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NPS Mission Impact Report: Summer 2022

Monterey, California: Naval Postgraduate School

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MISSION IMPACT REPORT

Highlights

“WHERE SCIENCE MEETS THE ART OF WARFARE”

Summer 2022

By The Numbers:

- Current total enrollment for FY22: 2,672
 - 1369 resident
 - 746 distance learning
 - 471 certificates
 - 86 non-degree (i.e. Exec Ed)
- Thousands more engaged through events, talks workshops and seminars.

Research Thrusts:

- 10 defense-focused [thrust areas](#) define NPS core problem solving capabilities aligned to Fleet/Force needs.
- 100% of all graduating students complete operationally relevant theses or capstone projects.

Partnerships:

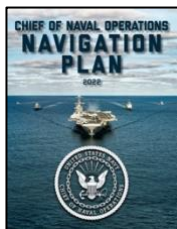
- 40 active Cooperative Research and Development Agreements with industry.
- Includes Microsoft, AT&T, Xerox Raytheon, General Atomics, TGMCore and most [recently with Resilinc](#) and NPS Department of Defense Management for supply chain technology.
- 41 active MOA/MOUs across DON, defense/national labs, other agencies.
- A hub for academic collaboration with UARCs and R1 research universities.

NPS Priorities:

1. **Extend Reach** and increase the focus of defense-unique and naval-relevant education.
2. **Increase Impact** of applied research that is fully informed and directly contributes to warfighting solutions.
3. **Lead Naval Innovation** via our collaborative ecosystem connecting warrior-scholars with academia, NR&DE and industry.



SPOTLIGHT: NPS was the site of PACFLT Commander’s Conference from 7-9 August. Top-level commanders joined Admiral Paparo from throughout the Navy and USMC to review strategic objectives, the operational environment and discuss Fleet priorities and challenges. Leaders also discussed ongoing collaboration between PACFLT and NPS, including the Nimitz Research Group and efforts with Microsoft on advanced wargaming (pictured) being managed by the Naval Warfare Studies Institute. [For more.](#)



CNO NAVPLAN - Force Design: The FY22-23 WIC “Future Hybrid Force” kicked off this summer with coursework leading to an upcoming Design challenge workshop 19-22 Sept ([register](#)). The year-long interdisciplinary effort [builds on last year’s “Hybrid Force 2045” WIC](#) involving nearly 300 students and faculty and projects like counter-swarm systems for Unmanned Task Force. This year the WIC goes further into emerging technology applications, focusing on various opportunities to inform force design options as for called by the NAVPLAN. Capstone projects, theses, and research will investigate hybrid force solutions.



Commandant’s Planning Guidance - Education: [Major Andy Barton, USMC](#) is a communications officer, recently completed his Master’s degree in IT Management and his thesis work on USMC human-machine teaming focusing on the issues and opportunities in an AI-enabled battlespace. Barton is headed to Marine Corps HQMC (C4) to apply his thesis work to information management for C4 interoperability and operational effectiveness in Naval, joint, and coalition information environments.



EDUCATION, RESEARCH & INNOVATION

- Space:** General John W. “Jay” Raymond, Chief of Space Operations, visited 15-17 June to learn first-hand more about the [Space Systems curricula](#), celebrating its 40th anniversary, which includes SECNAV Carlos Del Toro as one of its graduates as well as [44 astronauts](#). Raymond also presided over the [Spring Quarter graduation ceremony](#), which honored 343 new alumni and their research. **IMPACT:** Increased collaboration with Space Force.
- Undersea:** USW/Physics faculty conducted at-sea experimentation with University of Washington APL using NPS [G3 Slocum-Webb gliders](#) with towed arrays for a collaborative ONR research program with additional support from N975. **IMPACT:** Enhances hybrid force applications of autonomy, AI and acoustics to meet ASW objectives through UxV sensing networks and oceanographic models calculating optimal time and energy trajectories.
- Climate Security:** Student-faculty research is contributing to the biggest update in years for the [Advanced Climate Analysis and Forecasting](#) (ACAF) system. ACAF provides climate data and long-range, probabilistic forecasts to predict regional conditions that impact mission planning. **IMPACT:** This supports [SECNAV Climate Action 2030](#) goals to operate effectively in warmer environments that impact strategy, tactics, and the performance and productivity of people and equipment, such as sonar and radar systems. See [story and infographic](#) for more.
- Strategic Competition:** In 2021 the National Security Affairs department [launched a 13 credit DL graduate certificate program in Great Power Competition](#) sponsored by N3/N5 (RDML Pennington). The fourth cohort began in July. Demand has been beyond capacity and channeled towards a stand-alone one-unit, 20-lecture series on current policy and strategy, part of the broader certificate. There are 142 students enrolled in this unit, including 61 in-residence and 81 distance-learning students. **IMPACT:** To date, nearly 1,000 students have taken this introductory course, which focuses on the domestic politics, foreign policies, and military strategies of China, Russia, and Iran and enhancing leader understanding of the strategic security landscape effecting operations around the world.
- Exec Ed:** As part of the continuum of learning over a career, Sergeant Major of the Marine Corps Troy E. Black brought a team of USMC Force Sergeants Major to NPS [to participate in the Senior Enlisted Advanced Leadership Course](#) through the Center for Executive Education, 28-30 June. The program is an all-new course for senior enlisted leaders that provides an advanced education on foreign policy, decision-making and strategic-level planning and communication. **IMPACT:** The course successfully provided the final Enlisted Professional Military Education (EPME) requirement for senior Marines slated for leadership at three- and four-star commands across the Marine Corps. SMMC is targeting May '23 for the next cohort.
- Wargaming:** Students enrolled in the Principles of Wargaming Applications course designed and executed their own games for sponsors who also participated in the scenarios held in June. Sponsors included: OPNAV N3/N5, N4, EXU-1, Joint Intermediate Force Capabilities Office, MARSOC, [II MEF, and MARFORPAC \(G3, G4\) who looked at issues](#) affecting operations in the South China Sea. In addition, through the [NPS-Microsoft CRADA](#), NWSI is working to co-develop the future of digital wargaming and education focused on enhancing decision advantage by leveraging machine-enabled warfighting analytics to forecast probabilities of various outcomes and understand the consequences of decisions. **IMPACT:** Education in the art and science of wargaming while solving real-world problems for the Fleet/Force.
- Aviation:** Ensign Kyler Ward, a recent graduate of the [Shoemaker Scholar program](#), a one-year accelerated master's in aerospace engineering for high-performing USNA and NROTC graduates awaiting flight training, developed an innovative modeling tool that predicts the operation of a fuel injector in a Rotating Detonation Engine. The model determines ideal operation under changing conditions, such as new fuels, engine dimensions, and flight conditions. **IMPACT:** The model has wide applicability, reduces design time significantly, and determines the sensitivity of the delivered performance to certain physical dimensions and characteristics allowing the engineer to concentrate on final performance-driven design and testing.

