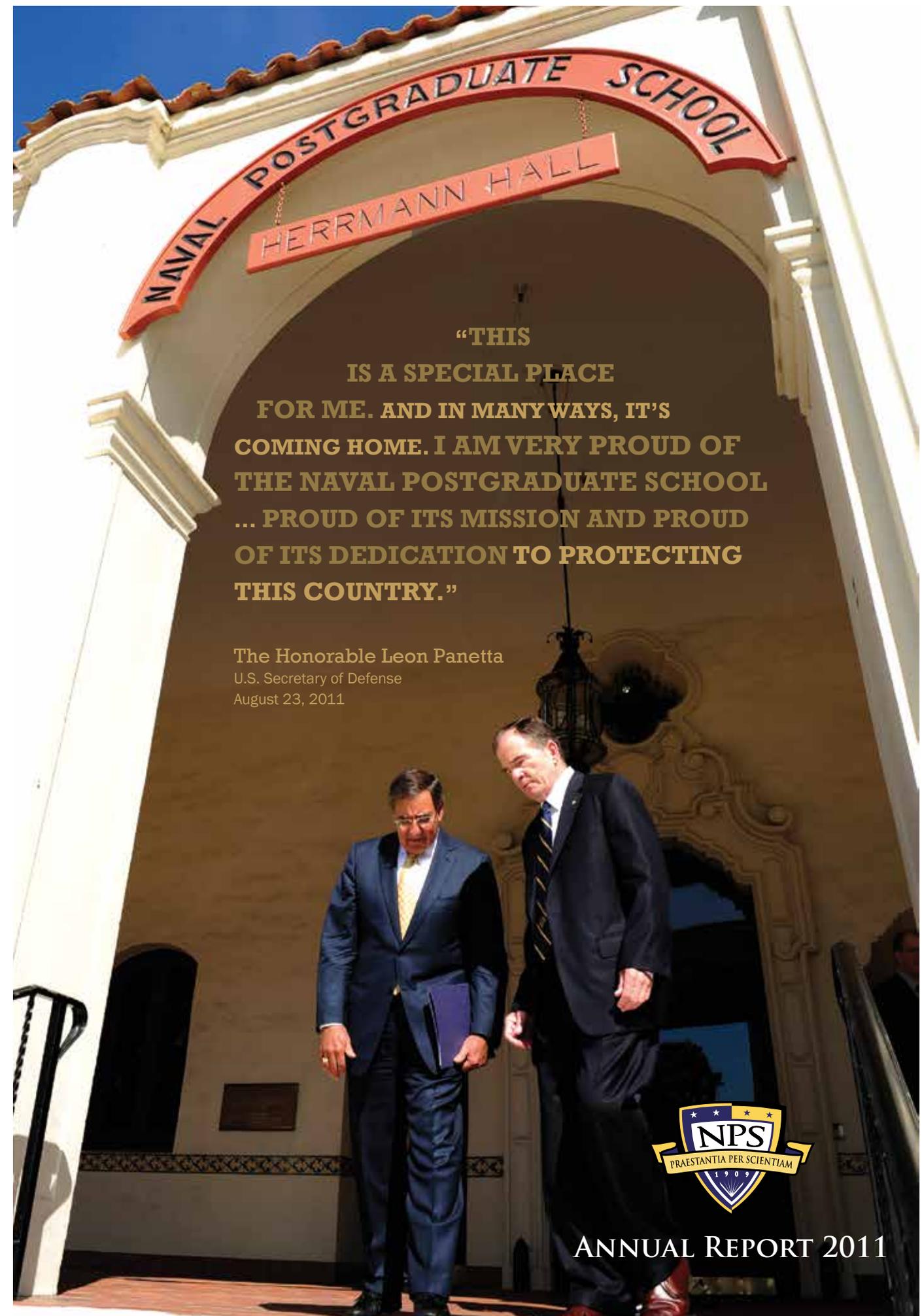




NAVAL POSTGRADUATE SCHOOL
ANNUAL REPORT 2011



The mission of the Naval Postgraduate School is to provide high-quality, relevant and unique advanced education and research programs that increase the combat effectiveness of the Naval services, other Armed Forces of the U.S. and our partners, to enhance our national security.



“THIS IS A SPECIAL PLACE FOR ME. AND IN MANY WAYS, IT’S COMING HOME. I AM VERY PROUD OF THE NAVAL POSTGRADUATE SCHOOL ... PROUD OF ITS MISSION AND PROUD OF ITS DEDICATION TO PROTECTING THIS COUNTRY.”

The Honorable Leon Panetta
U.S. Secretary of Defense
August 23, 2011



ANNUAL REPORT 2011



**AGILE ★ TRANSFORMATIONAL
COLLEGIAL ★ RELEVANT**

**INNOVATIVE ★ FLEXIBLE
VALUED ★ STRATEGIC**



PRESIDENT'S MESSAGE



Capturing the essence of the Naval Postgraduate School with just a few powerful words on the introductory pages of this report is a challenging task. And sensibly so, for I can think of no other place where the rigor and purpose of military culture have been so intimately intertwined with classic, high-level academia.

So many of our programs are educational offerings unlike any others in the world. Our footprint in operations research, for example, is historical, significant, and easily one of the best in the world; our homeland security degrees were the first ever offered in the nation; and now our upcoming energy science, technology and policy programs will answer immediate needs for the Navy and Marine Corps. But our efforts cannot be contained to our beautiful campus in Monterey, for our mission is far too important not to share this knowledge with our nation, and the world.

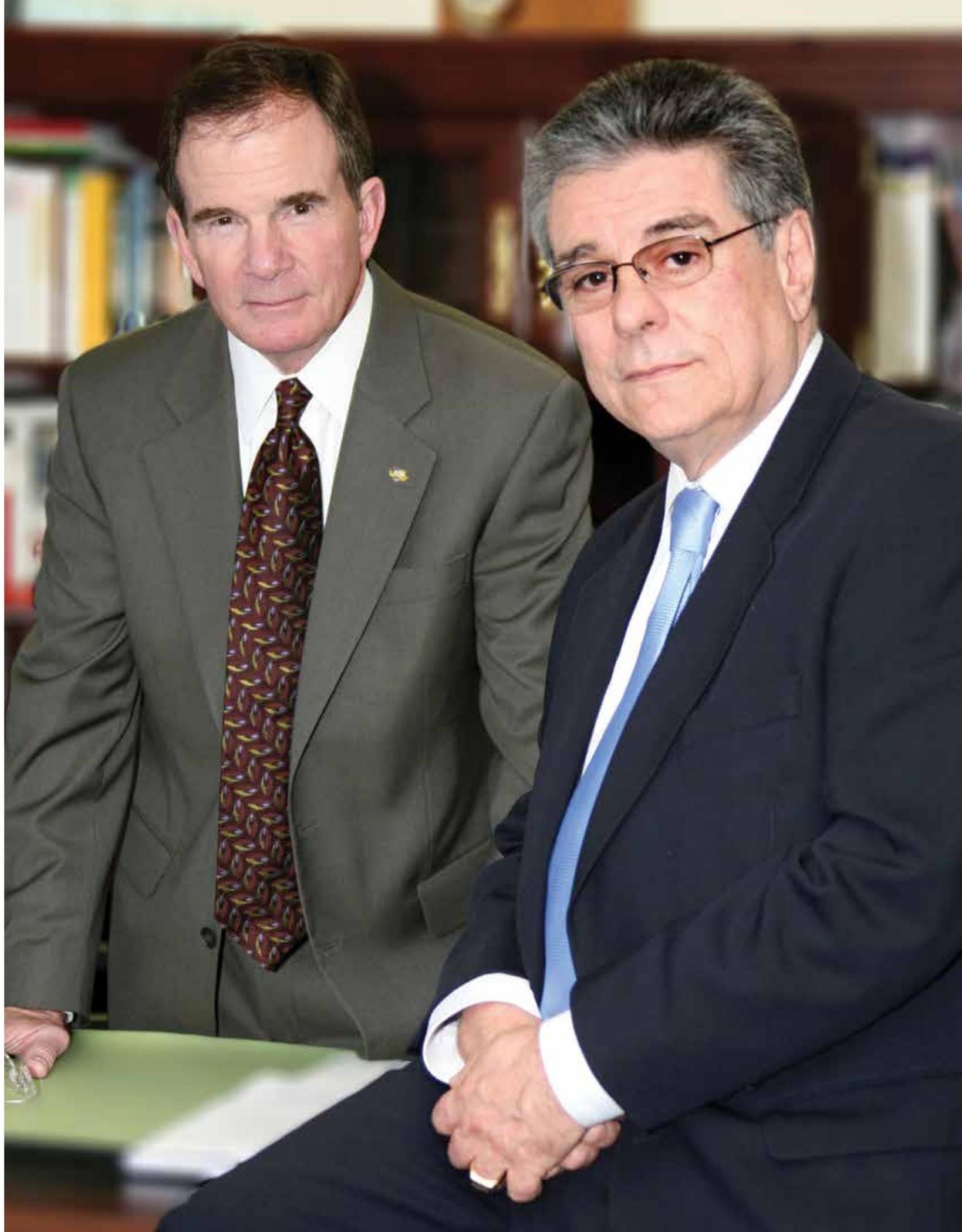
This past year was one of great accomplishment and challenge, success and enduring effort – within the pages of this publication live just a handful of examples. They are stories of how the men and women of our institution persist with fervent drive to succeed in their given missions of education and research, and how the products of those efforts apply those successes beyond our institution, in the world.

That world is one where young men and women in uniform across every ocean and continent – through land, sea, air, space and cyberspace – passionately fight to protect the security and prosperity of our nation, and their own nations. I cannot overstate the value with which I hold our calling to educate the future leadership of the defense establishment. And I am proud to say this calling is the driving force behind all our singular successes, and individual efforts.

With this, I encourage you to read ahead ... to continue on, and learn more about the Naval Postgraduate School and our challenges, successes and hopes for the future. Learn more about the individuals who have driven these efforts to succeed in this past year, and the people who will be answering the calls of challenge in our coming years.

As those few words on the previous pages hope to illuminate, ours is indeed a unique institution, and one that is truly worth sharing with the world.

Daniel T. Oliver,
President



PROVOST'S MESSAGE



Throughout my more than 30 years in academia, I have held firm to a handful of invaluable truths and guiding principles that are paramount to the execution of education at any collegiate level.

Perhaps at the top of this list is the undeniable fact that your educational programs are only as powerful as the faculty who teach them. Regardless of subject, ultimately, it is our faculty who are the masters of NPS' deliverables. Critical educational programs in national security's most relevant fields, and cutting-edge research with direct application to fleet, field and global security, are the hallmarks of our institution. But these invaluable efforts, that prove our worth every day, would be without substance and transformational power without the visionaries on our Academic Quad who guide them.

Another of these transcendent principles is that your students are your best ambassadors. This is certainly true at every collegiate level, and ours is no exception. But the reasons our students tout our programs are rooted in the capabilities that we provided them. Like any educational experience, it is not about the specific subject matter, but rather the changes that being challenged make in the individuals overall. We are fortunate to have many ambassadors expounding our worth, and they do so because their education at the Naval Postgraduate School prepared them to lead, and excel.

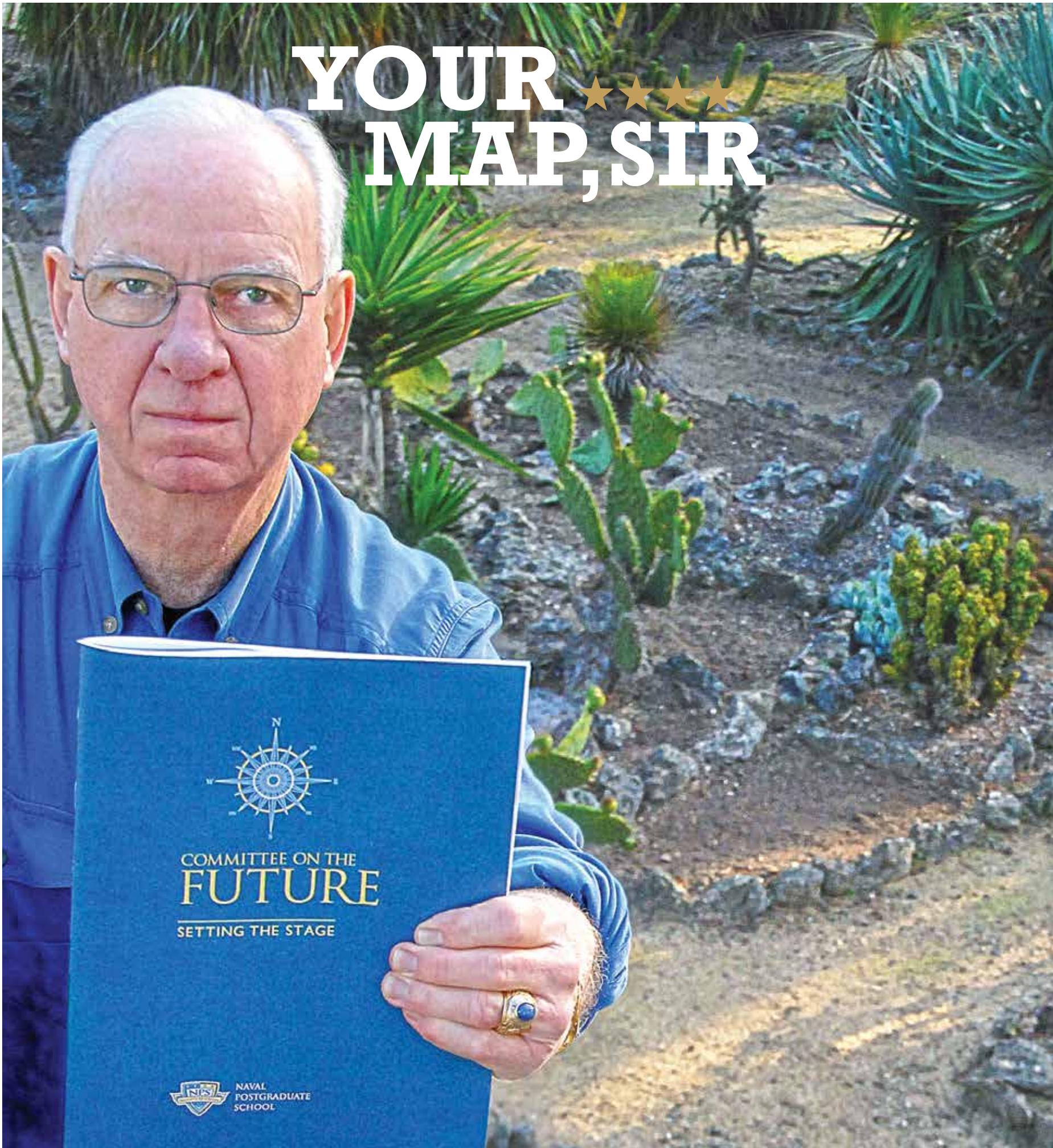
And finally, one simple truth that crosses all boundaries of profession, is that passion drives resolve. Regardless of where we make our impact, whether it is in leading the charge in cyber and efficient energy education and research, or building nation capacity in our partners across the globe, our students, faculty, researchers, staff and so many others do so because it is their passion.

Within this review of our 2011 calendar year, you will see examples of each of these – faculty who command our education and research efforts with an impressive collective resumé of scholarly clout; and students both past and present who leave our campus in Monterey as changed individuals, prepared to perform, lead and drive change. And you will see with all of them a consistent resolute commitment that can only come from the possession of passion for what you do.

At the Naval Postgraduate School, we are asked to do something quite significant – to create leaders of thought, and it is something we would not be able to accomplish without long standing principles of guidance and truth.

Dr. Leonard A. Ferrari,
Executive Vice President and Provost

YOUR ★★☆☆ MAP, SIR



Organizations of all size and scope, even individuals for that matter, certainly know that you must have a plan to be successful. And like a detailed map guiding a determined soul through a jungle of peril and strife, that plan can only be useful if it is built upon a foundation of information – analyses and critical details about every facet of your environment, and everything that has or will have an impact on you now and into the future.

Like all educational institutions that undertake the affirmative process of accreditation understand, only through intricate detail and exhaustive examination can an organization truly be prepared to progress into the future. In 2011, NPS completed its most recent reaccreditation, receiving for the second time in a row, the full 10-year term. But as multifarious as reaccreditation is, in order to utilize it for effective strategic planning, this detailed institutional analysis requires an additional investigation of the broader environment around it to complete the topography necessary for truly seeing the future.

The Naval Postgraduate School has long recognized this. In fact, at NPS, strategic planning is more than institutional, it's cultural. As the university approaches the

end of its current strategic plan in 2012, university President Dan Oliver recognized a need to examine our future environment, to tap into the collective expertise of key leadership throughout the university and defense enterprise. With this, the Committee on the Future was chartered.

Chaired by retired Rear Admiral Jerry Ellis and encompassing a diverse collection of forward-thinking individuals from NPS, local DoD, higher education institutions and business, the committee's mandate was to develop that foundation of critical information – to create a picture of the future of national security, its trends and needs, the intricate details that will allow the university to position itself to serve this future. The committee charged forward, holding interviews with service chiefs and the chairman of the joint chiefs, flag officers of every rank, senior Pentagon officials, industry and academic leaders, and so many others.

In the end, hundreds of pages of notes, interviews, analysis and detail were condensed into a single piece ... a map, if you will, of the Naval Postgraduate School's future environment. And with that map, the university will set upon its course in 2012, honoring its culture of strategic planning.

"In getting access to some of the senior-most leadership in the Department of Defense and other government agencies, we were able to hear their comments and thoughts, but we were also able to give them our thoughts and comments on the Naval Postgraduate School – what we are working on, what we see as important, and what we think we need to work on in the future."

Rear Adm. Jerry Ellis, (Ret.)
NPS Undersea Warfare Chair
Chair, Committee on the Future



THE BEST IS ★★★★★ NOT ENOUGH



Most universities determine their worth, in part, by the achievements of their students – the Naval Postgraduate School is certainly no different. And judging our institution by these criteria puts us in very high regard, for our students have already been leading young men and women across the services in efforts of critical national security – significant achievements before even stepping a foot upon campus.

Over the course of this past year, there are a number of students who have made tremendous marks for themselves, and their services – academically, professionally and personally. Marine Corps Capt. David Coté, for example, could perhaps serve as a model for all three of these. Coté, who was chosen by the “Marine Corps Times” as their 2011 Marine of the Year, is a student in the university’s Operations Research (OR) curriculum – one of the most challenging at NPS and widely regarded as one of the top OR programs in the world.

Coté was selected Marine of the Year for a number of reasons ... He is a tireless advocate for homeless veterans’ charities; he is active in helping young Marines take advantage of education with their GI Bill benefits; and he’s a volunteer with the National Kidney Foundation – he is, himself, a donor. And with the rigor and challenge of the studies Coté is now immersed in, you would think he might focus on himself for just a moment. But it would appear that is not in his character.

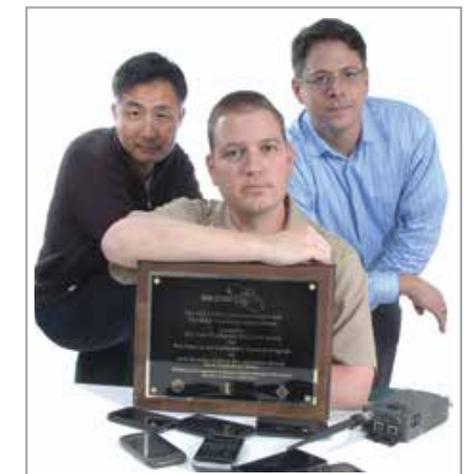
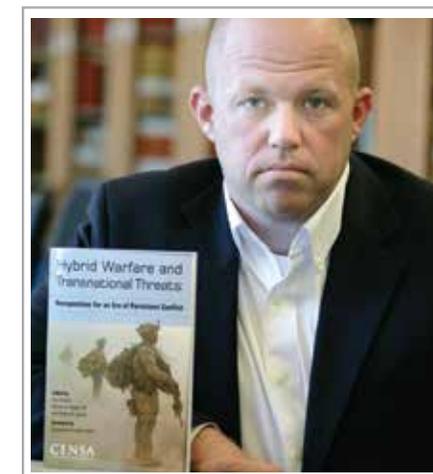
For a recent class project in one of his early OR classes, Coté and fellow Marine Maj. Tom Dono applied a minimum cost-maximum flow algorithm to the distribution of fire fighting assets for the local Monterey Fire Department, validating the cost-effective and response-efficient dispersal of assets required for fire protection across much of the local area – something that was well-received by local fire officials. We can’t wait to see what his thesis will uncover.

Coté is indicative of many NPS students, whose character simply drives them to do more than what is required, to achieve greatness academically, professionally and personally. A few others ... Doctoral student Air Force Maj. Paul Brister, for example, had the rare honor of serving as Editor on a journal for the Council on Emerging National Security Affairs. Lt. Scott Huchton, with two NPS faculty, co-wrote the winning entry for Best Unclassified Paper award at the 2011 Military Communications Expo. And two Army students from the Defense Analysis program were widely praised for their quick actions in stabilizing a shark attack victim at nearby Marina State Beach.

So if universities are indeed judged by the achievement of their students, the moral value, intelligence and character of those 1,500 plus men and women at the Naval Postgraduate School would indeed seem to rank this institution near the very top of the list.

“All Marines have passions, or causes that really energize them and excite them, what’s important is that we answer that calling. The response might take different forms, but we are all instruments for achieving something bigger.”

Capt. David Coté
Operations Research ('13)
“Marine Corps Times” 2011 Marine of the Year



THE WORLD IS ★★★★★ OUR CLASSROOM

The United States Navy is our nation's "Global Force for Good." And to educate the leadership of that force, an institution had better be prepared to offer a global education fit for an ever-shrinking world. Students at the Naval Postgraduate School are afforded this opportunity, both physically and intellectually.

Navy Lts. Brandon Schmidt and George Suh, Undersea Warfare and Meteorology/Oceanography students respectively, travelled to the frozen panorama that is the Arctic circle in March to participate in Ice Exercise (ICEX) 2011. Schmidt and Suh spent two weeks in the frigid climate using an advanced sensor package developed by Oceanography Professor Tim Stanton to understand how undersea mountain 'keels' melt ice from below. And in

December of 2011, Stanton was part of an international team of scientists who travelled to the other end of the earth to study undersea melting of the Pine Island Glacier in Antarctica.

With operational, worldwide fleet and field experience, students apply an unprecedented knowledge set to the research projects they undertake during their time at NPS. Marine Corps Capts. Dino Cooper and Derek Snyder have extensive experience with Unmanned Air Systems (UAS) in the field, and were well prepared to tackle their own questions during their studies in the Systems Engineering curriculum. Using an existing, operational platform, both students saw valuable mission sets that were not being realized. Cooper sought to use the UAS to deliver invisible,

but checkpoint detectable, chemical taggants in tactical locations that would stick to the enemy if they were somewhere they weren't supposed to be, such as setting a roadside explosive. Snyder, on the other hand, saw the UAS as an opportunity to deliver counterfire to confuse enemy snipers. Through the university's active Field Experimentation program, both students have advanced their ideas from thought, to prototype, to experimentation.

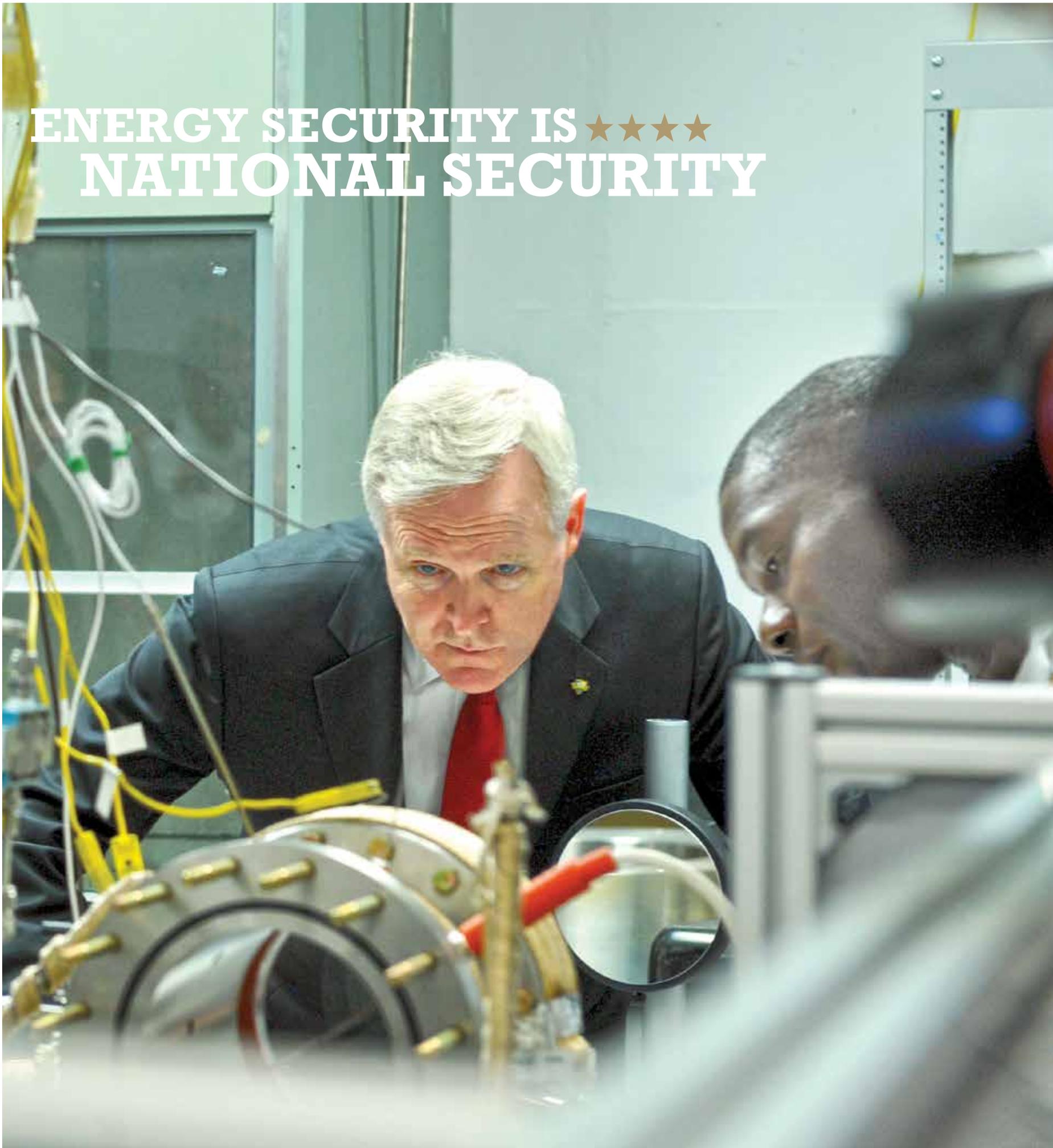
But perhaps the greatest occurrence of global perspective happens every day, by the students themselves. In any given classroom, on any given day, a collective of U.S. servicemen and women engages in conversation with their counterparts from around the world. From Germany to Greece, Turkey to Tanzania, Brazil to Bahrain, and Singapore to the Sudan – the campus of the Naval Postgraduate School teams with rich, global perspectives, shared through the open collective of academia. In total, more than 40 nations were represented on campus this past year, indeed bringing the world to our classroom.

"The Naval Postgraduate School is the anchor for our advanced education in the Navy, and in many ways, the military. The exchange of ideas, the exposure to a broader perspective, to technology and research is absolutely vital for our young officers, both ours as well as the international officers who are here ... NPS taught me how to frame very difficult problems, how to look at big challenges in different ways ... It was the total experience that taught me what education was all about."

Adm. Michael G. Mullen, (Ret.)
Operations Research ('85)
Chairman of the Joint Chiefs of Staff 2007–2011



ENERGY SECURITY IS ★★★★★ NATIONAL SECURITY



Going green is certainly an important and worthwhile endeavor – environmental stewardship has far exceeded its once fad-like status and simply become a part of our national consciousness and culture.

The Naval Postgraduate School has a long-standing history in environmental stewardship, but has also been actively researching energy from a defense perspective for some time. With recent graduates pioneering the establishment of the Marine Corps Expeditionary Energy Office, and current students analyzing the life-cycle costs of rechargeable vs. standard batteries, energy and defense are not disparate concept at NPS.

Energy security has indeed become a national security priority, one that Secretary of the Navy Ray Mabus has been determined to address. Upon assuming office in 2009, Mabus made it quite clear that his Navy and Marine Corps would not be handcuffed by the vulnerability that is dependence on fossil fuels. He announced five extremely aggressive energy initiatives that would forever change the way his services acquire and use sources of energy.

And when he outlined these initiatives, Mabus explained that his ambitious goals were not just about reducing the amount of

oil acquired from unstable or dangerous countries, but also to protect the men and women in theater. Fuel convoys are frequently targeted on the battlefield, and as Mabus noted, the cost of one Marine injured or killed for every 50 fuel convoys is inexcusably too high.

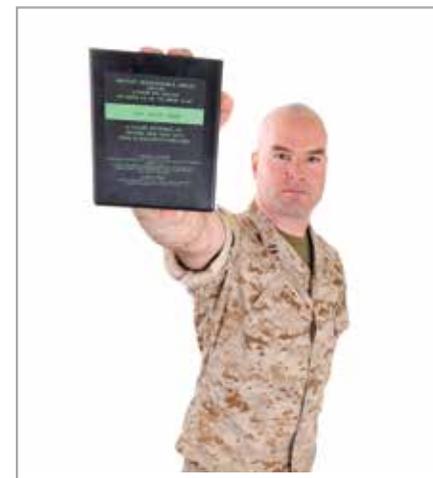
But in order to accomplish these goals – to create wholesale change in the way the Navy and Marine Corps use energy; the way they evaluate and acquire technology, equipment and calculate life cycle costs; and how they integrate alternative fuels into existing assets – the Secretary is going to need leadership. And for this, he turned to the Naval Postgraduate School.

During a campus visit in August, Mabus announced the development of new educational initiatives at NPS that would help produce those very leaders. Under development are dedicated short-track educational programs focused on energy science and technology, and energy policy and strategy. In addition, an Executive Energy series is also in development, creating immersive, two-week short courses on topical issues in the realm of energy security.

Indeed, energy security is national security, and that makes it mission-essential at the Naval Postgraduate School.

“Energy is not just an issue for the future – and not just for the present either – nor just [for] the young officers and policy experts that make up NPS’ student population. It is an issue for all the levels, every level of the Navy and Marine Corps, uniform and civilian ... NPS will ensure that energy is a fully-integrated awareness into strategy, tactics and operations. As a result, NPS students will guide the Navy and the nation toward a better, more secure energy future.”

The Honorable Ray Mabus
U.S. Secretary of the Navy



THE FIFTH ★★ ★★ DOMAIN

When NPS dual-degree graduate Army General Keith Alexander, director of the National Security Agency and head of the U.S. Cyber Command, keynoted graduation ceremonies in the summer of 2010, his words could not have been more prophetic.

He told that graduating class, "Many of you are graduating with advanced technical degrees, and technologists have always driven the evolution of warfare and been leaders in shaping the way we fight ... In the new 21st century, as more and more of our nation's treasure is stored in cyberspace, real power lies in the ability to protect and defend cyberspace. You can't be a superpower unless you can effectively defend your networks against all adversaries."

The Naval Postgraduate School has been actively teaching and pursuing research on information assurance and trustworthy systems for decades – cybersecurity, or the Fifth Domain as it has come to be known. Within our faculty have been and still are some of the world's leading authorities in cyber systems. Through the 70s, Computer Science faculty developed the world's first microcomputer operating system, pioneered the application of graphics to understanding signal processing data, and were among the first at an academic institution to conduct research on a Unix platform. Student thesis research in the latter part of that decade introduced the idea that computing systems could be vulnerable to subversion. As a pioneer in the field, current Defense

"The Naval Postgraduate School's history in the fields of information assurance, secure systems and cyber operations is quite long, and provides a substantial depth of knowledge and research to enrich the Cyber Systems and Operations degree. When the university was charged with creating this program, we were indeed well-prepared to respond to this need."

Analysis Distinguished Professor Dr. Dorothy Denning created an extensive body of seminal work in computer security and cryptography, and is currently a leading expert on cyberterrorism.

With a dramatic, grounded history in the field, and iconic faculty leading the cyber discipline, it's no wonder that then Chief of Naval Operations Adm. Gary Roughead challenged NPS to establish itself as a Center of Excellence in Cyber Systems and Operations.

Executive Vice President and Provost Dr. Leonard Ferrari took this charge, and along with Cyber Academic Group Chair Dr. Cynthia Irvine, pictured, created an interdisciplinary group of faculty from the fields of computer science, defense analysis, electrical and computer engineering, mathematics, and operations research to guide this calling. A select group of students has already begun a dedicated master's degree in Cyber Systems and Operations, pioneering education in what is already a national security imperative.

As the university continues on this path of responding to the calls of national security's most senior leadership, the institution is fortunate to rely upon a longstanding culture of foreseeing DoD's needs in advance of the request. And so when Alexander, or any of our nation's cybersecurity and information dominance leadership, look for those technologists to protect us in the Fifth Domain, they'll know exactly where to go to get them.

Dr. Cynthia Irvine
Chair, Cyber Academic Group



WE HAVE COMMS ★★★★★

If there is one constant in all aspects of military campaigns – in operations across all spectra of civic importance for that matter – it is the need to communicate. The ability to coordinate and command, evaluate and strategize, repair and rebuild would simply not be possible without essential communications and computer technologies, equipment and the power needed to use them.

Amazingly, Brian Steckler and a select group of fellow faculty and researchers in the Department of Information Sciences at NPS realized this function could be served by a self-contained, take-anywhere integrated kit of existing off-the-shelf network, computer, and self-generating energy technologies ... and it all fits in a few crates you could check on an airplane.

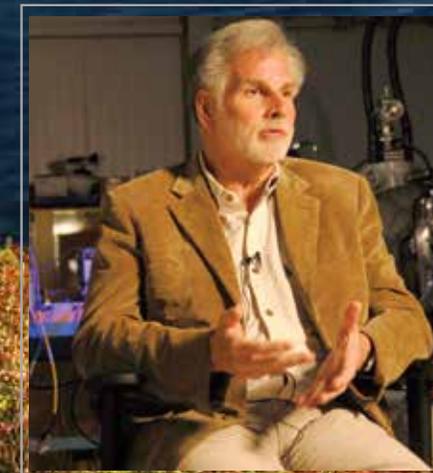
We call it “Network-in-a-Box” – and it has the potential to revolutionize everything from remote military operations to homeland security in every jurisdiction, not to mention humanitarian assistance and disaster relief. And the system has been tested, successfully, in multiple situations ... from true humanitarian disasters such as the earthquake in Haiti and the wasteland of Bay St. Louis, Miss., following Hurricane Katrina – to experimental situations, such as an emergency operations test at the California International Airshow in September and an interactive display at October’s San Francisco Fleet Week. It doesn’t take innovative thinking to realize the possibilities for this kind of self-contained command and control emergency operations center are truly endless.

It is but one example of how faculty apply innovation and discovery to their passions in education and research, and they apply them to matters of the utmost relevance to America’s national security enterprise. The new Center for Infrastructure Defense, for example, is dedicated to analyzing the vulnerabilities of our country’s infrastructures – transportation networks and mass transit, power grids, water distribution systems and many others – and using complex modeling to determine solutions to them.

NPS has a long history in researching Free Electron Laser technologies, and late this past year, installed the Mark I in our dedicated Directed Energy Laboratory. The Mark I is a truly one-of-a-kind electron accelerator designed by Physics faculty Distinguished Professor Bill Colson and Associate Professor John Lewellen, and is the first of five experimental prototypes for active research. As the Navy seeks to develop new methods for laser-based, shipboard defense, it will have a core of well-educated officers at the conn who truly understand how the technology works.

“HA/DR [humanitarian assistance and disaster relief] is on par with our major warfighting specialties – surface warfare, air warfare and submarine warfare. The Chief of Naval Operations put this out in his ‘Sea Power for the 21st Century’ to document that very fact ... Because of the expertise that we have here at NPS with wireless technologies and experience in real disasters, continuing to work in this space is both rewarding and educational for us and a great opportunity for hands-on thesis work for our students.”

Lt. Cmdr. Brian Steckler, (Ret.)
Lecturer, Information Sciences





GLOBAL EXPERTISE FOR A ★★★★★ GLOBAL EDUCATION

Technical discoveries abound across the Naval Postgraduate School campus, but the university's valued faculty expertise does not reside solely in its scientific prowess. In today's national security environment, world-renowned experts and strategists on nations, regimes and regions, and their complex histories and cultures, play a major role in emerging national security issues. Fortunately for the university's officer students, there is a broad range of expertise within the faculty ranks to guide them through these delicate intricacies.

As the 'Arab Spring' turned to winter this past year, and the realities of hopeful change resulted in ongoing struggles for democracy and an end to violence, the national media turned to NPS expertise to make sense of these nations' unrest. National Security Affairs Professor Robert Springborg, pictured far right in the third row, was quoted in countless mainstream media outlets like CNN and the "New York Times" among many others, international media as well. As one of the nation's foremost experts on Egypt, he was an invaluable resource for the national press. But what Professor Springborg really does is teach NS4361, Politics in Egypt, to dozens of officer students in the university's National Security Affairs curriculum.

Associate Professor James Russell, pictured fourth from left in the second row,

can share a similar claim to national media attention. A frequent contributor to media outlets himself, especially on Pakistan and Iraq, Russell's 2011 book, "Innovation, Transformation and War" spotlighted counterinsurgency innovations that emerged as a matter of survival by Army and Marine Corps units in the Iraq theater. But his lauded publications and media quotes aside, Russell's job is to teach NS3320, U.S. Foreign Policy in the Middle East, also to dozens of officer students.

The reality is, pick a region anywhere across the world, on any continent, in the international media spotlight or not, and there is likely an expert at the Naval Postgraduate School that can teach a student just about anything he or she would need to know about that region.

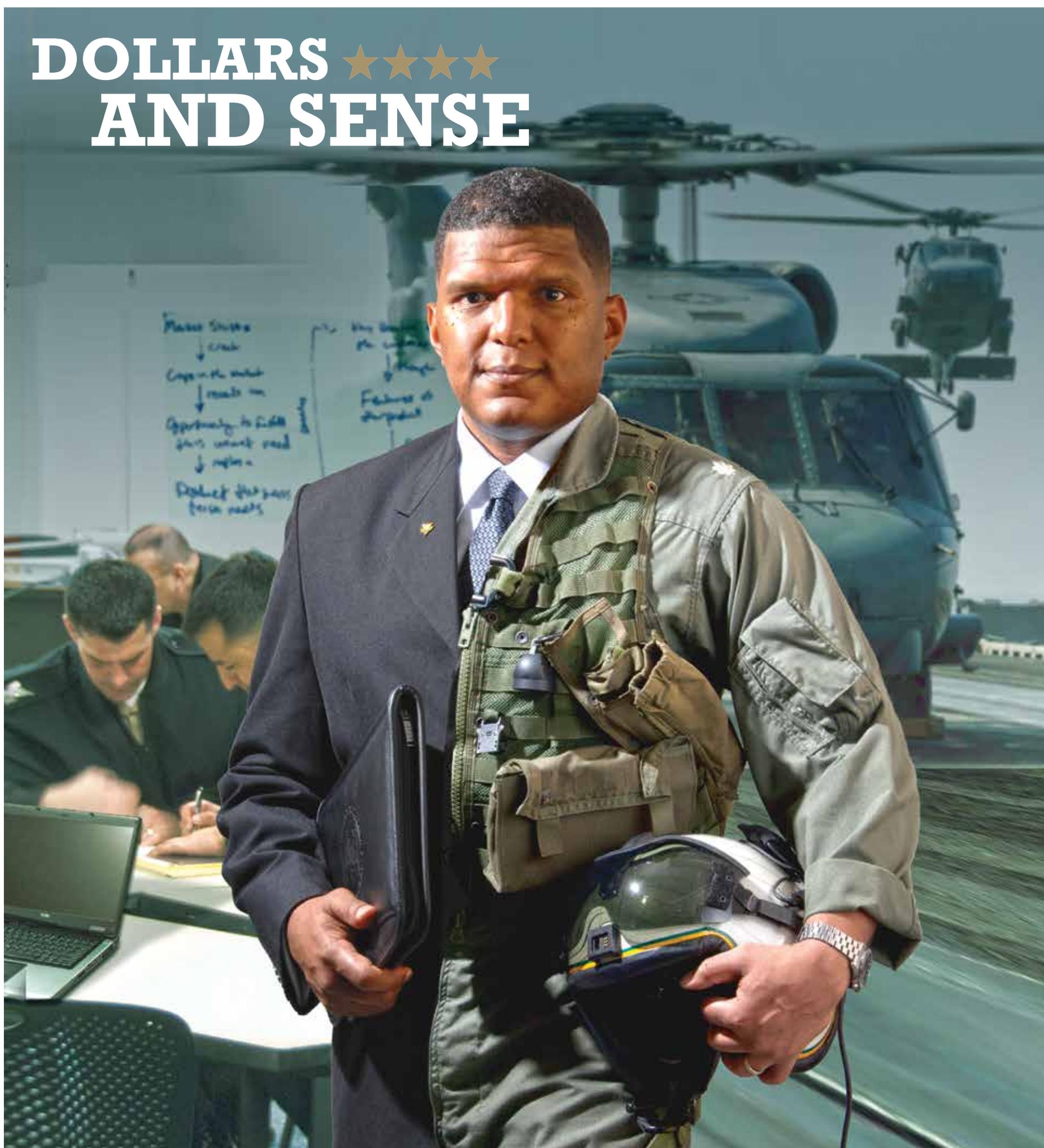
And with the university developing international partnerships through its designation as the NATO United States Partnership for Peace Training and Education Center, and expanding relationships through formal agreements this past year with India and Jordan, the institution is poised to expand its impact with nations around the world.

Truly, an effective national security strategist needs a global education – for students at NPS, the expertise is as close as the professor standing before them.

"I have often said that if the Naval Postgraduate School did not exist, then for the sake of our national and global security, it had better be created. Our faculty encompass a body of knowledge on regions, nations, cultures – and ultimately on people – that is nearly unparalleled in modern academia. It is a true honor to watch this collective of knowledge impact our joint, diverse student environment, every day."

Dr. James J. Wirtz
Dean, School of International Graduate Studies

DOLLARS ★★★★★ AND SENSE



As our nation's leadership wrestles with the unenviable challenge of reducing the federal deficit, with the Department of Defense shouldering its own share of this burden, the bottom line is budgets will be scrutinized, and the business of government must be in constant processes of improvement.

At the Naval Postgraduate School, our Graduate School of Business and Public Policy is an engine that drives this consistent progression of self-examination and advancement. As one of only a few business schools in the nation accredited by both the Association to Advance Collegiate Schools of Business, and the National Association of Schools of Public Affairs and Administration, the curricula are highly regarded in academic circles. And outside them as well, with "U.S. News and World Report" ranking the school as one of the top 50 public affairs programs in the nation this past year.

These are wonderful accolades, for yet as much validation as these honors add to the university's efforts, they do not translate to hard dollars. Fortunately, the efforts of faculty/student education and research across the business school do.

The business school's master of science degree programs run the gamut of government business practices – acquisitions, contracts and manpower systems management to name a few. And NPS' Master of Business Administration (MBA) and Executive MBA programs are filling a niche that no other university can. Officer students, and civilians, from a broad range of the defense community – from helo pilots to pilot trainers, comptrollers to budget chiefs – the Warrior MBA program, as it has come to be known, is adding real value to commands across the world, from real dollars to common sense.



Take a cohort of three students in Pensacola, Fla., who did an in-depth analysis on the transition from the T-34 aircraft to the T-6 for training purposes at Naval Air Stations in Whiting Field and Corpus Christi. The analysis looked at every possible efficiency and bottleneck – from available maintenance personnel, to instructor and aircraft availability – and resolved them. It was so well-received by then Commander of Training Airwing 5, Marine Corps Col. Scott Walsh, he implemented it – 2011 marked year three of the four-year implementation plan.

This past year also marked a first in the university's ongoing Executive MBA program, graduating its first all-civilian cohort of students – 21 in total. As with many EMBA programs, students are required to complete a capstone project prior to graduating – NPS EMBA students complete one that is of direct relevance to the organization for which they are employed. And from this first group of graduates, just three of those capstone projects, if implemented, could realize a projected savings of up to \$6.9 million.

When it comes to the business of conducting national security, dollars will always come at a premium, and common sense could not be more valued. Through the university's nationally-recognized business school, both of these are natural inclusions.

"The Graduate School of Business and Public Policy is uniquely positioned to help improve defense business practices and administration ... Our instruction prepares the next generation of defense sector leaders to analyze and think critically so that they can effectively manage organizations, resources, people and programs in complex, sometimes life-threatening environments. We are proud of our contribution to the U.S. and allied defense sectors and to U.S. national security."

Dr. William Gates, Dean
Graduate School of Business and Public Policy

ENABLE. CHANGE. ★★★★★

Oxford's dictionary defines the term "enable" as the action of giving power to a person; to strengthen; to supply with the requisite means to an end or for an objective.

Like any academic institution, the Naval Postgraduate School must empower its vibrant collective of students and faculty to achieve their objectives, for they are critical to the mission of the university. Often unheralded, yet constantly utilized, the power of technology and access to resources lie at the heart of enabling this academic enterprise.

On campus, a constant stream of significant infrastructure and user-centric improvements over the past year - from expanded digital research resources to virtualized green IT servers to an early embrace of open

source software like Quali Financial - have provided the campus community with a constantly improving palette of tools to achieve their goals.

The past year has also seen a number of promising partnerships among military, academia and industry continue to evolve. From engagement with industry giants such as Apple, IBM, Brocade and others, information technology maintains a constant eye on the landscape of change. Information Technology and Communications Services (ITACS) also partnered with the nearby Defense Language Institute Foreign Language Center to transition them to an academic network infrastructure, or .edu domain. This effort resulted in a powerfully-expansive set of capabilities for that institution, and saved the Department of Defense significant costs throughout the collaboration.

The year has also seen a number of significant achievements in the academic and experimental arenas that would not have been possible without technologies to enable them. NPS' Field Experimentation program has been widely expanded over the past few years, rapidly transitioning prototype technologies from thought to field. With much of the experimentation occurring at south Monterey County's Camp Roberts, some 100+ miles from the NPS campus, this past year's extension of classified computing capability to Camp Roberts' facilities was invaluable.

In addition, ITACS also empowered NPS' Modeling, Simulation, and Virtual Environments Institute with the execution of a ground-breaking crowd-sourcing game entitled MMOWGLI. Established with the goal of combating piracy off the horn of Africa, the online game tapped into the global intellect to bring new ideas to an epidemic maritime problem.

In the end, whether students and faculty are using complex models to understand air-sea interactions in

the formation of Pacific typhoons, or a professor is posting grades to a Collaborative Learning Environment, the goal is the same - that they are provided the requisite means to achieve their end.

"Change defines our future. As the corporate university of the Navy, the Naval Postgraduate School must serve as an enabler of change. Information Technology stands in the background of the NPS landscape, providing our faculty and students with an enduring power to allow their collective intellect to envision anything possible. Whether it's in support of that academic enterprise or within the administrative areas that make the enterprise work, IT must always challenge the present with the possibilities of the future."

Dr. Christine Haska, Vice President
Information Resources and Chief Information Officer





IMPACT IN ★★★★★ AND BEYOND THE SERVICE

The Naval Postgraduate School saw the advancement of several graduates over the past year – some at the highest levels of Naval leadership. A couple of examples ... computer science graduate Adm. Mark Ferguson became the Vice Chief of Naval Operations in August, and telecommunications systems management graduate Vice Adm. Scott Van Buskirk became the Deputy Chief of Naval Operations for Manpower, Personnel, Training and Education in October.

Yet this just scratches the surface of graduate accomplishments – every month we learn of NPS graduates of all ranks and levels achieving amazing things – becoming ship COs and XO’s, squadron, strike group and shore base commanders, leaders of nearly any function you can think of within the officer corps across the world. Graduates, however, return their service to the defense community and critical national establishments even beyond their duties as active service officers – and we recognized a number of them over the past year as well.

In a 2011 edition of NPS’ quarterly “In Review” magazine, we featured alumnus Walt Havenstein, Chief Executive Officer of Science Applications International Corporation (SAIC), a multi-billion dollar think-tank tackling critical challenges for the defense community and beyond. Havenstein is also a pillar of support for Science, Technology, Engineering and Mathematics education for America’s youth. We also honored our dozens of NASA astronaut alumni – of which we have more than any other institution in the world at the graduate level – as the space shuttle program came to its historic close this past year. In fact, three of the final four space shuttle missions

were commanded by NPS graduates. But alumni apply their knowledge in so many other ways, impacting organizations of all kinds. Marshall Carter, for example, is a widely-respected educator in ethical leadership, teaching at both MIT and Harvard. He is also the Chairman of the Board of NYSE Euronext, parent company of the New York Stock Exchange. And retired Vice Adm. Joseph Dyer now serves as Chief Operating Officer of iRobot, and returned to campus in November to discuss his company’s advances in counter improvised explosive device robotics.

And finally, alumnus Capt. Wayne Porter, fresh off his stint as a strategic adviser to former Chairman of the Joint Chiefs of Staff Adm. Mike Mullen, joined the NPS faculty ranks as a new Chair of Systemic Strategy and Complexity to apply the vision that his “National Strategic Narrative” conceptualizes in words.

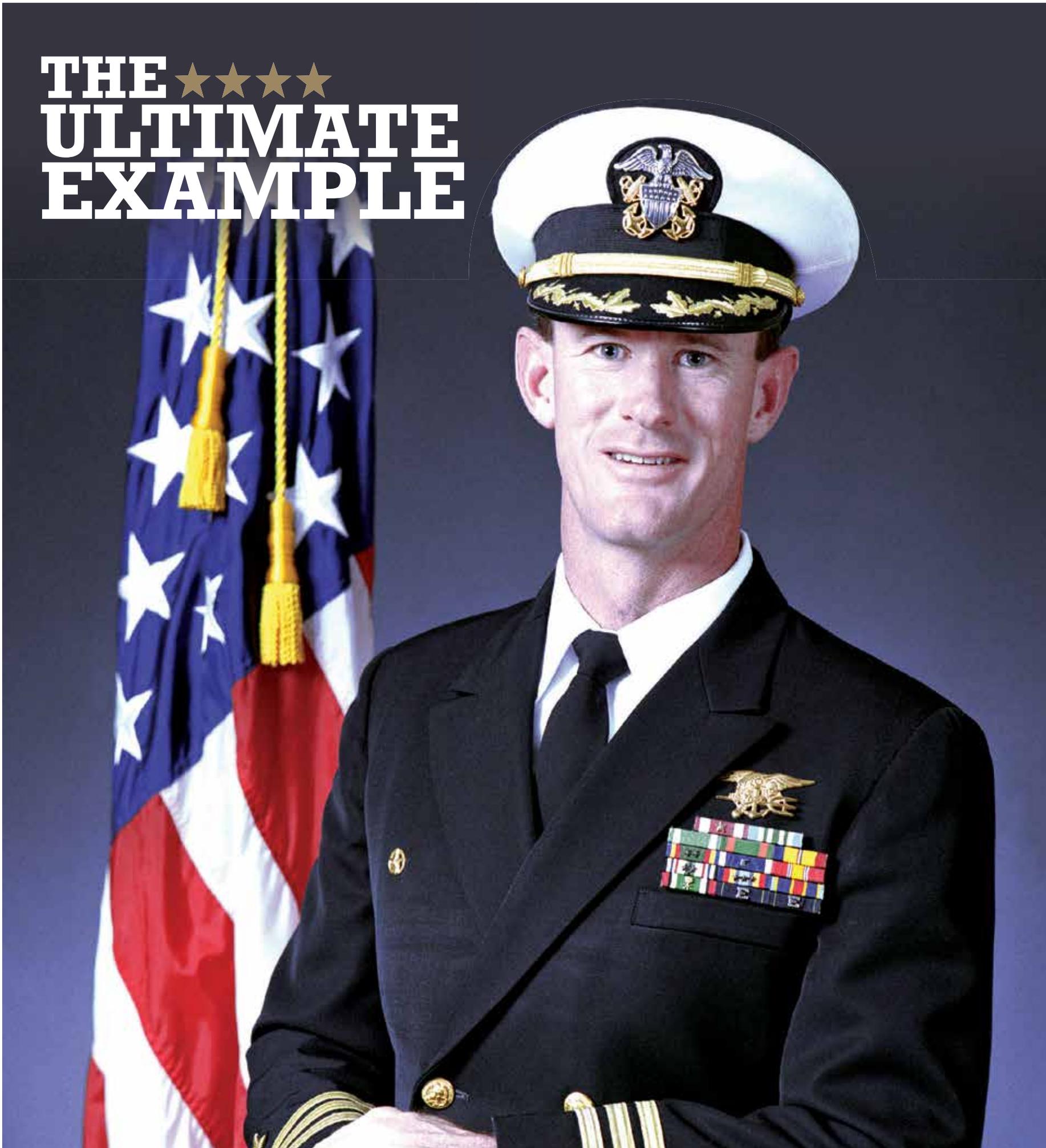
Whether it’s serving in some of the most senior leadership positions in the Navy and Armed Forces, guiding powerhouse companies throughout the defense industry and beyond, or returning to campus to shape the next generation of students and thought leaders, the impact made by NPS alumni can be felt both within and far beyond the active service.

“There was a direct application of the skills I had learned in the graduate program at NPS, and in working at the Marine Corps headquarters in the Pentagon ... I think that a graduate education really gives you the intellectual knowledge that you need to progress upward in your career.”

Marshall Carter
Operations Research Systems Analysis ('70)
Chairman of the Board, New York Stock Exchange



THE ★★☆☆ ULTIMATE EXAMPLE



This is Cmdr. Bill McRaven, circa 1994. When officers come to a new command, or are promoted to a new rank, they are required to take a record photo. The photos are always taken in the uniform of the time, have the same backdrop, the flag in the same basic location – in other words, they all pretty much look the same. In fact, you could throw 100 of these on a table, and barely be able to distinguish one from another.

But this one would stand out, for this is no ordinary service record photo. This one just happens to be taken just after now Adm. William McRaven completed what has become one of the most important student theses in modern warfare. That thesis, titled “The Theory of Special Operations” was completed during McRaven’s studies at the Naval Postgraduate School in June 1993, where he pioneered the education of special operations and low intensity conflict – he was, in fact, the curriculum’s first graduate. McRaven would go on to publish that thesis, truthfully about half of it, in a book titled “Spec Ops,” which has become one of the most widely-read, revolutionary works in this critical, tactically-driven community.

McRaven applied the lessons he both learned and pioneered during his time at NPS to this book, and has applied them throughout his career. And it is quite a

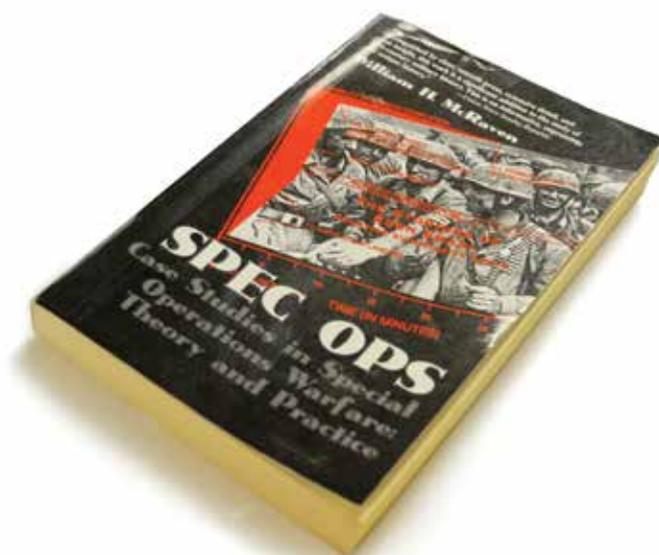
career indeed. He’s commanded multiple SEAL teams, led the Special Operations Command Europe, was the first director of the NATO Special Operations Forces Coordination Centre, and was Chief of Staff at Naval Special Warfare Group 1.

Longtime NPS Professor and Defense Analysis Chairman for nearly 20 years, Dr. Gordon McCormick, remembers McRaven well. As second reader on that famous thesis, McCormick recalls McRaven as intelligent and driven, but more so, as a man that knew exactly what he wanted to accomplish from the moment he stepped on campus. He wanted to revolutionize the tactics of special operations, to make them strategic – in short, to apply the power of education to the precision of spec ops. And that is exactly what he did.

And while McRaven used this knowledge many times during his career, certainly no time was more important than the mission of May 2, 2011 – Operation Neptune Spear – when after months of preparation, McRaven was given the executive order to execute the mission he planned, practiced and perfected. It was one of the most important missions of modern American history, for he is the man who got bin Laden.

“The world today is as unpredictable as ever. And as such, the American people will expect us to be prepared for every contingency, to answer every call to arms, to venture where other forces cannot, and to win every fight no matter how tough or how long. They will expect it because we are the nation’s Special Operations Force, and ... we will not let them down.”

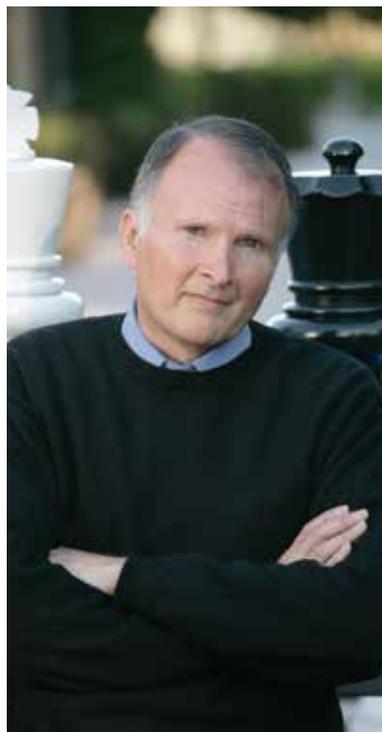
Adm. William McRaven
Commander, U.S. Special Operations Command
Special Operations, Low Intensity Conflict ('93)



2011 NAVAL POSTGRADUATE SCHOOL ★★★★★ YEAR IN REVIEW

JANUARY

NPS partners with local universities and the city of Monterey to present the first Global Challenges Forum featuring renowned Professor of Economics Giovanni Dosi from Italy's Scuola Superiore Sant'Anna. The series brings expert speakers to Monterey to discuss global issues.



Pictured Above: Professor and Chair of the Defense Analysis department, Dr. John Arquilla, is selected by "Foreign Policy" magazine as one of the Top 100 Global Thinkers in 2011, moving up nine spaces from 2010.

NPS' Global Center for Security Cooperation hosts its Annual Directors' Conference bringing leadership from the 25 member institutions together to build more awareness of DoD resources available in international partner and collaboration education.

FEBRUARY



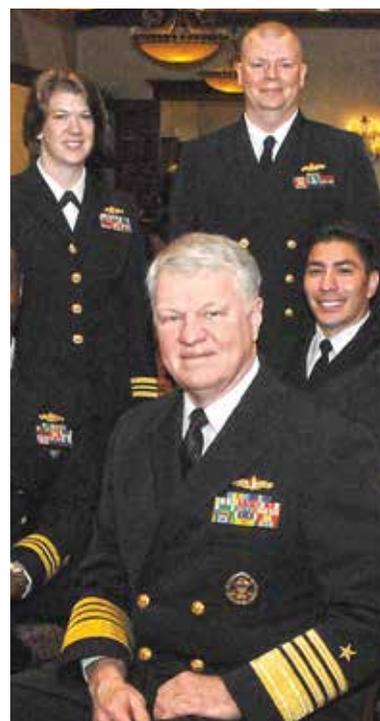
Pictured Above: NATO joins NPS and its U.S. Partnership for Peace Training and Education Center in hosting the international 2011 Building Integrity Conference in Monterey. NATO's Supreme Allied Commander, Transformation, French Air Force Gen. Stéphane Abrial keynotes.

Professor William Fox completes an initial study on utilizing standard radar guns to scan and detect individuals in a crowd that could potentially be carrying improvised explosive devices (IEDs). Initial results yield an 85 percent detection rate using simulated IED vests.

NPS' Center for Homeland Defense and Security hosts the Imagination Conversation Conference, bringing homeland security (HLS) educators and practitioners together to envision what the execution of HLS, and a safe community, looks like in 2021.

MARCH

NPS alumnus and then Corporate Director of the Deputy Chief of Naval Operations (CNO) for Information Dominance, Rear Adm. David Simpson, visits NPS to discuss the role of education and research in building the CNO's vision for the Information Dominance Corps.



Pictured Above: Then Chief of Naval Operations Adm. Gary Roughead addresses guests and nearly 200 graduating students from all the military services and nine allied and coalition partner nations at the winter graduation ceremony.

NPS hosts "Girls Day In," welcoming 50 middle and high school girls from the surrounding communities to explore the possibilities in science, technology, engineering and math (STEM) career paths. It was the first in a series of several K-12 outreach programs that would continue throughout the calendar year.

APRIL



Pictured Above: The Consortium for Robotics and Unmanned Systems Education and Research, or CRUSER, officially launches. Chartered by Under Secretary of the Navy Robert Work, an NPS graduate, CRUSER creates an environment for collaboration on all aspects of unmanned systems and robotics.

NPS' Center for Civil-Military Relations hosts more than 30 senior defense leaders from Indonesia for a two-week course aimed to broaden participants' knowledge of global/regional security environments, how to build effective defense and security institutions, and civil-military relations in new democracies.

The Foreign Area Officer Association of Monterey (FAOAM) hosts its fifth Annual Conference. FAOAM is an association created and operated by FAO students on campus, developing their own programs for professional development outside the classroom.

MAY

Longtime Senator and former Secretary of the Navy, John Warner is presented with an honorary doctorate degree in military science, recognizing a career that began as an enlisted Sailor, culminating in more than 30 years of service in the Senate.



Pictured Above: NPS is officially designated as an Adaptive Optics Center of Excellence for National Security Education and Research – due in large part to the efforts of Distinguished Professor Brij Agrawal – providing the resources necessary for years of dedicated student/faculty research and education in adaptive optics technologies.

NPS holds its eighth annual Acquisitions Research Symposium, bringing senior acquisitions leaders from across the defense enterprise together to showcase current research in the field. The program has become the hallmark forum for improving defense acquisitions procedures.

JUNE

Rear Admiral Gretchen S. Herbert, a 1991 Space Systems Operations graduate, assumes command of the Navy Cyber Forces, the DoN global Type Commander that organizes, operates, equips and maintains Cyber/C5I forces and activities for readiness afloat and ashore.

The 79th Military Operations Research Society Symposium is hosted at NPS, one of the premier opportunities for the defense operations research community to exchange information, examine research and discuss issues related to national security.



Pictured Above: NPS partners in hosting the inaugural Cultural and Organizational Awareness Forum, focused on developing solutions to the unique issues and requirements facing the U.S. Africa Command. Both students and faculty, along with regional leaders, diplomats and defense officials, participate in the discussions.

2011 NAVAL POSTGRADUATE SCHOOL ★★★★★ YEAR IN REVIEW

JULY

The Modeling, Virtual Environments and Simulation (MOVES) Institute holds their annual MOVES Summit. As one of the first universities in the world to create a dedicated degree program in Modeling and Simulation, the Summit keeps NPS and its program at the forefront of innovation in this critical field.



Pictured Above: Aeronautical Engineering alumnus Chris Ferguson ('91), pictured left, commands STS-135 aboard the Space Shuttle Atlantis, a 13-day mission to deliver supplies to the International Space Station. It would be the final mission of the space shuttle program, bringing an end to 30 years of discovery in space.

The NPS Center for Materials Research is introduced with a campus-wide open house. Led by NPS Distinguished Professor Nancy Haegel, the center helps NPS bring a host of new young faculty on board in the field of materials science. One of them, Associate Professor Luke Brewer would go on to win the prestigious Microanalysis Society's K.F.J. Heinrich Award.

AUGUST

Dr. David Kilcullen, Senior Counterinsurgency Adviser to General David Petraeus in Iraq and noted architect of the 2007 troop surge that was a key turning point for coalition forces, presents "Counterinsurgency in Global Context" during a Secretary of the Navy Guest Lecture for NPS students, faculty and staff.

Cmdr. Jay Foraker successfully presents his dissertation defense to receive his doctorate in Operations Research. Foraker's research in complex algorithms demonstrated how the fleet can benefit from optimal search systems, focusing on constrained waterways such as a straight or channel.



Pictured Above: Elliott Branch, the Navy's senior civilian for acquisition, contracting and logistics policy, visits campus to talk shop with Graduate School of Business and Public Policy acquisitions and contract management students, emphasizing that the students in this room would be the ones making the decisions on how DoD spends money in the future.

SEPTEMBER



Pictured Above: NPS and Naval Support Activity Monterey leadership are joined by three NPS students from the New York fire and police departments in the formal dedication of a piece of steel from the World Trade Center. The memorial, located in Centennial Park on campus, honors those who perished in the 9/11 tragedy.

NPS President Dan Oliver and Director General Dr. V. K. Saraswat of India's Defense Research and Development Organisation sign a landmark Memorandum of Understanding outlining future partnerships between the two institutions, serving as a key building block in developing relationships between the two nations.

NPS Professor I. Michael Ross and Researcher Mark Karpenko are honored with a prestigious NASA Group Achievement Award for their experimentation in optimizing spacecraft maneuvers with an operational satellite, the Transition Region and Coronal Explorer.

OCTOBER

Rear Adm. Dixon Smith attends NPS' Transition Support (TS) Program through the university's Center for Executive Education. The TS Program provides Navy flag officers with intensive, tailored one-on-one courses with NPS faculty to assist in their transitions into new commands.



Pictured Above: NPS participates in the 30th Annual San Francisco Fleet Week celebration attended by more than a million spectators. In keeping with the event's theme of humanitarian assistance and disaster response (HA/DR), the university displayed several research efforts supporting the Navy's HA/DR response efforts.

Retired Rear Adm. John Padgett, President of the Naval Submarine League and former Commander, Submarine Force, U.S. Pacific Fleet, presents a detailed lecture on the "Future of the United States Navy Submarine Force" to NPS undersea warfare students, faculty and staff.

NOVEMBER



Pictured Above: Army Chief of Staff, Gen. Raymond Odierno, is briefed by NPS Defense Analysis students and faculty on current research and education efforts within the department, including analyses in current Improved Explosive Device detection techniques. Defense Analysis houses more than half of Army officers studying at NPS.

NPS Meteorology/Oceanography alumnus Rear Adm. Barry L. Bruner, currently serving as Director, Undersea Warfare (USW) Division (N87), returns to campus for the USW curricular review. "The lessons that are learned here ... put the officers in great step for the future," said Bruner. "It's going to provide a phenomenal return on investment for the Navy and for the country both."

The Transformative Education Forum (TEF), sponsored by the Office of the Under Secretary of Defense for Policy and the Office of Naval Research Global, is held in Monterey. With many NPS faculty contributing, TEF brought educators from all over the world to discuss the concepts of education in today's global society.

DECEMBER

Head of the Transportation Security Administration, John Pistole, visits campus to address the latest cohort of graduates from NPS' homeland security degree program - several TSA employees are part of the class. Pistole oversees a workforce of 60,000 employees responsible for security throughout the nation's transportation infrastructures.

Operations Research faculty Senior Lecturer Jeff Kline and Distinguished Professors Gerald Brown and Alan Washburn are awarded a patent on research into "Mixed-Mode Fuel Minimization." What began as an idea while Kline was an OR student has the potential to cut the Navy's fuel usage by 5-10 percent in specific classes of ships.



Pictured Above: Dr. J. Phillip (Jack) London and retired Adm. Stan Arthur join the ranks of NPS' most honored graduates with induction into the university's Hall of Fame. London is Executive Chairman for CACI, a large defense information and professional services firm, while Arthur served as President of Lockheed Martin Missile and Fire Control.

STUDENTS AT ★★★★★ THE NAVAL POSTGRADUATE SCHOOL

NPS averaged approximately 1,650 resident degree students in 2011, with an ongoing expansion in students attending via distance learning programs, totaling 921 this past year. More than 91% of resident students at NPS achieve graduation, with an average time to degree of approximately 20.2 months.

STUDENTS BY SERVICE/COUNTRY

| Type of Student | # of Students | Type of Student | # of Students | Type of Student | # of Students |
|-------------------|---------------|----------------------|---------------|-----------------|---------------|
| U.S. Navy | 730 | Sri Lanka | 4 | Czech Republic | 1 |
| U.S. Army | 208 | Ukraine | 4 | East Timor | 1 |
| U.S. Marine Corps | 206 | Sweden | 3 | Georgia | 1 |
| U.S. Air Force | 147 | United Arab Emirates | 3 | Hungary | 1 |
| Civilian | 201 | Argentina | 2 | Israel | 1 |
| Turkey | 57 | Bahrain | 2 | Latvia | 1 |
| Singapore | 38 | Canada | 2 | Macedonia | 1 |
| Greece | 34 | Chile | 2 | Malawi | 1 |
| Other | 19 | India | 2 | Malaysia | 1 |
| Germany | 11 | Jordan | 2 | Mauritius | 1 |
| Pakistan | 10 | Maldives | 2 | Mexico | 1 |
| Taiwan | 10 | Netherlands | 2 | Moldova | 1 |
| Tunisia | 9 | Philippines | 2 | Mongolia | 1 |
| Norway | 7 | Portugal | 2 | Nepal | 1 |
| Saudi Arabia | 6 | Thailand | 2 | Romania | 1 |
| Brazil | 5 | Albania | 1 | Seychelles | 1 |
| Australia | 4 | Algeria | 1 | Switzerland | 1 |
| Colombia | 4 | Cameroon | 1 | Uganda | 1 |
| Korea | 4 | | | | |

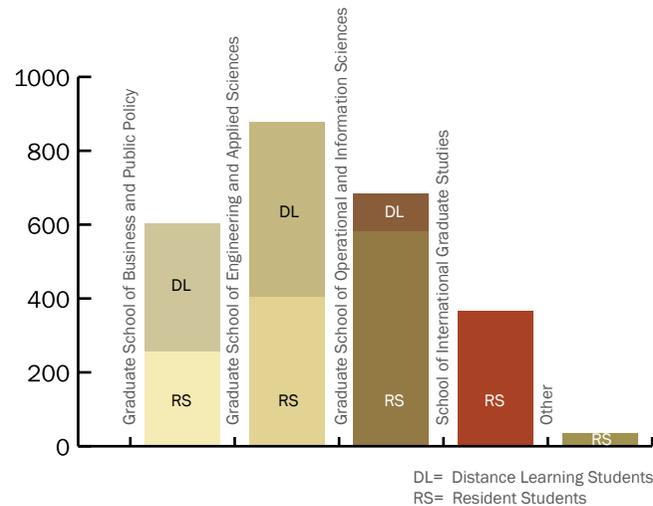
DEGREES CONFERRED

| Degree Conferred | # of Students | Degree Conferred | # of Students | Degree Conferred | # of Students |
|---|---------------|---|---------------|-----------------------------------|---------------|
| Bachelor of Science | | Engineering Systems | 20 | Other Masters | |
| Meteorology | 2 | Human Systems Integration | 10 | Executive Master of | |
| | | Information Operations | 9 | Business Administration | 122 |
| Master of Arts | | Information Systems | 5 | Master of Executive Management | 2 |
| Security Studies | 249 | Information Technology Management | 26 | Master of Systems Analysis | 32 |
| (9 specializations) | | Information Warfare | | Master of Business Administration | 108 |
| | | Systems Engineering | 13 | | |
| Master of Science | | Management | 25 | Engineer | |
| Applied Mathematics | 8 | Mechanical Engineering | 28 | Electrical Engineer | 2 |
| Applied Physics | 14 | Meteorology | 2 | Mechanical Engineer | 7 |
| Applied Science | 1 | Meteorology and Physical | | Electrical Engineering | 6 |
| (Operations Research) | | Oceanography | 11 | | |
| Astronautical Engineering | 11 | Modeling Virtual | | Doctorate | |
| Combat Systems Technology | 1 | Environments and Simulation | 12 | Applied Physics | 1 |
| Computer Science | 33 | Operations Research | 55 | Computer Science | 1 |
| Contract Management | 11 | Physical Oceanography | 4 | Engineering Acoustics | 1 |
| Defense Analysis | 3 | Physics | 9 | Information Sciences | 1 |
| (Information Operations) | | Program Management | 27 | Meteorology | 1 |
| Defense Analysis (Irregular Warfare) | 63 | Remote Sensing Intelligence | 2 | Modeling Virtual | |
| Defense Analysis (National Security Affairs) | 5 | Software Engineering | 9 | Environments and Simulation | 2 |
| Defense Analysis (Terrorist Operations & Financing) | 18 | Space Systems Operations | 20 | Operations Research | 2 |
| Electrical Engineering | 40 | Systems Technology (Cmd., Ctrl., Comm.) | 9 | Physical Oceanography | 3 |
| Electronic Warfare Systems Engineering | 10 | Systems Engineering | 122 | Security Studies | 1 |
| Engineering Acoustics | 6 | Systems Engineering Analysis | 11 | Software Engineering | 1 |
| Engineering Science (Mechanical Engineering) | 4 | Systems Engineering Management | 9 | | |
| | | | | Grand Total | 1,210 |

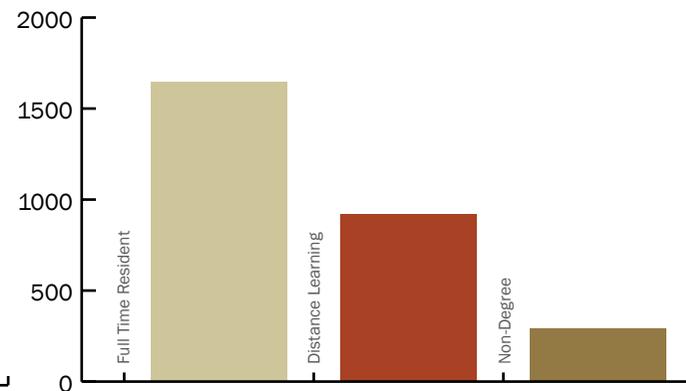
FISCAL INFORMATION ★★★★★

The total operating budget for the Naval Postgraduate School during fiscal year 2011 was \$352.6 million. Funding for NPS comes from two primary sources, direct funds are provided by the Department of the Navy for the university's core teaching mission. Reimbursable funds are provided from a variety of sponsors for the implementation of research or other unique educational programs.

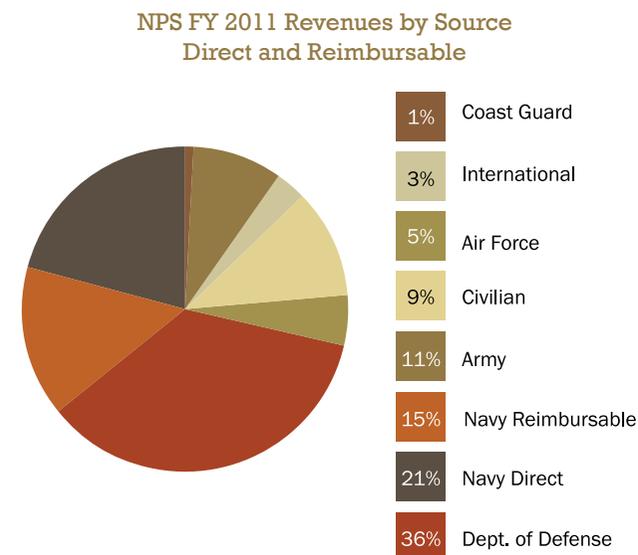
STUDENTS BY SCHOOL



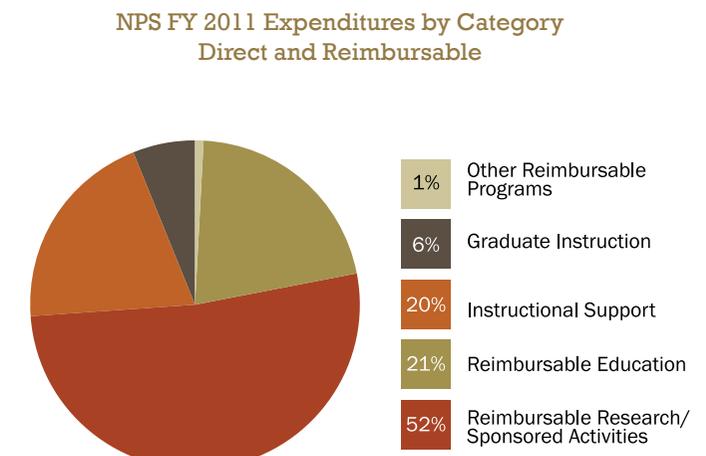
STUDENTS BY TYPE



NPS OPERATING BUDGET - REVENUES



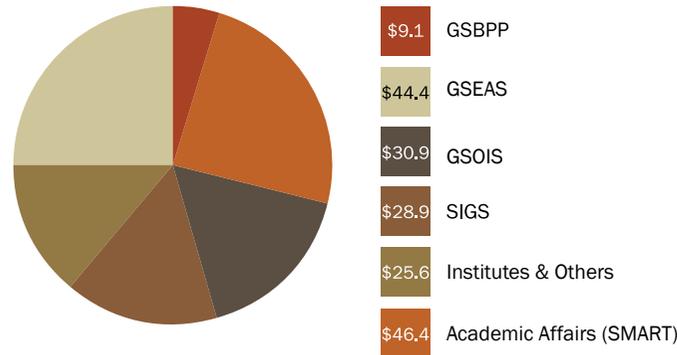
NPS OPERATING BUDGET - EXPENDITURES



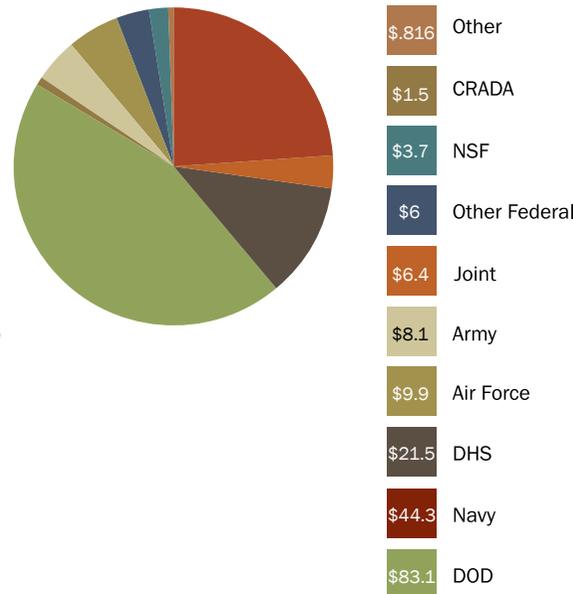
RESEARCH AT★★★★ THE NAVAL POSTGRADUATE SCHOOL

Sponsored programs at NPS are an integral component of the graduate education experience. The primary purpose of sponsored programs at NPS is to conduct research, it is an imperative function to education at the postgraduate level, and its operational relevance is a hallmark of the Naval Postgraduate School. In addition to research, sponsored funding also supports educational programs as well as services.

EXPENDITURES BY ORGANIZATION (\$ IN MILLIONS)



EXPENDITURES BY SPONSOR (\$ IN MILLIONS)



“NPS IS PART OF OUR HERITAGE AND PROVIDES THE NAVY WITH THE OPPORTUNITY TO INFLUENCE WHAT THE NAVY GETS OUT OF A GRADUATE EDUCATION. THIS IS DISTINCTIVE, IMPORTANT AND STRATEGIC FOR OUR FUTURE.”

Adm. Jonathan Greenert
Chief of Naval Operations



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Deputy Chief of Naval Operations
Manpower, Personnel, Training and Education



SUPPORTING THE MISSION★★★★ OF THE NAVAL POSTGRADUATE SCHOOL

The Naval Postgraduate School Foundation, founded in 1970, is a non-profit 501(c)(3) organization that's primary mission is to support the students, faculty and staff of NPS. Like traditional higher educational institutions,

private support is vital to achieve the highest standards in academia. Private donations help the Foundation support NPS, and ultimately help the institution maintain its reputation as the premier educational and research university for the military. With this private support, the Foundation contributes to the development of the military leaders of tomorrow, while also funding research that significantly improves our nation's security capabilities.

This support impacts diverse areas ... From student and faculty awards to guest lectures, internships to wounded warriors, Foundation support provides a much-needed boost to existing funding streams.

The Foundation has grown substantially in the last 10 years, both in terms of the private donations, and the number of corporations that have Cooperative Research and Development Agreements (CRADA) with the school – these often include donated equipment or services. Also, a large group of distinguished alumni, who attribute NPS as a vital piece of their career development, have chosen to give back to NPS, to inspire and support the next generation of military leadership.

The NPS Foundation also raises funds through the Peacock Store, which provides a wide array of NPS logo products for students, alumni and supporters.

The Foundation has many events during the year, highlighted by the Grand Winter Ball, America's Heroes Golf Tournament, and a Washington, D.C. retreat.

The Foundation expects to continue to expand its reach, and explore additional opportunities to support NPS in the coming years. With a strong set of corporate partners, patriotic individuals who believe that NPS is vital to our national security, and alumni who have served our nation proudly and want to ensure we are investing in the next generation of military leadership, NPS will remain vital and unique.

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