URI-GINIS
DHS Coastal Resilience Center
Research Project Work Plan Template
Years 4 - 5
[July 1, 2018 – June 30, 2019 / July 1, 2019 – June 30, 2020]

1. **Project Title**.

   Modeling the combined coastal and inland hazards from high-impact hurricanes

2. **Principal Investigators**.

   PI: Isaac Ginis, University of Rhode Island, Professor

   Co-PIs:
   - Tetsu Hara, University of Rhode Island, Professor
   - David Ullman, University of Rhode Island, Marine Research Scientist
   - Pam Rubinoff, University of Rhode Island, Coastal Resilience Specialist
   - Austin Becker, University of Rhode Island, Assistant Professor

3. **Other Research Participants/Partners**.

   Research Participant: Wenrui Huang, Florida State University, Professor

4. **Short Project Description**.

This project advances modeling capabilities that assess the potential impacts of landfalling hurricanes on critical infrastructure and communities. The primary focus is on hurricanes in the Northeastern United States, combining multiple hazard impacts, including coastal flooding due to storm surge and inland flooding due to rainfall.

This project will expand outreach to the Northeast region previously not a focus of the models, and allow DHS and other agencies to better understand the consequences of coastal and inland hazards associated with extreme high-impact landfalling hurricanes in specific regions and to better prepare coastal communities for future risks.

5. **Abstract**.

The major goal of this project is to comprehensively investigate hazards and impacts in the focus regions using the most advanced coupled hurricane, coastal ocean circulation/storm surge, wave, and hydrological models and transition the developed new modeling capabilities to the real-time ADCIRC-Surge Guidance System (ASGS) and Coastal Emergency Risks Assessment (CERA). To attain this goal, the following specific tasks will be accomplished: 1) Advancing the ADCIRC modeling system in the Northeast; 2) Expanding coupled inland and coastal flood modeling to all of Southern New England; 3) Expanding the URI Hurricane Boundary Layer model application to any location in the U.S. coastal region; 4) Implementation of hazard impact modeling into the real-time ASGS and CERA; and 5) Expanding end-user outreach to New England stakeholders.