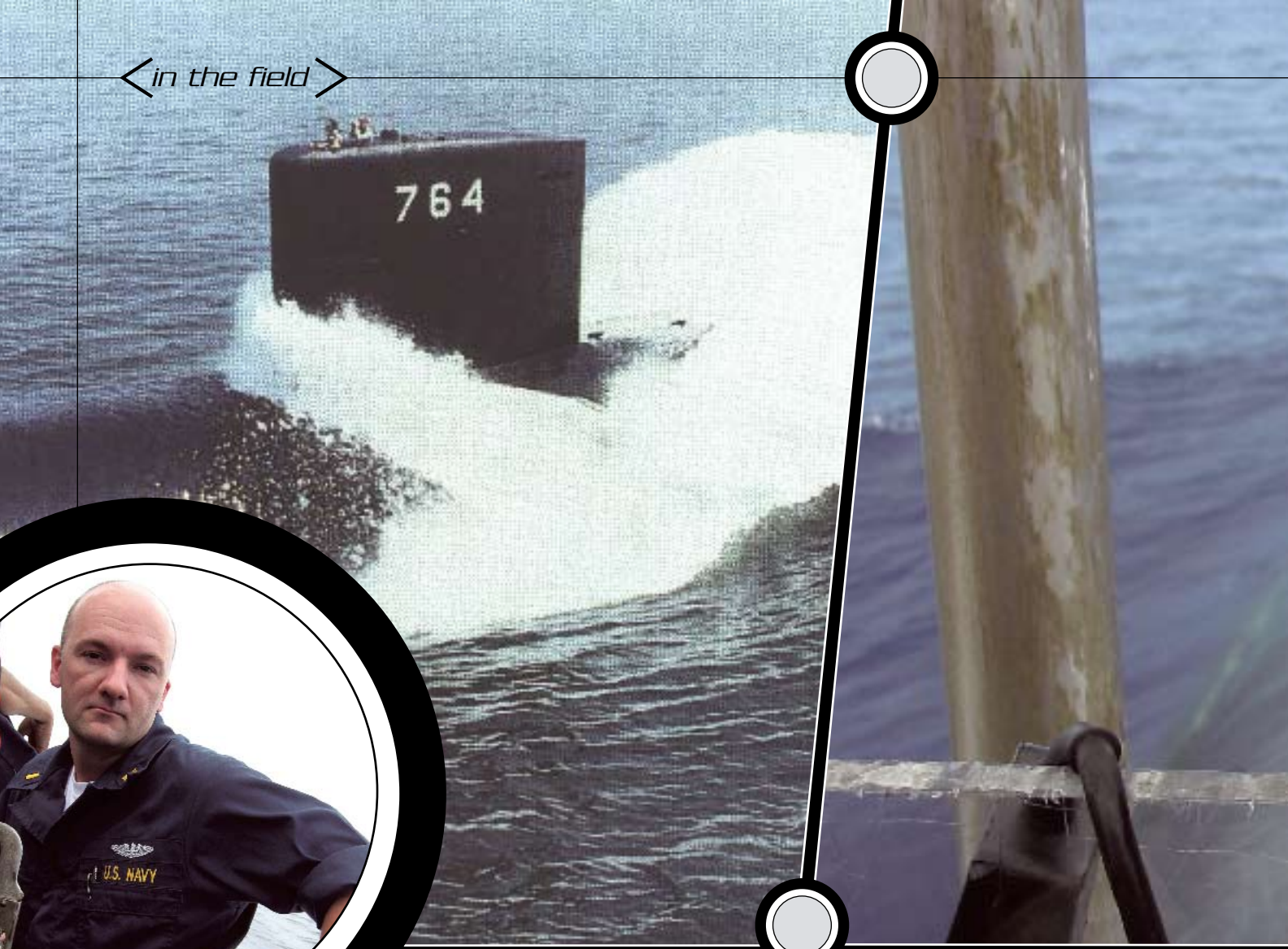


AUTHENTIC

Leaning back just wasn't an option anymore. All of the bodies in the control room not seated were slanting backward at impressive tilts. Imagine standing atop an A-frame house, pushing with your feet against the shingles to maintain balance while leaning way back against the rake of the roof. That's what it was like aboard the Los Angeles Class nuclear-powered attack submarine USS Boise (SSN-764) at approximately 1700 hours EST on the evening of July 20th - except that the angle kept increasing.

More than 100 miles off the east coast of Florida and three hundred feet below the surface of the Atlantic Ocean, Boise was 30 degrees nose-down and diving. Further acrobatics on my part were futile. It was time to grab hold of something before I fell over. Steadied by an overhead handhold made of stainless steel, one could appreciate just how dynamically a 360-foot, nearly 7,000-ton submarine can be maneuvered underwater.

We were in the middle of a maneuvering in an exercise informally referred to by submariners as angles and dangles. Descending is, of course, only one feature of the angles and dangles evolution. Boise can climb just as steeply

International Watch dives deep with the crew of the USS Boise

SUBMARINERS

BY JAN TEGLER

as it dives and after heading us downhill at a precipitous angle, SSN-764's commanding officer, Commander Rodney A. Mills, cocked the nose of the sub up at 35 degrees.

Time for the handholds again. But this time around, picture the control room crew leaning forward into a hurricane-force wind and you'll get an idea of the incline of the deck. Even the CO grabbed hold of nearby console. As we ascended, he calmly multi-tasked, simultaneously taking input from the officers and enlisted personnel manning the control room, issuing and approving orders, and explaining in fascinating detail just what we were experiencing.

Hard turns to port and starboard followed with Boise leaning into the bends as we leaned against the yaw. The ship handled the maneuvers with as much composure as its captain and the Rolex Submariner on his wrist, its secondhand sweeping serenely. It might be hard to imagine noticing something like that amid all the activity but after all, we were aboard not only to get a very rare glimpse into what life aboard a 21st century submarine is like, but to find out what real submariners wear on their wrists.

Limited edition

This was a rare privilege on all accounts. The world of modern American submariners is little known outside the small, secretive community of professionals who comprise the most skilled, robust and lethal undersea fleet on the globe, the U.S. Navy Submarine Force. The Navy's all-nuclear-powered fleet consists of seventy-two submarines, grouped in three types. Two classes of SSN or fast attack nuclear submarines – the Los Angeles Class (including Boise) and Virginia Class - make up the largest part of the force. The primary missions of the 54 SSNs are hunting and destroying enemy submarines and surface ships and tactical strike against land-based targets.

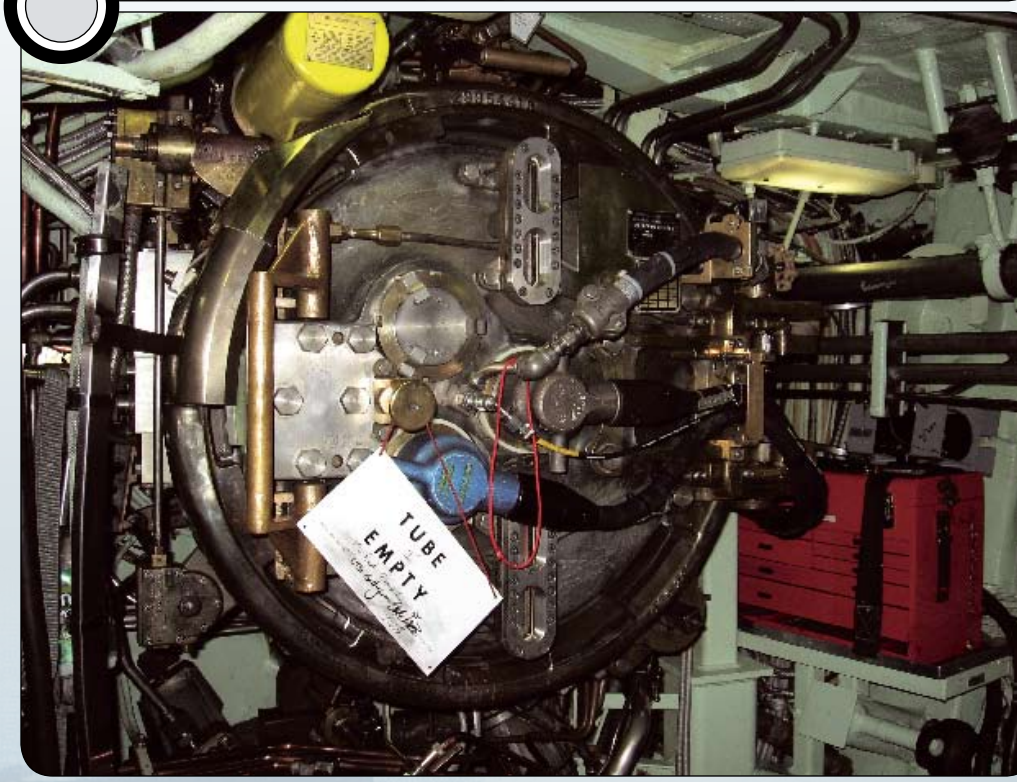
Fourteen SSBNs or Ballistic Missile Submarines of the Ohio Class provide strategic nuclear strike capability. Much larger than their SSN-cousins, SSBNs carry twenty-four Trident nuclear missiles capable of hitting targets anywhere in the world. An additional four Ohio Class submarines known as SSGNs or Cruise Missile Submarines are converted SSBNs, adapted for tactical strike against land-based targets and for the covert delivery of Special Forces personnel and equipment. In addition, all three types act as intelligence gathering platforms, performing the ISR or intelligence, surveillance, reconnaissance mission and engaging in information warfare.

Today, the Navy's Submarine Force consists of just over 25,000 personnel. It's a fraction of the size of its sister naval surface and aviation communities, but it plays a vital part in U.S. military operations. Since the advent of submarine operations in the early 20th century, very few people in the world have ever set foot on a submarine much less cruised beneath the waves as International Watch was fortunate to do with a small group of dignitaries.

Inside the sub

Describing life aboard an SSN could fill the pages of a large book, but we can give a flavor of the daily routine based on people, their roles, the configuration of the ship and time – in other words by chronicling the movement of the submarine.

Descending through a hatch in the deck of SSN-764 via a vertical ladder, we enter another world – from the bright morning sunshine and warm humid air of



Kings Bay Naval Base, Georgia, where we met up with Commander Mills and the crew of Boise, down into a neon-lit, air-conditioned atmosphere where one breathes in purely filtered oxygen and a variety of odors. There are no windows of course, and the passageways and living/operational spaces are tight. One of the first things one notices is the crew's footwear. Unlike the traditional black shoes or boots found on other USN warships, tennis and other soft-soled shoes are the norm. This is the "silent service" after all and the minimization of noise is a priority.

There are three main decks inside Boise's three-inch thick, 33-foot diameter hull and the majority of the ship's 129 all-male crewmen can be found working, eating, sleeping or relaxing in the forward half of the submarine. The upper deck is dominated by the operational nerve center of the vessel, the control room and attack center (Conn).

Here, all of the operations aboard SSN-764 are tied together, from guidance and navigation to weapons employment, remote sensing and surveillance. Just forward of the control room is the sonar room where an array of classified sonar monitors the undersea environment with amazing precision. A weapons loading hatch is forward of the sonar room and the only living space on the upper deck, the captain's stateroom, is aft of the control room.

The second level consists of a crew's mess, galley, dry and cold storage, trash disposal room, the officers wardroom, crew bunks and the officers berthing. Included on the lower level are the submarine's auxiliary diesel engine, battery compartment and four MK-48 torpedo tubes.

Aft of the forward main decks are the nuclear reactor compartment and engine room, which houses the submarine's propulsion machinery including gearing, engine, turbine and generators. Stern ballast tanks and a propeller shaft round out the back end of the ship. Bow ballast tanks are mounted low, forward of the main decks. →

Arms

Boise's armament consists of twenty-eight Mk48 ADCAP (advanced capability) torpedoes/Tomahawk Land Attack Missiles (TLAM) which can be fired via the torpedo tubes and a further twelve TLAMs which are launched from vertical launch tubes located forward of the main decks just behind the pressure hull and sonar dome in the nose of SSN-764. Employed in conjunction with the ship's advanced fire control and sonar systems (the most modern in the fleet), these weapons give Boise a singularly powerful punch.

At the heart of it all is the captain. With multiple previous sea tours aboard USS Boston, USS Chicago and USS West Virginia, and stints with submarine commands ashore, Commander Mills has experienced just about every facet of the submariner's life. Despite the long hours associated with training, the complexities of preparing a submarine for deployment and the months-long separation that accompany deployment, Mills says there's no better feeling than taking a submarine to sea.

"What I like best is simply operating. It's a fun business going to sea and I enjoy the camaraderie of the crew. I love to come to work in the morning and I have a job that I'm excited about. It's never boring, always adventurous. About every two to three years in the submarine force you get a new boss or a new assignment, maybe in a new location with a new focus. The people are fantastic. You have fun operating complex equipment with smart people and performing challenging operations. It's rewarding to have that sense of accomplishment."

Undersea world

With fewer than 130 crew and a mandate to operate with stealth and independence, a submarine is a world unto itself. The camaraderie Commander Mills mentions is a pronounced feature of life aboard as every crew member relies on his counterparts to perform operations safely and effectively. Working together is a must and those who serve aboard fast-attack submarines develop and exhibit pride in their autonomous role in a small but very potent team.

The ship's crew (excepting the captain and executive officer) is organized in four departments – navigation/operations, combat systems, and engineering and supply. Led by senior officers, these organizations are divided into divisions composed of enlisted specialists who perform a range of tasks as-

sociated with their expertise (from driving the ship to maintaining electronic equipment and propulsion machinery). Each division is headed by a junior officer.

Time features prominently in the working of these organizations. With operations conducted around the clock, a watch organization is vital to the functioning of a submarine. The crew is organized in three watch sections with representatives from each division present in each section. At any given time, one of the sections has the "watch." Each watch is directed by an officer of the Deck (OOD) who carries out the captain's orders and controls the ship's course, speed and depth during his watch period. An engineering officer of the watch in control of the propulsion plant assists the OOD.

Watch standing is the norm throughout the Navy and is generally efficient but the management of time around the watch schedule can be tricky on a vessel with a relatively small crew.

"Most of the crew is on an 18-hour day," Mills explains. "The overall watch rotation is six-on, twelve-off. With that rotation, about a third of the crew is on watch at any given time. There are probably about a dozen crewmembers that are on a 24-hour schedule (the captain and senior officers). They don't typically stand watch during the mid-watch (overnight) so they can sleep when people normally sleep.

"On a 24-hour schedule we want to perform tasks in the morning and afternoon like a normal workday. But we have to be sensitive. If you have a guy who's up for six hours on the mid-watch and then you fill his morning and afternoon up with tasks and he can't get any sleep there could be a problem when he comes back in the rotation and has to spend six hours on evening watch. That man can spend twenty-four hours in a row without sleep and his effectiveness can go way down. That's one of the biggest human challenges of time aboard."

Timing instruments

From an equipment perspective, time aboard the USS Boise is regulated and coordinated

by two Rubidium-Beam time standard instruments. These instruments are critical in the synchronization and linking of the sub's more than 100 computers, which work via networks and enclaves to manage everything from satellite-based communications to navigation. But there are more elementary time devices that the crew use daily to perform various tasks.

The control room brims with watch-standers tasked with different duties during every watch. Just before the angles and dangles evolution, we encountered STS-SN (Sonar Technician Submarine) Seaman Brian Sherlock wearing a pair of high-tech headphones and holding a digital stopwatch and calculator in the aft section of the Conn. Sherlock was taking depth soundings.

On his wrist, an Armitron digital watch.

"We take a sounding every fifteen minutes, launching an audio signal to the ocean floor which is excess of 100 decibels. We take the speed of sound and as a reference point we use 4,800 feet per second in water. We time the signal with the stopwatch and when it returns to us, we cut that time in half and multiply it by the speed of sound. That gives us a figure for how deep the ocean is at out present position."

The incoming audio signals are also plotted on an electronic graph that roughly records the depth and profile of the sea floor via sound. It's but one aspect of the use of timepieces aboard Boise. Lieutenant Commander Marty Kuhl is the Boise's navigator/operations officer. He uses the Timex Ironman wrapped around his wrist and two stopwatches to determine look and safety sweep intervals.

"You could say we use time to keep the ship safe. Operating a submarine requires that we not only navigate to go from point A to point B, but that we see and avoid all contacts to maintain safety and stealth. I use my Ironman when we're looking at contacts to determine look intervals – in other words, how often we have to look at a contact on a given bearing to make sure we avoid that contact. I keep track of three running times simultaneously using my watch and two stopwatches to maintain a safety sweep interval to check for contacts continuously."

We found fellow Timex Ironman wearer, Lt. Cogan Semler, manning the control room as OOD during the mid-watch at 0200 hours. Semler didn't plan on a career in submarines but now that he's a part of it he enjoys the life. →

"When I graduated college I was looking for a job that didn't involve sitting behind a desk. I had initially wanted to be part of an engineering department on an aircraft carrier but was assigned to fast attack submarines. I was skeptical at first but I really like the operations we do and the challenges."

Real Submariners

An informal survey of Boise's crew yielded a not-so-surprising result. Most real submariners do not wear Rolex Submariner watches. Aboard SSN-764, Casio's G-Shock quartz models proliferate. It's not that many crew members aren't interested in timepieces, it's that finding affordable submariner watches is a challenge for sailors on a budget. Still, there are opportunities for a type of horological experimentation –with knock offs.

G-Shock-wearer and fire control technician chief Ronnie Barrow says the crew found some interesting knock-off watches during a recent round-the-world trip. But, there are those among the crew who are fortunate enough to own and wear true Submariners. As mentioned, Commander Mills is one of them.

"Some guys, and I used to be that way, have a plastic digital watch and that's all they want, but having something that is a classic and is meaningful to what we do is great. Looking around at other submarine officers I would say that the [Rolex] Submariner is the most prevalent watch. It's a natural, it's a watch named for us."

As SSN-764's captain (and our good friend) Rod Mills put pen to another of the numerous documents he signs each day, he checked his watch to assign a time to his signature and reflected on how often he looks at his Submariner watch each day.

"We rely on time and timeliness for so much of what we do and you find yourself checking the time on your wrist each day more than you ever realize."

The USS Boise is currently preparing for its next deployment, scheduled for May, 2008. And somewhere under the surface of the world's oceans bodies are leaning back and forth as American submarines are put through their paces performing angles & dangles.