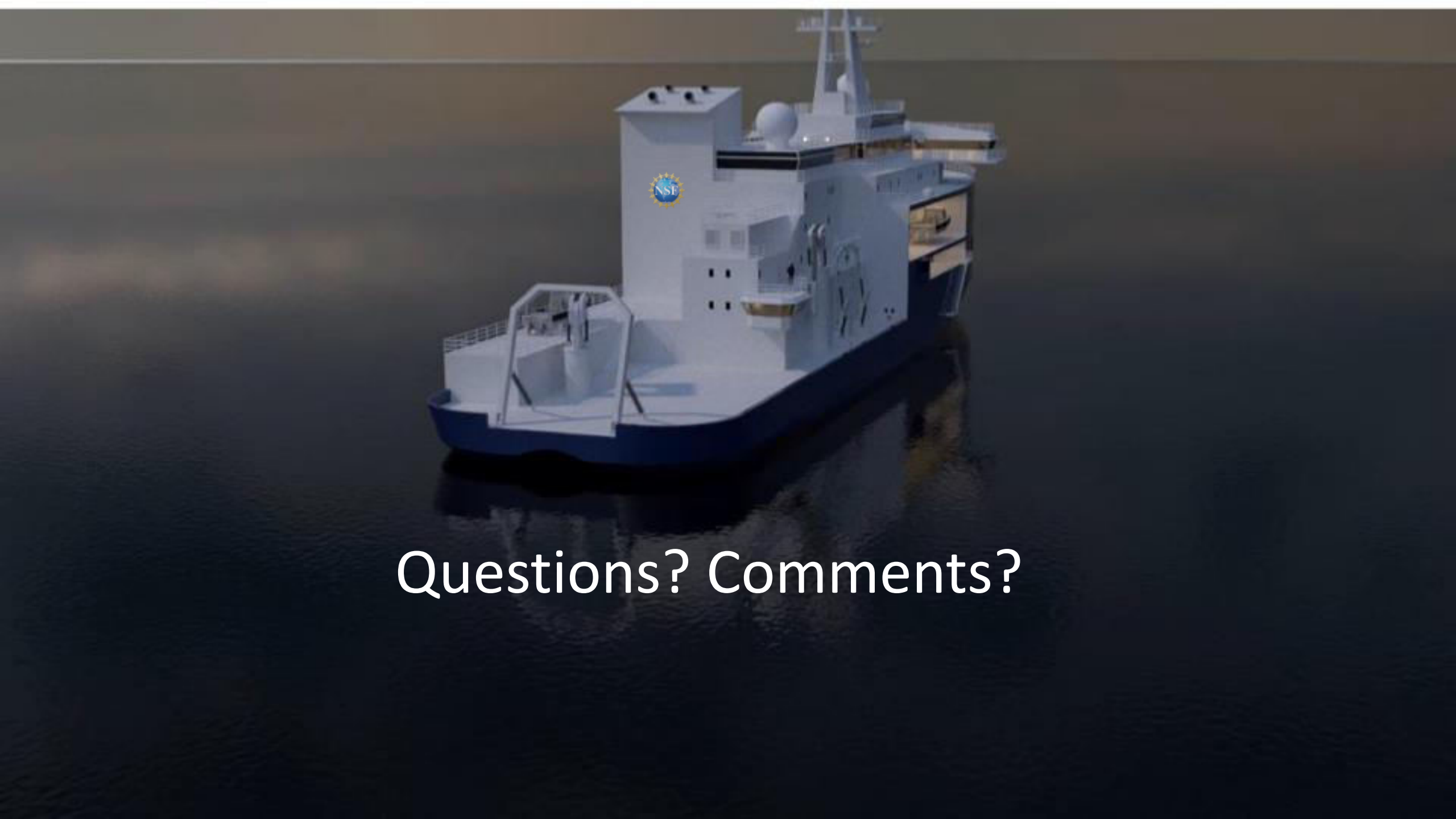


future.usap.gov/arv

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
- Competent approach and highly qualified team





Questions? Comments?