



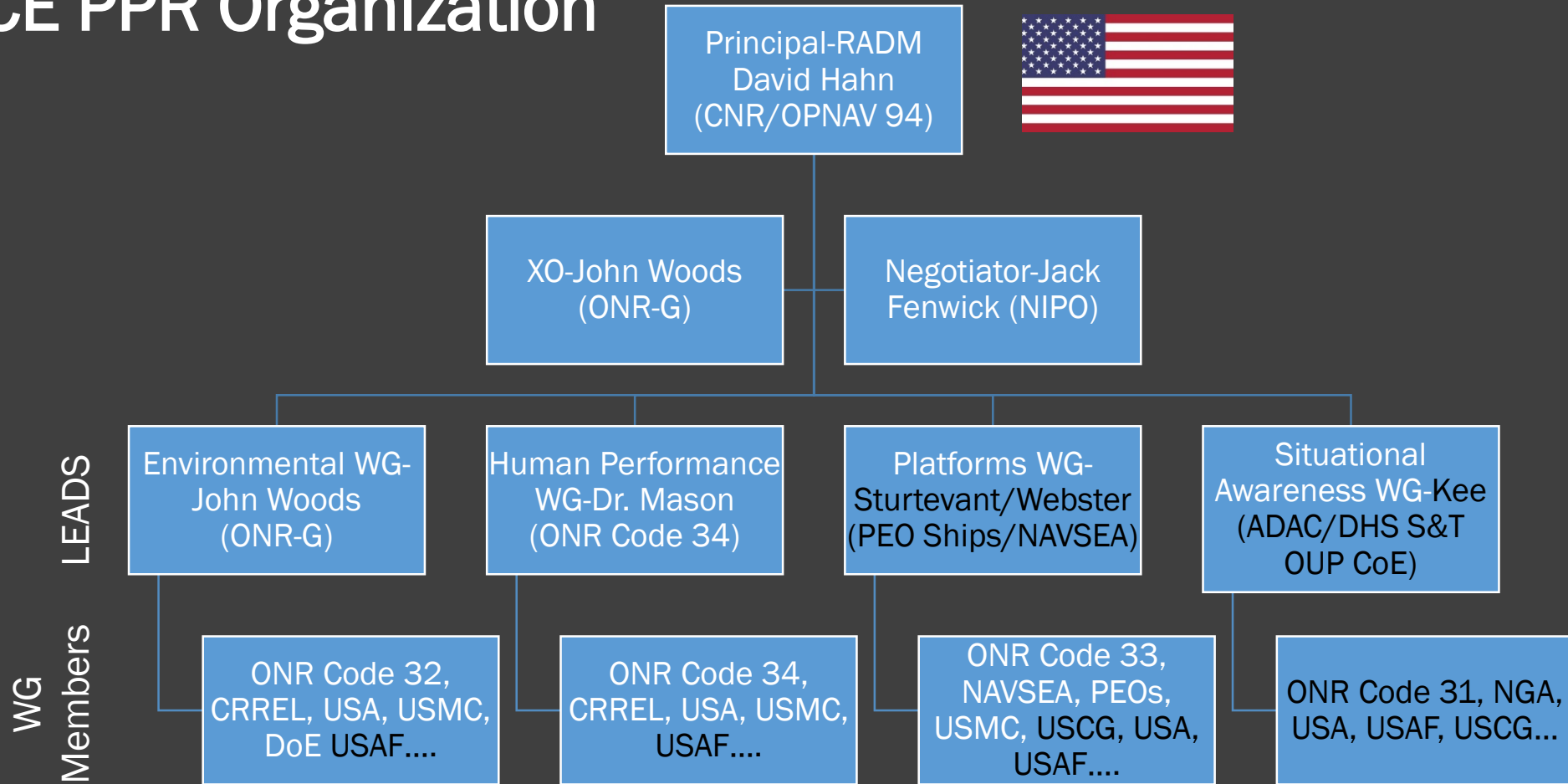
ICE PPR

United States of America

Situational Awareness Working Group (SAWG)

22 May 2020

U.S. ICE PPR Organization



US ICE PPR Working Group POCs:

Environmental (US ONR turning over to....) - john.e.woods@navy.mil

Human Performance (ONR Code 34) - patrick.mason@navy.mil

Situational Awareness (ADAC) - rakee@alaska.edu

Platforms (US PEO Ships/NAVSEA)- glen.sturtevant@navy.mil james.s.webster@navy.mil

ICE PPR SAWG

Working
Groups (WG)

Situational
Awareness WG



Understood areas of ICE PPR SAWG

Focus:

- Sensors/Source of Information
- Processing Capabilities
- Info Systems for Storing
- Bathy/Coastline (EWG collects)



Introducing your U.S. SAWG Partners...



U.S. ICE PPR SAWG Delegation

Maj Gen Randy 'Church' Kee (USAF ret)	DHS S&T CoE	Arctic Domain Awareness Center (ADAC)	rakee@alaska.edu	US SAWG Lead
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Greg Stihel	DOE Nat'l Lab	Sandia National Laboratories	gcsthe@sandia.gov	



U.S. ICE-PPR SAWG delegation's Understanding for Key Activity Since Last Principals Meeting (Nov 2019-NZL)

- ICE-PPR MOU Status
 - 23 Apr Final International Staffing; U.S. Ready to Sign Once Complete (late Jun)
- ICE-PPR XO Discussions
 - Bi-weekly telecons since Aug 19
 - Latest XO Meeting 04 May 20
- U.S. Army Inclusion into ICE PPR
 - Cold Regions Research (standing by determination)
 - Multi-lateral efforts to be combined
- U.S. Internal Working Group Leads Identified
 - Environmental-Open (Woods Cover); **USA, USAF, USCG?**
 - Human Performance-Dr. P. Mason (ONR)
 - Platforms-G. Sturtevant/J. Webster (NAVSEA)
 - Situational Awareness-R. Kee (ADAC)



U.S. National ICE-PPR Work...a brief summary

- Platforms Working Group (PWG) Overall ICE PPR Lead
 - Exchanged with Finland Winter 2019;
 - Forming US Team with inclusion of ALL Services
 - Developing Strategy and Plans; Leveraging other forums (in particular, NATO)
- Environmental Working Group (EWG) ICE PPR Lead turning over to Finland
 - EWG Terms of Reference (ToR) drafted and in discussion. Current status: Still in Work
 - US EWG conducted their 1st Meeting on 30 APR 2020
- HPWG continues to make progress
 - Providing great example for the other working groups.
- SAWG just now forming...conducted 1st US Internal Meeting on 1 MAY 2020
 - Planning intercessional work over summer to prepare for Fall 2020 Principals meeting
 - Team will seek to develop recommendations for Danish Lead to consider
- PA topics
 - WG topics discussions with International Partners (WG Meetings (May20))
 - All Services (USA, USAF, USCG) and Agencies (DoE, NASA, NOAA, NSF....)
- ICE-PPR now underway in connecting with U.S. Interagency Arctic Research Policy Committee (IARPC) for possible integration
 - Possibility to infuse greater U.S. Interagency Collaboration into the overall US program...to include SAWG



ICE PPR Exercises

- USN Reserves (ONR-RC) Participation in Operation Nunaliut 2019
 - Twin Otter Support from Inuvik (NWT)
 - Canadian Ranger Support from Tuktoyuktuk (NWT)
- Plan was to deploy Environmental Buoys on offshore sea ice
 - Challenging ice conditions; No multi-year sea ice within range
 - Aircraft issues
- Great Relationship Building
 - Beaufort Sea Science Partnerships
 - STEM Event



A sincere and hearty thanks to our Canadian Allies and ICE-PPR Partners!

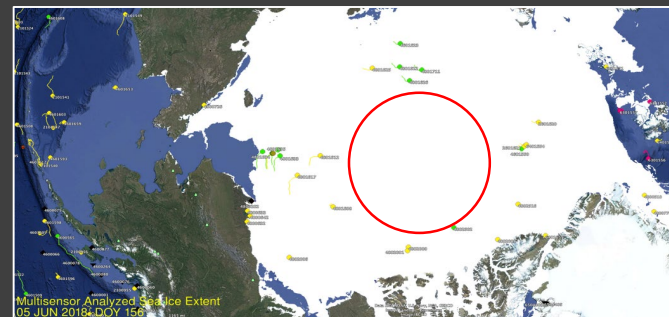
ICE PPR Buoy Drops



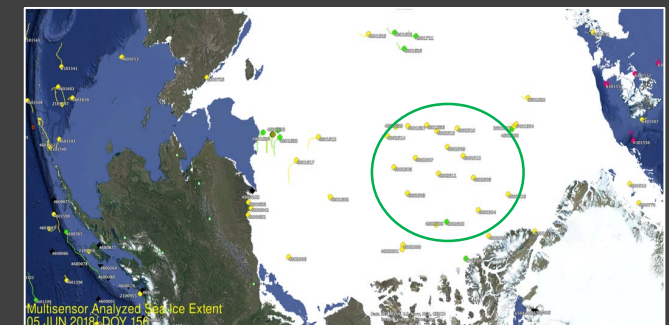
- 3 Coordinated Airborne Arctic Buoy Deployments
 - International Arctic Buoy Program (IABP), Royal Danish Air Force (RDAF), Royal Canadian Air Force (RCAF), Environment Climate Change Canada (ECCC), Defence Research and Development Canada (DRDC), US Navy ONR Reserve Component (ONR-RC)
 - Looking towards the future...seeking possibilities of other providers
 - In the U.S....seeking possible support from organizations such as U.S. Air Force, Air National Guard or U.S. Coast Guard?
- 2017-RDAF (Thule), 2018/19 RCAF (Resolute Bay), 2020 UNK (COVID)
- Filling Large Data Gaps over the Arctic Ocean
- **Cost Savings** approx. \$.25M/year to allow for the purchase of more buoys (IABP)



Below: PRE ICEPPR flights data gaps (red)



Below: POST ICEPPR flights filling voids (green)





Benefits of ICE PPR...SAWG's Understanding

- Information Exchange
 - Classification Matrix (discussed at XO meeting) will be included in Business Rules
- Project Agreements (Longer; 12-18 Months)
 - Use Technical Planning Document to Develop Draft
 - Determine Project Ideas/Tasks ASAP
- Leverage Experimentation Opportunities (Medium; COVID and Coordination)

Capabilities/Cooperation /Opportunities

- Developing Template-PWG Lead
 - Facilities, Ships, Aircraft.....
- Add
 - Personnel
 - Students
 - Decision Aides
 - Bathymetry/Mapping



U.S. ICE-PPR SAWG Points of Discussion

- U.S. ICE-PPR SAWG: A network of networks across U.S. military operations, Defense and Security Research Centers and even the now the likelihood of U.S. National Laboratories.
- Developing a Working Group Term of Reference
- Meeting Quarterly as desired by Danish Lead and strive as a U.S. Delegation to meet at least 1-2 times between quarterly meetings.
- Design of an overall working group framework. Creating “pillars” & “tiers” oriented to either geography, function and/or mission?
- Interconnectedness to other working groups?
- Designing a few examples of Project Agreements?
- Using a web portal to stay connected and facilitate intercessional work?
- Striving for a few quick wins?
- Being good team players...



U.S. ICE-PPR SAWG...a quick look at the Current Team

Included:

- Office of Naval Research
- OPNAV N26
- NAVEUR
- NAVSEA
- NG(I)A
- CRREL
- USCG Pacific Area
- ADAC
- Sandia National Labs (Just added)

What this translates to:

- U.S. Navy's Fundamental and Applied Research Community
- HQ U.S. Navy Domain Awareness Community...oriented to Information Warfare and Maritime Information Services
- HQ U.S. Navy Europe Domain Awareness Subject Experts
- Naval Sea Systems field activities providing the engineering, scientific, technical and logistical expertise, products and support to the Fleet
- NG(I)A Maritime Community of Practice (MCoP), oriented to the Arctic and Polar Regions & domain awareness
- U.S. Army Corps of Engineering Laboratory supporting the Army cold regions warfighting...and much more.
- Science and support to U.S. Coast Guard in the Polar regions
- DHS S&T University Program Network of Arctic S&T operationally focused researchers
- National Laboratory advancing Arctic S&T research



A discussion on framework in organizing SAWG collaboration

Domain Orientation:

Aggregated existing capabilities matrixed to gaps and needs oriented to “Pillars” aligned to:

- Sea-bed to Ocean Surface
- Surface
- Air
- Space
- Cyber

Collaboration seeks to close the various domain shortfalls and gaps.

Key Missions Tiered Orientation:

Array of defense and security missions matrixed against known/understood shortfalls & gaps...oriented to:

- Mission profile
 - Peacetime missions (SAR/HA/DR)
 - Crisis contingency
 - Conflict/Warfighting
- Operating medium/environment
- Current and anticipated conditions

Collaboration develops a suite of key solutions and associated needs to close the shortfalls & gaps



A starting point for thinking about Situational Awareness shortfalls and gaps

- Communications
- Sensors/sensing networks...including radar/radar systems
- Undersea terrain/bathymetry
- Characterizing/forecasting weather and the physical operating environment
- User defined operational/spatial awareness
- Information sharing at the “speed of need”
- Understanding the change dynamics, particularly at fine scale
- Understanding/characterizing non cooperative (non-transponding) vessels and platforms
- Knowledge of how to respond in polar regions for maritime missions in comparison to lower latitudes (e.g., marine pollution response in ice laden regions is likely considerably different than non-ice-covered spaces)
- Grey Zone activities...what is/is not a threat or concern?



Some aspects to discuss

- Polar over the horizon radars
- High Latitude Comm Studies
- Rising numbers of polar orbiting satellites
- Satellite Derived Bathymetry
- Ice Conditions mariner indexes



How to proceed...perhaps starting with a group wide effort in understanding our “mission”?

- What is our “responsibility” vs our “interest” as a working group?
- What are shared understandings of focus areas...near vs longer term?
- Are there some natural lines of efforts we would want to pursue in subgroups?
- What are some reasonable expectations and goals to consider?
- What are the aspects of sensitivities to be aware of between delegations?
- What mission needs in situational awareness that remain unclassified?
- As a reminder...social networks aid situational awareness as well...what can we learn here?
- In the Arctic region...[what can we learn from indigenous communities](#) and traditional knowledge that aid Situational Awareness?
 - Co-production of knowledge is normalizing across Arctic Research...and we need to find a way to connect this to our endeavors as workable





What we aim for as the US ICE-PPR SAWG

- Sharing what we are learning across our diverse team with our multi-national partners
 - Grow a bigger tent of trust...
- Gaining insights to what our multi-national partners are learning
- Make it honest and real...and avoid activities that are simply going through the motions
- Look for collaboration, experimentation and multinational opportunities
 - COVID-19 is going to slow things a bit...
- Leverage service training and readiness activities for *'incidental benefit'* to ICE-PPR
- Draft the SAWG TOR before the Executive's Meeting in the Fall?
- Establish 1 Project Agreement before Spring 2021?





Ready for discussions

XO Meeting 04 May 20

- Interpretation of the MOU
 - Executives vs. Principals
 - WGs and ToRs vs. PAs alone
 - Business Rules/Management Structure
 - New Partners
- Executive Meetings
 - MOU Signing June
 - Telecon SEPT (Topic Guidance)
 - ESC Meeting NOV (Norway)
 - Will hold virtual if COVID impacts still;
 - Will meet ASAP face to face (Norway);
 - Denmark hosting 2021



NavyTimes

News Pay & Benefits Flashpoints Pentagon & Congress Off Duty Education Veterans Mi

US Navy surface ships enter the Barents Sea for the first time since mid-1980s

🕒 4 hours ago



The Duke-class frigate HMS Kent (right) takes part in a replenishment-at-sea with Supply-class fast combat support ship USNS Supply (T-AOE-6) while on exercise with the U.S. Navy in the Arctic Circle. (Dan Rosenbaum/ HMS Kent)

Four U.S. Navy ships and a U.K. Royal Navy ship sailed into frigid Arctic waters of the Barents Sea on May 4

ICE PPR Working Groups



Working Groups (WG)



Environmental WG

- In-situ Observations
- Ocean and Atmospheric Modeling
- Environmental Domain Awareness (Enviro Intelligence)



Human Performance WG

- Warfighter Performance in Polar Areas
- Cold Weather Clothing



Platforms WG

- Manned and Unmanned Vehicles
- Air, Sea, Ice, Land
- System of Systems Approach



Situational Awareness WG

- Sensors/Source of Information
- Processing Capabilities
- Info Systems for Storing
- Bathy/Coastline (EWG collects)

Working Group Focus Areas

At least one SAWG Work Group Initial Task?... Organizing the sharing of these areas for onward collaboration

U.S. looks to Denmark...