OBJECTIVE: Develop a small high-speed watercraft that can serve as a littoral surface connector capable of delivering smaller autonomous, remote, and manned vehicles and systems; and would have a rail system to attach modular mission packages for operations directly from the vessel or decking that supports vehicles containing modular mission packages. This solution supports the President’s National Defense Strategy by providing:

• Joint lethality in a contested environment
• Forward force maneuver and posture resilience
• Advanced autonomous systems
• Resilient and agile logistics

Per the Commandant’s Guidance this solution provides for:

• Expeditionary Advanced Basing Operations (EABO)
• Littoral Operations in a Contested Environment (LOCE)
• Naval Integration
• Mine Countermeasure Forces
• Amphibious Capability
• Lethal Long-Range Unmanned Systems
• Stand-In Forces
• Affordable Cost
• Deceiving the Enemy

DESCRIPTION: A “21st century Higgins Boat” capability is needed to serve as littoral connectors to support the landing of smaller remote autonomous systems for expeditionary advanced base operations. The development and proliferation of long-range precision weapons by peer competitors—China and Russia—have changed amphibious warfare by pushing ships farther from the coastlines. Both the long-range capability and low cost of these weapons require the DoD to develop smaller faster littoral connectors to deliver low-cost, autonomous systems. This platform would enable the delivery of smaller land vehicles, weapon systems, fuel bladders, water, and electric generation equipment. These payloads could be offloaded to support long-term advanced naval bases or operated from the watercraft to support short team Expeditionary Advanced Bases (EABs). The modular payloads could also include unmanned aerial systems (UAS) and unmanned underwater systems (UUS) launchers that could deliver unmanned systems distant from the shoreline.

Multiple commercial high-speed watercraft exist in the market that meet some of the specifications listed below. They are essentially current versions of World War II Higgins Boats. These partially meet the specifications and through moderate engineering can meet a significant portion of the requirements.

The parameters of the vessel include the following:
- Width of deck and front ramp 60 inches at narrowest point
- Length of deck from aft to stern 156 inches
- Must have a deck rail system to tie down modular mission packages
- Able to power external modular mission packages
- Payload capacity 10,000 lbs.
- Range ~200 nautical miles at full throttle with max payload
- Speed >25 knots at payload capacity
- Draft <30 inches when fully loaded
- Able to land and unload vehicles onto land without use of dock
- Capable of autonomous/remote control operation

PHASE I: Develop concepts for an improved smaller high-speed amphibious role-variant craft that meets the requirements described above. Demonstrate the feasibility of the concepts in meeting Marine Corps needs and establish that the concepts can be developed into a useful product for the Marine Corps. Establish feasibility through material testing and analytical modeling, as appropriate. Provide a Phase II development plan with performance goals and key technical milestones, and that will address technical risk reduction.

PHASE II: Develop a scaled prototype for evaluation. Evaluate the prototype to determine its capability in meeting the performance goals defined in the Phase II development plan and the Marine Corps requirements for the smaller high-speed amphibious role-variant craft. Demonstrate system performance through prototype evaluation and modeling or analytical methods over the required range of parameters including numerous deployment cycles. Use evaluation results to refine the prototype into an initial design that will meet Marine Corps requirements. Prepare a Phase III development plan to transition the technology to Marine Corps use.

PHASE III DUAL-USE APPLICATIONS: Support the Marine Corps in transitioning the technology for Marine Corps use. Develop smaller high-speed amphibious role-variant craft for evaluation to determine its effectiveness in an operationally relevant environment. Support the Marine Corps for test and validation to certify and qualify the system for Marine Corps use.

The system has the ability to support commercial logistics operations. One potential application could be the movement of equipment and supplies between off-shore energy production platforms: oil, wind turbines, wave-motion. It may also be used to offload cargo from ships to shore.

REFERENCES:


KEYWORDS: High Speed Watercraft; Landing Craft; Small Surface Connector; Utility Craft; Amphibious Craft; Utility Watercraft; Littoral