

Naval Postgraduate School
Naval Warfare Studies Institute (NWSI)
Wargaming Center
Quarterly Report - Summer 2020 (4Q FY20)

Jeff Appleget, Operations Research, and Rob Burks, Defense Analysis, Directors

We are both proud and excited to announce that the Wargaming Activity Hub has transitioned into **Naval Warfare Studies Institute Wargaming Center**. To learn more about the Naval Warfare Studies Institute (NWSI), please see the attached summary for an overview on details.

Also, of noteworthy mention, we share a reference to a U.S. Navy Office of Information article provided by Javier Chagoya from the NPS PAO.

How-to Book on the Craft of Wargaming Hits the Streets

Naval Postgraduate School (NPS) scholars in the field of wargaming have authored a seminal work that lays out a detailed planning guide for defense planners and analysts in a new book, “The Craft of Wargaming.”

The book is co-authored by NPS Senior Lecturer retired Army Col. Jeff Appleget, NPS Associate Professor retired Army Col. Robert Burks and internationally-recognized Operations Research Analyst Fred Cameron. These three authorities bring more than 100 years of wargaming knowledge to an ever-expanding cadre of wargaming professionals.

The book is designed to support defense planners and analysts on their journey from wargaming apprentice to journeyman, with topics of particular interest to commercial wargamers. With its focus on design and development, the book serves a primer for initiates to senior commanders seeking to advance their knowledge and understanding of the wargaming field.

For the full article, see:

<https://www.navy.mil/Press-Office/News-Stories/display-news/Article/2360929/naval-postgraduate-school-publishes-how-to-book-on-wargaming/>

1. Mobile Education Team (MET) Course:

The purpose of the NPS Basic Analytic Wargaming MET course is to provide the sponsoring organization an opportunity to educate a cadre of their personnel on wargaming by having student teams build wargames for execution. The workshop is a mixture of practical exercises and lectures focused on teams designing, developing, conducting, and analyzing a wargame, activity-based learning or ‘learn-by-doing.’ The sponsoring organization provides the wargaming topic for the practical exercises, which culminate with the students demonstrating a wargame they designed to address the sponsor’s topic on Friday. At the end of the course, the students have enough education and experience to be considered ‘wargaming apprentices.’ These students have the opportunity to receive Continuing Education Units if they pass a ‘Wargaming Apprentice Certification Exam’ that resides on their organization’s Sakai wargaming course site, a web-based repository of wargaming materials created by the NPS MET for the sponsoring organization’s use.

No METs conducted this summer. We had several METs postponed or cancelled this summer due to travel restrictions relating to COVID. Many of those courses have been rescheduled for winter and summer quarters in 2021.

2. NPS Wargaming Thesis Work:

MAJ Richard Hill and MAJ Derek Hirtz: Insurgent/Counter-Insurgent Wargame. The U.S. military is currently in an era of change highlighted by a shift in focus from small scale and limited wars involving counter-terror (CT) and counterinsurgency (COIN) to preparations for large scale combat operations with a near peer threat. This has placed emphasis on conventional focus in training, education, and planning to stand ready for a potential conflict as the US continues to maintain its unilateral grip as the world's lone superpower, and Russia and China try to expand their spheres of influence in the Great Power Competition (GPC). But, similar to the Cold War, it is unlikely this showdown will occur. Conversely, it is far more probable conflict will be highlighted by competition through state-sponsored insurgencies, proxy wars, and a struggle over influence. Special Operations Forces (SOF) therefore must balance their understanding and preparedness of conventional warfare while standing ready to execute unconventionally. This wargame is designed to train entry level Special Forces (SF) candidates the interaction between the insurgent and counter-insurgent, utilizing COIN and Unconventional Warfare (UW) doctrine as a basis while also employing the concepts of insurgent, resistance, and COIN theorists. The goal of the wargame is to aid SF candidates as they prepare to serve in their operational Groups, providing a venue to test strategies and understandings of COIN and UW principles, and ensure an enhanced education in doctrine and theory.

3. Upcoming NPS Wargaming Center Events and Engagements (Fall):

MET: NPS NWSI will deploy a Wargaming MET to the NATO Joint Warfare Centre in Stavanger, Norway to conduct both a Basic and an Advanced Analytic Wargaming Course in October, 2020.

Wargaming Week (7-11 December 2020): There are three sponsors for the Fall OA4604 Wargaming Applications Course who will have wargames conducted during NPS wargaming week:

- Sponsor: Australian Defence Force Joint Experimentation Directorate.
- Wargame: Assess concepts for the optimal employment of AUS, US and JPN ASW forces in the Full Spectrum ASW mission (previously TASW)

- Sponsor: Naval Information Warfighting Development Center.
- Wargame: Assess the ability of U.S. Navy CSGs to use cloud cover to prevent detection from adversary Electro-Optical/Infrared (EO/IR) capabilities.

- Sponsor: OPNAV N4.
- Wargame: Examine Command & Control (C2) with a combined USN/USMC staff in support of Distributed Maritime Operations (DMO) and Expeditionary Advanced Base Operations (EABO) within a Logistics Task Force Commander organization in a contested environment against a peer adversary.

Projected MET Courses:

Winter 2021

U.S. Army Europe, Wiesbaden, GE – one-week basic course

Australian Defence Force Joint Experimentation Directorate, Canberra, ACT, Australia – two-week basic course
& one-week advanced course

Summer 2021

U.S. Army Futures Center, Picatinny Arsenal, NJ – one-week basic course

Defense Threat Reduction Agency, Ft. Belvoir, VA – one-week basic course

Hybrid Center of Excellence, Helsinki, FI – one-week basic course & one-week advanced course

Appendix 1: About the Naval Postgraduate School NWSI Wargaming Center

The Wargaming Activity Hub was envisioned by NPS Graduate School of Operational and Information Sciences (GSOIS) Dean Gordon McCormick to bring higher visibility and synergy to the myriad wargaming activities that NPS is involved with across campus and worldwide. Dr. Jeff Appleget (OR) and Dr. Rob Burks (DA) direct the activities of the hub. Ms. Jane Barreto assists the directors in the overall administration of the hub to include managing wargaming research and professional development sponsors, activities, and funding, and assists NPS wargaming students with coordinating wargame facilities for sponsored games, and creating wargaming maps, charts, and other graphical materials. The WAH joined the NPS Naval Warfare Studies Institute in 2020 as the organization's Wargaming Center.

Mission: Conduct high quality research, analysis, gaming, and education to support the Naval Postgraduate School's mission, prepare future leaders, and help shape and form key decisions on the future of the Department of Defense (DoD).

Purpose: Support and contribute to the Naval Postgraduate School's educational and research mission and provide a gaming and simulation environment to assist DoD leaders in their mission to:

- develop new strategies and concepts across all levels of warfare to counter emerging adversary capabilities and
- complement ongoing field experimentation activities for the rapid testing and fielding of new technologies.

Aligning the Wargaming Activity Hub with U.S. Naval priorities:

- **STRENGTHEN NAVAL POWER AT AND FROM SEA:** We wargame current and emerging concepts, both doctrinal and technical, against contemporary and future adversaries. Graduates are better able to anticipate who we will fight and how after designing and analyzing wargames that address real-world DoD sponsors' biggest challenges in the NPS classroom.
- **STRENGTHEN OUR NAVY TEAM FOR THE FUTURE:** NPS students are typically LTs and LCDRs. The Wargaming Applications course, along with the Joint Campaign Analysis course, exposes these young students to operational and strategic challenges, raising their level of thinking to that of more senior leaders, preparing them for the challenges our Nation will face in the future.
- **EXPAND AND STRENGTHEN OUR NETWORK OF PARTNERS:**
 - Our resident Wargaming Applications course typically has U.S. Navy, Army, and Marines and international students from several nations. The student wargaming teams are, by design, a mix of these students (unless the game is classified, which restricts the student teams to U. S. only). Our Wargaming scenarios are often crafted to include the involvement of the nations represented by our international students and we do have international organizations sponsor wargames in the course.
 - Our Basic Analytic Wargaming Mobile Education Team (MET) course originated from a request by the Centre for Operational Research (CORA) in Canada, and the inaugural course was delivered at Canadian Forces Base, Trenton, Ontario in 2011. Since then we have provided the course for STRATCOM, CENTCOM, MCCDC, ADF & DST-Group (Australia) and the Indonesian Navy and created a Wargaming R&D workshop for Lockheed Martin delivered via a CRADA.

Appendix 2: Catalog of OA4604 Wargaming Applications Sponsored Wargames (2010-Current)

Background: The first half of the Wargaming Applications course teaches the fundamentals of wargaming using a mix of lectures and practical exercises. The course concludes with the completion of the “Wargaming Apprentice Certification Exam.” The second half of the course focuses on applying wargaming fundamentals to design, develop, conduct and analyze a wargame to answer a DoD sponsor's actual requirement.

Unclassified Executive Summaries are available for all wargames conducted during FY15 and later. Contact Jeff Appleget (jaappleget@nps.edu).

FY10

- **Sponsor: SOCPAC & JSOTF through NPS. Wargame: Capabilities analysis of Maritime Support Vessel alternatives in OEF-Philippines.**
- **Sponsor: TRADOC Analysis Center. Wargame: US Army Civil Affairs force structure analysis in OEF-Afghanistan.**
- **Sponsor: EWTGLANT. Wargame: Develop a game to Assess Student Understanding of Amphibious Operations.**

FY11

- **Sponsor: EWTGLANT. Wargame: Assessment of Amphibious Operations.**
- **Sponsor: Navy Warfare Development Command. Wargame: Develop the framework for a computer game to enhance US Naval officers' understanding about the operational level of war**
- **Sponsor: CTF-73 (OPLAN Logistics wargaming). Wargame: Assess the capability of CTF-73 logistics assets to support 7th Fleet operations**

FY12

- **Sponsor: MCCDC OAD. Wargame: Examine US military response options to a mass atrocity in Darfur**
- **Sponsor: MCCDC OAD. Wargame: Examine US military response options to a mass atrocity in Abyei (Sudan/S. Sudan)**
- **Sponsor: Lockheed Martin. Wargame: Examine US military ability to execute missions when GPS is jammed**

FY13

- **Sponsor: Naval Postgraduate School Littoral Operations Center. Wargame: Examine the application of innovative joint and combined naval formations conducting combat operations in the littoral environment**
- **Sponsor: PACOM. Wargame: Examine US military ability to execute missions when GPS is jammed. Classified results.**
- **Sponsor: Navy Warfare Development Command. Wargame: Examine capability of future US Navy distributed force structures (flotilla and air wing) in a South China Sea Anti-Access/Area Denial (A2/AD) scenario.**

FY14

- **Sponsor: DoD Modeling & Simulation Coordination Office. Wargame: Examine the migration of Taiwan Armed Forces training from current status to a Live-Virtual-Constructive paradigm.**
- **Sponsor: USARPAC. Wargame: Contingency Planning in the PACOM AOR [Classified results]**
- **Sponsor: Navy Recruiting Command. Wargame: Analysis of the Make Goal table top wargame**

FY15

- Sponsor: Undersea Integration Program Office, PEO C4I. Wargame: Undersea Constellation
- Sponsor: USARPAC. Wargame: Contingency Planning in the PACOM AOR [Classified results]
- Sponsor: JWAC. Wargame: Examine the global implications of an energy-independent United States in 2035
- Sponsor: Royal Canadian Navy. Wargame: Examine non-lethal weapons for boarding parties
- Sponsor: Norwegian Armed Forces. Wargame: Examining Hybrid Threat

FY16

- Sponsor: Navy N-96. Wargame: Red Team the Navy's new Distributed Lethality Concept in a South China Sea scenario.
- Sponsor: USSOCOM J-3 (International). Wargame: Russian Hybrid Threat in the Arctic
- Sponsor: USSOCOM J-35. Wargame: Interdicting the flow of Foreign Fighters to the Islamic State
- Sponsor: USCENTCOM J-8. Wargame: Explore the impacts of potential interactions between Shia Militia Groups (SMGs) and U.S forces to evaluate deterrent and de-escalation options [Classified results]
- Sponsor: Navy N-96. Wargame: Distributed Lethality Wargaming (Eastern Mediterranean)
- Sponsor: 9th Mission Support Command. Wargame: Military Support of Disaster Relief (Pacific)

FY17

- Sponsor: SOCCENT. Wargame: Trans-Regional Threats: Countering The Spread of ISIS.
- Sponsor: U.S. Navy. Wargame: War in the Pacific: Strength Through Allies.
- Sponsor: SOCOM J-3I. Wargame: Preventing Crisis: International SOF Operations in the Gray Zone.
- Sponsor: U.S. Navy COMSURFOR. Wargame: Distributed Lethality Wargaming (SCS)
Sponsor: U.S. Navy N-98. Wargame: Examining the deterrence potential of Carrier Strike Groups.
- Sponsor: USMC CD&I. Wargame: Examining the operational impact of Extreme Cold Weather (ECW) storage alternatives.
- Sponsor: Operational Energy Academic Group. Wargame: Assessing the impact of Operational Energy availability to a ground combat force fighting a hybrid threat in a European scenario.
- Sponsor: Australian Defence Force Joint Experimentation. Wargame: Assessing the future Australian Army battlefield requirements for manned and unmanned aviation.

FY18 (7)

- Sponsor: U.S. Naval Special Warfare Command. Wargame: Examining Future SEAL operational capabilities
- Sponsor: U.S. Fleet Forces Command. Wargame: Examining the Distributed Lethality concept in a SCS scenario
- Sponsor: MARFORPAC-ADF. Wargame: Assessing USMC-ADF interoperability
- Sponsor: USFF. Wargame: Distributed Maritime Ops-EABO synergy
- Sponsor: USARPAC. Wargame: MDTF Ops
- Sponsor: USASOC. Wargame: Special Ops support of near-peer conflict
- Sponsor: NAVY. Wargame: Evaluating LITMUS as a wargaming adjudication tool

FY19 (11)

- Sponsor: NATO Special Operations Forces HQ (two wargames). Wargame: Assess how NATO SOF can conduct operations in an occupied or denied environment against a peer or near-peer adversary after Article V has been declared

- Sponsor: NATO Special Operations Forces HQ. Wargame: Assess how NATO SOF can conduct operations in an occupied or denied environment against a peer or near-peer adversary pre-Article V declaration
- Sponsor: MARFORPAC. Wargame: Determine the Marine Corps' ability to affect change and support Phase 0 (competition phase) activities in 2025.
- Sponsor: MCWL. Wargame: Assess Naval expeditionary forces to perform sea control and sea denial missions by securing (seizing or occupying) and establishing land bases.
- Sponsor: USMC. Wargame: Assess shore-based ASMs capability to execute sea control and sea denial missions.
- Sponsor: Australian Defence Force. Wargame: USMC MEB /Australian Amphibious Force interoperability.
- Sponsor: USN. Wargame: Assess CONEMPS for Small Combatant Flotillas teamed with Shore-based ASMs.
- Sponsor: USARPAC. Wargame: Assess Multi-Domain Task Force Joint Operational Maneuver capabilities.
- Sponsor: MARSOF. Wargame: Maximize indirect operational approaches to secure advantages in phase zero or the "Contact Layer" while setting conditions to deter or dominate in the "Blunt layer."
- Sponsor: MARSOF. Wargame: Determine the mechanisms and processes will allow MARSOC to better serve as a bridge for capabilities integration with SOF and deployed MAGTFs in a conventional maritime conflict scenario.

FY20 (14)

- Sponsor: NATO Special Operations Forces HQ (two wargames). Wargame: How could/should NATO support deterrence and assurance to its allies under pressure short of an Article V declaration?
- Sponsor: MARSOC (five wargames total):
 - MARSOC 1: Determine the actions and partnerships MARSOC can enhance and develop to counter Chinese influence via the BRI, while maintaining emphasis on CVEO, within Phase Zero or the "Contact Layer" in INDOPACOM, Pakistan, and Afghanistan.
 - MARSOC 2: Analyze how MARSOC can work with and through Joint, Interagency, and Coalition partners in the Philippines during Phase Zero in the Philippines area of operations (Philippines mainland, surrounding territorial waters, and territorial claims to South China Sea to include Spratly Islands) in order to secure advantage in the "Contact Layer" while setting conditions to dominate in the "Blunt Layer."
 - MARSOC 4: What direct and indirect options can MARSOC and other SOF provide to an escalation scenario in the Mekong River Watershed IOT apply pressure and impose costs to deescalate or seize advantage?
 - MARSOC 5 (two wargames): What SOF options can be taken in the Contact-Blunt Layers to apply pressure and deescalate in a contested environment in neighboring SCS nations of Taiwan, Philippines, and Vietnam. While providing analysis of the types of operations and activities that can be executed, allowing MARSOC to develop training scenarios and force capabilities.
- Sponsor: OPNAV N4. Wargame: Explore extended range (>10 day) planning and decision-making regarding positioning and operations of naval and joint/combined logistic assets in the Western Pacific.
- Sponsor: Taiwan. Wargame: Explore the possible strategies the Taiwan Navy can use to maintain open sea lines of communication entering Taiwan while deterring or preventing Chinese invasion of the west side of Taiwan.
- Sponsor: ADF. Wargame: How should MRF-D be configured to be able to conduct contingency operations in 2022?
- Sponsor: MCLOG. Wargame: Create a wargame to provide the requisite critical thinking skills necessary for logistics personnel to conceptually execute expeditionary logistics?
- Sponsor: SURFDEVRON ONE: Wargame. Create a wargame to demonstrate the capabilities and tactics needed to employ M/LUSV in a joint service/joint nation conflict.
- Sponsor: MCWL. Wargame: Wargame Responsiveness Capacity and Time Comparison for Centralized vs Decentralized Fires Clearance Processes.
- Sponsor: MARSOC. Wargame: Prepare the environment for potential major combat operations in a South China Sea conflict scenario.

Capstone Sponsors (38 total): 15 Navy, 7 Joint, 6 Int'l, 4 Army, 5 Marine Corps, 1 Industry

Wargames (78 total): 27 Navy, 18 Marine Corps, 9 Joint, 13 Int'l, 9 Army, 2 Industry