BY THE NUMBERS

EDUCATION:
- Current Enrollment: 2,641
  - 1,866 Master’s; 660 Certificates & non-degree; 95 Ph.D.
- Two Graduations (Winter/Spring):
  - 541 graduates
    - Navy: 213
    - USMC: 106
    - Army: 49
    - Air Force: 20
    - USCG: 3
    - DOD Civ: 104 (57 DL)
    - International: 46
      - 19 countries

RESEARCH:
- 90 projects completed, 226 active
- Recent Theses and Dissertations:
  - Includes 10 classified, 26 CUI
- Partnership agreements: 110
  - CRADA: 38
  - MOA: 33
  - MOU: 21
  - TSA: 9
  - EPA: 5
  - PIA: 4

INNOVATION:
- 9 new patents received, 13 submitted
  - 118 patents for licensing
- 2 Joint Interagency Field Experimentations
  - 325 participants, 31 experiments in Multi-domain UXS and CSISR

SPOTLIGHT: The first of two NPS-developed CubeSats sponsored by the National Reconnaissance Office launched in March from NASA’s Wallops Flight Facility in Virginia. It carries student-faculty experiments and a transmitter built by New Zealand’s Defense S&T unit, connecting to the NPS Mobile CubeSat Command & Control (MC3) network, a Five Eyes (FVEY) partnership (read more). This innovative research, and more, was context for the second annual Naval Space Summit held at NPS 9-11 July (read more).

BY THE NUMBERS

EDUCATION:
- Current Enrollment: 2,641
  - 1,866 Master’s; 660 Certificates & non-degree; 95 Ph.D.
- Two Graduations (Winter/Spring):
  - 541 graduates
    - Navy: 213
    - USMC: 106
    - Army: 49
    - Air Force: 20
    - USCG: 3
    - DOD Civ: 104 (57 DL)
    - International: 46
      - 19 countries

RESEARCH:
- 90 projects completed, 226 active
- Recent Theses and Dissertations:
  - Includes 10 classified, 26 CUI
- Partnership agreements: 110
  - CRADA: 38
  - MOA: 33
  - MOU: 21
  - TSA: 9
  - EPA: 5
  - PIA: 4

INNOVATION:
- 9 new patents received, 13 submitted
  - 118 patents for licensing
- 2 Joint Interagency Field Experimentations
  - 325 participants, 31 experiments in Multi-domain UXS and CSISR

INSTITUTION:
- ICYMI: the Annual Report offers highlights aligned to the NPS Strategic Framework:

CNO NAVPLAN: U.S. Navy Lt. Cmdr. Lindsey Darling focused her research at NPS on improving the performance of automatic target recognition (ATR) algorithms, which can assist with the detection of undersea threats such as mines. Darling’s contributions to this effort focused on the acoustic scattering statistics of rocky seafloors. Darling was recognized for her efforts with the Oceanographer of the Navy Award for Outstanding Academic Performance in Meteorology and Oceanography. Watch video.

Commandant’s Planning Guidance: Spring Quarter graduate U.S. Marine Corps Lt. Col. Christopher Bromley created a novel approach to developing tactics for beyond visual range air combat for his thesis in operations research; it’s a discovery that could potentially save subject matter experts countless hours manually generating scenarios and tactics. For his innovative work, Bromley was selected for both the Military Operations Research Society (MORS) Stephen A. Tisdale Graduate Research Award, and honored at the MORS annual meeting held at NPS, as well as the Commander, Naval Air Forces (CNAF) Award for Excellence in Aviation Warfare. Now at the Marine Squadron MAWTS-1, he is working with HQMC Aviation to advance data-driven initiatives.
EDUCATION – Developing Leaders

- **Graduations**: Vice Adm. Kelly Aeschbach, commander of NAVIFOR, and U.S. Air Force Lt. Gen. Michael Plehn, President of the National Defense University, were the Spring and Winter Quarter graduation ceremony commencement speakers. IMPACT: Nearly 550 graduates completed their defense-focused, advanced degrees and applied research theses or capstone projects, delivering solutions to relevant problems before they return to the operational force and staffs. Search student research theses: [Public](#) | [Restricted](#)

- **Aviation Support**: After successfully providing distance learning certificates for more than 100 Student Naval Aviators last summer, Vice Adm. Dan Cheever, Commander, Naval Air Forces announced the expansion of the NPS’ Shoemaker Scholarship program from 10 to 50 quotas. The new Shoemaker Scholars joined a group of 85 ensigns who checked aboard in June to start their 1-year master’s program, many faced with long delays entering flight school. IMPACT: Officers graduate ready for their aviation career, empowered to innovate.

- **NIWC Ph.D. Program**: Recognizing the need to develop capacity and expertise to meet the naval-unique aspects of information warfare in the maritime domain, Naval Information Warfare Center (NIWC) Pacific turned to NPS to develop a hybrid Ph.D. program that advances the science and research capacity of NIWC Pacific employees. IMPACT: Cultivates specific skills and depth within their civilian workforce in artificial intelligence, machine learning, data science, autonomy, cyber security, knowledge transfer, and C2.

- **AI**: In addition to degrees and certificates in AI, NPS teaches a popular executive workshop, “Leading Data and AI-Enabled Organizations.” The course demystifies AI and how to effectively harness and master the use of data as a warfighting capability. Sponsored by the Chief Digital and Artificial Intelligence Office (CDAO), the course offers real-world examples and engagements with defense and industry experts. IMPACT: To date, 8 courses have been executed with more than 200 participants; the next will be 10-12 Sept.

- **Generative AI Task Force**: To adapt to AI, NPS launched its GenAI Task Force with 60 faculty, student, and staff members. Graduate Writing Center director Dr. Sandra Leavitt led the team to produce forward-leaning policy, guidance, educational opportunities, teaching and learning materials. IMPACT: The NPS GenAI guidance promotes AI literacy, safe and ethical use, risk mitigation, and productivity gains that align with needs and best education practices. See the [NPS GenAI](#) and [GenAI LibGuide](#) resources for more.

- **Cobra Gold**: Experiential learning is a hallmark of NPS. Defense Analysis professor Leo Blanken led a unique directed study with seven SOF students to observe and analyze Cobra Gold in Thailand. IMPACT: Students provided post-event analysis to Army I Corps Lt. Gen. Xavier Brunsom, and with support from the Graduate Writing Center, published articles in relevant journals including *War on the Rocks, Modern War Institute, Air Commando Journal*, and *The Diplomat*, two of which were co-authored with Brunsom.

- **Arctic**: Secretary of the Navy Carlos Del Toro and Sen. Mark Kelly (D-Ariz.), both NPS alumni, met up with Meteorology & Oceanography students and faculty deployed to Operation Ice Camp. Hands-on testing of experimental cryophones and data collected will help to better understand the changing Arctic for the Navy’s ASW and ISR missions. IMPACT: Supported by ONR and the NWDC’s Arctic Submarine Lab, knowledge gained will improve Arctic ice prediction models to applications for undersea maritime surveillance.
RESEARCH – SOLVING PROBLEMS

- **RIMPAC**: NPS CAMRE team of students, faculty and industry partners were at RIMPAC focused on use cases for additive manufacturing (AM) and new metal polymers testing use cases with recently added AM capabilities at NPS. IMPACT: While aboard USS Somerset (LPD 25), the team successfully engineered and 3D-printed a critical part to repair a reverse osmosis (RO) unit that makes fresh water at sea for the crew. As a result, a fix which would normally require months took only a week and kept the ship underway.

- **5G**: Applied research with NPS CRADA partners AT&T and Qualcomm brings 5G talent and technologies to help solve defense problems. IMPACT: This AT&T video highlights the range of their collaboration on 5G at sea, while other efforts with Qualcomm explore 5G slicing for multivessel communications, and 3rd Generation Partnership Project (3GPP) standards that provide the foundation for the development of new technologies. OSD's FutureG Office invested in NPS for 5G research and workforce development.

- **Climate**: In their thesis, NPS Defense Analysis graduates U.S. Army Maj. Eric Czaja and Maj. Ian McAlpine, both Green Berets, addressed installation carbon sequestration, an imperative cited in the Army Climate Strategy as a key land management consideration. IMPACT: Their award-winning efforts focused on regenerative agriculture, and showed if implemented could “sink” (absorb) as much as 1.3 million tons of carbon with other benefits and reduced cost. ASA IE&E funded additional research on potential adoption.

- **AI**: USMC aviator Lt. Col. Scotty Black focused his Ph.D. dissertation on AI for wargaming, “Mastering the Digital Art of War: Developing Intelligent Combat Simulation Agents Using Hierarchical Reinforcement Learning,” watch interview. IMPACT: Working in the NPS MOVES department, Black’s research advances AI-enabled training and wargaming, and led to the ONR-funded Consortium for Artificial Intelligence in Military Applications and National Security (CAIMANS) focused initially on wargaming and submarine maintenance.

- **AUKUS**: A NPS Defense Management students-faculty team provided COMSUBLANT a manpower comparison between U.S. enlisted candidate scores, used to predict success at Nuclear Power School, and Royal Australian Navy (RAN) career placement tests to determine if supplemental efforts should be administered before selection to Nuclear Power School. IMPACT: Supports RAN planning to ensure a cadre of qualified, and experienced crews at all levels is ready to receive and operate 5 new Virginia-class SSNs.

- **MINERVA**: Two NPS National Security Affairs faculty received prestigious Minerva Research Initiative (MRI) grants funded by OSD. IMPACT: Drs. Aleksandar Matovski and Covell Meyskens, Russia and China experts respectively, will analyze the Kremlin’s influence operations in online spaces leading up to and following the invasion of Ukraine, and the American and Chinese relational power in the Philippines, Thailand and Vietnam on how China mobilizes power through building relationships with third party countries.

- **Task Force Ocean**: The R/V Roger Revelle deployed with NPS faculty associate Christopher Miller and Ph.D. candidate Cmdr. Matthew Walters supporting the New England Seamount Acoustic (NESMA) ONR-funded experiments, IMPACT: 5 oceanographic moorings studied acoustic variability in the complex seamount topography within the Gulf Stream, and separate sensors delivered results for acoustic communication, predicting sonar system performance, and developing optimal signal processing techniques.
INNOVATION – Delivering Solutions

• **Autonomy:** Three NPS students developed/delivered a fieldable capability in 18 months for a low-observable unmanned surface vehicle (USV) that enables over-the-horizon targeting via resilient space-based architecture such as Starlink, Iridium and SATPAQ. **IMPACT:** With PMW 170/A and NSWG-4, the team leveraged an NPS industry CRADA with Saronic and fleet exercises to rapidly prototype the capability, while developing a viable transition plan and demonstrating the Naval Innovation Center (NIC) Operating Concept.

• **Task Force 66:** NPS is partnered with CTF-66 to help drive innovative asymmetric solutions in support of allies and partners across the European and African theaters. **IMPACT:** Known as Project Kraken at NPS, the classified work focuses on integrating AI, ML, and autonomous systems in naval operations, with research in scaling up unmanned systems, acquisition, transitioning and standardizing UxS development for joint and allied partners. The Naval Innovation Center at NPS provides the shared framework for collaboration.

• **Wargaming:** NPS MOVES Institute supported the NPS-JMSDF, Northwest Pacific Wargame (NWPAC) in Sagamihara, Japan. MOVES students and faculty developed a user interface to communicate with a digital common operating picture, built scenarios with M&S tools, and supported expert adjudication leveraging M&S capabilities provided by NPS CRADA partners. **IMPACT:** NWPAC stress-tested the Futuretech developed interface with SWIFTR for over 250 users for two weeks, and is now a foundational capability for NWPAC ‘25.

• **Arctic:** NPS’ POTION Software for UAV route optimization helped to set a new UAV duration record during Arctic test flights. Relevant for UAV ISR in remote operational areas and large-scale search, POTION optimizes energy usage and is applicable to other large domains like the Pacific Ocean. **IMPACT:** The next push in technology transition has been funded and the next step called GUIDER is now being integrated onboard the Arctic UAV to be flown by a neural network and demonstrated in ARCTIC EDGE ‘25.

• **EMCON:** Electrical and Computer Engineering Ph.D. student U.S. Navy Cmdr. Don Barber set a new distance record for outdoor visible light communications (VLC). **IMPACT:** The technology provides reliable communications over a distance of 1.6 km, more than 4 times further than the previous record for low probability of intercept (LPI) communications, applicable to EM silence requirements, as well as data exfiltration in covert ops. Three different patent applications are now in progress.

• **Undersea:** The NPS Undersea Warfare Academic Group and University of Washington partnered to install an innovative offshore Seafloor Power Vault (SPV) as a replacement and upgrade for the Monterey Inner Shelf Observatory (MISO). **IMPACT:** The 5’ x 11’ titanium cylinder housing with approximately 225kW of Lithium-Iron batteries will be deployed approximately 16m undersea and be connected via fiber optic and power to the NPS Beach Lab, enabling undersea sensors for near real-time persistent data collection.

• **NIC@NPS:** The Environmental Assessment (EA) for the proposed Naval Innovation Center facility was completed and published by NAVFAC, a key milestone. This conclusion was based on the analysis presented in the final EA, consideration of public comments received on the draft EA, in consultation with the California State Historic Preservation Officer and the Monterey Peninsula Water Management District as a participating agency. **IMPACT:** A finding of No Significant Impact enables the continuation of planning and design.