



(U.S. Navy photo by Javier Chagoya)

Navy's Energy Czar Examines NPS

By Kenneth A. Stewart

Assistant Secretary of the Navy – Energy, Installations & Environment (ASN (EI&E)) retired Vice Adm. Dennis McGinn traveled to NPS, Oct. 29, to see first hand the work that students and faculty are doing to meet Secretary of the Navy Ray Mabus' call for "game-changing approaches to energy" that will transform the service's dependence on fossil fuels.

"We have three ways to think about achieving our energy goals," explained McGinn. "One of course is technology, we like to talk about biofuels, microgrids, solar, wind, energy biomass, etc. Those things are important, but they are really insufficient to getting us to where we need to go to achieve better warfighting effectiveness."

"The last component is cultural change. We have to increase our level of knowledge and our level of commitment through that knowledge to the central role of energy in the Navy," McGinn continued noting NPS' central role in the process.

"I want to say unequivocally that the Naval Postgraduate School is a national asset. I think NPS has the waterfront covered with our energy portfolio," added McGinn.

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– ASN (EI&E) retired Vice Adm. Dennis McGinn*

Visiting Professor of Operations Research Dr. Dan Nussbaum has been at the forefront of NPS' energy programs as Chair of the university's Energy Academic Group. He described efforts to inspire the adoption of energy innovations and ongoing NPS initiatives aimed at educating senior leaders.

"The Cebrowski Institute and the Operations Research Department have been working together on a number of initiatives. We put together a course for flag officers and senior DON civilians called "Leading Innovation with an Energy Application Focus" ... that class is now mandatory for Navy flag officers and senior civilians," said Nussbaum.

Other NPS-led research efforts are exploring the development of micro machines to harvest energy from generators, the improvement of solar cell efficacy, and the creation of wind and wave powered vehicles. It is efforts like these, and others, that have garnered McGinn's continued interest in NPS.



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DECEMBER 2014

Space Engineering Students, Faculty Find Solutions in Satellite Sustainability

By MC3 Michael Ehrlich

NPS students Lt. Eric Kinzbrunner and Lt. Cmdr. Matthew Argenziano are in the midst of their research theses in the university's Graduate School of Engineering and Applied Sciences. And with the assistance of their advisor, Research Assistant Professor Mark Karpenko, the two space systems students may just have an immediate impact on NASA's deep space observation satellite, the Kepler Spacecraft.

"Satellites and space systems engineering are critical to our missions," said Argenziano. "It improves our effectiveness and keeps our Sailors and troops safe and it's something that we need to maintain and advance."

The Kepler Spacecraft is a "planet-hunting telescope," said Karpenko, designed to hunt space for earth-like planets rotating other stars. During its time in space, two of Kepler's four reaction wheels that create the stability necessary to point accurately have surpassed their life span. The spacecraft is still operational, but with two less reaction wheels. Researchers now have several interesting questions, some of which Kinzbrunner and Argenziano may help answer.

"The main objective of my thesis is to determine the pointing accuracy achievable at various possible science attitudes with the remaining two reaction wheels," said Kinzbrunner. "In order to support this objective, different models of the Kepler solar torque disturbance will be compared to each other and empirical data."

During Kepler's original mission it was able to confirm 978 planets in the Cygnus constellation. Now with its limited capabilities, discoveries are being made on how to reappropriate the craft.

"Before the reaction wheel failures, Kepler had already completed its original mission," said Karpenko. "But, since Kepler still has two functioning wheels we can ask questions like, what can we do now with this spacecraft and its remaining fuel and capabilities? How can we minimize the amount of fuel we are going to use in order to prolong and extend its life expectancy? Or, is it possible to conduct science operations without using any fuel at all?"

While holding the spacecraft stable to observe the Cygnus constellation, Kepler's reaction wheels wind-up to counteract the natural force that comes from solar radiation and other disturbances that exist in the space environment. This stored energy needs to be released or dumped periodically, which is one of Kepler's greatest energy expenditures.

"Based on initial simulations," said Argenziano, "it seems that there

could be more efficient ways of momentum dumping than are currently being employed. By using an optimal control algorithm, and applying different constraints to the model, it is possible to determine the best way of inserting or removing momentum from the reaction wheels that end up pointing the satellite in the desired direction. This in turn can save a significant amount of fuel."

During the process of finding efficient methods of momentum dumping and means to stabilize the satellite with its two remaining wheels, Karpenko's students are also looking at similar ideas for future space missions.



NPS students Lt. Eric Kinzbrunner, left, and Lt. Cmdr. Matthew Argenziano, middle, are pictured in the Space Systems Lab in Bullard Hall with their thesis advisor, Research Assistant Professor Mark Karpenko. (U.S. Navy photo by MC3 Michael Ehrlich)

"I am hoping the optimal control algorithms we are developing [at NPS] will be applied to new satellites coming out in the field," said Argenziano.

"The application of optimal control for the K2 mission of Kepler has made some discoveries within momentum dumping that, if applied, can significantly save on fuel that is being used," he continued.

The available energy in the space environment, such as the solar radiation pressure, can also be considered as an energy source in order to assist the spacecraft in some of its operational maneuvers. Karpenko considers this idea, which goes against conventional wisdom, to be a vital discovery that may impact future space missions.

CIRPAS Platforms, Instrumentation in Demand

By Kenneth A. Stewart

An eclectic group of scientists, technicians, mechanics and pilots work within the Center for Interdisciplinary Remotely-Piloted Aircraft Studies (CIRPAS) hangar. They seem to move from project to project in a never-ending cycle of experiment preparation and execution. Their enthusiasm is more than a little infectious, and their sense of humor and esprit de corps is evidenced by everything from the warm welcome they afford to visitors, to their aircraft taxi vehicle complete with fuzzy dice, racing flames and custom mud flaps.

These days, the center is under increased demand by national and international researchers to conduct reimbursable research, and to provide the platforms



Members of NPS' Center for Interdisciplinary Remotely-Piloted Aircraft Studies (CIRPAS) pose for a photo inside their hangar on the outskirts of Marina, California. (U.S. Navy photo by Javier Chagoya)

and instrumentation packages necessary to conduct advanced unmanned systems, meteorological and oceanographic experimentation. NPS Research Associate Roy Woods works to maintain and integrate all of the equipment used aboard CIRPAS' aircraft.

"We are a close knit team, we have to be. We work for many hours on these experiments

and to be successful, we have to have rapport with one another," said Woods. "Hands down, this is the best crew of people that I have ever worked with."

"I am the buffer between our students and the contractor ... I help those requesting research and I keep our guys from getting bogged down with inappropriate requests," continued Woods.

But CIRPAS is not just a place where researchers go to make use of unique platforms and instrumentation. Rather, it is an advanced research center in its own right. And CIRPAS Chief Scientist Haflidi H. Jonsson is proud of his center's academic contributions.

"Everything we do gets published in peer-reviewed articles," noted Jonsson. "I myself have published between 80-100 papers using this [Twin Otter] aircraft over the last 18 years, and that is just the peer-reviewed work. I can't keep track of everything else."

"Some of our early students are now faculty themselves and are bringing their own students through here," added Jonsson.

Illustrative of CIRPAS' work, the center recently became involved in a major Multi-University Research Initiative (MURI) dubbed the Coupled Air-Sea Processes and EM-Ducting Research (CASPER) program, which seeks to explore atmospheric impact on electromagnetic wave propagation.

"We will be part of CASPER, conducting aircraft measurements, particularly in the area of measuring the flux rates between the air and sea boundary layers by using our towed apparatus," said Jonsson.

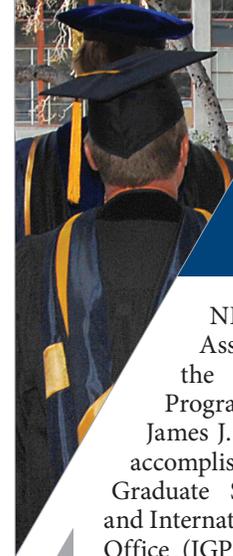
According to Jonsson, measurements like these are important because the phenomena they measure can affect the detection range of incoming missiles or the targeting distance to enemy weaponry.

Crew Chief Greg Cooper was a skydiving instructor before he started supporting experimentation efforts at CIRPAS.

"I often have to put together shoeboxes full of wires and instruments and get them to air worthy status," said Cooper.

But while Cooper and the rest of the CIRPAS team may begin with "shoeboxes full of wires," you would never know it by looking at their world-class facility and the advanced scientific contributions that their center continues to make to NPS.

FACULTY news & notes



NPS alumnus, Deputy Assistant Secretary of the Navy for International Programs (NIPO) Rear Adm. James J. Shannon recognized the accomplishments of International Graduate Studies Assistant Dean and International Graduate Programs Office (IGPO) Director retired U.S. Marine Corps Col. Gary Roser, during Shannon's first official visit to NPS, Oct. 9.

NPS Center for Homeland Defense and Security (CHDS) Associate Director for Executive Education Ellen Gordon was officially inducted into the International Network of Women in Emergency Management and Homeland Security Hall of Fame, Nov. 15.

MOVES Institute Director Cmdr. Joe Sullivan was recently honored with the Meritorious Service Medal for his service to NPS and for his 28 years of service to the U.S. Navy.

Director, Strategic Systems Programs (SSP) Vice Adm. Terry J. Benedict traveled to NPS to participate in a curriculum review of the systems engineering program. During the visit he toured the laboratories supported by his SSP office.

"SSP is, and has been for decades, a premier systems engineering organization that provides a model for conducting systems engineering throughout their enterprise. We would like to see more support for meeting the increasing demand by our customers for the top notch defense systems engineering education we provide," said Dr. Cliff Whitcomb, chair of the NPS Department of Systems Engineering.

Benedict also met with NPS students, their families, and professors for a free exchange of ideas to help advance the curriculum.

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

Top SWO Encourages Students to be Good, Not Lucky

By MC2 Danica M. Sirmans

The Navy's top Surface Warfare Officer (SWO) spoke to a group of approximately 200 student and staff SWOs during a recent visit to NPS. Vice Adm. Thomas S. Rowden, Commander, Naval Surface Forces, assumed his current command in early August, and said he immediately had one priority in mind—warfighting.

"I had the opportunity to be on CNO Greenert's transition team when I was with Strike Group 11," said Rowden. "I went back to the Washington Navy Yard for a couple of weeks to work on the Warfighting Team, where we came up with the tenants, 'Warfighting First, Operate Forward, and Be Ready.'

"I was satisfied with the first tenant, but we were told we needed a couple more. So we came up with two more tenants to support the priority, warfighting," he added with a smile.

While addressing his priority as commander of the Navy's surface force, he shed light on what he expects from Sailors, and more specifically, from SWOs.

"I can talk to you about where it is I think we need to go, in what has the potential to be a very bright future," Rowden said. "But a lot of that future depends on you."

Rowden shared stories emphasizing the importance of choice, especially with those placed in leadership positions.

There are leaders who are willing to roll the dice and hope they get lucky, he explained, and then there are those who demand excellence

from themselves, who ensure they are making good choices. "We could try to assess that in a lot of different ways," Rowden said. "But really, it just comes down to whether we're trying to be lucky or if we want to be good."

Rowden continued emphasizing his ideal of warfighting first, as the foremost of his concerns when carrying out his duties and responsibilities.

"Returning to warfighting first, I'm proud to say to those of you just coming back from the fleet, and to those of you heading back to it

... We have a lot of changes and work being done," said Rowden. "We've re-established the division officer course, and not only has that been stood back up, we've also added the advanced division officer course."

In addition to the division officer and advanced division officer courses, Rowden announced that about \$1.2 billion has been budgeted for SWO training relating, but not limited to, navigation, engineering and

intelligence. The budget makes way for training that would help reduce the expenditures used underway by making better use of time in port.

Closing his session with NPS SWOs, Rowden answered questions on a variety of surface warfare topics before challenging the group to take what they've learned back to their classrooms, and ultimately back to the fleet.



Commander, Naval Surface Forces Vice Adm. Thomas S. Rowden speaks with NPS Surface Warfare Officers in NPS' Glasgow Hall, Nov. 14. Rowden stressed the importance of warfighting first, and shared his views on the qualities of effective leaders. (U.S. Navy photo by MC2 Danica Sirmans)

NSAM Honored With Gold Level SECNAV Energy and Water Management Awards

By MC2 Chablis J. Torrence

The Naval Support Activity Monterey (NSA Monterey) was recently honored with Gold Level recognition in the Secretary of the Navy's 2014 Energy and Water Management Awards.

Resource Efficiency Manager Douglass Taber is a familiar face around NSA Monterey. He recently returned to Monterey after serving at Naval Air Station Lemoore, and was pleased to see conservation has remained a top priority to base leadership.

"It's a culture," said Taber. "There is no single action you can do to make the change, you have to work at it a little at a time."

The SECNAV Energy and Water Management Awards honor four tiers of awardees at the platinum, gold and blue levels. NSA Monterey's "Gold Level" of achievement indicates a very good to outstanding energy program based on comprehensive efficiency efforts.

NPS Leadership, Local 1690 Sign Labor Charter, Establish Forum

By Kenneth A. Stewart



NPS President retired Vice Adm. Ronald A. Route shakes hands with Local 1690 President Pete Randazzo after signing NPS' first Labor-Management Forum charter. (U.S. Navy photo by MC3 Michael Ehrlich)

NPS President retired Vice Adm. Ronald A. Route recently met with Local 1690 President Pete Randazzo to sign NPS' first Labor-Management Forum charter.

The signed document formalizes management-union relationships and creates a Labor Management Forum.

"This is an excellent agreement and an excellent start," said Route. "We hope that you feel that you can trust us. We are here because we all feel that we can trust you."

"The signing of our labor management partnership agreement is yet another step in NPS' goal of documenting and formalizing practices that have been actively in place, but without standardization," said Randazzo.

"Local 1690 has always been proud of the working partnerships and relationships between management and labor that have been behind many of our successes and accomplishments," he continued.

Randazzo noted that the union's past successes were made possible by the tremendous NPS staff that he and his office represent. He also expressed his hope that the newly established forum will provide a venue for open discussions between union officials and NPS management well into the future.

Student-Run Club Gives Back to Wounded Warrior

By MC2 Danica M. Sirmans

NPS student Lt. Matthew Mitchelson, with the assistance of fellow student Lt. Robert Kelly and members of the Lazy Lab Hunting Club recently sponsored a Wounded Warrior hunting trip designed to give back to warriors injured during combat operations.

Wounded Warrior, Marine Corps Sgt. Christopher Hankins traveled with Mitchelson to a hunting retreat in northern Ohio, Oct. 10 after he was nominated by members of Wounded Warrior Battalion – West.

Mitchelson, the club founder, described the motivation behind the trip and the formation of the Lazy Lab Hunting Club.

"I began this club and outreach as a way to give back to Disabled Veterans, Wounded Warriors, active duty personnel, and their families," said Mitchelson.

"I'm very proud of our members and volunteers who stepped up to help," added Lazy Lab Hunting Club Vice President David J. Desrosiers III. "This experience proves that American citizens truly care about their injured warriors and desire to give back for the many sacrifices that service men and service women endure."

The recent hunting trip, in addition to providing a special excursion for members of the Wounded Warrior Battalion, raised awareness of the club's mission to support military members and their families. Mitchelson created the hunting Club in 2008.



Wounded Warrior, Marine Corps Sgt. Christopher Hankins, left, is pictured with a fellow guest at a hunting retreat in northern Ohio. (Courtesy photo by Lt. Matthew Mitchelson)

CAMPUS news & notes



NSA Monterey Deputy Command Chaplain Lt. Cmdr. John Van Dyke kicked off the 2014-2015 Chapel Brown Bag Series, Oct. 30. The inaugural topic was "Great Thoughts or Great Works: Just why are we here?" Stay tuned for future brown-bag dates. Campus wide participation is encouraged.

Volunteers from the NPS branch of the Navy Federal Credit Union (NFCU) put together nearly 200 bags of groceries at the Monterey County Food Bank in Salinas, Nov. 22.

The Federal Benefits Open Season begins Nov. 10 and ends Dec. 8. The Office of Personnel Management has announced the 2015 premiums. Do not miss your last opportunity to review available information and be ready to make your open season decisions.

NPS Student, Marine Corps Capt. Christine Taranto finished 6th in her division at the Marine Corps Marathon in Washington, D.C., Oct. 26. Taranto is a student in the logistics management program.

NPS faculty, students and staff enjoyed traditional Turkish cuisine in celebration of Professors' Day in the Herrmann Hall Tower Room, Nov. 24. The university's Turkish community organized the event in the spirit of their nation's annual Teachers' Day holiday, demonstrating their appreciation of faculty for their countless hours spent teaching, mentoring and advising students.

THIS MONTH ON INSIDE NPS

- Featured Interview with Assistant Secretary of the Navy - Energy, Installations & Environment retired Vice Adm. Dennis McGinn
- Conversation with NPS Energy Academic Group Chair Professor Daniel Nussbaum
- A look at the Replenishment at Sea Planner (RASP) with Co-Developer, Professor Gerald Brown
- Highlight of NPS' E2O Partnership with Associate Professor Andy Hernandez

Former CJCS, NPS Alumnus Inducted into National Academy of Engineering

By Kenneth A. Stewart

NPS alumnus and former Chairman of the Joint Chiefs of Staff retired Navy Adm. Mike Mullen was recently inducted into the National Academy of Engineering (NAE).

Within the engineering community, NAE membership is a prestigious, professional honor. There are currently three members of NPS' Operations Research Department that have been honored with NAE membership.

While at NPS, Mullen attended Distinguished Professor of Operations Research Jerry Brown's course. Brown is currently working on Mullen's verbal history and recently authored a 30-page paper on Mullen's life and work for the Military Operations Research Society.

"[Mullen] headed the world's largest technical organization and he is widely admired," he said.

"He served two presidents, two [political] parties, gave hundreds of speeches and never once made a retraction, it's remarkable," continued Brown.

Mullen came to NPS at the rank of commander, and was made a student section leader.

"We look at our section leaders pretty carefully ... looking at Mike, we noticed early on that he was able to get what he wanted from people without pushing them very much, he was able to use just the minimum amount of right force," said Brown.

Brown offered an intimate look into Mullen's early career and education, speaking about his love of basketball, weight lifting and commitment to his friends. He also recalled the difficulty Mullen had taking his course – arguably

one of the more difficult courses available at NPS.

"He says he still shakes in his boots when he thinks about my class," quipped Brown. "We understood that this was the first time in college that he really had to study."

Longtime NPS Operations Research Professor of Practice Wayne Hughes was Mullen's thesis advisor.

"I read [his thesis] again recently, and was as impressed as I'd been when I was his advisor. It was practical, implemental and the kind of thesis he could apply for the rest of his career," he said.

"Adm. Mullen was studying operations research, one of our toughest curricula, and a challenge for him, but his thesis illustrated the value of his considerable experience," continued Hughes.

As a member of the NAE, Mullen will be adding his experience to the collective expertise of the NAE's membership. The academy was founded in 1964, but it is grounded in the National Academy of Sciences founded by President Abraham Lincoln at the height of the Civil War.

The academy is a non-profit organization with a mission to "advance the well being of the nation by promoting a vibrant engineering profession and by marshaling the expertise and insights of eminent engineers to provide independent advice to the federal government on matters involving engineering and technology."

According to Brown, a longtime NAE member, Mullen is a welcome addition.



Former Chairman of the Joint Chiefs of Staff retired Adm. Mike Mullen, right, is pictured beside NPS Distinguished Professor Gerald Brown upon Mullen's induction into the National Academy of Engineering. (Courtesy photo)

Focus On ... Campus Security

A Monthly Look at Names and Faces on Campus



Federal Police Officer Anthony Atofau of the Command, Navy Region Southwest Police Department.

Federal Police Officer Anthony Atofau of the Command, Navy Region Southwest Po-

lice Department is pictured in front of his patrol car outside Herrmann Hall, Nov. 3. Atofau is part of NPS' base security team whose mission it is to keep NPS students, faculty and staff safe.

"Our main objective is physical security," said Atofau. "That entails more than just checking ID at the gate. A lot of the work is what people don't see."

The security detail employs not only federal police officers, but also active-duty and reserve en-

listed Sailors. They have many responsibilities that are intended to be unnoticed to maintain the operational security of base procedures.

"We patrol the perimeter lines, inspect the secure areas of base, and check vehicle plates to ensure they are allowed to be on base," said Atofau.

"We are on foot patrols all day. We also work closely with the Presidio of Monterey and the Monterey County Sheriff's Department on matters related to

military personnel," he added.

Atofau is a former EMT who was initially hired as a mobile vehicle inspector, but was selected to receive specialized training and commissioned as a federal police officer. He aspires to eventually move into other federal agencies.

"NPS is a good stepping-stone and an opportunity to learn from seasoned veterans of federal service," said Atofau. "I think we have a good team that always comes together to get the mission done."

Any Day at NPS ...



Waves crash over NPS oceanography students as they deploy instruments that record temperature differences in the tidal zone at Del Monte Beach. NPS Department of Oceanography Associate Professor Jamie MacMahan guided the students through the process of gathering the environmental data. (U.S. Navy photo by Javier Chagoya)

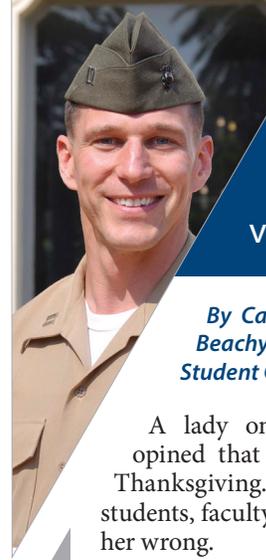
The NPS Honor Guard, below, parades the colors at the commencement of the Monterey Peninsula Navy Ball held in the Barbara McNitt Ballroom. Monterey County Deputy District Attorney James "Jimmy" Panetta served as guest speaker at the event. (U.S. Navy photo by MC2 Danica Sirmans)



A select group of the 19 NPS students earning academic honors from the Naval War College (NWC) Monterey program for the fourth quarter of Academic Year 2014 are pictured during a brief ceremony in their honor near the NWC program offices in Halligan Hall. (U.S. Navy photo by MC3 Michael Ehrlich)



Former NPS Superintendent retired Rear Adm. Marsha J. Evans stands in front of the superintendent portrait gallery in Herrmann Hall. In Monterey on a personal trip, Evans paid her first visit to the university campus since she served as the institution's first female superintendent from 1995-1998. (U.S. Navy photo by Javier Chagoya)



STUDENT voice

By Capt. Alexander "Kronk" Beachy, Chairman, President's Student Council

A lady on the radio recently opined that Black Friday defines Thanksgiving. Thankfully, NPS students, faculty and staff are proving her wrong.

When the Monterey Food Bank held its annual community Thanksgiving dinner, Nov. 26-27, more than 40 of us dedicated our holiday to the endeavor.

We chopped thousands of pounds of vegetables, carved hundreds of turkeys, and served nearly 2,000 meals. Our community is a little better, a little happier, and a little more thankful because of the efforts of these selfless men and women.

Similarly, the Motivating Others Through Outreach (MOTO) program has been connecting many NPS students and faculty with community youth in need of positive mentorship. This program has bridged the gap between NPS students and community youth, and has paved the way for new mentorship programs that the President's Student Council will announce next month. These volunteers give hope to the future of our country.

There are countless other community outreach efforts conducted every day by members of this school. We should all hold our heads high knowing that the members of NPS represent the essence of the holiday season and they represent it well.

The Monterey Bay community and this country will benefit greatly from your continued support. It is an honor to serve beside such people with such noble pursuits.

Capt. Alexander Beachy is the Chairman of the President's Student Council.

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

December 5

Big Ideas Exchange (BIX)
Mechanical and Aerospace Engineering
Auditorium
TIME: 2:00 p.m. - 5:30 p.m.



December 13

Army VS. Navy Tailgate
Party in the Trident
& El Prado Room



December 9

Fall Quarter Awards Ceremony
POC: Student Services, (831) 656-3816



December 19

Fall Quarter Graduation Ceremony

December 9-10

General David G. Perkins
Visits NPS
POC: Ms. Vickie Hoy X.7748



December 25

Christmas Day



Inside NPS

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New episodes monthly on DoD News
Streaming 24/7 at www.nps.edu/video/portal



**DoD
NEWS**

Historical Highlights

The Monterey Bay Officer Spouses Club (MBOSC) has undergone several name changes during its history while serving as a vibrant organization for spouses of NPS students.

From 1961-2001, MBOSC and its antecedent groups – the General Line and Naval Science School Wives Club and the Officer Student Wives Club of the Naval Postgraduate School – published its own magazine, *The Classmate*.



Issues of the magazine offer a warm, personal perspective of family life at NPS and provide valuable feature stories and photos about people and the times. The magazine's April 1967 cover highlights an NPS Little Theatre production of *South Pacific*.

Plans are now underway to digitize this 40-year series and add the publication to Calhoun, the NPS digital archive.

Historical Highlights are provided by the Dudley Knox Library.