

# MISSION IMPACT REPORT

Highlights

“Where Science Meets the Art of Warfare”

Winter/Spring ‘25

## BY THE NUMBERS

### EDUCATION:

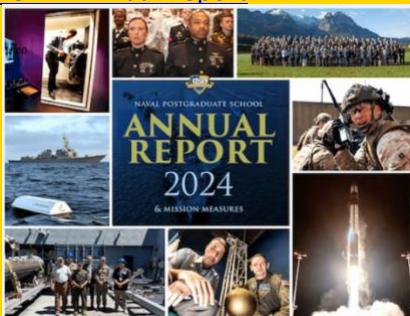
- Student Enrollment (AY2024): 2,588
  - Resident Degree Students: 1,049
  - DL Degree Students: 899
  - Certificate & Non-degree: 640
- Quarterly [Graduations \(Winter/Spring\)](#):
  - 566 graduates
    - Navy: 262
    - USMC: 101
    - Army: 46
    - Air Force: 19
    - USCG: 1
    - DOD Civ: 80
    - International Allies: 57 (21 countries)

### RESEARCH:

- 160 FY25 reimbursable projects
- 54 Naval Research Program projects
- Recent [Theses and Dissertations](#)
  - Q1/Q2: 25 classified, 71 CUI
- Active partnership agreements: 105
  - CRADAs: 60
  - MOA: 18
  - MOU: 14
  - TSA: 3
  - EPA: 6
  - PIA: 4

### INNOVATION:

- 11 [new patents](#) issued, 11 submitted
  - 13 invention disclosures
  - 115 [patents for licensing](#)
- 2 [Joint Interagency Field Experimentations](#)
  - Conducted 50+ experiments in “Sustained Ops” and “Counter-C4ISR”
  - Next JIFX event is:
    - 11-15 Aug: “Human-Machine Int.”
- [NPS ’24 Annual Report](#):



**SPOTLIGHT:** AI-Enabled Laser Targeting - NPS produced an AI model for drone targeting transferred to NSWC Dahlgren for use with its High Energy Laser (HEL) tracking system. This is the latest success emerging from NPS’ HEL Control Testbed lab, and over the years, 15 Master’s and 2 PhD degrees have been earned by NPS warrior-scholars contributing their innovative research to real-world, hardware and software solutions.



**NAVPLAN:** As a dual degree graduate in NPS’ Applied Design for Innovation and Defense Program Management curricula, U.S. Navy LCDR Jason Mariscal used his thesis capstone to explore early-stage capability development and acquisitions supporting Naval Special Warfare (NSW). **IMPACT:**

Mariscal and his thesis partner, LCDR Dwight Cornish, utilized emerging capabilities in artificial intelligence (AI) and mission engineering to develop a road map for digital transformation, with a focus on modernizing early-stage NSW capability development. [Watch video.](#)



**Commandant Planning Guidance:** U.S. Marine Corps Maj Dillon Pierce completed his PhD and focused his dissertation on the development of an alternative approach to technology development called “capability-cost inversion,” which explored trading less critical performance characteristics for development cost and time through an incremental, iterative development process. **IMPACT:** Pierce’s work resulted in a low-cost, guided-missile that he flight-tested dozens of times during his research at NPS, developed with commercial components for a fraction of the cost, and validated the core principles of his capability-cost inversion acquisition process, while dramatically accelerating development timelines. [Watch Video.](#)



## EDUCATION – Developing Leaders

- Warfare Operations:** NPS and TOPGUN launched [the new Master of Warfare Operations \(MWO\)](#) degree. Working with Naval Aviation Warfighting Development Center (NAWDC) at Naval Air Station Fallon, Nevada, graduates of their warfare/weapons tactics instructor (WTI) programs receive equivalency for up to 25 percent of course credits required for the MWO graduate degree. **IMPACT:** The program is designed to meet the needs of Aviators in a very compressed career pipeline, and will be expanded to Surface Warfare WTI's.
- SECNAV:** Secretary of the Navy [John C. Phelan visited NPS in May](#) where he toured the campus, and engaged with dozens of students about their studies and research projects. SECNAV learned more about the NPS modernization plan to overhaul aging buildings and construction of the new Naval Innovation Center. **IMPACT:** SECNAV's visit underscored the Department of the Navy's commitment to leveraging advanced education, research, and applied innovation to strengthen naval warfighting capabilities and strategic advantage.
- NAVEUR:** NPS International Fellow retired Japan Maritime Self-Defense Force (JMSDF) Commander [Admiral Ryo Sakai led a team of NPS faculty](#) to contribute to the 4th Annual Black Sea Maritime Forum hosted by NAVEUR/NAVAF. **IMPACT:** Admiral Sakai contributed his expertise in developing a national maritime strategy, and advancing the capabilities to support it from his experience as head of the JMSDF, while other NPS faculty contributed to technical dialogue in advancing Baltic energy security and maritime domain awareness.
- Missile Defense:** NPS students in the [Space](#) and [Meyer Scholar](#) programs were hosted by the Missile Defense Agency to learn more about needs and capabilities for hypersonic and ballistic missile tracking and targeting, relevant to the Golden Dome initiative, and how training is conducted with the Space Force aggressors and Navy Satellite Adversarial teams. **IMPACT:** The hands-on experience tour included visits to USSPACECOM, briefings in the Joint Operations Center Watch Floor, and industry visits to enrich education.
- AI:** The [second Naval AI Hackathon](#) was held at NPS in June. Teams applied a variety of machine learning techniques to solve a NETCOM network traffic analysis problem and gave Marine Aviation's AI-powered assistant "Alfred" additional capabilities in the form of agentic AI tools by running Alfred on NPS' High-Performance Compute cluster including NVIDIA hardware. **IMPACT:** The NPS hackathon series is integrated into a quarter-long course focused on real-world, Fleet and defense-relevant AI applications.
- Acquisition:** The NPS Acquisition Research Symposium and Innovation Summit held virtually in May [provided a record-breaking 1,400+ attendees](#) and participants with two-days of professional exchange among scholars, policymakers, industry leaders, practitioners and NPS students focused on accelerating acquisition reform. **IMPACT:** The Acquisition Research Program at NPS is well-positioned to serve the transformation ahead with rigorous analysis and workforce education to evolve at the pace of innovation.
- Partnerships:** NPS and local California State University Monterey Bay (CSUMB) signed an Education Partnership Agreement (EPA) sharing opportunities in the STEM disciplines that advance common interests for innovation in ocean science, robotics, artificial intelligence, and STEM workforce development leading to career pathways in public service and defense. **IMPACT:** The agreement further positions NPS and CSUMB as leading academic institutions driving the regional ecosystem for innovation and collaboration. [Read More.](#)





## RESEARCH – Solving Problems

- Space:** In January, the latest [NPS CubeSat blasted off in a SpaceX Falcon 9 rocket](#) on the Transporter 12 mission from Vandenberg Space Force Base and was successfully deployed into orbit 2025. The CubeSat is a partnership with the National Reconnaissance Office (NRO) and the New Zealand Defence Science & Technology unit (DST). **IMPACT:** Dozens of NPS students contributed to its development and its mission to explore technological developments and concepts to operate in an increasingly complex space environment.
- MDA:** The recently deployed [NPS Ocean Sensing Buoy project](#) enables 24/7 maritime domain awareness, oceanographic/meteorological data collection, and can relay information ashore via high-speed 5G communication technology. **IMPACT:** NPS is partnering with Ocean Power Technologies and AT&T to develop and test this prototype concept. Costing far less than satellite data usage, networked 5G maritime base stations can also provide high-speed data transmission and communication capabilities for ships.
- Additive Manufacturing:** The NPS Consortium for Advanced Manufacturing Research and Education ([CAMRE](#)) and [FLEETWERX](#) led a team of students, faculty, industry partners and engineers from Naval Surface Warfare Centers to [converge at Joint Exercise Southern California](#) held at NAS North Island in May and conduct applied research. **IMPACT:** With support from CNSP, the NPS team produced [17 operationally relevant parts](#) in 2 weeks, and CNSP subsequently embarked 3D metal printers on USS Somerset for Trident Warrior '25.
- AI Task Force:** Working closely with other Naval AI stakeholders along the three lines of effort of education, infrastructure, and problem-solving, the [NPS AI Task Force](#) is leveraging NPS' relationship with NVIDIA to advance AI awareness, experience, and expertise for DoN, and the Joint Force. **IMPACT:** NPS' [AI TF is enabling](#) the transformational capability of Artificial Intelligence and its implications for warfare and warfighters. Empowering this effort next will be the installation of an AI supercomputer at NPS, an NVIDIA GB200.
- Iran:** NPS associate professor in [National Security Affairs, Dr. Afshon Ostovar](#), is a prominent scholar on Iran and the Middle East, contributing his research and insights to FPRI, policy makers and national outlets. **IMPACT:** His recent writings in Foreign Affairs, "[How Iran Lost](#)" and other commentary in the Wall Street Journal, New York Times, and Foreign Policy are highly relevant and shape public opinion, while his teachings at NPS help put the Middle East in strategic context to aid student interdisciplinary applied research.
- Fulbright:** NPS [Defense Analysis](#) professor [Dr. Tommy Jamison](#) was awarded a Fulbright Fellowship to the Nobel Institute (Oslo, Norway) for Advanced International Studies. **IMPACT:** While in Oslo, he will compare efforts at civil-military cooperation in NATO nations with those underway in the industrialized societies of East Asia. Using perspectives from Japan, Taiwan, Norway, and NATO SOF, his research will support best practices or lessons learned in "comprehensive defense" and "national resiliency."
- Arctic:** NPS METOC student LT Caroline Kelly, [conducted cryoacoustics research](#) supporting the Navy's Arctic Submarine Laboratory (ASL) collecting data for naval models used for ice flow and acoustic propagation predictions. **IMPACT:** Kelly's physics-based research lays the scientific foundation for future anti-submarine warfare capabilities, as well as persistent multi-domain communication, and autonomous environmental monitoring for safety of navigation and Arctic Ocean prediction. [Watch Video.](#)





## INNOVATION – Delivering Solutions

- INDO-PACIFIC:** NPS completed its [second Title X, NWPAC '25 Wargame](#), alongside counterparts from Japan’s Maritime Staff Office, Self-Defense Fleet, Western Army, and Maritime Command and Staff College, in Kanagawa, Japan. **IMPACT:** More than 600 participants from PACFLT, C7F, Marine Corps, Coast Guard, Air Force, Space Force and industry partners, employed innovative simulation technologies to explore real-world scenarios strengthening joint and bilateral maritime operational effectiveness.
- Undersea Warfare:** The [Persistent Smart Acoustic Profiler](#) (PSAP) Voyager is an innovative, self-powered autonomous underwater drone that conducts passive ocean acoustic sensing. It was developed by NPS faculty associate John Joseph with his students and industry collaborator Seatrec through research supported by the Office of Naval Research. **IMPACT:** PSAP set a milestone demonstrating a first in persistent monitoring of oceanographic and underwater acoustic data that can operate near indefinitely.
- JIFX:** NPS hosted two quarterly Joint Interagency Field Experimentation (JIFX) events at Camp Roberts 3-7 Feb and 12-16 May, bringing together more than 300 participants from across industry, DOD, NR&DE, and academia with NPS students/faculty. **IMPACT:** The quarterly events enabled 50+ experiments including [live firings of lasers](#) conducting drone defense tests, expeditionary 3D manufacturing, and AI-enabled mesh networks to accelerate potential dual-use applications. [Watch Video](#).
- Modernization:** NPS marked the reopening of a [fully renovated Bullard Hall](#) during a ribbon-cutting ceremony, May 5, completing the first milestone of a multi-year modernization effort. **IMPACT:** Home to Space and Systems Engineering programs, the overhaul includes state of the art technologies that open new horizons in teaching, learning, research and innovation. Classrooms now include flexible technology for enhanced education both in-resident and distance learning.
- Decision Advantage:** U.S. Marine Corps Capt. Ryan Helm’s NPS research developed the [Augmented Reconnaissance and Estimate of the Situation](#) (ARES) app to greatly accelerate how the USMC plans tactical ship-to-shore operations. **IMPACT:** ARES is now part of a suite of current and future software applications being developed under the Office of Naval Research, and with the Marine Innovation Unit’s Software Factory, including testing and validation of a Helicopter Landing Zone detection module with pilots and Fleet users.
- Patent:** The [first patent of 2025](#) was awarded to an NPS faculty-student team. Their research focused on additive manufacturing with oxide reinforced titanium powders, and the impact on key properties of the resulting printed metal. **IMPACT:** Components made of an alloy like Ti-64 [titanium], common in military aircraft, can gain improved wear resistance or fracture toughness without large increases in cost, printing the Ti-64 components with ceramic fillers, and produced at sea increases supply chain resilience.
- AI:** NPS computer science professor Dr. Geoffrey Xie and then student U.S. Marine Corps Capt. Brandon Hee are co-inventors of an AI-based hierarchical database system that was also [the winning technology](#) in the Defense Innovation Unit (DIU) National Security Innovation Network (NSIN) Foundry Showcase. **IMPACT:** Through the DIU/NSIN Foundry, industries are matched with DOD-invented technologies, and startup company nFactor Technologies Inc. is working with Xie to develop the invention for dual use.

