

**Capstone Design Project Proposal**  
**Title of Project: Effects of Climate Change on US Shipbuilding Facilities**  
**Date: May 8, 2019**

**Proposer:** Christopher Lowe, Sub Engineering, [Christopher.Lowe@hii-nns.com](mailto:Christopher.Lowe@hii-nns.com), (757) 688-0966

**Project Title:** Effects of Climate Change on US Shipbuilding Facilities

**Unmet Need – Engineering Problem to be Addressed:** To understand the latest climate change predictions (global warming, sea level rise, stronger adverse weather conditions, etc.) effects on US shipbuilding, port facilities, infrastructure, etc. Changes are going to need to be made and that's going to need study, pre-planning, funding authorizations, political action, etc.

**Proposed Deliverables:**

- Simulations of various sea level rise scenarios (aggregate sea level rise and storm surge potential)
- GIS maps

**Anticipated Resources Required:**

- Access urban flooding information at Science Museum of VA
- Access to NASA documentation

**Anticipated Skills required:**

- Computer Modeling
- Simulations
- Computer Science

**Other Information: US Citizenship Required**

**From:** O'Brien, Jim

I think that this would be an interesting project. I would like to see some computer simulations tied in to our GIS maps and our other maps. We (Dave V.) and I could sit down with Chris and Mike and show them what we are thinking. Also, there was a recent article which I have pasted below which may apply here as well.

**Reed & Warren: GAO Agrees to Investigate National Security Threats Posed by Climate Change to Pentagon Contractors and Defense Supply Chain**

4/30/2019 —

**WASHINGTON, DC** – Today, U.S. Senators Jack Reed (D-RI), Ranking Member of the Armed Services Committee, and Elizabeth Warren (D-MA), a member of

the Armed Services Committee, applauded the Government Accountability Office (GAO) for agreeing to their April 2019 request to **investigate the impacts of climate change on defense contractors and the defense supply chain**, and the extent to which the Department of Defense (DoD) addresses climate change and other environmental risks during the contracting process.

“We’re pleased that the GAO has accepted our request to investigate the national security risks posed by climate change to DoD contractors and the defense supply chain,” said Reed and Warren in a joint statement. “The DoD and its contractors must take our rapidly changing climate into account as part of enhancing military readiness and ensuring the efficient use of taxpayer dollars.”

In their **April 11 letter** requesting the investigation, Senators Reed and Warren asked GAO to address several questions including:

1. **To what extent does climate change pose a threat to the facilities and operations of key private sector DoD contractors, and how do contractors' climate change vulnerabilities affect military operations and readiness?**
2. **To what extent are contractors required to disclose, either to the public, to financial regulators, or to DoD, any potential threats to their facilities or operations as a result of climate change?**
3. To what extent do DoD contracting officials, during the procurement process, take into consideration: (a) the actions taken by contractors to improve energy efficiency and reduce carbon emissions and their history of compliance with the nation's environmental laws; and (b) the potential threats to contractors' facilities and operations as a result of climate change?

In their **April 24 response letter** to Senator Reed, GAO estimated it will be available to initiate the investigation in about three months.

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