



OR Team Optimizes Defense Against Narco Semi-Subs

By Barbara Honegger

An NPS faculty-student team has developed a mathematical model that determines the best combination and deployment of search platforms to detect and classify self-propelled semi-submersible (SPSS) mini-sub that are estimated to carry up to 75 percent of all Colombian cocaine destined for the United States.

"These stealthy little devils can carry tons of cocaine and are very hard to find because they have low visual, acoustic, radar and infrared signatures," said Operations Research (OR) Distinguished Professor Gerald Brown, "but we've solved the problem."

Brown is referring to his research group's defender-attacker models that are changing the way the Departments of Defense and Homeland Security think about defending against narco smugglers, and terrorists, because "semi-submersibles that can be used to smuggle cocaine into the country could also be used to smuggle WMD," Brown explained.

"These are million-dollar, single-use disposable craft that are only 25 to 35 feet long, manned by as few as one person and are manufactured in the Colombian rainforest using quiet fishing vessel diesel engines," Brown noted. "So the one parallel we have [to hunting them] is the ASW mission of finding quiet diesel submarines, which one of my students – naval flight officer Cmdr. Daniel "Barney" Pfeiff – did in his S-3 Viking before coming to NPS."

In the research for his master's thesis, "Optimizing Employment of Search Platforms to Counter Self-Propelled Semi-Submersibles," Pfeiff developed an

optimization model which comes up with the ideal cooperative layout of all available search platforms to maximize the probability of finding and classifying SPSS.

"The model assumes the semi-submersible attackers are intelligent and have some knowledge – the number and type of defenders they have to avoid – but don't know where they are," Brown noted. "Running scenarios for the Eastern Pacific and the Caribbean using five

types of search platforms where the attacker has to choose a transit path and the defender has to determine the best use of search platforms to detect and classify SPSSs, we come up with a consistent optimal plan for defenders: use a mixed [probabilistic] strategy to shape the attackers' routes by positioning search assets to force the vessels into choke-points where they are more easily spotted, identified and interdicted."



Crewmembers from the U.S. Coast Guard Cutter Jarvis board and inspect a Self-Propelled Semi-Submersible (SPSS) during an intercept and seizure off the coast of Central America on Oct. 21, 2009. It is estimated that nearly 75 percent of all cocaine entering the United States is transported by similar SPSS crafts. U.S. Coast Guard Photo by Al Haraf.

"Finding a semi-submersible is like finding a needle in a haystack, except the 'haystack' is the vast area of the ocean," said Pfeiff. "And even when you've detected one, they're hard to classify because they look similar to a sailboat on radar, sound like a fishing boat on acoustic sensors, and blend in with legitimate shipping traffic."

"The model we've developed provides useful insights for the allocation of search platforms and works well when their performance varies by geography," Pfeiff added. "What's needed now is an operational mission assignment tool that uses mixed strategy to optimally assign search platforms to missions."

"Faculty-student synergy like that brought by Cmdr. Pfeiff is absolutely unique to NPS," Brown stressed. "This is the only university in the world where bi-level defender-attacker optimization is a standard part of the curriculum to which students bring fresh operational experience directly relevant to real world challenges, and where faculty are doing advanced research that's immediately applicable."

But the NPS team didn't stop with just finding a better way to locate narco smugglers. OR Senior Lecturer retired Navy Capt. Jeff Kline arranged for Pfeiff, upon graduation in June, to brief the actual people in Joint Interagency Task Force South who are tackling the problem on a day-to-day basis.

Brown recently received the Distinguished Navy Civilian Service Award from the Secretary of the Navy, and is a lifetime member of the National Academy of Engineering. His pure and applied research is sponsored by the Office of Naval Research.

NPS/NATO Partnerships, Peace Through Prevention

By Joan Ackerman

Military strategists have long valued the power of maintaining peace through the prevention of war, but perhaps its emphasis could never be stronger than it is right now. Case in point, the *Maritime Strategy for the 21st Century*, a landmark strategic plan aligning the U.S. sea services under a single vision, lists as one of its guiding directives the importance of not just winning wars, but preventing them.

NPS is responding to this vision, aligning several entities to build institutional synergy and cross-campus collaboration and coordination in areas related to international academic relationships, building partner capacity and analyzing the impact of globalization on our national security policy — with the emphasis on "prevention" of global crises as a key force multiplier.

Led by the efforts of Provost Leonard Ferrari, two keys to the success of this endeavor are the formation of the Global Public Policy Academic Group (GPPAG) early this year, in addition to several international outreach efforts expanded through strategic partnership activities in Switzerland, Sweden, Singapore, Jordan, Bosnia, Moldova, Egypt, and with the NATO headquarters in Brussels, Belgium.

A third component to the effort was actually already in place at NPS — in May 2004, the U.S. State Department designated NPS as the United States' Partnership for Peace Training and Education Center (USPTC), the only such center in the country. The USPTC acts as our nation's contribution to NATO's Education for Reform

Initiative, Partnership for Peace Program, and the NATO Defense Institution Building efforts.

Today, Tom Hazard and Alan Howard oversee much of the Provost's international outreach efforts at NPS and direct the program for the USPTC. Under their auspices in 2009, the USPTC participated in a NATO Building Integrity Workshop, while GPPAG facilitated the Afghanistan Workshop for Interagency Collaboration in Monterey; and co-sponsored the Forum for Social Change, the Global Security and Stability Roundtable and the Leadership and Collaboration in Complex Operations Program in Geneva, Switzerland. The USPTC also supported the Joint Forces Command and the newly signed U.S.-Sweden Bi-lateral Agreement by participating in the ongoing Viking 11 Planning Workshop in Sweden; the Conference of Commandants Planning Meeting in Turkey; the PTC Commandants' Conference in Austria; and the NATO Training Group meeting on individual Training and Education Development, held in Trencin, Slovakia.

According to Hazard, partner capacity building for security and stability is a continuing focus for NPS as the USPTC. Based on DoD, NATO, and the U.N. State Department objectives, the USPTC is currently concentrating on three key areas: the role of women in security and stability for Defense Institution Building; building integrity, diminishing corruption and graft; and, strategic collaboration and leadership in complex environments.

In 2009, the USPTC was tapped by the Office of the Secretary of Defense to lead a three-year partnership project to develop capacity at the PTC of Bosnia and Herzegovina, the Peace Support Operations Training Centre (PSOTC) in Sarajevo. Hazard's team spent the latter half of 2009 planning and developing a strategy for partnership with the PSOTC to offer niche, sustainable coursework for the region.

"We're proud of the work we've started in Bosnia, and we're committed to a sustainable plan for success. As the USPTC, we have access to a broad range of top-quality, cross-campus resources here at NPS, allowing us to develop and deliver relevant, unique coursework for the region," Hazard said.

He emphasizes that the USPTC focuses on long-term partnership projects that enable transformative and sustainable change. Hazard believes this 3-5 year approach creates a better path towards developing sustainable peace and stability processes in the partner countries, and provides these countries with the necessary "tools" to step up and be key players in maintaining the security and stability of their region.

In alignment with the school's mission and the Provost's initiative on outreach and globalization, "the USPTC has made invaluable contributions that will only increase as U.S. policy makers, the Navy, and NPS rededicate themselves to not only winning wars, but also to preventing them and the myriad of crises which spawn them," Hazard added.

IN BRIEF

- ♦ All are invited to attend the Information Dominance Corps social on January 8, 2010, from 5:00 - 7:00 p.m. in Root Hall 108, sponsored by the Information Professional Center of Excellence (IPCOE). Two Information Professional Officers who recently returned from deployment will share their experiences at post-deployment briefs hosted by IPCOE during the month of January, dates to be confirmed. IPCOE is also offering a 5-day Junior Officer Course, open to Information Dominance Corps O-3/4s on March 25-27, and April 2 and 16. For more information, please contact Cmdr. Meg Schult at Ext. 3528 or Ms. Mary Bronzan at Ext. 3527.
- ♦ Training courses by Skillssoft, formerly offered through the Navy Knowledge Online (NKO) site, have been eliminated. To accommodate the ongoing demand for online training, NPS is working with an alternative source, www.golearn.gov, which offers individual licenses that are valid for one year from the time of purchase, giving an employee unlimited access to courses with a specific library. If you are interested in taking online courses through www.golearn.gov, please visit the site, and click on the "Courses" link at the top of the page to review each of the libraries and sub-categories within each area. Once you have made your selection, please send an e-mail to Laura Cole at lacole@nps.edu, specifying exactly what library you are interested in so that a license can be purchased for you. Initial purchase requests for library access will be placed in early January.
- ♦ The Staff Development Council, in conjunction with the Employee Assistance Program, is pleased to offer the first in a series of Brown Bag lunches focusing on employee health and wellness topics on January 28, 2010 at 11:30 a.m. in the MAE Auditorium. The first session is called "Managing Change" and is designed to help participants understand the effects of change, assess their own attitudes about change, and learn practical techniques for dealing with change. Please register for the Brown Bag discussion at <http://www.surveymonkey.com/s/8R6CDY3>, so that the correct number of presentation materials will be available. For questions or help, please contact Laura Cole at Ext. 2414 or at lacole@nps.edu.

Message From
Chief of Staff Col. Andrew "Pete" Boerlage, USAF



Happy New Year!! I hope the New Year finds you healthy, well rested and ready to take on the challenges of the upcoming year. I foresee a busy and eventful 2010 with numerous inspections, audits and accreditations on our horizon. As much as I would like our faculty and staff to focus on our core mission, the time is now to put on our game face to tackle head-on the inspections and audits that await us.

I've been lucky enough to be associated off and on for over 20 years with this esteemed institution, and during that time I've seen some phenomenal changes. The campus infrastructure has improved immensely, many thanks to Mr. Pete Dausen and his team for their outstanding efforts. The student population demographics have also changed; not only have numbers of students from other services increased but also the international student presence has soared.

Additionally, the curricula at NPS have significantly evolved to meet the requirements and needs of our warfighters. New

programs like homeland security, information operations, and cybersecurity were nearly unheard of just a handful of years ago. NPS has remained focused on what our warfighters require and has made appropriate adjustments to meet their needs. Another area of growth that has skyrocketed is our research efforts; this is self evident in the increase in monetary and faculty numbers associated with this venture.

I strongly believe all of the above changes are needed and are vectoring NPS in the right direction; however, with all these changes come challenges and cautions. As rapidly as we accommodate warfighters' requirements and needs in our classrooms and labs, we need to make sure all of our programs on campus comply with the instructions and rules as directed by the Department of Navy and the Department of Defense.

I've challenged our Military Associate Deans to take on this task to ensure all of our highly visible, and not so visible, programs are in compliance. First, we need to determine what programs we have in place, and then we must determine under what instruction these programs fall. This is not going to be an easy undertaking; it will require many hours of work and at times may even slow down our forward progress. As I stated, our Military Associate Deans have the lead for this program, but it is up to you – the faculty, staff and students – to ensure that we are on course and our programs are compliant. The success and robustness of this institution is dependent on all of us doing the right thing and not taking shortcuts.

One example of compliance is recognizing the military's long-standing tradition of morning and evening colors. Carried out daily at NPS, morning colors begins at 0800 with the raising of the flag and playing of the national anthem. Evening colors occurs at sunset with the lowering of the flag and playing of retreat.

The ceremony honors the American flag and all it stands for as well as the servicemen and women sworn to protect and defend our country. During morning and evening colors, face the flag and observe the appropriate protocol. If you are in ranks, come to attention or order arms. If you are in uniform but not in ranks, face the colors and give the hand salute. If you are driving a vehicle, stop and sit at attention but do not salute. If you are in civilian clothes or athletic uniform, face the colors at attention and salute by placing your right hand over your heart. If you are a veteran or military personnel not in uniform, face the colors and render a salute.

There is a provision of the 2009 Defense Authorization Act which changed the law on October 14 to allow U.S. veterans and military personnel not in uniform to render a salute when the national anthem is played.

We are all blessed to have the opportunity to work and study at NPS; every day I'm in awe of the great things our staff, faculty and students accomplish. We are part of the history of this great institution, and we have the opportunity to lead NPS into its next 100 years. Let's all work together to ensure that NPS stays on the right and compliant track. Thanks, and have a great 2010!

Familiar Faces Welcome NPS Personnel

By Monica Guzman

These are well known faces ... They are the ones first seen in the morning; the ones from which warm welcomes and encouraging words flow throughout the day. These are the faces of officers William Larkin, Searcy White and Richard Rodriguez.

These three officers came to the Naval Postgraduate School (NPS) in late 2008, originally hired through a contractor. In mid-2009, however, the contract was terminated and the three faces were gone. According to Rodriguez, this caused quite a stir amongst NPS staff, faculty and students. "People were concerned for us leaving. The police department was flooded with phone calls and the Base Commander with e-mails to not let us go," he said.

The three officers applied for federal positions at the base, and fortunately for NPS, this past July began trickling back to the gates as permanent federal employees.

First officer back was William Larkin who has lived in the Monterey Peninsula since 1983. After 20 years in automotive service, Larkin decided it was time for a career change and became interested in law enforcement. He found a job at the Defense Language Institute as a guard, but when he heard NPS needed guards, Larkin applied for and found what he was looking for. "At the Presidio you don't know who's who. Here it is different; it makes me feel part of the family," Larkin said.

Many at NPS are likely already fa-

miliar with Pastor Searcy White and are enlightened by his greeting, "Have a powerful day!" As finance minister for the Power Cathedral Church, White says he empowers people to take charge of their lives and finances. "Everybody wants power but that's hard to achieve when you don't feel powerful," he said. Women crossing the gate are often referred to as "my lady." According to White, many at NPS are married into the military, and understands the difficulties of being married to service men and honors women's strengths by addressing them in such a way.

Originally from Petaluma, Officer Rodriguez came to the Monterey Peninsula in 1967 when his father was assigned to the area through the military. When Rodriguez first heard of the job opening for NPS it was through his contractor. This is not the first time Rodriguez was employed by NPS; in 1982 he worked at the Navy Exchange as a cashier. Between then and his return to NPS, Rodriguez was in the hotel business for 22 years as well as retail management and loss prevention.

While their most visible position occurs at entrance gates, their primary responsibility is to ensure the security of NPS and its associated facilities. Operating the gates controls access to the federal installation to just employees, visitors, residents, students and patients. Additional duties include protecting federal buildings, property, equipment and material as well as collaborating with the regional CNRSW police to protect and prevent loss of materials important to the national defense and public health and safety. The guards are also involved with counter terrorism operation, vehicle inspections and RAM inspections.

Many at NPS express their appreciation for the guards through gifts such as food and warm drinks during the cold weather. Larkin described one incident where he thanked a regular for the sandwiches she had dropped off for both him and White. She got emotional and explained how good they make people feel going to work every morning and it was the least she could do. "I was left speechless," Larkin said, "I just wanted to thank her for the sandwiches."

Larkin, Rodriguez, and White are thankful for the kindness people exert who go through the gate. "I do want to express my thanks, and gratitude to all the people that keep a smile on my face," Rodriguez added.



Officers William Larkin (left) and Searcy White (right) are familiar faces among students, faculty and staff at NPS. The two, along with Officer Richard Rodriguez (shown inset), are now permanent and welcomed fixtures at the campus' two main entrances.



CALENDAR

January 7

Rear Adm. Bill Moran, USN
Commander, Patrol and Reconnaissance Group
Menneken Lecture and Aviation Community Brief
POC Rear Adm. (ret) Jerry Ellis Ext. 2488

January 11-14

Colombian Delegation
NPS site visit
POC Protocol Ext. 2466

January 12

Maj. Gen. Ellen Pawlikowski, USAF
Deputy Director,
National Reconnaissance Office
Commander (select), Air Force Research Laboratory
Segmented Mirror Telescope
Ribbon-Cutting Ceremony
POC Wayne Bennett Ext. 3981

January 12-13

Brig. Gen. (ret) Ravinder Singh
Singapore Deputy Secretary for Defense Technology
POC Dr. Karl van Bibber Ext. 3241

January 18-22

American Institute of Aeronautics and Astronautics
Strategic and Tactical Missile Systems Conference
POC Michele Merenbloom Ext. 3275

January 18

Martin Luther King, Jr. Day

January 19

Brig. Gen. Walter D. Givhan, USAF
Commandant, Air Force Institute of Technology
NPS site visit
POC Lt. Col. Patrick J. Whelan, USAF Ext. 2873

January 20-23

Rear Adm. Joe Leidig, USN
Joint Staff J-5 Chief of Staff
Menneken Lecture
POC Rear Adm. (ret) Jerry Ellis Ext. 2488

HISTORICAL HIGHLIGHTS

Willis Winter Bradley, Jr. was the first NPS alumnus to receive the Congressional Medal of Honor. Following a distinguished Navy career, he served in the U.S. Congress and the California State Assembly.

When he retired from public service in 1954, the California State Assembly unanimously passed House Resolution No. 20, recognizing Bradley as a "scholar, naval officer, and statesman who has brought honor to our State and our Nation" and applauding him as "a stirring example of the outstanding courage and leadership that has made this Country great."

The keel for the USS Bradley (DE/FF 1041), named in his honor, was laid in January 1963 at the San Francisco Yard of Bethlehem Steel Company.



Historical Highlights are provided by the Dudley Knox Library.