
THE PATUXENT PARTNERSHIP

ANNUAL REPORT

2018



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DEVELOP. CONNECT.

ACHIEVE



The Patuxent Partnership connects the dots to foster collaboration among academia, industry, and government from technology to STEM initiatives in Southern Maryland and beyond to promote growth for the betterment of all.

We are a non-profit member organization working to advance technology through speaker programs, forums, and networking; to advance science and technology transfer through the exchange of ideas, information, and data related to technologies; and to increase workforce development through an array of programs and initiatives.

The Patuxent Partnership was established in 1997 for the purpose of expanding the business base in Southern Maryland through technology development.

TPP looks to advance technology through speaker programs, forums, and networking; to advance science and technology transfer through the exchange of ideas, information, and data; and to increase STEM workforce development through an array of initiatives from physics to cybersecurity.

TPP focuses on diversifying the technology business base in Southern Maryland; seeking to sustain and expand that base by marketing regional technology capabilities; growing the intellectual capital and workforce capacity; and fostering effective collaboration among industry, government, and academic partners.

TPP is part of a partnership intermediary agreement with Naval Air Warfare Center Aircraft Division and with NAVSEA Indian Head. TPP is also part of educational partnership agreements with NAWCAD and St. Mary's College of Maryland (SMCM) and NAVSEA Indian Head and SMCM. TPP has a long-term partnership with the College of Southern Maryland.

LIKE NO OTHER CONNECTION

a message from our
**EXECUTIVE DIRECTOR
& BOARD PRESIDENT**

Dear friends,

It's hard to believe another year has come and gone, and 2018 has been one of our busiest yet.

The challenges to the Navy and Southern Maryland continue to evolve rapidly, and so we continue to raise the bar to proactively engage with the community and with our members to develop programs and partnerships of mutual importance.

We presented over 20 briefings this year and two full-day symposia covering a broad spectrum of topics, such as collaboration and strengthening partnerships between Patuxent River, Indian Head, and Dahlgren; other transaction authority; rapid acquisition; NAVAIR AIRWorks and model-based systems engineering; innovation in Naval Aviation; digital transformation; unmanned/autonomous systems; protecting the Pax mission and preserving the land; building for innovation; and cybersecurity.

We continue to collaborate with the Association of Naval Aviation and have collaborated on 35 panels to date.





We are also pleased to continue our partnership with the Center for the Study of Democracy at St. Mary’s College of Maryland. In December, we held our twelfth annual Patuxent Defense Forum, “The Arctic Domain: From Economics to National Security,” which focused on the economic issues, the environment, maritime challenges, territorial issues, and national security in the Arctic.

Building upon the success we have experienced thus far in building a STEM workforce development pipeline for NAWCAD, we signed an education partnership agreement with NAVSEA Indian Head and St. Mary’s College of Maryland.

We are wrapping up the final year of our NAWCAD-focused STEM workforce development grant from the Office of Naval Research. Though long-term impacts won’t be seen for years, we have already witnessed some of the short-term benefits that STEM-for-all programs and initiatives can have on a community.

In September, we were honored to receive the St. Mary’s College of Maryland President’s Trailblazer Award. TPP has a long and successful partnership with St. Mary’s College of Maryland, and we are proud of all we have accomplished together to support STEM education, foreign and economic policy, and workforce development.

As always, it is the active support and engagement of our members and benefactors that enables our partnership to be so successful. Thank you for helping to make 2018 a remarkable year, and we look forward to what we will achieve together in the years to come.

Best regards,

Bonnie Marie Green
Executive Director

Gene W. Townsend
President, Board of Directors



OUR MEMBERS

19
government

192
industry

9
academia

34
professional associations

14
community affiliates

11
benefactors

Our members represent a wide variety of career disciplines and areas of interest, each with the goal of improving the region's quality of life through education, workforce development, and retention. TPP members provide key support to initiatives from leadership

seminars and Navy programs, to science fairs, robotics, internships, and other STEM-related activities. Our members are invested in a wide range of activities and collaborations designed to increase interest and involvement in STEM disciplines throughout the community.

OUR BENEFACTORS

ASEC

HTii

Northrop Grumman

Bell

KBRwyle

PAE

Boeing

L3 Technologies

Raytheon

**General Dynamics
Information Technology**

Lockheed Martin

Member of the Year: ASEC

Aviation Systems Engineering Company (ASEC) was named Member of the Year for 2017 by The Patuxent Partnership for outstanding leadership, community support and commitment to the economic growth and development of Southern Maryland.

ASEC collaborated with The Patuxent Partnership to create and expand a quadcopter training program for more than 75 students, coaches, mentors, and parents from the tri-county area.

The program, initiated by TPP through a “STEM-for-all” workforce development grant from the Office of Naval Research, teaches theory and practical components of unmanned aircraft systems operations and flight. Participation available at no cost to all high school students and teams in Calvert, Charles, and St. Mary’s counties. Curriculum and training materials were developed by ASEC and is available online to participants. ASEC employees also volunteered as instructors for the program.

The program consists of learning modules with video lessons and interactive evaluation questions that students can complete as their

schedules allow. This online format provides flexibility for students to participate fully without impacting other extracurricular programs.

Through their development and support of this program, ASEC has become a quadcopter educational leader in Southern Maryland.

“At ASEC we value our reputation and pride ourselves on putting the customer first and doing what is right for the warfighter,” said Bellezza. “This award shows our commitment, passion, professionalism, and dedication throughout 2017 that supported the TPP mission, the Southern Maryland community, NAS Patuxent River, and the Navy.”



PROGRAMS

23
programs

1,667
attendees

9
venues

Center for the Study of Democracy

TPP and the Center for the Study of Democracy at St. Mary's College of Maryland jointly sponsor and present unique programs to industry, government, and academia. With this collaboration, we present an annual Patuxent Defense Forum and several lectures throughout the year, discussing issues central to U.S. domestic and foreign affairs and defense. The 2017 Patuxent Defense Forum addressed issues of economy versus environment in the Arctic domain; maritime challenges across the Arctic; and national security in the Arctic.

Association of Naval Aviation Squadron #18

TPP has partnered with the Association of Naval Aviation's Squadron #18 Patuxent River for more than 10 years, hosting over 30 panel presentations to date. We work closely to present topics of interest to the naval aviation community. These programs are an outstanding opportunity to share the Navy's significant contributions and what is happening "inside the gate" with the local community. Net proceeds from these programs support STEM programs and initiatives in Southern Maryland.

The Missiles of October: What the World Didn't Know

18-Oct | St. Mary's College of Maryland
Co-host: Center for the Study of Democracy

Ms. Sherry Jones, Producer; Mr. Thomas Blanton, Director of the National Security Archive at George Washington University; Dr. Svetlana Savranskaya, National Security Archive at George Washington University director of Russia programs

TPP Annual Members Meeting

31-Oct | Southern Maryland Higher Education Center

Ms. Bonnie Green, Executive Director, The Patuxent Partnership; Ms. Nancy Easterling, Executive Director, Historic Sotterley; Ms. Sherrod Sturrock, Executive Director, Calvert Marine Museum; Dr. Regina Faden, Director, Historic St. Mary's City; Mr. Gene Townsend, President, Board of Directors, The Patuxent Partnership

NAVAIR Digital Integration (TPP/ANA Panel)

7-Dec | Bay District Volunteer Fire Department

Vice Adm. Paul A. Grosklags, Commander, NAVAIR; Mr. Todd Balazs,

SES, Digital Integration Officer, NAVAIR; Mr. David Cohen, SES, Director, Systems Engineering Department (AIR-4.1); Mr. Stephen Cricchi, SES, Assistant Commander, Corporate Operations and Total Force (AIR-7.0), NAVAIR; Brig. Gen. Greg Masiello, Naval Air Systems Command assistant commander for Logistics and Industrial Operations (Air-6.0), NAVAIR

Patuxent Defense Forum: The Arctic Domain

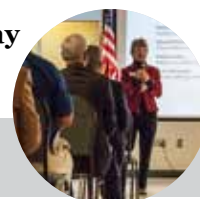
12-Dec | St. Mary's College of Maryland
Co-host: Center for the Study of Democracy

Maj. Gen. Randy "Church" Kee, USAF (ret.), Executive Director, Arctic Domain Awareness Center, a DHS CoE, hosted by University of Alaska; Dr. Walter Berbrick, U.S. Naval War College; Dr. John Farrell, Executive Director, US Arctic Research Commission; Ms. Helen Brohl, Executive Director U.S. Committee on the Marine Transportation System; Mr. John Guy, Deputy Executive Director, National Petroleum Council; Dr. John T. Oliver, Senior Ocean Policy Advisor, USCG HQ; Rear Adm. Jon White, USN (ret.), President and CEO at Consortium for Ocean Leadership; Ms. Cara Condit, Executive Director, Center for Arctic Study and Policy, USCGA;



NAWCAD Industry Day

10.25.17



NAVAIR Digital Transformation

12.07.17



The Missiles of October: What the World Didn't Know

10.18.17

TPP Annual Meeting

10.31.17

NAWCAD Industry Day

Through a partnership intermediary agreement with NAWCAD, TPP supports NAWCAD Industry Day events. These Industry Days facilitate dialogue between representatives from NAWCAD labs, contracting experts, and NAWCAD leadership, and over 300 industry representatives.

Defense Acquisition Workforce Continuous Learning

Many of our programs align with Department of Defense acquisition workforce continuous learning goals for professional improvement. Our programs offer a variety of opportunities for the defense workforce to learn about new acquisition, technology, and initiatives and broaden technical

expertise. Programs presented in the last year provided the opportunity for acquisition workforce employees to earn up to **54** continuous learning points.

Young Professionals

In 2017, TPP held its first program geared specifically toward under-35 workforce to support professional development and workforce retention for the region's young professionals. In the last year, we have expanded our collaboration to sponsor additional events, partnering with NextGen Professionals (St. Mary's), Calvert County Young Professionals Network, Charles County Young Professionals Group, NAVAIR Professional Development Council and the local community.

Mr. Michael Emerson, SES, Director for Marine Transportation Systems and Sr. Arctic Policy Advisor, United States Coast Guard HQ; Cdr. Ruth Lane, Director and Commanding Officer, U.S. National/Naval Ice Center; Ms. Nichola Payne, Embassy of Canada, Washington; Rear Adm. Rudy Peschel, USCG (ret.); Mr. Sean Moon, DHS Director, Global Strategy & Policy; Capt. Harry Schmidt, USCG Deputy Director, National Maritime Intelligence-Integration Office; Capt. Steven Thornton, Deputy Commander, JTF North, Yellowknife, NWT; Brig. Gen. Pekka Toveri, Defence Attaché USA and Canada, Finnish Defence Forces

St. Mary's County Science & Engineering TPP/INCOSE Awards Reception

20-Feb | Great Mills High School

Mr. Todd Parcel, Deputy Chief Technology Officer, NAVAIR

Collaboration & Strengthening Partnerships: Indian Head, Dahlgren, Patuxent River

13-Mar | Southern Maryland Higher Education Center

Mr. Ashley Johnson, SES, Technical Director of the Naval Surface Warfare Center Indian Head Explosive Ordnance Disposal Technology Division (NSWC IHEODTD); Mr. Dale Sisson, SSTM, Deputy Technical Director for the Naval Surface Warfare Center, Dahlgren Division; Ms. Leslie Taylor, SES, Executive Director, NAWCAD; Deputy Assistant Commander for Test and Evaluation, NAVAIR

Maryland Defense Network Demo

24-Apr | Precise Conference Center

Ms. Ashley Buzzeo, Center for GIS at Towson University; Mr. Guy Timberlake, CEO and Chief Visionary Officer for The American Small Business Coalition and MDN technical adviser discussed the tool to locate DoD contractors and capabilities in Maryland.



**Patuxent Defense Forum:
The Arctic Domain**

12.12.17

Holiday Party
12.19.17



**Science & Engineering TPP/
INCOSE Awards Reception**
02.20.18



PROGRAMS

Cleared for Takeoff: Innovation in Naval Aviation (TPP/ANA Panel)

26-Apr | Patuxent River Naval Air Museum
Sponsor: Northrop Grumman

Rear Adm. Scott D. "Satan" Conn, Director, Air Warfare, Office of the Chief of Naval Operations (OPNAV N98); Rear Adm. Shane Gahagan, Commander, NAWCAD; Assistant Commander for Research and Engineering, NAVAIR; Capt. DW Kindley, PMA-265, F/A-18 and EA-18G; Mr. Edward Wolski, SES, Deputy Director, Air Warfare, Office of the Under Secretary of Defense (Acquisition, Technology and Logistics); Dr. Paul Zablocky, SES, Chief Scientist, Office of Naval Research

TPP Annual Members Dinner

23-May | Historic St. Mary's City

Rear Adm. Paul A. "L.J." Sohl, Commander, Operational Test & Evaluation Force

Unmanned Systems in Every Domain: Is Autonomy the New Cyber?

30-May | Southern Maryland Higher Education Center
Sponsors: Naval Systems, Inc.; St. Mary's County Department of Economic Development

Mr. Arthur Hinaman, Manager, Technical Support Branch, AUS-420, FAA; Mr. Bruce Underwood, Deputy Director, Suborbital & Special Orbital Projects Directorate, NASA/GSFC/Wallops Flight Facility; Rear Adm. Mark Darrah, PEO(U&W); Dr. Don Davis, Division Chief for Robotics and Autonomous Systems, GTRI, Aerospace, Transportation & Advanced Systems Laboratory (ATAS); Mr. Matt Scassero, Director, University of Maryland UAS Test Site; Mr. Paul Hood, ADPEO (U&W); Mr. Robert Kimble, SES, Deputy Program Executive Officer for Unmanned Aviation PEO (U&W); Dr. Brian McKeon, Head, Undersea Warfare Weapons, Vehicles and Defensive Systems Department, Naval Undersea Warfare Center Division Newport; Mr. Scott Sampson, Unmanned Surface Vehicle Senior Craft Design Manager, NSWC Carderock; Maj. Gen. Robert Newman, Jr., USAF (ret.); Mr. Carmine Borrelli, Director, Unmanned Aerial & Ground Systems, HQMC; Capt. Jeffrey Dodge, Program Manager, Multi-Mission Tactical Unmanned Aerial Systems (UAS), PMA 266; Lt. Col. Mark Scherbring,

US Army, TRADOC, ARCIC; Mr. Michael Van Dusen, Campus Director, Pax River, Embry Riddle Aeronautical University; Mr. Peter Bale, CEO, Sentinel Robotic Solutions LLC; Rear Adm. Tim Heely (ret.), CEO, Vanilla Aircraft LLC; Mr. Anthony Pucciarella, Founding Member, Alaris, LLC

Other Transaction Authority

5-Jun | Southern Maryland Higher Education Center

Mr. Richard Dunn, Founder and Consultant, Strategic Institute for Innovation in Government Contracting; Ms. Leslie Taylor, Executive Director, NAWCAD & Deputy Assistant Commander for Test and Evaluation, NAVAIR; Mr. Charlie McBride, Chairman and President, Consortium Management Group; Mr. Jim Frankovic and Ms. Kim Blancuzzi, CMG; Ms. Julie Mattocks, Sr Program Analyst, Operations & Program Directorate, Policy & Plans Branch, Marine Corps Systems Command; Mr. Jeff Guarnero, Deputy Department Head, AIR 2.5, Contracts

AIRWorks & Model-Based Systems Engineering

19-Jun | Southern Maryland Higher Education Center

Rear Adm. Shane Gahagan, Commander, NAWCAD; Assistant Commander for Research and Engineering, NAVAIR; Mr. Gerald Swift, Director, AIRWorks; Mr. David Cohen, Systems Engineering Department, AIR-4.1

Dr. Michael D. Griffin, Undersecretary of Defense for Research & Engineering

13-Jul | Southern Maryland Higher Education Center

Protecting the Pax Mission & Preserving the Land

18-Jul | Precise Conference Center

Capt. Jason Hammond, NAS Patuxent River Commanding Officer; Ms. Sabrina Hecht, Community Plans Liaison Officer, Pax River NAS; Ms. Lynne M. Keenan, Community Plans Liaison Officer, Naval Support Activity South Potomac; Mr. Andrew Garte, Executive Director, Patuxent Tidewater Land Trust (PTLT); Mr. Frank Allen, President, Board of Directors, PTLT; David Moulton, Board Member, PTLT



A Night at the Museum

An Evening for Young Professionals
at Calvert Marine Museum

02.21.18

Collaboration & Strengthening Partnerships

03.13.18



NAWCAD Industry Day

04.05.18



Maryland Defense Network Demo

04.24.18

Unmanned Systems in Every Domain: Is Autonomy the New Cyber?

May 30, 2018

This full-day program addressed major topics in autonomous systems technology, including UAS integration and advancing autonomous capabilities in the AI/cyber domain, strategic Navy/Marine autonomous capabilities, leveraging autonomous capabilities for warfighter combat superiority, approaches to supporting an evolving UAS community, and experiences in the small UAV market.

Rear Adm. Mark Darrah, recently retired after a 36-year Navy career and final assignment as Program Executive Officer for Unmanned Aviation and Strike Weapons (PEO(U&W)), provided the opening remarks with his perspective on the role of autonomous and unmanned systems in building the Navy the nation needs.

Arthur Hinaman, Technical Support Branch manager for the Federal Aviation Administration, delivered the morning keynote, identifying key technological and social challenges surrounding the integration of automated operations and artificial intelligence in unmanned air systems.

“The technology can be done,” said Hinaman, “The question is what are we going to do with it?”

“The challenge is that it’s not an unmanned-only fight,” said Capt. Jeffrey Dodge, Multi-Mission Tactical Unmanned Aerial Systems (PMA-266) program manager. “The unmanned is up there generating situational awareness but we want to bring the manned aircraft in and operate in that same airspace.”

Dodge made his remarks during the second panel, “Leveraging Autonomous Capabilities for Warfighter Combat Superiority,” which focused on how autonomous systems make their way to the warfighter and how these

capabilities will increase the effectiveness of our fighting forces through the safe and effective integration of manned and unmanned systems.

“Strategic Navy/Marine Autonomous Capabilities” panelists honed in on managing big data in the real-time tactical environment and standardization of command and control and data as enablers to both warfighting and multi-domain unmanned operations.

The conference concluded with a demonstration at the University of Maryland UAS Test Site.

If there’s one thing you should walk away with, it’s this: opportunity. The autonomy wave is coming and AI is right behind it.

*Matt Scassero, Director,
University of Maryland UAS Test Site*

**Cleared for Takeoff:
Innovation in Naval Aviation**
04.26.18



Annual Dinner
05.23.18



**Unmanned Systems in
Every Domain**
05.30.18



PROGRAMS

Rapid Acquisition

7-Aug | Southern Maryland Higher Education Center

Mr. Timothy R. Morris, Manager, Acquisition Management for WBB Inc; formerly U.S. Air Force, Director, F-35 Development

Building for Innovation in St. Mary's County

22-Aug | Southern Maryland Higher Education Center

Co-host: St. Mary's County Chamber of Commerce

Mr. Chris Kaselemis, Director, St. Mary's County Department of Economic Development; Mr. Gary Whipple, Airport Operations Manager, St. Mary's County Regional Airport; Mr. Ken Reed, Managing Director, S. Hunt Aero; Mr. Matt Scassero, Director, UMD UAS Test Site

TPP/NAVAIR Office of Small Business Programs featuring the Honorable James "Hondo" Geurts

5-Sep | Southern Maryland Higher Education Center

Mr. James "Hondo" Geurts, Assistant Secretary of the Navy for Research, Development & Acquisition; Mr. Garry R. Newton, SES, Deputy Commander, NAVAIR; Mr. Shelby Butler, Associate Director, NAVAIR Office of Small Business Programs; Mr. Sean Burke, SES, Deputy PEO (T); Rear Adm. Brian Corey, PEO (U&W); Capt. Craig Dorrans, PEO (JSF); Mr. Gary Kurtz, SES, Assistant Commander, AIR 1.0 Program Management; Brig. Gen. Gregory Masiello, PEO (A); Mr. Garry R. Newton, SES, Deputy Commander, NAVAIR; Mr. William Pearce, AIR 6.7

The U.S. Budget: From Deficit to Disaster?

6-Sep | St. Mary's College of Maryland

Dr. Dan Crippen, Vice Adm. Joe Dyer, USN (ret.)

Cyber Summit

18-Sep | Southern Maryland Higher Education Center

Sponsors: Checkmarx/Optiv, Smartronix (Gold); Dell EMC, Resource Management Concepts, Inc., SAIC (Silver)

Mr. Paul Beckman, CISO, Department of Homeland Security; Dr. Ronald Ross, Fellow, National Institute of Standards and Technology; Mr. Steven Kern, Chief Engineer/Senior Scientific Technical Manager, NAVAIR Cyber Warfare Detachment; Rear Adm. Dave Dermanelian, USCG, Commander, USCG Cyber Command; Mr. George Kalnasy, NAVAIR Cyber Warfare Detachment; Mr. Ed Morgan, Principal Engineer, NAWCAD 4.11.3/NAVAIR Cyber Warfare Detachment; Mr. Stu Young, Technical Director, Defense Solutions, Smartronix; Mr. Brian Connolly, Director, IT & Cyber Security, NAVAIR; Mr. Mark Fox, Manager, Global Defense Partners and Programs, Amazon Web Services; Mr. Anthony Vultaggio, Chief Technology Officer, Smartronix; Mr. Robert Hanley, Vice President, Cyber Solutions, Sabre Systems Inc.; Mr. Vincent Lamolinara, Professor of Acquisition Cybersecurity, Defense Acquisition University; Mr. Kevin Smith, Head of Business Intelligence and Data Analytics Dept, NAVAIR Total Force Strategy and Management Division; Mr. Harry Wingo, Professor of Cyber Security, College of Information & Cyberspace, National Defense University; Mr. Kevin Coggins, Vice President, Cyber & Engineering, Booz Allen Hamilton; Mr. Jim Ford, Director, Defense Intel and Homeland Security Solutions, Microsoft Federal; Mr. Jeff Watts, Director of Cybersecurity, RPI Group

OTAs

06.05.18



Dr. Michael D. Griffin

07.13.18



AIRWorks & Model-Based Systems Engineering

06.19.18

Protecting the Pax Mission & Preserving the Land

07.18.18

Cyber Summit

September 18, 2018

The one-day summit brought together speakers and panelists to discuss major topics in cybersecurity, including cyber in the naval aviation and maritime domains, challenges and benefits of moving to the cloud, cyber workforce challenges, and protecting our data.

“What was originally internet security is now ‘everything security,’” said Paul Beckman, chief internet security officer for the Department of Homeland Security.

Beckman, who provided the morning keynote address, noted technology focus areas for cybersecurity improvement are automation and orchestration tools, and attack and simulation software.

Speakers and panelists encouraged others to embrace different technologies and ways of thinking about data protection, such as cloud computing.

“Security is now becoming an enabler for cloud migration, where it used to be an inhibitor,” stated panelist Anthony Vultaggio, chief technology officer for Smartronix.

Beckman also called for reduced complexity in cybersecurity. “I want to get back to the basics: patch management, configuration management [...] fundamental principles of security,” he said.

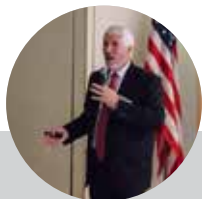
Complexity is the most serious threat we’re facing today. Our appetite for advanced technology is rapidly exceeding our ability to protect it.

Dr. Ronald Ross, Fellow, National Institute of Standards and Technology

The only way to solve the problem of complexity – as technology evolves faster than we can protect it – is with good science and engineering, suggested speaker Dr. Ronald Ross, a fellow at the National Institute of Standards and Technology.

“Protecting security and privacy in cyberspace is imperative to a free society,” Ross argued.

“Is cyber going to be the best weapon for the future? I don’t know,” said Beckman. “But it’s going to be paramount for us as a shield.”



Rapid Acquisition

08.07.18

Building for Innovation in St. Mary’s County
08.22.18



Deficit to Disaster?

09.06.18



Cyber Summit

09.18.18

STEM EDUCATION INITIATIVES

Education and workforce development are key components of TPP's strategic plan and support the community's economic diversification and success. We collaborate with public and private academic organizations and the Navy to advance STEM education and activities for students. Some of our member organizations also support STEM initiatives.



St. Mary's County Public Schools photo

Summer AeroSpace Camp provides students in grades 2–11 opportunities to explore quadcopters and unmanned systems, rocketry, and robotics through hands-on learning. The program provides an opportunity for students in grades 7–11 to receive UAS pilot certification training through the FAA. TPP is the primary sponsor of the camp. In addition to program support, registration is reduced and scholarships offered so that any interested student will have the opportunity to attend regardless of their ability to pay.

Summer Cyber Camp introduces basic cybersecurity concepts and generates awareness and interest in computer science and cyber education and careers. Held at the Forrest Technology and Career Center, the camp is a one-week course offered to rising 7–9th grade students interested in exploring cybersecurity. The program includes a field trip to the National Cryptologic Museum where students are able to speak with experts and learn how the cybersecurity field has evolved. It has been funded through a grant to TPP by the Office of Naval Research.

Cyber Patriot Seven teams, including two NJROTC teams, participated in the state CyberPatriot competition in January. Funded by The Patuxent Partnership through our Office of Naval Research grant, the teams are tasked with managing a simulated corporate network, finding cybersecurity vulnerabilities, and hardening the system while maintaining critical services. Pax Partnership benefactor Northrop Grumman is the national sponsor for CyberPatriot.



Science fairs and expos in St. Mary's, Calvert, and Charles counties showcase our region's best and brightest young minds from middle and high school. TPP recognizes this exceptional work of these creative minds with a series of four awards in junior and senior divisions. In 2018, many local award winners went on to recognition at the regional fairs.

Robotics programs can be found in nearly every school in Southern Maryland and are a fun and successful way to educate and prepare students for STEM-related careers. TPP provides direct support to the College of Southern Maryland, which has its own team, the Talons, and manages the region's robotics competitions. With teams in LEGO, VEX IQ, VEX, and VEX-U, over 1,200 students are involved in competitive robotics in Southern Maryland.

STEM-ING is designed to introduce middle school girls to STEM-related careers. TPP has supported the STEM-ING program since its inception. As a partner and sponsor of this event, TPP and some of our member companies provide mentors, volunteers, and the financial support needed to ensure the program's success and growth. TPP supports fundraising and secures sponsors for the various workshops.

Fostering Collaboration on Education

The Naval Surface Warfare Center Indian Head Explosive Ordnance Disposal Technology Division (NSWC IHEODTD), St. Mary's College of Maryland (SMCM), and The Patuxent Partnership formalized an educational partnership agreement that will advance scientific research and foster academic growth in science, mathematics, technology, and engineering. Representatives from each organization gathered on the

college campus to sign the agreement on March 23.

The educational partnership agreement will provide opportunities for scientists and engineers at NSWC IHEODTD to work with SMCM students and faculty, combining knowledge and skills with the unique facilities and capabilities at NSWC IHEODTD.



St. Mary's College of Maryland photo

The Pathways to Engineering Program at CSM provides a path for students seeking engineering degrees from the A. James Clark School of Engineering, University of Maryland (UMD). TPP provides up to two full scholarships each year for students in the Pathways to Engineering Program at CSM.

The National Academy of Finance (NAOF) at Chopticon High School prepares students for careers in financial services. In addition to serving on the Program Advisory Council for NAOF, TPP sponsors a NAOF intern each summer. The internship process is a valuable tool to help students connect classroom instruction with real world application.

Southern Maryland Math Circles, sponsored by TPP member RED-INC, is led by Dr. David Kung along with other faculty and students from the Math Department at St. Mary's College of Maryland. They bridge the gap between classroom curriculum and the exploration of open-ended math problems that challenge students of all ages. RED-INC sponsorship enables students to access to this extracurricular program free of charge.

Destination Imagination (DI) is an international program and competition that introduces arts to STEM (STEAM). DI students gain the creative, critical thinking, collaboration, and project management skills needed to thrive in school, careers and beyond. TPP sponsored advanced competition for teams from Great Mills High School and Mechanicsville Elementary School.

TPP UAV Training Program is an initiative under our ONR STEM workforce development grant, designed to generate interest in the field of UAV technology and engineering. Open to all high school students in the tri-county area, the program includes weekly training sessions at the students' assigned school and group trainings held throughout the school year. TPP member Aviation Systems Engineering Company (ASEC) developed an online training program available to all students via STEM-Link.

Applied Physics Endowed Fund, established by TPP in 2012, was created to support the St. Mary's College of Maryland (SMCM) applied physics program. The fund promotes research, internship, and professional development opportunities through collaborative efforts between SMCM, NAS Patuxent River, and the DoD community in Southern Maryland. Many of the graduates go to work for the Navy at Patuxent River.

ONR GRANT

We are completing the final phase of a three-year STEM workforce development grant from the Office of Naval Research, which has enabled us to establish a STEM workforce development and recruitment pipeline for NAWCAD. The pipeline incorporates autonomous systems and unmanned aerial vehicles, cybersecurity, classical sciences, and augmented reality technology. Educational initiatives in these areas will benefit the current and future workforce at NAWCAD and Southern Maryland. Although the full benefits of the grant initiatives will be realized over several years, there were many notable successes during the third year of implementation.

UAV

K-12 The UAV segment of the grant introduced a quadcopter program open to all high school students in the tri-county area. There is no registration fee and schools can sustain the program beyond grant funding.

TPP benefactor Aviation Systems Engineering Company, Inc. (ASEC) developed a flight training program, which is accessible by all students via STEM-Link. This online course allows coaches and students access to material throughout the school year. Developed by certified UAV instructors, the program provides standardized training for all participants at no cost. Web-based modules enable students to learn the science, rules and policies, and fundamental operations of the quadcopter. The training is designed for broad application to any model of quadcopter.

The number of registrations over the last two years has increased significantly. This summer, TPP was contacted by a middle school in Washington state to participate in the course; to date, the school has registered over 30 students.

The 2017–2018 program culminated with a Skills Expo in April, where quadcopter teams demonstrated their learning, including successes, failures, learning experiences, and uses in real life.

UMD The University of Maryland developed a UAV component to be included in the Mechanical Engineering degree program being taught at the Southern Maryland Higher Education Center. The UAV curriculum supports the Navy's workforce development by providing students with a better understanding of UAV flight physics and mechanics, aerodynamics and flight analysis. The College of Southern Maryland Pathways to Engineering program is the primary source for the UMD program enrollment.

CYBERSECURITY

K-12 A high school cybersecurity curriculum was introduced in 2016 and continued during the 2017–2018 school year. Seniors could enroll in two semester courses – Principles of Cybersecurity and Ethical Hacker – after meeting prerequisites (AP Computer Science or completion of Networking II).

Students enrolled in the program at Great Mills High School (GMHS) and Leonardtown High School (LHS) participated in the Air Force Association CyberPatriot competition. Seven teams from GMHS and GMHS NJROTC competed in CyberPatriot. Of the five GMHS open division teams, two made it to the Platinum (highest) tier and two teams made it to the Gold tier; these four teams advanced to the regional competition. In their inaugural year, the LHS team made it to the Gold tier.

Rising 7–9th grade students participated in one of two week-long summer cyber camps held at the James A. Forrest Career and Technology Center. Students also met local professionals in the cybersecurity and electronic warfare fields.

UMD The University of Maryland introduced a key cybersecurity course in fall 2017 with lab work to enrich the Electrical Engineering program taught at the Southern Maryland Higher Education Center.

Cybersecurity is a cross-cutting functional area and requires that all engineers understand what part they and their platforms play. This UMD cybersecurity course aligns with NAVAIR's internal cybersecurity workforce development efforts and will be a valuable introduction to the topic for anyone going to work for NAVAIR in a technical field.

CLASSICAL SCIENCES

The classical sciences section of the grant includes college programs in physics, math, chemistry, and psychology in support of NAWCAD Research and Development initiatives.

St. Mary's College of Maryland, in collaboration with NAWCAD laboratories, has placed students in NAWCAD R&D labs to develop solutions to real world problems. Students provide fresh perspectives on existing problems and the development of new technologies and methods to better serve the military. In return, subject matter experts at the lab provide students with a wealth of information and experience garnered from years of R&D work.

AUGMENTED REALITY

Augmented reality is cutting-edge technology with a variety of applications in everyday life. From military use on the battlefield and equipment maintenance and repair, to televised sporting events, AR augments real-world environments with virtual displays and objects.

TPP member RED-INC developed a mobile AR learning lab to support education outreach in the school system. The mobile lab is designed to give middle and high school students interactive, hands-on experience with AR. Over 900 students participated this year.

SMCM President's Trailblazer Award

St. Mary's College of Maryland President Tuajuanda C. Jordan presented the 2018 President's Trailblazer Award to The Patuxent Partnership.

The President's Trailblazer Award was created by President Jordan to honor those individuals or enterprises whose actions are notable "firsts" in the history of the College.

"Under the leadership of St. Mary's College alumna Bonnie M. Green, The Patuxent Partnership is an organization like no other in Southern Maryland," said President Jordan.

"Its mission is all about connecting – connecting things, people, and ideas. TPP's support has enabled our physics department to become a national model and enhanced the reach of our Center for the Study of Democracy. We are grateful for its support."

"TPP has a long and successful partnership with St. Mary's College of Maryland, and we are proud of all we have accomplished together to support STEM education and workforce development in support of the Navy mission," said Bonnie M. Green, TPP executive director.



St. Mary's College of Maryland photo

IPA PROGRAM

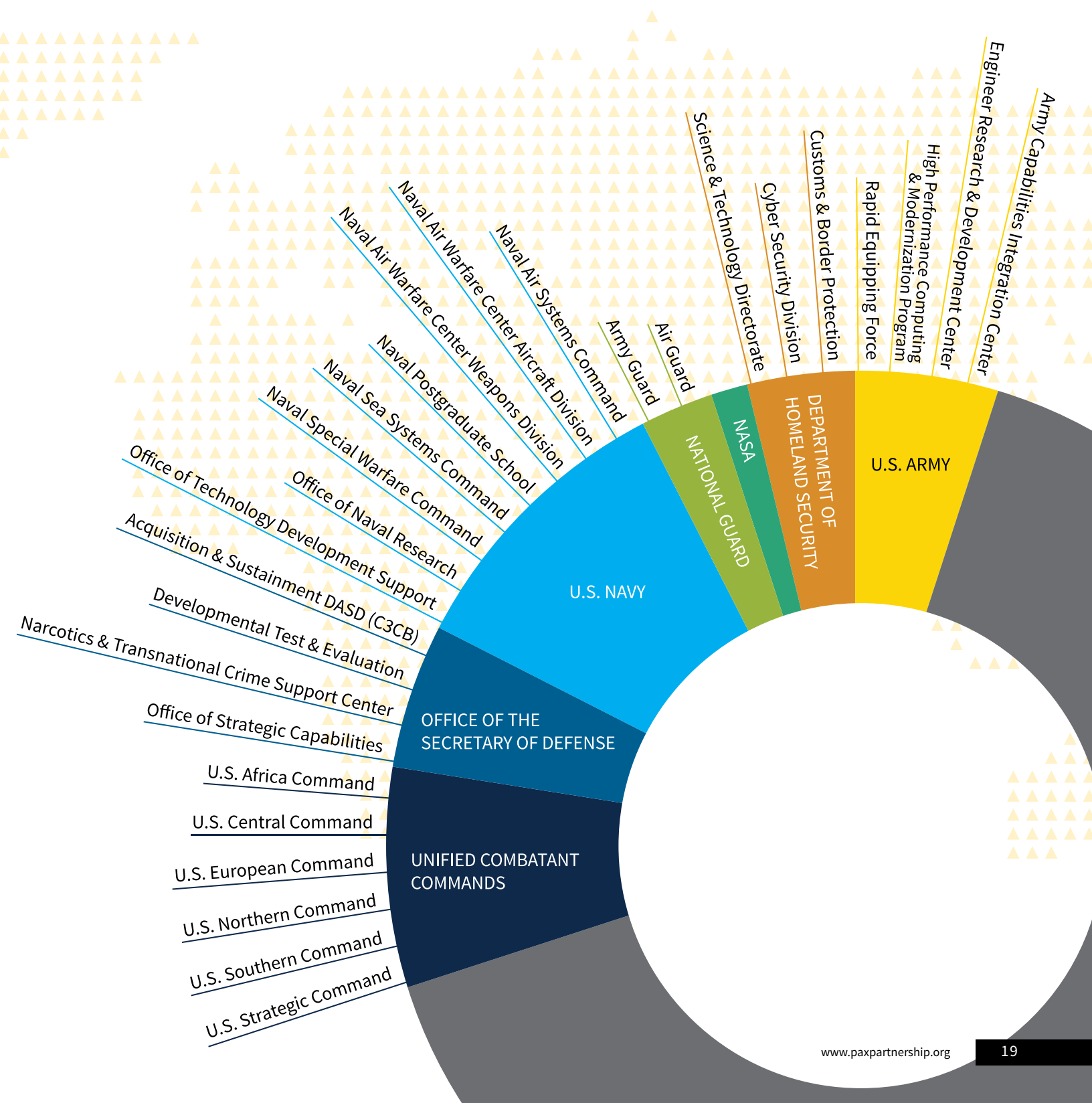
The Intergovernmental Personnel Act Mobility Program strengthens the government's capabilities and the accomplishment of agency mission requirements. The program allows for the temporary assignment of personnel between the federal government and eligible non-profit organizations. The IPA program is instrumental in the transfer and use of new technologies and other science and technology requirements, and promotes collaboration among government agencies.



TPP was authorized to participate in the IPA program in 1999 and has since developed long-term relationships with many federal departments and agencies, including the Departments of Defense and Homeland Security.

TPP employs subject matter experts and details them to federal agencies where they serve in senior positions to facilitate technology transfer and foster knowledge sharing across, within, and among government agencies, academia, and private industry. They are recognized experts in their fields, current in the latest technologies, and experienced senior-level managers.

With the insights derived from their work about emerging technologies and trends in science and technology development, our IPA employees help us strengthen our programs and foster big-picture discussions with our partners, members and the DoD throughout the year.



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Michael Wick

Provost and Dean of
Faculty, St. Mary's College
of Maryland

COMMITTEES

BOARD GOVERNANCE

The Board Governance Committee is responsible for ensuring that the board composition and structure is in compliance with the bylaws and contains a diverse group of directors capable of accomplishing the mission and objectives of the organization. The committee provides the Board with periodic review of board composition and terms, identifies new board member candidates, and keeps the Board aligned with its roles and responsibilities and with the organization's purpose.

FINANCE & ADMINISTRATION

The Finance and Administration Committee is responsible for ensuring the organization's financial stability by providing oversight on its budget and investments. The committee's primary role is to provide expertise needed to assure the full Board that the organization is on sound financial footing. To perform this role effectively, committee members need to work as a team with the Executive Director, Finance Director, as well as accountants, auditors, and other financial professionals.

ACADEMIC & OUTREACH

The Academic & Outreach Committee identifies and recommends initiatives and programs that are aligned with our mission and the TPP strategic plan. Committee members provide regional support for STEM education-related activities and identify new opportunities to support workforce development in S&T related fields.

STRATEGIC PLANNING

The Strategic Planning Committee is responsible for developing the organization's mission, vision, and goals through the creation and implementation of a comprehensive strategic plan to be implemented by the Board of Directors. The committee regularly reviews the organization's goals to ensure the strategic plan is in alignment with ever changing objectives of the community and Navy partners.



HEADQUARTERS STAFF

Bonnie Green

Executive Director

MaryKay Myers

Finance Director

Jen Brown

Programs & Membership Director

Bernice Carter

Executive Assistant
STEM Outreach Coordinator

Sarah Ehman

Communications
& Membership Manager

Michelle Reloba

Human Resources Manager
Bookkeeper

Kelly Taylor

Staff Accountant

Barbara Ives

ONR Grant Manager

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Become a member to gain access to exclusive member benefits, like members-only programs and events, our online knowledgebase, and our member network of 200 corporate partners and over 3,000 registered members and program participants.

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