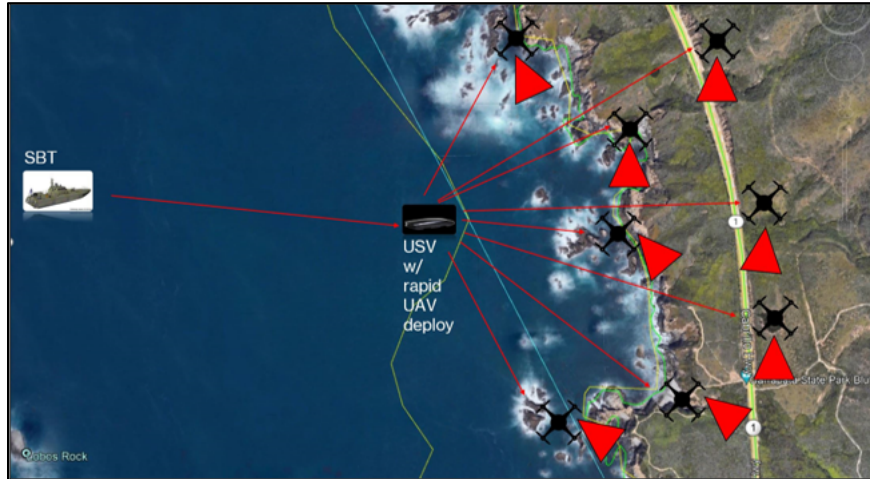


Collaborative Hyper-Enabled Operations in Contested Environments (CHOICE)



UxV's in Contested Environment

Problem Statement

- Successful operations in GPS-denied environments are of critical importance to naval expeditionary forces.
- The successful mapping and subsequent infiltration of denied areas by autonomous vehicle teams are of particular interest to Naval Special Warfare (NSW)
- Our research proposes a collaborative mapping framework using teams of unmanned aerial vehicles (UAVs) and unmanned surface vehicles (USV), with limited communication capabilities, all operating in a complex, GPS-denied, littoral environment.

Impact

- This experiment/project will bridge the gap for UxV package employment for operators.
- Will significantly reduce risk-to-force and force-multiply on the battlefield and in non-permissive environments.
- Providing CSLAM data to the scientific community
- Ability to develop/test new CONOPS with Special Operations Students (LTJG Mears, LT Maness) in Defense Analysis
- New algorithms for distributed CSLAM in contested environments
- New algorithms for sensor driven path generation/path following in contested environments

Transition

- ONR's Marc Steinberg has invited NPS and MIT to submit a full version of this proposal to the Science of Autonomy Program.
- Technical approach supports capabilities needed for contested logistics and resupply. NPS submitted a FY23 JDDE proposal to USTRANSCOM with a letter of intent from PMA-263.
- Collaboration with Jon How (MIT) and Boeing/Insitu on field experiments using ScanEagle UAS (Navy Program of Record).
- Long-standing partnerships with PMA-263 and NIWC Pacific will identify other viable technology transition paths.
- Continued support is expected from the NSW WARCOM N8, N9, N35, NSW Group Four, and NSW Group 8.