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Analysis of the specifications and capabilities for the next-generation LRUSV

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Long Range Unmanned Surface Vessel (LRUSV)

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Background

- Long Range Unmanned Surface Vessel (LRUSV) is a new capability that provides the Marine Corps with a system that increases lethality to defeat peer competitors in the littorals.

- The current LRUSV initiative is focused on developing an unmanned system which can travel semi-autonomously (with or without "man-in-the-loop" command and control) to transport mission payload, loiter and address hostile seaborne and targets ashore.

U.S. Marine Corps reconnaissance team tactically swim ashore.

Unmanned LRUSV operating along with DDG-106 in a Hybrid Force concept demonstration in April 2021.

Metal Shark LRUSV and Command and Control Vessel
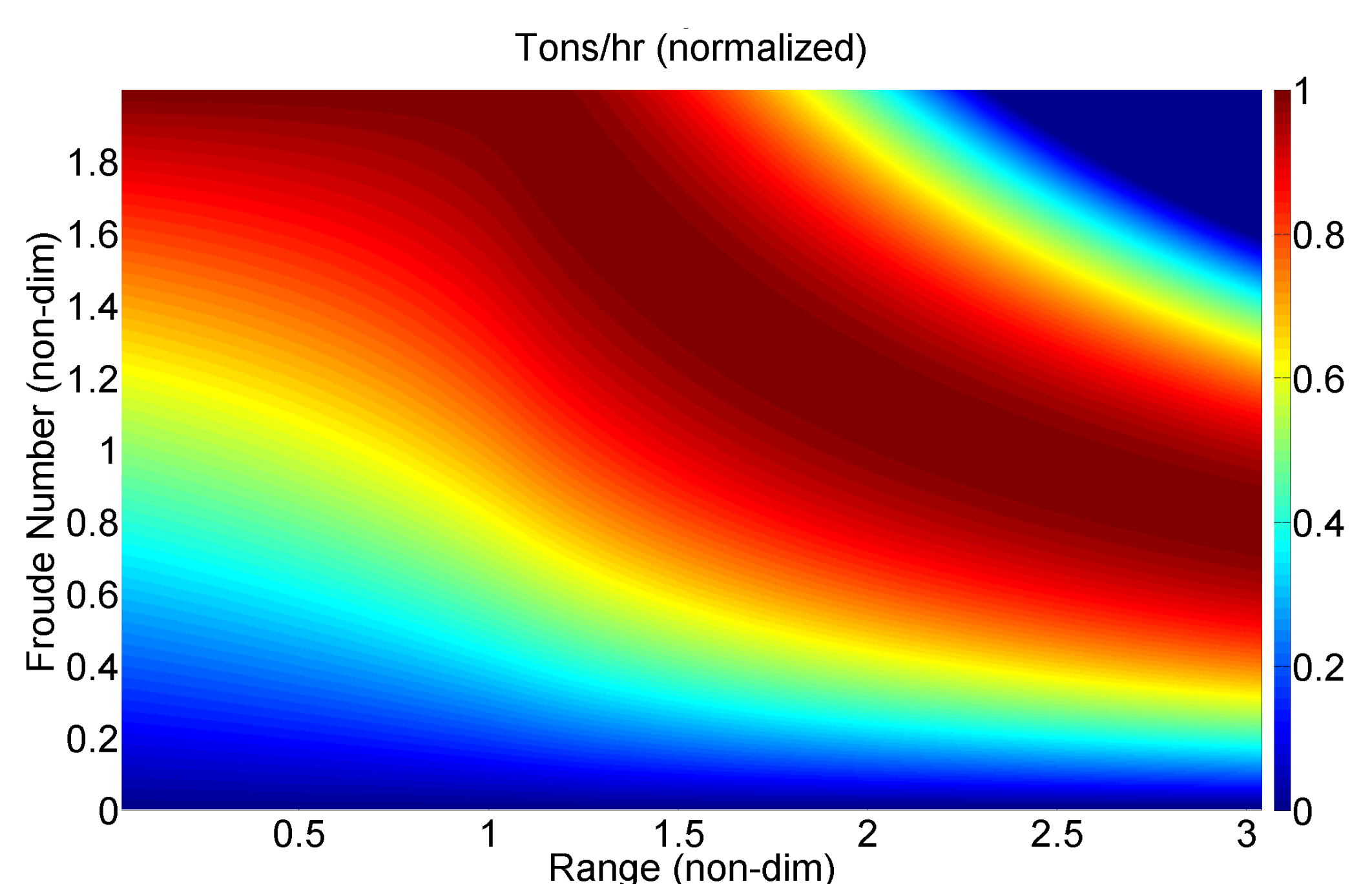
Approach

- Perform a trade-space analysis for next-generation LRUSV to determine appropriate displacement, size and hull type.

- Investigate mission payloads and profiles integrate with existing onboard and offboard systems.

- Analyze Command and Control vessel autonomy and man in the loop control against SWAP-C.

- Supportability analysis with emphasis on transportability.

Study and Objectives

- Based on the trade-space analysis, what is the best displacement, beam, length, and hull type for the next generation LRUSV?

- From operational requirements coupled with payload/speed/range trade-offs, what missions is the next generation LRUSV best suited for?

- What tasks would the next generation LRUSV perform autonomously and which ones would be performed using remote control?

- What existing ships and aircraft would be involved in deployment of the next generation LRUSV?

Recommendations

- Depending on loading conditions and other parameters, there is an optimum setting of speed and range to maximize an assumed benefit, such as payload throughput.

- Systematic sensitivity studies can reveal desirable range of operations and design parameters.