NAVAL UNDERSEA WARFARE CENTER

DIVISION NEWPORT

150th Anniversary

19-NUWC/GRA0540

Undersea Superiority ★ Yesterday... Today and Tomorrow

Undersea Superiority

NAVSEA
WARFARE CENTERS
NEWPORT

Circa 1955

Yesterday... Today and Tomorrow

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150th Anniversary Steering Committee

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Welcome to NUWC Division Newport

The Naval Undersea Warfare Center Division Newport is celebrating our 150th anniversary!

Men and women have been in Newport, Rhode Island, for 150 years with the noble purpose of providing undersea superiority to the United States Navy. We began in 1869 when Adm. David Porter actively campaigned for the creation of an experimental station to conduct hands-on research with torpedoes, mines, explosives, and electrical devices to determine how these new technologies should be best employed.

"Undersea Superiority! Yesterday … Today and Tomorrow," is the theme for NUWC Division Newport's 150th anniversary celebration. In this program, we are spotlighting the years of dedication and hard work that have been a cornerstone of our command since formation as the Naval Torpedo Station on Goat Island in Newport Harbor.

At the heart of technological innovation in undersea warfare, the Naval Torpedo Station was founded as the U.S. Navy's first experimental ordnance facility. It pioneered the development of stationary and mobile torpedoes, explosives, electrical devices and other underwater weaponry. We even became a major producer of guncotton, manufacturing 10,000 pounds of this explosive compound from the early 1880s through early 1900s. The Mark V torpedo was developed here. During the World War years, women became a crucial component of the workforce for weaponry development, working at the torpedo station assembling primers. See more about our history on pages 3-13.

Did you know our command started with only six officers and three civilian employees? We now have nearly 3,400 employees! As we look to the future, Division Newport nurtures the best young minds with our Educational Outreach Program and diverse mentorship awareness. See more about our economic impact on pages 14-15.

Since 1869, the women and men of Division Newport have provided undersea superiority to our nation. We pay tribute to the long and historic tradition of innovation and strength through security, supporting the warfighter and the greatest Navy in the world!

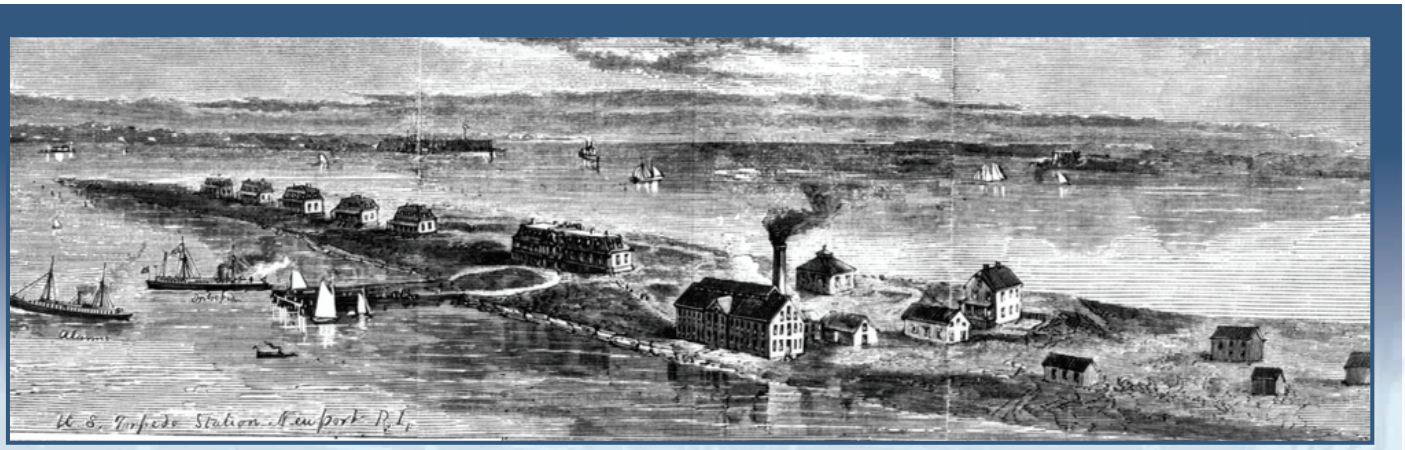
Naval Undersea Warfare Center Division Newport • Undersea Superiority! Yesterday … Today and Tomorrow!

CAPT Michael R. Coughlin
Commanding Officer

Ronald A. Vien, SES
Technical Director

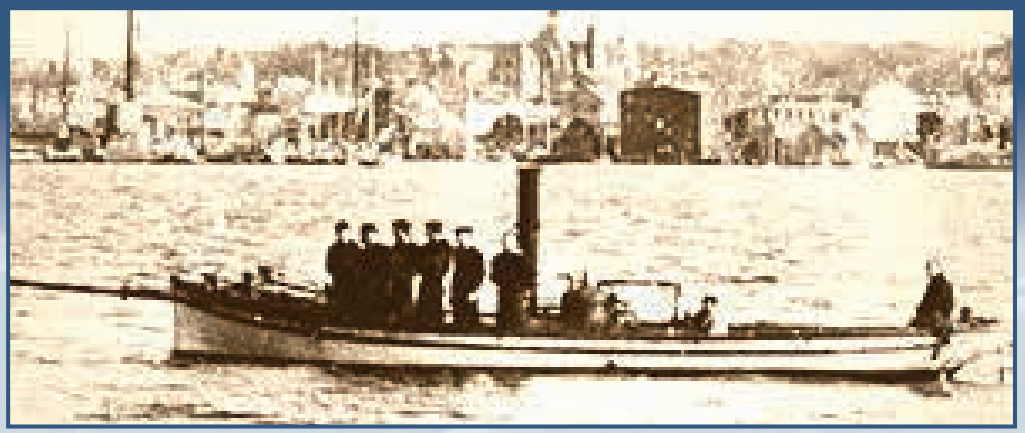
150 Years of Innovation

The Naval Undersea Warfare Center Division Newport is celebrating 150 years of excellence in undersea warfare! Men and women have been right here in Newport, Rhode Island, for 150 years with the singular purpose of providing undersea superiority to the U.S. Navy. Our vision has not wavered, Undersea Superiority: Today and Tomorrow, ensuring our Navy is the most advanced and most lethal fighting force the world has ever known.



July 29, 1869

Naval Torpedo Station (NTS) is established on Goat Island in Newport as the U.S. Navy's first experimental ordnance facility. Cmdr. Edmund O. Matthews serves as Commanding Officer until 1873. During his tenure he leads the development of numerous experimental underwater weapons, including torpedoes and explosives.



1870

NTS staff consists of six officers, while 20 officers are being trained in mine warfare at any one time. By the end of the year, the number of civilian employees has grown from three to 24.

1871

NTS builds and tests the U.S. Navy's first self-propelled torpedo, the Fish torpedo. Though it was never produced for combat, it is a significant achievement.

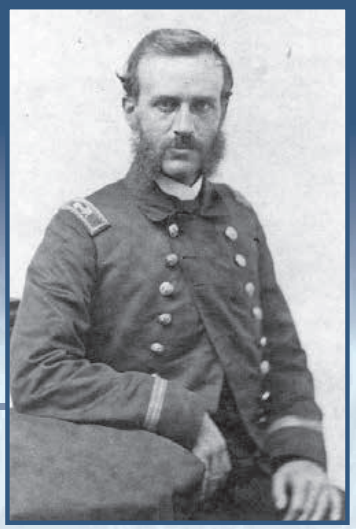
1873

NTS continues to conduct extensive testing on a variety of torpedo weaponry, including the Ericsson torpedo, the Spar torpedo and the first "Automobile torpedo" designs.

Officers' instruction is extended from an irregular schedule to 10 months of organized study. The modern Naval War College stems from this work.

Capt. Edward Simpson becomes NTS commanding officer for two years.

Yesterday... Today and Tomorrow



1875

Shortly after the three-year appointment of Capt. Kidder R. Breese as commanding officer, distinguished naval commanders and the Secretary of the Navy George M. Robeson, visit NTS to witness experiments and demonstrations of conventional stationary torpedoes (mines) and the new self-propelled torpedoes. Breese waives the customary 19-gun salute and welcomes these dignitaries with a 19-torpedo salute instead.

1877

The U.S. Telegraph Company lays cable to connect NTS with Newport, so the station could communicate directly with police, city officials, and businesses. This system is more convenient than the original, dispatching messages by boat across Newport Harbor. The fee for this access is $12.50 per month, until the widespread introduction of the telephone soon thereafter.

1881

The first serious incident is recorded at NTS when Lt. Cmdr. Benjamin Long Edes and Lt. Lyman G. Spalding are killed by the explosion of a torpedo because of mismanagement of an electrical switch.



1883-84

NTS becomes the major producer of guncotton for the U.S. Navy, producing 10,000 pounds of this explosive compound. It is stored on Rose Island, occupied by the War Department just northwest of NTS in Narragansett Bay. Though less energetic than dynamite, guncotton is more appropriate for volume production and fleet use, so it is universally used for torpedo warheads until 1912.

The steps to process guncotton included the nitration process (left photo), known as the nitrate bath. Prior to 1900, raw English cotton was picked apart by a machine (center photo) then washed in nitrate and taken to a separate building where the cotton was reduced to a pulp and solidified. To create the torpedo warheads, a saw (right photo) was used to cut the solidified pulp into the necessary dimensions.


1886

Charles Edward Munroe joins NTS as a chemist, and discovers the basis of explosive-shaped charges, called "The Munroe Effect." He later discovers smokeless gunpowder.

1892

Developed and built in Austria in the 1870s by English engineer Robert Whitehead, the Whitehead torpedo is finally licensed for production in the U.S. and is authorized for use in combat. It is actively tested at NTS.

Yesterday... Today and Tomorrow

1907-08

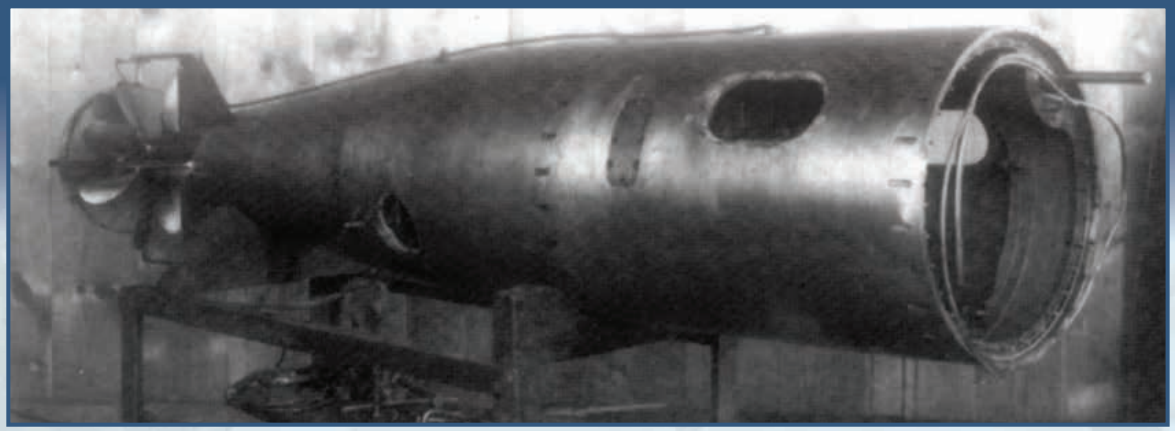
Construction on the Navy's first torpedo factory begins. In 1908, the "hot running" Whitehead Mark V is the first torpedo built by NTS, after a civilian contractor produced Mark I-IV as "cold running" torpedoes. The Mark V traveled five times farther than its predecessors. The Station held regular classroom instruction (above) on the torpedo.

1909

The federal government purchases a portion of Gould Island, a 56-acre tract located in Narragansett Bay. The rest of the island was purchased in 1918, and by 1920 NTS had established an Air Station where torpedoes were dropped from sea planes and later fired from a facility built on a pier.

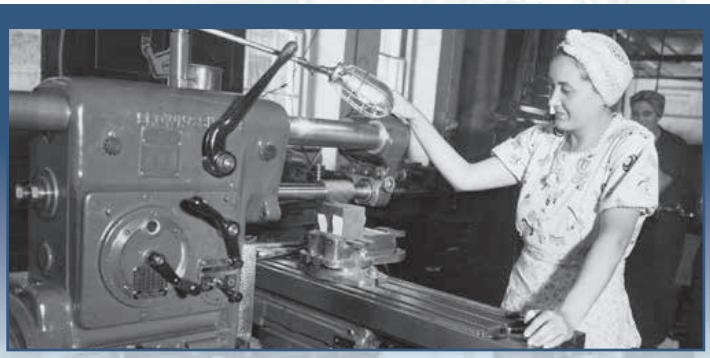
1917

U.S. enters World War I. Torpedo research and development is superseded by the manufacture of depth charges and sea mines. NTS pivots its work toward these efforts, including the development of the famed "ash can" depth charge used to sink U-boats. The Station's workforce grew to about 3,200 employees, with about 300 women workers starting in July, assembling primers for mines and depth charges.



1920-30s

With the war over, torpedo production resumes with NTS's best year yet — in 1920 the Station supplied the Navy with 2,000 torpedoes. Later that year, however, with peacetime talks prevailing, torpedo production is halted and budget cuts force NTS to revert to its prior research and development (R&D) work. In 1923, the Station completes the first experimental electric torpedo. Over the next five years, numerous successful tests and tweaks are done, however the solitary specimen is lost during a test, and funding is unavailable to build another.



1941-44

U.S. enters World War II. NTS intensifies its torpedo production, manufacturing more than 18,700 weapons. Given the rapid increase in the fleet's demand, however, NTS is unable to properly test weapons before deployment. As a result, there are a high number of missed attacks that indicate the torpedoes don't work. NTS fixes the issues in 18 months. The Station hires more than 13,000 employees, including a large number of women to support round-the-clock operations. Above, an NTS worker uses a horizontal milling machine.

1945-51

In 1945, the Navy Underwater Sound Laboratory (later merged with NUWC) begins operations in New London, Connecticut, as the center of sonar development for both surface ships and submarines.

All ongoing R&D is consolidated at the nearby Coddington Cove annex, under the new Naval Underwater Ordnance Station (NUOS). NTS, shown above in 1951, is soon disestablished.

Yesterday... Today and Tomorrow

1954

With the launch of the USS Nautilus, the world's first nuclear-powered submarine, the Navy needs advanced systems to effectively operate the submarines and its systems.

NUOS engineers and scientists work to address the challenge of a submarine's unlimited endurance to stay submerged.

1961

The first professional women are hired in Newport, mostly as mathematicians, following the hiring of women at the Navy Underwater Sound Laboratory (NUSL) in New London, Connecticut. Soon after, women are hired as mechanical and electrical engineers, physicists and scientists. This highly trained and diverse workforce, many with advanced degrees, began to explore the latest technologies and to develop new and highly sophisticated systems.

1963-66

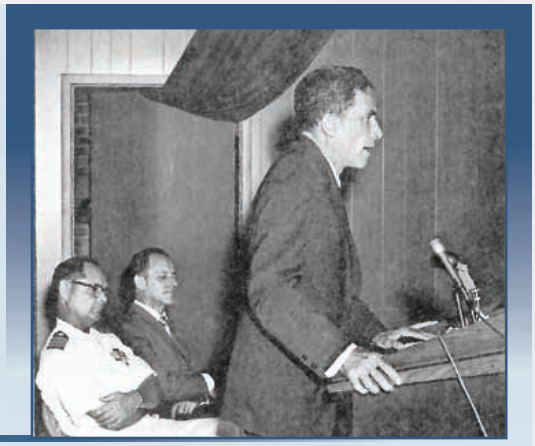
Housed under NTS from 1941-1945 to coordinate wartime torpedo production, the Central Torpedo Office (CTO) is renamed the Naval Underwater Systems Engineering Center in 1963, to accommodate its added mission of operational fire control systems and launchers. In 1966, the center merges with the Naval Underwater Ordnance Station (NUOS) to create the Naval Underwater Weapons Research and Engineering Station (NUWS).

Mid-1960s

NUOS becomes a major contributor to the development and testing of advanced heavyweight, electrically propelled torpedoes, including reducing radiated noise; improved operating depths; adding speed control; enhanced exploders; drag reduction; and improvements to two-way wire communications. In the 1965 photo above, Robert White and Elmer Siebens work on a torpedo propulsion motor speed control system in the Electrical Propulsion Laboratory at NUOS.

1967

The Atlantic Undersea Test and Evaluation Center (AUTEC) on Andros Island in the Bahamas begins operations as a deep-water test and evaluation range.



1969

NUWS celebrates 100 years of naval weapons prowess with seminars, a ball, a family day and other festivities. Rhode Island Sen. Claiborne Pell gives the ceremonial address.

Yesterday... Today and Tomorrow

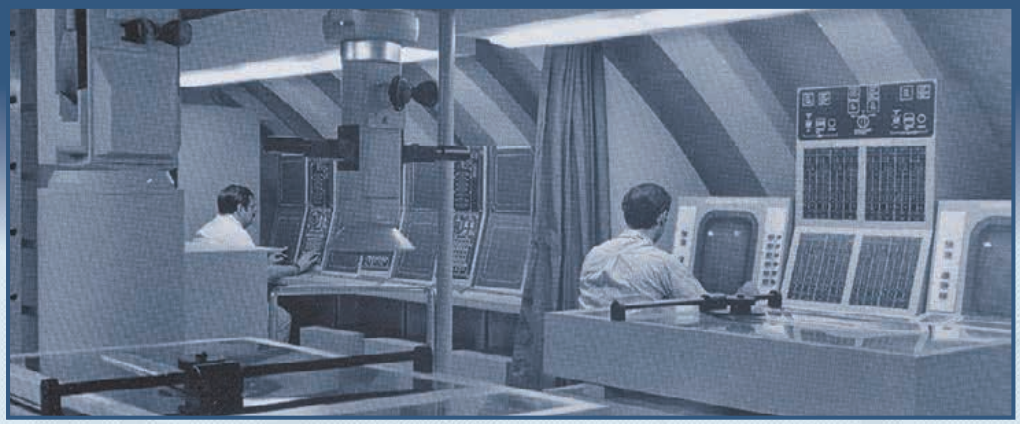
1970

NUWS and NUSL in New London, merge into the Naval Underwater Systems Center (NUSC) to support submarine warfare.

Congress approves $754,000 for construction of a three-level, 25,000-square-foot laboratory for research and testing of the Mark 48 torpedo.

1978

To counter the growing submarine threat worldwide, NUSC addresses the need for a larger, lightweight and software-controlled torpedo, applying mini-computers and digital technology to a 16-inch warhead. It initiates the Advanced Capability program to develop a high-performing digital homing system, and becomes the technical direction agency for the Mark 117 torpedo all-digital fire control system.



1980s

The advent of the scientifically designed torpedo, sonar systems, communications systems and other submarine-based systems — all with digital software — introduces a new era of technical and system-level challenges. In response, NUSC develops the Mark 1 Combat Control System, with the Mark 117 as the focus of an integrated weapons system for submarines. The Submarine Operational Test Bed (internal view above) is built as a full-scale submarine mockup for combat system operational evaluation.

Undersea Superiority

1992

After a sweeping strategic naval repositioning and fleet reduction in the late 1980s and early 1990s, a Base Realignment and Closure process is implemented. As a result, NUSC and its Keyport, Washington, counterpart are restructured as the Naval Undersea Warfare Center (NUWC). NUWC Division Newport maintains its testing and R&D mission, including development of unmanned underwater vehicles; demonstration of an underwater projectile breaking the sound barrier; and technology development for periscope and electronic warfare components. The NUSC New London Laboratory is closed, and personnel and functions are moved to Division Newport.

2000

NUWC Division Newport continues to lead the charge in full-spectrum submarine weapons development, from new technology in existing weaponry designs to sonar processing, as well as the production of cutting-edge autonomous undersea and surface vehicles. With its strong technical capabilities and its long history as a leading innovator, NUWC Division Newport is well positioned to fill its responsibility to provide advanced undersea combat systems for submarines by providing unbiased technical advice and innovative solutions to the U.S. Navy.

2001-05

After the attacks on America on Sept. 11, 2001, the War on Terrorism and Operation Enduring Freedom require development of faster, smarter technological capabilities.

In 2005, “Superiority from Seabed to Space” becomes the mantra of the 21st century U.S. Navy.

Yesterday... Today and Tomorrow

2015

The first Annual Naval Technology Exercise (ANTX) is held at NUWC Division Newport. Later changed to the Advanced Naval Technology Exercise, ANTX is duplicated across NAVSEA and in the Marine Corps as a way to test new technologies and collaborate with industry partners.

2016

Testing and evaluation of Virginia-class systems, both dockside and at sea, get underway. A comprehensive review of all test data was completed at NUWC Division Newport and preliminary assessment of torpedo placement indicated positive weapon system effectiveness. All platform torpedo tubes and vertical launch system tubes were fully tested with no material issues identified. Additionally, sensor accuracy testing showed that systems performed well.

2018

In direct support of the Chief of the Naval Operations, NUWC Division Newport quickly revitalizes a missile that had not been fired from a U.S. submarine in more than 20 years. Within one year, the legacy missile Harpoon is made ready for fleet engagement and is demonstrated as a significant capability for the U.S. Navy.

2019

NUWC celebrates its 150th anniversary, with a week of events including the dedication of a new monument.

Division Newport's Economic Impact

The total funded program of NUWC Division Newport reached $1.12 billion in 2018. Of its total operating budget, $926.6 million was spent by Division Newport in payroll, construction, facility support, and contracts issued. The command is the largest federal activity in Rhode Island in terms of personnel and payroll.

Division Newport's employee base includes 3,332 government civilian employees and 41 military members with a total gross payroll of $352.2 million. Of the full-time government civilian staff, 72 percent are classified as scientists or engineers, and approximately 28 percent have graduate degrees.

In addition to the government workforce, Division Newport contracted for approximately 2,602 work years during 2018 from companies located in Rhode Island, Massachusetts, and Connecticut, bringing its combined government and contractor workforce to more than 5,934 positions.

Money spent for contracts totaled approximately $537.8 million, with contracts obligated to Southern New England companies during the year exceeding $340 million. The breakdown included $287.8 million awarded to Rhode Island-based businesses, $41.8 million issued to Massachusetts-based companies, and $10.7 million obligated to Connecticut businesses. Construction contracts totaled $13 million, with an additional $23.7 million spent on facility support contracts.

Summary of NUWC Division Newport's 2018 Economic Impact on Southern New England

Civilian Payroll	$349.8M
RI	$237.9M
CT	$26.2M
MA	$64.7M
Other	$21.0M
Military Payroll	$2.3M
Contracts Issued	$537.8M
RI	$287.8M
CT	$10.7M
MA	$41.8M
Facility Support	$23.7M
Construction Contracts	$13.0M
TOTAL	$926.6M

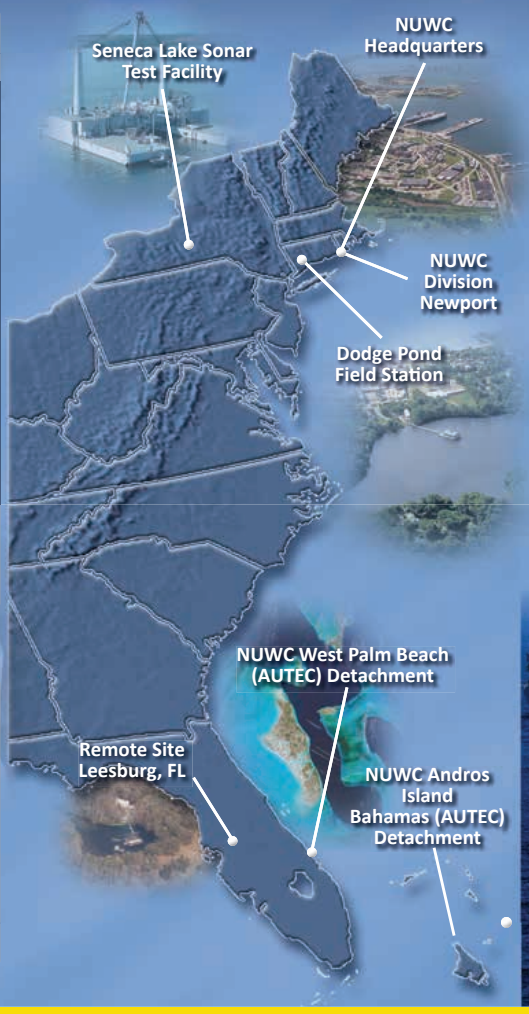
Personnel

Of 3,332 full-time permanent civilian employees, approximately 72% are classified as engineers or scientists.

918 employees hold advanced degrees:
- *149 have Ph.D.s and 769 have Masters degrees*

41 military personnel are assigned to the Division

NUWC Division Newport
Newport Site and All Detachments



2018 Economic Impact

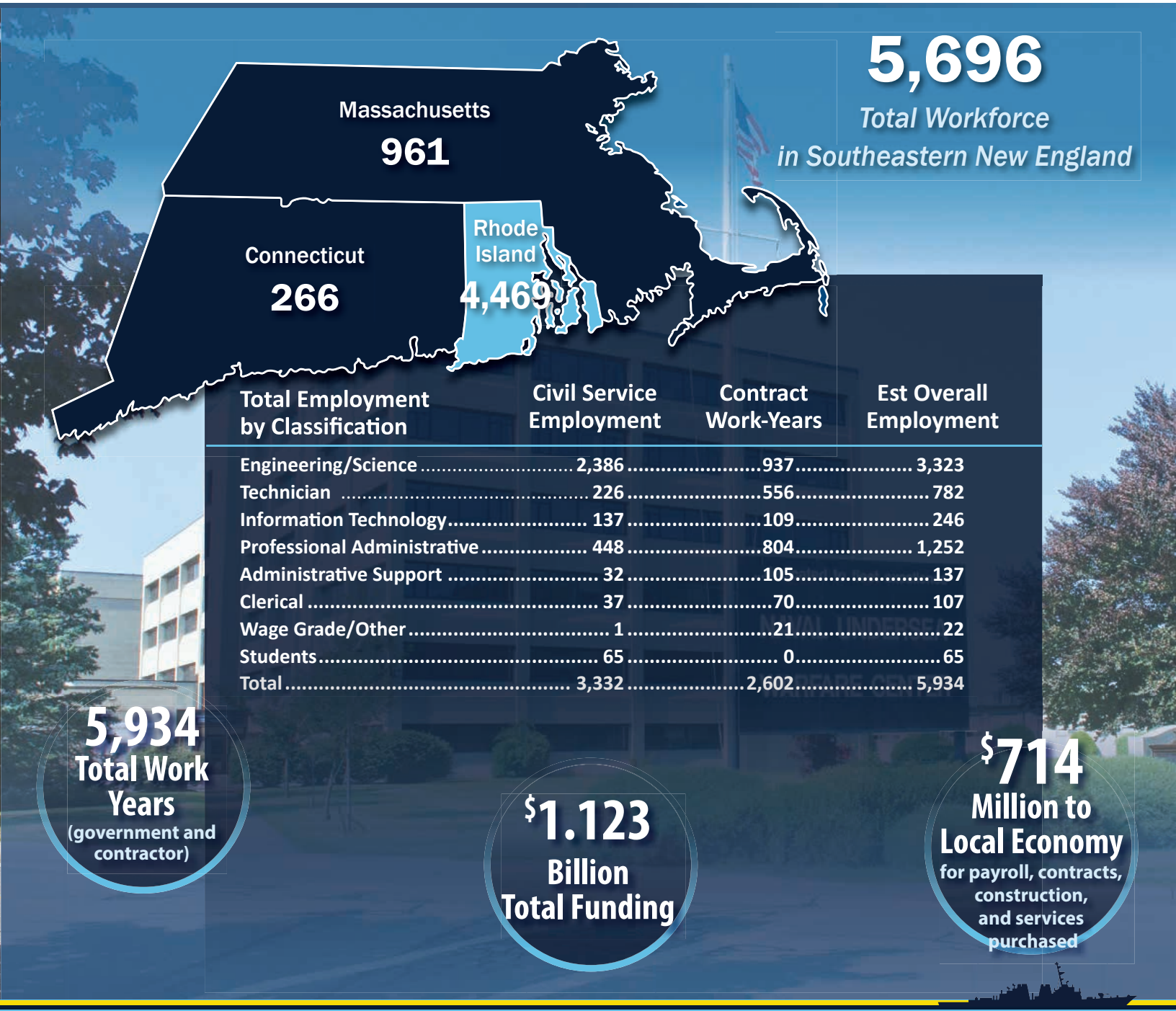
on Southern New England

Naval Undersea Warfare Center
Division Newport, RI

Division Newport's Employment Impact

Division Newport is one of the two divisions of NUWC. Its mission is to support NUWC by providing research, development, test and evaluation, engineering and fleet support for submarines, autonomous underwater systems, undersea offensive and defensive weapon systems, and countermeasures associated with undersea warfare. The range of Division Newport's efforts extends from participation in fundamental research to support of evolving operational capabilities in the fleet, with the major thrust being in applied research and system development.

Division Newport is the largest federal activity in Rhode Island and is a major contributor to the economy of Southern New England.



5,696
Total Workforce in Southeastern New England

Total Employment by Classification	Civil Service Employment	Contract Work-Years	Est Overall Employment
Engineering/Science	2,386	937	3,323
Technician	226	556	782
Information Technology	137	109	246
Professional Administrative	448	804	1,252
Administrative Support	32	105	137
Clerical	37	70	107
Wage Grade/Other	1	21	22
Students	65	0	65
Total	3,332	2,602	5,934

5,934
Total Work Years
(government and contractor)

$1.123
Billion
Total Funding

$714
Million to Local Economy
for payroll, contracts, construction, and services purchased

The Workforce: NUWC Division Newport's Heartbeat

When Jose Feliu was recruited to Division Newport from the University of Puerto Rico nearly 25 years ago, he was unsure what his future would bring. Leaving home for a new job in mainland America, with $1,700 borrowed from friends, Feliu had three days to find a place to live and reliable transport to and from work. With no family or friends nearby who could help with his transition to American life, he had one chance to make it work.

It was a difficult first step for the young engineer, but he persisted. Inspired by his own experience, he decided to create his own family by making relocation smoother for the handful of Puerto Rican recruits who are hired by NUWC every year. They now have their own community, celebrate holidays together and rely on each other for the comforts of home.

"I wanted them to experience a warm welcome," Feliu said to a crowd of 200 employees at a speaker's series event in June. "When I left Puerto Rico I was not sure what would happen. And now I am home."

His story of perseverance and triumph, with a shared sense of purpose to support the U.S. Navy fleet, is one that Division Newport fosters throughout its more than 3,300 federal civilian employees. Since the Naval Torpedo Station was established in 1869, this diverse workforce has been the heartbeat of that mission.

Jose Feliu was hired by NUWC Division Newport from the University of Puerto Rico nearly 25 years ago, and at the time was unsure what his future would bring. With Feliu's assistance, Division Newport has hired more than 80 employees from Puerto Rico in the past 20 years.

At the forefront of innovation, it is leading the conversations about diversity and inclusion, recruitment and mentoring.

"At the end of the day, NUWC is a family of diverse people with the same purpose in support of the fleet," said Norma Lopez, head of the Combat Systems Trainers in the Undersea Warfare (USW) Combat Systems Department. The workforce and contractual support in her branch nearly doubled in the past five years.

"All of them come together, to share their talents and characters and they have a great appreciation for their role in our team, for the purpose of supporting the fleet," she said. "The team dynamic puts me in awe, because I see it working every day, across the whole base."

A display celebrating Puerto Rican culture, one of 12 cultures celebrated during NUWC Division Newport's 32nd annual International Day, offers non-alcoholic piña coladas and lots of comradery. The annual event was held Nov. 6, 2018.

New approaches to recruiting

Bringing new approaches to processes for engineering and undersea weapons development means the command must have a broad reach to attract the brightest stars in the nation.

Hector Lopez, head of Weapons, Vehicles and Defensive Systems Department, currently leads some recruiting efforts across the country and in Puerto Rico. Hired by Division Newport in 1991, also from the University of Puerto Rico, he knows there is tremendous value in thinking bigger.

"Having a diverse workforce at Division Newport would be harder to accomplish if we didn't do recruiting outside our local area," he said. "If you want to have diversity at all levels of the organization, it starts by having diversity at the base of the workforce pyramid."

Henry Banas (left) and Hector Lopez man the grills during the Employee Appreciation Picnic held on Oct. 11, 2018.

Mary Cordeiro (right) speaks with potential hires during a NUWC Division Newport job fair held on May 20, 2015.

Recruiting efforts in Puerto Rico started showing clear improvement with Feliu's involvement, and have expanded to multiple universities on the island. There are currently more than 80 employees from Puerto Rico in our organization. Division Newport is pushing this conversation, seeking out candidates who will be champions for engineering and the command.

"These are non-traditional solutions we're looking for. We have to have diversity of thinking, ideas and experience, not homogeneity," Hector Lopez said. "We want a diverse pool of candidates, so we actively recruit more than 300 people across the country, including universities in Florida, Georgia, Alabama, North Carolina, New York, New Jersey and Puerto Rico. Most importantly, we want to bring people on board who will be able to integrate into our organization and have successful careers as civil servants."

Continued on page 18

Hector Lopez speaks to industry representatives on Sept. 1, 2016.

The future is in diversity

Continued from page 17

Diversity has become more than just a buzzword across Division Newport — diversity has become part of NUWC's mission. Attracting and retaining an inclusive workforce is a key component to serving the needs of the fleet, and that diversity ranges from gender to race to sexual orientation and to cultural differences.

"Affirmative action was a good thing in theory, but we have to afford everyone an opportunity," said Kendra Spencer, financial lead in the Business Operations Division in the Undersea Warfare Electromagnetics Systems Department.

"I am committed to providing equal employment opportunities for all employees," Commanding Officer Capt. Michael R. Coughlin said. "To accomplish our mission, we must work together to ensure an inclusive workplace environment where every individual is treated with dignity and respect."

Indeed, the real look of equality in the workforce is more than hiring and talking about it. "It's about what leadership does to support us once we walk through the door," Spencer said. "NUWC does a lot, and that is refreshing."

Norma Lopez cited an example in that she earned her master's degree in computer science with the financial assistance of Division Newport.

Norma Lopez, head of Combat Systems Trainers in the USW Combat Systems Department, has seen the workforce in her branch nearly double in the past five years. "At the end of the day, NUWC is a family with a diverse purpose," Lopez said.

Sravanthi "Sree" Bodana, head of NUWC Division Newport's Software Engineering Branch in the Platform and Payload Integration Department, serves as the special emphasis program manager for American Indian and Alaskan natives. Recently selected for a two-year assignment by Naval Sea Systems Command, Bodana serves on NAVSEA's 25-member panel for the Inclusion and Engagement Council.

Spencer, who serves as a special emphasis program manager and change agent at Division Newport, also earned her master's degree in accounting in 2005, with Division Newport's help. She was later one of 12 employees selected to participate in the first Leadership in a Diverse Environment training in 2017.

An advocate for Division Newport's African-American workforce, Spencer now plans events to discuss diversity and equal employment opportunities. To honor Black History Month in February, Spencer coordinated a display and lecture series with two keynote speakers, including retired four-star Adm. Cecil Haney, who addressed disturbing trends in the global security environment, and G. Lee Floyd who discussed cross-cultural communication and coaching.

"I received so many phone calls from people saying how refreshing that was and how grateful they were to have that display at Headquarters," she said. "It was a really good thing. It shows that our top leadership is focusing on diversity, and that diversity is important to Division Newport."

It has taken some time to get there, however. Before the World War years, women were scarce in the workplace, but they filled a need when men were sent to battle. They quickly proved more valuable than a temporary replacement, and were added to the roster of permanent employees. Now women are here in force.

"When I first came here, there weren't many women. The percentage of female scientists or engineers was in the single digits," said Candida Desjardins, head

of the Educational Outreach Program, who has been at Division Newport for 38 years. "There are more now, but we still have room to grow."

Dawn Vaillancourt, head, Strategic Planning Office, is one of the women in leadership who has been vocal about the need for diversity and inclusion at the command. A former administrative assistant, she pursued all available opportunities at Division Newport, which resulted in obtaining two mechanical engineering degrees from the University of Rhode Island. Now, 34 years into her career, she is a champion for diversity, planning events such as a speaker series that brings more exposure to unconscious biases that may exist in the workplace.

Dawn Vaillancourt (left), head, Strategic Planning Office, is one of the women in leadership who has been vocal about the need for diversity and inclusion at the command. Above, Vaillancourt discusses a project during a New Professional Poster Session.

Having attended the Warfare Center-sponsored Leadership in a Diverse Environment (LDE) event, Vaillancourt, along with Esther Thatcher and Equal Employment Opportunity Office Deputy Matt Souza, led Newport's LDE follow-on activity with the help of change agents from across the command. Change agents, like Spencer, engage in all demographics to set up events that target their professional growth.

"It's about education and awareness of some of the issues that people face," Vaillancourt said. "We strive for inclusion and engaging the workforce at all levels so they feel like they're part of the team."

Continued on page 20

Retired four-star Adm. Cecil Haney (seated center) had lunch with new professionals during his visit to Division Newport to celebrate Black History Month on Feb. 14, 2019. Seated with the admiral are Kendra Spencer (left), Division Newport's African-American special emphasis program manager, and NUWC Division Newport's Technical Director Ron Vien (right).

Mentors assist workforce development

Continued from page 19

Mentoring has become a crucial element for workforce development and training. This informal initiative gives new hires and long-standing employees an opportunity to connect, learn from each other and provide guidance when needed.

"It was important to me to have mentors to encourage me to apply for new opportunities," said Ann Turley, head, Surface Ship and Aviation Systems Division of the Sensors and Sonar Systems Department.

Hired at Division Newport in 1995 as a combat systems engineer, Turley said she wanted to share some of that support she received.

"I felt I had a responsibility to do more for the organization, and to help others become leaders," she said. "I appreciate that opportunity."

Spencer and Desjardins also benefited from mentor relationships, and pursued job-growth opportunities where they would not have otherwise applied. From career planning to finances and how to prepare for an interview, Spencer said, "mentors were crucial for me."

"I didn't realize how important it was to have mentors, but it is essential. I applied for promotions many times thanks to their encouragement. Now younger staff call me for advice, and I love strategizing with them," Spencer added.

Ann Turley, head, Surface Ship and Aviation System Division, believes that mentoring is a crucial element for workforce development and training. Turley has developed a presentation on women and their various roles at NUWC throughout the years, which she presents yearly to the workforce.

Recruitment and inclusion continued to be critical to secures success for all employees at Division Newport. It has resulted in a command that excels at meeting the Navy's needs in undersea warfare.

"We want to increase inclusion, not create unfair advantages for one group of people over another," Turley said. "That would further isolate them. We try to make things better for everyone, not just women or minorities or any other group."

Division Newport was recently honored with an award recognizing its recruitment efforts on social media, specifically Facebook and LinkedIn. In 2018 alone, more than 325 people were hired for federal government service at the command. These employees represent a diverse generation who are building the Navy of the future.

"It's proven that diverse teams provide better results and solutions, because they have different ideas and opinions. So we'll keep striving to achieve diversity," Hector Lopez said. "My utopia will come when we don't have to discuss the importance of diversity anymore. It's just the norm."

Division Newport was recently honored with an award recognizing its recruitment efforts on social media. In 2018 alone, more than 325 people were hired for federal government service at the command. These employees, such as those hired in April 2019 (above), represent a diverse generation who are building the Navy of the future.

Our Workforce

NUWC Division Newport alumni reunite for 150th anniversary

The sense of comradery at Division Newport remains long after retirees depart their long-standing professional post. So when they are reconnected, it's like a family reunion. Such was the sentiment at a special alumni luncheon held on June 5 at McGovern's Restaurant in Fall River, Massachusetts, in honor of Division Newport's 150th anniversary.

"We wanted to do a lunch for the retired folks and those who still work here so we could see them and they could see each other," Terry Cunha, who co-organized the event, said. "There were 79 people there, and it was great."

Welcoming about 50 retired employees from across all departments and decades, with 29 current NUWC Division Newport employees, Cunha said she even saw one gentleman there who had retired in the 1970s.

"The different departments were definitely well represented," she said.

The event opened with a few remarks from co-organizer Bev Ferris, who welcomed everyone and asked for a moment of silence to mark the passing of retirees during the past year. She introduced Public Affairs Officer Jeffrey Prater who shared details about Division Newport's 150th anniversary celebration this year.

"So many people told me they were so glad we did this," Cunha said. "Afterwards people hung out to talk. It was a great opportunity to catch up. It was a great success."

Retiree reunions are held three times a year – the first Wednesday of June, September and December. To be added to an email list for the events, contact Ferris at 401-855-4292.

NUWC Division Newport pays tribute to those who made the ultimate sacrifice

Gray skies above served as a solemn backdrop on May 23 as the Naval Undersea Warfare Center Division Newport paid tribute to employees who have died in the line of duty while in service to our country.

"As we build the Navy we need for our nation, the agility in our forces and our workforce, it's very important to reflect on the civilians who lost their lives for our nation," said Rear Adm. David Goggins, Program Executive Officer for Submarines, who was the principle speaker at the Memorial Day Remembrance ceremony. "They're also warfighters, in my opinion, and have done a great service for our country."

Goggins, Division Newport Commanding Officer Capt. Michael Coughlin and Technical Director Ron Vien were the featured guests, accompanied by about 75 employees.

"I think back to President Abraham Lincoln delivering the now-famous Gettysburg Address in 1863, and a portion of that short but immortal speech reads: 'We have come to dedicate a portion of that field as a final resting place for those who here gave their lives so this nation might live. It is altogether fitting and proper that we should do this,'" Coughlin said. "It continues to be fitting and proper that we celebrate, once per year, the Americans that have given their lives in defense of our country and our way of life."

Public Affairs Officer Jeffrey Prater explained that NUWC is celebrating its 150th anniversary this year, shared NUWC's history and then talked about 34 individuals who have lost their lives in service. The remembrance concluded with a wreath-laying ceremony while R.I. Army National Guard member Sgt. William Chilton played taps.

Prater opened the remembrance by talking about the history of the monument, which was erected in 1930 at Government Landing in downtown Newport under the auspices of the Newport Metal Trades Council, but was later relocated to its current location at Division Newport.

"On May 27, 1966, a ceremony, with Frank Smith, president of the Local 119, International Association of Machinists presiding, marked the relocation of the station's memorial," Prater said.

After Petty Officer Adam Upleger tolled the bell in honor of those men lost in service here, Prater noted that two new names recently were added to the monument, including Lt. Cmdr. Benjamin L. Edes and Lt. Lyman G. Spalding who were killed by an accidental torpedo explosion in 1881.

More information on those who died in the line of duty can be found at: www.navsea.navy.mil/Home/ Warfare-Centers/NUWC-Newport/Who-We-Are/History/In-Memoriam/

Spotlight on Expertise: Go-to Guy

Facilities man Ray Perry has kept NUWC Division Newport shipshape for 50 years

For more than 50 years, administrative technician Raymond Perry has taken care of everything at NUWC Division Newport that needs fixing, plowing, mowing, cleaning or set up.

Busted windows and leaking sinks? Call Ray Perry. Gardens need mulching, lawn needs mowing? Call Ray Perry. Need a tent and chairs, podium and microphones for a special event? You got it. Call Ray Perry.

For more than 50 years, administrative technician Raymond Perry has taken care of everything at NUWC Division Newport that needs fixing, plowing, mowing, cleaning or set up. The extent of his work spans the entire 190-acre campus, from the smallest broken doorknob to the biggest event with VIPs.

He's the man in the background, directing hundreds of employees coming in and out day after day to ensure NUWC puts on its best face. So when people don't know Perry is there, that means he's doing a good job.

When a blizzard in 2005 dropped a foot of snow, Perry remembers working three days straight through the weekend to ensure roads and pathways were cleared.

"It was up to the windows, all you could see was the building sign," he said, pointing out the front window of Building 679 and shaking his head. "We had to pile it on the lawns, in the drainage basins and wherever we could. I didn't get home all weekend to shovel my wife out of our house, and we still had to close campus the following Monday. It was bad."

From the worst of times to the best of times, one of his favorite days was setting up the event that is now known as ANTX. He was, and still is, the logistical go-to guy, from the tents and shuttle buses to the portable bathrooms and exhaust fans for those hot August days where hundreds of people exhibited the newest projects in naval undersea warfare technology.

"It was so great because it just came together," Perry said. "There were a lot of people involved, it wasn't just me. It was fun, but it was a lot of work. I even cooked the battery on my cell phone."

This jack-of-all-trades just likes working with his hands, so he started his career as an electrician and then worked as a tradesman at Division Newport's Facilities Department for 30 years. Perry learned of the opening in the Facilities Department at NUWC, was hired and found he loved the work.

"I used to do all my own service calls, and just worked my way up," he said.

The challenging environment at Division Newport appealed to his on-the-go nature and kept him coming back for five decades. Hands on is just the beginning for Perry, who admits he's slowed down a bit in recent years, and now leaves the heavy lifting to the younger men and women.

With no retirement plans yet, this 74-year-old is dedicated to keeping NUWC shipshape.

"One minute you're doing surveillance of the grounds crew, next minute you're on the roof trying to chase down a leak," he said. "That's one of the best things of this job, it's always something different."

Perry sets up safety barriers for the NUWC Division Newport Employee Picnic held on June 25, 2008.

Perry (right) waters a tree after an Arbor Day planting held on April 26, 2012.

Spotlight on Expertise: Problem-Solving Machine

Tony Bruno looks for high-risk ideas in anti-submarine warfare

Tony Bruno at the beginning of his career when assigned to the Naval Underwater Sound Laboratory in New London, Connecticut.

Engineering new solutions for anti-submarine warfare is a daily task for Tony Bruno. This engineer, mathematician and physicist plays with models, sensors and hardware, to solve weapons and technology problems in the fleet. After more than 50 years, he doesn't appear to be slowing down.

Passionate and dedicated, Bruno has been commuting to Division Newport from his Connecticut home since the NUWC Detachment Lab in New London, Connecticut, was merged with Division Newport in the late 1990s.

"I really enjoy this hands-on technical work," he said. "I have advocated for non-traditional, non-acoustic sensors for a good part of my career. Traditionalists look at acoustics. I firmly believe there are other things in the environment that we need to take a look at and take advantage of."

Bruno spent 25 years working on novel underwater sensor methods in New London, doing numerical and analytical modeling, as well as developing prototype hardware for experimentation. He would spend weeks at a time at sea, sometimes bringing with him 4,000 feet of underwater cable to test different types of extremely low frequency receiving antennas.

"It was fun out in the fleet – I'd get to interact with the officers and crew, and make the warfighter's job easier while staying out of their way," he recalled.

Once in Newport, Bruno experimented in management for six years as deputy competency head of the test requirements and conduct competency division, where he was in charge of sensor calibration and survivability, data recording in the days of analog software, plus reliability, maintainability and accessibility of thousands of the fleet's sensors.

Myriad technological challenges will perpetually exist for the fleet, so Bruno has no shortage of work. He experimented with finite elements solving complex wave equations, and built models to explain fluid mechanical and electromagnetic issues. He has researched how to get non-traditional sensors into all sorts of mechanisms, from gliders to warheads.

"We can't always put cables out there to a fixed sensor field, so it's a lot easier to throw a wave glider over the side of a ship and let it do its thing," he explained. "But we have to figure out their power source, how they'll propel themselves, and have consistent communication of data back to the fleet."

Bruno is a one-man problem-solving machine with seven electromagnetic communications and sensor systems patents to his name. Now his interest in modern wave gliders, and their potential over fixed sensors, is part of a joint wave glider test and evaluation program with the Pentagon's Warfighting Lab Incentive Fund.

"We provide technical solutions that are put together by engineers who are constantly working to make it better," he said. "The solution isn't always more information. Sailors on deck are overloaded and can only process so much to figure out what's going on. So we take all this data and process it internally, then get it to the people who can use it."

Looking ahead, Bruno has lots of high-risk ideas that he'd like to develop, because he knows America's adversaries are forging ahead. We can't get complacent, he said.

"So that's what I'm trying to do – re-establish off-the-wall research, development and testing, to help solve the surface and undersea warfare problem."

Looking ahead, Bruno has lots of high-risk ideas that he'd like to develop, because he knows America's adversaries are forging ahead. Bruno (center) shared his years of experience during a lecture held on Nov. 11, 2015.

Bruno shares his expertise, as an engineer, mathematician and physicist, with a co-worker during the New Professional Poster Session held on Sept. 7, 2017.

Spotlight on Expertise: STEM Advocate

Candida Desjardins teaches future engineers and scientists

Candida Desjardins, head of Division Newport's Educational Outreach Program, brings science, technology, engineering and mathematics to middle and high school students.

Growing up in the 1970s at the tail end of the women's liberation movement, Candida Desjardins was told by her family and peers, by society and by her internal motivation that she could pursue any profession she wanted. So she asked herself: "OK, so how do I make the biggest difference?"

Teaching came naturally to the effervescent and independent young lady, but it didn't pay much. She always loved math, so Desjardins decided to pursue that field by studying at UMass Dartmouth.

"Back then, math majors went into teaching or computer science, because there was no such thing as a computer science major at the time," she said.

Since her dad worked at the U.S. Navy base in New London, Connecticut, Desjardins admired the naval facilities in New England. So the day after she graduated in 1981, she naturally stepped into a job at NUWC Division Newport programming range software in the Test and Evaluation Department.

Exactly 38 years later, she is still at Division Newport, having combined her love of math and teaching to create and sustain NUWC Division Newport's indomitable Educational Outreach Program. Working with students ages 9-18 in largely underprivileged communities, Desjardins is helping to develop the science, technology, engineering and mathematics (STEM) fields. Advising the award-winning underwater robotics team at Rogers High School in Newport, she also trains math teams to compete at state and regional competitions, and teaches fourth and fifth grade students in New Bedford, Massachusetts, about marine science and many other topics.

"The need for STEM has been documented, and we're being a good community steward," she said. "It's good for the community and us."

Starting with a few hundred students in 2006, her program has expanded to more than 5,000 students annually across Rhode Island and Southern Massachusetts.

"I'm in schools every day of the week, and nine weeks of the summer," she said. "We're trying to light a spark, and give them an opportunity to keep going."

Engaging more than 250 NUWC Division Newport staff volunteers in these fields, including Spanish-speaking female engineers and minority volunteers, Desjardins said the students are encouraged to pursue STEM careers because they see that their dreams are possible.

"There are a lot of students in the robotics programs who would love the opportunity to pursue this line of work professionally, and having the staff at NUWC Division Newport encouraging them is the push they need," she said.

As a subtle tool for NUWC recruitment, this program encourages professional engagement with these students, some of whom go on to apply for jobs at NUWC Division Newport or government work at large.

"NUWC has always supported this effort," Desjardins said. "The Department of Defense is one of the biggest sources of scientists and engineers, so they see the value."

Starting with a few hundred students in 2006, the Educational Outreach Program has expanded to more than 5,000 students annually across Rhode Island and Southern Massachusetts. Above, Desjardins helps a youngster build a mini robot during Division Newport's Family Holiday Party in 2010.

Part of the outreach program includes training math teams to compete at state and regional competitions. Above, Desjardins and volunteers gather at the 2016 Mathcathalon held at Normandin Middle School in New Bedford, Massachusetts on March 22, 2016.

10 years of Virtual Worlds technical demonstration

Virtual Worlds began in 2008 with an idea from Don McCormack, then NUWC's technical director, and now the executive director for Surface and Undersea Warfare Centers. "Virtual environments hold tremendous potential, and NUWC's exploration of them as possible future venues for system innovation, collaboration, and rapid-prototyping reflects a commitment to 'open our apertures' to new, ground-breaking means to sustain today's fleet efficiently and effectively while working to build an affordable future fleet," McCormack said in 2008.

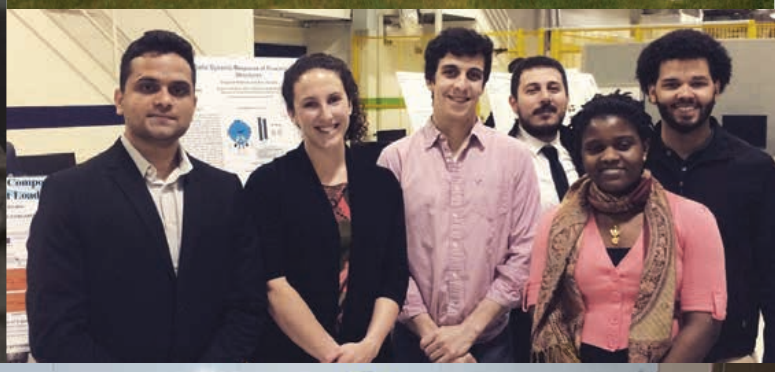
Division Newport's Undersea Warfare Combat Systems Department set out to research the ability of a virtual environment to train and educate Sailors, as well as its potential for modeling and simulation, integration and interoperability, and rapid prototyping. Since 2008, numerous projects using Virtual Worlds technology were implemented, including exploration and application research that has generated significant prototypes and capabilities across many different domains. The success of Virtual Worlds can be attributed to its ability to enable innovation while fostering cross-community collaboration — key mission focus areas for Division Newport — through the creation of a powerful yet intuitive simulation environment that meets both social and technical objectives.

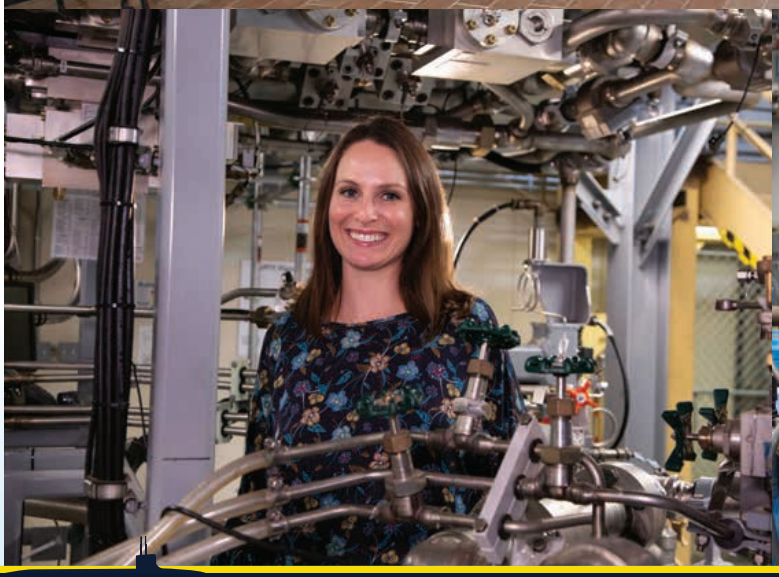
Advanced Naval Technology Exercise (ANTX) connects technologies to fleet operators

NUWC Division Newport has hosted the Advanced Naval Technology Exercise (ANTX) for five years at its test facility located on Narragansett Bay, with the goals of collaboration, innovation and fleet feedback. ANTX 2018 was the largest to date in terms of the number of participants, vehicles and technologies. The exercise involved more than 55 participants from industry, academia and government, as well as fleet personnel who provided critical feedback to participants. ANTX 2018 identified science and technologies that enable or achieve coordinated detection, localization, tracking and/or targeting for undersea, surface and air environments. It also explored ways in which these technologies enable human trust in machines to support operational decision-making, as the theme was "Human Machine Interaction."

ANTX 2019, with the theme "Prepare for Battle: Undersea Security" will be held Aug. 26-30 in collaboration with the Southeastern New England Defense Industry Alliance and the Commander, Naval Meteorology and Oceanography Command in Stennis, Mississippi. More than 1,000 participants are expected to view 70 technologies from government, industry and academia.

Our Workforce





NAVAL UNDERSEA WARFARE CENTER

DIVISION NEWPORT

150th Anniversary

Monday, July 29, 10 a.m.
150th Commemoration

Tuesday, July 30, 11:30 a.m.
150th Anniversary 5K Fun Run

Wednesday, July 31, 11 a.m.
Sub Day
150th Anniversary Celebration

Thursday, Aug. 1, 1 p.m.
150th Anniversary Movie Series
"Hunt for Red October"

Friday, Aug. 2, 5:30 p.m.
150th Anniversary Bowling Competition
Naval Station Newport's
Seaview Lanes Bowling Center

150th Anniversary Commemorative Program

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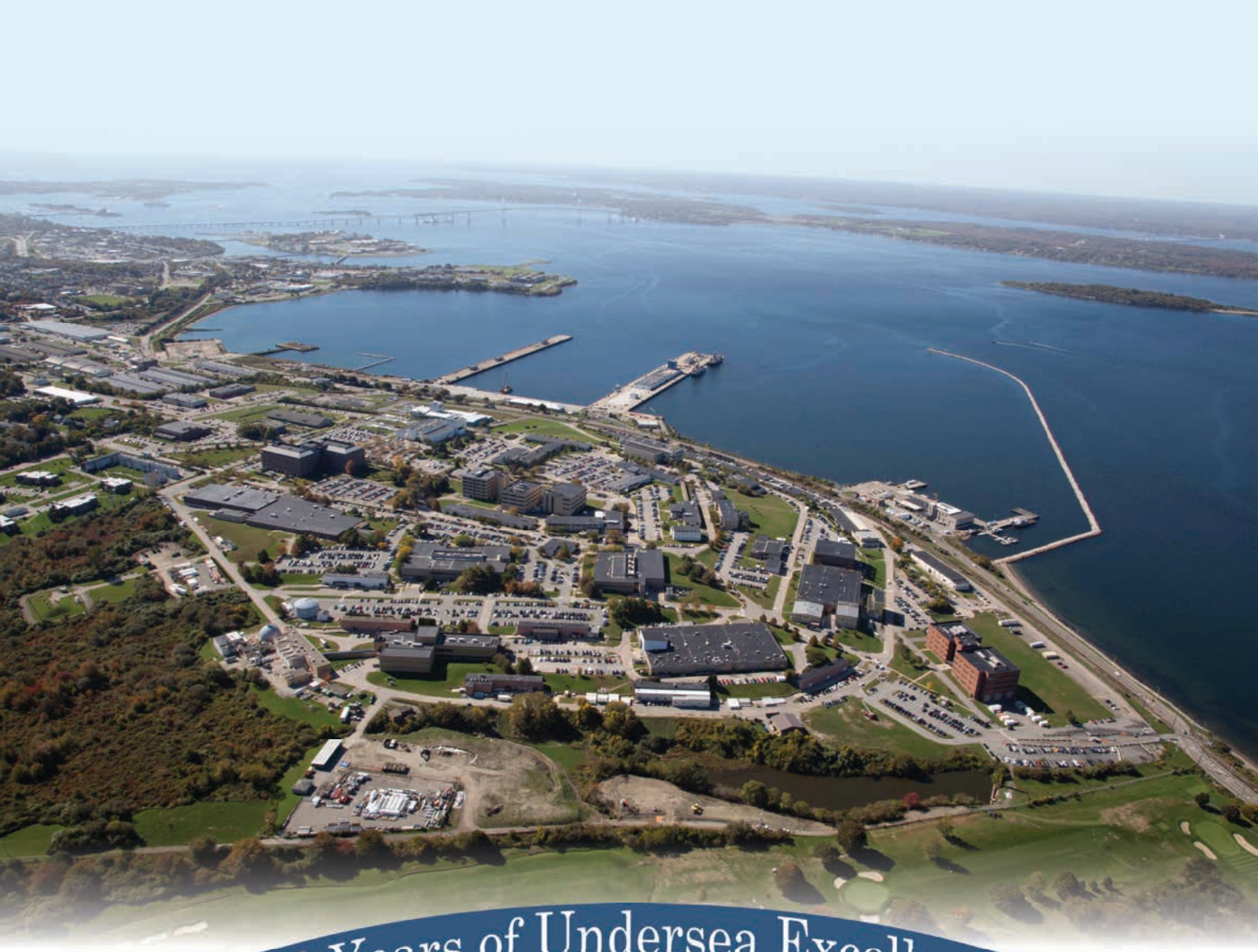

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Undersea Superiority ★ Yesterday...Today and Tomorrow