Vice Admiral (RET.)
Ronald A. Route
President, NPS
Lieutenant General Richard Mills
Keynote Speaker
Walter F. Jones, PhD
Keynote Speaker
CAPT (RET.)
Rodman Abbott
NPS NRP PM
Administrative Remarks

Please refer to the NRWG/TRWG 15-1 Program for:

- The detailed Working Group agenda
- Descriptions of NRWG/TRWG events
- A list of Topic Sponsors POCs
- VIP biographies
- Revolving Panel, Break-out, and Outbrief locations

For Sponsors, the Welcome Packet also contains a map of campus & Dudley Knox floor plans
NRWG/TRWG 15-1 Input-Output

Input

Face-to-face discussions refine the operational topics into workable research and thesis projects

Output

IREF = Initial Research Estimate Form. The online document faculty must complete for consideration for further funding
Plenary Session: During The Plenary Session, Topic Sponsors briefly introduce their organization and research topics. The intent is to provide NPS faculty and students an introduction to the topics and Topic Sponsors, with discussions to continue during the scheduled Revolving Panel and Break-out Sessions.

Revolving Panel Sessions: During the Revolving Panel Sessions, Topic Sponsors have an assigned window to brief their topics in a small audience format. The intent is to provide NPS faculty and students with a greater in-depth discussion of topic details.

Break-out Sessions: Each Topic Sponsor presenting has an assigned break-out session location in the Dudley Knox Library as specified in the program insert. NPS faculty and students are invited to meet with Topic Sponsors one-on-one during break-out sessions to discuss topics and begin scoping research details. Topic Sponsors manage their own Break-Out Session schedules.
## Week Schedule

### NPS Naval Research Program - Naval and Thesis Research Working Group Meeting 15-1

<table>
<thead>
<tr>
<th>Mon, 30 March Day 1</th>
<th>Tues, 31 March Day 2</th>
<th>Wed, 1 April Day 3</th>
<th>Thurs, 2 April Day 4</th>
<th>Fri, 3 April Day 5</th>
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<tr>
<td>0700</td>
<td>Topic Sponsor Sync Session Dudley Knox Library</td>
<td>No-host Mixer Starbucks DKL</td>
<td>No-host Mixer Starbucks DKL</td>
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<td>Keynote Speakers Plenary Session One</td>
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<td>Plenary Session Two</td>
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<td>Lunch Break</td>
<td>Curriculum Level Briefings Program Spaces</td>
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<td>NRP Hotwash RSPO</td>
<td>Topic Sponsors RTB</td>
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<td>Student, Faculty Coordination Social Trident Room</td>
<td>Student, Faculty, Staff &amp; Topic Sponsor Social Trident Room</td>
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<td>Student, Faculty, Staff &amp; Topic Sponsor Social Trident Room</td>
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</tbody>
</table>

Activities in King Hall on Tuesday and Dudley Knox Library (DKL) Wednesday & Thursday unless noted.

In-Progress Reviews (IPRs) coordinated independently between Sponsors and Pls Wednesday & Thursday.
## Plenary Session Speaker Schedule

| Session 1 | 0830-0945 | Marine Corps Combat Development Command (MCCDC)  
Marine Corps Modeling and Simulation Management Office (MCMSMO)  
Strategic Systems Programs (SSP)  
Installations & Logistics |
|-----------|-----------|---------------------------------------------------|
| Session 2 | 1000-1050 | N2/N6 - Information Dominance  
Marine Forces Reserve (MFR)  
N4 - Fleet Readiness & Logistics  
Space and Naval Warfare Systems Command (SPAWAR) |
| Session 3 | 1100-1150 | Marine Forces Cyberspace Command (MFCC)  
NUWC Division, Keyport  
HQMC Aviation (HQMC AVN)  
HQMC C4 |
| Session 4 | 1300-1350 | Commander, Naval Surface Forces (COMNAVSURFOR)  
Marine Corps Systems Command (MCSC) |
| Session 5 | 1400-1450 | College of Distance Education & Training (CDET)  
CENTCOM  
Manpower and Reserve Affairs (M&RA)  
NAVSEA 05T  
Naval Satellite Operations Center |
| Session 6 | 1500-1550 | N9 - Warfare Systems  
Expeditionary Energy Office (E2O)  
MARFORPAC |
<table>
<thead>
<tr>
<th>Organization, POC</th>
<th>DKL Breakout Space</th>
<th>Revolving Panel Sessions</th>
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<tbody>
<tr>
<td>CENTCOM, LCDR Walter Kulzy</td>
<td>DKL 151</td>
<td>Wednesday Time - 0830</td>
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<tr>
<td>College of Distance Education &amp; Training (CDET), Maj Mike Gavin</td>
<td>DKL 151</td>
<td>1st floor 1200 - 1st</td>
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<tr>
<td>Commander, Naval Surface Forces (COMNAYSURFOR), CDR Jerry Olin</td>
<td>DKL 151</td>
<td>floor</td>
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<tr>
<td>Expeditionary Energy Office (E2O), Capt Anthony Ripley</td>
<td>DKL 151</td>
<td>Thursday Time - 0900</td>
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<tr>
<td>HQMC Aviation (HQMC AVN), Maj Chris Larson</td>
<td>Buckley</td>
<td>2nd floor 1300 - 1st</td>
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<td>HQMC C4, Mr. Kenneth Bible</td>
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<td>Installations &amp; Logistics, LtCol Dan Reber</td>
<td>Buckley</td>
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<td>Manpower and Reserve Affairs (M&amp;RA), LtCol Anthony Licari</td>
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<td>2nd floor 1330 - 1st</td>
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<td>MARFORPAC, Ms. Nicole Griffin</td>
<td>Buckley</td>
<td>1st floor 1400 - 1st</td>
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<tr>
<td>Marine Corps Combat Development Command (MCCDC), Dr. George Akst</td>
<td>Buckley 1030</td>
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<td>Marine Corps Modeling and Simulation Management Office (MCMSMO), Mr. Eric</td>
<td>Buckley 1200 - 1st</td>
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<tr>
<td>Whittington</td>
<td>01st floor 0830 - 1st floor</td>
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<tr>
<td>Marine Corps Systems Command (MCSC), Mr. C. Scott Bey</td>
<td>Buckley 1200 - 2nd</td>
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<tr>
<td>Marine Forces Cyberspace Command (MFCC), Maj Cameron Grams</td>
<td>Buckley 1230 - 1st</td>
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<td>Marine Forces Reserve (MFR), Mr. Robert McGuiness</td>
<td>Buckley 1230 - 2nd</td>
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<td>N2/N6 - Information Dominance, LCDR Jason Hurley</td>
<td>Buckley 1300 - 1st</td>
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<td>N4 - Fleet Readiness &amp; Logistics, CDR Karen Dallas</td>
<td>Buckley 1300 - 2nd</td>
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<tr>
<td>N9 - Warfare Systems, Mr. Christopher Marsh</td>
<td>Buckley 1330 - 1st</td>
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<tr>
<td>Naval Satellite Operations Center, CAPT Jeffrey Marshall</td>
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<tr>
<td>NAVSEA 05T, CDR Jason Fox</td>
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<tr>
<td>NUWC Division, Keyport, Mr. David Mortimore</td>
<td>Buckley 1400 - 2nd</td>
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<td>Space and Naval Warfare Systems Command (SPAWAR), CDR Brian Erickson</td>
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<td>Air Force Institute of Technology (AFIT), Col Tim Sands</td>
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<tr>
<td>Commander, Navy Installations Command (CNIC), CDR Patrick Moran</td>
<td>Buckley 1500 - 1st</td>
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Dudley Knox Library (DKL) * Buckley Area (2nd floor of DKL)
Marine Corps Combat Development Command (MCCDC)

Dr. Akst
**NPS-N16-M199: Developing analytic capability in Combat XXI**

**Broad Area Study**

**Topic Description:**
Embed Combat XXI in a data farming environment to enable efficiently running and analyzing large-scale designed experiments. This will allow USMC analysts and decision makers to get better and timely insights from their simulation models.

**Potential Research Focus / Questions:**
- Develop methods, designs, and software tools that enable efficient investigation and post-run analysis with Combat XXI.
- Conduct a proof of concept demonstration, ideally using operationally experienced thesis students collaborating with Marine Corps analysts.
- Assess how the new methods and tools can be used early in the scenario development process, and to support verification and V&V efforts.
- Prepare & deliver a short course to interested Marine Corps analysts on new design of experiment methods and how to apply them to Combat XXI studies.

**R3B or MROC Supported:** No  
**Navy/Marine S&T Objectives:** Yes  
**Funding Available:** No  
**Completion Timeframe:** 2 yr  
**Sponsor Priority:** Medium  

**POC:** Dr. Michael Bailey  
  michael.bailey@usmc.mil  
  (703)784-6028  
  Marine Corps Combat Development Command (MCCDC)
Topic Description:
Research to further develop methods and software tools that enable broad-scale search for alternatives/strategies in a simulation scenario, by exploiting the power of evolutionary algorithms.

Potential Research Focus / Questions:
• Develop methods and software tools that enable broad-scale search for alternatives/strategies in a simulation scenario, by exploiting the power of evolutionary algorithms.
• Test and demonstrate the new capabilities by working with OAD to apply them to a selected model and pilot study of interest.
• Assess how the new capabilities can be used early in the scenario development process, and to support V&V efforts.

POC: Mr. Matthew Aylward
matthew.aylward@usmc.mil
703-784-5989
Marine Corps Combat Development Command (MCCDC)
Marine Corps Modeling & Simulation (M&S) Management Office (MCMSMO)

- Per MCO 5200.28A, DC CD&I is the Marine Corps lead for M&S
  - Recently assigned the MOVES Curriculum Major Area Sponsor.
- MCMSMO is CD&I’s action arm for M&S across Marine Corps.
  - Represent Marine Corps at OSD, Joint, and DON M&S forums – Marine Corps M&S policy lead.
  - Lead Marine Corps M&S Integrated Process Team (IPT) to identify M&S S&T requirements.
  - Lead DON M&S Education and Research effort.
    - Define requirements for MOVES curriculum and coordinate NMSO funded research agenda.
  - Lead USMC M&S Standards efforts.
  - Provide oversight of Marine Corps M&S officers.
  - Identify Navy M&S officer requirements.
  - Facilitate synchronizing USMC and Navy LVC efforts.

MCMSMO seeks to expand and improve the use of M&S across the Marine Corps in support of all facets of Expeditionary Force 21
NPS-N16-M159: Commercial Gaming Industry Best Practices

Broad Area Study

**Topic Description:**
Examine the gaming industry for innovations below the individual application level that are applicable to the DoD modeling and simulation community.

**Potential Research Focus / Questions:**
- What research practices does the commercial game industry perform that apply to USMC science and technology objectives processes?
- What technology advances does the commercial game industry implement that can be leveraged by USMC modeling and simulation programs of record?

**R3B or MROC Supported:** No

**Navy/Marine S&T Objectives:** No

**Funding Available:** Yes

**Completion Timeframe:** Ongoing

**Sponsor Priority:** Medium

**POC:** Mr. Brett Telford
- brett.telford@usmc.mil
- 703-784-0432

Marine Corps Modeling and Simulation Management Office
**NPS-N16-M158: Live-Virtual-Constructive (LVC) Planning**

**Broad Area Study**

**Topic Description:**
LVC is a critical capability for the DoD modeling and simulation community, and LVC planners require a detailed inspection of key aspects to correctly align efforts with Service goals and objectives.

**Potential Research Focus / Questions:**
- Besides training, what are the benefits of leveraging LVC capabilities for other M&S communities, and what are the spectrum of DoD LVC use cases?
- What are the best methods to document and communicate conceptual models and what are the intellectual property implications in DoD LVC?
- What are the programmatic and systems engineering considerations of migrating USMC LVC simulations into MCEITS?
- What are the technical requirements and feasibility to employ modeling and simulation as a service from a cloud IT structure?

**R3B or MROC Supported:** No

**Navy/Marine S&T Objectives:** Yes

**Funding Available:** Yes

**Completion Timeframe:** Ongoing

**Sponsor Priority:** High

**POC:** Mr. Brett Telford
brett.telford@usmc.mil
703-784-0432
Marine Corps Modeling and Simulation Management Office (MCMSMO)
**Broad Area Study**

**Topic Description:**
Clearly define the distinctions between education and training along a continuum and explore the role that modeling and simulation plays in the DoD's military context.

**Potential Research Focus / Questions:**
- What are the clear lines of delineation between Education and Training in a military context (ex: Professional Military Education vs. flight school)?
- Where does simulation fall into the Education and Training Continuum, including commercial games applied to PME?
- What are the metrics that can be used to objectively measure various educational methods' impacts on PME (ex: commercial games, books, lecture, etc.)?

**R3B or MROC Supported:** No

**Navy/Marine S&T Objectives:** Yes

**Funding Available:** Yes

**Completion Timeframe:** Ongoing

**Sponsor Priority:** High

**POC:** Mr. Brett Telford
brett.telford@usmc.mil
703-784-0432
Marine Corps Modeling and Simulation Management Office (MCMSMO)
Strategic Systems Programs (SSP)
CAPT Melvin
NPS-N16-N214: Trident II (D5) Service Life Prediction Strategies (SSP-OT1)

**Topic Description:**
The Trident II (D5) missile is now planned to be in service longer than originally envisioned. This longer life could degrade components faster than predicted. How do SLBM materials age?

**Potential Research Focus / Questions:**
- Investigate service life prediction strategies
- Determine reliability of aging items like:
  - Structures, Electronics, Cabling, Test and Support Equipment,
  - Propulsion motors, Thrust Vector Controls, Fluids

**R3B or MROC Supported:** No
**Navy/Marine S&T Objectives:** No
**Funding Available:** No
**Completion Timeframe:** Ongoing
**Sponsor Priority:** Medium

**POC:** Ted Serbinski
theodore.serbinski@ssp.navy.mil
202-433-8563
Strategic Systems Programs (SSP)
NPS-N16-N215: Missile Gas Venting Effects During Underwater Launch (SSP-PN2)

**Thesis Topic**

**Topic Description:**
The Trident II (D5) missile underwater movement dynamics can contribute to failure. One factor affecting movement is the rapid exhausting of nitrogen gas used to pressurize a missile tube prior to launch.

**Potential Research Focus / Questions:**
- Develop a model of missile gas venting characteristics as a missile travels through the water after launch
- Determine how missile gas venting can affect performance

**R3B or MROC Supported:** No
**Navy/Marine S&T Objectives:** No
**Funding Available:** No
**Completion Timeframe:** Ongoing
**Sponsor Priority:** Medium

**POC:** Ted Serbinski  
theodore.serbinski@ssp.navy.mil  
202-433-8563  
Strategic Systems Programs (SSP)
NPS-N16-N216: Rocket Motor Deflagration Effects (SSP-PN-1)

Thesis Topic

Topic Description:
Submarine’s carry various missiles and testing of the explosive effects of these missiles have been performed above ground. If one of these missiles explodes after launch broaching what are the effects felt on a submerged vessel?

Potential Research Focus / Questions:
• Determine magnitude of detonation transferred into the water
• At various water depths, various detonation heights, with different propellants
• Shock wave effects on equipment
• Shock wave transfer function from air into water

R3B or MROC Supported: No
Navy/Marine S&T Objectives: No
Funding Available: No
Completion Timeframe: Ongoing
Sponsor Priority: Medium

POC: Ted Serbinski
theodore.serbinski@ssp.navy.mil
202-433-8563
Strategic Systems Programs (SSP)

**Topic Description:**
Human-Machine interface has evolved significantly since Nuclear Weapons evolved during WWII. Distractions and fatigue are better known and minimizing personnel is important to saving scarce funding.

**Potential Research Focus / Questions:**
- Investigate Human-Machine interface issues with Nuclear Weapon Security
- Investigate the most effective way to display information from security systems (display size, video, sensors, lighting, the # of operators, etc)
- What is the most effective way to not overload the operator(s)?

**R3B or MROC Supported:** No

**Navy/Marine S&T Objectives:** No

**Funding Available:** No

**Completion Timeframe:** Ongoing

**Sponsor Priority:** Medium

**POC:** Ted Serbinski
theodore.serbinski@ssp.navy.mil
202-433-8563
Strategic Systems Programs (SSP)
NPS-N16-N218: Tolerances in CAD (SSP-SW6)

**Thesis Topic**

**Topic Description:**
3D modeling allows a unique way to view an item. When building parts the designer always allows for manufacturing irregularities by providing tolerances, the + and - values.

**Potential Research Focus / Questions:**
- Research method for implementing tolerances in CAD
- Research method for implementing tolerances

**R3B or MROC Supported:** No

**Navy/Marine S&T Objectives:** No

**Funding Available:** No

**Completion Timeframe:** Ongoing

**Sponsor Priority:** Medium

**POC:** Ted Serbinski
theodore.serbinski@ssp.navy.mil
202-433-8563
Strategic Systems Programs (SSP)
NPS-N16-N219: Artificial Intelligence (SSP-SW5)

**Thesis Topic**

**Topic Description:**
Johns-Hopkins Applied Physics Laboratory has developed an interactive Virtual Instructor Project (VIPr) which is SSP’s up-and-coming Strategic Weapon System simulator for Missile Technician training. VIPr was developed with NPS MOVES

**Potential Research Focus / Questions:**
- Research method for implementing synthetic operators
- Research method for implementing intelligent tutor

**R3B or MROC Supported:** No
**Navy/Marine S&T Objectives:** No
**Funding Available:** No
**Completion Timeframe:** Ongoing
**Sponsor Priority:** Medium

**POC:** Ted Serbinski  
theodore.serbinski@ssp.navy.mil
202-433-8563
Strategic Systems Programs (SSP)
NPS-N16-N220: Optimizing the 3D Environment for Fast Rendering (SSP-SW4)

**Thesis Topic**

**Topic Description:**
Johns-Hopkins Applied Physics Laboratory has developed an interactive Virtual Instructor Project (VIPr) which is SSP’s up-and-coming Strategic Weapon System simulator for Missile Technician training. VIPr was developed with NPS MOVES

**Potential Research Focus / Questions:**
- Research ability to analyze impact of new geometry on rendering performance
- Research ability to edit object hierarchy

**R3B or MROC Supported:** No
**Navy/Marine S&T Objectives:** No
**Funding Available:** No
**Completion Timeframe:** Ongoing
**Sponsor Priority:** Medium

**POC:** Ted Serbinski  
thodore.serbinski@ssp.navy.mil  
202-433-8563  
Strategic Systems Programs (SSP)
NPS-N16-N221: Avatar Implementation Using Open Source (SSP-SW3)

**Thesis Topic**

**Topic Description:**
Johns-Hopkins Applied Physics Laboratory has developed an interactive Virtual Instructor Project (VIPr) which is SSP’s up-and-coming Strategic Weapon System simulator for Missile Technician training. VIPr was developed with NPS MOVES

**Potential Research Focus / Questions:**
- Research Submarine Missile Technician avatar animation, behavior, or facial expressions

R3B or MROC Supported: No
Navy/Marine S&T Objectives: No
Funding Available: No
Completion Timeframe: Ongoing
Sponsor Priority: Medium

**POC:** Ted Serbinski
theodore.serbinski@ssp.navy.mil
202-433-8563
Strategic Systems Programs (SSP)
NPS-N16-N223: 3D Modeling Submarine Missile Compartment (SSP-SW2)

**Thesis Topic**

**Topic Description:**
Johns-Hopkins Applied Physics Laboratory has developed an interactive Virtual Instructor Project (VIPr) which is SSP’s up-and-coming Strategic Weapon System simulator for Missile Technician training. VIPr was developed NPS MOVES

**Potential Research Focus / Questions:**
- Create scalable realistic submarine missile compartment valves, piping, closures, or electronics displays for use in VIPr
- Create scalable submarine compartment areas

**R3B or MROC Supported:** No
**Navy/Marine S&T Objectives:** No
**Funding Available:** No
**Completion Timeframe:** Ongoing
**Sponsor Priority:** Medium

**POC:** Ted Serbinski
theodore.serbinski@ssp.navy.mil
202-433-8563
Strategic Systems Programs (SSP)
NPS-N16-N225: Trident II (D5) Missile Nose Fairing Construction (SSP-ME1)

**Thesis Topic**

**Topic Description:**
The nose fairing of the Trident II (D5) missile has been made of a composite of Sitka spruce, fiber glass and sheet adhesive. It is a very labor intensive lay up of the aforementioned materials.

**Potential Research Focus / Questions:**
- Investigate new materials and manufacturing processes to reduce the cost of building the nose fairing
- Determine optimum design with minimal weight

**R3B or MROC Supported:** No
**Navy/Marine S&T Objectives:** No
**Funding Available:** No
**Completion Timeframe:** Ongoing
**Sponsor Priority:** Medium

**POC:** Ted Serbinski
theodore.serbinski@ssp.navy.mil
202-433-8563
Strategic Systems Programs (SSP)
NPS-N16-N226: Acoustics and Submarine Ranging (SSP-MA3)

**Thesis Topic**

**Topic Description:**
Today’s ballistic missile submarines transit in and out of port with security blocking vessels alongside. This distorts the submarine magnetic signature picked up by the range sensors.

**Potential Research Focus / Questions:**
- Mathematical analysis of factors affecting acoustic activity of vessels traveling through range field
- Determine if the escort vessel signature data can be removed from the total data

**R3B or MROC Supported:** No
**Navy/Marine S&T Objectives:** No
**Funding Available:** No
**Completion Timeframe:** Ongoing
**Sponsor Priority:** Medium

**POC:** Ted Serbinski
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Strategic Systems Programs (SSP)
NPS-N16-N228: Mathematical Free Flight Missile Probability of Success (SSP-MA2)

**Thesis Topic**

**Topic Description:**
POS for Missile Free-Flight (underwater travel and broach to first stage ignition) is determined prior to missile launch. Failure during free flight or recovery can be caused by launch conditions in combination with hardware variability.

**Potential Research Focus / Questions:**
- Mathematical analysis of factors affecting free flight missile movement
- Determining when free flight missile capabilities are exceeded using a Monte Carlo analysis of environments and conditions

**R3B or MROC Supported:** No

**Navy/Marine S&T Objectives:** No

**Funding Available:** No

**Completion Timeframe:** Ongoing

**Sponsor Priority:** Medium

**POC:** Ted Serbinski
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Strategic Systems Programs (SSP)
NPS-N16-N229: Mathematical In-Tube Missile Probability of Success (SSP-MA1)

**Topic Description:**
Underwater launch poses unique challenges and POS curves are used to develop guidance for Commanding Officers and Watch Officers. Using today’s computing power, POS curves can be mathematically derived with greater precision.

**Potential Research Focus / Questions:**
- Mathematical analysis of factors affecting in-tube missile movement
- Determining when missile capabilities are exceeded using a Monte Carlo analysis of environments and conditions

**R3B or MROC Supported:** No
**Navy/Marine S&T Objectives:** No
**Funding Available:** No
**Completion Timeframe:** Ongoing
**Sponsor Priority:** Medium

**POC:** Ted Serbinski
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Strategic Systems Programs (SSP)
NPS-N16-N231: Moore’s Law and Wireless Interference (SSP-EC5)

Thesis Topic

Topic Description:
"Moore's Law" shows us that computer processors double in complexity every two years. Can this be applied to wireless frequencies? We are currently testing for 2.4GHz interference but is 9.6GHz now becoming the norm?

Potential Research Focus / Questions:
• Is there a quadrupling relationship to frequency in the future, like Moore's Law?
• Can a formula be developed that predicts future wireless frequency complexity?

R3B or MROC Supported: No
Navy/Marine S&T Objectives: No
Funding Available: No
Completion Timeframe: Ongoing
Sponsor Priority: Medium

POC: Theodore Serbinski
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Strategic Systems Programs (SSP)
NPS-N16-N232: Missile Tube Wireless Interference (SSP-EC4)

Topic Description:
Developed during the 1970’s, current SSBN’s and the Trident II D5 missile did not account for wireless technology. Our equipment is contained inside a metal tube, the submarine, so one would think there is a saturation point.

Potential Research Focus / Questions:
• Can we predict wireless performance degradation?
• What does the future look like for frequencies to be used and how would they affect operations?

R3B or MROC Supported: No
Navy/Marine S&T Objectives: No
Funding Available: No
Completion Timeframe: Ongoing
Sponsor Priority: Medium

POC: Theodore Serbinski
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202-433-8563
Strategic Systems Programs (SSP)
NPS-N16-N234: Missile Tube Wireless Interference

**Thesis Topic**

**Topic Description:**
Developed during the 1970’s, current SSBN’s and the Trident II (D5) missile did not account for wireless technology. Today more and more wireless devises are making their way onboard submarines. New wireless technology may pose a problem.

**Potential Research Focus / Questions:**
- How do the current and projected future wireless devises affect submarines?
- How close to an open missile tube door can a wireless device do harm to electronics?
- Potential impacts of proliferation of wireless systems in submarines – impacts to SWS
- Develop a model to help predict how an RF signal propagates through a submarine

**R3B or MROC Supported:** No
**Navy/Marine S&T Objectives:** No
**Funding Available:** No
**Completion Timeframe:** Ongoing
**Sponsor Priority:** Medium

**POC:** Theodore Serbinski  
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Strategic Systems Programs (SSP)
Installations & Logistics

LtCol Reber
HQMC, Installations and Logistics
NPS-N16-M101: Mobile Support for GCSS-MC Using Handheld Devices

**Thesis Topic**

**Topic Description:**
Having the ability and mobility to make real-time updates, work requests, and access reports through wireless networks would significantly improve flexibility and utility for GCSS-MC users. Deployed GCSS-MC functionality is quite limited.

**Potential Research Focus / Questions:**
- Determine feasibility of bringing USMC logistics into a wireless environment.
- Analyze GCSS wireless development possibilities

**R3B or MROC Supported:** No
**Navy/Marine S&T Objectives:** No
**Funding Available:** No
**Completion Timeframe:** 1 yr
**Sponsor Priority:** High

**POC:** HQMC I&L, LPC/LX Daniel Reber
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Installations and Logistics (I&L)
N2/N6 - Information Dominance

LCDR Hurley
NPS-N16-N357: Detection of aerosol particulates from satellite-based observations of shadows cast on land surfaces

Broad Area Study

**Topic Description:**
Airborne aerosol particles reduce visibility. Satellites have difficulty identifying airborne particulates above bright surfaces. When structures cast shadows on the surface, information about airborne particulates can be determined.

**Potential Research Focus / Questions:**
- Make measurements of the aerosol characteristics in shadows made by buildings and other objects over various, known surfaces.
- Run tests, similar to Task 1, at Ft Hunter Liggett using multiple buildings casting shadows in more complex environments.

**R3B or MROC Supported:** No
**Navy/Marine S&T Objectives:** Yes
**Funding Available:** No
**Completion Timeframe:** 1 yr
**Sponsor Priority:** High

**POC:** CDR Nick Vincent
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N2/N6 - Information Dominance
NPS-N16-N344: Cyber Threat Response (CTR) Model Extension for Advanced Intrusion Detection and Response

**Thesis Topic**

**Topic Description:**
Enhance FY14 Sponsored Cyber Thesis by codifying the model development from intrusion detection system (IDS) rules. Extend model to address the dynamic growth of cyber threats as they develop.

**Potential Research Focus / Questions:**
- Is the CTR model scalable and extensible to diverse IDS rule types?
- Can VRDM development be enhanced for the user?
- Can ticket escalation in security information and event management (SIEM) systems be automated?

**R3B or MROC Supported:** Yes

**Navy/Marine S&T Objectives:** Yes

**Funding Available:** No

**Completion Timeframe:** 2 yr

**Sponsor Priority:** High

**POC:** CAPT Jan Tighe
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757-647-2794
N2/N6 - Information Dominance

**Broad Area Study**

**Topic Description:**
The gap to close is that the current Navy simulation framework does not address the cognitive layer that is critical to cyber warfare effectiveness assessment from a system of systems perspective.

**Potential Research Focus / Questions:**
- determine how cognitive models can address those warfare decisions, functions and processes in scenarios for the Naval Simulation System (NSS)
- design/develop models for the decision making in warfare scenario simulation
- capture the C4ISR analytic processes (sensor fusion and decisions) in the SOAR cognitive architecture to be used in NSS
- apply the models to a scenario simulation in review the model behavior for validation

**R3B or MROC Supported:** No
**Navy/Marine S&T Objectives:** No
**Funding Available:** Yes
**Completion Timeframe:** 2 yr
**Sponsor Priority:** Medium

**POC:** Chief Engineer NCWDG Thomas Starai
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N2/N6 - Information Dominance
**Topic Description:**
This is an extension of an FY-15 NRP project to develop playbooks for human analysts charged with Insider Threat (InT) mitigation by interpreting outputs from technologies and determining next steps.

**Potential Research Focus / Questions:**
- What are best practices for InT Mitigation?
- How are InT mitigation strategies affected by variations in culture, mission, and sensitivity?
- What is the best form for a generic InT Mitigation Playbook?

**R3B or MROC Supported:** Yes

**Navy/Marine S&T Objectives:** Yes

**Funding Available:** No

**Completion Timeframe:** Ongoing

**Sponsor Priority:** High

**POC:** Mr Gary Fagan
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N2/N6 - Information Dominance
NPS-N16-N201: Darknet and DoD Networks: Obfuscation, Spoof Detection, and Elimination

**Thesis Topic**

**Topic Description:**
The known practice of blocking traffic based on Internet Protocol (IP) addresses from known darknet nodes is insufficient for the detection of anonymized (via network layer address obfuscation, spoofing, and other techniques) traffic on DoD Networks

**Potential Research Focus / Questions:**
• Does darknet traffic pose a significant cyber security threat?
• How can active methods of network security analysis and monitoring be integrated with passive monitoring tools?
• Does this approach reduce non-attribution in DoD-wide cyberspace security?

**R3B or MROC Supported:** No
**Navy/Marine S&T Objectives:** Yes
**Funding Available:** No
**Completion Timeframe:** 2 yr
**Sponsor Priority:** High

**POC:** RADM Jan Tighe
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N2/N6 - Information Dominance
NPS-N16-N202: Cyber Threat Response (CTR) Model Extension for Advanced Intrusion Detection and Response

Thesis Topic

Topic Description:
The 2014 CTR Thesis and Capstone model will be enhanced through codifying the CTR model development from intrusion detection system (IDS) rules. The objective is to extend the CTR model to address the dynamic growth of cyber threats.

Potential Research Focus / Questions:
- Is the CTR model scalable and extensible to diverse IDS rule types?
- Can VRDM development be enhanced for the user?
- Can ticket escalation in security information and event management (SIEM) systems be automated?

R3B or MROC Supported: No
Navy/Marine S&T Objectives: Yes
Funding Available: No
Completion Timeframe: 2 yr
Sponsor Priority: High

POC: CAPT Roy Petty
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N2/N6 - Information Dominance
NPS-N16-N204: Vector Relational Data Modeling of Big Data Integration to Enable Scalability of the Cyber Threat Response (CTR)

**Thesis Topic**

**Topic Description:**
The CTR Thesis and Capstone work of FY14 will be extended to address the challenge of Big Data that is derived from the volume, variety, and velocity of data associated with network monitoring and analysis.

**Potential Research Focus / Questions:**
- CTR model scalable and extensibility to Big Data technologies
- Can network event and security monitoring data be warehoused efficiently in a Big Data technology, as a managed component of the CTR model?
- To what extent does this approach enable Cyber Security?

**R3B or MROC Supported:** No

**Navy/Marine S&T Objectives:** Yes

**Funding Available:** No

**Completion Timeframe:** 2 yr

**Sponsor Priority:** High

**POC:** CAPT Roy Petty  
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N2/N6 - Information Dominance
NPS-N16-N250: Alternative Sources of Organic Vertical Meteorological Profile Data within the CSG/ESG

Broad Area Study

Topic Description:
In-situ meteorological data measurements (rawinsonde balloons) for the CSG/ESG are no longer available. Are local area forecasts for the CSG/ESG suffering due to the lack of on-scene data?

Potential Research Focus / Questions:
• Determine the quantity of data from CSG/ESG daily flights and the processing time to produce COAMPS-OS forecasts on USN ships with the CANES network.
• Using the data from task 1, quantify the forecast improvement when using relative humidity (RH) versus not using RH as an input data field.
• Determine the 24, 48, 72 hour COAMPS forecast improvement when the in-situ data from task 1 is used versus not used.

R3B or MROC Supported: Yes
Navy/Marine S&T Objectives: Yes
Funding Available: No
Completion Timeframe: 1 yr
Sponsor Priority: High

POC: CDR Nick Vincent
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N2/N6 - Information Dominance
Topic Description:
Altimetry is the key data stream for initializing ocean models in support of Naval operations. A study assessing the value of the SWOT data to future ocean models should be executed to inform if it is cost effective to acquire this data.

Potential Research Focus / Questions:
• Is SWOT orbit and data coverage sufficient to support Navy numerical ocean models using all projected available space-based altimeters in 2020?
• Is the SWOT data accuracy sufficient to support Navy numerical ocean models using all projected available space-based altimeters in 2020?
• Is the SWOT data latency sufficient to support Navy numerical ocean models in 2020?

R3B or MROC Supported: Yes
Navy/Marine S&T Objectives: Yes
Funding Available: No
Completion Timeframe: 1 yr
Sponsor Priority: High

POC: CDR Sean Memmen
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N2/N6 - Information Dominance
NPS-N16-N128: Characterization and Quantification of Ocean Model Dependence on Foreign Environmental Satellites

**Thesis Topic**

**Topic Description:**
This research is to determine the impact of the data denial from the loss of foreign satellite systems as well as current military satellite systems.

**Potential Research Focus / Questions:**
- What is the impact on the U.S. Navy's global and regional ocean models from removal of each foreign satellite as well as military satellites?
- What is the sensitivity on ASW/MIW to the removal of each foreign satellite as well as military satellites?
- How is the risk of dependence on foreign sources (satellites) quantified?
- How is the risk of discontinuance of military satellite programs quantified?

**R3B or MROC Supported:** No

**Navy/Marine S&T Objectives:** No

**Funding Available:** No

**Completion Timeframe:** 2 yr

**Sponsor Priority:** High

**POC:** CDR, OPNAV, N2/N6ET Dominick Vincent
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N2/N6 - Information Dominance
Marine Forces Reserve (MFR)
Mr. Robert McGuiness
Operational Environment

Site Locations

Support of Operational Requirements

USMC Future force posture, coupled with decreasing AC structure, requires rotational augmentation and reinforcement from MARFORRES

Legend
- Forces Headquarters Group
- 461 Marine Aircraft Wing
- 461 Marine Forces Reserve
- 461 Marine Logistics Group
- 461 Marine Division

GCE
- 8 x Infantry BN
- CEB BN
- Tank BN
- LAR BN
- 2 x Arty BN Towed
- Arty BN
- HIMARS
- Recon BN
- AA BN
- 2 x Force RECON Co

ACE
- VFMA Sadn
- VMFT
- 2 x VMR
- 2 x VMGR Sadn
- VMM Sadn
- HMM Sadn
- HMLA Sadn
- VMU Sadn
- 3 x MWSS

LCE
- 2 x CLB (DS)
- 2 x CLB (GS)
- ESB
- Dental BN
- Medical BN

FHG
- Intel BN
- 3 x ANGLICO Co
- Comm BN
- LE BN
- 4 x CAG

8,369 Marines and Sailors
3,886 Marines and Sailors

17,465 Marines and Sailors
7,133 Marines and Sailors

FY14 T/E

160 Sites // 27 MARFORRES owned sites and 133 tenant locations
1 MARFORRES owned barracks
NPS-N16-F284: Increasing Capacity of Marine Forces Reserve through improved training and education.

**Thesis Topic**

**Topic Description:**
Evidence based research conducted during 2014 yielded several challenges with the USMC's Learning Management System, Marine-Net. These problems are rooted in policy, organizational management and structure, and emerging technologies.

**Potential Research Focus / Questions:**
- Conduct a policy evaluation of proctoring policies within the USMC College of Distance Education and Training.
- Develop, implement, and analyze a suite of training that aims to improve the capacity of online instructors.
- Evaluate the effectiveness of utilizing open-source Massive Open Online Courses (MOOC’s) to increase the capacity of the reserve forces.

**R3B or MROC Supported:** No
**Navy/Marine S&T Objectives:** Yes
**Funding Available:** Yes
**Completion Timeframe:** 1 yr
**Sponsor Priority:** Medium

**POC:** Lieutenant Colonel Nina D'Amato
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Marine Forces Reserve (MFR)
Topic Description:
Develop a Reserve Redistribution Equipment Optimization tool that processes authoritative equipment inventory information and determines the optimal redistribution of excesses based primarily on geographic distances between 143 zip codes.

Potential Research Focus / Questions:
• What are the key factors in equipment distribution within Marine Forces Reserve?
• What is the process for allocating equipment across the Reserve Force?
• How can redistribution decisions be optimized?

R3B or MROC Supported: No
Navy/Marine S&T Objectives: No
Funding Available: Yes
Completion Timeframe: 2 yr
Sponsor Priority: High

POC: Mr Robert McGuiness
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      Marine Forces Reserve (MFR)

**Broad Area Study**

**Topic Description:**
Develop computer-aided or simulation training tools for Reserve unit exercise planning and mobilization processes.

**Potential Research Focus / Questions:**
- How can simulation be used to train staffs in complex processes?
- Can gaming be an effective staff training tool?

**R3B or MROC Supported:** No

**Navy/Marine S&T Objectives:** No

**Funding Available:** No

**Completion Timeframe:** Ongoing

**Sponsor Priority:** High

**POC:** Mr Robert McGuiness
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Marine Forces Reserve (MFR)
NPS-N16-M141: Reserve Training Center Decision Support Tools - Hurricane Preparation Trainer

Broad Area Study

Topic Description:
Provide a tool to develop a comprehensive understanding of hurricane/storm patterns, the information flow, and most importantly, geographically specific decisions and associated timeline for storm preparation at Reserve Training Centers.

Potential Research Focus / Questions:
• What key decisions are required in the face of a hurricane?
• What is the timeline for these decisions required?
• What are the risks associated with these decisions?
• What are the impacts and consequences of action/inaction?

R3B or MROC Supported: No
Navy/Marine S&T Objectives: No
Funding Available: Yes
Completion Timeframe: Ongoing
Sponsor Priority: High

POC: Mr Robert McGuiness
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      Marine Forces Reserve (MFR)
NPS-N16-M142: Reserve Training Center Decision Support Tools – Project continuation

Broad Area Study

**Topic Description:**
The purpose of this effort is to continue the development and refinement of an optimization tool to guide and/or support Commander, MARFORRES (CMFR) decisions.

**Potential Research Focus / Questions:**
- What factors determine the optimal location of a Reserve Training Center?
- How do these factors interact and impact the determination of an optimal location?
- Can an optimization tool be used to assist decision making?

**R3B or MROC Supported:** No
**Navy/Marine S&T Objectives:** No
**Funding Available:** Yes
**Completion Timeframe:** Ongoing
**Sponsor Priority:** High

**POC:** Mr Robert McGuiness
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Marine Forces Reserve (MFR)
NPS-N16-M137: Inspector-Instructor Manpower Analysis

**Thesis Topic**

**Topic Description:**
Conduct a thorough manpower analysis of the active duty Marines assigned to Inspector-Instructors duty with Selected Marine Corps Reserve Units.

**Potential Research Focus / Questions:**
- What are the manpower demographics of Inspector Instructors?
- What constitutes a successful tour on I-I duty?
- What is the career progression for those serving on I-I duty?

**R3B or MROC Supported:** No

**Navy/Marine S&T Objectives:** No

**Funding Available:** Yes

**Completion Timeframe:** 2 yr

**Sponsor Priority:** High

**POC:** Mr Robert McGuiness
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Marine Forces Reserve (MFR)
Thesis Topic

Topic Description:
Active duty Inspector-Instructor staffs manage daily operations at reserve units. The responsibilities are highly complex and diverse. What is the best approach to training I-I staffs?

Potential Research Focus / Questions:
• How are Inspector Instructor training requirements determined?
• How are Inspector Instructor training requirements translated into instructional lessons?
• How effective are the instructional lessons in obtaining the desired critical outcomes or competencies?

R3B or MROC Supported: No
Navy/Marine S&T Objectives: No
Funding Available: Yes
Completion Timeframe: Ongoing
Sponsor Priority: High

POC: Mr Robert McGuiness
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    Marine Forces Reserve (MFR)
OPNAV N4
Fleet Readiness & Logistics

Presented by:
CDR Karen Dallas

OPNAV N403
Mission Services Branch Head,
Programming & Resources Division
Topic Description:
Naval facilities produce significant waste streams of widely varying composition that could be diverted and repurposed towards power generation.

Potential Research Focus / Questions:
• Are the waste products of Naval facilities of sufficient quantity and availability to make implementation of waste to energy technologies feasible?
• What types of facilities are best suited for such technologies (recruiting commands, fleet concentration areas, etc)?
• Which waste to energy technology would be most appropriate for implementation?

R3B or MROC Supported: No
Navy/Marine S&T Objectives: No
Funding Available: No
Completion Timeframe: 1 yr
Sponsor Priority: High

POC: Ms. Rae Sullivan
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N4 - Material Readiness & Logistics
NPS-N16-N169: CAD Interoperability for Navy Reuse in Additive Manufacturing (AM), 3D Printing, Maintenance and Training

Broad Area Study

**Topic Description:**
Additive manufacturing (AM), 3D printing and CAD export are critical for Navy maintenance. We will design and execute formal user studies. We will establish an open forum for all NPS curricula and serve as lead NPS coordinators for AM.

**Potential Research Focus / Questions:**
- Evaluate the effectiveness of repair and maintenance workflows that incorporate Additive Manufacturing (AM) through formal user studies.
- Investigate “added value” of stereoscopic display solutions using haptic devices and force feedback, especially for paired/group work.
- Demonstrate how can repositories of open-standard open-source printable 3D models be used across a wide range of Naval application areas.
- Create an educational research forum for AM and 3D printing to includes short course assets and participation in Navy AM Enterprise efforts.

**R3B or MROC Supported:** Yes
**Navy/Marine S&T Objectives:** Yes
**Funding Available:** Yes
**Completion Timeframe:** 1 yr
**Sponsor Priority:** High

**POC:** N415 Business OpsTOC Frank Futcher
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N4 - Material Readiness & Logistics
NPS-N16-N165: Redesign of the towed array to achieve more energy efficient steaming

Broad Area Study

Topic Description:
The fleet requests a design study to analyze and improve the design of existing towed arrays for surface ships so that ships can operate in a more fuel efficient manner without compromising mission and acoustic capabilities.

Potential Research Focus / Questions:
• Can the towed array be redesigned to mitigate the risk of operating trail shaft or at slower speeds with the tail extended while maintaining acoustic
• What operational procedures would accompany a modified towed array design and what is the notional fuel savings by hull class?
• Can current operational procedures be modified based on existing towed array designs?
• Can some modification be made to existing arrays to reduce cost and improve operational performance from an energy standpoint?

R3B or MROC Supported: No
Navy/Marine S&T Objectives: No
Funding Available: No
Completion Timeframe: 1 yr
Sponsor Priority: High

POC: CAPT Jeffrey Maclay
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N4 - Material Readiness & Logistics
Space and Naval Warfare Systems Command (SPAWAR)

CDR Brian Erickson
NPS-N16-N280: Cybersecurity and patching periodicity as it applies to System of Systems (SOS) risk

**Topic Description:**
Cybersecurity and patching periodicity as it applies to System of Systems (SOS) risk

**Potential Research Focus / Questions:**
- What can the Navy do to mitigate security risk if we do not patch vulnerabilities in a timely manner?

**R3B or MROC Supported:** No
**Navy/Marine S&T Objectives:** No
**Funding Available:** Yes
**Completion Timeframe:** 1 yr
**Sponsor Priority:** High

**POC:** CDR Brian Erickson
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Space and Naval Warfare Systems Command (SPAWAR)
NPS-N16-N281: Cybersecurity and Commercial Off The Shelf (COTS) IT product End of Life (EOL) challenges

Broad Area Study

**Topic Description:**
Cybersecurity and Commercial Off The Shelf (COTS) IT product End of Life (EOL) challenges

**Potential Research Focus / Questions:**
- If the Navy has to continue operating with EOL software that is not supported by commercial patching, how can the Navy mitigate the risk?
- If the risk can be mitigated, how do the risk levels compare?

**R3B or MROC Supported:** No

**Navy/Marine S&T Objectives:** No

**Funding Available:** Yes

**Completion Timeframe:** 1 yr

**Sponsor Priority:** High

**POC:** CDR Brian Erickson  
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Space and Naval Warfare Systems Command (SPAWAR)
NPS-N16-N282: Cybersecurity and Industrial Control Systems (ICS)

Broad Area Study

Topic Description:
Cybersecurity and Industrial Control Systems (ICS)

Potential Research Focus / Questions:
• How can SPAWAR better protect Navy control systems from cyber threats.

R3B or MROC Supported: No
Navy/Marine S&T Objectives: No
Funding Available: Yes
Completion Timeframe: 1 yr
Sponsor Priority: High

POC: CDR Brian Erickson
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Space and Naval Warfare Systems Command (SPAWAR)
NPS-N16-N116: Cybersecurity Figure of Merit

**Thesis Topic**

**Topic Description:**
Cybersecurity remains an uncertain domain where leadership struggles with how to objectively measure the monetary investment in cyber against expected operational outcomes/readiness.

**Potential Research Focus / Questions:**
• Can cyber metrics be designed in a way that provides leaders with an understanding of cyber readiness and in turn make the appropriate budget decisions to ensure proper cyber hygiene?

**R3B or MROC Supported:** No  
**Navy/Marine S&T Objectives:** No  
**Funding Available:** Yes  
**Completion Timeframe:** 1 yr  
**Sponsor Priority:** High  

**POC:** Brian Erickson  
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  Space and Naval Warfare Systems Command (SPAWAR)
Marine Forces
Cyberspace
Command (MFCC)
Maj Grams
United States Marine Corps Forces
Cyberspace Command
Major Grams

25 Mar 2015

Overall Classification: Unclassified//FOUO
NPS-N16-M175: Attaining I&W in Cyberspace

**Thesis Topic**

**Topic Description:**
We need a methodology for developing indicators and then analyzing those indicators to generate warnings for impending cyber threats to DoD networks. (e.g. MCEN and DoDIN)

**Potential Research Focus / Questions:**
- Create a means of determining potential threats to DoD networks
- Identify a methodology for executing Cyber Indications and Warnings analysis.

**R3B or MROC Supported:** No
**Navy/Marine S&T Objectives:** Yes
**Funding Available:** Yes
**Completion Timeframe:** 1 yr
**Sponsor Priority:** Medium

**POC:** LtCol Stewart Johnston
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Marine Forces Cyberspace Command (MFCC)
NPS-N16-M356: Cyber Acquisitions Integration

**Thesis Topic**

**Topic Description:**
Develop an acquisition cycle that is integrated with the operational tempo and cyberspace technologies life cycle to be more responsive to current and future operational needs.

**Potential Research Focus / Questions:**
- Develop an acquisition cycle that is integrated with the operational tempo and cyberspace technologies life cycle to be more responsive to current and

**R3B or MROC Supported:** No
**Navy/Marine S&T Objectives:** No
**Funding Available:** Yes
**Completion Timeframe:** 1 yr
**Sponsor Priority:** Medium

**POC:** Katherine Hass
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Marine Forces Cyberspace Command (MFCC)
NPS-N16-M361: Extension of Cyberspace Platform Capabilities

**Topic Description:**
Extension of Cyberspace Platform Capabilities With the expansion of drones and other technologies, the possibility of creating platforms to extend cyberspace capabilities exists; research the feasibilities of such platforms.

**Potential Research Focus / Questions:**
- Extension of Cyberspace Platform Capabilities With the expansion of drones and other technologies, the possibility of creating platforms to extend cy...
NPS-N16-M352: COIN in Cyberspace

Thesis Topic

**Topic Description:**
Recent world events have highlighted the use of cyberspace for political, military, and economic purposes. What does COIN in cyberspace look like and how can cyberspace be leveraged to that end?

**Potential Research Focus / Questions:**
- What does COIN in cyberspace look like and how can cyberspace be leveraged to that end

R3B or MROC Supported: No
Navy/Marine S&T Objectives: No
Funding Available: Yes
Completion Timeframe: 1 yr
Sponsor Priority: Medium

POC: Katherine Hass
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Marine Forces Cyberspace Command (MFCC)
Topic Description:
Develop recommendations for the CEWCC’s role in light of evolving cyber operations and the impact of cyberspace on the battlespace.

Potential Research Focus / Questions:
• Develop recommendations for the CEWCC’s role in light of evolving cyber operations and the impact of cyberspace on the battlespace.

R3B or MROC Supported: No
Navy/Marine S&T Objectives: No
Funding Available: Yes
Completion Timeframe: 1 yr
Sponsor Priority: High

POC: Katherine Hass
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Marine Forces Cyberspace Command (MFCC)
NPS-N16-M353: Command and Control for the New Norm

**Thesis Topic**

**Topic Description:**
Explore the implications on C2 as cyber operations evolve, and assess the implications for USMC cyber operations policy and doctrine.

**Potential Research Focus / Questions:**
- Explore the implications on C2 as cyber operations evolve, and assess the implications for USMC cyber operations policy and doctrine.

**R3B or MROC Supported:** No
**Navy/Marine S&T Objectives:** Yes
**Funding Available:** Yes
**Completion Timeframe:** 1 yr
**Sponsor Priority:** Medium

**POC:** Roger Schult
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Marine Forces Cyberspace Command (MFCC)
NPS-N16-M358: Electronic Warfare and Cyberspace Convergence

**Thesis Topic**

**Topic Description:**
Define whether there would be operational advantage in completely converging Electronic Warfare (EW) and Cyberspace operations

**Potential Research Focus / Questions:**
- Define whether there would be operational advantage in completely converging Electronic Warfare (EW) and Cyberspace operations

**R3B or MROC Supported:** No
**Navy/Marine S&T Objectives:** Yes
**Funding Available:** Yes
**Completion Timeframe:** 1 yr
**Sponsor Priority:** High

**POC:** Katherine Hass
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Marine Forces Cyberspace Command (MFCC)
NPS-N16-M176: Future threats/threat environment in cyberspace

Thesis Topic

Topic Description:
Research potential future Cyber threat vectors, emerging technology, malicious code, zero day exploits etc. that could threaten the MCEN and DoDIN.

Potential Research Focus / Questions:
• Use future threat analysis to shape current analytic effort by crafting I&W Conditions to id potential threats before defense net ops are impacted

R3B or MROC Supported: No
Navy/Marine S&T Objectives: No
Funding Available: No
Completion Timeframe: 1 yr
Sponsor Priority: Medium

POC: LtCol Stewart Johnston
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Marine Forces Cyberspace Command (MFCC)
NPS-N16-M170: Patch and Log Management in a Bandwidth Constrained Environment

**Thesis Topic**

**Topic Description:**
How do we pull patches and manage reporting security logging across the MAGTF/MEU in a bandwidth constrained environment. Numerous aspects of military operations are constrained due to bandwidth limitations.

**Potential Research Focus / Questions:**
- Identify a better process for deployable units to pull/push security patches and collect security logging events.

**R3B or MROC Supported:** No

**Navy/Marine S&T Objectives:** Yes

**Funding Available:** Yes

**Completion Timeframe:** 1 yr

**Sponsor Priority:** Medium

**POC:** Maj Cameron Grams
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Marine Forces Cyberspace Command (MFCC)
NPS-N16-M148: CSSAC - A Broad Study

**Topic Description:**
DISA has built the Cyber Situational Awareness Analytic Capabilities (CSAAC) to improve situational awareness and speed of defensive response to the high rate of threats and exploitation attempts on DoD Enterprise Networks and Services.

**Potential Research Focus / Questions:**
- RDK cloud platform install and analysis of stability.
- Explore the ingest tools for CSAAC.
- Indentify data sources and evaluate the efficacy of the ingest process.

**R3B or MROC Supported:** No
**Navy/Marine S&T Objectives:** No
**Funding Available:** No
**Completion Timeframe:** Ongoing
**Sponsor Priority:** High

**POC:** Maj Cameron Grams  
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Marine Forces Cyberspace Command (MFCC)
NUWC Division, Keyport
Mr. David Mortimore
NPS-N16-N195: USW Range Event Planning System

**Thesis Topic**

**Topic Description:**
Develop a USW range event planning system to support development test and evaluation, research and design, USW training, and pre-deployment assessments and evaluations.

**Potential Research Focus / Questions:**
- How to use Design of Experiments to optimize at-sea range testing to ensure sufficient testing for design and boundary conditions for USW systems?
- How much modeling and simulation may be integrated with physical tests to lower acquisition costs while providing sufficient confidence in the results?

**R3B or MROC Supported:** No
**Navy/Marine S&T Objectives:** Yes
**Funding Available:** Yes
**Completion Timeframe:** Ongoing
**Sponsor Priority:** High

**POC:** Mr. David Mortimore
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NUWC Division, Keyport
NPS-N16-N184: Cybersecurity for USW Test Vehicles and UUVs/UMSs

**Thesis Topic**

**Topic Description:**
As ASW training targets, independent test vehicles, and UUVs/UMSs are potentially used in locations other than on fixed USW tracking ranges, means by which to ensure the security of the vehicle, technologies, and information are needed.

**Potential Research Focus / Questions:**
- What means/methods exist to ensure the cybersecurity of the vehicle, its systems, and/or information?
- What criteria should be considered in features used by autonomous vehicles?
- What thresholds should be considered?

**R3B or MROC Supported:** Yes
**Navy/Marine S&T Objectives:** Yes
**Funding Available:** No
**Completion Timeframe:** 1 yr
**Sponsor Priority:** Medium

**POC:** Mr. David Mortimore
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NUWC Division, Keyport
Topic Description:
Research is needed to assess the viability of new communication methods between ASW training targets, UUVs/UMSs, submarines, surface ships, and/or USW fixed and portable tracking ranges that better emulate operational considerations.

Potential Research Focus / Questions:
• What is the viability of near field communications for use in the undersea environment?
• Do the technologies enable multiple users (e.g., range personnel, operators) to use the same technology securely from each other?
• What other technologies are in use commercially or in other systems (e.g., aviation) that may be adapted for the undersea environment?
• What is the viability of USW tracking ranges to be updated as new communication technologies are developed?

R3B or MROC Supported: Yes
Navy/Marine S&T Objectives: Yes
Funding Available: No
Completion Timeframe: 2 yr
Sponsor Priority: Low

POC: Mr. David Mortimore
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360.315.2213
NUWC Division, Keyport
NPS-N16-N186: Multi-Event Multi-Scenario Capability for USW Ranges

**Thesis Topic**

**Topic Description:**
To improve the relevancy and usefulness of USW test and evaluation, and training events, a means to perform multiple events at the same time and multiple scenarios to more fully evaluate technologies, techniques, and tactics.

**Potential Research Focus / Questions:**
- For a given infrastructure, what technologies, systems, etc., are needed to provide the most realistic testing/training event for USW forces?
- How may multiple communication paths/systems be integrated while remaining with available frequency bands?
- What range options should be developed to support UUVs/UMSs, submarines, surface ships, SOF, and various underwater communications systems?

**R3B or MROC Supported:** Yes
**Navy/Marine S&T Objectives:** Yes
**Funding Available:** Yes
**Completion Timeframe:** 2 yr
**Sponsor Priority:** Medium

**POC:** Mr. David Mortimore
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NUWC Division, Keyport
NPS-N16-N188: Technical Health Assessment Methods and Technology

**Thesis Topic**

**Topic Description:**
Assessing and taking action to maintain/improve the technical health of science/engineering competencies/capabilities is required to ensure the USW community has the skills needed today and in the future.

**Potential Research Focus / Questions:**
- What factors need to be considered to fully evaluate technical health of a competency/capability taking into account covariance, etc.
- What are the impacts of or considerations to assessing multiple technical capabilities that draw upon the same underlying skills?
- What categories/data stratifications provide the optimal analysis while minimizing number of variables, and cost of data management?

**R3B or MROC Supported:** Yes  
**Navy/Marine S&T Objectives:** No  
**Funding Available:** Yes  
**Completion Timeframe:** 1 yr  
**Sponsor Priority:** Medium

**POC:** Mr. David Mortimore  
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360.315.2213  
NUWC Division, Keyport
NPS-N16-N192: UUV/UMS Propulsion Energy Systems

**Topic Description:**
To extend the operational range/time of anti-submarine warfare training targets, USW independent test vehicles, and similar systems, new propulsion energy systems are needed to provide better training and testing.

**Potential Research Focus / Questions:**
- What power sources provide maximum opportunity within two years?
- What power sources provide maximum opportunity within five years?
- What power sources best integrate with existing Fleet and test vehicle technologies today and in the future (based on various acquisition strategies)?

**R3B or MROC Supported:** Yes
**Navy/Marine S&T Objectives:** Yes
**Funding Available:** No
**Completion Timeframe:** 1 yr
**Sponsor Priority:** Medium

**POC:** Mr. David Mortimore
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NUWC Division, Keyport
NPS-N16-N194: Test and Evaluation Cyber Range

**Thesis Topic**

**Topic Description:**
To ensure USW systems (e.g., weapons, UUVs) are fully tested and evaluated during initial acquisition and when modernized, testing on a cyber range is needed.

**Potential Research Focus / Questions:**
- How to test components of various levels and entire systems to ensure cybersecurity protocols/standards are met?
- What infrastructure is needed to maximize T&E effectiveness, modernization, and minimizing investment costs?
- How to effectively test cybersecurity when procured systems/components without technical data packages?
- How to test cybersecurity and vulnerabilities between connected and unconnected systems/vehicles employing WiFi, near field communications, etc.

**R3B or MROC Supported:** Yes
**Navy/Marine S&T Objectives:** No
**Funding Available:** Yes
**Completion Timeframe:** 1 yr
**Sponsor Priority:** High

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HQMC Aviation
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Maj Larson
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Thesis Topics/ Broad Areas of Study

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Broad Area Study

**Topic Description:**
HQMC APX-8 Requires the development of a web based training management database to allow training managers in the ATC MOS to leverage the benefits of having full access to a ATC Marine's career training history.

**Potential Research Focus / Questions:**
- Writing a full ATC database management system schema and testing.
- Explore technologies to synchronize ATC to external systems like MSHARP.
- Using big data and machine learning to analyze all training and tracking data.

**R3B or MROC Supported:** No

**Navy/Marine S&T Objectives:** No

**Funding Available:** No

**Completion Timeframe:** Ongoing

**Sponsor Priority:** High

**POC:** LtCol Joe Turkal  
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HQMC Aviation (HQMC AVN)
NPS-N16-M362: HQMC Avn - ALIMS MOS 6694

Broad Area Study

Topic Description:
A study to consider manpower inventory, including grade shaping and career training continuum, to support the ALIMS MOS 6694

Potential Research Focus / Questions:
• What is the proper structure of ALIMS personnel and career training continuum across the Marine Corps?

R3B or MROC Supported: No
Navy/Marine S&T Objectives: No
Funding Available: No
Completion Timeframe: 1 yr
Sponsor Priority: Medium

POC: MGySgt Michael Claiborne
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HQMC Aviation (HQMC Avi)
NPS-N16-M364: HQMC Avn - Officer MOS Contract Length

**Thesis Topic**

**Topic Description:**
USMC aviators incur a 6 year obligation after winging, whereas USAF aviators incur a 10 year obligation. Is the USMC capitalizing on its return on investment?

**Potential Research Focus / Questions:**
- Are supply and demand equal with regard to incurred service length?
- What is the impact on readiness of shorter incurred time compared to other services?
- Are there manpower savings associated with longer incurred service time?

R3B or MROC Supported: No  
Navy/Marine S&T Objectives: No  
Funding Available: No  
Completion Timeframe: 1 yr  
Sponsor Priority: Medium

POC: LtCol Philip "Squirts" Herschelman  
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HQMC Aviation (HQMC Avi)
Industry analysts forecast a huge demand for commercial pilots in the coming decade. Will the current population behave similarly to historical populations?

Potential Research Focus / Questions:
- What is the required inventory of aviators to maintain the current manpower requirement?
- What is the optimal solution to maintain readiness?
- What are the optimal amount for aviation career incentive/continuation pay to retain qualified aviators?
- What are the economic drivers associated with accession/retention?

R3B or MROC Supported: No
Navy/Marine S&T Objectives: No
Funding Available: No
Completion Timeframe: 1 yr
Sponsor Priority: Medium

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HQMC Aviation (HQMC Avi)
NPS-N16-M365: HQMC Avn-USMC Aviation Maintenance

**Thesis Topic**

**Topic Description:**
Compare contrast civilian/USAF aircraft maintenance with USMC.

**Potential Research Focus / Questions:**
- Does the USMC have the right manpower solution compared to civilian airlines?
- What can the USMC do to retain highly trained enlisted maintainers beyond their first enlistment?
- What impacts does accession/retention of qualified maintainers have on accession/retention?

**R3B or MROC Supported:** No
**Navy/Marine S&T Objectives:** No
**Funding Available:** No
**Completion Timeframe:** 1 yr
**Sponsor Priority:** Medium

**POC:** LtCol Philip "Squirts" Herschelman
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HQMC Aviation (HQMC Avi)
NPS-N16-M343: USMC Aviation Digital Interoperability

**Topic Description:**
Optimization of development and employment of USMC digital interoperability (DI) tenants and associated technologies to deliver warfighting capabilities in a timely and effective manner.

**Potential Research Focus / Questions:**
- How do we optimize development and employment of tenants and associated technologies of DI to do deliver timely warfighting capabilities to the MAGTF?
- What are COTS/GOTS solutions for DI in both the near and far term?
- What are the proposed solutions for tablet integration across the MAGTF to include mobile device networks and application based functions?
- What are the optimal employment and military applications of Software Defined Radios?

**R3B or MROC Supported:** No
**Navy/Marine S&T Objectives:** Yes
**Funding Available:** No
**Completion Timeframe:** 1 yr
**Sponsor Priority:** High

**POC:** Major Nathan "MOG" Marvel
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HQMC Aviation (HQMC AVN)
NPS-N16-M342: USMC Next Generation UAS

**Thesis Topic**

**Topic Description:**
The USMC FY15 Aviation Plan calls for the next generation UAS to be IOC by FY24. HQMC Aviation seeks to optimize the JCIDS and NAVAIR program office selection to deliver warfighting capability on time and on budget.

**Potential Research Focus / Questions:**
- What are the applicable lessons learned from the procurement/fielding of the MQ-21A, MQ-1C, MQ-9, and MQ-8C?
- Is Common Control Station the correct common control architecture for a Marine Corps MQ-X POR?
- How can Marine Aviation incorporate SOCOM procurement best practices to deliver MQ-X on time and on budget?
- What agencies within NAVAIR could act as an incubator/skunk work program office to avoid the delays and cost overruns evident in other MDAPs?

**R3B or MROC Supported:** Yes

**Navy/Marine S&T Objectives:** Yes

**Funding Available:** No

**Completion Timeframe:** 1 yr

**Sponsor Priority:** High

**POC:** Major James "Tuck" Compton
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HQMC Aviation (HQMC AVN)
Topic Description:
KC-130 mission set expansion from transport and Air-to-air refueling (AAR) has now grown to include other missions to include Close Air Support (CAS) and Non-Traditional ISR (NTISR) with the Harvest Hawk variant of the KC-130J.

Potential Research Focus / Questions:
• Given the expanded mission sets, "new normal" deployment requirements and force structure, what is the proper structure of KC-130 aircraft/personnel?

R3B or MROC Supported: No
Navy/Marine S&T Objectives: No
Funding Available: No
Completion Timeframe: 1 yr
Sponsor Priority: Medium

POC: Maj Ryan Ward
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HQMC Aviation (HQMC AVN)
HQMC C4
Mr. Bible
C4’s ROLE:
- Support the CMC in his role as a member of the Joint Chiefs of Staff
- Service Staff responsibility for enterprise-wide information technology
- Implement a synchronized strategy to deliver the Marine Corps Information Environment (MCIE)

C4’s Priorities (CMC’s Planning Guidance & Expeditionary Force 21):
- Deliver the Marine Corps Enterprise Network (MCEN)
- Deliver Marine Corps Enterprise Information Technology Services (MCEITS)
- Institutionalize Strategic Planning and Effective Governance

Linkage to CMC Planning Guidance and Capstone Concepts:
- MAGTFs capable of offensive and defensive cyber operations (CPG)
- Enterprise and tactical digital interoperability solutions (CPG)
- Enabling rapid response with an emphasis on Crisis Response (EF-21)
- Integration with garrison-like information services (eliminate garrison to tactical seam) (EF-21)
NPS-N16-M187: Posturing the MCEN to Better Support Deployed USMC Operations

Topic Description:
The MCEN requires a greater scalable capability to better support joint, coalition, and interagency operations while enabling individual to organizational mobility and preserving a continuum of information services.

Potential Research Focus / Questions:
- How can the USMC reduce the garrison-to-tactical "seam"?
- How can the USMC more effectively deploy and scale the information services of the MCEN?
- How can the regional MITSC improve its responsiveness to deployed users?
- How can the USMC achieve a commonality and standardization of services, protocols, and applications?

R3B or MROC Supported: No
Navy/Marine S&T Objectives: No
Funding Available: No
Completion Timeframe: 2 yr
Sponsor Priority: High

POC: Maj Robert Price
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    HQMC C4
Commander, Naval Surface Forces (COMNAVSURFOR)

CDR Olin
CDR Gerald Olin
Commander’s Action Group, N00Z
NPS-N16-N227: Improving Surface Warfare Officer Retention

Broad Area Study

Topic Description:
Model and predict the behavior of our officers to either remain in the Navy beyond their initial minimum service requirement (MSR) or resign at MSR and what can be done to influence it.

Potential Research Focus / Questions:
• Is our current SWO career path aligned with the professional aspirations and preference of “millennials”? Can we offer more career opportunities?
• To what extent is the current career path dependent on Congressionally mandated restrictions and the rise of required joint career milestones?
• Does considering all URL Officers together for promotion impact the SWO community? Do non-URL communities have such flexibility?
• Does the central focus of Command at Sea have a downside, and do we make the best use of officers possessing other skills we value?

R3B or MROC Supported: No
Navy/Marine S&T Objectives: Yes
Funding Available: No
Completion Timeframe: 2 yr
Sponsor Priority: High

POC: CDR Jerry Olin
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Commander, Naval Surface Forces (COMNAVSURFOR)
NPS-N16-N233: Improving the Fleet’s Distributed Lethality Capability

Broad Area Study

Topic Description:
Develop a simulation to allow the Surface Navy to examine different options for implementing Distributed Lethality capabilities in various ship platforms and analyze those outcomes against a generic, near-peer adversary.

Potential Research Focus / Questions:
• How can current ships (incl. logistics and amphibious) be retrofitted w/ available weapons/sensors to better support Distributed Lethality?
• How can current operations and tactics be modified to make ships more lethal both in combined and individual employments under Distributed Lethality?
• What future weapon system and sensor characteristics show the most promise to increase the fleet’s Distributed Lethality capabilities?

R3B or MROC Supported: No
Navy/Marine S&T Objectives: Yes
Funding Available: No
Completion Timeframe: Ongoing
Sponsor Priority: High

POC: CDR Jerry Olin
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Commander, Naval Surface Forces (COMNAVSURFOR)
NPS-N16-N235: Logistics in Support of the Fleet’s Distributed Lethality Concept

Broad Area Study

**Topic Description:**
Develop an operational, theater-level simulation to allow the Surface Navy to examine options for implementing Distributed Lethality capabilities in various ship platforms and analyze those outcomes against a generic, near-peer adversary.

**Potential Research Focus / Questions:**
- To what degree is the current logistics force capable of adequately supporting dispersed surface operations under combat conditions?
- Explore the limits of theater logistics in supporting distributed forces (including LCS CMAV) considering a U.S.-only vs partner nation supply chain.
- Should the combat logistics force be modified to support distributed forces? Explore the use of smaller, but more numerous, logistics ships.
- What is the relationship between Sea-basing and distributed lethality? How could we defend both Sea Basing assets and other logistics forces?

**R3B or MROC Supported:** No
**Navy/Marine S&T Objectives:** Yes
**Funding Available:** No
**Completion Timeframe:** Ongoing
**Sponsor Priority:** High

**POC:** CDR Jerry Olin
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Commander, Naval Surface Forces (COMNAVSURFOR)
Broad Area Study

**Topic Description:**
Model the Surface Navy's Basic Phase training process in support of evaluation/analysis in order to optimize the Basic Phase while ensuring all ships are ready to progress to Integrated Phase Training.

**Potential Research Focus / Questions:**
- Can we reduce cost by customizing Basic Phase Training for each ship while ensuring that all ships are ready to proceed to the Integrated Phase?
- What factors need to be considered in the customization of Basic Phase Training plans for specific ships?
- Develop a methodology that takes the results from question #2 and automatically generates a recommended basic training plan.

**R3B or MROC Supported:** No

**Navy/Marine S&T Objectives:** Yes

**Funding Available:** No

**Completion Timeframe:** Ongoing

**Sponsor Priority:** High

**POC:** CDR Jana Vavasseur
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Commander, Naval Surface Forces (COMNAVSURFOR)
NPS-N16-N237: Modeling and Analysis of Surface Navy Shipboard and Intermediate Maintenance Processes

Broad Area Study

**Topic Description:**
Model the Surface Navy's shipboard and intermediate maintenance processes to support evaluation/analysis of these processes in order to improve them and develop alternatives.

**Potential Research Focus / Questions:**
- Should ship’s maintenance be periodic or conditional; what are the applicable metrics and what is the best application of each maintenance type?
- Should ships’ intermediate maintenance programs be carried out by shore-based Sailors or contractors?
- Develop an alternative to or modification of the Preventive Maintenance System that reduces cost and manpower requirements while increasing readiness.

**R3B or MROC Supported:** No

**Navy/Marine S&T Objectives:** Yes

**Funding Available:** No

**Completion Timeframe:** Ongoing

**Sponsor Priority:** High

**POC:** CAPT Andy Hesser
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Commander, Naval Surface Forces (COMNAVSURFOR)
NPS-N16-N240: Modeling and Analysis of Surface Navy Availability Maintenance Processes

Broad Area Study

**Topic Description:**
Model the Surface Navy's availability maintenance processes to support evaluation/analysis of these processes in order to improve them and develop alternatives.

**Potential Research Focus / Questions:**
- What is the most cost and performance effective contracting vehicle for ship’s maintenance? (Cost Plus, Firm Fixed Price, or an alternative method)
- Develop a tool that tracks ships’ maintenance during availabilities, assesses critical path progress, and offers alternatives to keep on time/budget.
- Investigate methods to minimize cost and maximize value for shipboard maintenance availabilities in a contracting environment with only one vendor.

**R3B or MROC Supported:** No
**Navy/Marine S&T Objectives:** Yes
**Funding Available:** No
**Completion Timeframe:** Ongoing
**Sponsor Priority:** High

**POC:** CAPT Andy Hesser
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Commander, Naval Surface Forces (COMNAVSURFOR)
Mission
To serve as the Department of the Navy's systems command for Marine Corps ground weapon and information technology system programs in order to equip and sustain Marine forces with full-spectrum, current and future expeditionary and crisis response capabilities.

“Marine Corps Systems Command is a team of Acquisition Professionals united by a common purpose—being prepared for the future, while providing our Marines affordable and capable systems in a timely manner—and possessing a strong sense of esprit de corps.”
- Commander’s Intent, BGen Shrader

Commander’s Priorities
Our Work Environment.
Executing to Plan.
Our Professional Credibility.
Preparing for the future.
NPS-N16-M329: Fusion of Wireless Attack Ontology Points

**Topic Description:**
Investigation into whether it is feasible for the SDR FPGA to act as a trap to detect, deflect or counteract attempts to gain unauthorized use of the one or more RF Channels.

**Potential Research Focus / Questions:**
- Comparative assessment of current wireless attack ontology data points that are likely candidates for hysteresis fusion analysis.
- Evaluate applicability of fusion wireless attack ontology of sensor data enhancements (TRL 5<) to support or enhance expeditionary capabilities.
- Quantify based on summary analysis of existing Software Defined Radio implementations.

**R3B or MROC Supported:** No
**Navy/Marine S&T Objectives:** No
**Funding Available:** Yes
**Completion Timeframe:** 1 yr
**Sponsor Priority:** Medium

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Marine Corps Systems Command (MCSC)
NPS-N16-M330: PEO-LS: ACV 2.0 HIGH WATER SPEED

Broad Area Study

**Topic Description:**
Identify and evaluate current and potential propulsion options that could be applied to the Amphibious Combat Vehicle (ACV 1.1) vehicle in order to achieve high water speed (>25kts).

**Potential Research Focus / Questions:**
- Identify and evaluate current and potential propulsion options that could be applied to the ACV to achieve water speeds >25kts.
- Comparative assessment of current propulsion technologies.
- Evaluate applicability of planned/proposed ACV enhancements (TRL 5<) to support or enhance expeditionary capabilities.
- Quantify Cost thresholds to integrate proposed solution onto existing ACV platforms.

**R3B or MROC Supported:** No
**Navy/Marine S&T Objectives:** Yes
**Funding Available:** Yes
**Completion Timeframe:** 1 yr
**Sponsor Priority:** Medium

**POC:** Mr. Mike Halloran
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Marine Corps Systems Command (MCSC)
NPS-N16-M301: An Analysis of the Lifecycle Management of Marine Corps Material Handling Equipment/Construction Equipment (MHE/CE)

**Thesis Topic**

**Topic Description:**
Can the Marine Corps better balance equipment usage rates or optimize AAO quantities without significantly impacting war readiness?

**Potential Research Focus / Questions:**
- Can the Marine Corps better balance equipment usage rates or optimize AAO quantities without significantly impacting war readiness?
- Can strategies like public/private partnerships be beneficial?
- Is a ten-year service life reasonable for MHE/CE equipment compared with industry standards, post-service life auction values, etc.?
- How might alternative procurement strategies change/affect/reduce warranty costs?

**R3B or MROC Supported:** No
**Navy/Marine S&T Objectives:** No
**Funding Available:** No
**Completion Timeframe:** 1 yr
**Sponsor Priority:** Medium

**POC:** Major Courtney Jones
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Marine Corps Systems Command (MCSC)
NPS-N16-M297: Training & Readiness (T&R) and Live, Virtual and Constructive (LVC) Training

Broad Area Study

**Topic Description:**
Evaluation of the efficacy of Live, Virtual, and Constructive training methods to mitigate skill atrophy.

**Potential Research Focus / Questions:**
- Should ground T&Rs incorporate 30, 60, 90, 365 checks on performance requirements to ensure maintenance of proficiency?
- What skills should require proficiency checks?
- Should T&Rs with performance standards incorporate a live training standard and a simulation (virtual/constructive) standard?

**R3B or MROC Supported:** No
**Navy/Marine S&T Objectives:** Yes
**Funding Available:** Yes
**Completion Timeframe:** 1 yr
**Sponsor Priority:** High

**POC:** Mr. Nathan Jones
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Marine Corps Systems Command (MCSC)
NPS-N16-M298: PEO-LS: Non-Traditional Repair of Armor Steels on Tactical Wheeled Vehicles

**Broad Area Study**

**Topic Description:**
An evaluation of methods that could minimize degradation of the armor following needed repairs of vehicle armor steels.

**Potential Research Focus / Questions:**
- Identify and evaluate non-traditional repair methods for High Hardness Steels on the Cougar Family of Vehicles.
- Evaluation of current repair methods and quantify resulting degradation to armor performance.
- Investigate armor performance using alternative repair materials.
- Quantify Heat Affected Zone degradation in high strength steels.

**R3B or MROC Supported:** No

**Navy/Marine S&T Objectives:** No

**Funding Available:** Yes

**Completion Timeframe:** 1 yr

**Sponsor Priority:** High

**POC:** Mr. Jaspal Brar
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Marine Corps Systems Command (MCSC)
NPS-N16-M299: Framework for HSI analyses and modeling and simulation of the human components to reduce risks

Broad Area Study

Topic Description:
How do current scientific and engineering literature and available HV products apply to the USMC and DON systems engineering and acquisition processes (HSI or systems engineering descriptive analysis)?

Potential Research Focus / Questions:
• How do current scientific and engineering literature/available HV products apply to the USMC and DON systems engineering and acquisition?
• What modifications to available HV products are most appropriate for depicting human requirements and dynamic USMC operational activities?
• Propose linkages with an HSI modeling and simulation framework supporting a USMC operational capability requirement or existing MARCORSYSCOM program
• Provide recommendations are recommended for applying the HV to current MARCORSYSCOM policies and processes

R3B or MROC Supported: No
Navy/Marine S&T Objectives: Yes
Funding Available: No
Completion Timeframe: 1 yr
Sponsor Priority: Medium

POC: Mr. Mike O'Neal
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    Marine Corps Systems Command (MCSC)
NPS-N16-M296: Low Power Wireless Networks

Broad Area Study

**Topic Description:**
Evaluate the current capabilities of distributed Low Power Wireless Networks to support the collection and sharing of tactical energy use and consumption information in an expeditionary environment.

**Potential Research Focus / Questions:**
- Low Power Wireless Networks Resistive to Electronic Counter Measures (ECM).
- Encryption to protect Low Power Wireless Networks from Cyber Attack (Cyber security not information assurance).
- Detection, classification and mitigation of adversarial attempts to exploit low power wireless networks.
- Dynamic visualization, presentation and quantification of data packet flow for Low Power Wireless Networks.

**R3B or MROC Supported:** No
**Navy/Marine S&T Objectives:** Yes
**Funding Available:** Yes
**Completion Timeframe:** 1 yr
**Sponsor Priority:** Medium

**POC:** Mr. Russ Clements
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Marine Corps Systems Command (MCSC)
NPS-N16-M291: “Big Data” – Logistics Master Data Management within the context of a fully integrated Logistics IT Portfolio

**Broad Area Study**

**Topic Description:**
Investigate and research how to best establish and maintain a Logistics Master Data Management System for the Marine Corps.

**Potential Research Focus / Questions:**
- Identify and evaluate the data within the current Logistics IT Systems
- Quantify efficiencies/potential efficiencies that could be gained in data management systems acquisition from the full integration of the systems.
- Comparative analysis of the “As Is” portfolio data management processes and sponsor’s “To Be” fully integrated portfolio data management processes.
- Quantify the potential for manpower savings and the warfighting capability.

**R3B or MROC Supported:** No
**Navy/Marine S&T Objectives:** Yes
**Funding Available:** Yes
**Completion Timeframe:** 1 yr
**Sponsor Priority:** High

**POC:** Mr. Al Wincek
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Marine Corps Systems Command (MCSC)
Topic Description:
Study, identify and offer recommendations to address network latency issues and improve the operational effectiveness of GCSS-MC.

Potential Research Focus / Questions:
• How can we improve end user experience and reduce latency?
• Is the problem the established network, architecture, Enterprise Resource Planning (ERP) system, network site, or system configuration related?
• What is the normal available bandwidth for use by all systems utilized by the USMC’s business processes?
• What is the expected bandwidth for a web based application?

R3B or MROC Supported: No
Navy/Marine S&T Objectives: Yes
Funding Available: Yes
Completion Timeframe: 1 yr
Sponsor Priority: Medium

POC: Mr. Dayle Wright
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Marine Corps Systems Command (MCSC)
NPS-N16-M290: Anti-access/Anti-ship Capability of Artillery Fired Projectiles from Shore

Broad Area Study

Topic Description:
What are possible solutions and trades required to engage and neutralize ships by shore based artillery platforms to support anti-access/anti-ship capabilities?

Potential Research Focus / Questions:
• The effects that can be provided by existing assets, including the HIMARS, M777, and EFSS Systems on different classes of ships.
• Concepts for future munitions for the above assets that could improve effectiveness and survivability of the platforms against the different ships.
• Concepts for firing platform improvements.
• Trade space analysis which includes effectiveness, survivability, maneuverability, and quantity of assets required to meet mission requirements agains

R3B or MROC Supported: No
Navy/Marine S&T Objectives: Yes
Funding Available: Yes
Completion Timeframe: 1 yr
Sponsor Priority: Medium

POC: Mr. Bryan Freeman
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Marine Corps Systems Command (MCSC)
NPS-N16-M293: Utilization of Intermittent Acoustics in a Networked Environment

Broad Area Study

Topic Description:
Comparative assessment: What are the network requirements and trades necessary to implement the two GCFS concepts?

Potential Research Focus / Questions:
• Trade of utilizing existing networks vs generation of a new dedicated network
• Development of different data schemes to trade system performance vs network requirements, including increasing/decreasing the number of sensor nodes.
• Quantity of data needed to determine point of origin and point of impact, including data transmitted between the sensors and the Command Post

R3B or MROC Supported: No
Navy/Marine S&T Objectives: Yes
Funding Available: Yes
Completion Timeframe: 1 yr
Sponsor Priority: Medium

POC: Mr. Bryan Freeman
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Marine Corps Systems Command (MCSC)

Broad Area Study

**Topic Description:**
What is the impact of utilizing self-loading/unloading pallet movers to supply operations vs. traditional operations?

**Potential Research Focus / Questions:**
- The types of pallet movers needed such as 463L half and full pallet movers
- The mix of pallet movers (half and full) and traditional supply assets
- The manpower and MHE requirements needed to support the concepts
- The speed and volume of cargo that can be handled by the concepts

**R3B or MROC Supported:** No
**Navy/Marine S&T Objectives:** Yes
**Funding Available:** Yes
**Completion Timeframe:** 1 yr
**Sponsor Priority:** Medium

**POC:** Mr. Bryan Freeman
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Marine Corps Systems Command (MCSC)
NPS-N16-M287: Expeditionary Fire Support System Futures Study

Broad Area Study

Topic Description:
What are the trade-offs of the current EFSS system (120mm rifled mortar + prime movers + ammo trailer) vs a future system which utilizes a 155mm MV-22 internally transportable artillery piece as the primary fire support assets?

Potential Research Focus / Questions:
• Number of sorties of MV-22 to employ an EFSS battery made up of 120mm rifled mortars or 155mm artillery pieces
• Impact on logistics of supporting both systems with ammunition and round required for target effects.
• Range, accuracy, responsiveness, effectiveness, and maneuverability of systems
• Availability of current and future munitions including smart and conventional ammunition

R3B or MROC Supported: No
Navy/Marine S&T Objectives: Yes
Funding Available: Yes
Completion Timeframe: 1 yr
Sponsor Priority: Medium

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Marine Corps Systems Command (MCSC)
NPS-N16-M286: Amphibious Vehicle Test Branch – Human Factors

Thesis Topic

Topic Description:
Refine traditional performance specifications currently listed as a “percentile operator” into a measurable and repeatable metric to support Human Factors modeling.

Potential Research Focus / Questions:
• Identify and evaluate potential approaches to describe test participants.
• Develop approach to describe operators consistent with weapon system specifications.
• Review and evaluate current human factor models and characterization approaches.
• Formulate model or methodology to describe in analytical terms test operators.

R3B or MROC Supported: No
Navy/Marine S&T Objectives: Yes
Funding Available: Yes
Completion Timeframe: 1 yr
Sponsor Priority: Medium

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Marine Corps Systems Command (MCSC)
NPS-N16-M288: Amphibious Vehicle Test Branch – Surf Zone Characterization

Thesis Topic

**Topic Description:**
Better quantify and characterize the nature of surf zones to support predictive modeling, and testing of amphibious vehicles.

**Potential Research Focus / Questions:**
- Identify and evaluate potential analytical models for characterizing Surf Zone dynamics.
- Develop approach to utilize Surf Zone model for predicting waterborne test conditions for AAV SU / ACV 1.1. based on selected parameter inputs.
- Review and evaluate current wave and surf models and predictive approaches.
- Formulate model to predict suitability of surf zone to schedule test operations.

**R3B or MROC Supported:** No
**Navy/Marine S&T Objectives:** Yes
**Funding Available:** Yes
**Completion Timeframe:** 1 yr
**Sponsor Priority:** Medium

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Marine Corps Systems Command (MCSC)
NPS-N16-M289: Amphibious Vehicle Test Branch – Sequential Testing

**Thesis Topic**

**Topic Description:**
Identify and evaluate potential sequential T&E methodologies for use in vehicle testing in order to quantify value opportunities.

**Potential Research Focus / Questions:**
- Identify and evaluate potential sequential T&E methodologies for use in vehicle testing.
- Develop approach to utilize Sequential Testing for AAV SU / ACV 1.1
- Observe current test design approaches.
- Quantify value added for using Sequential Methods.

**R3B or MROC Supported:** No
**Navy/Marine ST&T Objectives:** Yes
**Funding Available:** Yes
**Completion Timeframe:** 1 yr
**Sponsor Priority:** Medium

**POC:** Mr. Robert Lamont
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   Marine Corps Systems Command (MCSC)
NPS-N16-M285: Centralized Operating Forces Support Center

Broad Area Study

**Topic Description:**
Quantify and evaluate efficiencies that could be gained by consolidating Marine Corps logistics helpdesks.

**Potential Research Focus / Questions:**
- Identify and evaluate current helpdesk processes across the Marine Corps; scientifically quantify efficiencies/potential efficiencies.
- Comparative assessment of current helpdesk activities and OFSC.
- Evaluate applicability of planned OFSC enhancements to support or enhance logistics responsiveness.
- Quantify enhancements and efficiencies to be gained by consolidation of helpdesk operations and/or sharing of information to

**R3B or MROC Supported:** No
**Navy/Marine S&T Objectives:** No
**Funding Available:** Yes
**Completion Timeframe:** 1 yr
**Sponsor Priority:** Medium

**POC:** Mr. Steve Smith  
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Marine Corps Systems Command (MCSC)
Topic Description:
As the emphasis on IT/Cyber acquisition increases so does the need to clarify the distinction between the IT domain and Cyber domain- what is IT, what is Cyber, and what makes an IT acquisition a Cyber acquisition?

Potential Research Focus / Questions:
• What is the difference between an IT acquisition and a Cyber acquisition?
• How can the Defense Acquisition System be tailored to deliver critical cyber capability more responsively?

R3B or MROC Supported: No
Navy/Marine S&T Objectives: No
Funding Available: Yes
Completion Timeframe: 1 yr
Sponsor Priority: Medium

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Marine Corps Systems Command (MCSC)
NPS-N16-M147: Cost Analysis – Broad Area Study

**Broad Area Study**

**Topic Description:**
Cost estimation relies on historical data – what it cost the last time we bought some analogous system – to estimate the acquisition cost of the new system.

**Potential Research Focus / Questions:**
- Develop an ACDB database for Marine Corps Systems Command ACAT III and IV programs.
- Develop a slimmed-down CSDR-like program from ACAT III and IV programs.
- Develop test plans for the slimmed down Database.

**R3B or MROC Supported:** No
**Navy/Marine S&T Objectives:** No
**Funding Available:** No
**Completion Timeframe:** 2 yr
**Sponsor Priority:** High

**POC:** Mr. Carlton Hensley
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Marine Corps Systems Command (MCSC)
College of Distance Education & Training
Maj Gavin
NPS-T16-M057: Metrics for Courseware Performance

Broad Area Study

Topic Description:
Investigate distance learning courseware utilized by both private and government organizations in order to shape courseware design standards and maintenance prioritization efforts.

Purpose: Potential Research Focus / Questions:
• Processes by which knowledge is transferred between course sponsors and courseware designers and how effectively the instantiation of that knowledge transfer is presented to end-users.

NROC or MROC Supported: No
Navy/Marine S&T Objectives: No
Funding Available: Yes
Completion Timeframe: 2 yr
Sponsor Priority: Medium

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College of Distance Education & Training
NPS-T16-M058: Self-Authoring Tools and Rule Sets for Developing User-Generated Content

Broad Area Study

Topic Description:
Investigate measures to enable USMC distance-learning sponsors to build their own e-learning products (i.e., courses, exams/assessments and performance support tools).

Potential Research Focus / Questions:
• Analysis of currently available eLearning "self-authoring" tools for development of distance-learning products for USMC Total Force needs.
• Proof of concept design for an e-Learning self-authoring service and procedure that provides USMC course sponsors the requisite development guidance, testing, and support.

NROC or MROC Supported: No
Navy/Marine S&T Objectives: No
Funding Available: Yes
Completion Timeframe: 2 yr
Sponsor Priority: Medium

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    College of Distance Education & Training
NPS-T16-M059: Business Process Reengineering for Implementation of Remedy

Broad Area Study

Topic Description:
Investigate methodologies capable of capturing and analyzing user feedback in order to enhance provided IT services.

Potential Research Focus / Questions:
• Conduct an analytical evaluation of the Remedy IT service management solution and its capability to serve as the medium for capturing user feedback.
• Evaluate current IT capabilities and provide recommendations for the most effective and efficient method to capture, catalogue, and analyze user feedback.

NROC or MROC Supported: No
Navy/Marine S&T Objectives: No
Funding Available: Yes
Completion Timeframe: 2 yr
Sponsor Priority: Medium

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    College of Distance Education & Training
NPS-T16-M060: MCEITS Migration – Challenges and Opportunities

Broad Area Study

Topic Description:
Investigate the process of migrating existing technical services to the Marine Corps Enterprise Information Technology Services (MCEITS). MCEITS is intended to deliver an IT infrastructure that can quickly adapt to evolving software, hardware, data services, and management requirements.

Potential Research Focus / Questions:
• Assessment of current IT strategy
• Analysis of how the current and future strategy aligns with the USMC Information Enterprise Architecture.

NROC or MROC Supported: No
Navy/Marine S&T Objectives: Yes
Funding Available: Yes
Completion Timeframe: 2 yr
Sponsor Priority: Medium

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      College of Distance Education & Training
NPS-T16-M061: Virtualization as a Practical Solution for Browser Agnosticism

**Topic Description:**
The goal of electronic courseware development is to design courses that are fully functional on any and all available operating systems and commercial browsers.

**Potential Research Focus / Questions:**
- Investigate the feasibility of virtualization to deliver courseware and to make both existing and to-be designed courseware deliverable on a wide array of operating systems, browsers, and devices.

**NROC or MROC Supported:** No
**Navy/Marine S&T Objectives:** No
**Funding Available:** Yes
**Completion Timeframe:** 2 yr
**Sponsor Priority:** Medium

**POC:** Maj Mike Gavin
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College of Distance Education & Training
NPS-T16-M062: eLearning Measures of Effectiveness

**Thesis Topic**

**Topic Description:**
Determine an appropriate metric for measuring the effectiveness of eLearning in the Marine Corps.

**Potential Research Focus / Questions:**
- Comparatively analyze the value of technology enabled distance education and training.
- Assesses currently available curriculums and conduct an analysis of how this content meets the current and future training and educational priorities of the USMC.

**NROC or MROC Supported:** No
**Navy/Marine S&T Objectives:** No
**Funding Available:** Yes
**Completion Timeframe:** 2 yr
**Sponsor Priority:** Medium

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Thesis Topic

**Topic Description:**
Determine whether or not the intent for ‘force readiness’ is being met through existing distance learning modules.

**Potential Research Focus / Questions:**
- Investigate the hypothesis that annual training has been organizationally marginalized to an act of simple completion vice a valuable and meaningful training and education experience.

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**NROC or MROC Supported:** No  
**Navy/Marine S&T Objectives:** No  
**Funding Available:** Yes  
**Completion Timeframe:** 2 yr  
**Sponsor Priority:** Medium  

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   College of Distance Education & Training
NPS-N16-M304: BYOD Strategies to Support eLearning

**Thesis Topic**

**Topic Description:**
The feasibility of a Bring Your Own Device (BYOD) strategy to support eLearning.

**Potential Research Focus / Questions:**
- What are the DoD security requirements for the mobility environment?
- What are the DoD policies to support BYOD usage?
- What technical means are available to enforce such policies?
- What are the procedures to monitor and control the use of BYOD?

**NROC or MROC Supported:** No

**Navy/Marine S&T Objectives:** No

**Funding Available:** Yes

**Completion Timeframe:** 2 yr

**Sponsor Priority:** Medium

**POC:** Maj Mike Gavin
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NPS-N16-303: Integrating xAPI Standards to Support eLearning

**Thesis Topic**

**Topic Description:**
SCORM is an ill suited standard to support informal, social, or mobile eLearning. xAPI presents an opportunity to decouple courseware tracking from the dedicated client-server architecture. The purpose of this research is to investigate the xAPI capabilities that most positively support eLearning within the DoD.

**Potential Research Focus / Questions:**
- What tracking elements will best support the unique needs of DoD eLearning?
- What IA issues will transitioning to an xAPI standard incur?
- How might xAPI support eLearning in limited bandwidth environments?

**NROC or MROC Supported:** No
**Navy/Marine S&T Objectives:** No
**Funding Available:** Yes
**Completion Timeframe:** 2 yr
**Sponsor Priority:** Medium

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Broad Areas of Study

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NPS-N16-N248: Decision Support for Irregular Warfare: New Wargame Insights via Post-Wargame Experimentation and Analysis

**Broad Area Study**

**Topic Description:**
CENTCOM wishes to build a new Peace Support Operations Model (PSOM) scenario for an unstable geographic region and employ it as a wargaming tool. CENTCOM requires a new method to extract as much information from a wargame as possible.

**Potential Research Focus / Questions:**
- What are the key drivers of performance for the new scenario?
- Which of the key drivers can be influenced by US and coalition forces?
- What dangers or risks are associated with various COAs?
- How may risks and danger be mitigated?

**R3B or MROC Supported:** No
**Navy/Marine S&T Objectives:** Yes
**Funding Available:** No
**Completion Timeframe:** 1 yr
**Sponsor Priority:** High

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CENTCOM
Manpower and Reserve Affairs (M&RA)
LtCol Licari & Capt Wathen
NPS-N16-M107: Optimizing Reserve Individual Mobilization Augmentee (IMA) Support to the Active Component (AC)

**Thesis Topic**

**Topic Description:**
The Reserve Component (RC) directly supports AC commands with IMA Marines. The current IMA manning requirements are set by intra-service structure reviews. While this is an important function, there are no metrics or optimizations that support the decision making process. These structure reviews should have a decision making tool that provides planners with an optimal allocation of manpower.

**Potential Research Focus / Questions:**
- What are the optimal IMA manning levels across the various Marine Corps AC commands?
- What factors should be considered when developing IMA manning levels?

**R3B or MROC Supported:** No
**Navy/Marine S&T Objectives:** No
**Funding Available:** No
**Completion Timeframe:** 1 yr
**Sponsor Priority:** High

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Manpower and Reserve Affairs (M&RA)
NPS-N16-M108: Chronically Short MOSs in the Reserve Component

**Thesis Topic**

**Topic Description:**
The Marine Corps Reserve has a number of military occupational specialties that are chronically short (CS) in manning and staffing. These include but are not limited to: 0211 (Counterintelligence/Human Intelligence) 0321 (Recon Man)

**Potential Research Focus / Questions:**
- What are the best methods for increasing manning in reserve chronically short MOSs?
- Is there a way to simulate or model manning for an MOS given certain constraints (e.g., MOS prereqs, ASVAB scores)?

**R3B or MROC Supported:** No  
**Navy/Marine S&T Objectives:** No  
**Funding Available:** No  
**Completion Timeframe:** 1 yr  
**Sponsor Priority:** High

**POC:**  
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Manpower and Reserve Affairs (M&RA)
USMC Manpower & Reserve Affairs (M&RA) Thesis Topics/
Broad Areas of Study

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NPS-N16-M164: Scenario Analysis, Policy Evaluation, and Forecasting Marine Corps Manpower Using Agent-Based Simulation Modeling JAVA Code

Broad Area Study

Topic Description:
Manpower Studies and Analysis Branch (MSAB) developed an agent-based simulation with network architecture and vacancy-based promotion system prototype. The prototype model provides the Marine Corps with forecasting, scenario analysis, and policy evaluation capabilities that are timely, accurate, and integrated under a single framework. Key features of the manpower simulation model: Agent-based simulation, Annual time step, annual and monthly output, Produces (71) analysis variables across fiscal year, month, skill, and grade.

Potential Research Focus / Questions:
• The Marine Corps is seeking a JAVA expert to review the code for efficiencies and full documentation, design GUI interface, and write user manual.

R3B or MROC Supported: No
Navy/Marine S&T Objectives: Yes
Funding Available: Yes
Completion Timeframe: 1 yr
Sponsor Priority: High

POC: GS-14 Cheryl Fitzgerald
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Manpower and Reserve Affairs (M&RA)
NPS-N16-M167: Manpower Process Improvements, High Quality People

Topic Description:
The Marine Corps’ Human Resources Development Process is designed to provide the highest quality Marines in the right place at the right time. This implies a multi-dimensional operational process requiring alignment by MOS, Grade, Unit, Deployed Formation, over time all while maintaining the ability to obtain, develop, train, mentor, and retain the best and most fully qualified officers, enlisted, and civilian personnel. DC, M&RA has continuing significant interest in improving processes and policies that contribute to attaining the highest quality people and aligning those people as optimally as possible.

Potential Research Focus / Questions:
• Improving the Manpower process. Can we improve the way the USMC processes an individual from USMC applicant to U.S. Marine in the operating forces?
• Improving Quality/ Resiliency. Are there new methods that could improve the likelihood of a Marine successfully completing a 1st enlistment term?

R3B or MROC Supported: No
Navy/Marine S&T Objectives: No
Funding Available: Yes
Completion Timeframe: 2 yr
Sponsor Priority: High

POC: Captain William Wathen
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Manpower and Reserve Affairs (M&RA)
NPS-N16-M161: A Blended Retirement Plan: Can it sustain Marine mid-career retention?

**Broad Area Study**

**Topic Description:**
On 29 January 2015, the Military Compensation and Retirement Modernization Commission (MCRMC) made 15 recommendations to modernize the military compensation system. One recommendation calls for a blended retirement plan which includes a defined benefit with 20-year vesting, defined contribution with 2-year vesting, and continuation pay at 12 years of service for all personnel.

**Potential Research Focus / Questions:**
- Does MCRMC’s blended retirement plan replicate retention patterns observed under current retirement plan?
- If not, what changes should be made to optimize mid and late-career retention?
- Does USC achieve net savings under an optimized blended retirement plan?
- What is the lifetime retirement income under an optimized blended retirement plan?

**R3B or MROC Supported:** No  
**Navy/Marine S&T Objectives:** No  
**Funding Available:** Yes  
**Completion Timeframe:** 1 yr  
**Sponsor Priority:** High

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Manpower and Reserve Affairs (M&RA)
NPS-N16-M162: USMC Manpower Quality, Recruit to MOS match, Defining Success

**Broad Area Study**

**Topic Description:**
DC, M&RA is actively pursuing ideas, innovations, or R&D efforts that could potentially lead to the better matching of a USMC recruit to the right Military Occupational Specialty (MOS). Currently, there are prerequisites that are required to be met in order for a Marine recruit to be eligible for a MOS. The Armed Services Vocational Aptitude Battery (ASVAB) test scores serve as the main delimiting factor for MOS classification. As directed by the Commandant’s Planning Guidance (CPG), DC, M&RA is investigating how to improve the way recruits are assigned to an MOS.

**Potential Research Focus / Questions:**
- Are there new methods or entrance criteria that could improve the likelihood of a Marine successfully completing a first enlistment term?
- Classification efficiency/Job-matching. How do we better match people to skill or recruit to military occupational specialty (MOS)?
- Defining a Success Measure. How do we determine that an individual is “successful” in the USMC or a “successful” match to an MOS?

**R3B or MROC Supported:** No
**Navy/Marine S&T Objectives:** No
**Funding Available:** Yes
**Completion Timeframe:** 2 yr
**Sponsor Priority:** High

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Manpower and Reserve Affairs (M&RA)
NAVSEA 05T

CDR Fox
PMS405/SEA05T
Directed Energy and Electric Weapons

CDR Jason Fox, USN
APM, Railgun Ship Integration and Test
1 April 2015
NPS-N16-N112: Electromagnetic Railgun

Broad Area Study

**Topic Description:**
The Directed Energy and Electric Weapons Program Office is seeking research in a broad area of topics related to Railguns.

**Potential Research Focus / Questions:**
- Thermal management
- Power/Energy Conversion and Storage
- Ship integration
- Weapon employment

**R3B or MROC Supported:** Yes  
**Navy/Marine S&T Objectives:** Yes  
**Funding Available:** Yes  
**Completion Timeframe:** Ongoing  
**Sponsor Priority:** High

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CAPT Marshall
Naval Satellite Operations Center

CAPT Jeff Marshall “Stack”, USN
Commanding Officer, NAVSOC
Thesis Topic

Topic Description:
The NAVSOC Ground System is vital to providing UHF communications to the Joint Warfighter. NAVSOC requires a selection of tools, metrics, and reports/displays to quickly identify and correct network performance issues.

Potential Research Focus / Questions:
• What products and processes are recommended for the collection of metrics which are relevant to NAVSOC's entire network?
• How can these metrics be processed and displayed in order to quickly and intuitively give an indication of network performance?

R3B or MROC Supported: No
Navy/Marine S&T Objectives: Yes
Funding Available: No
Completion Timeframe: 1 yr
Sponsor Priority: High

POC: LT Cameron Mackley
cameron.mackley@navy.mil
805-989-7043
Naval Satellite Operations Center
Topic Description:
The use of satellite communications through all phases of a future conflict is critical to success. DoD is developing doctrine for operations in an Anti-Access Area Denial environment. This doctrine must include a space component.

Potential Research Focus / Questions:
• What TTPs (to include hardware/software changes and “cross-banding”) might NAVSOC use IOT ensure continued UHF narrowband and UHF WCDMA connectivity?
• What additional ground satellite control systems/terminals might NAVSOC obtain IOT ensure continued UHF narrowband and UHF WCDMA connectivity?
Topic Description:
Outer space is increasingly congested, contested, and competitive. The Naval Satellite Operations Center operates FLTSAT, UFO, and MUOS GEO constellations. These critical SATCOM assets must be defended from interference and attack.

Potential Research Focus / Questions:
• How can jamming of UHF narrowband and UHF WCDMA signals be mitigated?
• Are there cost-effective methods of detecting orbital threats in GEO?
• What TTPs can be used on-orbit and on the ground to mitigate non-jamming threats?

R3B or MROC Supported: No
Navy/Marine S&T Objectives: Yes
Funding Available: No
Completion Timeframe: Ongoing
Sponsor Priority: High

POC: LCDR Adrian Arviso
    adrian.arvizo@navy.mil
    805-989-4345
    Naval Satellite Operations Center

Thesis Topic

**Topic Description:**
Mission planning is the process by which NAVSOC resources are scheduled to utilize the Naval Satellite Control Network (NSCN), the Air Force Satellite Control Network (AFSCN) and MUOS Ground Infrastructure Segment (GIS).

**Potential Research Focus / Questions:**
- How do NAVSOC’s MP SOPs and processes compared to other OPS Centers (NOAA, INTELSAT, 3SOPS, etc.)?
- What are the best practices of other OPS Centers (Commercial and Military) that NAVSOC can utilize to improve current MP process?
- What is a good matrix to measure NAVSOC’s operational performance? What do other OPS centers use to measure performance?

R3B or MROC Supported: No
Navy/Marine S&T Objectives: Yes
Funding Available: No
Completion Timeframe: 1 yr
Sponsor Priority: High

POC: Mr. Thaer Zori
thaer.zori@navy.mil
805-989-4226
Naval Satellite Operations Center
N9 – Warfare Systems
Mr. Christopher Marsh
NPS-N16-N347: Boundary Layer Turbulence Over Apertures in High Speed Flight

Broad Area Study

**Topic Description:**
We are on a search to obtain the air density spatio-temporal profiles, around fighter aircraft in subsonic, transonic and supersonic flight in non-maneuvering and in high-g maneuvers.

**Potential Research Focus / Questions:**
- Show scale size and temporal properties of vortices generated in transonic and supersonic flow across a laser aperture
- Show the degree of flow field distortion and how it affects the index refraction across a conformal window aperture

**R3B or MROC Supported:** No

**Navy/Marine S&T Objectives:** No

**Funding Available:** No

**Completion Timeframe:** 1 yr

**Sponsor Priority:** High

**POC:** Mr. Christopher Marsh  
christopher.d.marsh4.ctr@navy.mil  
703-695-1487  
N9 - Warfare Systems
NPS-N16-N354: Comprehensive logistics management for the Sea Base

**Topic Description:**
USN lacks a comprehensive method of processing and tracking both cargo and personnel being shipped to the Sea Base. Lack of visibility and predictability results in poor optimization and inefficient use of air logistics assets.

**Potential Research Focus / Questions:**
- Can throughput be increased with existing transport platforms through optimal planning and tracking?
- Identify seams that prevent holistic visibility in the current logistics system and ways to mitigate them.
- Identify best practices in the commercial sector that could be leveraged.
- Assess loss of communications in Sea Base logistics support requirements in a SATCOM/communication inhibited/restricted/denied environment.

**R3B or MROC Supported:** No  
**Navy/Marine S&T Objectives:** No  
**Funding Available:** No  
**Completion Timeframe:** 1 yr  
**Sponsor Priority:** High  

**POC:** Mr. Christopher Marsh  
christopher.d.marsh4.ctr@navy.mil  
703-695-1487  
N9 - Warfare Systems
NPS-N16-N349: Representing the Value of Carrier Aviation Presence

**Thesis Topic**

**Topic Description:**
The resourcing world competes the funding required for presence operations with subjective value against the value of combat operations that have detailed modeling supporting objective metrics. We need objective means to weigh resources.

**Potential Research Focus / Questions:**
- Propose a mechanism to calculate a nation’s risk vs reward functions in a DPS and identify impacts of CVN presence operations.
- Identify a mechanism to express the value of deterrence that can be compared with existing DPS campaign models.
- Examine the impact of increased or decreased responsiveness on deterrence.
- Examine the impact of uncertain budgets and the impact on commitments and by extension a likelihood of conflict.

**R3B or MROC Supported:** No
**Navy/Marine S&T Objectives:** No
**Funding Available:** No
**Completion Timeframe:** 1 yr
**Sponsor Priority:** High

**POC:** Mr. Christopher Marsh
christopher.d.marsh4.ctr@navy.mil
703-695-1487
N9 - Warfare Systems
NPS-N16-N366: LCS Crew Swap Optimization ThroughNUFEA

**Thesis Topic**

**Topic Description:**
Per CNO testimony, Navy Unique Fleet Essential Airlift (NUFEA) has been identified as primary logistics agent to facilitate LCS Crew Swaps. NUFEA has completed a few swaps with more scheduled this calendar year and beyond.

**Potential Research Focus / Questions:**
- is Crew Swap philosophy appropriate for current and future strategic guidance; can it be applied to other communities/platforms
- is use of NUFEA appropriate method to support Crew Swap
- how to optimize Crew Swap using NUFEA (e.g. number of aircraft required, leg length, pax/cargo makeup, etc.)
- optimum aircraft inventory to support Crew Swap mission

**R3B or MROC Supported:** No
**Navy/Marine S&T Objectives:** No
**Funding Available:** No
**Completion Timeframe:** 1 yr
**Sponsor Priority:** High

**POC:** Mr. Christopher Marsh
christopher.d.marsh4.ctr@navy.mil
703-695-1487
N9 - Warfare Systems
NPS-N16-N345: Reserve Manning in Operational Aviation Squadrons

Broad Area Study

Topic Description:
Analyze Reserve manning billet structure within aviation squadrons

Potential Research Focus / Questions:
• determine optimal ratio of Selected Reserve and Full Time Support for both officer and enlister ranks.
• Determine benefits and drawbacks of cross assigned-billets.
• Optimize reserve aircrew manning with multiple constraints to include recruiting, accession plans, and training timelines

R3B or MROC Supported: No
Navy/Marine S&T Objectives: No
Funding Available: No
Completion Timeframe: 1 yr
Sponsor Priority: High

POC: Mr. Christopher Marsh
christopher.d.marsh4.ctr@navy.mil
7036951487
N9 - Warfare Systems
Topic Description:
This work proposes to create and demonstrate open-source Java OSA interfaces for the Liquid Robotics WaveGlider SV-3 Unmanned Surface Vehicle (USV) using ASW Common Data Model (ACDM) v3.

Potential Research Focus / Questions:
• Create an open-source Java codebase of recommended OSA interfaces for current ASW Common Data Model (ACDM) and related specifications.
• Write, test interface bindings to Java-based WaveGlider USV, exercising exemplar missions of interest (ASW or MIW search).
• Devise direct onboard and remote server-side interfaces, note commonality Navy Tactical Cloud (NTC).
• Candidate exemplar for potential future use that encourages OSA adoption for a wide range of unmanned systems.

R3B or MROC Supported: Yes
Navy/Marine S&T Objectives: Yes
Funding Available: Yes
Completion Timeframe: 1 yr
Sponsor Priority: Medium

POC: N97 POC, NPS USWAG Jennifer Roberts
       jennifer.roberts1@navy.mil
       (571) 256-8414
       N9 - Warfare Systems
NPS-N16-N206: Propagating Uncertainty in Hierarchical Combat Models

**Broad Area Study**

**Topic Description:**
Quantify the impacts of various design of experiment techniques, error propagation approaches, and metamodels on the accuracy of the campaign-level findings from hierarchical families of combat models.

**Potential Research Focus / Questions:**
- Does propagating means of stochastic results from detailed models bias/understate the uncertainty of proficiency metrics & campaign-level outcomes?
- How do various DOE techniques and error propagation methods impact the accuracy and variability of proficiency metrics & campaign-level outcomes?
- What is a suitable mission area for demonstrating the new approaches?

**R3B or MROC Supported:** No  
**Navy/Marine S&T Objectives:** Yes  
**Funding Available:** No  
**Completion Timeframe:** Ongoing  
**Sponsor Priority:** High  

**POC:**  
Mr. Christopher Marsh  
christopher.d.marsh4.ctr@navy.mil  
703-695-1487  
N9 - Warfare Systems
Unmanned Undersea Systems

**Topic Description:**
- Utility of disposable systems
- Costs and benefits of onboard processing and data exfiltration
- Technology tradeoffs for optimal mission success

**Potential Research Focus / Questions:**
- Carving up the maritime domain for UUS

**R3B or MROC Supported:** No
**Navy/Marine S&T Objectives:** No
**Funding Available:** No
**Completion Timeframe:** 1 yr
**Sponsor Priority:** High

**POC:** Ms Jenny Roberts
jennifer.roberts1@navy.mil
5712568414
N9 - Warfare Systems
NPS-N16-N264: Transition of Naval Mine Countermeasures (MCM) from current MCM Forces to the Littoral Combat Ship (LCS) MCM Mission Package

Broad Area Study

Topic Description:
Plan optimized transition from current MCM Forces to future LCS MCM Mission Package. Develop modeling & simulation tool to evaluate current MCM capability & capacity VS LCS MCM from 2017-27. Identify challenges in LCS transition.

Potential Research Focus / Questions:
• How can the Navy optimize the MCM Force Structure during the transition from current MCM Forces to the future LCS based MCM Mission Package?
• Optimization should consider: Force Structure, Organization, Logistics, Manpower, Training.

R3B or MROC Supported: No
Navy/Marine S&T Objectives: No
Funding Available: No
Completion Timeframe: 1 yr
Sponsor Priority: High

POC: OPNAV N952, CAPT Colby Howard
john.c.howard@navy.mil
(703) 692-1502
N9 - Warfare Systems
NPS-N16-N265: Absence of Networks

Broad Area Study

**Topic Description:**
- Anti-access scenarios
- Anti-denial scenarios
- GPS denied scenarios
- Sat denied scenarios
- Cyber attack scenarios
- Minimal time between Phase 0, Phase 1, and Phase 2 scenarios
- Operating outside A2/AD ranges

**Potential Research Focus / Questions:**
- Communicating with sensors and weapons in denied environments

**R3B or MROC Supported:** No
**Navy/Marine S&T Objectives:** Yes
**Funding Available:** No
**Completion Timeframe:** 1 yr
**Sponsor Priority:** Medium

**POC:** Ms Jenny Roberts
jennifer.roberts1@navy.mil
5712568414
N9 - Warfare Systems
NPS-N16-N145: Transition of Mine Countermeasures (MCM) Responsibility from MCM-1 Avenger Class to Littoral Combat Ship (LCS) Class

Broad Area Study

**Topic Description:**
Identify challenges and plan optimization of transition from MCM-1 class to LCS based MCM. Develop a model to balance MCM-1 class sustainment investment vs. LCS based MCM investment. Define role of MCMRON vs. LCSRON through transition.

**Potential Research Focus / Questions:**
- How can the Navy optimize the organization, logistics, manpower, & training during the transition from MCM-1 class to LCS based MCM?
- What model or simulation can be used to value MCM-1 class sustainment investment vs. LCS based MCM investment?
- What will be the roles of MCMRON vs. LCSRON through and after transition?

**R3B or MROC Supported:** No
**Navy/Marine S&T Objectives:** No
**Funding Available:** No
**Completion Timeframe:** 1 yr
**Sponsor Priority:** Medium

**POC:** CAPT John (Colby) Howard  
john.c.howard@navy.mil  
(703) 692-1502  
N9 - Warfare Systems
Expeditionary Energy Office (E2O)
Capt Ripley
**Topic Description:**
Amphibious ships are capable of carrying multiple fuel types. It is imperative that the Assault Echelon arrive with the right mix of fuel quantitates to support both USN and USMC operations.

**Potential Research Focus / Questions:**
- What key drivers (Theater of operations, standoff, force structure, etc.) warrant changing?
- What quantity of fuel, by type, should the force bring to the fight?

**R3B or MROC Supported:** No
**Navy/Marine S&T Objectives:** No
**Funding Available:** Yes
**Completion Timeframe:** 2 yr
**Sponsor Priority:** High

**POC:** Mrs Gayle von Eckartsberg
gayle.voneckartsberg@usmc.mil
703-614-4230
Expeditionary Energy Office (E2O)
NPS-N16-M255: Connector Availability for Fuel Movement

Broad Area Study

Topic Description:
Equipment a landing force brings to the beach has changed significantly. Moving equipment ashore requires robust connector support, and under certain conditions connectors form an important aspect of the force's movement of energy ashore.

Potential Research Focus / Questions:
• Examine connectors to determine the scope of support the Corps can expect for movement of fuel ashore.

R3B or MROC Supported: No
Navy/Marine S&T Objectives: No
Funding Available: Yes
Completion Timeframe: 2 yr
Sponsor Priority: Medium

POC: Mrs Gayle von Eckartsberg
gayle.voneckartsberg@usmc.mil
703-614-4230
Expeditionary Energy Office (E2O)
NPS-N16-M109: Ship to Shore Fuel Systems

**Topic Description:**
The amphibious force relies on systems such as ABLTS and OPDS to move fuel ashore. The Corps would like to better understand how the ability of the force to move fuel ashore is impacted by standoff distances, sea state conditions, etc.

**Potential Research Focus / Questions:**
- What is the probability that current ship-to-shore fuel systems meet the demand of forces ashore under realistic conditions?
- How can the Marine Corps mitigate the risk associated with these systems in getting fuel to forces ashore?

**R3B or MROC Supported:** Yes
**Navy/Marine S&T Objectives:** No
**Funding Available:** Yes
**Completion Timeframe:** 2 yr
**Sponsor Priority:** High

**POC:** Mrs. Gayle von Eckartsberg
gayle.voneckartsberg@usmc.mil
703-614-4230
Expeditionary Energy Office (E2O)
NPS-T16-M026: Autonomous Vehicle Implementation in Logistic Resupply

Topic Description:
Autonomous Vehicle Implementation in Logistic Resupply

Potential Research Focus / Questions:
• What operational modifications can be made, for example, autonomous fuel tankers integrated and following the supported maneuver element?
• What are the impacts on personnel and structure of logistics units and supply systems if we automate and lighten the truck, without people?

R3B or MROC Supported: Yes
Navy/Marine S&T Objectives: No
Funding Available: Yes
Completion Timeframe: 2 yr
Sponsor Priority: High

POC: Mrs Gayle von Eckartsberg
gayle.voneckartsberg@usmc.mil
703-614-4230
Expeditionary Energy Office (E2O)
**NPS-N16-M110: Energy and Behavioral Factors**

**Thesis Topic**

**Topic Description:**
Energy Command and Control (EC2) is a priority program designed to arm BN and SQDN CDRs with fuel and power data, enabling them to plan and make decisions that can increase training days or extend operational reach.

**Potential Research Focus / Questions:**
- What role do feedback loops play for resource related decision making for the MAGTF elements?
- (cont) How does the information requirement change at different levels of command?
- What is essential info for elements of the MAGTF where energy management is most critical? How best to integrate in planning and execution?
- What are the systems engineering approaches and challenges to implementing energy metering/monitoring/decision capability?

**R3B or MROC Supported:** No

**Navy/Marine S&T Objectives:** No

**Funding Available:** No

**Completion Timeframe:** 2 yr

**Sponsor Priority:** High

**POC:** Mrs. Gayle von Eckartsberg
gayle.voneckartsberg@usmc.mil
703-614-4230
Expeditionary Energy Office (E2O)
MARFORPAC
Ms. Nicole Griffin
INFORMATION BRIEF

NPS-N16-M160: PACIFIC ISLANDS COASTAL MARINE SPATIAL PLANNING

Nicole Griffin
MRFORPAC
Infrastructure Support Branch
Mar-Apr 2015
NPS-N16-M160: Pacific Islands Coastal Marine Spatial Planning

Broad Area Study

**Topic Description:**
E.O. 13547 established the National Ocean Policy requiring coastal marine spatial plan development. Plans assist DON with encroachment, natural resource permitting (ESA, EFH, etc.) and selecting new training areas.

**Potential Research Focus / Questions:**
- Research - (stakeholder engagement) to determine uses and areas.
- Data evaluation via mapping decision tool.
- Identify compatible use areas and areas of potential conflicting uses.
- Identify ecosystem health.

**R3B or MROC Supported:** No
**Navy/Marine S&T Objectives:** No
**Funding Available:** No
**Completion Timeframe:** Ongoing
**Sponsor Priority:** High

**POC:** Ms. Nicole Griffin
nicole.griffin@usmc.mil
808-477-8446
MARFORPAC
Plenary Closing Remarks

Col Mitchell McCarthy
Associate Dean of Research
Working Group Flow and Execution

LtCol Mark Raffetto
NPS NRP DPM
NRWG/TRWG 15-1 Input-Output

Input

Face-to-face discussions refine the operational topics into workable research and thesis projects

Output

IREF = Initial Research Estimate Form. The online document faculty must complete for consideration for further funding
## Week Schedule

| NPS Naval Research Program - Naval and Thesis Research Working Group Meeting 15-1 |
|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| **Mon, 30 March** Day 1         | **Tues, 31 March** Day 2        | **Wed, 1 April** Day 3          | **Thurs, 2 April** Day 4        | **Fri, 3 April** Day 5          |
| 0700                            | 0700                            | 0700                            | 0700                            | 0700                            |
| 0730                            | 0730                            | 0730                            | 0730                            | 0730                            |
| 0800                            | 0800                            | 0800                            | 0800                            | 0800                            |
| 0830                            | 0830                            | 0830                            | 0830                            | 0830                            |
| 0900                            | 0900                            | 0900                            | 0900                            | 0900                            |
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| 1030                            | 1030                            | 1030                            | 1030                            | 1030                            |
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| 1130                            | 1130                            | 1130                            | 1130                            | 1130                            |
| 1200                            | 1200                            | 1200                            | 1200                            | 1200                            |
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| 1730                            | 1730                            | 1730                            | 1730                            | 1730                            |
| 1800                            | 1800                            | 1800                            | 1800                            | 1800                            |
| 1830                            | 1830                            | 1830                            | 1830                            | 1830                            |
| 1900                            | 1900                            | 1900                            | 1900                            | 1900                            |

### Activities in King Hall on Tuesday and Dudley Knox Library (DKL) Wednesday & Thursday unless noted

### In-Progress Reviews (IPRs) coordinated independently between Sponsors and PIs Wednesday & Thursday

- **Topic Sponsor Travel Day**
- **Keynote Speakers**
- **Plenary Session One**
- **Plenary Session Two**
- **Plenary Session Three**
- **Lunch Break**
- **Plenary Session Four**
- **Plenary Session Five**
- **Plenary Session Six**
- **Sponsor Welcome & Check-in**
- **No-host Mixer**
- **Trident Room**
- **Student, Faculty & Topic Sponsor Coordination Social**
- **Trident Room**
- **Student, Faculty, Staff & Topic Sponsor Social**
- **Trident Room**
- **Sponsor Outbriefs**
- **ME Auditorium**
- **No-host Mixer**
- **Starbucks DKL**
- **Revolving Panel Sessions**
- **Break-out Sessions**
- **Topic Sponsor Hotwash**
- **ME Auditorium**
- **Lunch Break**
- **NRP Hotwash**
- **RSPO**
- **Topic Sponsors RTB**
- **Curriculum Level Briefings**
- **Program Spaces**
## Revolving Panel Session Schedule

<table>
<thead>
<tr>
<th>Organization, POC</th>
<th>DKL Location</th>
<th>Wednesday Time - DKL Location</th>
<th>Thursday Time - DKL Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>CENTCOM, LCDR Walter Kulzy</td>
<td>DKL 151</td>
<td>0830 - 1st floor</td>
<td>1200 - 1st floor</td>
</tr>
<tr>
<td>College of Distance Education &amp; Training (CDET), Maj Mike Gavin</td>
<td>DKL 151</td>
<td>0830 - 2nd floor</td>
<td>1200 - 2nd floor</td>
</tr>
<tr>
<td>Commander, Naval Surface Forces (COMNavySFor), CDR Jerry Olin</td>
<td>DKL 151</td>
<td>0900 - 1st floor</td>
<td>1230 - 1st floor</td>
</tr>
<tr>
<td>Expeditionary Energy Office (E2O), Capt Anthony Ripley</td>
<td>DKL 151</td>
<td>0900 - 2nd floor</td>
<td>1230 - 2nd floor</td>
</tr>
<tr>
<td>HQMC Aviation (HQMC AVN), Maj Chris Larson</td>
<td>Buckley</td>
<td>0930 - 1st floor</td>
<td>1300 - 1st floor</td>
</tr>
<tr>
<td>HQMC C4, Mr. Kenneth Bible</td>
<td>Buckley</td>
<td>0930 - 2nd floor</td>
<td>1300 - 2nd floor</td>
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<tr>
<td>Installations &amp; Logistics, LtCol Dan Reber</td>
<td>Buckley</td>
<td>1000 - 1st floor</td>
<td>1330 - 1st floor</td>
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<tr>
<td>Manpower and Reserve Affairs (M&amp;RA), LtCol Anthony Licari</td>
<td>Buckley</td>
<td>1000 - 2nd floor</td>
<td>1330 - 2nd floor</td>
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<tr>
<td>MARFORPAC, Ms. Nicole Griffin</td>
<td>Buckley</td>
<td>1030 - 1st floor</td>
<td>1400 - 1st floor</td>
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<tr>
<td>Marine Corps Combat Development Command (MCCDC), Dr. George Akst</td>
<td>Buckley</td>
<td>1030 - 2nd floor</td>
<td>N/A</td>
</tr>
<tr>
<td>Marine Corps Modeling and Simulation Management Office (MCMSMO), Mr. Eric Whittington</td>
<td>Buckley</td>
<td>1200 - 1st floor</td>
<td>0830 - 1st floor</td>
</tr>
<tr>
<td>Marine Corps Systems Command (MCSC), Mr. C. Scott Bey</td>
<td>Buckley</td>
<td>1200 - 2nd floor</td>
<td>0830 - 2nd floor</td>
</tr>
<tr>
<td>Marine Forces Cyberspace Command (MFCC), Maj Cameron Grams</td>
<td>Buckley</td>
<td>1230 - 1st floor</td>
<td>0900 - 1st floor</td>
</tr>
<tr>
<td>Marine Forces Reserve (MFR), Mr. Robert McGuiness</td>
<td>Buckley</td>
<td>1230 - 2nd floor</td>
<td>0900 - 2nd floor</td>
</tr>
<tr>
<td>N2/N6 - Information Dominance, LCDR Jason Hurley</td>
<td>Buckley</td>
<td>1300 - 1st floor</td>
<td>0930 - 1st floor</td>
</tr>
<tr>
<td>N4 - Fleet Readiness &amp; Logistics, CDR Karen Dallas</td>
<td>Buckley</td>
<td>1300 - 2nd floor</td>
<td>0930 - 2nd floor</td>
</tr>
<tr>
<td>N9 - Warfare Systems, Mr. Christopher Marsh</td>
<td>Buckley</td>
<td>1330 - 1st floor</td>
<td>1000 - 1st floor</td>
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<tr>
<td>Naval Satellite Operations Center, CAPT Jeffrey Marshall</td>
<td>Buckley</td>
<td>1330 - 2nd floor</td>
<td>1000 - 2nd floor</td>
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<tr>
<td>NAVSEA 05T, CDR Jason Fox</td>
<td>Buckley</td>
<td>1400 - 1st floor</td>
<td>1030 - 1st floor</td>
</tr>
<tr>
<td>NUWC Division, Keyport, Mr. David Mortimore</td>
<td>Buckley</td>
<td>1400 - 2nd floor</td>
<td>1030 - 2nd floor</td>
</tr>
<tr>
<td>Space and Naval Warfare Systems Command (SPAWAR), CDR Brian Erickson</td>
<td>Buckley</td>
<td>1430 - 1st floor</td>
<td>1100 - 1st floor</td>
</tr>
<tr>
<td>Air Force Institute of Technology (AFIT), Col Tim Sands</td>
<td>DKL 262</td>
<td>N/A</td>
<td>1400 - 2nd floor</td>
</tr>
<tr>
<td>Commander, Navy Installations Command (CNIC), CDR Patrick Moran</td>
<td>Buckley</td>
<td>1500 - 1st floor</td>
<td>1100 - 2nd floor</td>
</tr>
</tbody>
</table>

Dudley Knox Library (DKL) * Buckley Area (2nd floor of DKL)
Questions?

The **Trident Room** is located in the basement of Herrmann Hall.