1

U.S. Academic Fleet Trusted CI Cybersecurity Engagement

July - December 2019

https://blog.trustedci.org/2019/07/trusted-ci-begins-engagement-with-hi.html

2

U.S. ARF Engagement Plan

In July 2019 the Trusted CI NSF Cybersecurity Center of Excellence started an an **engagement** process with the U.S. Academic Research Fleet to explore the current cybersecurity landscape across of vessels in the fleet and facilitate future directions and best practices for the fleet as an NSF large research facility.

3

Stakeholders

Trusted CI
- https://trustedci.org/

The **Trusted CI NSF Cybersecurity Center of Excellence** specializes in the development of an NSF Cybersecurity Ecosystem with the mission to **protect** NSF **cyberinfrastructure**. CI that enables trustworthy science and NSF's vision of a nation that is a global leader in research and innovation

National Science Foundation
- https://nsf.gov/
- Division of Ocean Sciences

Funding agency and parent stakeholder for **Trusted CI** and the **U.S. Academic Research Fleet** (ARF)

U.S. Academic Research Fleet
- https://undpk.org/

The **United States Academic Research Fleet** (ARF, funded by multiple NSF awards) consists of eighteen oceanographic research vessels operated by the **University-National Oceanographic Laboratory System** (UNOLS) that vary in size and capability from large Global Class vessels to Coastal Class vessels. As a **large facility**, the ARF is unique because its primary assets (research vessels) are owned by several different agencies and independently operated by fourteen different oceanographic research institutions.

4

Participating Institutions

Trusted CI Engagement Application
- SIO - Scripps Institute of Oceanography
- WHOI - Woods Hole Oceanographic Institution
- UW - University of Washington
- OSU - Oregon State University
- UAF - University of Alaska Fairbanks
- UH - University of Hawaii
- LUMCON - Louisiana Universities Marine Consortium

Additional Participants
- SKIO - Skidaway Institute of Oceanography
- LDEO - Lamont Doherty Earth Observatory
- URI - University of Rhode Island

5

Roles and Responsibilities

Trusted CI
- **Mark Krenz** - Chief Security Analyst, IU Center for Applied Cybersecurity Research
- **Ryan Kiser** - Senior Security Analyst, IU Center for Applied Cybersecurity Research
- **Ishan Abhinit** - Senior Security Analyst, IU Center for Applied Cybersecurity Research
- **Andrew Adams** - Senior Information Security Analyst, Pittsburgh Supercomputing Center
- **John Zage** - Research Programmer, National Center for Supercomputing Applications
- **Kelli Shute** - Project Manager, IU Center for Applied Cybersecurity Research

US. Academic Research Fleet

UNOLS Primary Points of Contact
- **John Haverlack** (CISO) - University of Alaska Fairbanks, AK, acting cyberinformation security officer for this engagement
- **Brandi Murphy** - Technical Services Manager (UNOLS)

UNOLS Institutions Technical Points of Contact
- **Lee Elliott** - Scripps Institution of Oceanography, UC San Diego
- Scott Ferguson - University of Hawaii
- Ken Feldman - University of Washington
- David Fischella - Woods Hole Oceanographic Institution
- Steven Hartz - University of Alaska Fairbanks
- **Jon Meyer** - Scripps Institution of Oceanography, UC San Diego
- Alex Ren - Louisiana Universities Marine Consortium
- Laura Stolp - Woods Hole Oceanographic Institution
- Loren Tuttle - University of Washington
- Andrew Woogen - Oregon State University

6

Motivations

- IMO MSC-FAL.1-Circ.3 (Jan 2020)
- NTAIRS 252 258 7572 (Oct 2016)
- USCG Memo (Aug 2019)
- Ingevaldes Tempo (March 2019)

7

Goals and Objectives

1. **Document Review** - For Trusted CI to review available policies, procedures, and documentation pertaining to the security of ARF as an organization and to the ships organized through UNOLS.
2. **Provide a Report** - For Trusted CI to write and deliver a report to the ARF providing recommendations for how ARF's cybersecurity policies and procedures can be improved to reduce cybersecurity risks to the organization and to science and research projects utilizing their vessels and services.
3. **CS Framework Guidance** - To identify improvements on the existing state of CI, practices, and requirements and develop a set of improvements which are practical for the ARF to implement.
   a. **CI Recommendations** - Determine an optimal organizational and resourcing structure to better equip the fleet to handle the evolving CI and cybersecurity demands of fleet constituents.
   b. **Common Controls** - Develop a common set of security practices which can be implemented across the fleet to allow ships both to adhere to cybersecurity requirements such as IMO 2021 and to adequately secure the growing body of operational cyberinfrastructure onboard.

8

Timeline

- **July 2, 2019:** Regular weekly meetings commence, begin drafting blog post announcing engagement.
- **July 23, 2019:** Engagement plan final draft complete, final review begins
- **July 26, 2019 (MILESTONE):** Engagement plan signoff target date, formal engagement effort begins.
- **July 30, 2019 (MILESTONE):** Determine appropriate site visit dates and Trusted CI staff attendance
- **July 30, 2019: PEARC19 - NO MEETING**
- **July 30, 2019:** Trusted CI will publish a public blog post describing the engagement.
- **Oct 7-8, 2019:** Skidaway Site Visit, Newport OR
- **Oct 14-17, 2019:** NSF Cybersecurity Summit + Spinal Site Visit, San Diego, CA
- **Oct 22-24, 2019:** INTEC Conference in Fairbanks, AK
- **Nov 7-8, 2019:** Armstrong / Endeavour site visits, WHOI / URI
- **Dec 17, 2019 (MILESTONE):** Target date for completion of all deliverables.
- **Jan 7, 2020 (MILESTONE):** Formal end of engagement activities. All written deliverables delivered to and accepted by US Academic Research Fleet by this date.
- **July 2020:** Trusted CI contacts US Academic Research Fleet with initial request for impact evaluation (6 months).
- **January 2021:** Trusted CI contacts US Academic Research Fleet with follow-up request for impact evaluation (1 year).

9

Current Status - August 2019

- Starting in July weekly engagement meetings are being conducted.
- Vessel Operators have been asked to provide a Documentation Checklist to Trusted CI by Aug 30.

Questions?

- jehaverlack@alaska.edu