

Unmanned Low Profile Vessels (ULPVs): “Narco Subs” for Contested Logistics



NAVAL
POSTGRADUATE
SCHOOL

Research Question

“How might an unmanned version of a ‘narco-sub’ support contested logistics?”

- Explore the concept of ULPVs as a materiel solution to fill contested logistics capability gaps
- Capture key findings relevant to ULPV design, employment, and acquisition to support contested logistics.
- Inform the question: “What does a ULPV look like that meets DoD needs and is rapidly built by small boatyards / small businesses, at scale?”

The ability to surge, scale, and sustain expeditionary logistics is an asymmetric capability to deter, deescalate, or defeat adversary hostilities

IN FELLOWSHIP WITH:

COLLABORATING WITH:

WHAT'S THE PROBLEM?

LOGISTICS DETERMINE YOUR DESTINY: WHAT RUSSIA'S INVASION IS (RE)TEACHING US ABOUT CONTESTED LOGISTICS

Michael Huggin, Edward Saki, Ryan Kuhnke and Ben Hazen | 08.09.22

PACFLEET CO Paparo Talks Combat Logistics, Chinese Coercion

(LaGrone, 2023)

MEANWHILE...

Photos Of First Trans-Pacific Narco Submarine Caught Heading To Australia

Thu 22 February 2024
By IJ Sullivan

es Will Need Recapitalized Sealift, Logistics to Succeed in Pacific Operations

ogistics, Logistics, Logistics' is Now Marines' Focus, Says CMC Berger

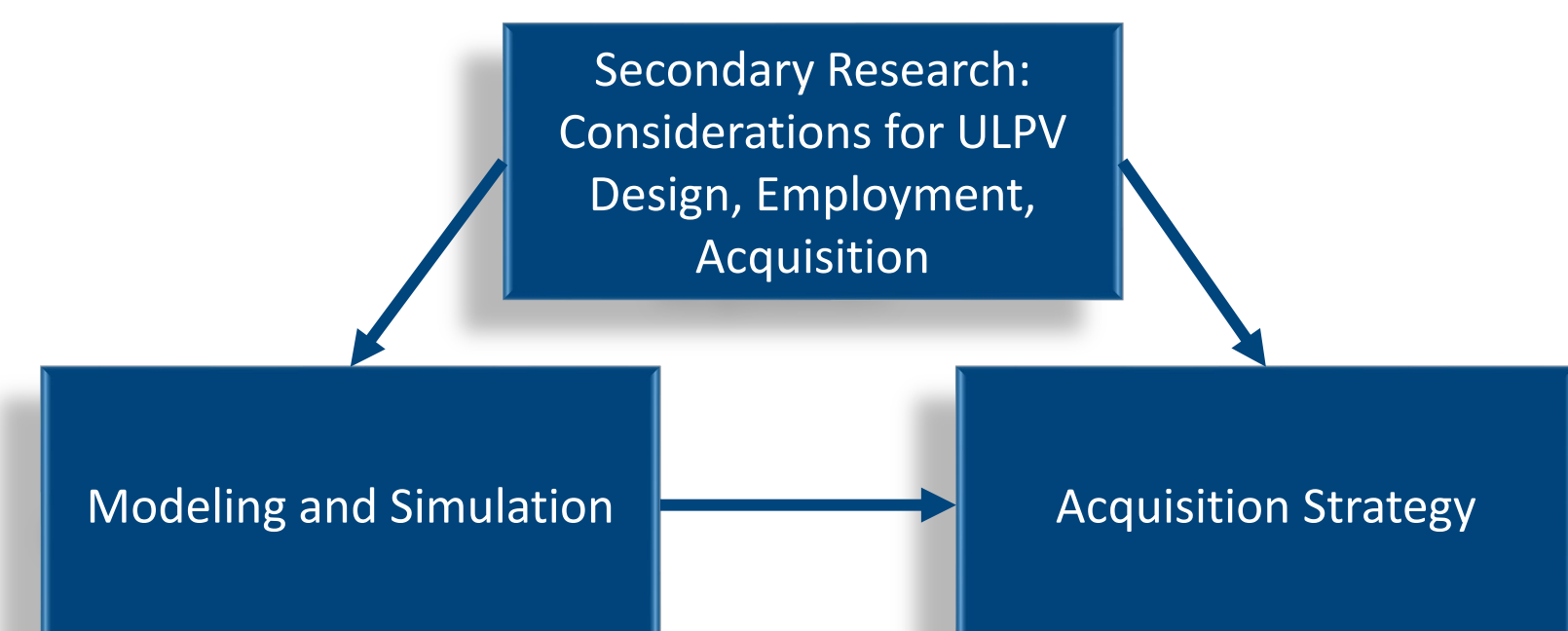
(2023)

DOD & USAF Leaders Aiming for 'Survivable, Responsive' Logistics Systems in Contested Environments

(Lynn-Burt, 2023)

Research Approach

- Secondary Research of Open-Source Literature
- Modeling and Simulation (M&S):
 - Next Generation Threat System (NGTS)
 - Causal Loop Diagram
 - Virtual Sand Table
- Acquisition Strategy



DETAILS: MODELING & SIMULATION

Step 1. Run Concept ULPV Vessels in NGTS Simulations to Learn:

- Probability of Detection --> Success Rate

Next Generation Threat System (NGTS)

Step 2. Simulate interaction of variables to maintain a supply level at an expeditionary base

Could inform:

- Number of Vessels Necessary
- Tradeoffs Between Vessel Types

Simplified Contested Logistics "Causal Loop Diagram"

Expected Deliverables

- Documented key considerations for ULPV design to support DoD employment in the Indo-Pacific
- Digital models of ULPVs and contested logistics simulations
- Acquisition Strategy for affordable ULPVs

Expected Findings

- ULPV contested logistics performance in the Indo-Pacific (expected probability of detection & attrition)
- Number of ULPVs for expeditionary ops sustainment
- ULPV design choices to enable small business fabrication and competition, both US and Allies



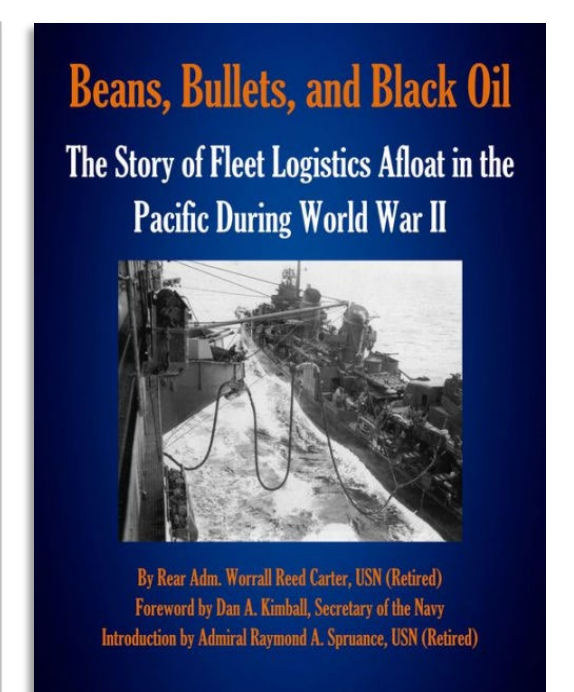
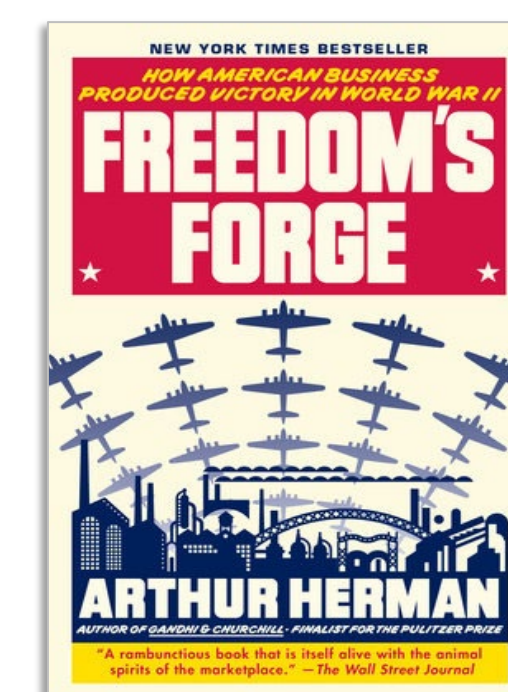
LPV Boatyard in Colombian Jungle. ("The Archaeology of 'Narco Subs,'" 2020)



View of Low-Profile Vessel Operating (Sutton, 2021)



Indo Pacific Area of Interest & PRC Range Rings ("America and China Are Preparing for a War over Taiwan," 2023)



Books That Helped Motivate this Research: "Freedom's Forge" & "Beans, Bullets, and Black Oil"

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