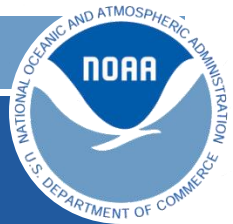


IRSO Brief



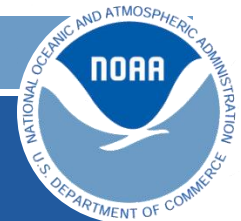
NOAA Fleet Recapitalization

Captain Scott Sirois, NOAA



Agenda

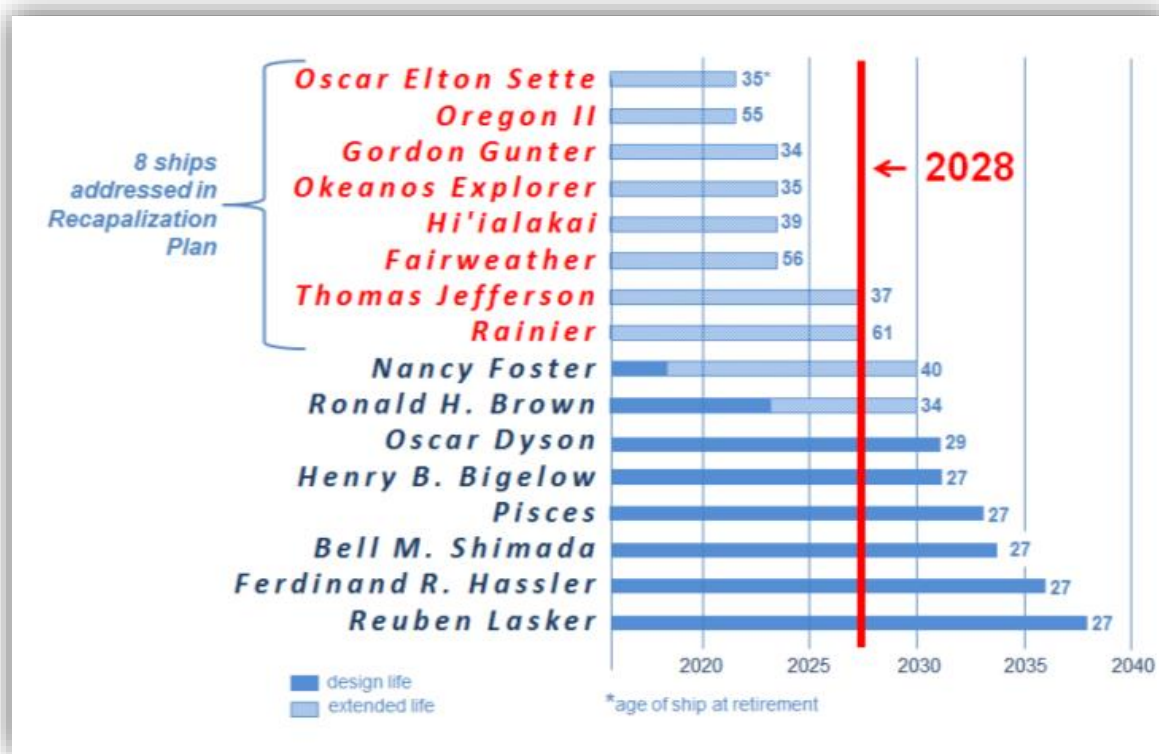
- 2016 NOAA Fleet Plan
 - Urgency for Fleet Recapitalization
 - Proposed Vessel Classes
 - Proposed Acquisition Schedule
- Fleet Recap Challenges
- Other Fleet Recap Activities
- N/V Class A
 - Background
 - Primary Missions
 - Secondary Missions
 - General Characteristics
 - Mission Acoustics
 - Mission Equipment/Capabilities



2016 NOAA Fleet Plan

Urgency for Fleet Recapitalization

- Fleet of 16 research/survey vessels, expanding mission requirements, increasing age/obsolescence issues
- 8 ships will retire in the next 10 years; creating a significant gap in NOAA's at sea capability

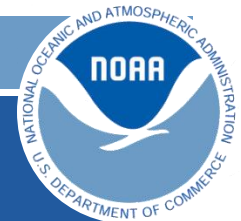


Significant Reductions in

Navigation, Observation & Positioning (-76%)

Protected Resource Science & Management (-65%)

Habitat Conservation & Restoration (-56%)

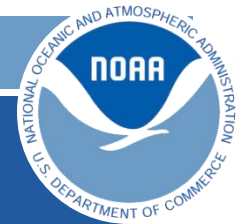


2016 NOAA Fleet Plan

Proposed Vessel Classes

- Identified 4 new vessel classes
- Emphasis on multi-mission use

Ship	Primary Mission	Secondary Mission(s)
N/V Class A	Oceanographic Monitoring, Research & Modeling	Assessment and Management of Living Marine Resources (no trawl), Charting and Surveying
N/V Class B	Chartering and Surveying	Assessment and Management of Living Marine Resources, Oceanographic Monitoring, Research & Modeling
N/V Class C	Assessment and Management of Living Marine Resources (near-shore, shallow-draft)	Chartering and Surveying
N/V Class D	Assessment and Management of Living Marine Resources (near-shore and deep ocean, longer endurance)	Chartering and Surveying Oceanographic Monitoring, Research & Modeling

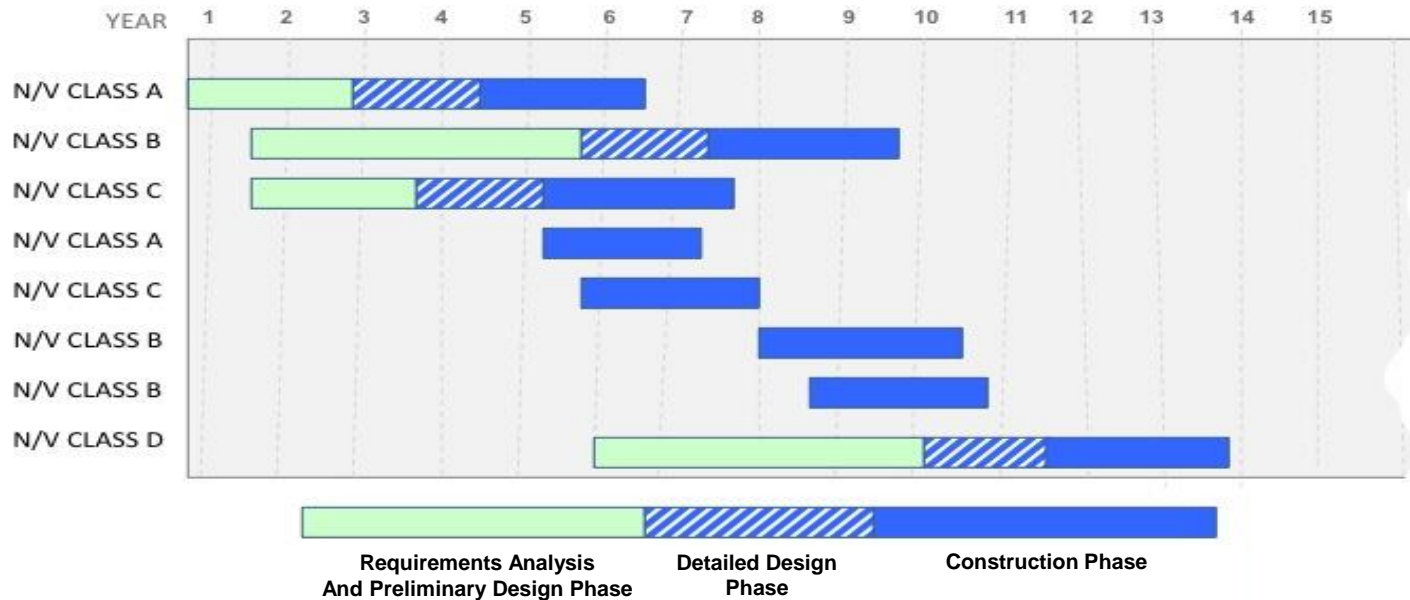


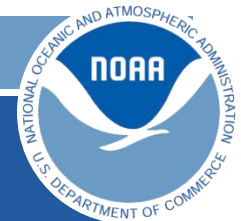
2016 NOAA Fleet Plan

Proposed Acquisition Schedule

- Proposed Fleet Recapitalization schedule helps to minimize capability gaps

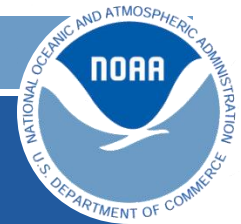
NOAA Long-Term Fleet Recapitalization Strategy





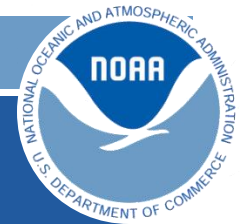
Fleet Recap Challenges

- Average time to deliver a new ship of these sizes are **6-8 years**
- Anticipated delivery of first Class A vessel is after planned decommissioning of current NOAA assets begin
- Funding levels required to support the 2016 Fleet Plan recapitalization schedule are unlikely, given the current/anticipated austere budgetary environment
- Bottom Line: Substantial Fleet capacity loss is expected throughout the next two decades as ship replacement programs will not deliver new assets at the same rate/time as current assets come offline



Other Fleet Recap Activities

- **Strategic Planning**
 - NOAA is refining the organizational requirements that drive ship characteristics, locations, quantities and mix
 - NOAA is investing resources into improved maintenance, scheduling, allocation and performance measurement processes for more effective Fleet operations
- **Force Architecture**
 - NOAA is investing in the development of a quantitative, objective, analytically robust, and repeatable fleet force architecture planning process. Elements include:
 - Full requirements traceability – Requirements to Deck Plate
 - Multi-Objective Combinatorial Optimization - Computer algorithms to evaluate ship options against requirements and operations to determine the most cost-effective fleet architecture with optimally designed and distributed ships



N/V Class A

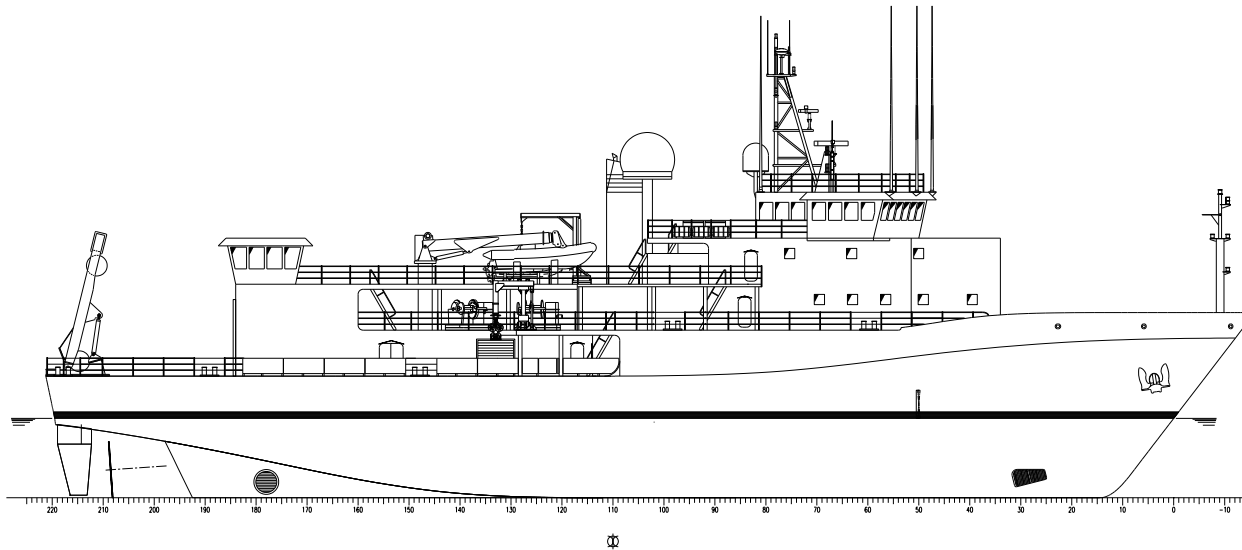
Background

- 2016 Fleet Plan recommended initiation of Class A building on recent USN research vessel acquisitions
- NOAA leveraging the USN AGOR documentation to help **expedite** procurement schedule
- NOAA received DOC Milestone 1 approval to begin procurement efforts for Class A
- Navy providing acquisition assistance and technical expertise
- NOAA anticipates delivery of the lead ship in 2023 with options for additional ships

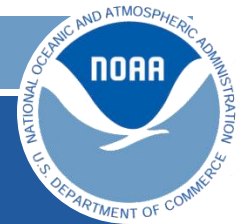
N/V Class A

Primary Missions

- Physical, chemical, and biological oceanography
- Bathymetry, gravimetry, and magnetometry
- Marine Geology and Geophysics
- Ocean Engineering and Marine Acoustics
- Multi-discipline environmental investigations



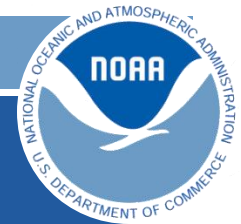
Notional (Indicative Design) – Outboard Profile



N/V Class A

Secondary Missions

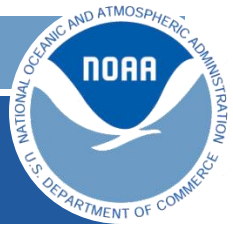
- Data collection sampling of surface, midwater, and sea floor parameters
- Launch, towing, and recovery of scientific packages (tethered and autonomous)
- Handling, monitoring, and servicing of ROVs and AUVs
- Support diving operations
- Deploy and recover AAVs, balloons, moorings, boats, free floating instruments
- Shipboard data processing and analysis
- Transmit data to and from NOAA shore stations, NOAA satellites, and other NOAA ships and platforms
- Precise navigation and station keeping and track-line maneuvering



N/V Class A

General Characteristics

- Complement:
 - 20 crew
 - 24 science
 - Surge capacity of 4 additional personnel
- Design Speed: 12 knots
- Range: 10,000 nm
- Endurance: 40 days
- Estimated length: ~ 240 ft
- Navigational Draft: 17 ft
- Dynamic Positioning: DPS-I
- Ice Class: D0
- Full Operability up to Sea State 4



N/V Class A

Mission Acoustics

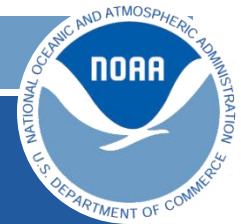
- Singlebeam Echosounder System
 - 18kHz, 38kHz, 70kHz, 120kHz, 200kHz, 333kHz
- Multibeam Echosounder System
 - 70k-120kHz
- Multibeam Survey System - Mid Water
 - 40k-100kHz
- Multibeam Survey System - Deep Water
 - 12kHz
- Sub Bottom Profiler
 - 2.2k-7kHz
- Singlebeam Survey System (SBSS)
 - 12kHz, 38kHz, 70kHz, 120kHz, 200kHz
- Acoustic Doppler Current Profiler
 - 38kHz, 75kHz, 150kHz, 300kHz
- Acoustic Navigation and Tracking System
 - 21k-31kHz



N/V Class A

Mission Equipment/Capabilities

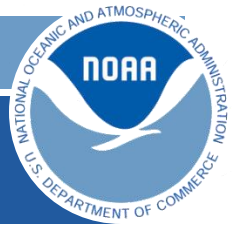
- Main Crane
 - 10,000lb at Sea State Four
- Two Hydrographic Winches
 - 11,100lb bare drum capacity
- Trawl/Tow Traction Winch System
 - 25,000lb
- Stern Frame
 - 25,000lb at Sea State Four
- Side J-Frame
 - 4,500lb at Sea State Four
- CTD Handling Gear
 - 11,100lb at Sea State Four
- Work Boat
 - 25ft RHIB
- Uncontaminated Seawater System and Environmentally Controlled Room
- NITROX Capable Dive System
- Ability to carry up to 5 scientific vans on aft working deck
- Ability to carry 2 scientific vans on forward deck



N/V Class A

High Level Schedule

	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26
Milestones / Reviews	<ul style="list-style-type: none"> ▲ IAA Order 2 Approved ▲ Phase I Funds Obligated to Navy ▲ TLR Update Finalized △ CDD Update Approved △ IPR/RFP Decision Point △ NOAA MS 2/3 △ Phase II Funds Obligated to Navy △ MS B/C 						<ul style="list-style-type: none"> AT - Acceptance Trial BT - Builders Trial CDD - Capability Development Document DD&C - Detail Design and Construction DEL - Delivery FCT - Final Contract Trial IAA - Interagency Agreement IPR - In Process Review MS - Milestone RFP - Request for Proposal SOC - Start of Construction TLR - Top Level Requirement 			
Contracts	<ul style="list-style-type: none"> △ RFP Issue △ Proposal Prep and Source Selection △ Competitive Preliminary and Contract Design △ Downselection △ DD&C Contract Award 									
Lead Vessel Schedule	<p>Detail Design</p> <p>SOC Construction BT AT DEL FCT Final Turnover</p>									
Follow Vessel Schedule – Ship 2	<p>Ship 2 Contract Award</p> <p>SOC Construction BT AT DEL FCT Final Turnover</p>									
Follow Vessel Schedule – Ship 3	<p>Ship 3 Contract Award</p> <p>SOC Construction BT AT DEL FCT Final Turnover</p>									



Questions