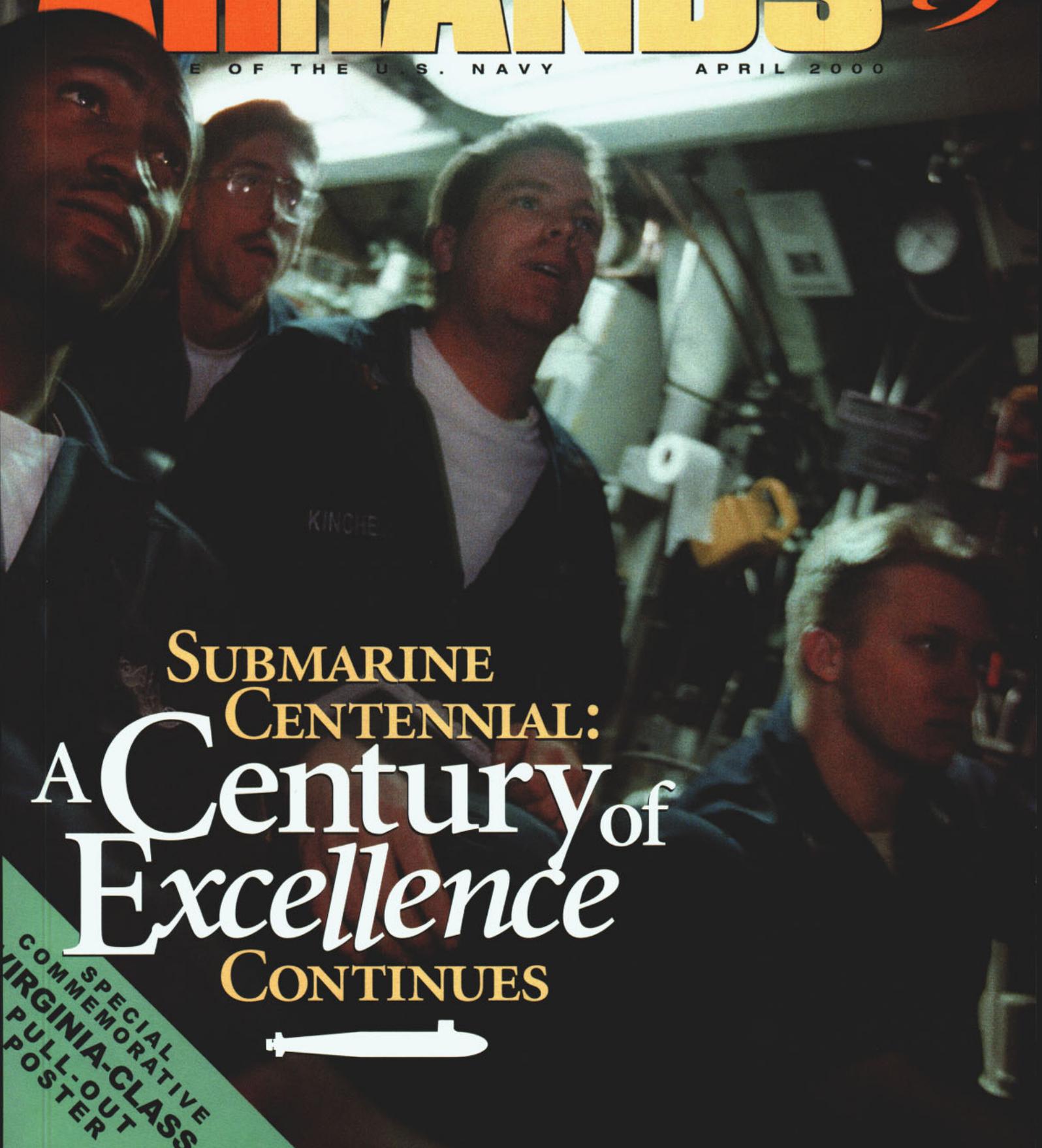


# ALL HANDS

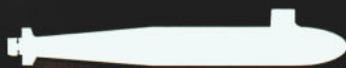
OF THE U.S. NAVY

APRIL 2000



KINCHE

SUBMARINE  
CENTENNIAL:  
A Century of  
Excellence  
CONTINUES



SPECIAL  
COMMEMORATIVE  
VIRGINIA-CLASS  
PULL-OUT  
POSTER

## Features

### 12 Silent Defense

This year marks the centennial of the Submarine Service. From *USS Holland* (SS 1) to tomorrow's *Virginia*-class, submariners carry on their proud heritage as defenders of the deep.

### 16 "My Hero"

In May 1939, *USS Squalus* (SS 192) took on water and sank during a test dive off Portsmouth, N.H. Thanks to the inventiveness, ingenuity and tenacity of then-LCDR Charles "Swede" Momsen, 33 men came back alive.

### 20 Sub Sea Stories

We asked around, and came up with some salty tales from some of the men who lived them.

### 30 Serving Unity...

After the successful completion of their *UNITAS* deployment, the crew of *USS City of Corpus Christi* (SSN 705) found a warm welcome waiting for them on the pier in Groton, Conn.

### 34 Light Years Ahead

They come to Naval Nuclear Power School, Charleston, S.C., with IQs off the charts and ASVAB scores higher than their life expectancy, but that's what a 22-year-old Sailor needs to learn to run a nuclear power plant on a Navy warship.



U.S. Air Force photo

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LT Brook DeWalt

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#### EDITORIAL

Editor  
Marie G. Johnston

Managing Editors  
JOCS(AW) Dave Desilets

Assistant Editor  
JO1 Robert Benson

Photo Editor  
PH2(AW) Jim Watson

Editorial Staff  
Dennis Everette  
JO1 Rodney Furry  
JO1 Joseph Gunder III  
JO1 Wayne Eternicka  
PH2 Aaron Ansarov  
PHAA Saul Ingle

#### WEB DESIGN

DM1 Rhea Mackenzie  
DM3 Michael Cortez

#### ART AND DESIGN

Rabil & Bates Communication Design

Creative Director  
Debra Bates

Art/Design Director  
Roger O. Selvage, Jr.

Graphic Designers  
J.D. Cohen  
Robert Cullen  
David Chapman

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Garland Powell

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Fax: (202) 433-4747 or DSN 288-4747  
E-mail: [allhands@mediacen.navy.mil](mailto:allhands@mediacen.navy.mil)  
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## 40 *Nautilus* (SSN 571)

In 1958, she was the Navy's first nuclear-powered sub and the first boat to cross under the North Pole. Today you can visit one of the most feared, top-secret subs in her berth at the Submarine Force Museum, Groton, Conn.

## 24 Crew Held for Ransom

Find out what keeps the crew of USS *Miami* (SSN 755) and their Commanding Officer CDR James Ransom working together like a well-oiled machine. It's integrity, professionalism... and a whole lot more.

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- 6 Around the Fleet
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Photo by PH2 (AW) Jim Watson

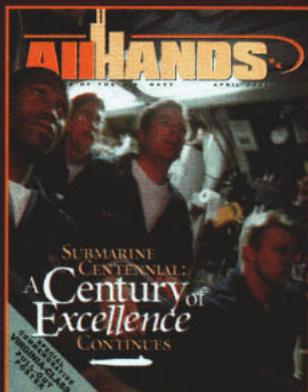
### On the Front Cover

The crew of the USS *Miami* (SSN 755) watch the depth indicator with anticipation as they approach their dive point.

PH2(AW) Jim Watson

### Next month

Find out what Navy leadership is doing for you.



Check us out Online at:

[www.mediacen.navy.mil](http://www.mediacen.navy.mil)



Rest **Stop**





USS *Nevada* (SSBN 733), homeported at Naval Submarine Base, Bangor, Wash., shows how earth-friendly the Navy can be, as a pack of seals take a rest on the bow.

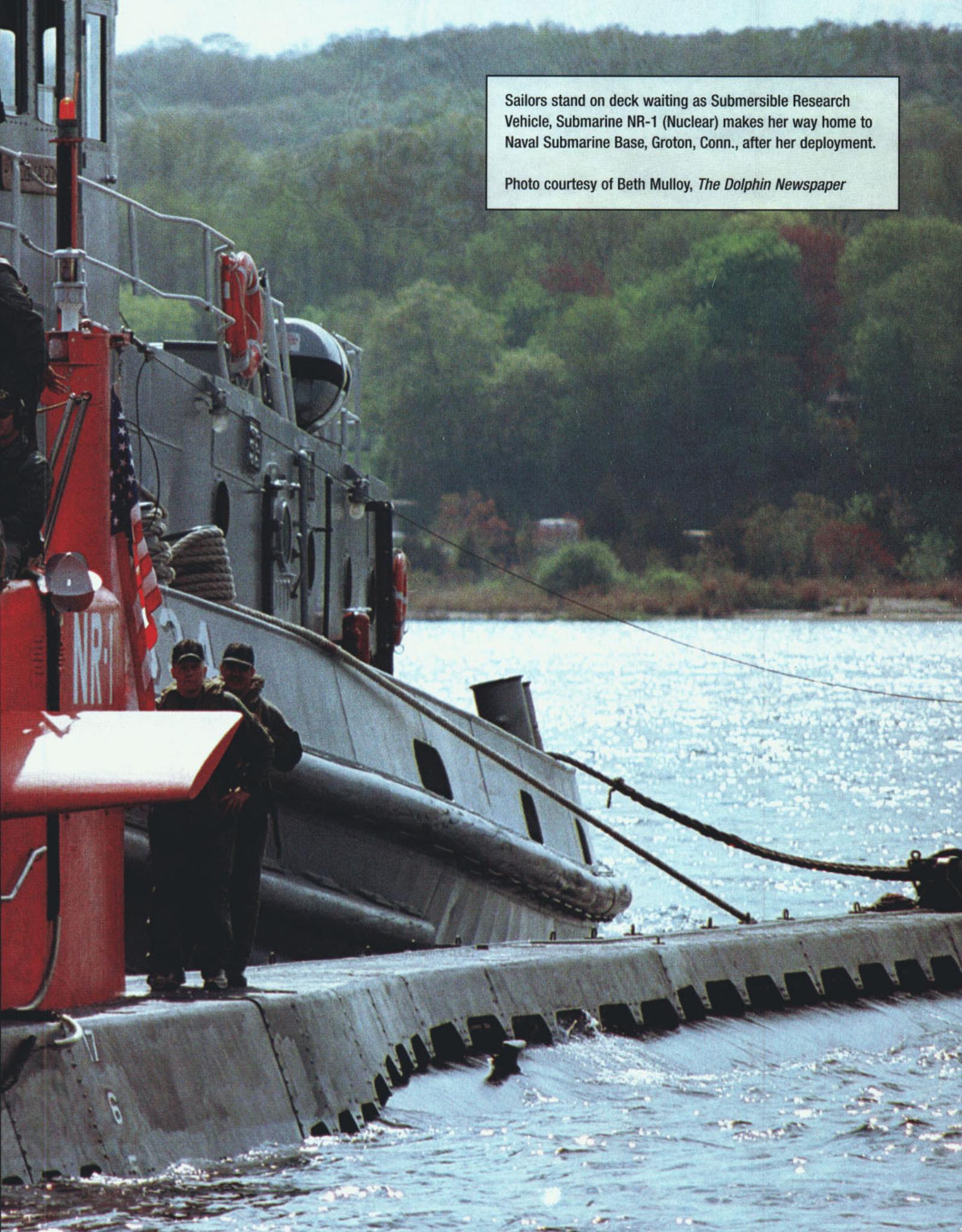
U.S. Navy Photo

# Tugged **Home**



Sailors stand on deck waiting as Submersible Research Vehicle, Submarine NR-1 (Nuclear) makes her way home to Naval Submarine Base, Groton, Conn., after her deployment.

Photo courtesy of Beth Mulloy, *The Dolphin Newspaper*



# Letters

## Editor,

Please be advised that your article concerning the Seabee effort in Albania is incorrect. I was the AOIC for the mission and the unit is NMCB 3 vice NMCB 4. Also NMCB 3 received the Pacific Battle "E" for our efforts in Albania and Kosovo in 1999. Thank you for your corrections.

LT Mike Monreal  
Assistant Operations Officer  
NMCB 3

## BY THE Numbers

(See story page 12)

**1** Number of dynamite guns on the first submarine of the U.S. Navy, U.S.S. *Holland*. The dynamite gun was later removed. *Holland* did carry three torpedoes which could be fired from its solitary torpedo tube.

**2** Number of attack submarines that must be manufactured each year for the next 20 years in order to maintain the minimum force level requirement of 50 attack submarines. *Los Angeles*-class submarines are set to retire.

## 100,231

Total tonnage sunk during World War II by USS *Flasher* (SS 249), a *Gato*-class submarine. *Flasher* sunk 21 vessels during the war, sinking 330 lbs. more than the also successful USS *Rasher* (SS 269).

## 10 Million

Gallons of diesel fuel required to produce the same energy as 4 pounds of uranium in a nuclear submarine's reactor.

## Editor,

I notice on the Warfare Pins and Badges pages of subject issue of *All Hands* that the new Military Postal System "MPS" badge is missing. This badge is now worn by PCs on their dress uniforms. Was this badge not included by error or does it not qualify to be listed? If you need the paperwork approving this badge, it can be faxed to you.

CDR David A. Larson Sr.  
Deputy, Fleet Supply Officer &  
Operational Logistics  
CINCUSNAVEUR N412  
(LONDON, U.K.)

## Editor,

Great issue! I do think however that the picture on Page 45 is a P-3C not an EP-3E. The EP-3E has a stubby tail and a "canoe" on top. I look forward to my issue every month. Keep up the good work.

AK1 Kevin Potts  
NAVICP Det. Tucson

## Editor,

Having just completed a tour as the CNAP Evaluator and an FRS instructor for the UC-12B/F and RC-12F at VRC-30, I would like to point out that the description of the UC-12 on Page 45 of the January 2000 issue is inaccurate. The Navy uses four versions of the C-12. The UC12B/F/M and the RC-12, all have wing tanks, not tip tanks.

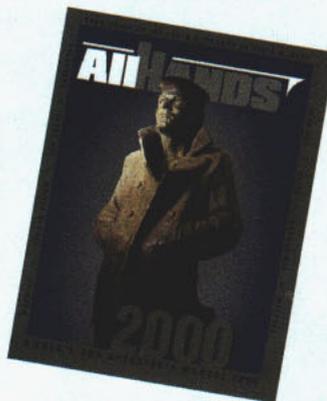
Also, the maximum take-off weight is 13,500 pounds vice 12,500, which is the max landing weight. And one final thing, it is a dual (not single) piloted aircraft, and carries a total crew of three, a pilot, co-pilot and transport air crewman.

AMS2(AW/NAC) Jeff Murray

## Editor,

In your January 2000 issue you list on Page 23 the listing for Line/Staff/Warrant Officer Sleeve devices is incomplete. You left out Aviation Maintenance for CWOs. Good issue though.

CWO4 Robert Smith



## Editor,

Your current issue of *All Hands*, "Owner's & Operator's Manual 2000", has incorrect information on Page 23. There is no mention of "Operations Technician" (712X Designator). This designator has been around for approximately 25 years and is listed in U.S. Navy Uniform Regulations.

CWO4 Ken Northrop  
Chief of Naval Education &  
Training  
Pensacola, Fla.

## Editor,

I am writing about the warrant officer insignia for the Technical Nurse Warrant Officer (TNWO). We use the insignia that was formerly used by the Physicians Assistants (PAs). The PAs have not used that insignia for about 20 years.

The warrant officer community has been continuously neglected and has never received the recognition we deserved.

CWO4 William S. Hohman,  
TNWO  
Portsmouth Naval Hospital

## CORRECTIONS

**Page 23** – In the Line/Staff/Warrant Officer sleeve devices the Intelligence Technician device is reversed as if seen in a mirror.

Thanks to IS2(AW) Brent Pfeiffer, VFA-86.

**Page 24** – GMs no longer have GMGs nor GMMs.  
Thanks to AW1(AW/SW)NAC) Joseph J. Pycior.

**Page 24** – Aviation Antisubmarine Warfare Operator should be Aviation Warfare Systems Operator.

Thanks to AW1 Steven Slagowski, HSL-40 AW shop; AWC(AW/NAC) Rob Kinsman; AWC Richard Burton, NPMOC; LT Kenneth Lynch FMP MOCC WLANT.

**Page 25** – OTs merged with STG.

Thanks to AW1(AW/SW)NAC) Joseph J. Pycior; CWO4 Baty, NCTSL.

**Page 27** – The Navy/Marine Corps Medal should have the blue side to the left vice to the right. Blue is the senior color and is always worn up and to the right.

Thanks to CDR Jeff Clark, OIC NOMI Det. East, Norfolk; Marine Corps Lt. Col. Norman E. Hitchcock, Naval War College, Newport, R.I.; CDR Roy Crowe, U.S. Merchant Marine Academy; Kings Point, N.Y.; DTC(SW) Fred Eisenmann, Office of the Force Master Chief, BUMED, Washington, D.C.; ET1(SS) Robert Russak, Chief Naval Education and Training, Pensacola, Fla.; AECS(AW) Edgar E. White Jr., Naval Leadership Training Unit Det., Rota, Spain.

**Page 28** – The wings listed for "Aviation Experimental Psychologist and Aviation Psychologist" should be entitled "Aerospace Physiologist and Aerospace Experimental Psychologist" and the left in the center should have a "twig" at the bottom.

Thanks to CDR Jeff Clark, OIC NOMI Det. East, Norfolk.

## Online Calculator Helps with Redux Retirement Decision

**D**OD has unveiled an online calculator designed to help service members decide which military retirement plan is best for them.

The site, [pay2000.dtic.mil/bottom\\_ret.html](http://pay2000.dtic.mil/bottom_ret.html), will help service members compare future benefits under the Redux and the High-3 Retirement Systems.

The FY00 Defense Authorization Act reformed the military retirement system. The retired pay reform in the act gives a choice to service members subject to the Redux Retirement System — all those who entered the service on or after Aug. 1, 1986 — who reach their 15th year of service beginning in 2001.

First choice: Service members can join the pre-Redux Retirement System. This so-called High-3 System gives members 50 percent of their average basic pay for their highest three earning years before retiring after 20 years of service. To compute retired pay after 20 years of service, for instance, E-7s would total their basic pay for the highest three years — probably the last three — divide the sum by three and then again by two. Retired pay for additional service increases 2.5 percent per year to a maximum of 75 percent for 30 years of service. Also, annual cost of living adjustments are fully indexed to inflation as measured by the Consumer Price Index (CPI).

Second choice: Eligible service members subject to Redux can take a taxable \$30,000 lump-sum bonus, agree to complete at least 20 years of service and choose to remain in the Redux plan. The bonus is immediately payable and can be used any way the member wishes. Retired pay starts at 40 percent of the High-3 earnings average after 20 years

and rises to a maximum of 75 percent for 30 years' service. Redux adjusts pay each year at the rate of the CPI minus 1 percent.

To use the calculator, click on the "You decide — A personalized calculator" link on the Retirement Choice Web page. Then on the Personalized Retirement Calculator page you click on the "Proceed to the Retirement Calculator" link and then fill in information including your age at 20 years of service and your expected final rank and

years of service at retirement. Note whether you would invest your \$30,000 bonus if you choose to stay with the Redux option.

The calculator makes some assumptions about the economy — inflation, tax rates, etc. You can accept these defaults or play "what-if?" Click on the "Calculate" button and let the system work.

By law, DOD must notify people facing the decision after they have served 14.5 years. They must make the choice at 15 years of service. The first group facing

the choice will be notified in January 2001 for a choice in August 2001.

"We've put this calculator up a year early so people can use it and really understand the choice they are to make," a senior DOD compensation official said. "This is a complicated decision and should not be made lightly."

*Story by Jim Garamone, American Forces Press Service.*

## INNOVATORS:

### Recycling Saves \$1 Million

Naval Security Group Activity (NSGA) Sugar Grove, W.Va., saved the government nearly \$1 million in demolition costs recently by recycling rubble in innovative ways.

The concrete, wood, aluminum poles, gravel and copper groundings from a non-functioning radio antenna were put to a variety of uses. More than 1,600 tons of concrete pillars were crushed to use as rip-rap to help stop water erosion in gullies and protect against flood damage. This avoided \$80,000 in disposal costs. As an added bonus, the concrete rip-rap created new drainage patterns, generating storm water retention ponds and wetlands that attract migratory birds and other wildlife.

The West Virginia Department of

Transportation agreed to remove 17,500 linear feet of creosote-coated poles for their reuse, saving the Navy more than \$650,000 in disposal fees. Aluminum poles and copper scrap were sold. About 350 tons of gravel was also salvaged from the site, and will be used for projects around the base.

The innovative recycling plan was the idea of Don Steck, an environmental protection specialist for the activity. "We didn't have to do this," said Steck. "But it saves the taxpayer money on disposal costs and recycles valuable resources."

*Story by Navy Environmental, Safety And Occupational Health program office.*

# Around the Fleet

## TIME CAPSULE

This month, 50 years ago, *All Hands* highlighted advances in Navy technology. Twenty-five years ago, we examined the changing roles for women officers. Ten years ago, we documented the approaching end of diesel submarine service.

### 50 years ago — April 1950

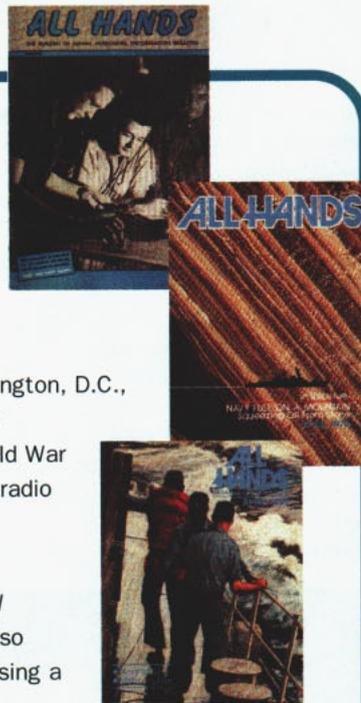
Artificial crystals made at the Naval Research Lab in Washington, D.C., were beginning to change technology in the Navy. After the success of artificial crystals in sonar equipment during World War II, other uses were being developed for radiation detection, radio equipment and glow-in-the-dark paint.

### 25 years ago — April 1975

Two years after naval aviation training began for women, *All Hands* hailed the first six women to earn Navy wings. We also described advances in computer-simulated torpedo firings using a system that filled a large room.

### 10 years ago — April 1990

Two of the Navy's last three diesel attack submarines were decommissioned, USS *Darter* (SS 576) and USS *Barbel* (SS 580). *All Hands* also described the first trip ever by a CNO or any U.S. military branch chief to the Soviet Union, made by ADM Carlisle A.H. Trost in late 1989.



## NAVSEA opens Submarine Technology Demonstration Room

Naval Sea Systems Command's (NAVSEA) deputy commander for Submarine Technology recently opened the Submarine Technology (SUBTECH) demonstration room in Arlington, Va.

SUBTECH is an organization founded to encourage technology insertion, facilitate programmatic integration and stimulate investment communication throughout the submarine research and development community, including its fiscal activities. For more information on the SUBTECH demo room, contact the Office of Submarine Technology at (703) 602-7017, ext. 355.

Story by NAVSEA Public Affairs.

## Navy Welding Course Moves to the Fleet

To keep Sailors closer to their homeports, reduce travel costs and improve quality of life, the Chief of Naval Education and Training (CNET) is relocating its advanced welding course to fleet concentration areas in San Diego and Norfolk.

Classes began at the Shore Intermediate Maintenance Activity in San Diego and the Norfolk Naval Shipyard on January 18. Two additional courses will be taught at Puget Sound Naval Shipyard and Pearl Harbor Naval Shipyard beginning in June 2000. Sailors will no longer attend the welding course in Great Lakes, Ill. The course lasts 14 weeks and gives graduates a specialty in advanced welding.

Homeport training was implemented to expand training opportunities, reduce costs and improve the Navy's quality of life. Relocating the advanced welding courses is a step in that direction, and the Navy plans to increase the number of schools in fleet concentration areas in FY00 and FY01.

## SHIPMATES



**Information Systems Technician 2nd Class Corey D. Singletary** was selected for Enlisted Person of the Year for Joint Task Force-Full Accounting. A native of southern California, Singletary was selected for his extraordinary performance in establishing and maintaining electronic communications between Southeast Asia and Hawaii and for his superior professional knowledge.



**Photographer's Mate 1st Class (AW) Glenn E. Sircy** from Kingston Springs, Tenn., was selected as the 1999 Senior Sailor of the Year for Patrol Squadron (VP) 45, NAS Jacksonville, Fla. He is the command photographer for VP-45, and the electronic imaging supervisor at the Fleet Imaging Center Det., Jacksonville, Fla.



**Radioman 2nd Class Martin Colon** was selected as the Enlisted Recruiter of the Year and was meritoriously frocked to first class, becoming IT1 Colon. The native of Newark, N.J., is the Recruiter-in-Charge of the Navy Recruiting Station North Bergen, N.J. Other achievements include NRD Rookie of the Year (1998-99), Enlisted Navy Orientation Unit Distinguished Graduate and Navy Recruiting District Junior Sailor of the Year.



**Construction Electrician 2nd Class (SCW) Marcia Martins** of Naval Mobile Construction Battalion (NMCB) 4 has been accepted for the Navy's Enlisted Commissioning Program (ECP). Martins, a native of Newark, N.J., qualified for both the Civil Engineering Corps (CEC) and Unrestricted Line (URL) programs and has accepted the CEC program.

"Locating training courses in fleet concentration areas allows the Sailors to spend more time with their families instead of away from home on temporary duty for training," said Dean Norman, an analyst on the CNET staff in charge of home-port training. "The new schools also create instructor billets near the fleet to facilitate home-basing Sailors on their shore rotation.

"Relocating the advanced welding course to the fleet concentration areas is estimated to save the Navy \$1.7 million per year in contract and travel costs," Norman said. "But, reduced costs are not the only benefit. The relocation will also increase the standardization of training and result in getting Sailors the proper training at the right time in their careers."

CNET also created Local Training Authorities (LTAs) in the fleet concentration areas to establish the training needs of their respective units and develop a program that provided quality training as efficiently as possible. The relocation of the advanced welding course is a direct result of that initiative.

For further information, contact ENS Sid Armer, in the CNET public affairs office at (850) 452-9110.

*Story courtesy of CNET public affairs.*

## Crown Prince Visits USS Portsmouth in Tonga

Just before the new year, USS Portsmouth (SSN 707) visited the South Pacific island of Tonga, just west of the international dateline.

While in Tonga, crew members took advantage of the tropical summer weather to sail, snorkel and take in the exotic sights around the island. Many availed themselves of the abundant Polynesian handicrafts to send home, while others participated in the King's Day festivities and feasts.

"Tonga was the perfect choice as our last port visit during our six-month deployment," said Machinist's Mate 3rd Class Andrew Pritchett, from Los Angeles. "The island is extremely beautiful and the pace is very relaxing.

"Everyone I met was friendly and went out of their way to make us feel welcome," said Electrician's Mate 2nd Class Wayne Long, from Albany, Ga. "This setting was more relaxing than our previous ports of call, and the people were the most embracing yet."

The crew also had the rare opportunity to host royalty while anchored off Tonga. Crown Prince Tupouto'a was among several distinguished guests from around the island who enjoyed a luncheon and tour of the boat.

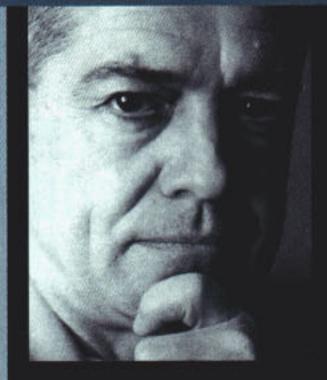
According to the crew, Tupouto'a did not arrive on board with much pomp and circumstance. "He was very down-to-earth and congenial, and seemed excited about touring Portsmouth," said

*(Continued on Page 11)*

Master Chief Petty Officer of the Navy  
MMCM(SS/SW/AW) Jim Herdt

# Speaking with Sailors

Photo by JO1 Robert Benson



It is with enormous pride and enthusiasm that I wish the Submarine Force a happy centennial birthday this month. We have thrived during the test of time for the past 100 years, often times setting the pace for the entire Navy.

Thousands of Sailors have fleshed out the steel skeletons of submarines since the purchase of our first submarine, *Holland VI* in 1900. We've been an extremely proud group of warriors from day one, and we continue to lead the Navy in many ways as a prideful community. I'm convinced the submarine community leads the Navy in capitalizing on current technology, while at the same time using that new technology to develop the next class of submarine.

Not a day goes by that I don't pull from the experiences I gained while serving onboard USS *Will Rogers* (SSBN 659), USS *Cincinnati* (SSN 693) and as Chief of the Boat aboard USS *Skipjack* (SSN 585). The camaraderie in the crew of submarines goes beyond simple teamwork — it's a family relationship.

The Secretary of the Navy christened the centennial year by very appropriately authorizing all U.S. submarines and submarine tenders to fly the Submarine Centennial flag in place of the traditional Union Jack. This is the first time since 1775 that a specific class of ship is flying a special jack. This flag honors the contributions of so many brave men and women who have served with and supported our Submarine Force in the last century.

Those of us wearing the submarine dolphins must continue to ensure our actions are worthy of the ultimate sacrifice our shipmates gave while on board the 63 U.S. Navy submarines that remain on eternal patrol. Continuing our patrols in the deep with the utmost honor, courage and commitment is the only choice worthy of our fallen shipmates.

Rising to the challenges of the next 100 years of silent service is our only option. Not only Americans, but much of the world's security depends on the dedicated service of shipmates wearing dolphins.

We have the distinct honor of serving in the most powerful Navy in the history of the world. This is something we should always be appreciative of and thankful for. However, I ask all Sailors this month to take a few moments to appreciate your shipmates you call submariners — past and present.

***Speaking with Sailors* is a monthly column initiated by the Master Chief Petty Officer of the Navy as a way of reaching out to the men and women of the fleet, whether they are stationed just down the road or halfway around the world.**

# Around the Fleet

## Submarine Stamps Honor a Century of "Silent Service"

In honor of the 100th anniversary of the establishment of the U.S. Submarine Force, the U.S. Postal Service (USPS) unveiled a series of forthcoming commemorative stamps during a recent ceremony in Groton, Conn., the historic home of American submarines.

The new stamps, released this month, honor the thousands of Americans who have served in the "silent service" and contributed to its long and distinguished record of both wartime daring and peacetime innovation. The set of five stamps portrays major milestones in U.S. submarine development. One stamp shows USS Holland (SS 1), commemorating the beginning of the submarine force nearly a century ago when the boat was purchased from inventor John Holland. Other stamps in the series show the S-class boats developed late in World War I, the Gato-class of World War II and the Los Angeles- and Ohio-class submarines that patrol the world's oceans today.

To review the highlights of that era, USPS has also produced a descriptive "prestige booklet" that will accompany the stamps themselves. Although such a brochure is quite common in foreign countries, it is a first for the USPS and will be sold in limited quantities at post offices throughout the country.

For more information about the postage stamps, visit the USPS web site at: [www.pmgg.usps.com](http://www.pmgg.usps.com).

Story by Morgan K. Einbinder, Undersea Warfare magazine.



©USPS 1999

## Ricky's Tour

By JO3 Mike C. Jones



[mikejones43@hotmail.com](mailto:mikejones43@hotmail.com)

# On assignment



Photo by MM3 (SS) Anthony Signorella

Who would have ever thought I would become an honorary submariner? Surely not me; I like my space! I had so little of it on USS *Miami* (SSN 755) that I actually had to sleep with my camera bags barricading me in an already cramped 6 foot by 2 foot rack. All I could do was hope the sub would not take a hard rudder change and send me, and my three bags, flying out face first on top of the two unlucky guys who had to sleep below me.

What can I say? It was a great time for me and hopefully the crew, whom I feel I got to know very well over the three-day tour. I have to hand it to those who spend their Navy careers submerged in the murky depths of the ocean; it definitely takes a special breed of Sailor to get a set of Dolphins.

*Watson gained his submarine experience while covering USS Miami (SSN 755). (See story on Page 24.)*

Electronics Technician 2nd Class Michael Geiger, from Phoenix.

Tupouto'a was intrigued with the stealth and versatility of the Los Angeles-class submarine, he said. "This is the most impressive warship I have ever visited, and I look forward to more U.S. submarine visits in Tonga."

## Navy's Largest Autonomous Submarine Set for Underway Trials

**C**utthroat (LSV 2), the next generation submarine stealth technologies test vehicle, is now under construction at the Navy's Acoustic Research Facility at Lake Pend Oreille, Bayview, Idaho. She is scheduled for underway trials in November 2000 and delivery in February 2001.

Students at Athol Elementary School in Athol, Idaho, selected the name Cutthroat after the Westslope Cutthroat Trout that lives in lakes and streams of Northern Idaho and Western

Montana.

The 111-foot long unmanned vessel will be a quarter-scale version of the Navy's New Attack Submarine (NASN) and will be used as a demonstrator for the advanced technologies anticipated for the submarine.

In achieving a quieter and more maneuverable test platform for the next century, Cutthroat will apply advanced electric drive technologies and a unique partnering agreement with industry to field the latest in permanent magnet propulsion motor and motor drive systems. High data rate sensor recording will enable improved hydrodynamic experimentation. Advancements in control surface actuation and ballast tank solid port closure systems will be demonstrated. The auto-pilot and guidance and navigation control systems will be the most sophisticated of its kind.

*Story by Dennis Everette, a journalist assigned to All Hands.*

## U.S. Navy Submarine Straddles History

**A**s the world celebrated the new millennium, it was business as usual for the U.S. Navy — underway serving America. One boat, USS *Topeka* (SSN 754), homeported at Pearl Harbor, was at an interesting location.

On deployment in the Pacific, she surfaced at the intersection of the international dateline on the equator. By virtue of this location, the first American Sailors to welcome the New Year also simultaneously experienced different hours, days, months, years, centuries and millenniums in two hemispheres and in two seasons.

*Story by CINCPACFLT Public Affairs.*

## Navy Non-High School Graduate Recruits Earn GEDs at High Rate

**T**he U.S. Navy, like the other branches of service, works hard to attract the best and brightest young people to its ranks. Ninety percent or more come to the Navy with a high school diploma, and some with college degrees. But what about the roughly 10 percent who have not completed high school?

But, nearly all of those non-high school graduate recruits take the General Education Development (GED) test shortly after they arrive at Recruit Training Command (RTC) at Great Lakes Naval Training Center, Ill., and 82 percent pass the test.

To enter the Navy, a non-high school graduate must score in the upper 50 percent on the Armed Services Vocational Aptitude Battery (ASVAB) test. Generally speaking, it was not academics that prevented them

from completing high school.

According to Carl Ross, chief of staff for training at Great Lakes, "It isn't their past, but what they are going to do in the future that concerns us. If they can qualify, and if we can get them into our training pipeline, we know they can do the job."

Their ability to succeed was shown most recently when Division 051, made up entirely of non-high school graduates, received the Chief of Naval Operations award flag at their graduation for excellence in academics, physical training, drill and other areas of performance.

These young and men women all must complete an extra week of training, called Academic Capacity Enhancement (ACE). The ACE portion of the boot camp curriculum occurs after the initial processing days, but prior to the start of actual boot camp training. The GED test is folded into the ACE curriculum.

RTC Great Lakes was established as a Defense Activity for Non-Traditional Education Support (DANTES) Test Center in cooperation with the Great Lakes Navy College office for the purpose of administering the GED examination to non-high school graduate recruits.

The GED Exam is a comprehensive exam made up of five tests (English, Social Studies, Mathematics, Art and Literature and Science). Two days are devoted to administering the exam to the recruits. The exam itself takes about eight hours to administer.

Taking the exam is optional, but approximately 90 percent of eligible recruits choose to take it. Of those, 82 percent pass and earn a high school equivalency diploma.

*Story by Bill Dermody, Naval Training Center public affairs,*

# One Hundred

A M E R I C A N S U B

Story by Dr. Gary E. Weir

## Silent

In the year 2000, the American submarine force will celebrate the first century of service by highly skilled people in some of the most technologically advanced vessels ever built. The past 100 years have witnessed the evolution of a force that mastered submersible warfare, introduced nuclear propulsion to create the true submarine, and for decades patrolled the deep ocean front line; the hottest part of an otherwise Cold War.

### BEGINNINGS

The U.S. Navy's involvement with the submarine dates from 1888 when the Bureau of Construction and Repair (BUC&R) sponsored a design competition that brought John Holland a naval contract to build the experimental Plunger. As the new century dawned, prominent American naval leaders like Admiral George Dewey called the submarine a real threat to international surface forces, leading the Navy to acquire its first submarine in 1900. Overcoming competition from fellow American inventor, Simon Lake, Holland sold his newest model, *Holland VI*, to the Navy for \$150,000 on April 11, 1900. This 64-ton submarine, commissioned as *USS Holland*, or SS 1, Oct. 12, 1900, was equipped with an Otto-type gasoline engine for surface running and electric motors for submerged operations.

Due to the volatility of gasoline, American submersible designs soon followed the French practice, adopting the diesel engine in 1909 with the Electric Boat Company's F class (SS 20 through 23), built at Union Iron Works in San Francisco. Combining the influence of diesel propulsion with the submersible designs of Holland and Lake, American

submersibles took on a familiar configuration through American entry into the Great War. Submarines of the E, H, K, L, M, N, O and R classes ranged in displacement from 287 to 510 tons, with the fastest boats displaying a top surface speed of barely 14 knots on diesel power.

During World War I the U.S. Navy separated these submersibles into two groups according to mission. "Boats" of the N- and O-classes, as well as some of the E-type, patrolled American coasts and harbors following a defensive strategy.

Other submarines drew assignments that sent them to hostile European waters after 1917. Some K-, L-, O- and E-class boats conducted offensive, open-sea operations from the Azores and Bantry Bay in Ireland. They supported the Allied effort to maintain open sea lanes along the European coast and in the approaches to the British Isles.

The Navy Department's plans for these vessels reflected the prevailing surface warfare thinking, which perceived the submersible as a type of destroyer or torpedo boat that should operate with the battle fleet. Thus the first foray into submarine design by the Bureau of Construction and Repair and the

# 100 Years of the MARINE FORCE

Bureau of Steam Engineering produced the faster 15-knot, 800-ton, S-class submarine in 1916 with the assistance of Electric Boat Company and Lake Torpedo Boat Company. At virtually the same time, Electric Boat received a commission to design the three boats of the 20-knot T-, or AA-class, with a normal displacement of 1,107 tons. On paper these characteristics, adopted during World War I, brought the Navy one step closer to the "fleet submarine," a submersible that could keep pace with the battle fleet.

## SHAPING AN IDENTITY

The German U-boats of the 1914-1918 conflict gave American officers and designers reason for pause. Physically durable, powered by very reliable diesels, technically blessed with very long sea legs, they provided the paradigm for American interwar development. At the same time, the 1916-vintage American S-class proved a virtual clinic for basic design mistakes, burdened with difficult metallurgical problems and very unreliable diesels.

While RADMs Harry Yarnell and Samuel Robinson, successive interwar chiefs of the Bureau of Engineering, worked to remedy the technical flaws with solutions from European and American engineering practice, the community of submarine officers struggled with a problem even more fundamental than propulsion. How should the Navy use submarines? What was their proper strategic role?

During the interwar period influential officers like CAPTs Thomas Hart and Yates Stirling Jr., ADMs Henry Wiley and Frank Schofield and the innovative CDR Thomas Withers debated these issues with the German paradigm in mind.

Unfortunately, this model did not offer easy direction. While the German commercial warfare strategy and independent patrol tactics had great effect on the war effort of the Entente and its allies, incidents like the sinking of the passenger liner RMS *Lusitania* painted this style of warfare with a dark brush, suggesting immorality when submersibles operated without restriction.

American officers realized that war in all of its brutality, not peacetime politics or worthy ethical concerns, would determine the future challenges faced by the submarine force. In spite of official policy, the boats under construction in the 1930s reflected assertive, offensive strategic thinking as the country came to terms with the Depression under Franklin Roosevelt and the Bureaus of Construction and Repair and Engineering resolved the submarine engineering and propulsion dilemmas.

The new *Salmon-Sargo* designs were intended for long-range independent patrols, with requisite food, fuel, and weapons capacity. In addition, the fleet exercises and war game scenarios during the late 1930s permitted these vessels to attack warships, convoy escort ships, and even certain convoys identified as critical to enemy logistical support. By 1940, the submarine force had answered its fundamental strategic questions and had the vessels to carry out the consequent roles and missions. Thus, when ADM Thomas Hart proclaimed unrestricted submarine warfare against Japan, Dec. 8, 1941, it came as no surprise. The submarine force knew what to do.

## SILENT VICTORY

Employing the extremely reliable boats of the *Gato*-, *Balao* - and *Tench*-classes, the submarine force scored the

most complete victory of any force in any theater of the war. In spite of a hesitant beginning due to the Pearl Harbor surprise and difficulties with defective torpedoes, the submarine force destroyed 1,314 enemy ships for 5.3 million tons that translated into 55 percent of all enemy ships lost. Out of 16,000 submariners, the force lost 375 officers and 3,131 enlisted men in 52 submarines, the lowest casualty rate of any combatant submarine service on any side in the 1939-1945 conflict.

While the Japanese advanced quickly after Pearl Harbor and the Navy struggled to recover from Dec. 7, 1941, the submarine force brought the war to the enemy operating from Pearl Harbor, and Australian bases at Freemantle, and Brisbane. Submarines played a variety of roles in the war effort, demonstrating the versatility of stealth.

Among those Allied warships regularly able to penetrate Japanese controlled areas, American submarines had extraordinary success against both Japanese merchantmen and warships. In the late summer of 1942, LCDR Henry C. Bruton in command of USS *Greenling* (SSN 614) on her third war patrol destroyed 32,050 tons of enemy merchant shipping and damaged a 22,000 ton converted carrier. Bruton ended the war ranked 13th among the submarine force's aces.

Refining their methods of attack made American submariners the worst enemy of any ship flying the Japanese flag. In early 1943, USS *Wahoo* (SS 565) put to sea on her third war patrol under the command of LCDR Dudley W. Morton. Morton and his executive officer, LT Richard O'Kane, implemented and further refined a new method of attack suggested by ADM James Fife,

commander of the American submarines operating out of Brisbane. While O’Kane manned the periscope and made all of the observations, Morton was left free to evaluate the entire combat situation, making possible swift, informed and effective approach and attack decisions.

The talent of Morton and O’Kane as well as their new command and control procedure enabled *Wahoo* to sink 31,890 tons of Japanese shipping on that patrol. Morton received the first of four Navy Crosses and his ship took home a Presidential Unit Citation. Later in the war, as commanding officer of USS *Tang* (SS 563), Richard O’Kane received the Medal of Honor and became the submarine force’s leading ace of the war, credited with destroying 31 ships for 227,800 tons.

In addition, submarines played both humane and special operations roles in their campaign against Japan. In many of the hardest fought battles of the war submarine crews rescued unlucky carrier pilots who ended up in the sea, like future president George Bush. Fleet submarines also delivered troops tasked with special missions against Japanese Pacific strongholds. In August 1942, USS *Nautilus* (SS 169) and USS *Argonaut* (SS 166) delivered Marine Corps Col. Evans F. Carlson’s “Raiders” to Makin Island. Upon completing their mission to reconnoiter the island and destroy its most important facilities, the two submarines picked up the Marines and returned to Pearl Harbor.

In the final months of the war, American submarines had difficulty finding targets because the Japanese had virtually no ships left to sink. Undaunted, submarine commanders pursued the enemy into his harbors and hiding places. Employing newly developed FM sonar sets, American submarines penetrated the minefields of closely guarded Japanese home waters to seek out warships and supply ships at anchor. There was no place to hide. The silent victory was complete.



By 1976, the Navy added the 688-class to our arsenal. USS *Los Angeles* (SSN 688) was designed to counter the expanding Soviet naval threat.

## DEEP OCEAN, COLD WAR

Undersea warfare underwent a revolution after World War II and the American submarine force led the way. Building on the advanced submarine designs created by the Germans during World War II, the Navy anticipated submarines of the future going deeper, staying there longer, and moving much faster. Indeed, in reports submitted in 1949 and 1950, naval and civilian advisors suggested that advanced German U-boat technology exploited by the Soviets might present the most potent post-war naval threat to the United States. No warship of the time could effectively detect and track a submarine like the German Type 21 which could sustain a 17 knot submerged speed for at least 30 minutes.

Almost immediately after the war, the submarine force began experimenting with high speed, sophisticated silencing techniques, sensitive sonic detection, and deeper diving. The result took the shape of the greater underwater propulsive power (GUPPY) conversions that changed the configuration of wartime submersibles to enhance submerged speed and hydrodynamic efficiency. The *Tang*-class, the first truly new postwar construction, represented an initial step on a new road toward greater speed and endurance below the surface.

It also provided the basic hull form used for the first true submarine.

*Nautilus* went to sea propelled by a pressurized water nuclear plant in January 1955 and set a new standard for this type of vessel. Its submerged endurance was limited only by the crews’ periodic need to see both their families and the light of day. Rather than a surface ship capable of submerging when the need arose, this submarine’s natural environment lay below the surface. *Seawolf* and *Skate* — class hunter-killer submarines quickly followed *Nautilus* and together they demonstrated the new extent of submarine effectiveness, from the deep ocean, to the shallows, to the polar regions. This was the vessel John Holland wanted to create but could not because of the limits of science and technology at the turn of the century.

## LAND, SEA AND AIR

The advent of nuclear submarines provided the final piece to a number of promising technical puzzles. The quest for greater submerged speed, initiated in earnest after 1945, found its way to the Navy’s David Taylor Model Basin just as ADM Hyman Rickover’s nuclear propulsion project succeeded with *Nautilus*. The research at David Taylor provided insights into the ideal hull form for high-speed submarines. With the conventionally-powered experimental *Albacore* (SS 569), submariners reached an extraordinary submerged speed.

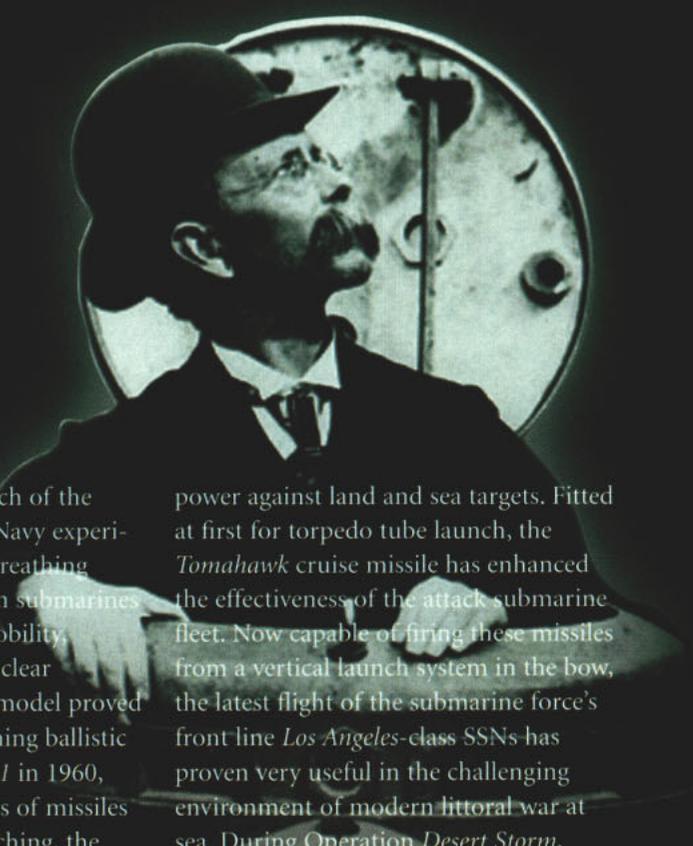


CAPT Hyman G. Rickover, known as the father of the nuclear Navy, was selected to head the Bureau of Ships Nuclear Power Branch in 1948.

In the fast attack submarine USS *Skipjack* (SSN 585) the endurance of nuclear propulsion and the high speed of the *Albacore* teardrop hull came together to form the new paradigm. Every American submarine since 1958 has followed the same basic formula. The attack submarines proved very effective during the Cold War in addressing the Soviet submarine threat in the north Atlantic and northwest Pacific through surveillance and deterrence.

The *Nautilus-Albacore* combination

Submarine Builder, John Holland, delivered *Holland VI* to the Navy, April 11, 1900.



also served to extend the reach of the submarine force. While the Navy experimented with launching air breathing missiles like the *Regulus* from submarines during the late 1950s, the mobility, stealth, and endurance of nuclear submarines on the *Skipjack* model proved the ideal platform for launching ballistic missiles. From the *Polaris A-1* in 1960, through multiple generations of missiles suitable for submerged launching, the Navy's fleet ballistic-missile submarines (SSBN) have provided the ultimate nuclear deterrent. As opposed to easily targeted land-based missiles easily targeted, SSBNs are in constant motion, hiding deep in the ocean, with virtually unlimited endurance, capable of reaching almost any target at the direction of the president.

With the current *Ohio*-class SSBNs, the submarine force employs this is the most effective and survivable component of current American strategic nuclear defense.

Since the 1970s, the submarine force has also provided the Navy with a healthy way of applying tactical fire-

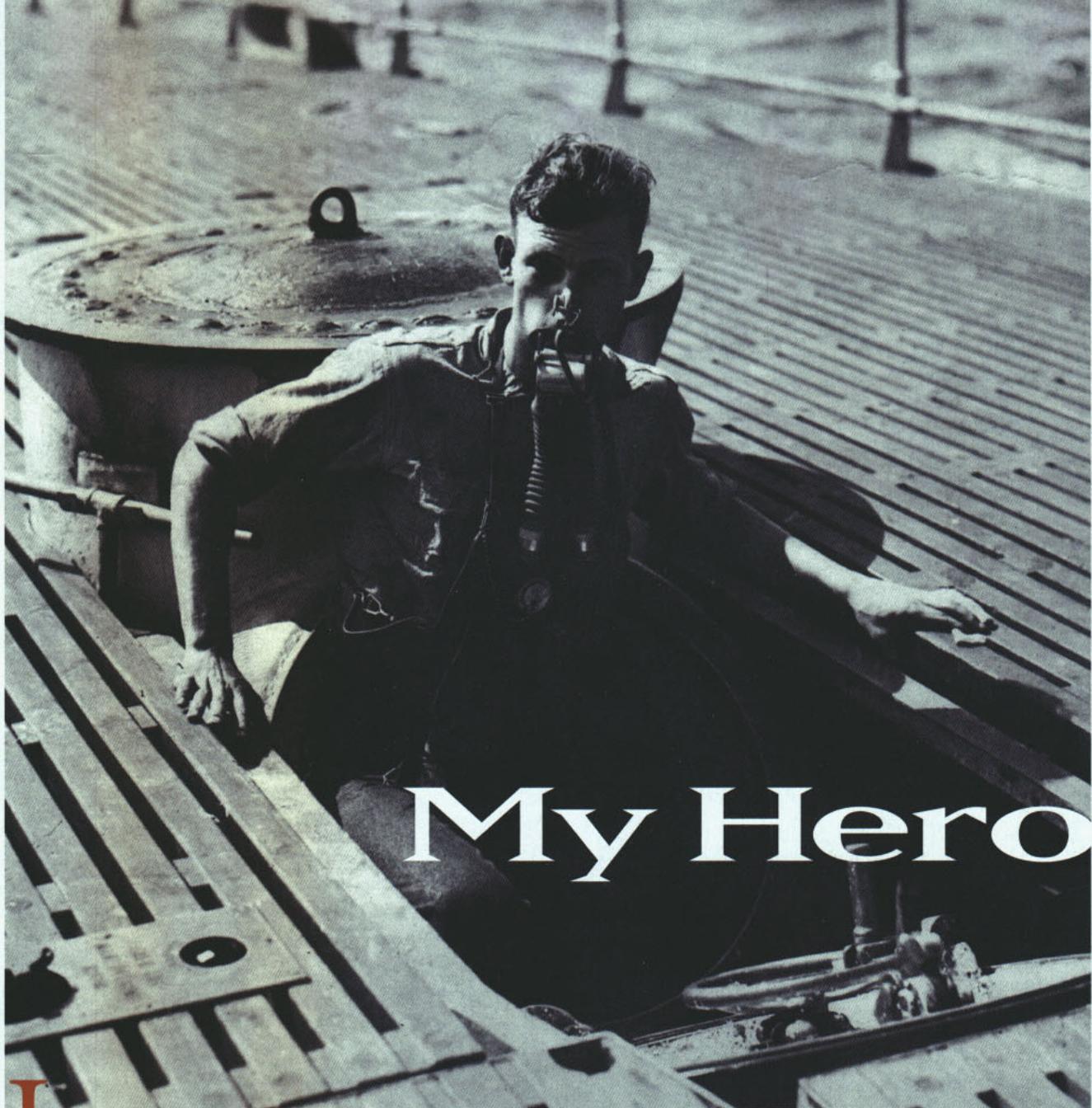
power against land and sea targets. Fitted at first for torpedo tube launch, the *Tomahawk* cruise missile has enhanced the effectiveness of the attack submarine fleet. Now capable of firing these missiles from a vertical launch system in the bow, the latest flight of the submarine force's front line *Los Angeles*-class SSNs has proven very useful in the challenging environment of modern littoral war at sea. During Operation *Desert Storm*, submarine-launched *Tomahawks* proved their extraordinary effectiveness during the first combat use of the submarine force's new capability. Mediterranean submarine operations during the Persian Gulf conflict are a case in point.

With their stealth quiet manner, endurance, diverse weapons array, and ability to detect threats while effectively communicating with the fleet at great range, American submarines conduct both independent tactical and strategic patrols as well as operations in support of carrier battle groups. The effort to integrate the submarine more thoroughly with air and surface forces suggests that naval warfare of the future will require a flexible mix of assets designed for a future filled with constantly changing defense demands. Always on the cutting edge, the submarine force will help the Navy sustain the adaptability necessary to control tomorrow's battle space.

*Weir is chief of the Contemporary History Branch, U.S. Naval Historical Center, Washington, D.C.*



*Ohio*-class submarines carry more than 50 percent of the nation's nuclear arsenal.



U.S. Navy photo (NH 45641)

# My Hero

**L**et me take you back to a day in late May 1939,

three months before the outbreak of World War II. America's newest sub, *Squalus*, was on a test dive off Portsmouth, N.H., when the sea suddenly surged into her compartments, and she plummeted to the North Atlantic floor. Miraculously, 33 of her crew remained alive. Their ultimate fate would depend on one man — Swede Momsen.

At that time, the mysteries of the ocean depths — our inner space — and how they affected man both physically and psychologically were as exotic as outer space. But everything that could possibly save a trapped submariner, new deep-sea diving techniques, artificial lungs and a great pear-shaped rescue chamber was a direct result of Momsen's pioneering derring-do, his own life constantly on the line to prove them out. None, however, had yet been used in an actual undersea catastrophe. Now they would be, and under the worst possible circumstances — in fickle weather, the water frigid, the men beyond the reach of any previously imagined help.

The Navy was then run by battleship admirals.

"Who does this Momsen think he is, Jules Verne?" one of them asked. The fact was that, as a boy growing up in Minnesota, he had been enthralled by Verne's classic novel *Twenty Thousand Leagues Under the Sea*, which propelled him

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## My Hero

**Left:** Crewman A. L. Rosenkotter demonstrates the use of the ship's escape hatch and emergency escape "Momsen Lung," during USS V-5 (SC 1), later named USS *Narwhal* (SS 167) trials, July 1930. **Below:** On board USS *Falcon* (ASR 2) men worked feverishly during the salvage operation of USS *Squalus* (SS 192). LCDR Charles Momsen stands next to the rail (third man from left) while crew members suit up two divers. (May 30, 1939). **Bottom:** The McCann diving chamber was placed on the after deck of USS *Falcon* (ASR 2) during salvage operations for USS *Squalus* (SS 192), May 30, 1939.

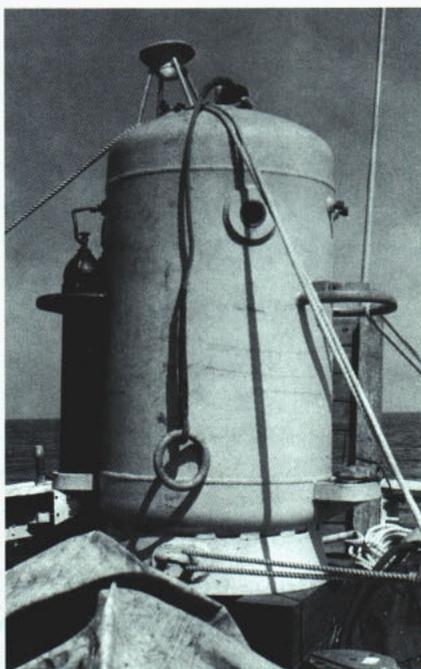


U.S. Navy photo (NH 57501)

to enter the Naval Academy in the first place. To be in submarines, "to live within the ocean," as Verne wrote. During Momsen's early years as a submariner, it was a given that if a sub went to the bottom — which they did with nerve-wracking regularity — her crew was doomed.

He found this unacceptable. On his own, battling bureaucratic red tape and disbelieving naysayers, he first invented an escape lung for trapped crewmen to rise to the surface and next a rescue chamber that could be lowered into ocean depths.

When the *Squalus* disaster occurred, he was developing a new breathing mixture of oxygen and helium so that deep-sea divers could descend farther than anyone thought



U.S. Navy photo (NH 57503)

possible. (This same basic mixture is used for the scuba diving we now take for granted. During the height of the Cold War, it enabled Navy divers to tap vital Soviet undersea telephone cables.)

Swede Momsen's perilous mission to save the survivors of *Squalus* remains, to this day, the greatest undersea rescue in history. While it was headline news, it was eclipsed by the outbreak of war.

During World War II, Momsen continued his death-defying exploits. When it was discovered that many of our torpedoes fired against the enemy were duds, he dived into the water to find and examine one. He had it retrieved and, with the possibility of being blown to bits, not only discov-

# My Hero

**Below:** A diver prepares to enter the water at Diver Training School Washington Navy Yard, Washington, D.C., May 1943.

ered what was wrong, but also fixed it.

After the war, he left a lasting legacy. When the Navy's Hyman Rickover began working with nuclear power, it would be tried out initially in a submarine as a matter of cost efficiency. If it proved successful, aircraft carrier admirals, now in control, foresaw much bigger atomic power plants for carriers and their escorts.

Momsen saw something entirely different. Submarines, because of their dependence on battery power underwater, were actually surface ships that occasionally dipped beneath the waves. Yet with the advent of nuclear power, a true submersible was within grasp, potentially the Navy's new backbone of the fleet.

To speak openly about what he privately envisioned would invite a fast ride to the booby hatch. So Momsen, knowing that carrier admirals were concerned about sneak sub



U.S. Navy photo by NPSL Anacostia

attacks, presented his proposal as a target for submarine hunter-killer groups to practice on. Funds were soon appropriated.

His creation, *Albacore*, built in Portsmouth just as *Squalus* had been, shaped like a fish with a cod's head and mackerel's tail, out-ran and out-

maneuvered anything that went after her. She was so swift that her crew had to hang on to overhead straps like subway riders, and from her has evolved the design of all our modern submarines.

After *Albacore*, Momsen retired from the Navy and became a consultant to several companies interested in exploring and mining the rich possibilities that lay in the oceans. Throughout his naval career he had never indulged in the slightest bit of self-promotion. But hadn't the constant rebuffs he encountered hurt? I asked him once. "Sure," he replied, "but seeing that first survivor from *Squalus* come out of the rescue chamber made it all worthwhile."

He died a hard death from cancer in 1967. It was heartbreaking to see this indomitable man waste away. He taught me new lessons in courage. Of his cancer, he said, "There are some

## The Dive

EXCERPTED FROM THE BOOK *TERRIBLE HOURS* BY PETER MAAS

**M**AY 23, 1939. 8:41A.M. THE SUB'S CONTROL room board consisted of red and green lights. Each represented a specific aperture in the hull or conning tower. Green meant closed and watertight. Red showed that it was still open.

The last two red lights turned green. They were for the two big valves on the side of the conning tower. One ventilated the sub. The other fed air to her surface diesels. Now, on battery power, *Squalus* slid down into the ocean. It was her 19th test dive.

In the control room, after sounding the second dive warning, Chief Campbell instinctively glanced at the board and saw it was green. Yeoman Kuney, manning the control-

room phone, also saw it was green. Kuney liked to bet with himself whether he would ever get word of a closing before it showed on the board. The board always won.

Al Prien, releasing his grip on the lever that closed the valves, saw that the board was green. So did Preble, the test superintendent, stop watches in hand. The aim of this dive was to reach 50 feet in 60 seconds. In wartime, it could mean the difference between life and death.

Just as the klaxon was honking, Captain Naquin reached the bottom of the ladder from the conning tower. He too saw that no red lights registered on the board. At a depth of 28 feet, *Squalus* hesitated. It took a few moments for her battery power to take over. Then she started to

# My Hero

*Below:* Bow view of USS *Squalus* (S 11) at the outfitting pier, Navy Yard, Portsmouth, N.H., Jan. 7, 1939.

things you can't do anything about." He shrugged slightly. "Just like the fog at sea," he said.

I wrote about him then. The time could not have been worse. The nation was exploding in turmoil over the Vietnam War. The last thing anyone was interested in was a long-forgotten submarine and a military man.

But times have changed. So I decided to research further the events of his life and what he meant to us. In pursuit of this, I returned to Portsmouth, where, embedded in concrete, is the superstructure and part of the deck of the old *Squalus*. With it now, since Swede Momsen's death, is the slender, rakish tower of *Albacore*. They are monuments, of course, to what they stood for and to the men who served on them.

They also stand as mute tributes to a true hero.

U.S. Navy photo (Neg. No. 18-30)



## He cried out the terrifying news:

### *“Sir! The engine rooms! They’re flooding!”*

plunge down again.

At 30 feet, Preble said to Naquin, “Good, good.”

“This,” Naquin replied, “is going to be a beauty.” The depth gauge moved faster... 35 feet... 40... 45. Up inside the conning tower, Frankie Murphy saw the sea flash over his eyeports.

At 50 feet, both Naquin and Preble called out, “Mark!” They stopped their watches and compared results. The time was a fraction more than 60 seconds. Naquin smiled. It was better than he expected. He still had three weeks for more crash dives before *Squalus* was ready to pass her final trials and join the fleet.

Automatically, he stepped to his No. 1 periscope,

gripped its handles and bent forward slightly to peer through its rubber-cupped eye piece. As he did, a strange fluttering assailed his ears.

An instant later, Kuney's eyes went wide with disbelief. Not at what he saw, but at what he was hearing. For the first time, word of something had come over his phone that wasn't reflected on the control board.

He cried out the terrifying news: “Sir! The engine rooms! They’re flooding!”

*Excerpted from the Terrible Hours. Copyright ©1999 by Peter Maas. Published by Harper Collins.*

Compiled by JO1 Robert Benson

**A**t the start of events that became known as the Cuban Missile Crisis, I was stationed aboard USS *Chopper* (SS 342) in Key West. A squadron of brand new F-4s came to NAS Boca Chica the week before and kept doing fly arounds near Key West. Then, *Hawk* missile batteries showed up on the beaches. The U.S. Army requisitioned all the hotel space in Key West. That was serious business.

At that time I was an ENFN and in the Seaman's gang. I was standing topside mid-watch (midnight to 4 a.m.) at the brow when I noticed lights coming on at various buildings along the waterfront at the Key West Submarine Base. Then cars and trucks were seen whizzing about, and especially going to each submarine tied alongside a pier.

# Sub Sea

# War Ready

By former EM2(SS) Patrick Householder

Soon a car came alongside *Chopper*, and a hassled looking officer asked for the duty officer, who was then instructed to recall all our officers and crew to stand by to take on patrol supplies, and be ready to depart by 8 a.m.! All subs were given the same instructions. Not long afterwards, a large truck roared up to *Chopper*, and all hands on board commenced loading boxes of food, foul weather gear, spare parts and fuel.

At 8 a.m. the next day, all the submarines had their engines roaring and the smoke hung heavy over the waterfront as the first of SUBRON 12's submarines got underway. One submarine had been in minor overhaul alongside the pier, with her propellers removed, and in the haste to make ready, they were re-installed backwards!

By 10 a.m., the entire squadron was on the high seas and the sight of each submarine doing a 'trim dive', one after another, was quite a sight to see by this young Sailor on lookout duty. *Chopper* turned northward and the crew was then informed by the captain about the impending Cuban blockade. *Chopper* steamed at top speed to Navy Base Mayport, Fla., where we took on fuel and an Underwater Demolition Team (UDT). Then we turned south to take station off of Cuba.

*Chopper's* mission, as I understood it, was to deliver a UDT to a place near Havana harbor, where they would "lock out" of the forward escape trunk and swim into and sabotage ships and facilities in the harbor. While on that patrol I recall we were dogging some Russian

nuclear boat, but when he got tired of the game, he put the pedal to the metal and all we could do is listen to him fade away in the distance.

I think we were operating with some "Tin Can" that had the new side scan sonar. After a week or so, Russia withdrew her missiles, and *Chopper* returned to Key West. Later that year, then-President Kennedy made a visit to Key West Naval Station and stopped and boarded *Chopper*. He spoke to the captain and officers, thanking them for doing their duty, and departed.

*Householder joined the Navy in 1960. He served in submarines from 1962-1964 aboard USS Chopper (SS 342) and from 1964 to 1966 aboard USS Redfish (SS 395).*



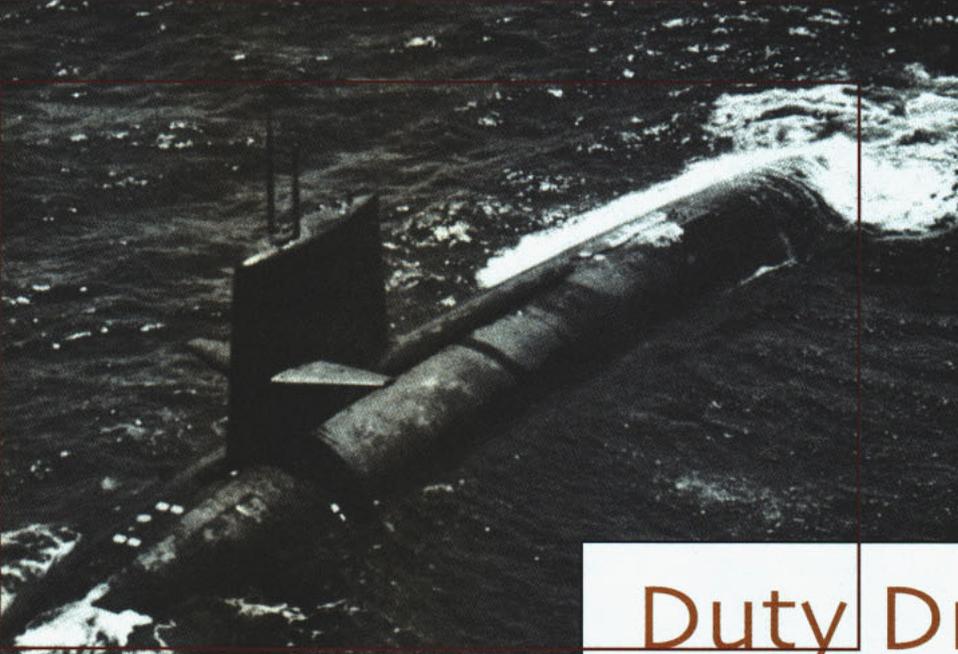
# Stories

# The Boat Crew

By former RM1(SS) Paul Perris

Well, let's see. Right off the top of my head, what makes a submarine crew so tight? I'd have to say we've all had an experience unlike any skimmer could possibly fathom. It's one of those, "You just have to have been there, done that" type of thing. Everyone who has done a tour of duty on a submarine has been in a life or death situation where your life depended upon a qualified person being in the right place, at the right time.

As for the environment being a little more relaxed on a submarine? To a certain extent it is. When it comes time to work, which is often, everyone, and that means everyone, comes together. And on the other hand, when its time to play, most all boat Sailors I



## Duty Driving

By former RM1(SS) Jack Hester

In 1961 I was a member of USS *Snook's* (SSN 592) commissioning crew. As such, the Chief of the Boat (COB) had selected me as duty driver for Admiral Rickover whenever he came to Pascagoula, Miss., to inspect progress on *Snook's* construction. The admiral was a stickler for using every moment of your life to increase your knowledge. He had absolutely no use for anyone wasting a moment of opportunity, regardless of what that opportunity might be. The most memorable occasion I had while driving the admiral was the day I picked him up at the Mobile, Ala., airport to transport him to our boat at Ingalls Shipbuilding in Pascagoula.

Upon entering the gate at Ingalls, immediately to our right, was a large empty field. As we went through the gate, the admiral asked, "Driver, what type of vegetation is in that field to our right?"

I looked to the right and it looked like a bunch of weeds to me, but I replied, "I have no idea, Sir."

The admiral then asked, "How long have you been in Pascagoula?"

I replied, "Two months, Sir."

"Do you come through this gate everyday?" he asked.

"Yes sir," I said.

"You mean to tell me that you have come through this gate everyday for two months and you have never taken it upon yourself to find out what is growing in that field?" he asked.

"Yes sir, that is correct." I answered. (I knew that was NOT the answer he wanted)

"Well young man, I will be leaving here Sunday and YOU WILL be my driver and I want an answer to my question when you pick me up, understand?"

You can not imagine how many people living in Pascagoula in 1961 had

no idea what was growing in that field. I asked everyone I saw, but no one could provide me with a satisfactory answer. I did receive a lot of comments on what to tell the admiral, but they were not related to vegetation.

Sunday came and I knew I was going down the tubes. I didn't have to mention it to the admiral, he immediately asked me. I told him I had been unsuccessful in finding what I could believe to be a correct answer. He then said, "You could have lied to me and I would probably never would have known the difference, but you gave it an effort and then told the truth and that's all anyone can ask of anyone."

Twenty-nine years later, I still wonder what the heck those "weeds" were.

*Hester was a crew member assigned to USS Snook (SSN 592) in the early 1960s.*



know, play like they work. You're constantly on your toes while on the boat. Any sound, any vibration, anything not quite right,

immediately grabs your full attention. While on liberty, its time to give your mind a break. Your brain kind of shifts into neutral and freewheels for a little while, like zero floating the batteries.

When it's time to get underway again, your brain has new life in it and is ready to do it all over again. There's no such thing as theft on a boat. A lot of borrowing takes place but never any out and out theft. I've seen a guy leave his white hat on his rack with his wallet with all of his money sticking out a little and his white hat might be gone temporarily but his wallet could lay there until hell freezes over and the cash will always be there. The white hat eventually shows back up, too. I can't remember ever having a hat with my name on it. Come to think of it, I went to an inspection one time wearing a buddy's extra uniform with the wrong crow because mine was screwed up and I didn't have time to fix it.

I served almost 10 years and if the situation arose tomorrow, I'd do it all over again, but just a little differently next time around. It's funny how after more than 20 years have passed, its hard to remember the bad times, only the good, and boy I had my share of good thanks to a lot of excellent shipmates.

*Perris was in the Navy from 1968 to 1977 and was assigned to USS Bonefish (SS 582) from 1970-1974.*



## Fine Dining

By retired ENC(SS) Charles Franklin

**T**his happened while I was serving aboard USS *Redfin* (SS 272) in 1962 or 1963. The crew had been eating off the high side of the cow for approximately six or seven months: only the best cuts of meat, in true submariner style.

Unbeknownst to the crew was the fact that the cooks were required to take a portion of ground meat with each requisition. To make a long story short we ended up eating ground beef three meals a day for approximately two or three weeks, to deplete the stores problem. Breakfast, lunch, dinner and in between.



## "Aye, Aye, Sir"

By former IC2(SS) Steve Atkatz

**I**n 1953, I was aboard USS *Toro* (SS 422) somewhere in the North Atlantic. Our Executive Officer LT Dave Eaton, a rather prim and proper type, but an excellent officer nevertheless, had been trying to impart some sense of dignity and decorum to a somewhat rowdy crew.

**The Scene:** The Control Room, Time 11 a.m.

**Eaton [to QM2(SS) Mobley, QMOW]:** Mo, repeat this after me. "Luncheon is now being served for the oncoming watch in the crew's dinette."

**Mobley:** "Luncheon is now being served for the oncoming watch in the crew's dinette, Aye."

**Eaton:** Now announce it.

**Mobley (keying the mike on the IMC):** "Chow Down."

PS: Luckily for Mo the CO was there, heard the whole exchange, and got a big chuckle.

*Atkatz was stationed on USS Toro (SS 422) from 1952-55. Atkatz was stationed on USS Toro (SS 422) from 1952-55.*

# CREW HELD FOR

# RANSOM

Being held for ransom can rattle anyone. And being held under such a situation more non-negotiable. Yet, this crew held for ransom, CDR James Ransom, USN, is not in jeopardy. That is, on board USS *Miami* (SSN 755) they are in jeopardy. They're submariners and trained in every aspect of survival from fire fighting and damage control to the helm and plotting her course.

Officer of the Deck, LTJG Alexander Barbara (right), stands watch on the bridge of *Miami* not seeing or expecting the imminent wave that ETSN Jason Spoonmoore is preparing himself for as it comes crashing over the side.

(inset) CDR James Ransom relays a message that USS *Miami* (SSN 755) will be passing another submarine and that the helm needs to make bearing changes to correct for two subs in the channel.



# One Hundred Years of

## AMERICA'S SUBMARINE FORCE

A COMMEMORATIVE RETROSPECTIVE  
OF SELECTED CLASSES

# ALL HANDS

MAGAZINE OF THE U.S. NAVY

### Holland-class



**General Characteristics, Holland-class**

**Builders:** Crescent Shipyard, Elizabethport, N.J.

**Power Plant:** Otto Gasoline Engine (surfaced), Electric batteries (submerged)

**Length:** 53.8 feet (16.4 meters)

**Beam:** 10.7 feet (3.3 meters)

**Displacement:** 64 tons surfaced, 74 tons submerged (65/75 metric tons)

**Speed:** 6 knots (11 kph)

**Crew:** 1 Officer, 6 Enlisted

**Armament:** One 18-inch (457 mm) torpedo tube, Three *Whitehead* torpedoes

**Date Deployed:** Oct. 12, 1900 – USS *Holland* (SS 1)

1900

### K-class



**General Characteristics, K-class**

**Builders:** Fore River Shipbuilding, Quincy, Mass.; Union Iron Works, San Francisco; Seattle Construction & Drydock Company, Wash.

**Power Plant:** NELSECO/Busch-Sulzer Diesel (surfaced), Electric batteries (submerged)

**Length:** 153.6 feet (46.8 meters)

**Beam:** 16.7 feet (5.0 meters)

**Displacement:** 392 tons surfaced, 521 tons submerged (398/529 metric tons)

**Speed:** 14 knots (26 kph)

**Crew:** 2 Officers, 26 Enlisted

**Armament:** Four 18-inch (457 mm) torpedo tubes

**Date Deployed:** Jan. 31, 1914 – USS *K-2*, *Cachalot* (SS 33)

1914

### L-class



**General Characteristics, L-class**  
(USS *S-48*)

**Builders:** Fore River Shipbuilding, Quincy, Mass.; Lake Torpedo Boat Company, Bridgeport, Conn.; Crescent Shipyard, Elizabethport, N.J.; Portsmouth Naval Shipyard (NSY), N.H.

**Power Plant:** NELSECO/Busch-Sulzer Diesel (surfaced) Electric batteries (submerged)

**Length:** 168.5 feet (51.4 meters)

**Beam:** 17.3 feet (5.3 meters)

**Displacement:** 450 tons surfaced, 548 tons submerged (457/557 metric tons)

**Speed:** 14 knots (26 kph)

**Crew:** 2 Officers, 26 Enlisted

**Armament:** Four 18-inch (457 mm) torpedo tubes; one 3-inch deck gun

**Date Deployed:** April 11, 1916 – USS *L-1*

1916

### Salmon/Sargo-class



#### General Characteristics, *Salmon/Sargo*-class

**Builder:** Electric Boat Co., Conn.; Portsmouth NSY, N.H.; Mare Island NSY, Calif.

**Power Plant:** Four diesels, two shafts

**Length:** 308 feet (93.9 meters)

**Beam:** 26 feet (7.9 meters)

**Displacement:** 1,435 tons surfaced, 2,198 tons submerged (1,458/2,233 metric tons)

**Speed:** 21 knots (39 kph)

**Crew:** 5 Officers, 50 Enlisted

**Armament:** Eight 21-inch (533 mm) torpedo tubes (four bow, four stern); One 3-inch deck gun

**Date Deployed:** Dec. 15, 1937 – USS *Snapper* (SS 185)

1937

### Gato/Balao-class



#### General Characteristics, *Gato*-class

**Builders:** Electric Boat Co., Conn.; Portsmouth NSY, N.H.; Mare Island NSY, Calif.; Manitowoc Shipbuilding Co., Wis.

**Power Plant:** Four diesels, two shafts

**Length:** 112 feet (95.1 meters)

**Beam:** 27 feet (8.2 meters)

**Displacement:** 1,475 tons surfaced, 2,415 tons submerged (1,499/2,454 metric tons)

**Speed:** 20 knots (37 kph)

**Crew:** 6 Officers, 54 Enlisted

**Armament:** Ten 21-inch (533 mm) torpedo tubes (six bow, four stern);

One 3-, 4- or 5-inch deck gun; One anti-aircraft gun on the bridge

**Date Deployed:** Dec. 31, 1941 – USS *Gato* (SS 212)

#### General Characteristics, *Balao*-class

**Builders:** Electric Boat Co., Conn.; Portsmouth NSY, N.H.; Mare Island NSY, Calif.; Boston NSY, Mass.; Manitowoc Shipbuilding Co., Wis.; Cramp Shipbuilding Co., N. J.

**Power Plant:** Four diesels, two shafts

**Length:** 311.7 feet (95 meters)

**Beam:** 27 feet (8.2 meters)

**Displacement:** 1,525 tons surfaced, 2,415 tons; submerged (1,549/2,454 metric tons)

**Speed:** 20 knots (37 kph)

**Crew:** 6 Officers, 60 Enlisted

**Armament:** Ten 21-inch (533 mm) torpedo tubes (six bow, four stern); One 3-, 4-, or 5-inch deck gun; One anti-aircraft gun on bridge

**Date Deployed:** Feb. 4, 1943 – USS *Balao* (SS 285)

### Tench-class



#### General Characteristics, *Tench*-class

**Builders:** Portsmouth NSY, N.H.; Cramp Shipbuilding Co., Pa.

**Power Plant:** Four diesels, two shafts

**Length:** 311.8 feet (95 meters)

**Beam:** 27.1 feet (8 meters)

**Displacement:** 1,570 tons surfaced; 2,415 tons submerged (1,595/2,454 metric tons)

**Speed:** 20 knots (37 kph)

**Crew:** 6 Officers, 60 Enlisted

**Armament:** Ten 21-inch (533 mm) torpedo tubes (six bow, four stern); One 3-, 4- or 5-inch deck gun; One anti-aircraft gun on bridge

**Date Deployed:** Oct. 6, 1944 – USS *Tench* (SS 417)

1941-44

## Skipjack-class



### General Characteristics, Skipjack-class

**Builder:** Electric Boat Company, Conn.; Ingalls Shipbuilding, Miss.; Newport News Shipbuilding, Va.; Mare Island NSY, Calif.

**Power Plant:** One nuclear reactor, one shaft

**Length:** 251.8 feet (76.8 meters)

**Beam:** 31.8 feet (9.7 meters)

**Displacement:** Approx. 3,070 tons surfaced, 3,500 tons submerged (3,119/3,556 metric tons)

**Speed:** 25+ knots (46+ kph)

**Crew:** 11 Officers, 107 Enlisted

**Armament:** Six 21-inch (533 mm) torpedo tubes; MK 14, MK 16, MK 48 torpedoes

**Date Deployed:** April 15, 1959 – USS *Skipjack* (SSN 585)

## George Washington-class



### General Characteristics, George Washington-class SSBN

**Builders:** Mare Island NSY, Calif.; General Dynamics Electric Boat Division, Conn.; Portsmouth NSY, N.H.

**Power Plant:** One nuclear reactor, one shaft

**Length:** 381.6 feet (115.7 meters)

**Beam:** 33 feet (10.1 meters)

**Displacement:** Approx. 5,959 tons (6,709 metric tons) submerged

**Speed:** 16+ knots (22+ kph)

**Crew:** Two crews (Blue & Gold); 12 Officers, 100 Enlisted per crew

**Armament:** 16 missile tubes for *Polaris* A-1, A-2, A-3; six 21-inch (533 mm) torpedo tubes for MK 14-6; MK 37-1, -3; MK 37 NTS; or MK 48 torpedoes

**Date Deployed:** Dec. 30, 1959 – USS *George Washington* SSBN 598

## Permit-class



### General Characteristics, USS *Permit* (SSN 594) (long hull)

**Builders:** Puget Sound NSY, Wash.; New York Shipbuilding Corp., N.J.; Ingalls Shipbuilding, Miss.; Mare Island NSY, Calif.; Electric Boat Co., Conn.

**Power Plant:** One nuclear reactor, one shaft

**Length:** 278.6 feet (84.9 meters) (SSN 593 – SSN 621); 297.3 feet (90.6 meters) (SSN 605); 292.3 feet (89.1 meters) (SSN 613 – SSN 615)

**Beam:** 31.8 feet (9.7 meters)

**Displacement:** Approx. 3,705 tons surfaced, 4,311 tons submerged (3,764/4,380 metric tons)

**Speed:** 25+ knots (46+ kph)

**Crew:** 13 Officers, 115 Enlisted

**Armament:** Four 21-inch (533 mm) torpedo tubes; MK 14, MK 16, MK 37, MK 48 torpedoes; mines; *SUBROC*, *Harpoon*

**Date Deployed:** Aug. 3, 1961 – USS *Thresher* (SSN 593)

## Benjamin Franklin-class



### General Characteristics, Benjamin Franklin-class SSBN

**Builders:** Mare Island NSY, Calif.; General Dynamics Electric Boat Division, Conn.

**Power Plant:** One nuclear reactor, one shaft

**Length:** 425 feet (129.5 meters)

**Beam:** 33 feet (10.1 meters)

**Displacement:** Approx. 8,250 tons (8,382 metric tons) submerged

**Speed:** 20+ knots (37+ kph)

**Crew:** Two crews (Blue & Gold); 13 Officers, 120 Enlisted per crew

**Armament:** 16 missile tubes for *Poseidon* or *Trident I*, four 21-inch (533 mm) torpedo tubes for MK 48 torpedoes

**Date Deployed:** Oct. 22, 1965 – USS *Benjamin Franklin* (SSBN 640)

## Sturgeon-class



### General Characteristics, Sturgeon-class

**Builders:** General Dynamics Electric Boat Division, Conn.; General Dynamics, Quincy Shipbuilding Division, Mass.; Ingalls Shipbuilding, Miss.; Portsmouth NSY, N.H.; Mare Island NSY, Calif.; & Newport News Shipbuilding, Va.

**Power Plant:** One nuclear reactor, one shaft

**Length:** 292 feet (89 meters), (SSN 637 – SSN 677); 302 feet (92 meters) (SSN 678 – SSN 687)

**Beam:** 32 feet (9.8 meters)

**Displacement:** Approx. 4,229 tons surfaced, 4,762 tons submerged (4,297/4,838 metric tons)

**Speed:** 25+ knots (46+ kph)

**Crew:** 13 Officers, 117 Enlisted

**Armament:** Four 21-inch (533 mm) torpedo tubes; MK 37, MK 48 torpedoes; mines; *SUBROC*, *Harpoon*, *Tomahawk*

**Date Deployed:** Dec. 6, 1966 – USS *Queenfish* (SSN 651)

1959-61

1965-66

## Ohio-class



### General Characteristics, *Ohio*-class SSBN

**Builders:** General Dynamics Electric Boat Division, Conn.

**Power Plant:** One nuclear reactor, one shaft

**Length:** 560 feet (1,707 meters)

**Beam:** 42 feet (13 meters)

**Displacement:** 16,764 tons surfaced, 18,750 tons submerged (17,033/19,000 metric tons)

**Speed:** 25+ knots (46+ kph)

**Crew:** Two crews (Blue & Gold); 15 Officers, 148 Enlisted per crew

**Armament:** 24 tubes for *Trident I* or *II*, four 21-inch (533 mm) torpedo tubes for MK 48 torpedoes

**Date Deployed:** Nov. 11, 1981 – USS *Ohio* (SSBN 726)

## Los Angeles-class



### General Characteristics, basic *Los Angeles*-class

This class has 28 boats USS *Los Angeles* (SSN 688) through USS *Honolulu* (SSN 718), *Newport News* (SSN 750).

**Builders:** Newport News Shipyard, Va., & General Dynamics Electric Boat Div., Conn.

**Power Plant:** One nuclear reactor, one shaft

**Length:** 360 feet (109.2 meters)

**Beam:** 33 feet (10.1 meters)

**Displacement:** Approx. 6,000 tons (6,900 metric tons) submerged

**Speed:** 25+ knots (30+ kph)

**Crew:** 12 Officers, 115 Enlisted

**Armament:** Four 1-inch (533mm) torpedo tubes; MK 37-3, MK 37 NTS and MK 48 Advanced Capability (ADCAP), *SUBROC*, *Harpoon* and *Tomahawk*

**Date Deployed:** Nov. 13, 1976 – USS *Los Angeles* (SSN 688)

### General Characteristic, improved *Los Angeles*-class

This class has 23 boats USS *San Juan* (SSN 751) through USS *Cheyenne* (SSN 773)

**Builders:** Newport News Shipbuilding Co., Va.; General Dynamics Electric Boat Division, Conn.

**Power Plant:** One nuclear reactor, one shaft

**Length:** 362 feet (109.8 meters)

**Beam:** 33 feet (10.1 meters)

**Displacement:** Approx. 7,147 tons (7,185 metric tons) submerged

**Speed:** 25+ knots (46+ kph)

**Crew:** 13 Officers, 125 Enlisted

**Armament:** 12 VLS tubes, four 21-inch (533 mm) torpedo tubes; MK 48 Advanced Capability (ADCAP) torpedoes; *Tomahawk* missiles, mines

**Date Deployed:** Aug. 1, 1988 – USS *San Juan* (SSN 751)

## Seawolf-class



### General Characteristics, *Seawolf*-class

**Builders:** General Dynamics Electric Boat Division, Conn.

**Power Plant:** One nuclear reactor, one shaft

**Length:** 353 feet (107.6 meters)

**Beam:** 40 feet (12.2 meters)

**Displacement:** 8,060 tons surfaced, 9,150 tons submerged (8,189/9,296 metric tons)

**Speed:** 25+ knots (46+ kph)

**Crew:** 13 Officers; 121 Enlisted

**Armament:** Eight 30-inch (762 mm) torpedo tubes (50 weapons) including *Tomahawk* missiles, MK 48 Advanced Capability (ADCAP) torpedoes, mines

**Date Deployed:** July 19, 1997 – USS *Seawolf* (SSN 21)

## Virginia-class

See  
Reverse  
Side of  
Poster

### General Characteristic, *Virginia*-class SSN

**Builders:** General Dynamics Electric Boat Div., Conn.; Newport News Shipbuilding, Va.

**Power Plant:** One nuclear reactor, one shaft

**Length:** 377 feet (114.9 meters)

**Beam:** 34 feet (10.4 meters)

**Displacement:** Approx. 7,800 tons (7,925 metric tons)

**Speed:** 25+ knots (46+ kph)

**Crew:** 14 Officers, 120 Enlisted

**Armament:** 12 VLS tubes, four 21-inch (533 mm) torpedo tubes; *Tomahawk* missiles, MK 48 Advanced Capability (ADCAP) torpedoes, advanced mobile mines & unmanned undersea vehicles

**Date Deployed:** Scheduled for delivery in 2004

1976-88

1997-2004...

# All HANDS



See the Submarine Centennial website at [www.navy.mil](http://www.navy.mil) and select the button, "Submarine Centennial."

## GENERAL DYNAMICS

Electric Boat



NEWPORT NEWS SHIPBUILDING

# DEAD

One hundred years after the United States began using submersibles, the first submarine without a periscope is under construction. The first indication that the VIRGINIA-class attack submarine will be the most technologically sophisticated submarine under the seas. Massive firepower, cutting-edge

## VIRGINIA

### Displacement

7,700 tons

### Length

377 feet

### Beam

34 feet

### Speed

In excess of 25 knots

### Depth

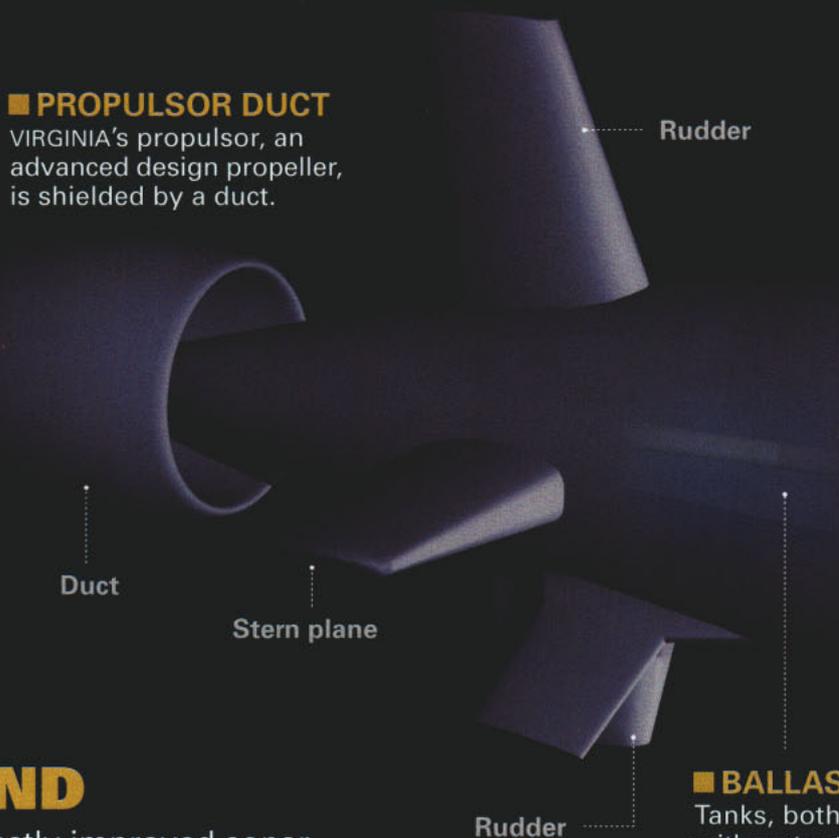
In excess of 800 feet

### Weapons

- Tomahawk Land-Attack Missiles
- Mark 48 Advanced Capability Torpedoes
- Advanced Mobile Mines
- Unmanned Underwater Vehicles

### ■ PROPULSOR DUCT

VIRGINIA's propulsor, an advanced design propeller, is shielded by a duct.



Rudder

Duct

Stern plane

Rudder

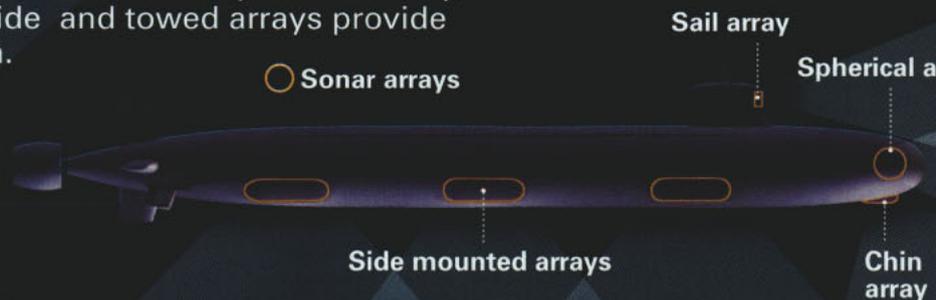
### ■ BALLAST

Tanks, both with water tanks, is ejected in "trim tanks," in weight, s

## SONAR ALL AROUND

VIRGINIA-class submarines will have vastly improved sonar capabilities. The first subs to employ a "chin" sonar array, the VIRGINIA-class will accurately map the ocean floor and mine fields using a combination of the chin and sail arrays. Additionally, the three sonar arrays on each side and towed arrays provide quick target location information.

Towed arrays eliminate much of the blind area behind a sub.



○ Sonar arrays

Sail array

Spherical a

Side mounted arrays

Chin array

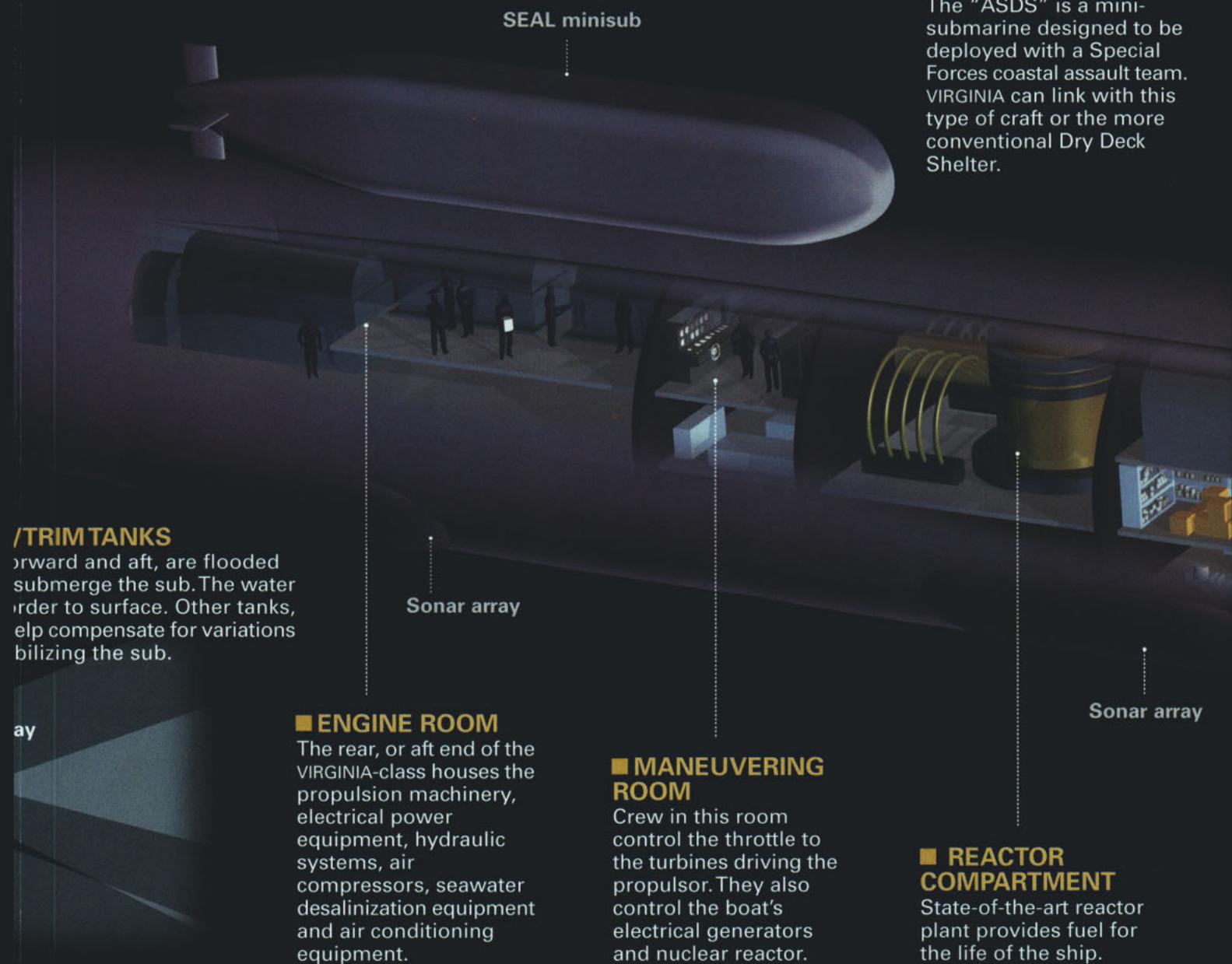
# LYQUIET

States Navy  
t submarine  
on. This is just  
ck submarine  
icated ship  
ing edge

intelligence gathering capabilities, and revolutionary deck design equip these submarines for rapidly emerging 21st century threats. Joining the fleet in 2004, the subs are the first ever designed from the keel up for multimission, near-land operations. Here's a look at what's under their skins.

## ■ Advanced SEAL Delivery System (ASDS)

The "ASDS" is a mini-submarine designed to be deployed with a Special Forces coastal assault team. VIRGINIA can link with this type of craft or the more conventional Dry Deck Shelter.



## ■ TRIM TANKS

Forward and aft, are flooded to submerge the sub. The water is pumped out to surface. Other tanks, help compensate for variations in ballasting the sub.

## ■ ENGINE ROOM

The rear, or aft end of the VIRGINIA-class houses the propulsion machinery, electrical power equipment, hydraulic systems, air compressors, seawater desalination equipment and air conditioning equipment.

## ■ MANEUVERING ROOM

Crew in this room control the throttle to the turbines driving the propulsor. They also control the boat's electrical generators and nuclear reactor.

## ■ REACTOR COMPARTMENT

State-of-the-art reactor plant provides fuel for the life of the ship.

# Dominating the seas and coastlines will gather intelligence, deploy special

## ■ LOCKOUT TRUNK

VIRGINIA will be the first class of submarines to employ a built-in Navy SEAL staging area. This nine-man airlock chamber will allow an entire Special Forces team to exit and enter the sub while filling/emptying the chamber with water one time.



## ■ BERTHING

Equipped with 119 permanent bunks. An additional 41 bunks can be set up in the torpedo room for special assignments.



## ■ MASTS

Housing for various electronics, they include:

### ESM mast

Electronic Support Measures mast houses the global positioning antenna and a receiver to detect radar of planes, ships, and surfaced subs.

### Multifunction mast

House radio receiving and transmitting antennas.

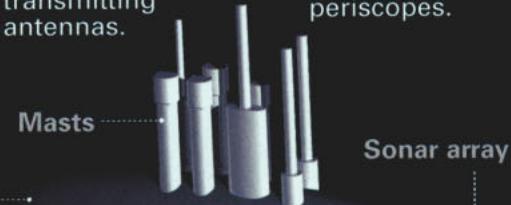
### Mission reconfigurable mast

### Photonics masts

Cameras mounted on masts replace traditional optical periscopes.

### High data rate masts

Receiving and transmitting antennas.



External storage lockers  
Store Special Forces equipment.

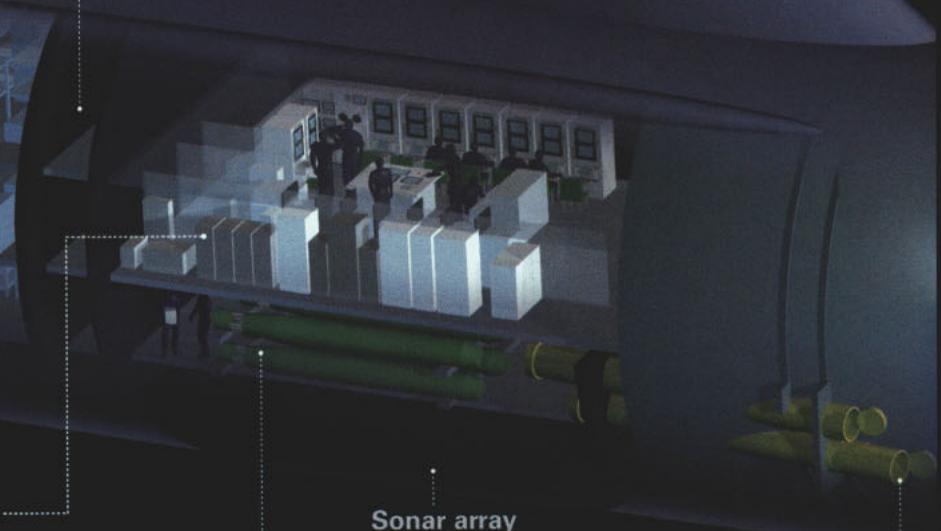
## ■ COMMAND & CONTROL

Use of an electronic fiber optic imagery system instead of a traditional periscope allows the control room to be located on the second deck level. The room features large screen displays and a wide open layout to improve information flow and decision making.

## ■ TORPEDOES

Torpedoes, mines, and missiles are ejected from four torpedo tubes by an air turbine pump (ATP). The ATP draws in water, forcing it into the torpedo tube. The weapon leaves the ship through rotary shutter doors.

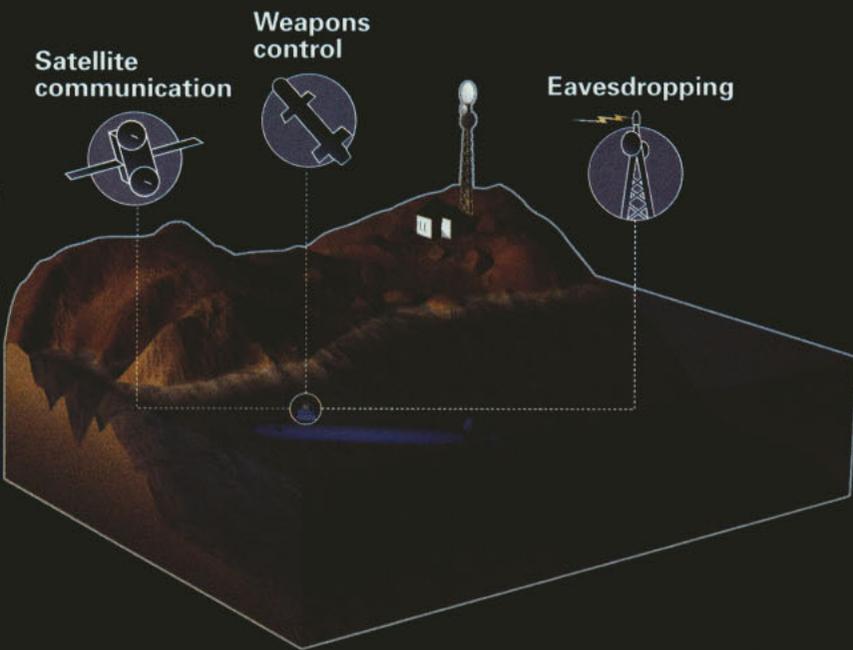
Torpedo tubes



# , the VIRGINIA-class submarines ial forces, and attack land targets

## VIRGINIA'S BIG EARS

The ultimate eavesdropper, VIRGINIA will be able to pick up details of important signals from miles away—signals our satellites can't detect. It can also talk to satellites and control weapons.



## LAND ATTACK

Twelve Vertical Launching System (VLS) tubes, combined with four torpedo tubes permit VIRGINIA to launch land attack missiles.



## HULL

High-yield steel that withstands pressure at depths greater than 800 feet has a seamless rubberlike substance molded onto its surface.

## Forward ballast tanks

## Vertical launch tubes

## Baffle

Prevents sounds from the sub from interfering with the sonar sphere.

## BOW DOME

The nose cone is constructed of a composite material enabling sound to pass through it to the sonar sphere.

## SONAR SPHERE

Hydrophones mounted on the sonar sphere make one of VIRGINIA's "ears." These hydrophones are passive sensors that can detect sound waves produced by "contacts" many miles away.

## Sonar sphere

With active and passive sonar.

## Bow dome

## "Chin" sonar array

See box, far left, "SONAR ALL AROUND".

Retractable bow plane  
Bow and stern planes  
control the sub's depth.

# RANSOM

the nerves of  
water can only make  
le for those involved.  
DR James Ransom  
(SSN 755) are not in  
der his command  
marine operations,  
control to steering  
urse.

## **"I really enjoy my crew,"**

said Ransom, commanding officer of *Miami*. "Their integrity, professionalism and the fun they bring on board *Miami* has made this crew one of my best. We are truly like a second family here."

The submarine community has a long-standing tradition of a family environment when on board. And how could they not; the crew of a few more than 100 Sailors spends months at a time under water with less personal space than a convicted felon. They squeeze through p-ways, routinely knocking elbows with each other, and spend their free time playing cards and watching movies in a galley smaller than most peoples' living rooms. Not to mention, while deployed, they rarely get a chance to communicate with family and friends, since the

submarine's mission could involve stealth operations in some of the world's most dangerous waters.

So what brings these Sailors together time and time again to be held for "ransom" by serving in one of the Navy's most arduous sea duties?

"Wasn't the money; sub pay is not all that," said Machinist Mate 3rd Class Anthony Signorella. "Here, I'm not just another number getting lost in the thick of things. I feel important and have my hands in everything that takes place on board."

"It is definitely a different lifestyle," said Electrician Technician Seaman Jason Spoonmore. "I have been here six months, and the hardest thing is not being fully qualified yet. The guys mess with me a lot, but they are always there to help me out."



CDR James Ransom takes a moment to check *Miami's* location through the periscope as they make their way to the dive point.

Having a space to work in or a title for their position isn't what motivates the submarine community. These Sailors work hard to be called submariners and earn their basic submarine qualification. This gives them their dolphins and provides the submarine with the experienced and qualified personnel needed to fulfill their tasking.

Earning dolphins is a vital requirement to the submarine's mission as the crew becomes cross-trained in every aspect of submarine duty. The qualification, which dates back to June 13, 1923, when Capt. Ernest King suggested that a distinguished device be designated for all submariners, is now key in ensuring the crew performs like a central nervous system. Each Sailor is connected to the other, providing support and the means to become a deadly stealth machine, silently stalking its prey similar to the lions of the Serengeti.

It's not just the qualifications that make this crew tick like a well-oiled clock. There is something more, something different that can be seen in their the eyes ... a look of anticipation and confidence when underway.

They know they are confined to a small space. They stand watch on the bridge with foul weather of rain and harsh seas crashing against their faces. They monitor sonar stations for hours, staring at a screen many of us wouldn't

understand. They work day and night, plotting courses, fixing meals and running power plants. They push themselves to the limits, which can put them under an enormous amount of stress and fatigue, and most would break under the circumstances. Yet, they know they are gaining something you can not put a price on. And that's just what they got from their last deployment.

*Miami* became the first submarine since World War II to fire its weapons in two theaters of combat. In Kosovo and Iraq, they felt *Miami's* deadly blow delivered by the *Tomahawks* she holds in her belly. The crew felt they had made a difference and weren't just out patrolling, but were doing what they had been trained for; defending our country and her interests abroad.

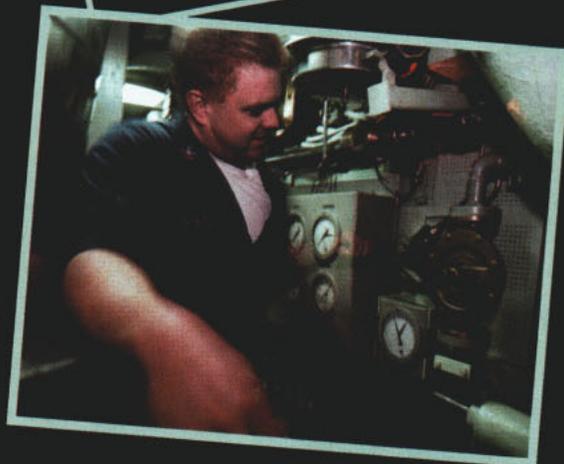
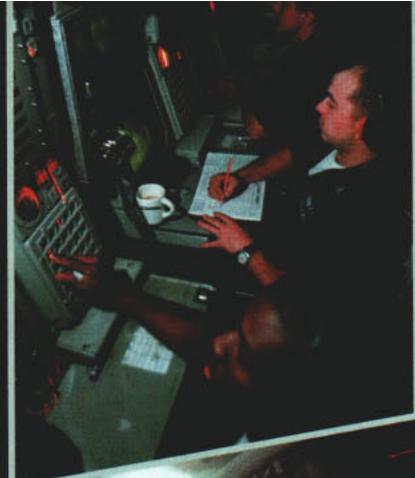
"It felt like a training exercise until the first *Tomahawk* went off," said Fire Controlman 2nd Class Craig Lawrence.



(left) Being under the ocean only comes after a rough watch on the bridge where watchstanders are sure to feel salt water splash their faces from the weather in the Atlantic Ocean as *Miami* pulls out of Groton, Conn.

(right) STS2(SS) Wyatt Trundy of Ottawa Lake, Mich., stares emotionless at the sonar screen looking for any sign of contact with other vessels. The job of sonar technician is one of the most important on the sub since they are the eyes and ears for the crew.

# CREW HELD FOR RANSOM



*(top)* It may look like these guys are sitting back watching "The Matrix," but in reality, they are monitoring contacts in the sonar room. STS3(SS) David Arden (Center) of Orlando, Fla., resets his monitor as STS2(SS) Wyatt Trundy (bottom) notes a contact in his log and STS3(SS) David Chaharovich (top) of Thompson, Conn., rechecks his monitor.

*(middle)* The Atlantic Ocean can be unforgiving to a submarine as she makes her way to dive point. The crew experienced a wavy ride as they made their way to the dive point.

*(bottom)* Speed is the key when you have no nuclear power and have to get the diesel generators online before the sub sinks to a deadly depth. During a drill MM1(SS) Richard Huston of Montana prelubes the backup diesel generators for a snorkel drill.

# CREW HELD FOR RANSOM



The Chief of the Boat MMCS(SS) Neal Russell supervises the crew as they prepare the sub to come along side a tug boat.

(right) Can't sleep? Imagine bedding down in the close quarters MM3 Anthony Signorella of Bedford, Mass., has in a rack located in the torpedo room of *Miami*.

(below) CDR James Ransom gives a brief history of the submarine community to the crew after pinning dolphins on one of his Sailors.



(right) It has been said, being the cook on a submarine is one of the most important jobs in the Navy, which makes MS3(SS) Jason McGough of Boston, a busy man as he prepares and serves dinner for more than 100 crew members.

away and the arduous lifestyles these submariners lead. Nor do they truly represent their many sacrifices.

But, for these proud sailors who carried out their mission so successfully, those awards are a testament to the training, motivation and professionalism of a truly superior crew.

*Watson is a photojournalist assigned to All Hands.*

"The boat was moving vertically up and down. Everyone was looking around because they had never done it before. It was one of the most exciting moments in our careers for many of us."

*Miami's* combat performance in both Iraq and Kosovo on her last deployment never could have been done without the proper preparation of her crew. Their readiness provided ample support to Operation *Joint Endeavor* and allowed the conflict to reach an ending without numerous American losses.

"*Miami* has launched almost half of all the *Tomahawks* launched by submarines during combat operations," said Ransom. "Submariners are some of the most intelligent and well-trained Sailors in the Navy. *Miami* could not have done it without them."

For their service in the Arabian Gulf and the Mediterranean, the crew of *Miami* was awarded two Navy Unit Commendations, and Ransom received the Silver Star. For most, a few medals can in no way pay the "ransom" for long months



ET3(SS) Nick Casale of San Diego, plots *Miami's* course while pulling out of Groton, Conn.

# Serving Unity...

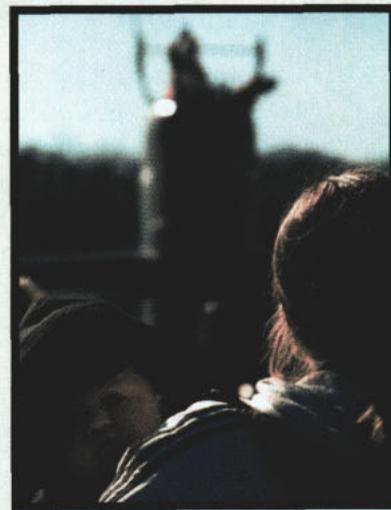


**C**heers of joy echoed off every possible surface of the pier as USS *City of Corpus Christi* (SSN 705) returned home from deployment. Family members flooded through the gates; wives and children reached beyond their galloping legs to embrace the husbands and fathers who had been away for what seemed like forever. Although life on a sub can be arduous and leave many a Sailor feeling disconnected from their families and the world, no talk of that was present on this pier... Daddy was home.

The homecoming of *City of Corpus Christi* signaled the successful completion of their *UNITAS* deployment.

The midday sun illuminated USS *City of Corpus Christi* (SSN 705) as members of the crew stood on deck at parade rest on their return to port at Naval Submarine Base New London, Conn. Withstanding much different weather conditions than their July departure, the crew appeared to be oblivious to the chilling winds as they rode the final leg of a successful *UNITAS* deployment.

*UNITAS* is an annual exercise in



which U.S. Navy and Marine Corps units operate with the military services of various South American countries as they circumnavigate the continent.

Meanwhile, down below in the crew's mess, most of the remainder of the crew is clustered around the screen for the video feed from the periscope, hoping to get a glimpse of friends or family anxiously waiting on the pier.

"It was a little rough to not see my kids for so long," said Electronics

Stacey Marino took no time at all to show her fiancé, ET3(SS) Tracy Kuchfa of Syracuse, N.Y., that she was glad to see him home.

# Re-United with Loved Ones



(top) Jessica Marion, daughter of MMC(SS) Mike Marion of Montclair, N.J., gazes into her father's eyes rekindling their love and letting him know she is happy that daddy is home.

(bottom) Banners and signs covered the fences outside New London Submarine Base Groton, Conn., announcing the homecoming of loved ones aboard USS City of Corpus Christi (SSN 705).

Technician 1st Class (SS) George Hunt whose wife, Kristen, gave birth to a daughter, Olivia, just a little more than two weeks before the start of the deployment. "We tried to keep in contact with e-mail and a lot of mail packages with videos and pictures," said Hunt.

Joining the officers and crew in Port Canaveral for the last four days of the deployment was the Commodore of Submarine Squadron 4, CAPT Melvin G. Williams Jr. "I had the opportunity to ride USS *City of Corpus Christi* back in June," said Williams, "and I made a point to ride again now in December. The level of team spirit, pride and commitment has increased significantly during these past months and I am truly proud to have this ship with SUBRON 4."

While cruising into port on Friday, December 17, Commodore Williams awarded a Navy and Marine Corps Achievement Medal to Submarine Squadron 4 Junior Officer of the Year and USS *City of Corpus Christi* officer LT Chris Morgan.

Morgan was enthusiastic about the deployment. "UNITAS is all about the exposure of the U.S. Navy to countries in

South America and the maintenance of military relationships," said Morgan. "Getting to drive through the Panama Canal was the most exciting part for me. Our passage through the Panama Canal was very significant because of the turnover of the canal back to Panama after U.S. ownership."

"We were the last high-value unit under U.S. protectorate to go through the Panama Canal," said USS *City of Corpus Christi* Commanding Officer, CDR Leo Goff. "It was an impressive site to navigate the canal accompanied by four Marine river assault craft, a U.S. Coast Guard cutter and a Panamanian helicopter flying overhead, along with other forces ashore."

The crew also had the opportunity to complete a humanitarian mission in a Chilean port.

"We toured an orphanage for boys that is supported by the Chilean Navy," said Executive Officer, LCDR Stan Robertson. "It was a very satisfying trip as we got to deliver medical supplies and clothing to the children of the orphanage."

Some family members had the opportunity to meet the crew as they made it on to a port call in Brazil in October.

"The statue of Christ in Rio just stands out at you," said Chief Machinist's Mate

# We had the opportunity to really build esprit de corps, and do everything that makes a submarine fun.

(SS) Daniel Tidwell. "You can see it right away from the harbor and on the mountain ridge behind Sugarloaf."

Another homecoming of sorts was experienced toward the end of the deployment as the submarine visited the city of Corpus Christi, Texas.

"The whole city really made us feel welcome," said Master Chief Electrician's Mate (SS) Vinnie Grosso. "The man who threw the original commissioning party for the boat threw a welcoming party for us.

He opened up his barbecue restaurant and just fed the whole crew."

Machinist's Mate 2nd Class (SS) Jeffrey Naidorf served as a tour guide for various groups while in port. "My favorite group was the sub vets," said Naidorf. "They had such interesting stories. There was a guy who was on *Thresher* and the first COB (Chief of the Boat) *Los Angeles*."

Of *UNITAS* as a whole, Goff said, "It was a great experience on two levels. It provided training on many of the things the submarine force does which includes the two important factors of endurance and agility. With more than 14 different countries participating in *UNITAS* exercises, we were required to be frequently in and out of 13 different ports with no opportunity for upkeep. That is a long time for a 17-year-old submarine, which proves we build these ships well; they can last for a long time."

*UNITAS* is Latin for "unity" which seemed to exemplify the deployment for *USS City of Corpus Christi*.

Goff said, "We had the opportunity to really build esprit de corps, and do everything that makes a submarine fun."

*Leal writes for The Dolphin, Groton, Conn. and Watson is a photo journalist assigned to All Hands.*

While crew members waited for the sub to dock, bystanders and family members got to see a greeting by none other than Santa Claus, ensuring families and friends that *City of Corpus Christi's* arrival home was the best present of all.

(bottom) After *City of Corpus Christi* was docked, the gates were opened and children and family members flooded the pier, rushing to greet their fathers, husbands, sons and brothers.



# Light Years Ahead

**They come with IQs off the charts and ASVAB scores that number higher than their life expectancy, but that's what a 22-year-old needs to succeed when he's asked to run a nuclear power plant on a U.S. Navy warship**

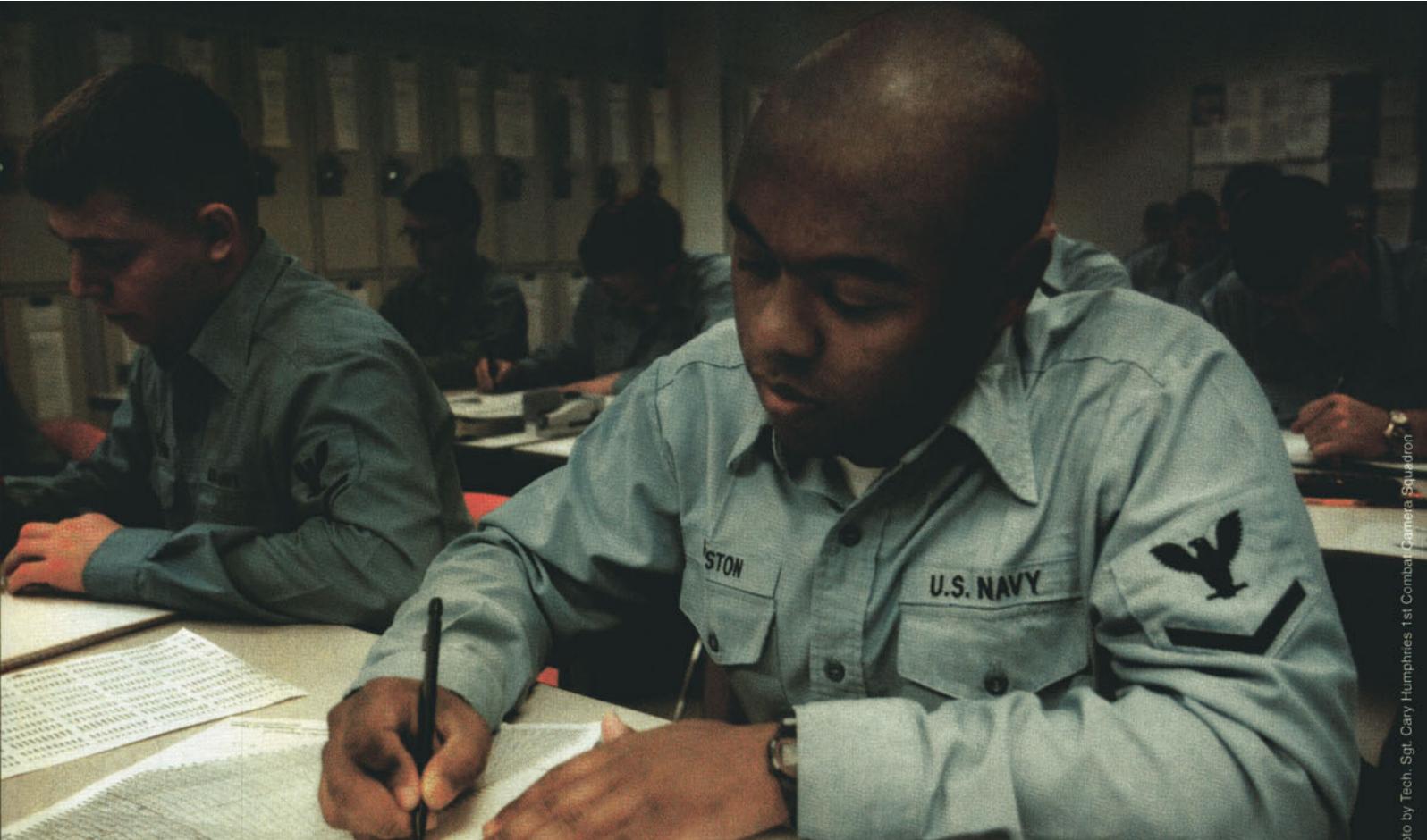
**Right: SN Rick Merman, a student at the NPPTC School, is just getting started in a Navy course that will last a year and a half. Afterwards, he will report to a carrier or submarine and be charged with the daunting task of running a nuclear power plant.**

**G**ibberish. To the average “idiot,” this talk is nothing more than gibberish: “Twenty k is 2R and 20k in parallel with 20k is 10k,” says the man in a white lab coat, scribbling on a chalkboard as fast as he talks. Twenty-five students look on, seemingly absorbed. “To determine the voltage out we consider that the step is  $V_{in}$  over  $3R$ , times one half to the  $N$ , times feedback resistance.  $N$  is equal to the number of nodes slash digits; therefore, the  $V_{step}$  is equal to  $(V_{in}/3R)(1/2)^n(R_{FB})$ . Based on that, who knows what the step voltage is?”

A dozen hands go up. For these young men and women – students at the Naval Nuclear Power Command, Charleston, S.C. – the gibberish is decipherable; for them, digital to analog conversion is easy. They could do it in their sleep.

But we digress. Two months earlier most of these dungaree-clad students were in high school. Many of them got satisfaction from \$15 lawn mowing jobs or quarter tips on a newspaper delivery route. But now, as they scribe notes on atomic and nuclear physics, it's clear they're preparing for something monumental: an education that will teach them how to run a nuclear power plant aboard a U.S. Navy submarine or aircraft carrier.





USAF photo by Tech. Sgt. Cary Humphries 1st Combat Camera Squadron

# AFTER 18 MONTHS OF SCHOOL, THEY ENTER THE SECRET CONFINES OF ENGINE ROOMS ABOARD SUBMARINES AND AIRCRAFT CARRIERS AROUND THE WORLD. WHAT THEY DO THERE IS NOTHING SHORT OF WHAT MANY CALL MIRACULOUS...

Yeah, they're way beyond high school math and science now.

"The weight of the digital input is accomplished by a resistance ladder that acts as a current and voltage divider," continues Electronics Technician 1st Class (SS) Charles Bushovisky – a genius in a Sailor's outfit. "Our output equation is going to be a little different. If the inputs are all zero, are these resistors in parallel?"

A seaman's hand shoots up.

*BUT WAIT, WAIT! Are you sure you know the answer? Will it be your final answer? Do you want a lifeline? Maybe willing instructors in the lab after class for one-on-one help or a review program on computer available at your leisure? Before you answer, remember that this is for \$60,000! You got the first question right when you answered yes to "do I want to join the Navy as a nuke?" and scored the \$12,000 reenlistment bonus. But your reenlistment bonus will pay off up to 60 grand! So think hard.*

*This is for the money!*

His answer is right, of course. The students here, training to become machinist's mates, electrician's mates or electronic technicians, represent the top 10 percent of the nation's high school graduates.

"The majority of our students are 63 days removed from high school," said CAPT Bill Hicks, the school's commanding officer. "They're bright people who have never been challenged. The importance of what happens to them here is awesome. Graduates of the nuclear program make up only 3 percent of the Navy, but they fit into the top 10 percent of the Navy. I'm very proud of them!"

Hicks and his staff are especially proud, perhaps, of the top grads. Students like Machinist's Mate 3rd Class Robert Kilgore, who dumbfounded the staff with his blistering 99 ASVAB score and 3.95 grade point average, which made him the No. 1 grad in the early part of 2000. "No class in particular was tougher than the rest," said the Tulsa, Okla., native,

**EM3 Charles Houston, from North Augusta, S.C., reviews notes during a study hall period at the U.S. Navy's Nuclear Power School in Charleston, S.C.**

Atomic and Nuclear Physics,  
Radiation Protection  
Technology, Applied  
Thermodynamics and Heat  
Transfer, Power Plant Systems  
and a complete curriculum  
of other mind-challenging  
classes are given to students  
during their stay at the  
Charleston, S.C., school.



BASE  
EXPONENT  
-1 CONT  
3 BASE  
11 EXPONENT

$$2. x^m = \frac{1}{x^n}$$
$$3. x^0 = 1$$

NAV



*(left)* ETC(SS) Kevin Whitt leads the way in the classroom, which is open to everyone. The course is intense, but after it's over, they will have the equivalent of an associate's degree.

*(below)* When you are only 10 percent of the student body you really need to work hard to stand out. But, ET3 Holly Barron makes it look easy as she calculates intense equations the curriculum provides.

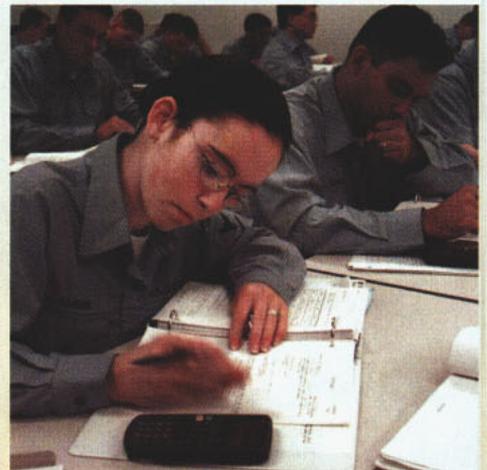
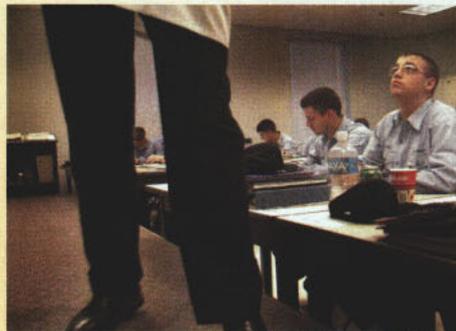


Photo by S/A Rick Bloom 1st Combat Camera Squadron

## “THEY’RE BRIGHT PEOPLE. . .

THE IMPORTANCE OF WHAT HAPPENS TO THEM HERE IS AWESOME.

GRADUATES OF THE NUCLEAR PROGRAM MAKE UP ONLY 3 PERCENT OF THE NAVY, BUT THEY FIT INTO THE  
**TOP 10 PERCENT OF THE NAVY.”**



who even compared the school to his college experience at the University of Arkansas. "The pace is really fast. Studying takes up a lot of your time. You have to put in more time here than you would at college."

Kilgore said he would go to New York to continue his nuclear training, and then report to a submarine.

Based on a student's rate (MM, EM or ET), the initial "A" school varies from 13 to 26 weeks. From there, students go to the more advanced Nuclear Power School in the same building, followed by the six-month Nuclear Prototype School. By that time, enlisted personnel have a knowledge of operation, maintenance and supervision of a naval nuclear propulsion plant.

The Charleston schoolhouse itself is brand new. Opened in 1998, it includes six barracks, a galley called the "refueling complex," an activity center, a central energy plant and a three-story, 250,000 square-foot training center. In June, the 100,000th Sailor will complete Navy nuclear propulsion training, which began more than 50 years ago with the development of USS *Nautilus* (SSN 571).

"This school is everything a Sailor could dream of," said MM3 Robert Connelly. "I was in the Marines, but then as I got a family, I started looking

for other career-orientated jobs. Once I heard about this nuclear school it was a no-brainer."

Chief Electrician's Mate (SW) Michael Mills, a section advisor and former instructor at the school, said part of the attraction of the school is the challenge itself. "This school is very demanding and the pressure to do well is intense; we keep our attrition low with instructors who know their stuff dead cold and are willing to help everyone succeed.

"The best thing we have here is a dedicated staff. If someone comes to you saying they need help, how can you turn 'em down? Anyone of us will bust our butt for 'em."

Mills suggested that the school and the naval nuclear field have a certain standard they live up to. "On carriers [nuclear-trained Sailors] are relied on for just about everything. This job is an endless pursuit of perfection – a mindset. Training is a way of life in the Naval Nuclear Propulsion Program."

And it's clear the training has begun here at the Naval Nuclear Propulsion School, and electrode by electrode, node by node, resistor by resistor, the secrets of nuclear power are unfolding.

*Benson is a photojournalist assigned to All Hands.*

**MM3 Nathan Gebhart (left) and MM3 Benjamin Sheehan take a break outside the nuclear power school. Having finished the "A" school portion of the school, both were advanced to third class petty officers. Soon they'll be eligible for a bonus that could go as high as \$60,000.**

# Nautilus



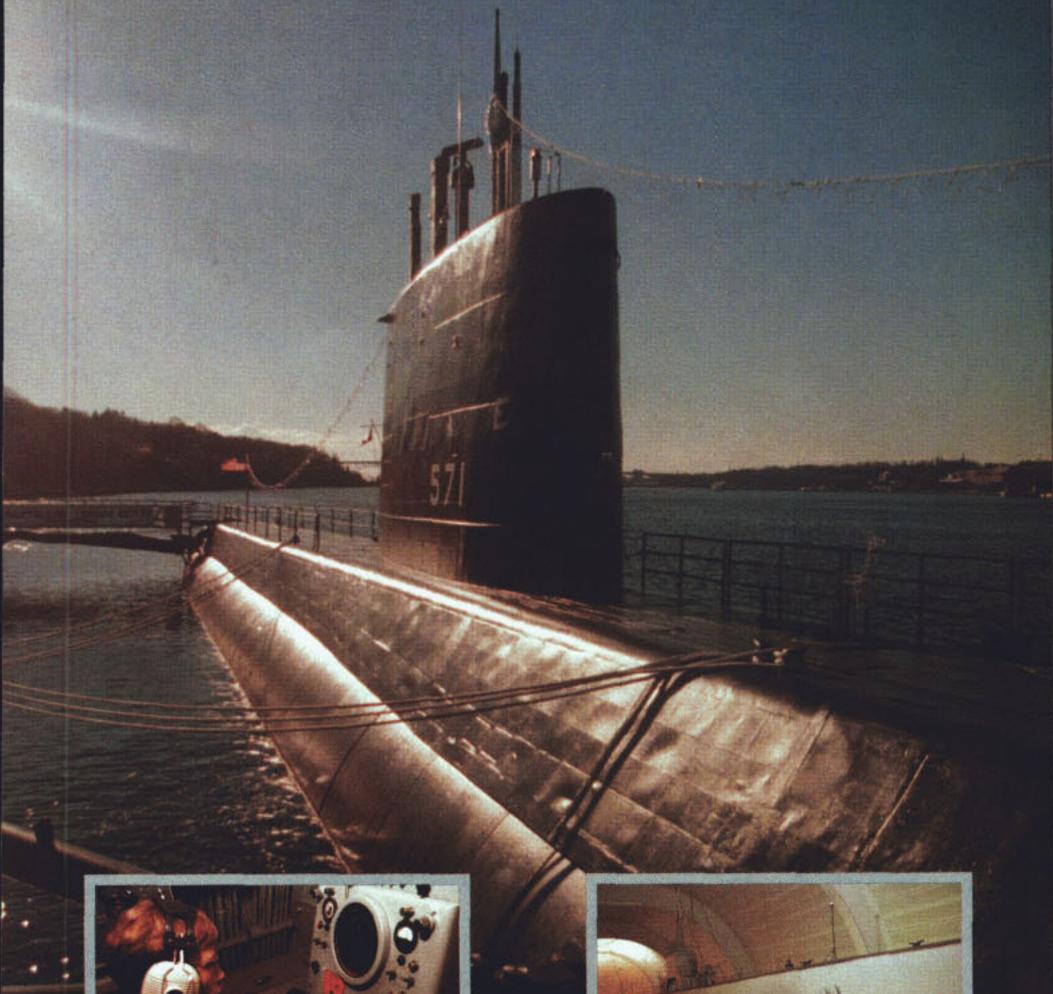
(above) A full-sized replica of David Bushnell's *Turtle* rests in the museum offering all a glimpse inside the ingenious device that led the way for today's submarine force.

(right) The United States released a stamp in 1959 commemorating the conquest of the North Polar Region. Here *Nautilus* appears alongside the dog team from ADM Robert Peary's expedition.



If you never thought you would see the inside of one of the world's most feared, silent, top secret submarines, you're probably right. But, you can take a peak inside the Navy's first nuclear-powered boat, *Nautilus*, and learn about the history that has shaped submarines into one

of the Navy's premier weapons platforms.



(left) *Nautilus* now rests in the Thames River in Groton, Conn. Here all can see first-hand the confines of the Navy's first nuclear powered submarine.

(bottom left) A replica of a sonar station shows how technology has since increased, but the limited room Sailors have on board remains the same.

(bottom center) A cross section of the modern day *Trident* submarine hangs in the museum, displaying how our Sailors live and work while fathoms under the sea.

(bottom right) The periscope has to be one of the most fascinating aspects of the submarine community, and on board the *Nautilus*, spectators can see how it fits into the mission.



# A floating museum of history and tradition

Story by PHAA Saul Ingle, photos by PH2(AW) Jim Watson

USS *Nautilus* (SSN 571) currently rests in the Thames River at the Submarine Force Museum, Groton, Conn. The historic vessel, which in 1958 became the first boat to cross under the North Pole, now serves as a floating museum and is visited by thousands annually.

Construction on *Nautilus* began at the Electric Boat Company, Groton, Conn., in 1952. The sub was completed and commissioned two years later. During her 26 years of service, *Nautilus* broke many

records for depth and endurance. In the spring of 1966, she logged her 300,000th mile underway. *Nautilus* made more than 2,500 dives and steamed more than 513,000 total miles. As technology increased, the pioneering boat was involved in many developmental testing programs while continuing to serve alongside the modern nuclear submarines of the time.

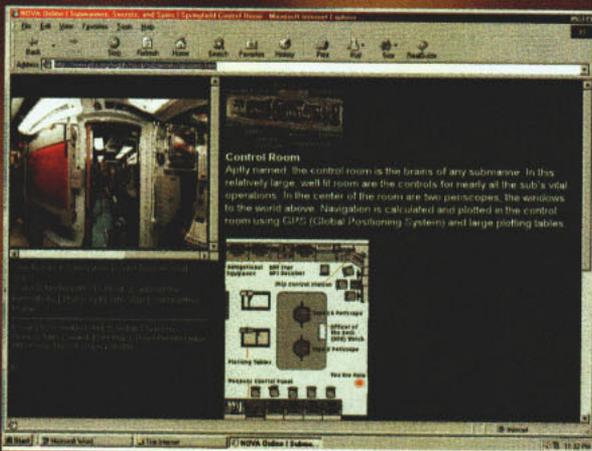
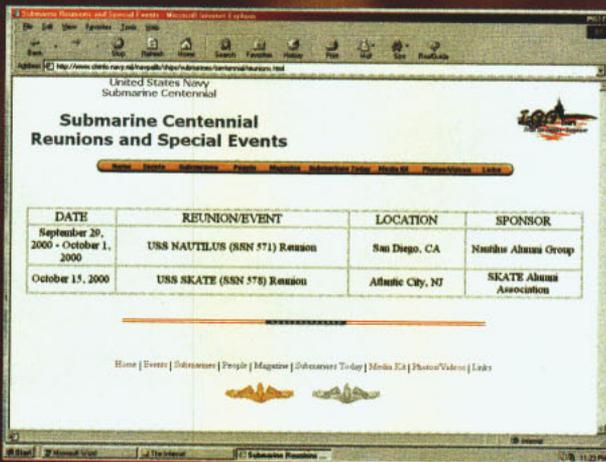
The Navy decommissioned *Nautilus* in 1980. It was then named a National

Historic Landmark and Connecticut's state ship. She now serves as a permanent floating exhibit at the museum where there is a wide array of interesting submarine history, from a full-sized replica of David Bushnell's "Turtle" to a cross section of a modern day *Trident* sub.

The Submarine Force Museum is open year round and admission is free. For more information, visit their website at [www.ussnautilus.org](http://www.ussnautilus.org) or call 1-800-343-0079.

# CyberSailor

# Dive Deep in the



Well, if you've gotten this far in the magazine, you must have realized that Sailors of the "Silent Service" are celebrating 100 years of life beneath the waves. And if you've gotten this far in the 21st century, you've probably already guessed that there must be web sites celebrating their service.

To find the best, point your browser to the Navy's homepage at [www.navy.mil](http://www.navy.mil), and punch the "Submarine Centennial" link to join the party. There you'll find as much information about the history, traditions, technologies and Sailors of the sub force as you can get, short of earning your dolphins aboard *Ohio* (or reading a Tom Clancy novel).

As you arrive you'll be greeted with a dive klaxon, as well as links to everything from virtual tours of submarines, to a list of centennial events.

Want to know more about the history of the submarine? You'll find it here, in any one of the six history links listed.

Here's something I was surprised to read: While the U.S. Navy's official involvement with subs may go back to 1900, the first record of an armed force using a submersible occurred earlier — as much as 2,200 years earlier, in fact. That's when legend says Alexander the Great earned his dolphins in a glass "barrel" during operations against Tyre.

More modern records of submariners' exploits are highlighted as well, through a link titled appropriately enough, "Submarines today." There you'll find what our modern force is busy doing right now around the world. You'll also find powerful justification for the nation's continued need for both the submarine force and new submarine designs in the aftermath of the Cold War under the link titled "Why we need submarines" [www.chinfo.navy.mil/navpali/b/ships/submarines/centennial/whysubs/whysubs.htm](http://www.chinfo.navy.mil/navpali/b/ships/submarines/centennial/whysubs/whysubs.htm).

Presented as food for thought are the facts that:

■ Submarines make up about 30 percent of our major combatants, but use only 9 percent of the people and 12 percent of the budget;

# Web

■ Have fuel for the life of the ship built into the nuclear reactor core;

■ Require no at-sea logistics train, no protective escorts and little support infrastructure ashore and;

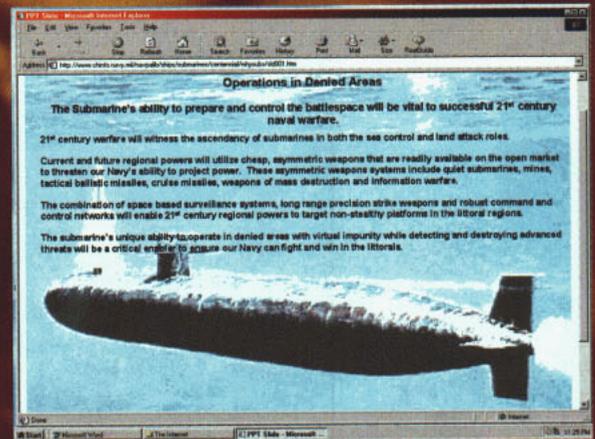
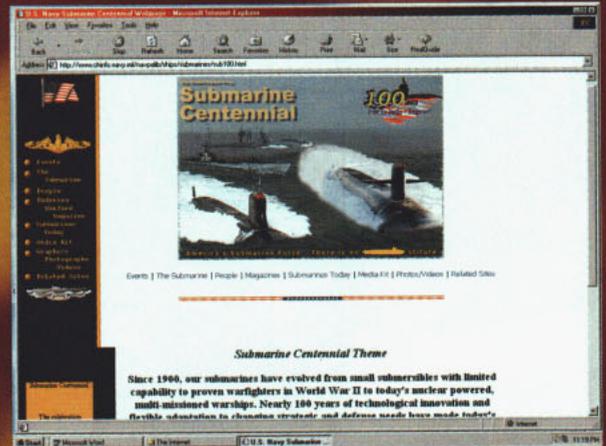
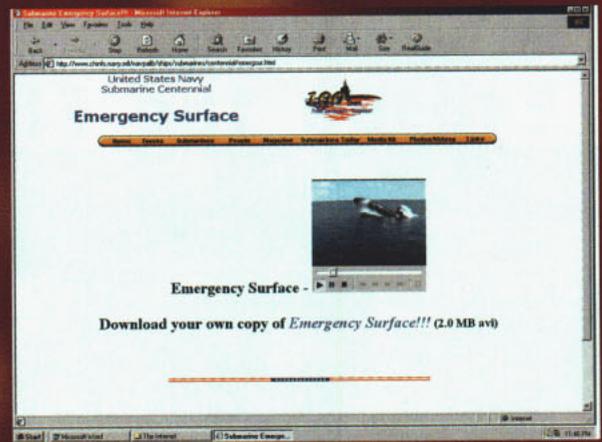
■ Are arguably the most efficient ships in the Navy, based on their ability to deliver devastating firepower while putting the fewest U.S. service members in harm's way." Also included is a slideshow [www.chinfo.navy.mil/navpalib/ships/submarines/centennial/whysubs/index.htm](http://www.chinfo.navy.mil/navpalib/ships/submarines/centennial/whysubs/index.htm) you can download for viewing later, or you can page through it online.

If you're a non-submariner but would like the chance to see how they live, the site provides links to a list of 23 submarine museums across America at [www.chinfo.navy.mil/navpalib/ships/submarines/centennial/museum.html](http://www.chinfo.navy.mil/navpalib/ships/submarines/centennial/museum.html). Most of the museums are based

aboard decommissioned subs that have been restored and maintained for public display. The Navy's first nuclear-powered vessel *USS Nautilus* (SSN 571), is there, as well as a number of World War II-era boats.

If you just can't make it to one of the museums, the centennial site offers alternatives. Clicking on the link titles "Graphics, Photos and Videos" will take you to a page where you can watch a video clip of a *Trident* missile launch and an emergency surfacing [www.chinfo.navy.mil/navpalib/ships/submarines/centennial/emergsur.html](http://www.chinfo.navy.mil/navpalib/ships/submarines/centennial/emergsur.html). You'll also find links to 360-degree virtual tours aboard *Nautilus* and *Springfield* [www.pbs.org/wgbh/nova/subsecrets/spriconlo.html](http://www.pbs.org/wgbh/nova/subsecrets/spriconlo.html), courtesy of the Public Broadcasting System (PBS). After watching the videos and viewing the photos, click on the "People" link to relive life aboard submarines as told by the Sailors who've lived it.

With 100 years of pride in excellence to share with the world through the website, submariners aren't quite living up to their reputation for silence. But don't expect the celebration to get in the way of the job at hand — there's work to be done and a tradition to uphold. It won't be long before submariners again slip beneath the waves, in search of excellence in defense of the nation.



# Cyber Diver

*Cyber Sailor*

# Eye on the Fleet

EYE ON THE FLEET

is a monthly photo feature sponsored by

the Chief of Information Navy Visual News Service. We are looking

for **HIGH IMPACT,** quality photography from **SAILORS**

in the fleet to showcase the American Sailor in **ACTION.**



## TEARFUL GOODBYE

AN Rubin Rivera and his wife say farewell before the guided-missile cruiser *USS Lake Champlain* (CG 57) departs on a six-month deployment to the Western Pacific and Indian Ocean.

Photo by PH1 Chuck Cavanaugh

AKAN Luke Anderson of St. Joseph, Mont., puts the finishing touches onto a vertical replenishment at sea (VERTREP) pendant aboard *USS Dwight D. Eisenhower* (CVN 69) while conducting an ammunition onload. *Eisenhower* was operating in the Atlantic Ocean in support of *Joint Task Force Exercises* (JTFX) in preparation for an upcoming six-month deployment to the Mediterranean Ocean.

Photo by PHAN Justin K. Thomas

## ALL TIED UP





## IN THE SHADOWS

BMSN Richard A. Weidman III from State College, Pa., watches as supplies from USNS *Mount Baker* (AOE 34) are brought over via helicopter during a vertical replenishment at sea (VERTREP) while operating in the Atlantic Ocean supporting *Joint Task Force Exercises* (JTFX).

Photo by PHAN David E. Carter II



EN3 Conaway, assigned to the Reactor Department on board USS *John C. Stennis* (CVN 74) stands at parade rest in the man-the-rails formation as the aircraft carrier pulls away from the pier to begin a six-month deployment to the Western Pacific.

Photo by PH3 William C. Rowlett

## UNDERWAY



## HANGIN' IN THERE

Two search-and-rescue swimmers attached to Naval Air Station Jacksonville demonstrate 15-foot jumps from an SH-60B *Seahawk* helicopter during the Jacksonville Air and Sea Spectacular in Jacksonville, Fla.

Photo by PH3 Tesra R. McCoy

To be considered, forward your images with full credit and outline information, including: full name, rank and duty station. Name all identifiable people within the photo and include important information about what is happening, where the photo was taken and the date.

Commands with digital photo capability can send attached .jpg files to: [navynewsphoto@hq.navy.mil](mailto:navynewsphoto@hq.navy.mil).

Mail your submissions to:  
NAVY NEWS PHOTO DIVISION  
NAVAL MEDIA CENTER,  
2713 MITSCHER RD., S.W.  
WASHINGTON, D.C. 20373-5819

# Are Your Eyes on the Fleet?

## Any Day in the Navy 2000

Photo by JO1 Robert Benson

**All Hands** wants quality photographs that capture Sailors, Marines, Navy civilians, Naval Reservists and their family members at work and at play, performing those daily tasks that contribute to mission accomplishment. The shoot has been extended to encompass an entire week to allow commands more flexibility. Selected photos will be published in the October 2000 issue of *All Hands*.

Photos taken should reflect the diversity of both people and capabilities in the U.S. Navy and must be shot during the week of Sunday, May 21 through Saturday, May 27, 2000. Photos depicting safety or uniform violations will not be considered. The best shots tend to be candid and unrehearsed, displaying the imagination and creativity of the photographer. All submissions must include full credit information (see below). Captions must be attached individually to each photo or slide. To be considered, photos must be received at *All Hands* by July 5, 2000. Photos will not be returned. Submit processed and mounted color slides, or quality color prints, either 5"x7" or 8"x10". Digital images will also be accepted with a minimum pixel size of 2,000 x 1,200 (approximately 5"x7" at 300 dpi). Digital images can be submitted on a Zip disk with outlines and photo credits embedded. Zip disks will not be returned. Commands with digital photo capability can send attached .jpg files to Chief of Information Navy News Photo Division at navynewsphoto@hq.navy.mil. The subject line for all such submissions should read: Any Day Submissions.

Mail submissions to: Naval Media Center, ATTN: Photo Editor, NDW, Anacostia Annex, 2713 Mitscher Rd., S.W. Washington, D.C. 20373-5819  
Be sure to mark all packages as "Any Day Submissions"

**PHOTOCOPY THIS FORM & ATTACH TO PHOTOGRAPH**

Name: \_\_\_\_\_ Rank: \_\_\_\_\_

Duty station (including mailing address & phone number): \_\_\_\_\_

Where was the photo shot: \_\_\_\_\_

Caption (what is happening in the photo): \_\_\_\_\_

Person(s) pictured (including first/last names, ranks/rates, warfare designations & hometowns): \_\_\_\_\_

## The Key to Time

By JOCS(AW) Dave Desilets

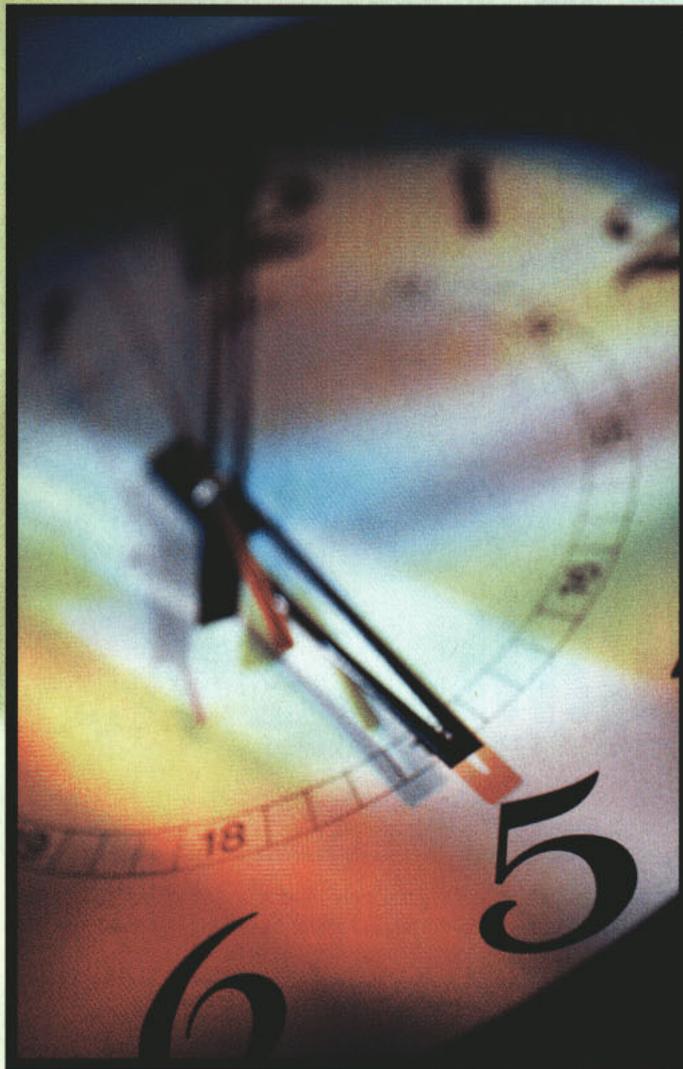
**W**ith the adjustment from daylight savings time this month, most of us will lose a precious hour of sleep. If you are like me, this is important to you.

Unless you are stationed in Great Britain, Japan or someplace where they don't observe daylight savings time, you will be a little less bushy-tailed come Sunday morning. Many a chaplain will hear from their congregation later that day or during the following week in passing *"I meant to be there for mass Father, but I forgot to set my clock forward. Beguiled by the devil, I was."*

Those of you deployed or at sea will also experience a loss of sleep due not to heavy rolls, close quarters or catapult launches, but yes, thanks to daylight savings time. Even on board subs that normally may not see the light of day, you too will save some of that brightness by advancing your chronometers before your next portcall.

Of course, the keeping of time is purely a human function. Setting appointments and schedules constrained to the ever-hectic ticking away of atomic-measured seconds is all our own doing and not that of nature or a higher being.

However, we all have internal body clocks whose time is kept by a different



measure. If I asked myself, "What time it is now?" my clock might read that it was time to get something to drink. Such is true time.

I have two Yorkshire terriers with very routine body clocks. With (or without) their ties to the mother country, they won't be observing daylight savings time.

Instead of scratching at my head with a weak cry to go outside at five in the morning, they will let me sleep until six a.m. — one small solace in my loss of shut eye.

Then again, just closing my eyes on that dreaded Saturday night could be a real problem. The mere thought of losing sleep could actually prevent me from drifting into a slumber as I lie awake frustrated over the anticipated deprivation. That, or my wife's snoring could prevent my lids from locking.

Maybe I shouldn't make so much of it. After all, it's just a man-made hour. I could always go to bed earlier, except the dogs will want to go out per their predictable bodily functions.

What will you do come April 2? Will you be a slave to time and pets, adjust your bedside tickers and lose that hour of sleep? Or will you listen to your body clocks and snooze until you are contently rested? For the record, I can't

go so far as to suggest missing church. That's between you and a higher timekeeper.

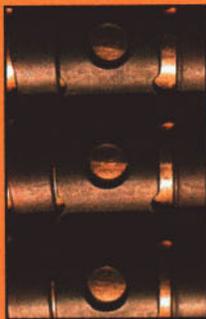
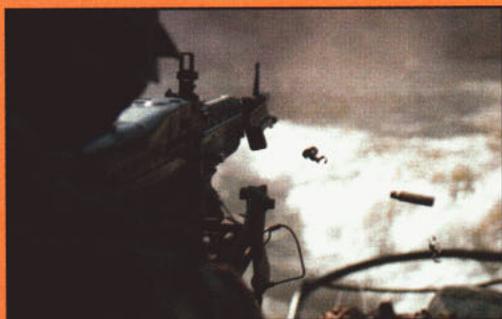
If nothing else, maybe my ramblings have allowed you to doze now in anticipation of your loss. If so, *wake up!* ♦

# 10Xteaser

We are taking a new *direction*  
with this tool we use.  
Can you identify this equipment?

Photo by PH2 Aaron Ansarov

## Last Month's answer:



Last month we ran a photo of ammunition, commonly used by Combat craftsmen of Special Boat Unit 22. Here they spray a mock enemy with a barrage of live gunfire from M-60 machine guns.

Photo by J01 Robert Benson

Go to our website at [www.mediacen.navy.mil](http://www.mediacen.navy.mil) or wait for next month's inside back cover to learn the answer...

**0735: USS MIAMI**

**-somewhere in the Atlantic Ocean-**

**FOUR** hours on watch,

**SEVEN** contacts sighted,

**TWENTY-ONE** days out to sea...

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