



NAVAL POSTGRADUATE SCHOOL

UPDATE
NPS



(U.S. Navy photo)

NPS Alumni at America's Helm

by Kenneth A. Stewart

USS America, the first of the America-class amphibious assault ships, is an engineering wonder. With a displacement of 45,000 tons, the America is as large as many allied nation aircraft carriers. Her wonder extends within her hull as well, supported by a technologically-advanced "green" power plant that is projected to save an average of \$15 million in fuel costs over the course of a six month deployment. And when the Navy looked for leaders to take the America's helm, it chose graduates from NPS.

NPS graduate Navy Capt. Robert A. Hall, Jr., is the America's commanding officer. He earned a degree in mechanical engineering at NPS and served as chief engineer on two different ships before being selected to serve aboard the America.

"Going to NPS gave me a broader perspective of the Navy. You get to spend time with officers from different communities, different services and international students; it really helps you to broaden your horizons. I highly recommend it to all of my junior officers," said Hall.

*"When you're floating around in the middle of the ocean in a \$6 billion machine, it's probably a good investment to make sure that at least one person on board understands the science."
— Lt. Kyle Franklin, METOC Officer*

Another NPS alumnus, Capt. Wayne Baze, is America's executive officer and Hall's second-in-command.

"Attending NPS increased my loyalty to the organization [Navy] as a whole, because I think if we value our people we want them to develop personally and professionally and part of that is education," said Baze. "The fact that the Navy wanted me to do that and that it took the time and spent the money to give me a top quality education meant a lot to me and it's part of why I decided to stay."

NPS alumni extend well into the wardroom as well. Lt. Kyle Franklin, America's meteorology and oceanography (METOC) officer, is also an NPS graduate.

"Many of the tools that my forecasters and I use underway ... to generate our forecasts are very complex," said Franklin. "When you're floating around in the middle of the ocean in a \$6 billion machine, it's probably a good investment to make sure that at least one person on board understands the science."

- p3 Center for Executive Education at the Tip of the SPEAR
- p4 NPS Center Explores Soft Power, Counterterrorism
- p6 ITACS Completes .EDU Accreditation

BLACK HISTORY MONTH

February 2015

Cyber Commander Engages NPS Students, Faculty

By Kenneth A. Stewart

Adm. Michael Rogers, Commander of the U.S. Cyber Command (USCYBERCOM) and Director, National Security Agency/Chief, Central Security Service, recently met with NPS students and faculty focused on the cyber disciplines in an effort to spur interest and draw upon expertise in what has increasingly become a primary front in the war of not just ideas, but of network terrain and critical infrastructure.

Rogers was quick to acknowledge the critical role that NPS plays in preparing personnel to meet modern cyber challenges, and broadly discussed the importance of advanced education to the Navy.

“I believe NPS is a strategic investment for the future, it is important to us as a service. Even in the midst of financial challenges, it generates value to the service and it generates value to the nation,” he said. “I hope that you all realize that you are here as an investment. Quite frankly, we are expecting a return.”

Following his discussion with cyber students, and a research roundtable with select faculty, Rogers sat down with NPS Professor of Defense Analysis Dr. John Arquilla to discuss the sort of ‘intellectual capital’ that Rogers needs to build a cyber force.

“Our greatest edge is the men and women who actually execute the mission. We need a broad set of human capital with a spectrum of capabilities,” explained Rogers, who noted the need for not just computer science experts but for technically-capable intelligence officers, planners, operations analysts and researchers.

But, Rogers insists that he is not just planning for a future or even potential threat ... The men and women at USCYBERCOM are defeating enemy threats on a daily basis.

“Every day we are defeating elements that want to get into our networks in order to conduct reconnaissance, to understand our network structure or to understand where our critical structures are located. It happens every day. The challenge I increasingly find is that a passive defensive response is a losing strategy,” said Rogers.

Rogers also challenged the students in attendance, as he has to lawmakers on Capital Hill, to think about cyber in a traditional

military context. While the world of cyber operations is relatively new, Rogers believes that it has more in common with traditional military operations than the public realizes.

“Cyber is a domain in which we conduct a wide-range of military operations,” explained Rogers. “There are more similarities [to traditional military operations] than differences. We have key terrain, objectives and conduct operations like anyone else.”

Another thing that USCYBERCOM has in common with the DOD as a whole is the modern era of austere budgets, where military commanders are asked to do more with shrinking personnel and resources.

“The mismatch between resources and requirements is nothing new ... almost everything we took for granted during the Second World War in the Pacific, we actually did the foundational work for back in the 30s.

“Cyber is much the same way. We are in an environment right now where threats and risks are accelerating rapidly ... [but] even as the threats are rising, resources are declining,” said Rogers.

Still, Rogers is hopeful that through planning, forward thinking, innovation and education, both fiscal and personnel challenges can be mitigated.

“The power of intellect, the power of thought, becomes an incredible hedge and a real force equalizer for us,” said Rogers. “I try to remind people that as technically focused as cyber is, that it is the intellect and the heart of the people that is going to get us there, not just the technology.”

In closing his discussion with the approximately 200 students in attendance, Rogers offered a few final words emphasizing the importance of people in winning the fight, be it in the field, at sea, or on networks that span the globe.

“There is much more to service than the idea of wearing a uniform ... I am mindful that we are all part of a bigger team, and it takes all of us working together to make this work. Cyber is a team sport,” Rogers said. And to the students in attendance, he stressed, “I need the power of your intellect and I need the capabilities of your leadership.”



Adm. Michael S. Rogers, Commander of the U.S. Cyber Command (USCYBERCOM) and Director, National Security Agency (NSA)/Chief, Central Security Service, addresses NPS students, faculty and staff. (U.S. Navy photo by Javier Chagoya)

“Update NPS” is a monthly publication for students, faculty and staff of the Naval Postgraduate School produced by the Public Affairs Office. For additional copies, comments, or to suggest story ideas, contact the editorial staff at pao@nps.edu.

Center for Executive Education at the Tip of the SPEAR

By Kenneth A. Stewart

NPS welcomed command teams from throughout the fleet and beyond to its largest Strategic Planning for Execution: Assessment and Risk (SPEAR) Program to date at its Center for Executive Education (CEE), Jan. 27.

Some 55 senior participants attended the SPEAR workshop in order to hone their strategic planning skills, with a focus on risk mitigation.

Center for Executive Education Acting Director Winli McAnally noted this year's workshop is unprecedented, with nearly double its usual attendance. "I believe the effectiveness of this workshop is spreading and the requests for team attendance are hitting our maximum capacity at NPS," said McAnally.

SPEAR Program Manager Paul Stames, an Executive Tailored Support Course coach with the CEE, explained what he believes to be the course's appeal.

"We are not dealing with hypotheticals here, we are dealing with real challenges

And the SPEAR workshop makes good business sense too, McAnally adds. Disparate commands are often working on similar issues, and workshops like SPEAR offer an ideal venue for the exchange of ideas, lessons-learned and best practices.

"Attendees come to realize that commands are facing similar challenges and are given the opportunity to benefit from the work that other teams are doing," said McAnally.

Retired Army Lt. Col. Leonard Rickerman with the newly-created Special Operations Command (SOC) North traveled to NPS to take part in the SPEAR Workshop.

"SOC North is a brand new command ... Gen. Jacobi and Adm. McRaven came to the agreement that NORTHCOM [U.S. Northern Command] had matured enough to warrant a special operations command," said Rickerman.

"We were lucky to receive the invite from Dr. Stames during a critical time in the maturing of our command," Rickerman continued.

Richard Gualandi, Navy Recruiting Command, Director of Strategy, Legislation and Performance Management, also attended the workshop. His command has been developing various performance strategies over the past few years, and came to SPEAR to validate their efforts and seek opportunities for improvement.

"We have been working on a program to become more productive ... we came to [NPS] to see if we are doing the right thing and to make our processes better," said Gualandi. "We have had some light shed on our processes ... SPEAR is a great way to look at what we are doing."

Rear Adm. John P. Neagley, the deputy commander of fleet readiness with the Navy's Space and Naval Warfare Systems command, also weighed in on the workshop's merits.

"It allows us to take a different set of tools and utilize them to make our plan stronger and more effective," said Neagley. "The staff here can see things that perhaps you cannot see because you are too close to it."



NPS Military Faculty member Cmdr. Simonia Blassingame works with Navy Capt. Steven Friloux and Richard Gualandi, from left to right, through a workshop exercise at the Strategic Planning for Execution: Assessment and Risk (SPEAR) Workshop held at NPS' Center for Executive Education, Jan. 27-30. (U.S. Navy photo by Javier Chagoya)

in order to help command teams to sustain their missions, to improve their long-term strategies, and to increase their mission effectiveness.

"This workshop allows command executives and leaders to step away from the immediate challenges that their commands face and to focus on their long-term strategic needs," Stames continued.

FACULTY news & notes

For the first time ever, the NPS Foundation broke with tradition to honor one faculty member from each of NPS' four graduate schools with the distinguished Menneken Faculty Award for Excellence in Scientific Research. The NPS Foundation and a committee of experienced university faculty manage the selection process for the Menneken Award, with each of the four award recipients receiving an honorarium of \$5,000. The four winners were: Assistant Professor Erik Dahl, Associate Professor Yu-Chu Shen, Associate Professor David Alderson, and Associate Professor Claudia Luhrs.

Recently appointed Graduate School of Engineering and Applied Sciences (GSEAS) Dean Dr. Clyde Scandrett has assumed GSEAS' top leadership position. His appointment follows the tenure of Dr. Phillip Durkee, who now returns to the classroom as a professor in the Department of Meteorology.

Research Associate Professor Imre Balogh has been appointed to serve as the Director of the Modeling Virtual Environments and Simulation (MOVES) Institute. This appointment will be effective until January 4, 2018.

NPS Defense Analysis Professor Frank Giordano, whose career spanned 13 years at NPS, was presented with the Navy Superior Civilian Service Award, Jan. 29. Giordano is a highly-respected member of NPS' faculty community. He earned the prestigious Rear Admiral John Jay Schieffelin Award for Excellence in Teaching in 2008, as well as the Monterey County Griffin Award for Excellence in Teaching at the Graduate Level in 2009.

Have a story to share? Public Affairs is constantly seeking interesting news and stories for Update NPS. Send your tips to pao@nps.edu.

NPS Center Explores Soft Power, Counterterrorism

By Kenneth A. Stewart

As the world struggles to respond to the recent wave of attacks by radicals in Paris, Africa and the Middle East, NPS' Center for Civil-Military Relations (CCMR) has waded into the fray with its most explosive weapon – education.

The CCMR recently welcomed a diverse group of U.S. and foreign academics, military operators and communications experts to the NPS campus to attend a Cyber-Terrorism Workshop.

“We have had a counterterrorism program at the CCMR since 2002 ... but with the advent of ISIS and its ability to bring in radicals from all over the world, we decided it was time to take a second look at the curriculum,” said CCMR lecturer and retired Navy Capt. Tim Doorey.

The workshop was built upon previous CCMR work with allied and partner nations to respond to terrorism, online radicalization, recruitment, training and fundraising.

Some of Doorey's perspectives, as well as those of his fellow workshop participants, may come to a surprise to those unfamiliar with the CCMR's work.

“Currently, our counterterrorism operations are 80 percent kicking down doors, 10 percent prevention, and 10 percent education. We need to turn that around,” said Doorey. “You are not going to shoot your way out of this problem.”

Nanyang Technological University Professor of Security Studies Dr. Rohan Gunaratna also attended the conference. Gunaratna is one of the foremost experts on Islamic extremism and is the author of “Inside Al Qaeda: Global Network of Terror.”

“Soft power is absolutely necessary to ... build a movement against the wave of extremism,” he continued. “Most governments are

masters in the use of hard power, but the best power in the fight against terrorism is a mixture of soft power and hard power that we call ‘smart power.’”

Gunaratna also described the battle for the hearts and minds of marginalized communities, and the need for governments to reach out to them.



NPS Center for Civil-Military Relations Lecturer, retired Navy Capt. Tim Doorey, speaks during a multinational counterterrorism exercise in Indonesia in 2013. (Courtesy photo)

“Governments can only win if they can influence the human terrain,” said Gunaratna. “To do that, governments must work with partners, community organizations, religious organizations and others. If a government is unwilling or unable to influence the human terrain, they will lose the fight.”

Still, Gunaratna acknowledges that there are instances where soft power is not enough. While at NPS, the infamous Tehrik-i-Taliban Pakistan (TTP) stormed a school in Northern Pakistan killing 112, the majority of which were the children of Pakistani military officers.

“In the case of the Tehrik-i-Taliban ... It is a deadly group and it must be militarily dismantled. But parallel to that, there must be a community engagement strategy to educate Pakistanis,” said Gunaratna.

Also in attendance at the workshop was Zora Sukabdi. Sukabdi is an Indonesian psychologist and the founder of the Global Center for Well Being. She has been working for the last seven years to re-educate and reintegrate radicals into Indonesian society and beyond.

“One of my more effective interventions followed a 2,000-man declaration of support for ISIS [in Indonesia]. I called the Indonesian National Council of Ulama, and asked them whether or not they were pro-ISIS, they said ‘no.’ I said, ‘then do something.’ The next day they declared publically against ISIS.”

Research Consortium President Impressed with NPS' Learning Environment

By Javier Chagoya

University Corporation for Atmospheric Research (UCAR) President Dr. Thomas Bogdan recently visited NPS for the first time. During his visit he toured the Oceanographic Lab and met with students conducting ocean and atmosphere related research.

“This is my first visit to NPS, and I was incredibly impressed by the breadth of research activity taking place on the campus,” said Bogdan. “I think the students are very fortunate to be immersed in an environment at NPS where research and education go hand in glove.”

Lt. Cmdr. Mathias Roth and fellow doctoral student, Cmdr. Shawn

Gallagher, briefed Bogdan on their research. Roth shared his research into water conditions within the Northern Gulf of Mexico following the catastrophic Deepwater Horizon oil spill. Gallagher, who recently returned from the Arctic, discussed his efforts to improve coupled ocean/ice atmospheric models that will be used to provide high-resolution regional models to improve future ice condition predictions.

Headquartered in Boulder, Colorado, UCAR is a consortium of more than 100 member colleges and universities, of which NPS is one, focused on research and training in the atmospheric and related Earth system sciences.

Inaugural CRUSER Colloquium Discusses Future Swarm on the Battlefield

By MC2 Danica M. Sirmans

Paul Scharre, a Fellow with the Center for a New American Security (CNAS), spoke during the Consortium for Robotics and Unmanned Systems Education and Research's (CRUSER) inaugural colloquium series in the Mechanical and Aerospace Engineering Auditorium, Jan. 12. CRUSER launched the series to bring experts onto campus to encourage intellectual conversations in the areas of robotics and unmanned systems.

Scharre, a former U.S. Army Special Forces team leader, is the director of the 20YY Warfare Initiative at CNAS. His presentation, titled "The Coming Swarm," offered insight into the dynamic, modern battlefield and the advantages associated with swarm systems.

"Swarm systems allow us to be everywhere and nowhere at the same time," he said. "Systems that cooperate more intelligently help us to operate at greater speeds. [Today], we rely on silver bullets to get the job done, but in the future we need not rely on them."

Department of Operations Research Professor of Practice, retired Navy Capt. Wayne P.



Paul Scharre, a Fellow with the Center for a New American Security, speaks during CRUSER's inaugural colloquium series in the Mechanical and Aerospace Engineering Auditorium, Jan. 12. (U.S. Navy photo by MC2 Danica M. Sirmans)

Hughes, weighed in on the importance of swarm technology.

"This technology is begging to be adopted. What we need is a czar in the Navy like Billy Mitchell ... he was a great naval hero because he forced the Navy to create room for Naval aviation," said Hughes. "We need a czar to bring along unmanned systems as well."

Federal Managers Association Welcomes NPS Chapter

By Javier Chagoya

The newly re-established Federal Managers Association (FMA) Monterey Chapter kicked off its inaugural meeting, the first since the association was re-established at NPS, at the Herrmann Hall Tower Room, Jan. 28.



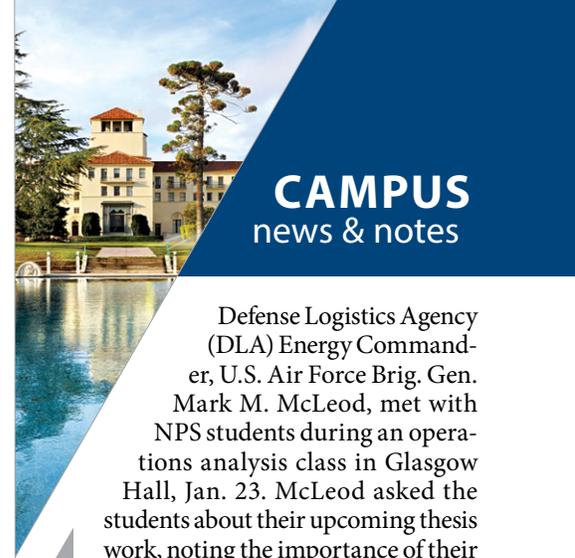
The newly re-established NPS chapter of the Federal Managers Association (FMA) kicked-off its inaugural meeting with guest speaker, FMA National President Patricia Niehaus, center, in the Herrmann Hall Tower Room, Jan. 28. (U.S. Navy photo by Javier Chagoya)

According to local chapter President Jim Hall, FMA membership can help NPS managers to improve management practices and further their educational goals through professional development symposia provided by the association.

"The FMA advocates excellence in federal public service through effective management and professionalism, and I hope that NPS managers will see the benefits of membership as a learning and networking tool," said Hall.

The re-establishment of the FMA's Monterey chapter was born from a recommendation made by one of several focus groups created in response to last year's Command Climate Survey. In addition to providing symposia and educational opportunities, FMA lobbies the federal government on issues of importance to federal workers, and represents nearly 200,000 managers and supervisors.

CAMPUS news & notes



Defense Logistics Agency (DLA) Energy Commander, U.S. Air Force Brig. Gen. Mark M. McLeod, met with NPS students during an operations analysis class in Glasgow Hall, Jan. 23. McLeod asked the students about their upcoming thesis work, noting the importance of their research and how it could make an impact on the Department of Defense and other government agencies in the years to come.

As commander of DLA Energy, McLeod is responsible for providing comprehensive energy solutions in the most effective and efficient manner possible. He spent time at NPS to deliver a Defense Energy Seminar to NPS faculty and students, where he discussed the value of the logistics and the importance of efficiency.

Students gathered in the El Prado Room to learn more about student-led clubs and organizations during NPS' first-ever Club Fair and Social, Jan. 22. The President's Student Council organized the event to provide students with an opportunity to get involved in extracurricular activities. For those who missed the event, and are looking for more information about how to get involved with existing clubs and organizations, contact Marine Corps Capt. Alexander Beachy with the President's Student Council.

THIS MONTH ON INSIDE NPS

- Focus on the NPS Alumni that lead the USS America
- UAV-radiosonde, the next weather balloon?
- Fifth anniversary of Segmented Mirror Telescope at NPS
- Highlights of Recent NPS Research in the Arctic

"INSIDE NPS" AIRS MONTHLY ON THE DEFENSE NEWS NETWORK

Send your campus news and notes to update@nps.edu.

ITACS Completes .EDU Accreditation

By MC3 Michael Ehrlich

NPS' Information Technology and Communications Services (ITACS) recently completed the accreditation process for NPS' .EDU designation. NPS' .EDU web presence was established more than ten years ago, but this is the first time NPS has gone through a Navy accreditation. Accreditation is necessary to maintain the security level required of all naval installations while allowing students and faculty the freedom to conduct research on-line.

In partnership with the Defense Language Institute Foreign Language Center (DLIFLC) and in collaboration with the Navy Operational Designated Approving Authority (ODAA), NPS and DLIFLC were authorized more than a year ago to pursue a joint accreditation by ODAA. But prior to the accreditation process, Fleet Cyber Command conducted a Cyber Security Inspection (CSI) on NPS' .EDU network.

"The Navy came here to inspect us on criteria required of operational military networks," said Chief Information Officer Joe LoPiccolo. "We successfully passed the [cyber security inspection] which laid the foundation for ITACS in preparation for the .EDU network accreditation."

According to LoPiccolo, the next step in the process will be to further develop the institution's cybersecurity concept of operations.

"The prescribed methodologies for cyber security, how we build

systems and how we manage people and processes will all be in this concept of operations," said LoPiccolo.

One of the advantages of operating a .EDU network is the accessibility such sites afford to the users of mobile devices.

"Students and faculty can now utilize mobile devices like smart phones, tablets and laptops," said Deputy Chief Information Officer Christopher Gaucher. "We don't issue that kind of equipment to the students, but now they can configure their personal devices to suit their educational needs."

NPS Provost Dr. Douglas A. Hensler commended ITACS for its hard work throughout the critical accreditation process.

"ITACS at NPS is a role model for support to our academic mission," said Hensler. "ITACS' own stated strategic

imperative is to 'Enable the NPS Mission.' By securing our .EDU designation, ITACS enables all of our students, faculty and staff to execute their specific part of the mission in a protected venue of academic freedom."

According to Gaucher, ITACS will continue to maintain the highest standards for security and usability on all NPS networks, but NPS students, faculty and staff must remain aware of the risks and do their part to maintain network security.



Members of the Information Technology and Communications Services (ITACS) are pictured in NPS' server farm in Ingersoll Hall, Jan. 27. Under their leadership, NPS has successfully completed the network accreditation for its .EDU designation. (U.S. Navy photo by MC3 Michael Ehrlich)

Focus On... Network Excellence

A Monthly Look at Names and Faces on Campus

Unified Communications Specialist Joey Holguin is responsible for the oversight of NPS' email infrastructure from ITACS' firewalls to the messaging systems on your desktop.

"Whenever you get an email, think of me," he said. "I help to protect our users from malware and viruses and I work on incident cases.

"We have a very secure and robust system in place that was designed

with support from hardware vendors like Microsoft and Dell to protect our students, faculty and staff," Holguin continued.

Holguin graduated from California State University Monterey bay in 2004, and began working at ITACS as a student intern before being hired full-time.

Holguin has since helped to establish partnerships with several local universities to develop internship programs with NPS.

"I believe in being on the leading edge of technology and being the example that other institutions strive to emulate," said Holguin. "Technology and information is constantly changing, and you have to keep up with it to be the innovators of change.

"I never thought I would have worked for a DOD entity, but now I can't imagine leaving. With the support of my managers and the vast amount of opportunities afforded to me, I am looking



Unified Communications Specialist Joey Holguin

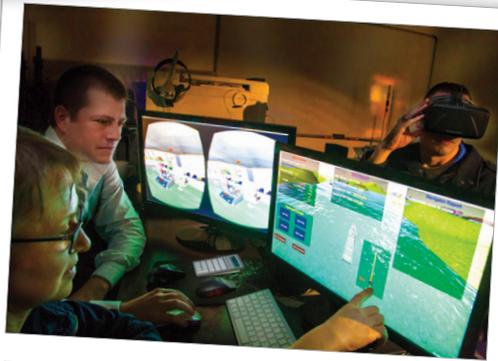
forward to continuing my career here for a very long time," Holguin continued.

Any Day at NPS ...



Capt. Rebecca Stone, violin in hand, at her retirement ceremony at Herrmann Hall, Jan. 15. Hall, an NPS alumna, taught both meteorology and oceanography. She retired after 30 years of service to the Navy. (U.S. Navy photo by Javier Chagoya)

Leading Innovation Energy Application Focus (LIEAF) Workshop participants pose for a class photo, Jan. 12. The five-day innovation workshop exposed leadership to new ideas and best practices with a focus on the Navy's energy challenges. (U.S. Navy photo by Javier Chagoya)



Dr. Amela Sadagic, far left, and computer science student Lt. Brendan Geoghegan, left center, lead an NPS student through a study investigating the potential use of an augmented electronic navigation system entitled Navigational Heads Up Display (NAVHUD) for surface ship conning officers. (U.S. Navy photo by Javier Chagoya)



A group of Naval War College (NWC) Monterey students pose for a photo after a brief ceremony honoring their academic achievements during the first quarter of Academic Year 2015, outside the first quarter of Academic Year 2015, outside the NWC program offices in Halligan Hall, Feb. 3. (U.S. Navy photo by MC3 Michael Ehrlich)



University Corporation for Atmospheric Research (UCAR) President Dr. Thomas Bogdan, center, holds a drifter buoy built by doctoral candidate Lt. Cmdr. Mathias Roth, left, in the university's Oceanographic Lab, Jan. 29. Roth, along with fellow doctoral student, Cmdr. Shawn Gallaher, right, briefed Bogdan on their research during Bogdan's first visit to campus. (U.S. Navy photo by Javier Chagoya)



STUDENT voice

By Lieutenant Aaron Steward, Chairman, President's Student Council

A wise President once said, "A primary object should be the education of our youth in the science of government. In a republic, what species of knowledge can be equally important? And what duty more pressing than communicating it to those who are to be the future guardians of the liberties of the country?"

George Washington spoke these words as he was formulating the foundations for the U.S. government. As a boy, he lacked the traditional advanced education afforded to most aristocrats and had to compensate for his modest upbringing with experiences and leadership skills he gained while on the frontier in the Army.

Here at NPS, we have the best of both worlds. We are receiving an elite education that we supplement with our worldly leadership skills gained through service in the U.S. military.

Abraham Lincoln shared Washington's views once stating, "The philosophy of the school room in one generation will be the philosophy of government in the next." What better way to heed the words of Washington and Lincoln, during the month we celebrate their birthdays, than to participate in student government?

By joining the President's Student Council you can help impact the lives of the "future guardians of liberty" through the Community Leadership Program.

Join the President's Student Council and use your education and leadership knowledge to make a difference.

Have a story to share? Public Affairs is constantly seeking interesting news and stories for Update NPS. Send your tips to pao@nps.edu.

On Campus this Month

February

Black History Month



February 5

Cyber Lunch and Learn
NPS Foundation Cottage (behind the Snack Shack)

February 9-13

Joint Interagency Field Experiment
Alameda, CA

February 12

Lincoln's Birthday



February 16

President's Day (No Classes)
Washington's Birthday



February 20

Defense Energy Seminar
ME Auditorium - 1:00 p.m.



TELEGRAM



115th Submarine Birthday Ball

The Naval Submarine League of Northern California cordially invites all branches and services to celebrate in the

LEGACY

of submarine warships throughout time. Please join the submariners of NPS as they celebrate the world's finest Silent Service.

GUEST SPEAKER:

RADM JOSEPH E. TOFALO

Director, Undersea Warfare Division on the Navy Staff in the Pentagon

Previous Commands:

Deputy Chief of Staff for Global Force Management and Joint Operations, U.S. Fleet Forces Command Commander, Submarine Squadron Three Commanding Officer, USS Maine (SSBN 741)

DATE: SAT., 25 April 2015

TIME: Cocktail Hour: 1800, Barbara McNitt Ballroom-NPS

For more information:
Contact LT Owen Brooks,
oebrooks@nps.edu or visit
www.nslnorcal.com



Purchase tickets at:

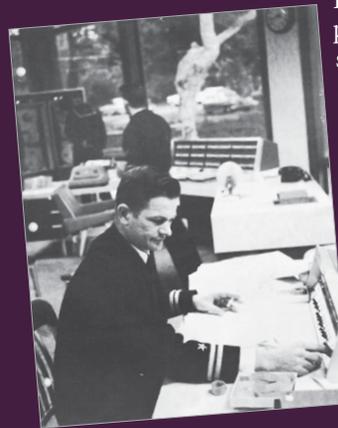
www.nslnorcal.com

Pricing:

Officer/E7 and Above: \$55
E6 and Below: \$50
NSL Member: \$45
Civilian Guest: \$55

Historical Highlights

Fleet Numerical Meteorology & Oceanography Center at the NPS annex ranks as one of the world's premier environmental forecasting centers. As the Navy's global hub for ocean and weather forecasting, FNMOC provides specialized products for fleet operations and also serves as backup for the National Hurricane Center and other civilian facilities in the National Centers for Environmental Prediction.



FNMOC got its start as the Fleet Numerical Weather Facility in 1960, operating initially under a cooperation agreement with NPS. The Navy acquired Seymour Cray's first "supercomputer," the CDC-1604, and installed it in Spanagel Hall as part of the agreement.

NPS alumnus, Cmdr. Paul Wolff, was the first officer-in-charge and many NPS alumni followed as commanding officers of the center. Control Data Corporation chronicled the Navy's initiative in a 1963 special report, "Weather by Computer."

Historical Highlights are provided by the Dudley Knox Library.