



UNITED STATES NAVAL
UNDERSEA
MUSEUM



ANNUAL REPORT
2017





THE U.S. NAVAL UNDERSEA MUSEUM STRIVES to connect veterans, active-duty Sailors, and our national audience with the history, technology, and operations of the undersea Navy. Through artifacts, exhibits, and educational programs, we tell the stories of the exceptional people and cutting-edge technology that define the Navy's undersea communities.



2017 HIGHLIGHTS

- **66,265 IN-PERSON VISITS** and 1.7 million online visits
- **201 ARTIFACTS** exhibited
- **110 EDUCATION PROGRAMS** with 7,351 participants
- **71 ARTIFACTS ADDED** to the collection
- **MORE THAN 50,600 ITEMS** in the collection
- **308 EVENTS** for 19,027 Navy and civilian personnel
- **6,069 VOLUNTEER HOURS** from 82 volunteers





DEAR FRIENDS OF THE MUSEUM,



All around, 2017 was another very successful year for the U.S. Naval Undersea Museum! It was a period of continued growth and I would like to take this opportunity to appreciate and celebrate all that we accomplished in the last year. This annual report provides a year-in-review, and I think you will agree that we are up to some great things.

The U.S. Naval Undersea Museum (USNUM) is an institution where responsible stewardship, service to the public, and a culture of caring,

learning, innovation, and transparency are the measures of our impact on the U.S. Navy and the community in which we serve, and in the museum field to which we belong. Our stakeholders have taken note: we hosted more than 66,265 visits at our museum and 1.7 million online. Reflecting the museum's commitment to its audiences, we received a Certificate of Excellence from TripAdvisor for consistently high visitor ratings in 2017.

As we reflect on 2017, our nation and the world continue to experience challenging times. These times have reinforced the critical role that cultural institutions such as ours play in sharing the stories, both past and present, about the Navy's rich heritage and place on the world's stage. Our museum offers spaces and platforms to open dialogue and highlight human experiences that shape and inspire us as individuals, cultures, and communities. One such avenue to share these stories is through our exhibit program. The exhibit

Marine Mammals: The Navy's Super Searchers shares information about how the Navy's dolphins and sea lions serve as the stealthy super heroes who help protect Sailors, ships, and bases due to their unmatched abilities. The museum also opened a new lobby exhibit about the museum, two artifact spotlight exhibits, and an online exhibit that complements the marine mammals exhibit called *The Remarkable Story of a Howell Torpedo*.

Our education program is another key avenue for relaying Navy history and technology to our community and fostering the public's engagement with technological concepts. Throughout 2017, education programs, including Discover Engineering ("E") Day and Navy STEM Days, continued to draw people to the museum to engage with the science and technology that allows the Navy to operate undersea. The participation of more than 7,300 students and families in these programs demonstrates the public's interest in and appreciation of opportunities the museum provides for learning. In 2017, the Navy STEM Days program received the Navy Community Service award at the Commander Navy Installations Command level (2016 Personal Excellence Partnership Flagship Award). This program is a proven national success story.

All of the great things our museum accomplishes every year are made possible by our exceptional team. In 2017, all nine of the museum staff received On-the-Spot Awards from the Naval History and Heritage Command recognizing their dedication to the highest levels of professionalism in our field.

Also in 2017, our Exhibit and Graphic Designer, Jarrod Gahr, and our Exhibit Fabricator, Steve Harvey, both received the Meritorious Civilian Service Award. This is the second highest award a civilian can receive and both Jarrod and Steve are beyond deserving of this recognition.

I look forward to 2018 knowing that the U.S. Naval Undersea Museum will continue to prosper with the strong support of the U.S. Navy, the public, the volunteer staff, and the Naval Undersea Museum Foundation. We are well-positioned for the future, and with every new exhibit, program initiative, and outreach effort, we are furthering the mission of our museum. Thank you for your partnership and investment in our wonderful museum.

ALL THE BEST,

Lindy Doshier

Director

■ Participants in the BeeBot activity at Discover “E” Day program the robot with a sequence of commands, telling it how to navigate the maze they have built. The activity gives participants basic coding experience (inputting steps for how to get from point A to B) and lets them clear the code when they need to start over and try again.



HIGH VELOCITY LEARNING

Applying the best concepts, techniques, and technologies to accelerate learning as individuals and families, the museum’s educational programming explores the history and technology of the U.S. Navy’s presence undersea. The programs inspire participants to explore the scientific, technological, engineering, art, and mathematical (STEAM) principles that form the foundation of the Navy’s daily operations. Participation in the museum’s programs fosters an interest in and understanding of STEM principles that can influence a student’s career choices and encourage a lifetime of learning.

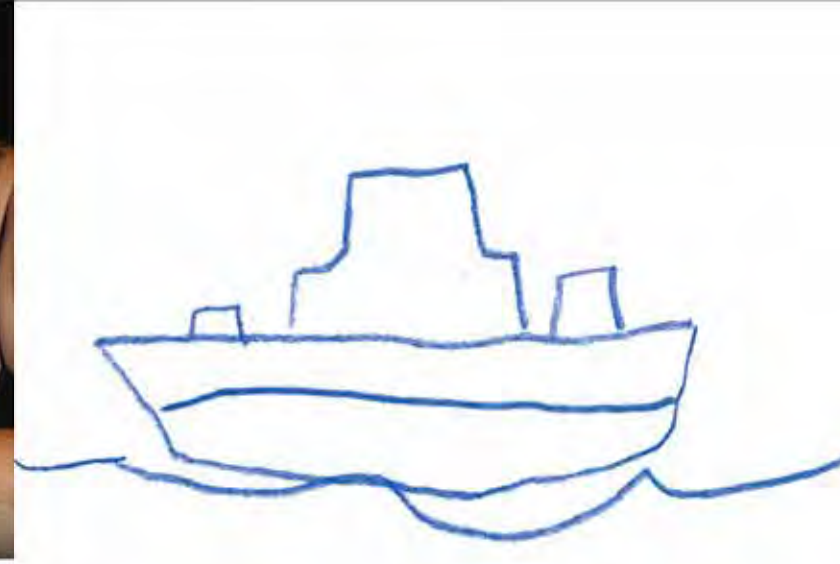
NAVY STEM DAYS

Navy STEM Days is an educational program resulting from collaboration between the museum, the Puget Sound Navy Museum, the Puget Sound Naval Shipyard and Intermediate Maintenance Facility (PSNS & IMF), and the Naval Undersea Warfare Center Division Keyport (NUWC Keyport). In its fourth year, the program brought more than 1,660 local 4th through 6th graders to the museum to participate in STEM-based activities that align with Common Core and Next Generation Science Standards.



“THIS WAS SUCH A SUCCESSFUL FIELD TRIP. THANK YOU FOR ALL YOU DID TO SET UP THE ACTIVITY FOR THE KIDS. THEY LOVED IT! THEY WERE ENGAGED IN IT THE WHOLE TIME, [...] AND IT FIT RIGHT INTO OUR GROWTH MINDSET: NEVER GIVE UP, LEARN FROM YOUR MISTAKES THEME THIS YEAR. IT WAS PERFECT!”

MS. MORRIS, TEACHER FROM BREMERTON, WASHINGTON



DISCOVER “E” DAY

In its 19th year, National Engineers Discover “E” Day drew more than 420 children and families to the museum for a single marathon day of engineering learning experiments. Participants engaged in eleven different hands-on activities, including designing a hydraulic lift, building periscopes, and programming robots. Naval Reserve personnel, civilians from the PSNS & IMF and NUWC Keyport, and museum volunteers staffed activity stations. Discover “E” Day continues to grow as a highly successful annual event for the museum.

which sank while under tow in 1971. Local USS *Bugara* crew attended and shared their insights. In another deep sea exploration story, Josh Dean, the author of “The Taking of K-129: How the CIA Used Howard Hughes to Steal a Russian Sub in the Most Daring Covert Operation in History,” moderated a panel of Project Azorian engineers, who discussed what it was like to be a part of this legendary mission that used powerful engineering to recover Soviet submarine wreckage from a depth of 16,800 feet in 1974.

FIELD TRIPS AND TOUR GROUPS

Field trips to the museum reinforce what students are learning in the classroom and introduce real-world applications of textbook concepts. Group visits to the museum provide the opportunity for families, friends, colleagues, or classmates to take in information and discuss it together following the museum visit, enriching the experience. More than 850 students and group members participated in museum-led field trips or guided museum tours.



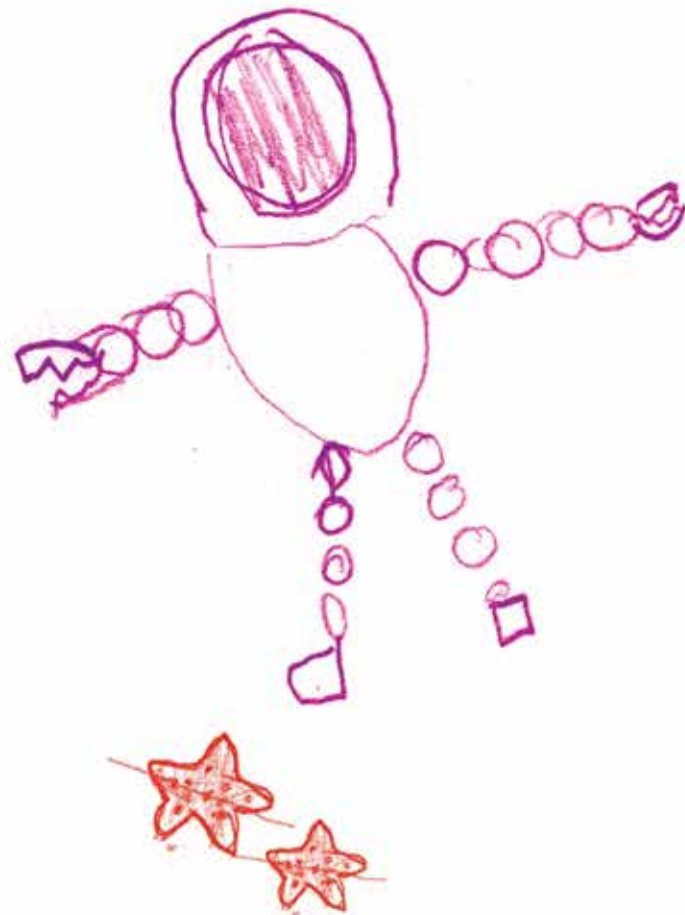
■ *Summer campers at Camp Create explore the properties of electrical circuits with snap circuit conduits, loads, and switches. The museum partnered with the Puget Sound Navy Museum, PSNS & IMF, Kitsap Regional Library, and the USS Turner Joy Museum to offer the two-week summer Camp Create to area 5th through 8th graders.*

SUMMER STEAM AND SCIENCE SATURDAYS

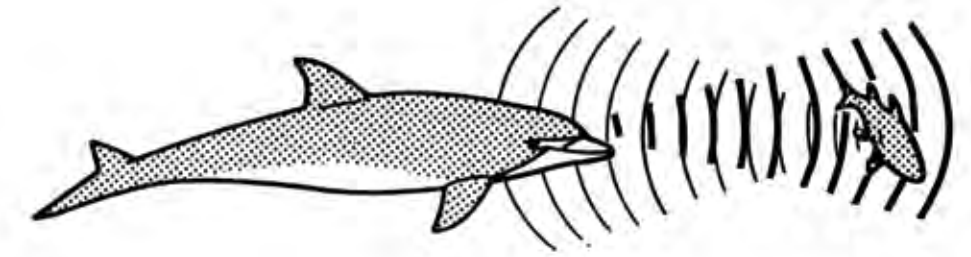
With families working together to solve challenges and explore new concepts, the Summer STEAM program slows “brain drain” between one grade level and the next by keeping students engaged in STEAM throughout the summer months. Science Saturdays take place during the school year, delivering interactive ways of discovering technology and putting lessons learned at school to use in the real world. These free public programs engaged more than 1,500 people over the course of 16 events in 2017.

DEEP SEA EXPLORATIONS

The museum collaborated with the National Oceanic and Atmospheric Administration and Ocean Exploration Trust to present a viewing party of the deep sea exploration of World War II diesel submarine USS *Bugara* (SS 331). The exploration by remotely-operated vehicle (ROV) in about 1,000 feet of water just off the coast of Washington State gave viewing participants the opportunity to learn about ROV capabilities and see in real-time the condition of the boat,



■ Opened in 2017, the exhibit *Marine Mammals: The Navy's Super Searchers*, explores the missions Navy dolphins and sea lions perform and the science behind their remarkable abilities. The exhibit is filled with interactive elements that are educational and engaging for children and adults alike.



UNDERSTANDING NAVY HISTORY

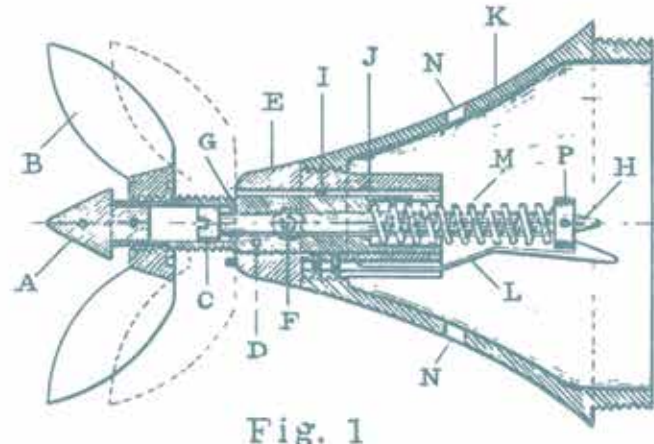
The museum's exhibits are windows into the history – the “how we got to where we are” – of the U.S. Navy undersea. By visiting our exhibits and interacting with physical artifacts and complex concepts, visitors learn about key events and advances in Navy history and technology

MARINE MAMMALS: THE NAVY'S SUPER SEARCHERS OPENED SEPTEMBER 29

Created entirely by museum staff, *Marine Mammals: The Navy's Super Searchers* explores the missions Navy dolphins and sea lions perform and the science behind their remarkable abilities. Marine mammals are naturally skilled at finding objects underwater and can detect mines and intruders in a fraction of the time it takes human divers and human-made technology. From a life-size model of Marine Mammal Program star dolphin Tuffy, to an Iraqi mine, the exhibit has a range of artifacts intended to appeal to a wide audience. A rare Howell torpedo found by Navy dolphins in 2013 using their echolocation abilities is also on display.

“AS WE GET UNDERWAY, WE MUST FIRST UNDERSTAND OUR HISTORY - HOW WE GOT TO WHERE WE ARE.”

ADMIRAL JOHN M. RICHARDSON, CHIEF OF NAVAL OPERATIONS, IN “A DESIGN FOR MAINTAINING MARITIME SUPERIORITY” (2016)



The exhibit is filled with interactive elements that are educational and engaging for children and adults alike. Many of these interactives are designed to help explain the science of marine mammal abilities. These interactives include a touchscreen that simulates how dolphin echolocation works, and audio interactives that let visitors listen to the vocalizations of marine mammals, test directional hearing, and compare the heart rate of marine mammals on land and during a deep dive.

ARTIFACT SPOTLIGHT PROGRAM

The Artifact Spotlight program shares highly significant artifacts in our collection with visitors. Exhibiting these stand-alone artifacts makes their stories more poignant. A submarine warfare insignia casting (submarine “dolphins”) was featured to share the history of how the iconic insignia was developed and what it means to the submarine community today. A USS *Trepang* (SS 412) battle flag, which documents the cumulative number of enemy ships the *Balao*-class submarine sank

or damaged during her five World War II war patrols, was also displayed. Corresponding blog posts and images brought the stories to the museum’s online visitors.

ONLINE FEATURES

In an ongoing effort to make museum resources more accessible to non-local audiences, we continue to develop exhibits and content specifically for online sharing. Web visitors can explore the history and design of Howell torpedoes, the discovery of Howell #24 by Navy dolphins in 2013, and the conservation efforts that saved the torpedo after 112 years in salt water in the exhibit *The Remarkable Story of a Howell Torpedo*. The torpedo, serial number 24, is one of only three known to exist today. A Johns Hopkins University museum studies graduate student expanded the museum’s Flickr presence with nine new photo albums ranging from “New Acquisitions” to “A Year in the Life of a WWII Submarine: USS *Searaven* (SS 196).”



■ By exploring our exhibits and interacting with physical artifacts and complex concepts, visitors learn about key events and advances in Navy history and technology.

■ One of the U.S. Navy's deep submergence rescue vehicles, likely Mystic (DSRV 1), conducting a training exercise aboard a specially-configured mother submarine. Two DSRVs provided rapid-response submarine rescue capability to the U.S. Navy from 1970 to 2008. The museum's collection includes DSRV Mystic and other artifacts related to submarine rescue and escape and deep submergence technology.



PRESERVING NAVY HISTORY



Museums derive their identities and products — education programs and exhibits — from their artifacts. In order for artifacts to be available for use in exhibits and research inquiries, they must be physically and intellectually cared for year-round. This care ensures the artifacts are physically able to withstand the pressures of exhibition now and into the future and enough data about the artifacts exists to make them valuable beyond their material worth.

SIGNIFICANT ACQUISITIONS

In 2017, we added 71 new objects to the collection, expanding our holdings in areas such as submarine history, diving and deep submergence operations, and undersea technology. Notable acquisitions included:

A USS THRESHER (SSN 593) JACKET

once owned by a crew member who evaded the submarine's sinking in April 1963.

"AFTER READING SO MANY BOOKS ABOUT SUBS IT WAS VERY ENJOYABLE TO SEE THE ACTUAL HARDWARE ESPECIALLY THE VARIOUS TORPEDOES AND THEIR INNER WORKINGS. I NOW UNDERSTAND HOW MINES WORK AND HOW THEY ARE DEPLOYED."

DAN, VISITOR FROM TACOMA, WASHINGTON

A DOLL DEPICTING LT. CMDR. DARLENE ISKRA, one of the Navy's first female salvage divers and the first woman to command a Navy ship, created by a 3rd grade student for a Women's History Day project.

A 1942 HAND-DRAWN SUBMARINE SCHOOL NOTEBOOK AND IDENTIFICATION NAMETAG that belonged to submariner Edwin Wilbur Bobson.

A DOLPHIN TRANSPORT CONTAINER used to safely travel Navy dolphins that conduct missions with the Navy Marine Mammal Program.

MOVING DSRV MYSTIC

As part of a multi-year effort to improve DSRV *Mystic* preservation efforts, the 24-ton vehicle and its 8.5-ton trailer were craned 244 feet northwest from its initial 2014 placement in the parking lot. The new location features an engineered, flat concrete pad designed to support multi-ton weight over time. Additionally, the trailer received 16 new tires and eight tire covers to ensure DSRV *Mystic* sits on firm footing for the foreseeable future.

LOAN PROGRAM

Providing access to museum artifacts by lending them to organizations across the U.S. allows a broader audience to engage with naval history and technology. In 2017, the museum had 55 artifacts on loan to 31 organizations, including museums, Navy commands, and veterans groups, throughout the U.S. and Australia.

- *In 2017, the museum acquired a doll depicting Lt. Cmdr. Darlene Iskra, one of the Navy's first female salvage divers and the first woman to command a Navy ship. The doll was created by a 3rd grade student for a Women's History Day project.*



RESEARCH

As a public institution, part of the museum's mission is to assist with research inquiries. Curatorial staff fielded more than 158 historical and artifact questions in 2017, providing assistance such as:

SUPPLYING INFORMATION AND PHOTOGRAPHS about the Navy's first female deep-sea diver, Hull Technician 2nd Class Donna Tobias, to Submarine Base New London for a proposal to name the base's dive locker for her.

IDENTIFYING AND PROVIDING sonar and acoustic images for publication in a physics textbook written by a U.S. Naval Academy professor.

SCANNING more than 100 submarine photos for the Pentagon to use in a public presentation about the Cold War.



- *In 2017, Submarine Base New London developed a proposal to name the base's dive locker for the Navy's first female deep-sea diver, Hull Technician 2nd Class Donna Tobias. The museum curator supplied information and photographs from our extensive collection of Tobias material in response to a research request during the development of the proposal.*





OPERATIONAL EXCELLENCE

MUSEUM RECOGNITION

TripAdvisor awarded the museum a 2017 Certificate of Excellence for the fourth year in a row. The award is given to organizations that receive consistently outstanding reviews by TripAdvisor travelers.

Collections Manager Lorraine Scott served as a peer reviewer for the Museum Assessment Program, a national program of the American Alliance of Museums. Peer reviewers provide professional expertise to museums working to improve aspects of their operations. In this case, Ms. Scott worked with the Man in the Sea Museum in Panama City, Florida – home of SEALAB I. Her assessment focused on collections management activities, and she provided a roadmap for the museum to improve their collections program.

FACILITY IMPROVEMENTS

The museum was the recipient of a Naval Base Kitsap-funded project to pressure wash the building, clean windows, and paint the exterior of the museum.

A new heating and cooling unit for the auditorium was installed to replace an outdated system, which failed and was too expensive to repair. Naval Base Kitsap funded the project. Ceremonies in the auditorium were carried out without disruption.

The museum awarded three contracts in 2017 for major facility and collections improvements, with work on some projects to be carried out through 2018: *craning of DSRV Mystic into its new location next to Trieste (DSV-I), replacement of the museum's security camera system, installation of compact shelving on the third floor.*

STAFF AND VOLUNTEER AWARDS

JARROD GAHR, Exhibit and Graphic Designer, Meritorious Civilian Service Award

STEVE HARVEY, Exhibit Fabricator, Meritorious Civilian Service Award

See page 22 for a list of volunteer awards based on hours contributed to the museum



■ More than 50 members of the Bathyscaphe Trieste Alumni Association visited the museum in September as part of their biennial reunion. Among the attendees were seven Trieste pilots, including retired Capt. Don Walsh (pictured above), who made a historic dive to the Challenger Deep in January 1960, and retired Lt. Dick Taylor, who piloted Trieste during a secret mission (declassified in 2011 by the Central Intelligence Agency) to recover a HEXAGON film capsule in the early 1970s. While at the museum, the group toured the exhibits and artifact storage areas and enjoyed historic presentations about the Trieste program.



STRENGTHENING THE NAVY

The museum is proud to support Navy commands, sailors, civilians, and families by providing physical space and intellectual resources at the museum for important ceremonies (retirement, change of command, promotion, commissioning) and for trainings and meetings. In 2017, the museum hosted more than 19,000 people for 308 such events. Free use of the facility for the Navy to conduct its business promotes fleet and mission readiness.

NAVY COMMANDS SUPPORTED IN 2017 INCLUDED:

Center for Surface Combat Systems, Detachment Pacific Northwest
Commander, Navy Region Northwest
Commander, Submarine Group 9
Commander, Submarine Squadron 19
Commander Submarine Development Squadron 5
Submarine Squadron 17
Naval Base Kitsap

Naval Facilities Engineering Command Northwest
Naval Hospital Bremerton
Naval Information Force Reserve Region Northwest
Naval Magazine Indian Island
Naval Operations Support Center Kitsap
Naval Sea Systems Command
Naval Submarine Support Center, Bangor
Naval Supply Fleet Logistics Center, Puget Sound
Naval Training and Education Command, Civil Engineers Corps Officers School
Naval Undersea Warfare Center Division Keyport
Navy Band Northwest
Navy Gateway Inns & Suites
Navy Gold Star Program
Navy Munitions Command, East Asia Division
Navy Region Legal Service Office Northwest
Navy Region Northwest
Navy Region Northwest Fire and Emergency Services
Office of Civilian Human Resources, Silverdale Operations Center
Puget Sound Naval Shipyard & Intermediate Maintenance Facility
Strategic Weapons Facility Pacific, Bangor
SurgeMain, Kitsap
Transient Personnel Unit, Puget Sound
Trident Training Facility, Bangor
USS *Alabama* (SSBN 731)
USS *Albuquerque* (SSN 706)
USS *Dallas* (SSN 700)
USS *Henry M. Jackson* (SSBN 730)
USS *Jimmy Carter* (SSN 23)
USS *John C. Stennis* (CVN 74)
USS *Louisiana* (SSBN 743)
USS *Michigan* (SSGN 727)
USS *Nebraska* (SSBN 739)
USS *Nevada* (SSBN 733)
USS *Ohio* (SSGN 726)
USS *Pennsylvania* (SSBN 735)

OTHER ORGANIZATIONS SUPPORTED:

Marine Corps Security Force Battalion
Brandman University (Navy College)
Department of Energy
Southern Illinois University (Navy College)
U.S. Navy League Sea Cadets
U.S. Coast Guard Auxiliary
Vincennes University (Navy College)

■ In 2017, the museum's 82 volunteers contributed more than 6,000 hours (2.9 FTEs) to the museum. Museum visitors highly rate their experiences at the museum not only because of the interesting exhibit and program content but also because of their engaging interactions with museum volunteers. Here, a museum volunteer suggests to a program participant a way to think about pairing robotic cubes to achieve the intended result.



VOLUNTEER ENGAGEMENT

CONTRIBUTIONS

The museum is fortunate to work with knowledgeable and dedicated volunteers who do a stellar job serving as the public face of the museum as they welcome and greet visitors, conduct guided tours, attend the store, process collections, facilitate educational programs, build and install exhibits, and provide administrative support. Museum visitors highly rate their experiences at the museum not only because of the interesting exhibit content but also because of their engaging interactions with museum volunteers. In 2017, the museum's 82 volunteers contributed more than 6,069 hours to the museum, ensuring the achievement of the museum's mission to interpret naval undersea history, science, and operations for the benefit of the people of the United States.

"UPON ENTERING, WE WERE GREETED BY A SUPER FRIENDLY DOCENT WHO GAVE US A PAMPHLET AND EXPLAINED THE LAYOUT OF THE DISPLAYS. THERE ARE THINGS FOR THE KIDS TO SEE AND DO WHILE TOURING THE FACILITY AND PLAY TABLES FOR THEM AS WELL. THIS IS A QUALITY STOP FOR PEOPLE OF ALL AGES AND WELL WORTH YOUR TIME."

RON, VISITOR FROM MONTROSE, COLORADO



THANK YOU to the following people who volunteered their time and energy at the museum during 2017:

PRESIDENTIAL VOLUNTEER SERVICE AWARD (500+ HOURS CONTRIBUTED IN THE YEAR)

Sydney McManus

SILVER PRESIDENTIAL VOLUNTEER SERVICE AWARD (250+ HOURS CONTRIBUTED IN THE YEAR)

Doug Anderson Charles Gundersen
 Larry Snyder

BRONZE PRESIDENTIAL VOLUNTEER SERVICE AWARD (100+ HOURS CONTRIBUTED IN THE YEAR)

Robert Paul	Rick Gunderson
Michael Peterson	Michael Collier
Bruce Riggins	David Anderson
Melissa Grundt	Nikki Haas
Daniel Batman	Donald Tjossem
Paul Lucas	Harry Gilger
Cathy Wedelstaedt	Jennifer James
Tom Heman	Kevin Syltebo
David Ledbetter	Steven Grether
Bobbi West	



■ *Volunteers are key supporters of the museum's mission of connecting veterans, active-duty Sailors, and our national audience with the history, technology, and operations of the undersea Navy.*

YEAR-ROUND SUSTAINING VOLUNTEERS

Addie Albro	Joyce Johnson
John Alcantra	Jessica Knape
Libby Anderson	Timothy Kuntzman
Samuel Anderson	Robert Latham
Sharon Baker	Jeffrey Leader
Thomas Bogaard	Tom Lee
Jerry Brooks	Zachary Machon
Michael Cardwell	Amanda McNeely
Delores Contreras	Estelle McNeice
Glen Curtis	Larry Meehan
Cate Devine	Ted Newman
Norm Haas	Loren Nichols
Mika Holland	Jan Pietras
Darlene Iskra	Alyssae Remigio
Phyllis Jelly	Bill Ridley
Charlie Johnson	Trish Ridley

Ellen Schroeder	Bonnie Thomas
Cheryl Shelby	Jerome Turner
Greg Shelby	Doug Wadsworth
Patrick Steeger	Joan Wadsworth
Tony Sultan	Roy Wilson
William Swope	Clete Wood
Mary Jo Tharp	

DAY-OF DISCOVER "E" DAY VOLUNTEERS

David Arnold	Colin Mahardy
Nicholas Crawford	Eldridge Raymond
Kevin Habener	Michaela Raymond
Taura Helms	Stephanie Santana
Kevin Hovis	Rachel Smith
Arrington Jenkins	Ryan Soderlund
Kimberly Jones	



STAFF

Lindy Doshier*	Director
Kirk Dietz	Collections Manager
Jarrod Gahr*	Exhibit and Graphic Designer
Steven Harvey*	Exhibit Fabricator
Valerie Johnson	Educator
Mary Rogers	Volunteer & Events Coordinator
Mary Ryan	Curator
Beth Sanders	Collections Manager
Lorraine Scott	Collections Manager
Olivia Wilson	Operations Manager



■ *Left to right: Olivia Wilson, Steve Harvey, Mary Ryan, Valerie Johnson, Lorraine Scott, Beth Sanders, Lindy Doshier, Jarrod Gahr, Mary Rogers.*

**Staff shared with the Puget Sound Navy Museum*