UNOLS
University-National Oceanographic Laboratory System

25 February 2025

To: Dr. Bruce Appelgate, UNOLS Chair

Subject: Assessment of NOAA Class B Vessel as a Replacement for RV *Kilo Moana* and RV *Thomas G. Thompson*

Dear Bruce,

On behalf of the UNOLS Fleet Improvement Committee (FIC), we are writing to summarize our findings regarding the suitability of the NOAA Class B vessel as a potential replacement for the Ocean Class Research Vessel (OCRV) *RV Kilo Moana* (operated by the University of Hawaii) and the Global Class Research Vessel (GCRV) *RV Thomas G. Thompson* (operated by the University of Washington).

The NOAA Class B vessel is part of NOAA's broader fleet recapitalization effort. Two Class B vessels are currently being built. There are options for a third and fourth hull, with decisions to proceed required in 2027 and 2029, respectively.

Designed primarily for charting and survey missions, the Class B vessel has the following specifications:

- **Length**: 267 feet
- **Beam**: 55.8 feet
- **Draft**: 17 feet
- **Displacement**: 3,500 tons
- **Sustained Speed**: ~12.4 knots
- **Endurance**: 30+ days
- **Range**: 9,600+ nautical miles
- **Complement**: 48 total persons (30 single staterooms)
- **Hangar**: Stowage, maintenance, and launch & retrieval of up to four crewed and/or uncrewed craft.

At the FIC meeting in September 2024, a proposal was discussed regarding the potential modification of a NOAA Class B variant to replace both *RV Kilo Moana* (Ocean Class) and *RV Thomas G. Thompson* (Global Class). This assessment evaluates whether the vessel can meet the science mission requirements (SMRs) of these two classes of ship.

Findings

1. Potential for NOAA Class B to Meet Ocean Class Requirements (with further study)

The NOAA Class B vessel is more closely aligned with the Ocean Class Science Mission Requirements, but modifications would still be required. These include:

- **Deck reconfiguration** to improve overboarding capabilities and accommodate two hydrographic winches with 10,000 m cable capacity.
- **Conversion of the small boat hangar** to increase lab and deck space.
- **Enhanced endurance** by increasing fuel and water capacity to match OCRV mission needs.
- **Trawl winch and additional A-frame modifications** to support standard oceanographic operations.

We strongly recommend a scoping study to determine the feasibility and cost of modifications needed to reconfigure the Class B vessels to meet OCRV requirements.

2. Inadequacy of NOAA Class B for Global Class Research Missions

Our analysis indicates that the NOAA Class B vessel cannot meet the SMRs of a GCRV without extensive and costly modifications. Key shortcomings include:

- **Berthing capacity**: The vessel can accommodate 48 persons, with only ~28 berths available for scientists, falling short of the GCRV requirement of up to 45 science personnel.
- **Lab and deck space**: Even with modifications, the vessel remains ~1,400 square feet short of the required lab space for GCRVs.
- **Endurance**: The Class B vessel's endurance of 30+ days is significantly below the GCRV requirement of 70 days, limiting its ability to conduct long-duration missions.
- **Seakeeping**: The vessel is designed to operate fully up to Sea State 4, while GCRVs require full operations in Sea State 5 and routine operations in Sea State 6.
- **Overboarding capabilities**: The current foremast load limit and overboarding equipment are insufficient for handling the heavy scientific payloads used in GCRV missions.

Given these constraints, we do not believe the NOAA Class B vessel will be an effective replacement for the *RV Thomas G. Thompson* or any other Global Class research vessel. The FIC strongly recommends prioritizing the procurement of four new Global Class AGORs instead to meet the needs of the oceanographic research community.

Conclusion and Recommendations

1. **With modifications, the NOAA Class B vessel could effectively replace an OCRV pending a feasibility and design study.** The NOAA Class B vessel can potentially replace an OCRV, and the FIC strongly recommends a scoping study to determine the feasibility and costs of this conversion. While

some potential exists, the extent of required modifications must be carefully assessed before any decision is made.

2. **The NOAA Class B vessel is not a viable replacement for GCRVs.** The vessel's current capabilities and design limitations make it unsuitable to meet the demands of long-duration, deep-ocean scientific missions. Instead, FIC urges the oceanographic research community to advocate for the timely construction of four new Global Class AGORs.

The diminishing capacity of the U.S. Academic Research Fleet underscores the urgency of planning for fleet replacements. The ongoing need for both Global and Ocean Class vessels is critical to maintaining the U.S. leadership in oceanographic research and national security operations.

Sincerely,

R Kipp Shearman

R. Kipp Shearman
UNOLS FIeet Improvement Committee Chair

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