

NRI: INT: Development of a Customizable Fleet of Autonomous Co-Robots for Advancing Aquaculture Production

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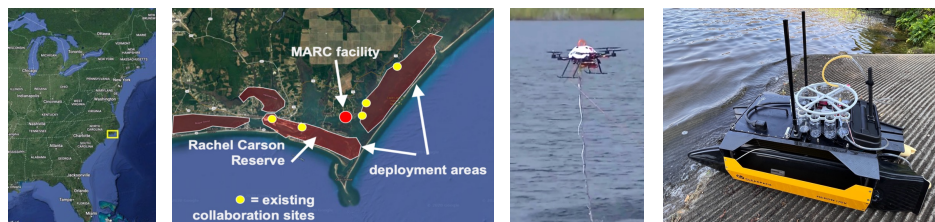
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An existing **≈\$14 billion seafood deficit in the US** is driving efforts to develop new, larger nearshore marine aquaculture systems to meet national demand. Temporary closures impact industry economics and can cause more than 25% total revenue loss.

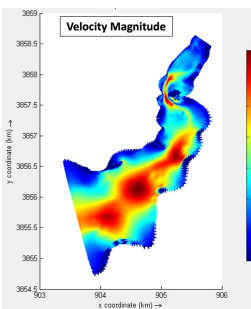
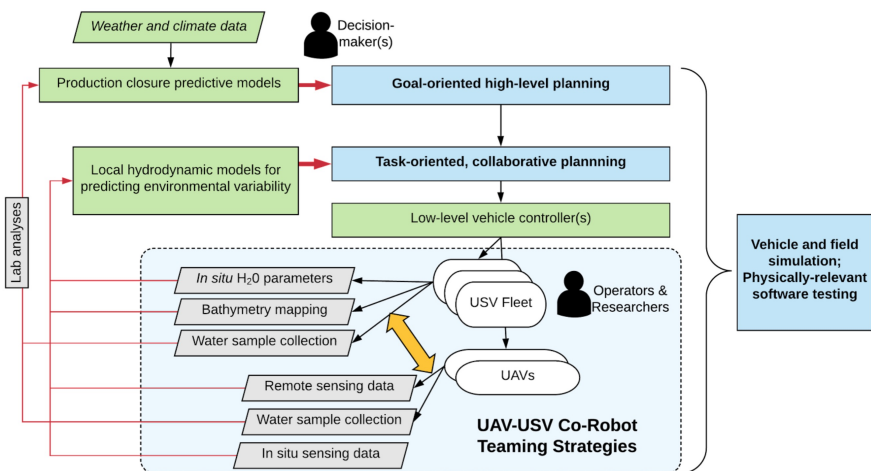
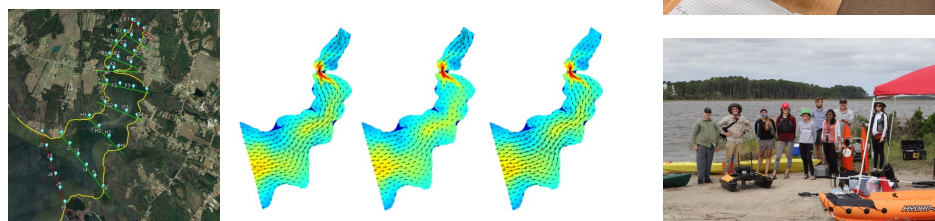
Research Theme 1: Integrate hydrologic and hydrodynamic models with a collaborative task-planning strategy for high-resolution process monitoring in aquaculture production zones.

Research Theme 2: Explore aerial and surface vehicle co-robot teaming strategies within a heterogeneous fleet.



INTELLECTUAL MERIT

This project integrates **hydrologic and hydrodynamic models** of complex, dynamic nearshore coastal systems with task planning algorithms across multiple scales in a novel way for **more optimal and information-rich monitoring, response, and exploration**.



BROADER IMPACTS

This work is important because it is one of the first focused efforts towards developing robotic systems for the near-shore aquaculture industry and **engages mariculture stakeholders from both government and industry** throughout the project to better position them to adopt these systems.

We utilize the NC Cooperative Extension to include stakeholders in testing and deployment and **engage with rural NC communities**.

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2023 FRR-NRI Principal Investigators' Meeting

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