



**The Monthly Newsletter of Perch Base - USSVI
Phoenix, Arizona**



March 2010
Volume 16 - Issue 3

<http://www.perch-base.org>

**What's "Below Decks" in the
MidWatch**

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Lest We Forget Those Still On Patrol
MARCH ETERNAL PATROLS

USS PERCH	(SS-176)	03 Mar 1942	6 POWs
Scuttled after Japanese Depth Charge Attack			
USS GRAMPUS	(SS-207)	05 Mar 1943	71 Lost
Japanese Surface Attack, Solomon Islands			
USS H1	(SS-28)	12 Mar 1920	4 Lost
Foundered off Santa Margarita Island, CA			
USS TRITON	(SS-201)	15 Mar 1943	74 Lost
Japanese Surface Attack off New Guinea			
USS KETE	(SS-369)	20 Mar 1943	87 Lost
Unknown causes between Okinawa and Midway			
USS F4	(SS-23)	21 Mar 1915	21 Lost
Battery Explosion off Honolulu			
USS TRIGGER	(SS-237)	26 Mar 1945	89 Lost
Japanese Air/Surface Attack in East China Sea			
USS TULLIBEE	(SS-284)	26 Mar 1944	79 Lost
Circular run of own Torpedo off Palau Islands			

**IT'S HAPPENED!
WOMEN IN SUBMARINES
WITHIN A YEAR
—
STORY PAGE 9**

NEXT MEETING
12 noon, Saturday, Mar. 13, 2010
American Legion Post #105
3534 W. Calavar Rd., Phoenix, AZ 85053

2010 Booster and Float Support Members

Perch Base, USSVI, cannot support its on-going operations and provide funds for the Base's float activities on dues alone. While the Base tries to develop activities to raise additional funds, we salute the members, listed below, who have supported the base with additional contributions.

These are the 2010 Contributors.

ALLSTON, JERRY N.
ASBELL, F. J. "TED" (IN MEMORY OF)
BARTLETT, GARY
BERNIER, RICHARD
BEYER, RONALD B.
BRAASTAD, WAYNE A.
BROOKS, EDGAR T.
BUTLER, BRADLEY L.
CARPENTER, DAVID
COOPER, JAMES J.
COUSIN, ROGER J.
DENZIEN, JAMES R.
DESHONG, BILLY.
DOYLE JR., WARNER H.
ELLIS, HARRY
ERRANTE, JOE
EVANS, JAMES
FOOSHEE, THOMAS E.
GRAVES, JOHN A.
GRIEVES, BILLY
HELLER, HARRY
HEROLD, GLENN A.
HILLMAN, LESTER R
HOUGH, STEVE.
HUNT, THEODORE
KEATING, L. A. (MIKE)
KIMBALL, JACK S.
LA ROCK, DOUGLAS M.
LAMBERT, DARRELL
LANCENDORFER, ROBERT A

LENTS, ROBERT W.
LOBER, DEWAYNE
LOFTIN, BURTIS W.
MARIONS, GEORGE
MARTIN, TERRY
MAY, ROBERT E
MCCOMB, DENNIS
MILLER, ALLEN H.
MILLER, ROGER M.
MOORE, TIM
NELSON, JIM A
NEWMAN, JAMES F
PETTIT, ROYCE E
REEL, DANIEL J
REINHOLD, STANLEY N.
ROBINSON, BRUCE "ROBIE"
RYCUS, MEL
SATTIG, PETE
SCHOONEJANS, EMIL
SHUMANN, GARRY L.
SIMMONS, RICK
SMITH, WAYNE KIRK
STUKE, ADRIAN M
WALL, JAMES L
WARNER, ROBERT
WATSON, FORREST J.
WHITEHEAD, DONALD J
WOLF, EDWARD J.
ZAICHKIN, JOHN G.
ZOMOK, RONALD J.

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Sailing Orders



Base annual elections are held in March. The four (4) elected Base officers are Commander, vice-Commander, Secretary and Treasurer.

The only announced candidates are Howard Doyle for vice-Commander, Time Moore for Secretary and Wayne Pettes for Treasurer.

Naval Recruiting District Phoenix is finalizing their plans for Navy Week. For now, plan on:

- Peoria Sports Complex
- Friday, March 26th

Details on what and where the Base will participate will be announced later.

The all Arizona Base Picnic for this spring has been confirmed. The details are:

- White Tanks Recreational Area (west end of Northern Ave.)
 - April 10, 2010
 - This will take the place of our April meeting
 - Time, 1100 until 1500
-

NEXT MONTH'S MIDWATCH

Special section on nuclear power Not only does this article explain how it works but goes into detail on what happens to old systems. Good for diesel boaters and nukes alike..

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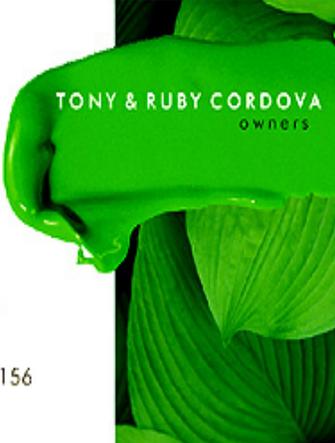
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Bob Snedaker

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 623-203-9795 (cell) bob@fairings-etc.com
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 Proprietor

This is a Way for the Base to Make Money!



American Home Maintenance will donate \$100.00 to Perch Base for every referral that results in an air conditioning sale. Summer is quickly approaching, please let your friends, family, church members and business associates know about this referral program.

There is also deals for estimate service, new equipment, air duct cleaning and other everyday stuff a home owner needs. Contact Tim Moore (see below) for more details.

Tim Moore

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(602) 574-3286

EDITOR'S NOTE:

THIS OFFER FROM TIM MOORE IS THE BASE'S ONLY METHOD OF SUPPORTING ITSELF OTHER THAN SHIP'S STORE SALES WHICH ARE RELATIVELY SMALL. WE REMAIN DEPENDENT ON THE BOOSTER CLUB -- OUR SELF-CHARITY -- FOR INCOME. OTHER INCOME SOURCES HAVE BEEN PROPOSED BUT FOR VARIOUS REASONS, NEVER EMBRACED BY THE BASE. PLEASE KEEP THIS IN MIND.

From the Wardroom Base Commander's Message

Shipmates:

Perch Base has completed two successful outings with our float: our second appearance at the Laveen Community Parade on February 6th where we received an award in the "Military Float" category; our first appearance at the "Gold Rush Days" in Wickenburg on the 13th. Wickenburg's parade was very large and our float was well received. There was a lunch at the American Legion afterward. Bravo Zulu to those who represented the base!

We also did a Kap(SS)4Kid(SS) event at Children's Hospital on the 18th. We changed the format of our visit and were able to see more of the children and interface with them better than we have before. We all had a truly outstanding experience!

Our next meeting is March 13th and we will be conducting our annual elections. The positions being elected are Vice Commander, Secretary and Treasurer. Have a voice in your base operations. Show up and vote!

Fraternally,

Jim Denzien, Base Commander

February Meeting Minutes

The regular monthly meeting of the Arizona Submarine Veterans Perch Base was convened at the American Legion Post #105, Phoenix, AZ at 1225 13 February 2010. The meeting was called to order by Jim Denzien, Base Commander.

The "Call to Order" was led in a prayer of invocation by Walt Blomgren followed by the Pledge of Allegiance and the standard ceremonial opening. The tolling ceremony was conducted for all boats lost in the month of February and a moment of silence was observed for our shipmates on eternal patrol.

According to the sailing list, 31 members and guests were present. Davy Jones brought two guests, C.M. "Neil" Dora and his son Joe Dora. Neil served in the Air Force and his son Joe is a Marine and served in Desert Storm. Also in attendance was Eldon Hartman who lives in Mesa and qualified in submarines aboard the USS Queenfish SS/AGSS-393 in the early fifties. Eldon announced that there will be a Queenfish reunion in Mesa in October. We also had a guest speaker Jay Wisner who is a retired Master Chief. Jay is currently a teacher who is involved in the Glendale Union High School NJROTC program.

As the first item of business, a motion was made and seconded that the minutes from the January 2010 regular meeting be approved as published in the MidWatch monthly newsletter. The motion was carried by unanimous voice vote.

Base Treasurer Wayne Pettes reported on base's financial status as of 01 February 2010. A motion was made and seconded to accept the Treasurer's Report as read. The motion carried by unanimous voice vote.

Base Commander's Board of Directors Meeting Report

Jim reported on upcoming events one of which is the Wickenburg Gold Rush Days which is taking place (on the meeting day) in Wickenburg. Perch Base members participating in that event include Rick Simmons, Howard Doyle and Chuck Emmett. Also attending are Jim Evans and Jim Walls who live in that area and Joe Varese, who is towing the float for this event.

Jim announced that next month we will be having base elections. Up for re-election will be Vice-Commander, Secretary and Treasurer. Howard Doyle will be running for Vice-Commander, Tim Moore for Secretary and Wayne Pettes for Treasurer. We have had one member who has expressed interest in the Chief of the Boat position and a decision regarding filling that position will be forthcoming and should be announced prior to our next meeting.

Chuck Emmett and Rick Simmons are working on documenting our Policies and Procedures Manual and we are anticipating that a draft of that will be ready by our next monthly meeting.

Reports of Officers and Committee Chairmen

Vice-Commander – Howard Doyle was attending the Wickenburg Gold Rush Days event.

Secretary – Tim Moore had nothing to report.

Treasurer – Wayne Pettes had nothing to report.

Chaplain – Walt Blomgren had nothing to report.

Chief of the Boat – TBA

MidWatch Editor/Interim Webmaster – Chuck Emmett was attending the Wickenburg Gold Rush Days event. Speaking for Chuck, Jim announced that anyone wanting anything posted to the web site should e-mail Chuck. Also any comments about the new web site should be addressed to Chuck as well.

Base Storekeeper – DeWayne Lober reminded the membership that he still has a number of \$10.00 shirts available. When these are gone, all the new shirts will be \$20.00.

Membership Chairman – Rick Simmons was attending the Wickenburg Gold Rush Days event. In his absence and on his behalf Jim reported on our reenlistment status. For Perch Base members owing National dues, we had 64 members owing and 57 that paid for an 89% re-enlistment return rate. For the 87 Perch Base members owing base dues, we had 80 that paid for a 92% re-enlistment return rate. Kudos and a big Bravo Zulu to Rick for a fine job on the re-enlistment effort. Additionally, we had 62 members that made Booster Club donations for 2010 so thank you and a big Bravo Zulu goes out to the base membership for their financial support of Perch Base.

Historian – Jim Newman was not present.

Events Coordinator – Barry Bowers had nothing to report.

Past Commander – Stan Reinhold had nothing to report.

Old Business

Jim Denzien reminded the membership about the All Arizona Base Picnic which will be taking place at White Tanks Recreational Area on the 10th of April and will take the place of our April meeting. Reservations for a ramada have been made and confirmed and the picnic will go from 1100 until 1500. We have received positive responses from Tucson Base and Barbel Base in Yuma. Final details will be forthcoming.

With elections coming up, Jim reminded the membership that we always encourage more people to participate in the operation of the base. New faces and new ideas are always welcome and would be greatly appreciated by the current board members and all of your shipmates.

New Business

Next Thursday, the 18th of February we will be having our semi-annual Kap(SS)4Kid(SS) event at the Phoenix Children's Hospital. Phoenix Children's Hospital is located at the 51 Freeway (19th St.) and E. Thomas Rd. on the south side of Thomas. We will muster in the lobby of Bldg. A at about 0945. Participants should plan on wearing hats and vests.

Upcoming events include the Riverside, CA Veteran's Parade 17 April and the theme for this year is "Honoring the Veterans in Your Life". This will be our fourth year participating in this event and Tucson Base will be taking their float and participating as well. The current plan is to go over on Friday and return on Saturday or Sunday. If you are interested in participating, please contact one of the base officers.

Good of the Order

We participated in the Laveen Parade and were presented two awards for our participation. One was a Participation Award and the other was a Community Spirit Award. This event is sponsored by the Lion's Club and this is the second year we participated.

Jim asked for more of the membership to participate in future events especially Memorial Day and Veteran's Day. For the smaller events and parades, 5 or 6 people are generally enough to support that type of activity.

We will be looking into the possibility of acquiring a display case to showcase Perch Base awards and other memorabilia. Tim and De Wayne will try to locate some sources for suitable display cases and Tim will contact Post #105 to see if they will provide space in the main meeting room.

One other event that will be coming up soon is Navy Days which will probably take place during the first two weeks of March at the Peoria Sports Complex. Like last year we would like to participate in one of the events and details

for that activity will be forthcoming in the near future.

Stan reported on his recent trip on Saturday January 23rd to San Diego. The deep submergence community, Don Walsh, 17 pilots, 6 crew members, and about 8 tech reps were included in about 200 people who celebrated the actual 50th anniversary of the Challenger Deep Dive with Trieste that took place on the 23rd of January in 1960. Rolex was there with the original watch that made the dive on the exterior of the boat which was pretty amazing when you consider that it went to 35,800 feet. Stan said the crystal on the watch was an inch and a half thick. The MTS (Marine Technological Society) sponsored the dinner and Rolex passed out hats commemorating the occasion. This was the West Coast version of the reunion that will be happening in Washington D.C. in April. The reunion will be from April 15th to the 19th.

Jim reported that Jack Kimball and his son attended the decommissioning ceremony for the USS Los Angeles (SSN-688) also on the 23rd of January.

It was brought up at the board meeting that we are collecting memorabilia, awards, plaques, etc. that have been presented to Perch Base for various reasons. In the past the officers of Post #105 had offered some space in the main meeting room to display some of our items. We will be contacting the new administration to see if that offer still stands. We will be looking to acquire a lockable display case the dimensions of which might be 6' to 7' tall x 6' to 8' wide x 12" to 24" deep whichever is standard for this type of display case. If any of the membership knows where we might acquire a display case that would accommodate our needs, please let one of the base officers know.

50/50 Drawing

The 50/50 drawing was held and the winner was Neil Dora who won \$40.00.

Guest Speaker

Master Chief Jay R. Wisener United States Navy (Retired) was our guest speaker. Jay was born and raised in Glendale, AZ where he attended Sevilla Elementary School and Alhambra High School. He joined the Navy in 1971 went to IC School and attended submarine school in New London. After sub school he received orders to the USS Sailfish (SS-572.) In addition to a number of other commands, Jay served aboard the USS Parche (SSN-693,) the USS Drum (SSN-677) and the USS Guardfish (SSN-612.) He also served in the Navy Recruiting District San Diego where he was the Nuke Recruiter of the Year in 1982. He also served with the Navy Recruiting District Phoenix, AZ. After 23 years of military service he received a degree in Secondary Education and History from Ottawa University and became a Naval Science Instructor at Glendale High School.

In addition to teaching, Jay is involved with the NJROTC programs for the Glendale Union High School District and his presentation today is about this program. The overall curriculum includes citizenship, leadership, Navy orientation, history, sea power, seamanship, navigation and meteorology. It is a combination of academics, athletics and military drill. The NJROTC program is a combination of 60% academics and 40% military drill and physical fitness. Extracurricular activities include marksmanship and orienteering. ROTC in high school is not considered a recruiting program. The main emphasis is giving students more knowledge about our country, about patriotism and about service to our country. Some students do go into military service and the percentage of those who do varies between 2% and 10% of any graduating class. High school students can participate in ROTC from 1 to 4 years. If they do choose to go into military service out of high school, those that complete 2 years of NJROTC go into the service as an E-2 and with 3 or more years will go in as E-3. The exception is the Marine Corps which will not allow recruits to go in above E-2. Parents and school districts are very supportive of ROTC programs and the students who participate are generally very good citizens and grateful for the opportunity to participate in the program.

The Base expressed thanks to Jay for enlightening us about the NROTC program. One of our future goals will be to work with NJROTC program and the participating students.

Adjournment

All the outstanding business having been concluded, it was moved and seconded that the meeting be adjourned. The motion carried by unanimous voice vote and the meeting adjourned at 1340 hours.

The benediction was offered by Walt Blomgren.

Tim Moore, Secretary, Perch Base USSVI



A Submariner's Prayer

"Eternal Father, strong to save
Whose arm hath bound the restless wave,
Who biddest the mighty ocean deep
Its own appointed limits keep.
O hear us when we cry to Thee
For those in peril on the sea.

Bless those who serve beneath the deep.
Through lonely hour their vigil keep.
May peace their mission ever be,
Protect each one we ask of Thee.
Bless those at home who wait and pray,
For their return by night or day."

Do you know a shipmate who is on the lee side of a fair wind? Someone who could use the help of a shipmate? Remember, we are the "**Brotherhood** of the Phin."

Contact our Base Chaplain if you know of any way we can help:

Walt Blumgren
5120 W. Gelding Dr.
Glendale, AZ 85306
(602) 309-4407
chaplain@perch-base.org

ETERNAL PATROL PREPARATIONS

Shipmates, while we hope your day and those of your shipmates is far off in the future, we must nevertheless prepare. Please copy this notice (in the box immediately below) and place it with your will or important papers.

IMPORTANT

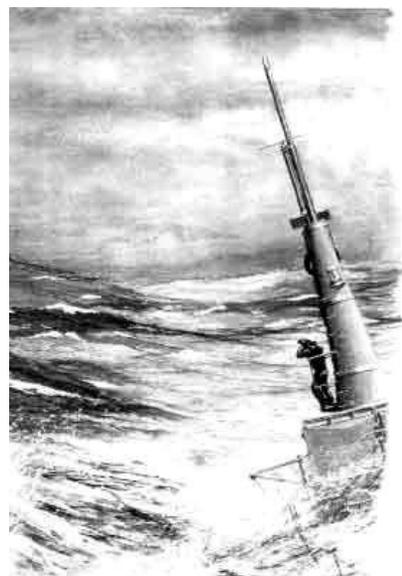
In the case of my death, please immediately notify the U.S. Submarine Veterans Inc., (USSVI) at 877-

542-3483 or 360-337-2978 and give the person on duty the information regarding my death, funeral, and burial arrangements, plus who they can contact for follow-up and support.

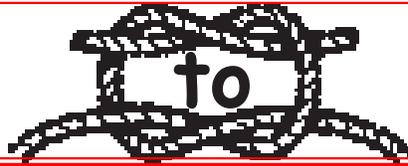
Please ask them to contact my local chapter's Base Commander with this information as well (they can look it up in their membership records).

This information can alternatively be E-Mailed to the National Office at "office@ussvi.org".

But remember, your family should always notify the Base Chaplain first. He and your local shipmates can help!!



Shipmate



Shipmate

PENTAGON OKs LIFTING BAN ON WOMEN IN SUBMARINES

WASHINGTON

Tue Feb 23, 2010 7:24pm EST

WASHINGTON (Reuters) - The Pentagon said on Tuesday it is moving ahead with plans to end the U.S. military's ban on allowing women to serve in submarines.

U.S. Defense Secretary Robert Gates sent a letter to lawmakers notifying them of the decision by the Navy, which could see the first women on nuclear submarines next year.

"This is fundamentally a Navy initiative, which they recently briefed to the secretary of defense. (Gates) supports it and he notified Congress of the Navy's plans," Pentagon press secretary Geoff Morrell said.

Women account for about 15 percent of the more than 336,000 members of the U.S. Navy and can serve on its surface ships. But critics have argued that submarines are different, pointing to cramped quarters where some crews share beds in shifts -- a practice known as "hot bunking."

A likely scenario would see female officers becoming the first to join crews on the Navy's fleet of 71 submarines, since officers have separate accommodations, a U.S. defense official said.

Congress has 30 days to provide its official comment on the Navy's decision.

Nancy Duff Campbell, an advocate for expanding the role of women in the U.S. armed forces, applauded the decision and said she did not expect any opposition from lawmakers.

"This is something that has a lot of support (within the military) and the Navy has a serious plan" to carefully integrate submarine personnel, she said.

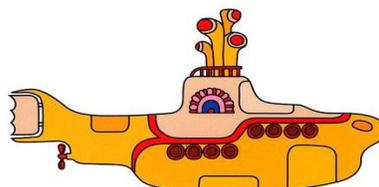
Allowing women on submarines would be another step forward in expanding the role of women in the U.S. military. In 2008, a woman was promoted to the rank of four-star general for the first time.

Testifying in the Senate on Tuesday, Army General George Casey said he thought it was time to re-examine the policy that places restrictions on women in combat roles.

"We don't have an active effort going on, but I think it's time," Casey said.

Women are still barred from traditional frontline combat roles in the U.S. armed forces. But female soldiers often run the same risks as men in Iraq and Afghanistan, where bombings and other insurgent attacks can happen almost anywhere.

(Reporting by Phil Stewart and Susan Cornwell)



KAP(SS) 4 KID(SS)

Perch Base shipmates came together on Feb. 18 for the semi-annual Kap(SS) 4 Kid(SS) at the Phoenix Children's Hospital. Seven Base members joined to distribute pink and blue hats and present honorary submariner certificates.



A COLD WAR “DID YOU KNOW?”



On 20 June 1970, USS Tautog (SSN-639) was in the North Pacific Ocean off Petropavlovsk-Kamchatsky, a major base for Soviet Navy missile-armed submarines located near Rybachiy on the Soviet Union’s Kamchatka Peninsula, attempting to trail K-108, a Soviet Navy Echo II-class guided missile submarine nicknamed “Black Lila” when the submarines collided violently while K-108 apparently was conducting a maneuver known in the U.S. Navy as a Crazy Ivan.

Tautog suffered damage to her sail. As Tautog departed the scene, her crew heard what they thought was K-108 breaking up and sinking. When

Tautog arrived in Pearl Harbor, a large portion of one of K-108’s screws was found embedded in her sail. Over thirty years later, after the collapse of the Soviet Union, it was discovered that K-108 in reality had limped back to Petropavlovsk-Kamchatsky. The collision caused no personnel casualties aboard either submarine.

WHAT’S NEW ONLINE

The Perch Base web site (<http://www.perch-base.org>) is always being upgraded and improved. Some of the latest changes:

- Pictures from the Wickenburg “Gold Rush Days” parade where our float participated.
- A new link that gives a full panoramic view of each compartment on the museum boat USS Pomponito (SS-383), moored in San Francisco.
- Even more entries in the “Submarine, Nautical Terms and Glossary” many with photos.



Perch Base March Birthdays



WILLIAM ALLEN	MARCH 24
DAVID W. ANDERSON	MARCH 12
REYNALDO F. ATOS	MARCH 24
KENNETH E. BECKER	MARCH 27
KARL G. BERGSTROM	MARCH 23
WARNER H. DOYLE JR.	MARCH 9
BERNARD FROMM	MARCH 4
JOHN A. GRAVES	MARCH 29
GLENN A. HEROLD	MARCH 11
DENNY KERTON	MARCH 29
BURTIS W. LOFTIN	MARCH 19
TERRY MARTIN	MARCH 28
DENNIS McCOMB	MARCH 11
RAYMOND McKINZIE	MARCH 30
WILLIAM L. McNAY	MARCH 20
JOHN F. McVEIGH	MARCH 4
JACK RICHARDSON	MARCH 5
FRED D. SAUNDERS	MARCH 12



Eternal Patrol March 26, 1944

Editors Note: *Less we forget, each month, one boat on eternal patrol will be highlighted in this newsletter. Sailors, rest your oars.*

The Final Patrol

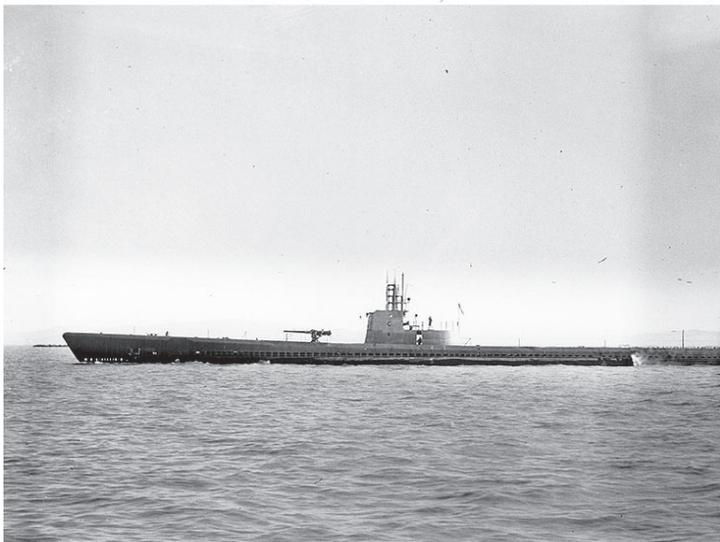


Lord, this departed shipmate with dolphins on his chest
Is part of an outfit known as the best.
Make him welcome and take him by the hand.
You'll find without a doubt he was the best in all the land.
So, heavenly Father add his name to the roll
Of our departed shipmates still on patrol
Let them know that we who survive
Will always keep their memories alive.



**USS Tullibee (SS-284)
March 26, 1944
79 men lost**

Photo # NH 98407 USS Tullibee, circa 1943



USS Tullibee (SS-284), a Gato-class submarine, was the first ship of the United States Navy to be named for the tullibee, a whitefish of central and northern North America



Gato-class diesel-electric submarine

Displacement: 1,549 tons (surf) 2,463 tons (sub)
Length: 311 ft 9 in; Beam: 27 ft 3 in; Draft: 17 ft 0 in]
4 × Fairbanks-Morse Model 38D8- $\frac{1}{4}$ 9-cylinder diesel engines
driving electrical generators; 2 × 126-cell Sargo batteries]
4 × high-speed GE electric motors with reduction gears
two propellers]
5,400 shp (surf); 2,740 shp (sub)
Speed: 21 kn (surf); 9 kn (sub)
Range: 11,000 nmi surfaced at 10 kn
Endurance: 48 hours at 2 kn submerged
75 days on patrol
Test depth: 300 ft
Complement: 6 officers, 54 enlisted
Armament: 10 × 21-inch torpedo tubes
(six forward, four aft)
24 torpedoes
1 × 4-inch/ 50 caliber deck gun
Bofors 40 mm and Oerlikon 20 mm cannon

Tullibee's keel was laid down on 1 April 1942 at Mare Island, California, by the Mare Island Navy Yard. She was launched on 11 November 1942 sponsored by Mrs. Kenneth C. Hurd; and commissioned on 15 February 1943, Commander Charles F. Brindupke in command.

Tullibee held shakedown training from 8-30 April 1943 and departed for Hawaii on 8 May. She arrived at Pearl Harbor on 15 May and held further training exercises in Hawaiian waters. Numerous air fitting leaks developed, and she was docked for repairs twice. When this proved ineffective, the submarine entered the navy yard until 11 July.

First War Patrol

On 19 July, Tullibee got underway for the Western Caroline Islands and her first war patrol. On 28 July, she sighted a passenger-cargo ship, accompanied by an escort and an aircraft that prevented her attack. On 5 August, the submarine began patrolling the Saipan-Truk traffic lanes. Five days later, she sighted smoke on the horizon that proved to be three freighters with an escort. Tullibee closed the range to 2,700 yd (2,500 m); launched one torpedo at the ship on the right and three at the vessel on the left. As the submarine fired the first torpedo, a ship rammed her and bent her number one periscope. She went deep and was depth charged by the escort as the ships sped away. As they had been set to run at a depth of 15 ft (4.6 m) — too deep for the draft of the largest target — none of the torpedoes exploded.

On 14 August, Tullibee sighted a convoy of three freighters with an escort and began an end-around run to get into good attack position. She launched a torpedo from a range of 3,000 yards (2,700 m) and went deep. It missed, and

she returned to periscope depth to fire three torpedoes at the last ship. It apparently saw their wakes as it turned and combed them. The submarine again went deep. When she surfaced, the targets had escaped. On 22 August, Tullibee sighted a convoy of five ships escorted by two destroyers; closed to 2,000 yd (1,800 m); and launched three torpedoes at the nearest freighter. Two minutes later, she fired three more at another ship. As she went deep to avoid a destroyer heading her way, she heard one explosion.



She soon heard the bursts of two more torpedo explosions, followed by breaking up noises. When she surfaced, she sighted over 1000 empty 50 US gal (190 l) oil drums, but no ships. Postwar examination of Japanese records indicated that Tullibee had damaged one freighter and had sunk the passenger-cargo ship Kaisho Maru. The patrol terminated when the submarine reached Midway Island on 6 September.

Second War Patrol

On 28 September, Tullibee began her second war patrol. Her assigned area was in the East China Sea between the Ryukyu Islands and the China coast. On 4 October, she sighted a convoy of nine passenger-cargo ships with three destroyer escorts. The submarine pulled well ahead of the convoy and tracked them until the next morning. At 00:58, she fired a spread of three torpedoes at a large freighter, with one hitting the target a minute later. Another spread of three from the bow tubes produced two hits on a heavily-laden cargo ship. Minor explosions and breaking up noises

began immediately as Chicago Maru sank. Twelve days later, Tullibee contacted a convoy of seven ships with three escorts that later separated into two groups; one hugging the China coast and the other heading for Pescadores Channel. She attacked the largest ship in the last group with six torpedoes; one hit the target. The submarine began an end-around run and launched four torpedoes at another ship. Two torpedoes soon broached, and Tullibee broke off the attack. She went deep and rigged for silent running to evade the escorts. On 5 November, the submarine was running submerged near Okinoyerabu Shima when she sighted a large, three-story building on the island. She surfaced and fired 55 shells into the barracks before retiring at full speed. She began the voyage back to Hawaii the next day and reached Pearl Harbor, via Midway Island, on 16 November. Her official score for this patrol was one passenger-cargo ship sunk, a tanker damaged, and a passenger-cargo ship damaged.

Third War Patrol

Tullibee's third patrol was in a wolf pack with sister ships Halibut and Haddock. The trio sortied from Pearl Harbor on 14 December 1943 for the Mariana Islands to intercept enemy shipping plying between Truk and Japan. On 2 January 1944, Tullibee sighted a Japanese I-class submarine on the surface and launched four torpedoes at a range of 3,000 yd (2,700 m). The enemy saw the wakes and combed the four of them as Tullibee was forced deep by an enemy floatplane that dropped six bombs.

On 19 January, Haddock reported that she had damaged the Japanese escort carrier Unyō, which limped to Saipan. Tullibee sighted the carrier there on 25 January, close ashore and well protected by escorts and aircraft. The submarine remained on station for several days awaiting an opportunity to sink the aircraft carrier. However, when she surfaced on 28 January, she learned that the carrier had slipped away. Three days later, the submarine made radar contact with two targets. She launched three torpedoes at what appeared to be a freighter and swung left to fire one at the escort. The first target, net tender Hiro Maru, took two hits and disintegrated in about one minute. The torpedo fired at the escort missed, and the submarine went deep to evade. Tullibee cleared the area the following day and returned to Pearl Harbor on 10 February.



Fourth War Patrol and Loss

On 5 March, Tullibee stood out of Pearl Harbor to begin her fourth war patrol. Nine days later, she called at Midway Island to top off her fuel and then proceeded to her patrol area in the Palau Islands. She was scheduled to support aircraft carrier strikes against those islands on 30-31 March. On 25 March, Tullibee arrived on station and began patrolling. The next day, she made radar contact on a convoy consisting of a large passenger-cargo ship, two medium-sized freighters, a destroyer, and two other escorts. The submarine made several surface runs on the transport but kept losing her in rain squalls. Tullibee finally closed to 3,000 yd (2,700 m) and launched two torpedoes from her bow tubes at the target. About two minutes later, the submarine was rocked by a violent explosion. Apparently, one of Tullibee's own torpedoes ran a circular course and sank the submarine that had launched it.

Gunner's Mate C.W. Kuykendall, on the bridge at the time, was knocked unconscious and thrown into the water. When he regained consciousness, the submarine was gone. He heard voices in the water for about ten minutes, then they stopped. The next day, he was picked up by a Japanese escort.

Tullibee was struck from the Naval Vessel Register on 29 July 1944; Kuykendall survived as a prisoner of war and was released after V-J Day.

Tullibee received three battle stars for World War II service.



Fact #6: Bad Luck of the Irish

It is well known that at the beginning of the Mexican War, John Riley, a career sergeant, deserted with a number of Irish-American soldiers to Mexico and ended up forming an artillery battalion in the Mexican Army known as the San Patricios. He left because of the harsh treatment of Irish soldiers at the hands of their officers, but about half of the regular US Army, and a huge portion of citizen soldiers, were Irish. Irish soldiers despised the San Patricios as traitors and deserters, and fought the San Patricios with a particular ferocity. It was Irish American soldiers who finally captured their erstwhile countrymen, and treated them roughly while they awaited trial, disgusted that fellow Irishmen could so easily cast aside their new homeland and disgrace all Irishmen. The San Patricios were truly elite soldiers in the Mexican Army, fighting with greater vigor than other Mexican units, for the simple fact that Mexican soldiers would be treated as prisoners of war, while the San Patricios would be treated as deserters and traitors and tried accordingly. This, of course, is exactly what happened. Those who defected after war was declared were hanged. Riley and many of his men who defected before the declaration of war were whipped and branded. Riley never returned to the United States. He mustered out of the Mexican Army in 1850. His fate is unknown.

Fact #7: Last of the First

The last veteran of the American Revolution, Daniel Bakeman, died in 1869 at the age of 109.

Fact #8: Strange Currencies

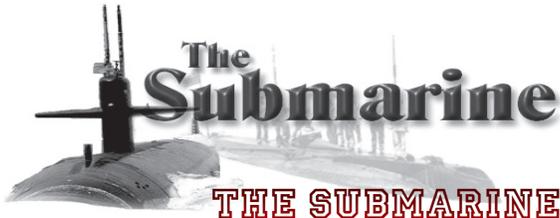
When the country of Tripoli issued their demands for tribute from the United States for ships to operate freely off their coasts, their demands were: \$40,000 in gold and silver, \$12,000 in Spanish currency, three diamond rings, one sapphire ring, and one ring with a built-in watch, 141 ells of cloth, and four caftans of brocade.

Fact #9: Hoodwinked

In 1911, when civil war broke out in Honduras, Sam Zemurray, an American businessman with many interests in Honduras, appealed to the US government to protect his businesses. He even paid for part of the US Naval expedition that was sent. President Manuel Bonilla, who was deposed in the civil war, was restored with American assistance. He then rewarded Zemurray with large holdings of land for his booming banana business, which eventually became the huge United Fruit Company. Only long after was it learned that Zemurray was the one who financed the war that deposed Bonilla in the first place.

Fact #10: Overkill?

General Douglas MacArthur had a three-point plan to win the Korean War. First, drop fifty atomic bombs on Chinese bases and staging points. Second, Land half a million Chinese Nationalist troops from Formosa behind Communist lines with two US Marine divisions in support to cut off supply lines, and third, after the Red Chinese were defeated, laying a barrier of radioactive cobalt along the Yalu river to keep the Chinese at bay. Needless to say, none of this ever happened.



World War II to 2000

THE SUBMARINE IN HISTORY

1941

On the first day of the war, 28 submarines of the U. S. Asiatic Fleet were in defensive positions around the Philippines. More submarines than the entire German U-boat fleet at the beginning of World War I; indeed, more submarines than had ever been assembled for one battle at the same time. They might as well have been in San Diego.

For the losing three-week Philippine campaign, with potential targets including seventy-six loaded transports and supply ships, the Americans averaged only two attacks per submarine, and sank only three Japanese ships. Only one American submarine was lost.

That is not meant as a compliment. Pre-war training had emphasized caution: "It is bad practice and is contrary to submarine doctrine," noted an official report of 1941, "to conduct an attack at periscope depth when aircraft are known to be in the vicinity." Of more significance: problems with torpedo supply, and design. As for supply: 1941 torpedo production was limited to 60 a month. For all of 1942, even with a war well underway, total production was 2,382. Submarine commanders, already too cautious, were cautioned not to waste their precious ammunition. For the year, they shot 2,010.

As for design: the Americans, British, Russians and Germans all had similar problems with their torpedoes. The depth settings were wrong; the fuses were inadequate; the torpedoes did not explode on contact. Example: during one period in 1940, U-boats launched four attacks on a battleship, 14 on cruisers, ten on destroyers, and ten on transports – with one transport sunk. The leading U-boat ace complained, "I cannot be expected to fight with a dummy rifle."

In all navies, senior management did not give credence to reports coming in from the fleet. The submariners themselves – who, after all, had the most to gain, or lose – continued to complain until someone took notice, or conducted their own indisputable tests. Amazing to note: some of these problems were hold-overs from World War I, and others were well known – but not well dealt-with – in the 1930s. The German problems were resolved toward the end of 1940.

As for the U. S. Navy: before the problems had been discovered, and fixed, an effort which took the first two years of the war, almost 4,000 torpedoes had been fired against the enemy – with marginal results. On one patrol "Hali-but" fired 23 torpedoes; only one exploded (although one of the targets was sunk when the torpedo punched a hole through rusting hull plates). The U. S. score for all of 1942, 180 ships, 725,000 tons (about equal to a monthly U-boat total). The Japanese replaced 635,000 tons in the same period. As far as the undersea forces were concerned, it looked like it was going to be a long war.

1942

Japan began construction of the 5,223-ton I-400 class of submarine aircraft carrier, each of which carried three dive-bomber seaplanes. Designed for attacks against the Panama Canal and the West Coast of the United States. Twelve were planned; only two were built, and did not see any useful service.

Japanese submarines also made some attacks on the West Coast, lobbing shells at Santa Monica, California, and Astoria, Oregon. The attacks had minor effect, although Radio Tokyo gloated, "Americans know that the submarine shelling of the Pacific coast was a warning to the nation that the paradise created by George Washington is on the verge of destruction."

Doenitz had hoped to send a blitzkrieg of U-boats against the East Coast of America, but Hitler, fearful of an Allied invasion of Norway, forced him to keep most of his assets closer to home. Nonetheless, he managed to get five long-range cruisers into position in January – where they found the whole coastline lit up like Times Square on New Year's Eve: no blackouts, all navigational aids aiding, all ships sailing with full navigational lights. It was high tourist season in Miami and the war was 3000 miles away; the northward-flowing Gulf Stream just a few miles offshore

kept southward-bound ships close inshore, nicely silhouetted against a glowing Florida skyline. The score for two and a half months in American coastal waters: 98 ships. Coastal communities did not go under blackout until April.

The "Battle of the Atlantic" began in July, and continued for eleven months; the U-boats scored some 712 merchant victims. Ships were being sunk at more than twice the replacement rate, and new U-boats were joining the fleet at a rate of about one a day. Also in July, the Germans began deployment of a mid-ocean filling station. The Type XIV boat had a capacity for 700 tons of fuel and other supplies, rather than armaments. Dubbed the "Milk Cow," one could keep a dozen Type VII at sea for another month, or five Type IX for two months.

On September 13, in what may be the most spectacular – albeit unplanned – submarine event of all time, the Japanese I-19 launched a spread of six torpedoes at the aircraft carrier "Wasp." Three hit, sinking the ship. The others continued running for twelve miles, into another task group, where one caused fatal damage to the destroyer "O'Brien" and other sent the battleship "North Carolina" to the shipyard for two months. The sixth cruised on, into the unknown.

Technological advances such as improved radar, the radar altimeter, the aircraft searchlight, and effective air-dropped depth charges began to enter the force. Before long, aircraft were accounting for 50 percent of all U-boat sinkings.

By the end of the year, with the U-boat fleet clearly in trouble, Hitler authorized the design of a fully combat-capable Walter-cycle 1,600 ton U-boat, designated Type XVIII. Two prototypes were ordered. However, it was soon obvious that there was not enough time – or money – to turn this dream into reality. The design was converted into a conventionally-powered submarine – diesel on the surface, batteries for submerged running – and the rather large space intended for storage of the Perhydrol was given over to an extra-large bank of batteries.

Two classes were ordered: the 1,600-ton Type XXI, and a coastal version, the 230-ton XXIII. Type XXI had only half the range of the comparable Type IX, could manage bursts of 17 knots underwater (compared with 7 knots), dive to almost 1,000 feet (300 feet deeper), and remain totally submerged at economical creep speed for 11 days. With a sophisticated fire control system the Type XXI could launch an attack from a depth of 150 feet.

Type XXIII had twice the submerged speed and five times the underwater endurance of the small pre-war Type II. However, combat effectiveness was severely limited: two torpedoes, no reloads. All other submarine construction was quickly phased out in favor of Type XXI and Type XXIII.

1943

Hoping to hide existing U-boats from the increasingly devastating air patrols, Germany perfected an idea that had been kicking around for a long time: use of a breathing tube to allow running on diesel power just below the surface, thus also keeping the batteries fully charged. They dubbed it the "snorkel." It was not a perfect solution: the tube could break if the boat was going too fast; the ball-float at the top would close if a wave passed over, thus shifting engine suction to the interior of the boat and occasionally popping a few eardrums. The snorkel also left a visible wake, and returned a pretty good radar blip. But it helped.

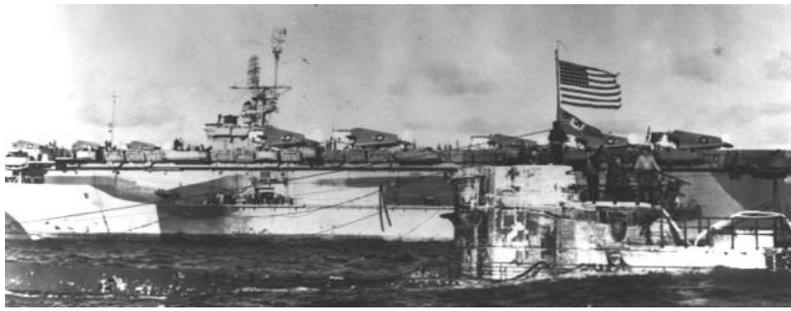
The Germans underestimated the industrial capacity of the United States. The prediction against which "Tonnage War" was by then being waged was that the 1943 ship-production of Great Britain and the U. S. together would be less than 8 million tons. The U. S. alone launched more than double that figure.

The Germans also underestimated the ability of the Allies to develop and implement highly-effective anti submarine weapons and tactics. During the year, the U. S. Navy established anti-submarine "Hunter-Killer" groups, centered on the small, "Jeep" carrier. Long-range aircraft, such as the B-24 adapted for anti-submarine efforts, went into service. Among other efforts, they put an end to the "Milk Cow." The rendezvous were too easy to spot by air patrol. Of nine Type XIV in service in June, 1943, seven had been sunk by August.

Also operational: the "hedgehog" – so-called because the array of twenty-four 65-pound projectiles looked like the bristles of a porcupine. Launched 230 yards in front of the surface warship, the projectiles would cover a 100-foot circle, and explode on contact. The weapon proved to be highly effective.

By the end of May, 1943, the Germans had clearly lost the Battle of the Atlantic. In that month alone, 41 U-boats were sunk – 25 percent of current operational strength. Things got worse: in the last four months of the year, almost 5,000 ships sailed in Atlantic convoys; nine were lost. Sixty-two U-boats were destroyed.

In June, a Hunter-Killer group became the first American force to capture an enemy warship on the high seas since the War of 1812. The Type IX boat, U-505, was forced to the surface by depth charges; quick action by a boarding party saved the boat from being scuttled by the crew. U-505 is now a permanent exhibit at Chicago's Museum of Science and Industry. In a small quirk of fate, it is only several dozen miles from the wreckage of the World War I UC-97.



The captured U-505 and the American jeep carrier, "Guadalcanal."

1944

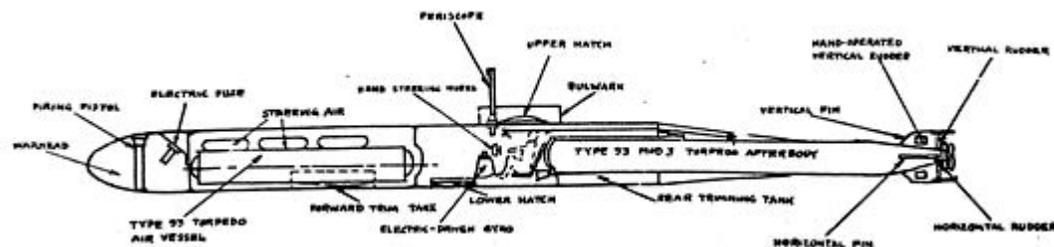
In a reprise of the "Deutschland" efforts of World War I to move high-priority cargo through the blockade, the Japanese cargo-carrying I-52 (356 feet long, cruising range of 27,000 miles at 12 knots) was sent from Indonesia with a cargo of rubber, tin, opium, quinine, tungsten, molybdenum and 2 metric tons of gold bullion, bound for Nazi-occupied France.

Allied radio intercepts had pin-pointed a mid-ocean rendezvous with U-530, to transfer a coast pilot, a radar technician and some new radar equipment to assist I-52 in running the Allied gauntlet. Sunk on June 23, 1944, by an aircraft from the jeep-carrier USS Bogue, I-52 was discovered in May, 1995 -- lying under 17,000 feet of water.

The American version of code-breaking, dubbed the "Pacific Ultra," allowed the fleet to plot Japanese merchant convoys in advance -- no need for long open-ocean hunting expeditions. U. S. submarine production was scaled back radically early in the year -- the already-existing submarine force was running out of targets. With perhaps 140 submarines operating in the Pacific, the U. S. Navy submarines sank more than 600 Japanese ships, 2.7 million tons -- more than for the years 1941, 1942 and 1943 combined.

As the targets disappeared, many submarines were assigned to picket duty to rescue downed aviators making B-29 raids on Japan, or anyone else who happened along. A total of 540 were hauled aboard -- including the youngest pilot in the U. S. Navy, Lt(jg) George Bush.

Japan fielded the "Kaiten" suicide torpedo, incorporating elements of the 24-inch, 40-knot version of the "Long Lance" with a control compartment into which the pilot was locked. Range: not more than five hours, no matter what. "Kaiten" were carried into battle by I-class submarines; the record is ambiguous. A fairly large number of "Kaiten" were sent into action; one American tanker and a small landing ship were sunk, perhaps also a destroyer escort, and two transports were damaged.



One model of the "Kaiten" suicide torpedo

Germany, also pursuing weapons of desperation, developed a two-man, two-torpedo midget submarine, the "Seehund." Thirty-nine feet long, fifteen tons, "Seehund" could dive to 165 feet with a surface range of 120 miles at 8 knots, or 250 miles at 5 knots; submerged, 20 miles at 5 knots, 60 miles at 3 knots. At least 268 had been built and were ready for service when the war ended in May, 1945.

To minimize the effect of Allied bombing, the late-war Type XXI boats were built in virtually complete sections at scattered locations, and transported by barge to assembly yards.



Note the "figure 8" cross section of the pressure hull. The lower section was initially intended for storage of hydrogen peroxide for a Walter powerplant; it became, instead, the compartment for the enlarged battery capacity that gave these boats the nickname "Electroboot."

1944 (continued)

The largest ship ever sunk by a submarine: the brand-new aircraft carrier "Shinano," 71,890 tons, November 28, by the U. S. submarine "Archerfish."

1945

The first Type XXIII went on war patrol in February. By the end of the European war – May 7 – six were in service, 53 were in the water, and 900 were under construction or on order.

The first Type XXI, U-2511, left Hamburg on war patrol on April 30; when she returned home to surrender, 30 Type XXI were in shakedown and training, 121 were in the water and another 1000 were under construction or on order.



U-3008, one of only two Type XXI U-boats to make a wartime patrol – albeit brief, as the war ended en route.



For some, the war ended too soon. With more hope than sense, Germany had more than 1,900 Type XXI and Type XXIII under construction or on order on the last day of the European war.

Germany's largest U-boat, the 1,700 ton Type XB minelayer U-234 – was at sea when the war ended, and surrendered in mid-ocean to an American destroyer escort. Her original destination had been Japan; her cargo included two complete ME-262 jet fighters (disassembled in crates, but with complete technical data) and 550 kilograms of Uranium 235 (or Uranium oxide – sources differ), packed in lead containers. The reason the uranium was being sent to Japan has never been determined – or, at least, revealed.

GERMANY U-boats claimed 14.4 million tons, but Germany lost 821 U-boats. Allied aircraft were responsible for (or directly involved in) the loss of 433; surface ships, 252; mines, 34; accidents 45, submarines 25 (only one of which happened when both hunter and victim were submerged); unknown, 15, scuttled by their own crews, 14; interned in neutral ports, 2; sunk by shore battery.

UNITED STATES: American submarines sank at least 1300 Japanese ships, 5.3 million tons, including one battleship, eight carriers, eleven cruisers and 180 smaller warships. The U. S. Navy lost 52 boats; 22 percent of the submarine personnel who went on patrol did not return. It was the highest casualty rate of any branch of service– but not as high as that of the German submarine force, which lost an astonishing 630 men out of every 1,000 who served in the U-boat fleet.

SOVIET RUSSIA: The Soviets started the war with the largest submarine fleet: 218. They added 54 and lost 109. They did not have much impact on the course of the war. However, S-13 was credited with the single greatest disaster in maritime history: the 1945 sinking of the German liner “Wilhelm Gustloff,” engaged in an effort to get German soldiers out of the path of the advancing Red Army. There may have been more than 8,000 troops and civilians aboard; fewer than 1,000 were rescued.

JAPAN: Japanese submarines had great success early in the war, especially in the Indian Ocean area. However, the tide of battle began to turn with the Allied invasion of Guadalcanal in August, 1942, and Japanese submarines were pulled off combat duty and assigned to carry vital supplies to beleaguered troops or to pull troops out of failing campaigns. The Japanese built submarine landing ships; the Japanese Army built twenty eight cargo submarines.

Japanese submarines scored a few important victories – the carriers “Yorktown” and “Wasp,” and the last American surface warship sunk, the cruiser “Indianapolis” in late July, 1945; overall, however, they sank only about one-fifth as many ships as did the American submarine force.

On the last day of the Pacific war, Japan had only 33 submarines in commission (excluding midgets), seven of which were in the training command. Except for the midgets, the submarine force had become irrelevant.



With more desperation than hope, the Japanese launched a massive building program of suicide and midget submarines. Here, eighty-four midgets, of four different designs, are huddled in drydock, October, 1945.

Just as with WWI, there was only one verified German submarine atrocity. In March, 1944, a U-boat commander, on his first combat mission, ordered his crew to kill all survivors of “Peleos” and try to pulverize all floating wreckage with hand-grenades. His motive: to hide the sinking from patrolling aircraft and thus conceal his own presence in the area. He, and two of his officers (who claimed they were only “following orders”) were convicted and executed.

Karl Doenitz, who started the war as commander of submarines, became Navy Chief of Staff in January, 1943, and ended the war as Hitler’s chosen successor as Chief of State – even though he had never been a member of the Nazi Party. Hitler committed suicide on April 30; Doenitz assumed command on May 1 – and issued “cease fire” orders on May 3.

The 1945 Nuremberg War Crimes tribunal brought Doenitz up on charges, especially for “breaches of the international law of submarine warfare” for authorizing and encouraging unrestricted operations. The best witness in his defense: U. S. Admiral Chester Nimitz, who acknowledged that the United States Navy had authorized unrestricted operations against Japan, throughout the Pacific ocean area, from the first days of the war.

Nonetheless, Doenitz was sentenced to ten years imprisonment for being “fully prepared to wage war” – a specious charge, in the eyes of most observers; any military force should always be thus prepared. Most observers believed that he was being tried as a stand-in for the unavailable Adolph Hitler.

The U. S. Navy took two Type XXI and a handful of Japanese boats for study, and applied some lessons-learned to a fleet upgrade dubbed “Greater Underwater Propulsive Power” (GUPPY).



Fifty-two boats were modified: snorkels were added, guns removed, the superstructures streamlined, and battery-power greatly increased. Another nineteen boats received some improvements. The net result: greatly increased underwater speed and endurance.

1946

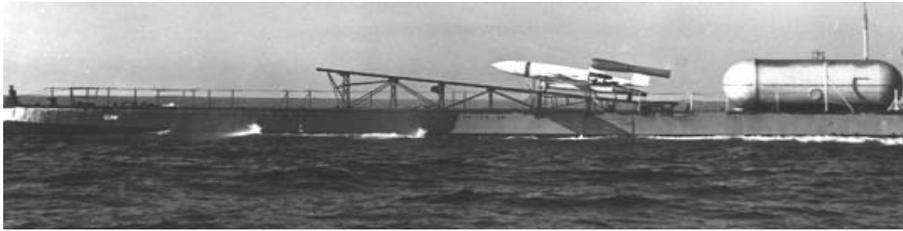
Dr. Philip Abelson proposed a marriage of the Walter hull form with a nuclear power plant. The Navy detailed eight engineers to the home of the Atomic Bomb, Oak Ridge, Tennessee, to see what might be developed.

1947

Testing some newly-discovered peculiarities concerning the transmission of sound in the open ocean, a U. S. submarine was able to detect a destroyer at a distance of 105 miles and hear depth-charges exploding 600 miles away. This, and other research, led to the development of a deep-ocean array of hydrophones called SOSUS. One of the earliest installations could detect a snorkeling submarine at 500 miles.

1948

The U. S. Navy began experimenting with submarine-launched missiles, starting with a copy of the German V-1 buzz bomb.



Loon was tracked by radar and command-controlled from the submarine. However, erection of the launching ramp and preparation of the missile kept the submarine on the surface for five minutes; therefore, a hand-off control system was developed, whereby another submarine, 80 miles downrange, could take over for the last 55 miles of missile flight.

1950

The Soviet Union moved to regain status as operator of the world's largest submarine fleet: over the following eight years, they built 235 "Whiskey" class, using the Type XXI as a template.

"Pickerel" ran from Hong Kong to Pearl Harbor – twenty-one days, 5,194 miles, on snorkel.

One of the officers detailed to Oak Ridge in 1946 assumed control of the Navy nuclear propulsion program (and kept control, until finally retired in 1982). Captain Rickover was a submariner and an engineer, with a passion for safety and an obsession for control. He was brilliant, and difficult – and made nuclear power a reality, not just in submarines, but in many major surface warships as well.

He also well-understood the role of the Congress in procurement decisions; his friends on Capitol Hill ensured Rickover's professional standing by assisting in a series of promotions, eventually to the four-star rank of admiral.

1952

"Tang," the first of the post-war U. S. submarines, set an American depth record, 713 feet.

1953

The next generation sub-launched missile was "Regulus I," able to carry a 3,000 pound nuclear warhead for five hundred miles.



The missile hangar on "Grayback," SSG-574, could house two "Regulus I" missiles and was integrated into the hull. When "Regulus" was overtaken by later developments, the hangar became a compartment for clandestine amphibious assault troops.

The U. S. Navy began operation of a fast-submarine test bed, the 203-foot "Albacore." The hull form was similar to

that of an airship; the boat went through five experimental configurations; in the first, she demonstrated underwater speeds of 26 knots.



The successful hull-form was applied to the last class of U. S. diesel boats, "Barbel," 1959, (shown here) and to the "Skipjack" nuclear class, 1959.



Testing completed, "Albacore" was retired to a public park near Portsmouth, NH -- towed in along a ditch dug for the purpose, which was then filled in. These photos -- courtesy of Robert Marble -- show "Albacore" in place, but not yet dressed for company.

1954

The first nuclear-powered submarine went to sea: the 323-foot, 3,674-ton "Nautilus." Surface speed 18 knots, 23 knots submerged. On her shakedown cruise, she steamed 1,381 miles from New London to San Juan, Puerto Rico – submerged all the way at an average speed of 15 knots. She was so fast that, on her first exercise with an ASW force, she outran the homing torpedoes.

Note the use of the term, "steamed." The nuclear plant finally made a steam-powered submarine practical: the reactor generates heat that turns water into steam to drive the turbine. Two different reactor configurations were proposed: one used pressurized water to transfer heat from the reactor to the steam plant, the other used a liquid sodium potassium alloy.

Rickover built one of each; the first was installed in "Nautilus," the other in the second nuclear boat, "Seawolf," where it proved to be difficult to maintain and not as effective as the "Nautilus" plant. It was replaced a few years later.



The Walter hull-form ancestry is clearly shown in this 1985 post-retirement photo (while “Nautilus” was being taken to a memorial berth at Groton, Connecticut).

1955

The U. S. Navy experimented with various propulsion systems, including so-called “closed circuit” engines that did not require access to atmospheric oxygen. However, development of the nuclear power-plant tended to put other technologies on the shelf – at least, in the United States. The development of closed-circuit systems has continued, especially in some European navies seeking a lower-cost alternative to nuclear power.



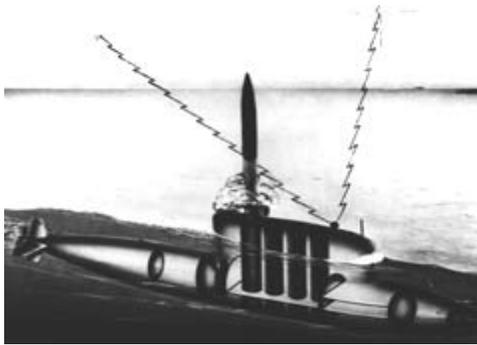
The 49-foot-long X-1 tested a closed-circuit diesel-hydrogen peroxide plant, which exploded in May 1957 and was removed.

1955

Based on hard experience with the Japanese “kamikaze” suicide aircraft, the U. S. Navy developed a prototype nuclear-powered radar-picket submarine. At 447 feet and 5,963 tons, “Triton” was the largest U. S. submarine to date, but by the time she was in commission, in 1959, advances in airborne detection systems had rendered her intended mission unnecessary. She became the first nuclear boat to be retired, 1969.

1956

The German V-2 rocket became the U.S. Air Force “Jupiter” missile; although exceeding large, at least one scheme was proposed to mount four V-2s in a submarine. However, timely development of the “Polaris” missile permitted sixteen on a boat.



The V-2 -- a 46-foot long, 5.5 foot diameter (12 feet across the fins), 12.46-ton missile fueled by liquid oxygen and alcohol -- on a submarine? Well, no.

The A-1 "Polaris" -- solid-fuel, compact (28 feet and 4.6 feet), range 1,200 miles -- was ready for deployment by 1960. An A-2 version, 1,500 miles, entered service in 1962, followed a year later by the 2,500 mile A-3, all of which could fit in the same launch tubes. Here, tube hatches open on "Sam Rayburn," SSBN-635 -- one of 41 U. S. ballistic missile submarines built between 1960 and 1968



1958

The Soviet Union fielded their first nuclear powered submarine. They gained a head start by following, stealing from, and copying, the Americans. Five years into their program, the Soviets had 24 nuclear boats in three classes, all with the same reactor.

Unfortunately -- for submarine crews -- the Soviets had copied what they saw, but apparently did not understand the underlying problems which could be associated with the use of nuclear power. There are rumors that entire crews of early Soviet boats may later have died from radiation poisoning.

1959

The first submarine to utilize the potential of both the nuclear powerplant and the high-speed "Albacore" hull was "Skipjack" -- officially rated at 29 knots, submerged.

1960

"Triton" completed the first submerged circumnavigation of the globe: 36,014 miles in eighty-four days.



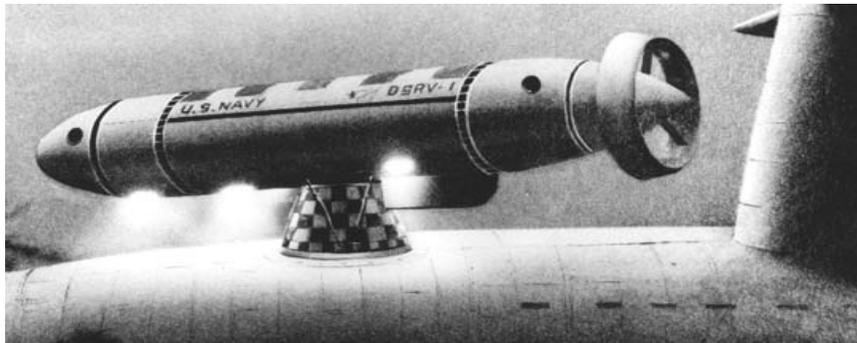
"Triton," SSN 586

1963

The U. S. Navy has lost two nuclear submarines, to accident. The first was "Thresher," on April 10, 1963. After two years in commission, the boat had just come out of a shipyard availability and was on sea trials when something went wrong – perhaps the rupture of a section of piping, no one knows for certain. "Thresher" sank in some 8,300 feet, taking 128 crew members with her. The boat had an operational depth of 1,300 feet – more than any other U. S. submarine class to that date – but clearly the hull would have passed "crush depth" well before hitting bottom.

At least two things came out of this accident. The first: the entire design was scoured, looking for any possible defects; they were corrected in all boats of the class then under construction.

The second: in recognition of the fact that the U. S. had no viable method for rescuing trapped submariners at any depth below a few hundred feet. Thus was developed the Deep Submergence Rescue Vehicle (DSRV), to assist any submarine that bottomed short of crush depth.



The DSRV is air-transportable, able to mate with and remove crew from U. S. submarines to a depth of at least 5,000 feet. Two were built; neither has ever been needed.

The accident also spurred the adoption of an individual escape suit, the "Steinke Hood," designed and tested in 1961 by a junior officer, Harris Steinke. While this would have been of little use to "Thresher" crew, it has been demonstrated to an open-ocean depth of 318 feet.

1965

"Albacore" was reported to have set an underwater speed record of 33 knots, although the "official" speed is posted as 25 knots.

1968

The second U. S. nuclear submarine lost: USS SCORPION (SSN-589), possibly the victim of one of her own torpedoes, May 22. The accident may have been monitored by the then-secret SOSUS sound arrays planted on the ocean bottom.

A Soviet "November" class nuclear submarine surprised the U. S. Navy by keeping up with a 31-knot high-speed task force led by the nuclear-powered aircraft carrier "Enterprise." Spooked by the "November" surprise, the U. S. Navy developed a new class of fast attack boats, "Los Angeles." The class had some teething problems, but the 62 boats in the class demonstrated respectable performance, with submerged speed in excess of 30 knots.



USS LOS ANGELES, SSN 688.

1971

The C-3 missile, "Poseidon," with multiple independently-targeted warheads, went to sea.

1972

Development was underway on the next generation submarine-launched ballistic missile, "Trident," C-4. With twice the range of the C-3, a C-4 equipped submarine could launch at the most logical targets in the Cold War world while sitting in New York harbor. The United States would no longer be required to maintain overseas submarine bases in Scotland, Spain, and Guam; in truth, those bases were closed when the C-4 became operational. The C-4 missile first flew in January, 1977.

The C-4 did pose some problems for the people who design submarines. Too large to fit in any extant sub design, "Trident" required a new, very large class of submarine: "Ohio," 560 feet long, 42 feet wide, 16,674 tons.



USS OHIO, SSBN 726. Eighteen have been built. The first entered service in 1981.

1974

The American Central Intelligence Agency (CIA) attempted to raise a Soviet GOLF-class Soviet diesel-powered boat, K-129 (which sank in 1968) -- under cover of a deep-ocean mineral recovery effort using a ship built for the purpose, the "Glomar Explorer." In the event -- code name "Project Jennifer" -- the sub apparently broke apart and the back half fell back to the bottom.

1982

During the Falklands War, two British ASW carriers, more than a dozen other surface warships, five submarines (four of them nuclear) and a gaggle of patrolling aircraft were occupied -- almost paralyzed -- in protecting the force against two badly maintained, poorly manned Argentine submarines -- one, a post-World War II Guppy and the other an eight-year old German boat that, in the end, had nil effect upon the war. The predictions of Fulton -- and Admiral Dewey -- as valid as ever.

However -- be not deceived by this comic-opera vignette: the submarine war, on the other side, was deadly serious business. The British submarine "Conqueror" sank the World War II-vintage Argentine cruiser "Belgrano" (ex- USS Phoenix) with two World War II-vintage torpedoes; 368 sailors were killed.

Planning began for the next-generation American attack submarine: "Seawolf," SSN-21. The hull number was adjusted -- the next in the series would have been 774 -- to celebrate "Seawolf" as the "submarine of the 21st Century." Size: 353 feet, 40 foot diameter, 8,000 tons -- and with the most sophisticated systems imaginable. Top speed: probably

in excess of 35 knots.

According to one program manager, when underway at quiet speed, "Seawolf" would be as quiet as a "Los Angeles" boat sitting at the pier. Quiet speed may be in excess of 20 knots.

1986

On October 6, a Soviet YANKEE-Class nuclear-powered missile boat, K-291 sank in Atlantic, 680 miles northeast of Bermuda, from an explosion in a missile tube.

1989

Soviet submarine "Komsomolets" sank in the Norwegian sea. Most of the crew were able to abandon ship; 34 of them died – from hypothermia, heart failure or drowning while waiting for rescue in the frigid waters.

This accident prompted the Russians to develop individual escape-survival suits (designated SSP), rated to a depth of 328 feet, and led the U. S. Navy to adopt the Mark 10 British-designed Submarine Escape Immersion Module (SEIE). This provides individual full-body thermal protection, and has been tested to 600 feet.

1994

Shown below: photos of Russian submarines during the Summer of 1994. Top: a Delta III-class nuclear-powered ballistic missile boat; below, a Victor III-class nuclear-powered attack submarine.



1997

"Seawolf" joins the fleet.



USS Seawolf (SSN-21), on sea trials, 1996.

1997

In preparation for development of the next submarine class ("Virginia"), the U. S. Navy elected to create a one-fourth scale, unmanned, submarine, to test new and emerging technologies before they are committed to full-scale ships. Designated the Large Scale Vehicle (LSV) 2 and named after a species of trout, "Cutthroat," the 111-foot boat is scheduled for delivery to the Navy in the Spring of 2001.

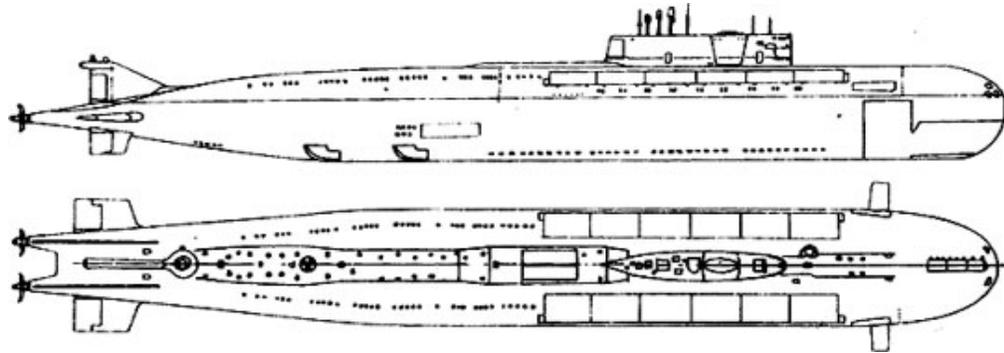
2000

The U.S. Navy is testing “Avenger,” a 65-ft mini-sub with a closed-cycle engine powered by diesel fuel and liquid oxygen. Intended for use by the SEALs -- the Navy’s clandestine amphibious assault teams -- “Avenger” can carry 18 troops and a crew of 6.

2000

The Russian missile attack submarine “Kursk” K-141 sank while on maneuvers in the Barents Sea. Placed in service in 1995, the 510-foot Oscar II-class “Kursk” had a surface displacement of 14,700 tons and speed in excess of 30 knots. On August 12, the sound of at least two explosions were picked up by The Norwegian Seismic Service and five other ships operating in the area – including two American and one British submarine shadowing the exercises. The actual cause of the accident is unknown, although “Kursk” had radioed for permission to launch an exercise torpedo about an hour and a half earlier.

“Kursk” went down in about 350 feet of water with 118 men. Although the boat was equipped with several escape systems – including individual escape-survival suits – none were used. Efforts to reach “Kursk” were hampered by weather, but upon inspection, authorities determined that there probably had not been any survivors. Initial reports of tapping from inside may have been accurate -- we now know that there were at least twenty-three survivors . . . for a time. “Kursk” was subsequently raised (except for the immediate bow section, which may contain hair-trigger ordnance) and is being studied.



2000

In this year of the “official” 100th Anniversary of the submarine – dating from the purchase of “Holland” by the U. S. Navy – some 47 nations operate more than 700 submarines, almost three hundred of them nuclear powered. New designs are being pursued in the United States, Germany, Italy, Denmark, Norway, Sweden, and Japan.



Return To:

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E-Mail: communications@perch-base.org

<http://www.perch-base.org>



NEXT MEETING

12 noon, Saturday, March 13, 2010
American Legion Post #105
3534 W. Calavar Rd., Phoenix, 85053
(1/2 block northwest, 35th Ave. & Thunderbird)