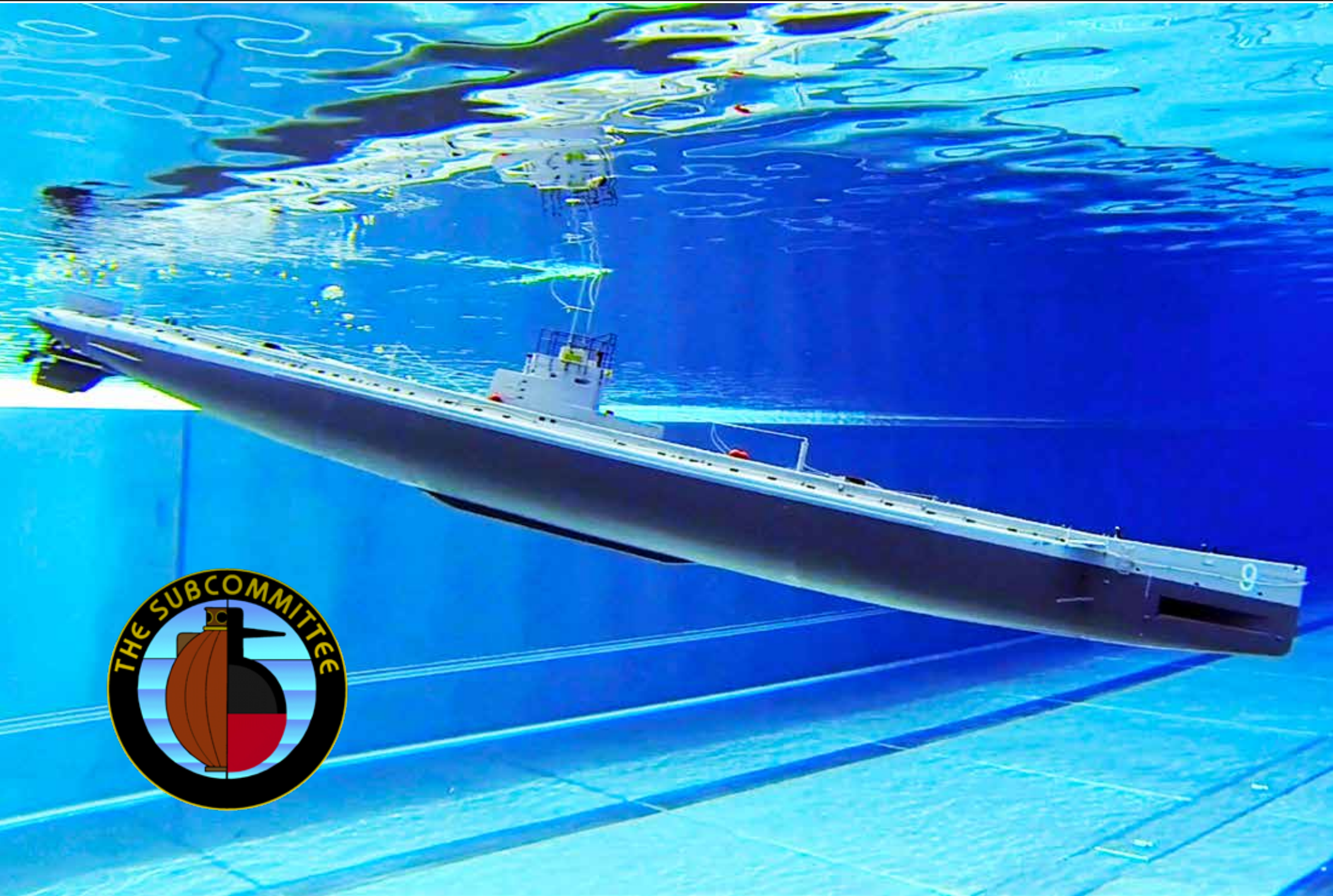


ISSUE
127

THE SUBCOMMITTEE REPORT



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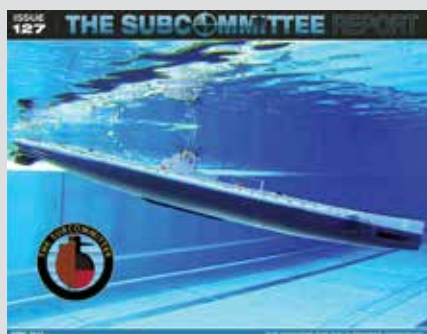
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On the Cover

Regular contributor Bernhard Wenzel's impressive, scratchbuilt U9 running at a major r/c sub event held in Neulengbach, Austria. Bernhard's coverage of the meet starts on page 67. U9's own exploits—those of the 1:1 version, that is—also figure prominently in Jim Christley's article on Subs vs. Battleships beginning on page 34....

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 Deadline:
 June 15, 2022**

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WAHOO'S 3rd PATROL

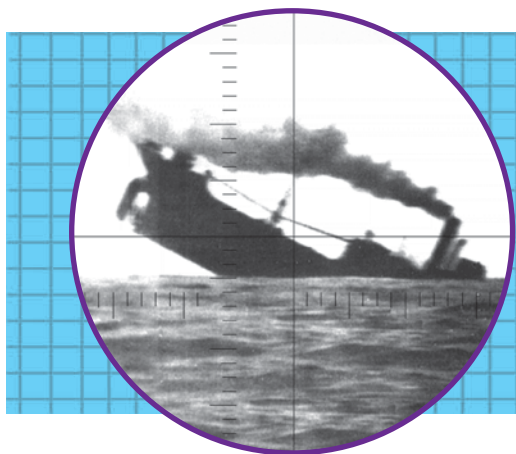
BOATS IN THE KEY OF WEST

SUB vs. BATTLESHIP

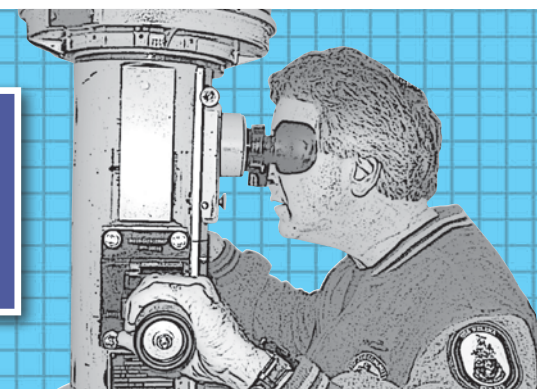
SILENT VICTORY GAME

CHINA'S SUBMARINE FORCE

UNTERSEE OVERSEAS



AT THE CONN



CONTRIBUTORS

Jim Christley An avid historian and former submariner, long-time *SubCommittee Report* readers will remember Jim's many articles covering different aspects of the 1:1 submarine realm. He's now returned to us and will continue his chronicling of the world of real submarines.

Paul Crozier The driving force behind the www.warfish.com website focused on the USS *Wahoo* and her daredevil command duo, Mush Morton and Dick O'Kane, Paul has assisted our magazine for many years, providing much content and production work and dutifully helming the *Smoke on the Horizon* column as well.

Tom Dougherty Our long-time expert on static modeling, Tom continues to provide hands-on insight about many submarine-related modeling subjects—old and new and history too! He also regularly tours museum subs and regales us with coverage of these fun visits.

Jeff Porteous A book review enthusiast, Jeff occasionally provides the straight scoop on various new and old submarine-related works.

Bernhard Wenzel An expert r/c modeler hailing from Germany, Bernhard weighs in regularly from his side of The Pond with an ongoing submarine column. We're grateful to have him with us for a bit of a different perspective (thanks to simple online translation services) from our usual domestic look at undersea things.

Ahoy, SubCommittee faithful!

Once more unto the breach, dear readers. And I'm particularly proud of the depth and breadth of good submarine content we offer with this issue.

For starters, there's buddy Paul Crozier's account of firebreathing *Wahoo's* third war patrol—the one which set the standard for all American boats thereafter during the war.

We follow this with our promised second article on building a USS *Key West*—this version from SubEd Tordahl.

Next we settle the score between subs and battleships, a fascinating account from our friend Jim Christley.

Then standby as SC Membership Chairman, active duty submariner, and all-around good guy Matt Homeier inaugurates a regular (we hope) new column on submarine gaming in all its fun forms. His first installment surfaces in these pages with an in-depth study of the amazingly detailed WWII Pacific fleet sub board game, *Silent Victory*. Your SCR editorial office warmly welcomes all lovers of sub games and other related submarine diversions (collectibles, anyone?) to drop anchor here with reviews of their own favorites.

Now check out Tom Dougherty's comprehensive look at the submarines China is putting to sea—a topic the SCR hasn't addressed in over a decade, and content not readily available elsewhere. It's important information too, considering the PLAN navy's serious potential as future adversaries in the South China Sea.

Round all that out with attendance at a major European r/c sub event covered by our foreign correspondent Bernhard Wenzel; another installment of my own *Gato-to-Harder* r/c conversion build series; plus the usual FOX Schedule and SC Biz columns, vendor ads, etc. ... and you've really got something, I'd say!

P.S. Very sad to report the sudden and tragic loss of two prominent, long-time SC members just as this SCR was buttoning up and "going to press." John K. Schagane and Erich Von Kloss will both be much missed. More about them next time.

Managing Editor,
Jeff Porteous editor@subcommittee.com

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THE SUBMARINE

Historium

Good friend and noted *Wahoo* expert Paul Crozier checks in here with an accounting of how Mush Morton's famous boat dramatically altered the execution of America's submarine war in the Pacific...

It was the WW2 War Patrol which taught all U.S. sub skippers exactly how the job was to be done.

Wahoo's Third Patrol:

Turning Point

by Paul Crozier

December 1942, found American forces in the Pacific filled with guarded expectation for the coming year. During the previous June, U.S. carriers had won a decisive victory against the Japanese surface fleet at Midway. Marine and Army forces held their first offensive gains in the Solomon Islands. Yet in the midst of this cautious optimism, morale in the U.S. Submarine Force was at low ebb.

The discouragement was well founded. Following the devastating attack on Pearl Harbor, the Pacific submarine fleet had been given the primary task of engaging the Japanese. While targets were plentiful, a year of patrols had produced meager results in tonnage sunk. Though individual

Subject: U.S.S. WAHOO - Third War Patrol - Report of.

PROLOGUE TO

Arrived BRISBANE, QUEENSLAND AUSTRALIA, December 26, 1942 after SECOND War Patrol and moored alongside USS SPERRY. On December 27, 1942, commenced refit by USS SPERRY, relief crew and ships force. Refit consisted mostly of routine items plus a few minor repairs.

On December 312, 1942 Lieut. Comdr. M.G. Kennedy was relieved as Commanding Officer by Lieut. Comdr. D. W. Morton.

Ship ready for sea on January 16, 1943.

1. Narrative:

January 16th: 0900L Departed BRISBANE, QUEENSLAND, AUSTRALIA. 1030L Commenced sound listening tests in MORETON BAY; 1500L Completed sound tests. 1700L Transferred pilot and fell in company with our escort, USS PATTERSON. 1945L Made trim dive. 2030L Commenced night surface runs on our escort. 2306L Completed runs. Set course for area at two engine speed (80-90). Still in company with our escort.

January 17th: 0807L Dived. Commenced DD-SS run for USS PATTERSON; 1100L Made deep dive; no leaks. 1335L Dived. Commenced torpedo practice approaches on our escort. 1445L Upon surfacing and while starting #2 engine for propulsion, flooded same, and put it out of commission (SEE DERANGEMENT REPORT - Page 17). 1728L Completed runs. Escort departed. Set course for area at two engine speed (80-90).

January 18th: 1315L Exchanged recognition signals with USS GRAMPUS. COMTASK FORCE-TWO had advised us both that we would pass during the night. 1030L #2 engine back in commission. 1400L Set clocks back -10 zone time. Conducted drills submerged and made frequent battle surfaces firing both 20mm guns and 4" gun while enroute to area.

January 19th: 2200K Speeded up to three engine speed (80-90) in order to make the passage in VITIAZ STRAITS during daylight. This will also, give us an additional day to cover WEWAK and still arrive in area as directed. The additional fuel thus used is considered to be wisely expended.

January 21st: 1820K Dived on SD radar contact. Upon reaching 70 feet stern planes jammed on hard rise causing us to broach at 30 degree up angle. Fortunately SD contact was false, the pip being an internal disturbance.

PROLOGUE TO WEWAK

Our Operation Order routed us through the vicinity of WEWAK, a more or less undetermined spot located in whole degrees of latitude and longitude as 4 degrees S and 144 degrees E. Air reconnaissance had reported considerable

(continued)



LCdr. Dudley "Mush" Morton describes Wahoo's Wewak harbor attack to the press. He is holding what appears to be an enlargement of their improvised chart.

circumstances varied, wherever submariners gathered they shared their concerns about three common trends: poor torpedo performance, overly conservative commanders, and an apparent streak of bad luck.

In Brisbane, the sentiments aboard USS *Wahoo* (SS-238) typified the general funk most boats were experiencing. Two patrols in active areas had produced only two confirmed sinkings and a blunt reprimand for failure to follow through with an attack on an aircraft carrier. The crew felt they could do better. In her wardroom, two officers in particular were convinced.

The first was her Executive Officer, Lieutenant Richard H. O'Kane. At odds with his captain, Lieutenant Commander Marvin G. Kennedy, their divergent attitudes and personalities had strained relations to the breaking point. On their previous patrol, O'Kane had secretly entertained the grave step of relieving Kennedy of command. Back in port, he freely expressed his opinion that the key to *Wahoo's* future success was Kennedy's dismissal—his hope being that someone more suitable to the task would take his place.

The other man, thirty-five-year-old Lieutenant Commander Dudley W. "Mush" Morton, was convinced he knew who Kennedy's replacement ought to be. Riding along as a Prospective Commanding Officer on *Wahoo's* second patrol, Morton had settled in with her crew as naturally as Kennedy had chafed against it. His personal rapport with O'Kane was complete. Now, with his training patrol over, he awaited reassignment to command of another boat. When word arrived that Kennedy was indeed about to be relieved, in a bold breach of protocol he appealed directly to the division commander for the opportunity to take over *Wahoo*. On December 31, 1942, he assumed command.

The change was felt immediately. Morton demonstrated his dynamic personality during a pre-patrol address to his crew. He bluntly described *Wahoo* as "expendable" and stated his singular goal: to sink Japanese shipping or perish in the attempt. Calling forward his yeoman, Morton ordered him to gather the names of any men wanting a transfer off the boat. None did. Following a period of training in which deck gun drills were emphasized, they sailed on January 16, 1943.

In sharp contrast to his predecessor, Morton issued orders for *Wahoo*

to transit to her assigned area, the Palau Islands, on the surface. Prewar doctrine insisted that vulnerability to air attack made daylight surface running prohibitively dangerous. Morton felt the increase in available time to stalk the enemy warranted the risk. His theory would soon begin to pay off.

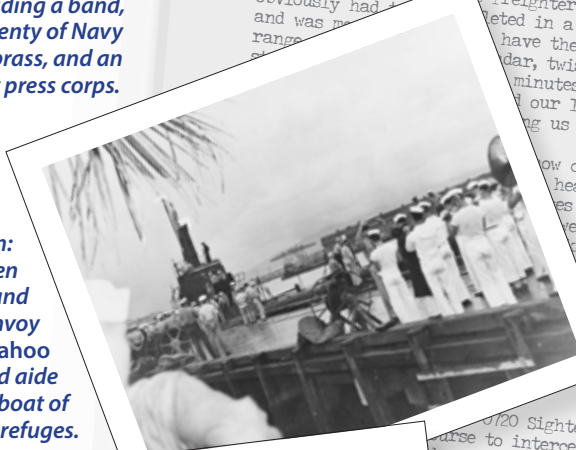
As *Wahoo* approached the northern coast of New Guinea, Morton informed his wardroom that he intended to explore a sidebar to their operating orders calling for the reconnaissance of an area known only in whole degrees of latitude and longitude near the Japanese garrison at Wewak. When it was discovered they had no navigational references for the area, Morton informed them he would do without. His men quickly improvised a chart based on an illustration in an Australian high school atlas which revealed a roadstead northwest of Wewak. Several junior officers were then shocked to learn that Morton's interpretation of their orders included entering the area for a firsthand look. Though third officer Lieutenant George Grider voiced his reservations, O'Kane and Morton were in complete agreement.

Shortly before dawn on January 24, *Wahoo* dove and crept into the placid waters off Kairiru Island. The fire control party, newly reorganized by Morton, delegated periscope observations to O'Kane while Morton conned the boat. He reasoned that the lack of distracting visual images would enable him to make the most aggressive tactical decisions possible.

At 1318, after traveling nine miles into the anchorage, O'Kane spotted a lone ship in the bight of Muschu Island. She was the *Shiratsuyu*-class destroyer *Harusame*. Morton immediately began an approach. As they closed for a final bearing, O'Kane was surprised to observe that the destroyer was underway and heading

Below: A hero's welcome greeted Wahoo upon her return from her third war patrol, including a band, plenty of Navy brass, and an eager press corps.

Bottom: Between Wewak and their convoy action, Wahoo rendered aid to a boat of Malayans refugees.



At 2036, eleven minutes after firing on the tanker, commenced approach on our last target. It was quite evident that this freighter had a good crew aboard. They did not miss an opportunity to upset our approach by zigs, and kept up incessant gunfire to keep us away. Much of this firing was at random, but at 2043 they got our range, placed a shell directly in front of us which ricocheted over our heads and forced us to dive.

Our "gun-club" could take a lesson from their powder manufacturers. It was truly flashless, a glow about the intensity of a dimmed flash-light being the only indication that a projectile was on its way. It is somewhat disconcerting when a splash is the first indication you are being fired upon.

We tracked the freighter by sound until the noise of shell splashes let up then surfaced at 2058, fifteen minutes after diving, and went after him. Two minutes later a large search-light commenced sweeping sharp on our port bow, its rays seemingly just clearing our periscope shears. Assured this was from a man-of-war and that the freighter would close it for protection. Our attack obviously had to be completed in a hurry. Headed for the search-light beam and was... have the freighter follow suit. At 2110 when the... dar, twisted to the left for a straight stern shot, minutes later with angle on the bow 135 degrees... our last two torpedoes without spread. They both... us on the bridge.

... coming over the horizon, silhouetting the... headed away to the east and then five minutes... es after firing the freighter sank leaving... sweeping a clear horizon. It had required... s to sink this ship.

... FAIS ISLAND. At 2345 sent dispatch to... agement.

... on. The cause is covered in the... the Health and Habitability Report,

... 0720 Sighted smoke over the horizon, commenced... course to intercept. At 0801 when masts of three ships... d continued approach. The mean course was plotted as... le convoy zigging simultaneously thirty degrees either... 0830 the tops and stacks of two more freighters, and... gines aft were in sight.

... ention to intercept one of the lagging freighters... e armed, but a zig placed the tanker closest to us... 12,000 yards and headed at full speed to cut him off... board bow, then sent pointer and trainer below to... ew. The convoy sighted us in about 10 minutes, com... g, (sic) and headed for a lone rain-squall. Only two... ned fire and their splashes were several thousand

(continued)

WAHOO'S 3rd PATROL

BOATS IN THE KEY OF WEST

SUB vs. BATTLESHIP

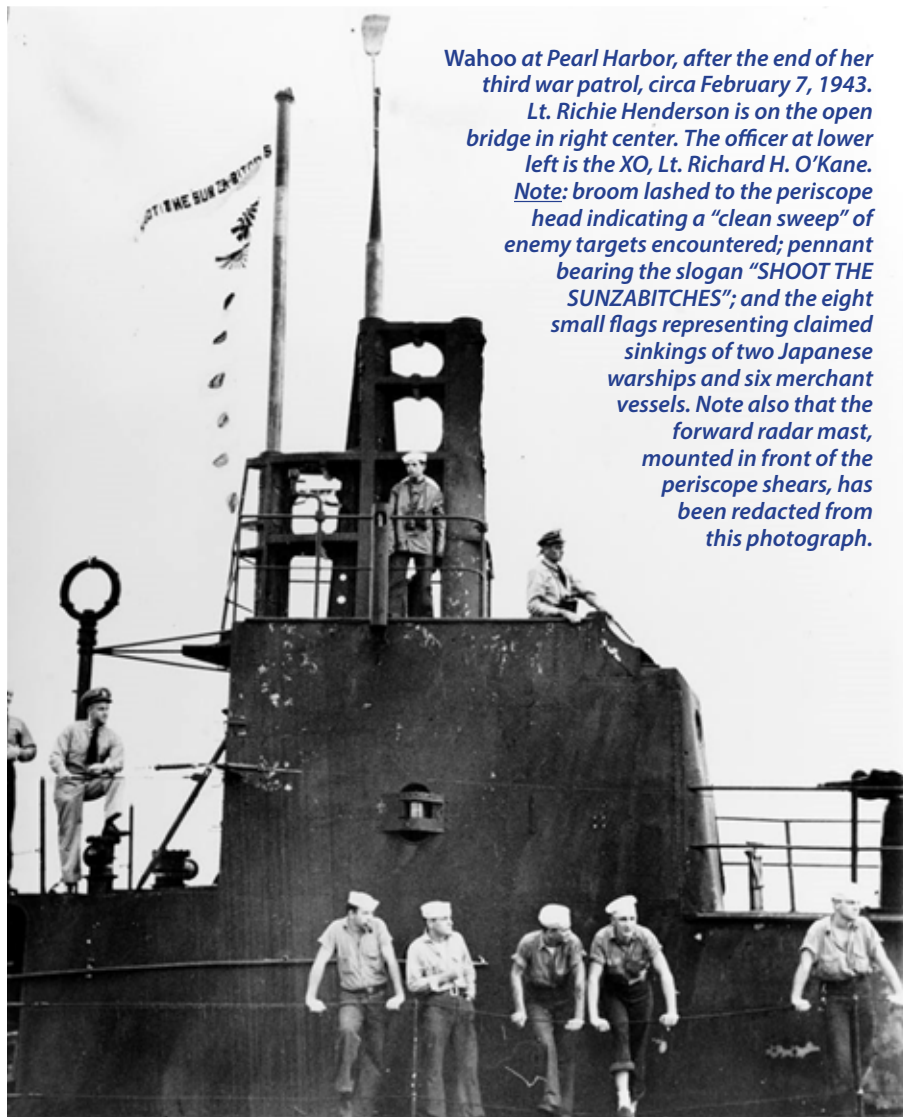
SILENT VICTORY GAME

CHINA'S SUBMARINE FORCE

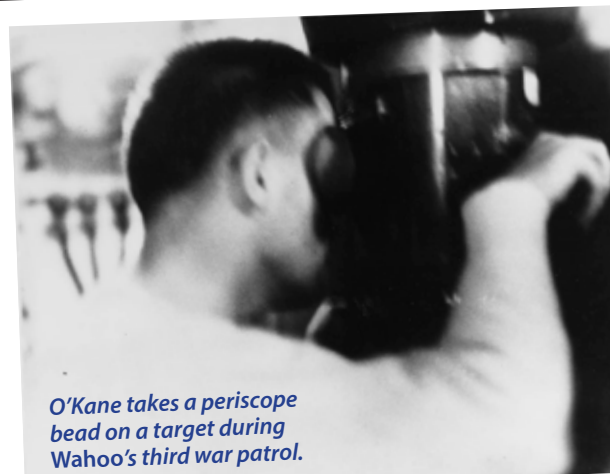
UNTERSEE OVERSEAS

A beauty shot of Wahoo in her post-July, 1943 refit configuration. She is undergoing trials off Mare Island Naval Shipyard.





Wahoo at Pearl Harbor, after the end of her third war patrol, circa February 7, 1943. Lt. Richie Henderson is on the open bridge in right center. The officer at lower left is the XO, Lt. Richard H. O'Kane. Note: broom lashed to the periscope head indicating a "clean sweep" of enemy targets encountered; pennant bearing the slogan "SHOOT THE SUNZABITCHES"; and the eight small flags representing claimed sinkings of two Japanese warships and six merchant vessels. Note also that the forward radar mast, mounted in front of the periscope shears, has been redacted from this photograph.



O'Kane takes a periscope bead on a target during Wahoo's third war patrol.

for them. Shifting strategy, Morton fired three torpedoes at the now-moving target. Each missed astern. Adjusting for the destroyer's accelerating speed,

he fired another. It missed as well. Thoroughly alerted by the white torpedo wakes, *Harusame* now bore down on *Wahoo*. To maintain the

initiative, Morton ordered the periscope fully raised. O'Kane called out the range as the destroyer charged it. Firing his final two bow tubes down the destroyer's throat from 800 yards,



IJN destroyer Harusame loses the upper hand to Wahoo's last torpedo at Wewak.

WAHOO'S 3rd PATROL

BOATS IN THE KEY OF WEST

SUB vs. BATTLESHIP

SILENT VICTORY GAME

CHINA'S SUBMARINE FORCE

UNTERSEE OVERSEAS

Morton then took *Wahoo* down to ninety feet to await their short run. Most of the crew were convinced of their imminent demise.

Seconds later, a devastating explosion was heard through the hull. Raising the periscope, O'Kane exclaimed that the destroyer was broken in two and settling by the bow. With cheers ringing throughout the boat, Morton allowed his men to cycle through the conning tower to see the crowds of Japanese lining their victim's deck. Soon, however, incoming fire from *Harusame's* aft gun mount, along with that of shore batteries, curtailed the celebration. Morton quietly conned *Wahoo* back out to sea navigating strictly by sound and dead reckoning.

Wahoo now resumed her bold surface passage, setting course for Palau. Again, it paid dividends. On the morning of January 26, *Wahoo's* lookouts spotted smoke on the horizon.

Closing for a submerged attack, Morton found three unescorted merchant ships: two freighters and a transport. Consecutive stern and bow tube salvos sank one freighter, damaged the second, and stopped the heavily loaded transport dead in the water. Morton maneuvered for a kill shot, firing a single torpedo at the transport. It ran true to the target but failed to explode. Angrily firing a second, it struck under her stack and in Morton's words "blew her midships section higher than a kite."

As noon approached, *Wahoo* gave chase to the crippled freighter. Unfortunately, three hours of submerged running had depleted her batteries. They watched as the damaged freighter slowly pulled away,

joined by a tanker new to the scene.

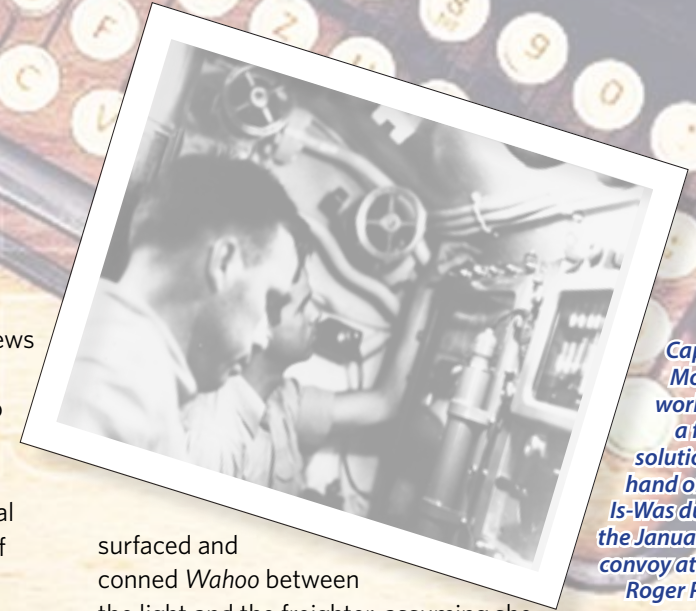
Morton now surfaced to put *Wahoo's* batteries on charge, ordering his lookouts to track the targets as they slipped over the horizon. Then he called for a course change back to the scene of the transport's sinking.

As *Wahoo* drew near, Morton ordered the gun crews to their stations. Before them was a group of twenty boats ranging in size from motorized scows down to small launches. Filling them—and the surrounding waters—were hundreds of Japanese. Morton speculated they were reinforcements for the Imperial defenses on New Guinea. He found the possibility of their survival personally abhorrent.

As they slowly approached, Morton ordered his 4-inch gun crew to fire a round at the largest boat. When the shell struck home, small arms fire crackled from the other boats. In response, Morton "opened up with everything they had." Completing a single pass of the area, the gun crews destroyed the boats.

Resuming the chase with batteries charged, *Wahoo* now pursued the tanker, as well as the damaged freighter, on into the evening. Attacking on the surface, Morton sank the tanker and observed another torpedo hit on the freighter before being forced under by her gunfire.

With only two torpedoes remaining, *Wahoo's* efforts to finish off the crippled freighter were consistently frustrated by its erratic zig-zag pattern. It soon appeared she might escape. Suddenly, a searchlight glowed on the horizon. Seizing the moment, Morton



Captain Morton works up a firing solution by hand on the *Is-Was* during the January 26 convoy attack. Roger Paine crunches the same data on the Torpedo Data Computer.

surfaced and conned *Wahoo* between the light and the freighter, assuming she would bolt for the arriving escort. As if on cue, the tenacious Japanese captain abandoned his defensive maneuvering and began to run.

It was a fatal error. O'Kane manned the target bearing transmitter on the bridge and fired *Wahoo's* two remaining torpedoes. Both were observed to hit their target. An exultant *Wahoo* withdrew.

Crafting a dispatch to inform ComSubPac of their success, Morton sent: "Sank destroyer in Wewak Sunday. In fourteen hour running gun and torpedo battle today sank convoy of one tanker, two freighters, one transport, destroying her boats. Torpedoes expended." Elated with the news, ComSubPac ordered them to return via Pearl Harbor.

Even without torpedoes, Morton's aggressive spirit would not rest. On the morning of January 26, another

WAHOO'S 3rd PATROL

BOATS IN THE KEY OF WEST

SUB vs. BATTLESHIP

SILENT VICTORY GAME

CHINA'S SUBMARINE FORCE

UNTERSEE OVERSEAS

In probably the most famous of Wahoo-related photographs, two submarine titans, XO and later Medal of Honor awardee Dick O'Kane (left) and his skipper and mentor, Dudley "Mush" Morton (right) are captured on their boat's weathered bridge after her superlative third war patrol.



WAHOO'S 3rd PATROL

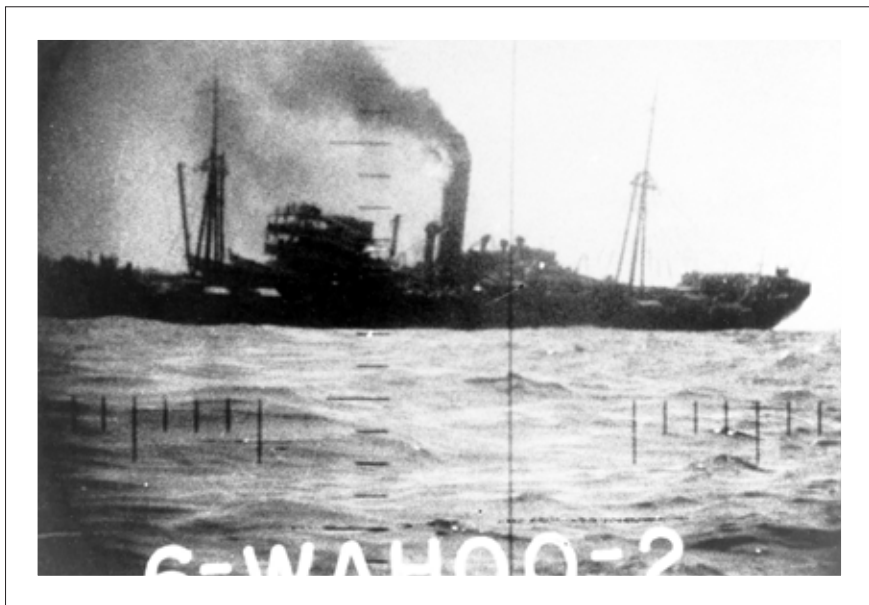
BOATS IN THE KEY OF WEST

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Japanese transport Buyo Maru lists, dead in the water, awaiting Wahoo's coup de grâce.

convoy was spotted. Battle surfacing astern, *Wahoo's* officers watched as the lead ships fled, leaving behind a small, unarmed freighter. Morton now closed to sink it with the deck gun. Suddenly, *Wahoo's* lookouts sighted an escort closing from the east. Disappointed, Morton refused to dive. Instead, he chose to run, thinking their pursuer to be a small corvette. In reality it was a destroyer. When it bracketed *Wahoo* with a salvo of gunfire, Morton quickly relented and dove to the relief of his crew. Later, with all four engines making for Pearl, Morton sent ComSubPac an update on their activities: "Another running gun battle today. *Wahoo* running, destroyer gunning."

Cameramen greeted *Wahoo's* arrival at Pearl Harbor on February 7, 1943. Drawing their attention

was a broom lashed to the periscope shears. Harkening back to a centuries-old practice initiated by the Dutch, it signified a clean sweep of the seas.

If the meaning of the broom wasn't clear enough, a handmade banner also flew from the SD radar mast. Emblazoned on it were the words, "SHOOT THE SUNZABITCHES."

Later, reporters listened as Morton and O'Kane regaled them with their exploits during a specially arranged press conference.

Wahoo's story ran on the front page of newspapers across the country, highly unusual for the tight-lipped submarine service.

Upon examining *Wahoo's* patrol report, ComSubPac's endorsement was nothing short of glowing. Morton's actions were uniformly praised, including his foray into Wewak and the gun action against the transport's boats. He was awarded the Navy Cross. General Douglas MacArthur, responding to the destruction of the transport, even awarded him the Army's Distinguished Service Medal. For her third war patrol, *Wahoo* received the Presidential Unit Citation.

Postwar records would reduce *Wahoo's* confirmed sinkings to three instead of five,

Dalton Keeter receives a noogie—likely from Yeoman Forest Sterling—as he recovers from a celebratory toss into the drink after Wahoo's wow of a third patrol.



WAHOO'S 3rd PATROL

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UNTERSEE OVERSEAS

Mail call on the deck of the USS Wahoo (SS-238) after her exemplary third war patrol. There's nothing in the world like letters from home.



and reveal a contingent of Indian POWs among the men fired upon in the water. Nevertheless, the details of her third patrol blew through the U.S. submarine fleet in February of 1943 like a breath of fresh air. There was no mistaking Morton's style of command. His promise to take the fight to the enemy had been fulfilled with vengeance and flair. Coupled with it came an unspoken challenge for the rest of the service to join in the game.

Buoyed by *Wahoo's* example,

morale began to rise. And so did sinkings. Confirmed kills rose steadily through 1943 despite the ongoing handicap of defective torpedoes. Operational innovation became the norm as commanders tossed out prewar caution. Talk of bad luck faded. Morton in *Wahoo* had led them past the turning point.

For more information on USS Wahoo, visit Paul's website "Legends of the Deep" at www.warfish.com.



Wahoo crewmembers (l-r) Davison, Lenox, Clary and Kohut check out Wahoo's boffo newspaper coverage—a surprising rarity for the secretive wartime Silent Service.

Dueling Boats in the...

Key of West

Two builds. One boat. Matt Homeier and 'SubEd' Tordahl square off to create separate versions of the same SSN-722. Matt plucked away last time; now Ed answers him here...



Part 2 by
'SubEd'
Tordahl

This LA Boat Plays in a Major Key

'SubEd' Tordahl poses with his USS Key West (SSN-722)—an enormous work-in-progress which we begin to explore in this SCR issue. He calls this photo: "A boy and his boat."



Editor's Note: I had originally thought Mr. Tordahl's answer to Mr. Homeier's *Key West* build in the prior SCR would appear here as a single-issue response. But SubEd surprised me with a lengthy, detailed and technical account which will require two or even three parts to complete within these pages. The more the merrier, eh, gang? We begin, then, with only Part One of this impressive effort. Take it away, Ed!—Jeff

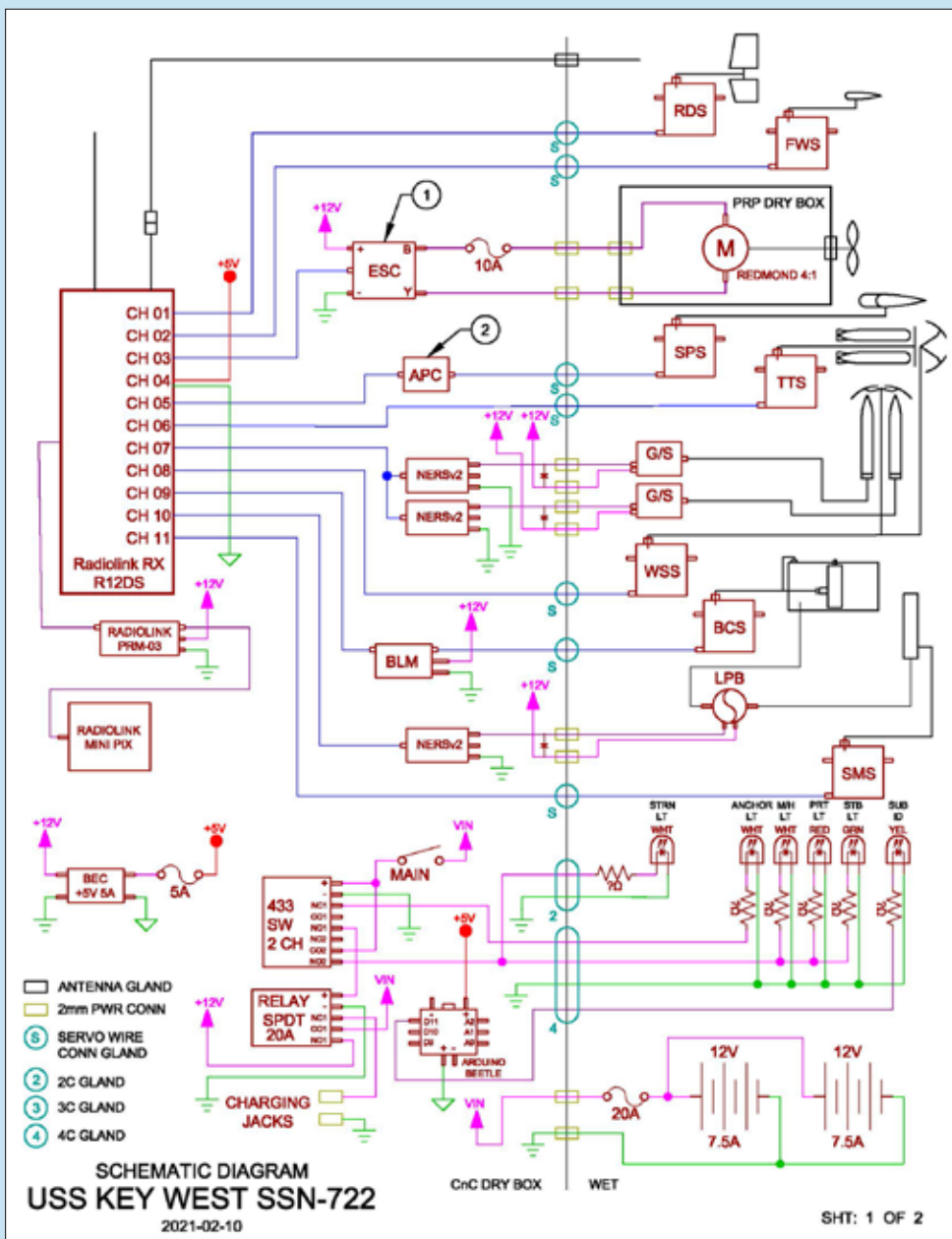
USS Key West (SSN-722): "Skeletal Dive System" (SDS) in a 1:48-Scale DeBoer 688 Hull

A long story here since this build actually stretches back to 1991! Imagine that, a build thirty years in the making! But I won't bore you with too much of that, I promise.

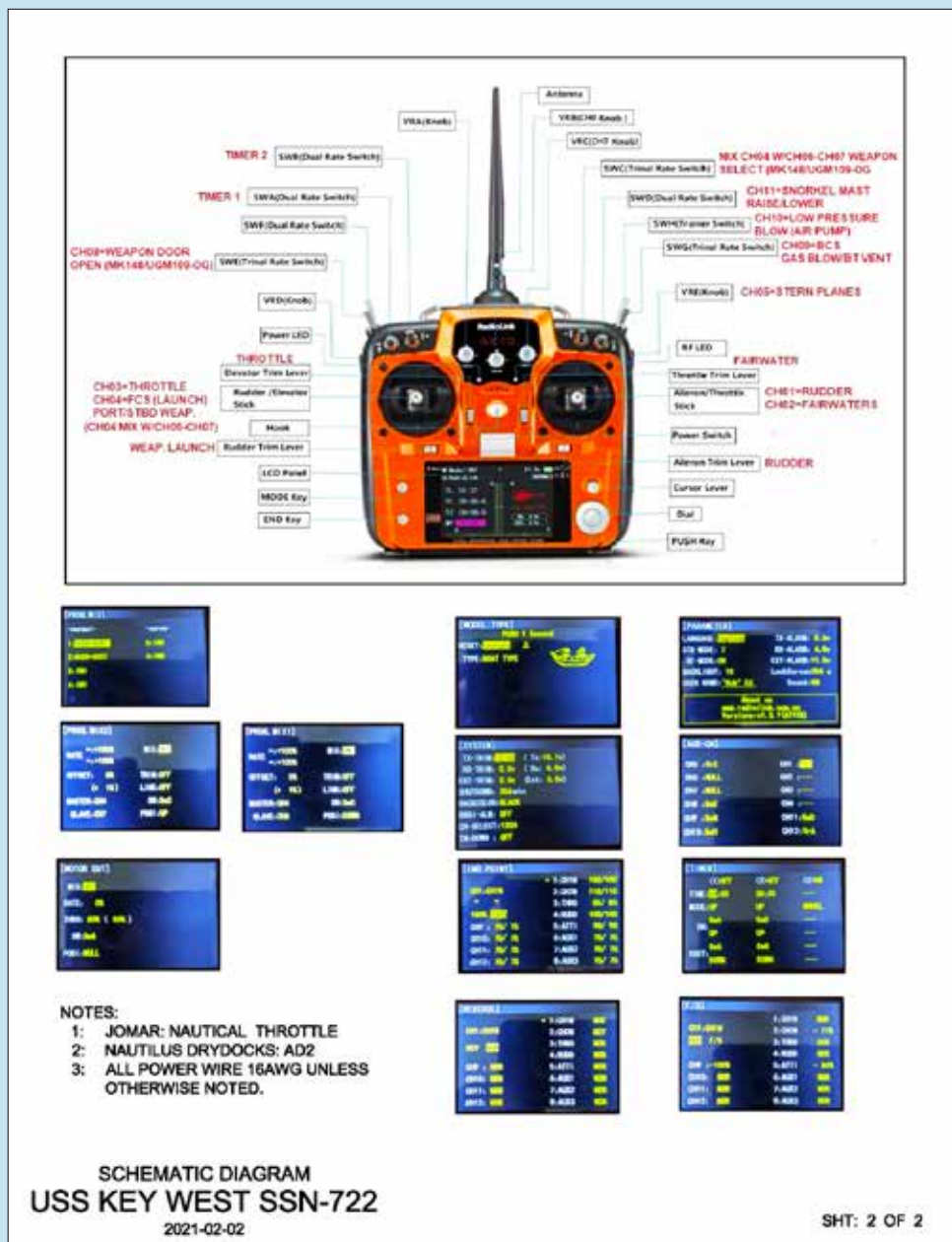
The original hull was purchased back then as a three-piece, 1:48 Scale Shipyard hull—right along with all the fantasies of how I was going to have the biggest boat at the pond, all the accolades and awards which would go with that ... and all this within three years of the purchase. But as we often know...

*The best-laid schemes o' mice an' men,
Gang aft agley,
An' lea'e us nought but grief an' pain,
For promis'd joy!*

Fast forward to 2019. Bob Martin of the Nautilus Drydocks offers up one of his "Clearing House" sales, wherein I spot a DeBoer 688 with some bells and whistles, pretty much ready to go minus the internals. My kind of project! Considering the price and what my time would be worth on an hourly basis, plus the



Schematic Diagram Pg. 1: Always good to make one up. Helps in wiring and troubleshooting.



Schematic Diagram Pg. 2: Shows the TX setup. Another double-plus for reference.

| Flight II boat status: | | | | Flight II with VLS | | | | | | |
|------------------------|---------|---|------------------|--------------------|------------------|-------------------|----------------|--------------------------------|--|--------|
| Providence | SSN-719 | General Dynamics Electric Boat, Groton | 16 April 1979 | 14 October 1982 | 4 August 1984 | 27 July 1985 | | | Active, scheduled to be decommissioned in 2019 | SSN719 |
| Pittsburgh | SSN-720 | | | 15 April 1983 | 8 December 1984 | 23 November 1985 | 15 April 2020 | 34 years, 4 months and 23 days | Stricken, to be disposed of by submarine recycling | SSN720 |
| Chicago | SSN-721 | Newport News Shipbuilding, Newport News | 13 August 1981 | 5 January 1983 | 13 October 1984 | 27 September 1986 | | | Active, in commission | SSN721 |
| Key West | SSN-722 | | | 6 July 1983 | 20 July 1985 | 12 September 1987 | | | Active, in commission | SSN722 |
| Oklahoma City | SSN-723 | | | 4 January 1984 | 2 November 1985 | 9 July 1988 | | | Active, in commission | SSN723 |
| Louisville | SSN-724 | General Dynamics Electric Boat, Groton | 11 February 1982 | 24 September 1984 | 14 December 1985 | 8 November 1986 | 7 October 2019 | | In Commission, in Reserve (Stand Down) commencement of inactivation availability | SSN724 |
| Heiena | SSN-725 | | 19 April 1982 | 28 March 1985 | 28 June 1986 | 11 July 1987 | | | Active, scheduled to be decommissioned in 2020 | SSN725 |
| Newport News | SSN-750 | Newport News Shipbuilding, Newport News | | 3 March 1984 | 15 March 1986 | 3 June 1989 | | | Active, in commission | SSN750 |

I admit to writing more for myself than for others. Therefore, if you're mostly interested in slapping stuff together to get to a meticulous paint job, my approach may not be for you. On the other hand, if you're like me and enjoy peering under the hood to better understand what's going on while your boat's underway, then jump right in. Actually, my hope is that newcomers to the hobby might benefit. You

recall that stage, don't you, when you had nothing but questions? Yep, back when *everything* was fun!

When it comes to r/c submarine design, construction and operation, I'm of the opinion that much more emphasis should be given to the ballast system than the propulsion. The ballast system, of course, is what makes our hobby different from those

other boats out on the water, and is what we so rely on to come home without an empty boat stand.

But propulsion concerns definitely come in second. Propulsion is life: it can drive you to the surface and to shore if your ballast system fails. It can get you out of the way of that idiot on a collision course—just by increasing speed. And of course there's always that

sphincter-clenching “*All Back Emergency!*” bell.

More than likely your propulsion system is your greatest current draw, and therefore your greatest heat producer within the confines of that limited dry space. This is not normally a concern for those who don't hot rod their boats around for extended periods. In fact, most folks employing a standard WTC are lucky enough to have nothing back there surrounding their motor but some silicone wires (200°C/395°F+) or PVC (105°C/221°F+)—obviously nothing much subject to overheating.

Drawing an amp or so at 7.4V from a 2S LiPo battery ain't no big thing. Essentially, you've stuck the equivalent of a 7.4W lightbulb in the back to generate heat. At standard cruising speed, I draw 1AMP @12.6V (telemetry is wonderful!) with my 1:48-scale DeBoer *Skipjack*. That gives me about a 12.6W lightbulb back there. I generally run for hours, so heat does tend to build up over time with no place to escape—it just accumulates in the space, like an Easy Bake oven.

Usually I see people running their boats for a half hour or so, maybe an hour. No big deal. I'll sometimes run mine for four hours or more if I can get away with it. I once measured my motor temp. at 45°C [113°F] (without load); not really bad since commercial electronics (what's in your boat) are rated to 70°C [158°F]. But the interior does get a little warm...

So: I water-cool my motors. I do everything and anything I can to lengthen component lifetime (such as reducing heat stress) and mitigate potential gremlins and the need for chasing future bugs. I

really don't know what the temp. is in that motor compartment after four hours of operation, but it would be interesting to find out. For the record, a fishing line that didn't quite jam a screw on one of my boats still managed to overheat the motor enough to discolor the WTC all around it at the time.

I look at it this way: there is water all around me. If it's easy enough to implement water cooling, why not do it? Plus, it's very cool to be able to say, “My reactor is water-cooled.” (*So true!—ed.*)

Like I said, not a problem for most, and 80% of you are probably pooh-poohing the idea at this point anyway. But hey, that's okay. While many of you take a micrometer to your periscope (which I pooh-pooh), or assure you have that scumline all up to snuff, this is what gets me out of bed with regard to our hobby. The Engineering Side.

Anyway, the aforementioned DeBoer *Skipjack* spins a 95mm [3¾"] seven-bladed screw direct-drive-coupled to a Redmond PE20270 12VDC 10A-rated RV HVAC blower motor. Since the *Key West* will now be swinging a 121mm [4¾"] “ring” prop, I know I'll have to change something.

Out of curiosity, I once generated an “Amps vs. Throttle” graph while dynamically testing that DeBoer *Skipjack* in the water and under load using an ammeter. Many of you probably just run your boat till she slows down and then bring her in. You'd rather count your anechoic tiles to see that they match the prototype than subject yourself to this level of engineering nonsense. I can understand that. But

like I've said, I sail to a different tide.

The acquired data told me quite a lot about my boat. It also gave me a starting point from which to make decisions. Noting the curve ramping up as the motor saturates, I realized I'd need gear reduction turning a larger screw for a much bigger and somewhat heavier boat. I wanted at least 3:1, but actually found a great 4:1 inline planetary gear — which will help reduce the overall size needed. A Banebots PSPS-4 Sport Gearbox: Standard Duty, 4:1— Cyberdyne Systems Terminator T-100-grade reliability! (*Come vith me if you vont to live.—ed.*)

It couples nicely with the Redmond motor; the mounting hole dimension across the corners coincidentally matches the through mounting hardware of the motor. But I also needed the spur gear PSPB-M44 Sport Input Kit/CIM Motor/8mm shaft to couple the motor shaft to the gearbox. It wasn't quite a press fit and there was no room for a set screw, so I mounted it with Henkel Loctite 648 Press Fit High-Strength Rapid Cure Retaining Compound. You can see the setup in Fig. 14. Note the aluminum motor mount—more on that in a moment.

Fig. 15 shows the initial test fit by itself; Fig. 16 the test fit in the WaterTight Box; and Fig. 17 the complete output shaft drive. Note the rotary damper. Fig. 18 shows it all placed in the WTB. I wanted to make sure everything lined up before the final drilling and the making of my opening for the water cooling.

Speaking of water cooling, this is how I did it on both my 1:48 DeBoer *Skipjack* and here on the *Key*

WAHOO'S 3rd PATROL

BOATS IN THE KEY OF WEST

SUB vs. BATTLESHIP

SILENT VICTORY GAME

CHINA'S SUBMARINE FORCE

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Fig. 1: As she came, a 688I w/o fairwaters; starboard fwd. view.



Fig. 2: As she came, a 688I without fairwaters; aft port view.



Fig. 3: Fitting the SSY sail with fairwater planes.



Fig. 4: SSY sail with fairwater planes; forward view.



Fig. 5: SSY sail with fairwater planes; aft view.



Fig. 6: Ventral view of the bow; note ballast flood holes in keel.



Fig. 7: Interior looking forward; test fitting "stuff."

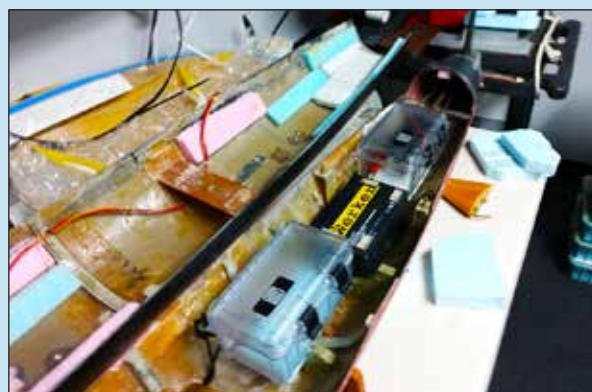


Fig. 8: Interior looking aft—lots of ROOM!

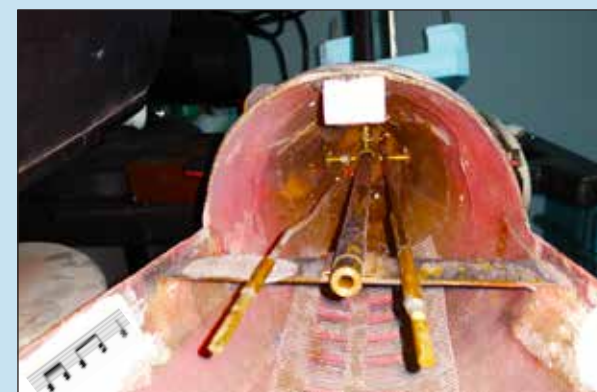


Fig. 9: Room? I still can't get my hand back there!

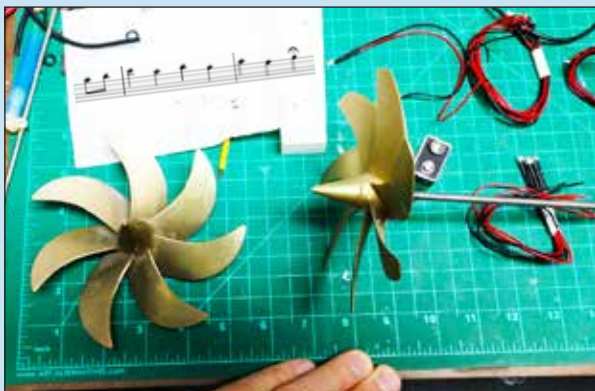


Fig. 10: Brass screw and the epoxy resin screw that came with it.



Fig. 11: Original SSY bow with scribing and Tube #1 opened up.



Fig. 12: The SSY bow, with scribing and VLS Tubes #15 & #16 open.



Fig. 13: Real Key West's open VLS hatches. Must add to new hull.



Fig. 14: Essential new hardware for my new Key West effort.



Fig. 15: Motor and gear box; initial test fit.

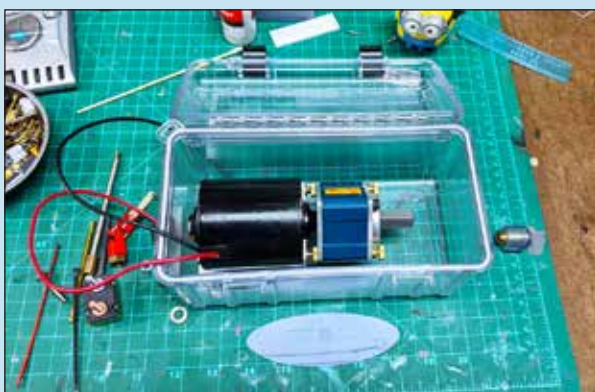


Fig. 16: Motor and gear box; test fit in the WaterTight Box.



Fig. 17: The complete motor/gear box output shaft drive.

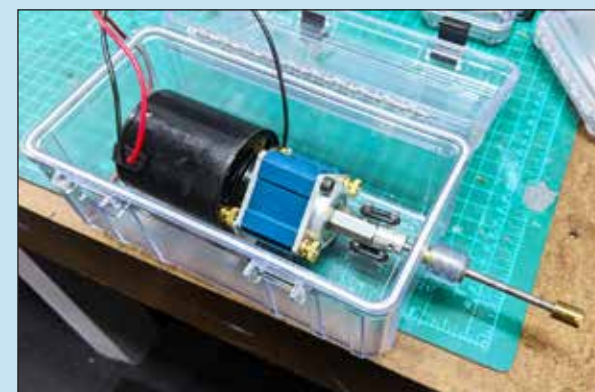


Fig. 18: Test fitting it all in the WTB.

West. The motor is mounted to the aluminum plate; I also use a fixed thermal compound between the motor's side and the plate. In Fig. 19 you can see the cutout which exposes the bottom of said Al mounting plate to sea. So you can understand how I gain quite a bit of passive cooling through conduction with very little extra effort on the build. Note also the two grey plates. These are 3D-printed PLA+ mounting plates that will be fixed to the bottom of the box to mount the PRP WTB to the ventral rail I'm installing. The smaller box to the right is for the CnC gear.

Fig. 20 is a test fit and alignment to the "skeletal" rails. On my USS *Ulysses S. Grant* SDS build I used 4.76mm [3/16"] diameter rod. Here I'm going with 6.35mm [1/4"] square rod rotated 45° longitudinally along the main axis to add rigidity laterally as well as to the z-axis. Note the Loctite PL Marine Adhesive, comparable to 3M 5200. This stuff is tenacious! Flexible and watertight. Plan on wearing it after applying it—like 3D printing resin, it gets on *everything!*

All is installed now, as you can see in Photo Fig. 21. The ventral view (Fig. 22) shows the thermal "window" of the Al plate, along with the rail mounts and liberal use of the marine sealant. Fig. 23 shows a closeup of my home-brewed rotary damper. I installed one on the DeBoer *Skipjack* and still love it; it eases alignment issues so the shaft going through the watertight seal runs true. It also buffers torque loads from such a large prop, even using ECSs with a "soft start."

Fig. 24 is the external view of the shaft seal and dogbone coupler. Fig. 25 shows the internal electrical connections and Fig. 26 shows the external area where

the 2mm bullet connectors mate. Fig. 27 displays it located in the hull. Believe it or not, the whole S3 3500 case will be positioned below the surface waterline of this Flight II boat.

This concludes the motor mount section. I had originally planned to move on to documenting the Command and Control WTB portion of the build (now about 90% complete), but testing revealed an error in my selection of a 433Mhz remote switch. The two-channel switch I had incorrectly chosen was merely a two-SPST switch setup: I needed two-SPDT switches.

When this model is in standby mode, power for switch "A" is supplied to the anchor light to show me the boat is ready to go as she sits all day at her mooring. When "A" is switched, the NC side opens, extinguishing the anchor light, the NO side closes and that connects a separate 20A automotive relay to switch into Running Mode. These 433Mhz remote switches are only rated at 10A; I have a 10Amp main motor and a 5A UBEC with no other significant operational current draw. Switch "B" on the FOB operates the navigation lights, since all eleven channels are taken on the TX. Works for me.

Should you choose to use these remote switches, be sure when purchasing to double- and triple-check that their operation will meet your application. While I await delivery of my own to finish up this section, I'll go ahead and work on the hull portion of the build....

Hull Components and Repair (HuL)

First I decided to repair the damaged, fixed stabilizer

portion of the port stern plane—it had completely broken off in transit. The plane itself had its outboard end snapped off too. Now that I see DeBoer merely epoxies his stabilizers to his hulls, I decided to do what I prefer for all my boats' fixed appendages. I inserted a threaded #6 bolt into the leading edge of the stabilizer to meet up with the #6 brass insert already thermally installed within it. Then I drilled an oversized hole into the hull to connect the stabilizer from the outside, epoxying it back on, and tightening a thumb nut against the inner hull to snug it down. For what it's worth, tightening that nut with my fingertips was the only way to tackle it, since I couldn't get a wrench—much less my hand—back aft in those tight quarters. I actually almost hope the starboard stabilizer breaks too—it would give me no choice but to reinforce it the same way I did to the port side. (See Fig. 28.)

To strengthen and repair the stern plane, I went with a #4 brass flathead wood screw: you can see the holes for it in Fig. 29, along with the rubberized, black CA. Fig. 30 shows the end glued on, ready to accept the screw. After it's inserted, a dab of Bondo or similar putty fills the hole and hides the screw—and I'm done.

The final repair can be seen in Fig. 31. I put a liberal amount of #403 West System Filler into their #105 Resin/#206 Hardener—the stuff I like to use—and got busy. Good, slow cure epoxy is always my preference.

Fig. 32 displays an internal view of the stern end. You can see the aforementioned thumb screw on the right. Also, the lower rudder was damaged along with its bearing tube. While that necessitated repair as well, I had already planned to do it anyway since I've always



Fig. 19: Thermal cutout; 3-D printed PLA+ mounting plates.



Fig. 20: Test fit and alignment to the "skeletal" rails.



Fig. 21: Completed assembly.



Lots of marine sealant!

Fig. 22: Ventral view: Thermal window of Al plate; rail mounts.

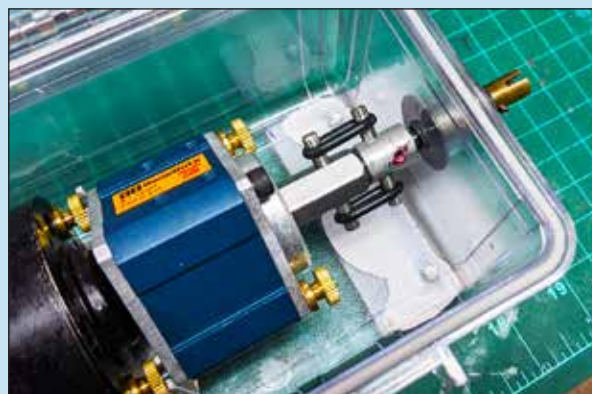


Fig. 23: Closeup of my home-brewed rotary damper.

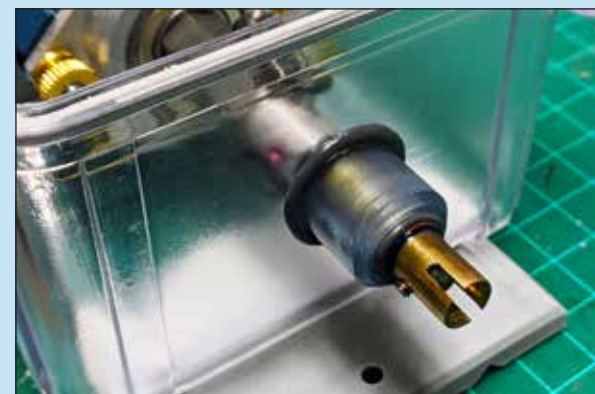


Fig. 24: External view of the shaft seal and dogbone coupler.



Fig. 25: Internal electrical connections.



Fig. 26: External area where 2mm bullet connectors mate.



Fig. 27: Location in the hull.



Fig. 28: Note threaded stabilizer insert and broken tip of plane.



Fig. 29: Drilling holes.



Fig. 30: The stern plane tip is now bonded.



Fig. 31: External view of the completed repair.



Note also the added epoxy.

Fig. 32: Int. view; note stud, thumb screw, lower rudder bearing.



This is the last photo of her looking 688I-related!

Fig. 33: Prepping the sail to accept the fairwater plane fairings.



Fig. 34: Stern, X-Axis (Roll) view.



Fig. 35: Top, Z-Axis (Yaw) ventral view.



Fig. 36: Starboard, Y-Axis (Pitch) view.

had issues with this particular control surface when it came to possible groundings. The hull thickness of your average boat is never enough to support and protect the lower rudder's bearing tube from a good strike. So I always replace it with a tube that's as long as possible, yet still fits and allows installation of the rudder jumper. I fill in as much epoxy back there as I can to build a solid mount around it. That's also West System Epoxy and filler poured into the area behind that white putty epoxy dam. This encapsulates and strengthens the tube enormously since the material thickness jumps from ~3.2mm [1/8"] to almost 9.6mm [3/8"], and the lateral load is distributed along a greater surface area. I will *not* be bending or losing that lower rudder should I scrape bottom!

I've also started on the conversion of the sail from a Flt. III 6881 to a Flt. II 688—meaning I'm installing fairwater planes. As I've mentioned, I'm a submarine vet of the Cold War years, and thus an unabashed fan of fairwater planes! (*I like 'em best too!—ed.*)


You can see in Fig. 33 that I'm prepping the sail to accept fairings for the fairwater planes. This is probably my *Key West's* last photo of anything 6881-related! Not only did I drill out oversized holes for fairwater stocks (rods), I also added four other holes for the extra-thickened WS epoxy (not quite to the consistency of peanut butter, but somewhat more thick than mayonnaise). These holes, along with several counterbore drills on the mating face of the fairwater fairings, will greatly increase the strength of the bond. The epoxy actually ended up mushrooming through the holes. Those things ain't goin' anywhere!

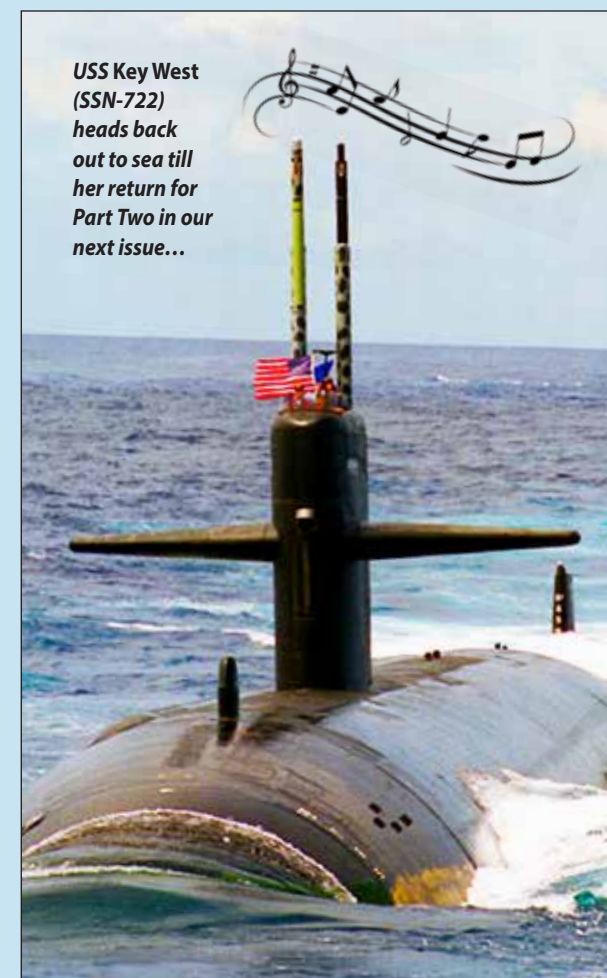
In Fig. 34 you can see I'm using a laser level, as is preferred by contractors for construction. By applying both vertical and horizontal beams and establishing a datum—in this case, the vertical edge at the aft end of the sail along with the horizontal seam across its top—you can get a pretty damned accurate line across the plane in order to make it square. Here it's the 305mm [12"] x 3.18mm [1/8"] rod standing in for the fairwater's rotational axis. The two beams represent the horizontal Y (Pitch) and the vertical Z (Yaw) axes. The long axis of the boat is the X (roll), which you're looking down in the photo. Note the red laser across the SS rod, squaring the fairwaters to X.

In Fig. 35, we're looking from the dorsal view along the vertical Z (Yaw) axis. In this case, the vertical beam lines up with the seam across the top, aligning the sail with the Z axis and continuing along the seam on the forward face of the sail to align the X axis. Again, the red laser aligns the fairwater axis rod to the sail, squaring the fairwater planes to Z.

Finally, Fig. 36 shows the starboard view along the horizontal Y (Pitch) axis. Here I'm aligning the fairings along the horizontal axis, which is in effect also the rotational axis of the fairwaters. Note where the lasers cross is at the tip of the SS rod. This thing is square in all three axes. Good enough for government work, as my old Chief used to say! These laser levels are the word! Wish they'd had them all those years ago! Great for alignments like this, surface waterlines, etc. 1001 uses around the shop. Cheap enough at Amazon or Harbor Freight. Add one to your tool belt.

Oops, FedEx is at the door delivering those much-needed 433Mhz switches—gotta go...

Stay safe, and may your number of surfacings always equal your dives. 



USS Key West (SSN-722) heads back out to sea till her return for Part Two in our next issue...

WAHOO'S 3rd PATROL

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SILENT VICTORY GAME

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SUBMARINE-RELATED NEWS & EVENTS FROM LOCAL SUBCOMMITTEE CHAPTERS

Compiled by Jeff Porteous

Local SubCommittee Squadron News & Events



The SCR is always on the lookout for model sub-related local news and Squadron events. Please forward your updates, photos and other submarine news to:

Jeff Porteous
SubCommittee Report Editor
editor@subcommittee.com

SubComEast

SubComEast has had some ups and downs this running season. We were forced to cancel both our January and March pool runs due to inclement weather. In twelve years we've only had to cancel for weather four times—two of them *this* year. Oh well, we have to keep our guys safe.

We've had the pleasure of welcoming some longtime—but new-to-us—modelers to the SubComEast fold this year. At the February meet, we were joined by Dave Ruiz and Ken Druze, both long-experienced, highly talented modelers. And for the first time this season, we've had our old friend and "big boat fiend" Johan Sauer also join us. Johan scratch-builds seriously large-scale German U-boats. It's great to have him with us. I've known Johan since the mid-'90s, when he was amazing people on the interstate with a couple of immense U-boats strapped to the roof of his car!

At right are a couple of photos from recent meets. If you're anywhere near the PA/MD area, *please* come out and join us!

- Jim Butt



Dave Ruiz's impressive Type IX-D U-boat.



USAF deep sea exploration vessel.

SubComDeepSouth

...has become **SubComSouthEast**

Editor's Note: Big Things are going on with this chapter! Since our last issue, this local SubCommittee squadron has been renamed and reformed, adding several already active new members and an affable new point man:

Bill Bibeault. Said new Commodore can be reached at **(706) 372-7915** or emailed at **bbb30683@gmail.com**. Geographical area coverage, for now, remains the same: South Carolina, Alabama, Georgia, and Florida. That's a lot! The squadron has already proved its mettle by producing and distributing a lengthy new newsletter of plans and activities to its members. Presumably, shorter versions of future editions will be submitted for regular inclusion here in the SCR FOX Schedule. We certainly all wish Bill and his new crew hearty congratulations and the best of luck. We also look forward to following news about their members, boats, runs and other activities. The SubCommittee further wishes to thank member Mike Wilson for his efforts in heading up the former SubComDeepSouth squadron. BZ's all around, guys!

- Jeff Porteous (for Bill Bibeault)

SubComLoneStar

SubComLoneStar is born!

The announcement and proposed logos were posted in the previous issue of the *SubCommittee Report (SCR)*—with a fresh, newly adopted logo by our own Ed Tordahl showing in this one—so I guess we are, apparently, a real thing now. I am in the middle of finishing up our dedicated webpage as well. It's live, and you can check it out at www.subcomlonestar.com.

As a bit of background into the evolution of the group, it was through a series of events steered by fate that Ed Tordahl, Steve O'Connell and myself (Bob Martin) all moved to Texas within months of each



SubComLoneStar's Creekwood Pool and Pond is a gorgeous venue, conveniently located only minutes from both Bob's shop and his house.

other, relocating from Washington, New York and Florida respectively. With our strong involvement in the SubCommittee, we saw the need for a new local area chapter of the group dedicated to Texas, the state being huge and with a very good population of fellow bubbleheads.

Our hope? To root out and organize as many submarine enthusiasts in the state of Texas as possible, get us communicating together easily, schedule and carry out a *ton* of get-togethers—both in person and virtually—and generally...create a platform where we can share fellowship and passion for subs with people in our area (though, of course, all are always welcome, regardless of where you're located!).

Our first unofficial "event" took place on December



Steve O'Connell, Ed Tordahl, the Decesari family, and Bob Martin, with Grandpa Decesari on the bench.

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SILENT VICTORY GAME

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UNTERSEE OVERSEAS



A 1:48 British Astute, tested, trimmed and now on her way to her new owner.

28th here in The Woodlands at the Creekwood Pool and Pond. The venue is amazing, with clear(ish) water, boardwalks, a pavilion and easy access to the parking lot. Steve, Ed and I took turns running Ed's new 48th Alfa, as well as a duo of 1:48-scale boats that I was prepping for shipping to their new owners. We also had the Decasari family join us. John (the older boy) is well on his way to building his first r/c submarine, a 1:72 scale *Gato*, and I have to say he knows more about subs than most of my customers do. Seeing new young blood so passionate about the hobby gives me hope for the future of our r/c sub hobby!

The next SubComLoneStar get-together is tentatively planned for March 19th at the same venue, to be followed by dinner and drinks at my house, a short eight-minute drive away. Again, all are welcome, regardless of where you hang your hat. Check back at the website for details!

- Bob Martin

SubComMI

I want to let everyone know we have added two

new members to Mare Island's squadron roster. Please welcome Jim Hoyle and Jerry ("Zack") Zakrzewski!

I met Jim and Jerry last year at the Sacramento Model Shipwright event held in Elk Grove, CA.

Jim has been a member of the SubCommittee for many years, and recently expressed an interest in joining our local group. Jim owns a model of the *Alvin*. He had made the original master model/plug for the model some thirty years ago and sold the mold to FX Models. (See Jim's Alvin photos. Gorgeous.—ed.)

Jim also has a British *Chariot* mini-sub—a two-man converted electric torpedo for use in covert operations against the German battleship *Tirpitz* in WWII. Jim received detailed instructions on how to build the *Chariot* from Jason Qualye at Manx Model Boat Club on the Isle of Man. The figures' wetsuits are custom-made to match the original suits worn by the divers during the war. Way to go, Jim! (Please see the YouTube video of the British *Chariot* in action from Manx Model Boat Club: <https://youtu.be/S88a-M-GP0U>. Also, check out the Manx Club's website at: www.manxmodelboatclub.org. Once there, click on Gallery / 2016 Events / Scale Competition on the site.)

I look forward to seeing Jim's *Chariot* in the water.

One more thing: Jim has an OTW X-51 X-craft in his build queue too. (Another beauty-to-be; see photo.—ed.)

Jerry is a seasoned model ship builder who is now trying his hand at r/c subs, his first being a 3D-printed 1:72 *Thresher/Permit* class, the USS *Barb* (SSN-596). Jerry is actually connected with the *Barb*: he proudly served aboard her for four years as an ET Nuclear Reactor Operator. Jerry might come to us looking for guidance when he starts in on the WTC. He will most likely get it from Bob Martin at Nautilus Drydocks. (Pix next page.)

I'm excited we have these two great new members and look forward to their joining our summer sub runs at Laguna Subbase in Elk Grove and at our annual Fall Fun Run at the Casting Ponds in San Francisco.

Addendum

Our planned run dates for the Laguna Subbase off E. Laguna Court in Elk Grove, CA are listed below.

I tried to avoid holiday weekends so we wouldn't interfere with planned family time. There will be two runs a month, giving everyone a chance to run their boats over the summer. Barring anything unexpected, I plan to attend all these Elk Grove dates myself.

MAY

Saturday the 7th and 21st.

JUNE

Saturday the 11th and Sunday the 26th.

JULY

Saturday the 9th and 23rd.

AUGUST

Saturday the 6th and 20th.

SEPTEMBER

Our annual Fall Fun Run at the Golden Gate Park Casting Ponds is tentatively scheduled for Labor Day Weekend (September 3rd and 4th). Note: this is subject to change.

ALSO:

SFMYC's Bi-Annual Model Boats on Parade will take place on Sunday, September 11th at Spreckels Lake, Golden Gate Park, San Francisco.

If you have any questions, please don't hesitate to contact me.

SubCommittee Mare Island Squadron
408-594-3064

- David Marquez



A beautiful all-white Alvin. Once Matt Hooper's ride?



Jim Hoyle's Alvin all opened up. No Simon or Theodore in sight.



British Chariot with WTC shown in inset. Look out, Tirpitz.



Jim Hoyle will soon have an OTW X-craft like this one in his British fleet. Once again, battleships beware!



'Zack' Zakrzewski's 3D-printed Permit/Thresher hull.

SubComON

As we are all aware, up here in the North, the water is a little too hard to float anything. So now is the time for building and/or refitting. As it stands right

now, the fellows up here are just trying to get through all the ongoing craziness, so no one has any new projects underway. On my part, I have completed my first nuclear boat, a *Skipjack* class, which I made as the *Scamp*. It was a very interesting boat to build, and was a Moebius kit brought home from the last Carmel Fun Run. Seeing that we were not able to use the venue where we generally float our boats this year, and we were unable to find a suitable alternate place to run, it meant we did not run boats at all this past season. So in order to put my *Scamp* through her sea trials, Rick Teskey offered up the use of his swimming pool—which worked out perfectly. (Thanks again, Rick!)

- Bruce Martin



Scamp closeup. (Always love to see that gorgeous I-boat in the b.g.; recently sold and soon on her way to David Ruiz, I believe.—ed.)

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UNTERSEE OVERSEAS



Scamp shows clean Skipjack lines. (Beautiful paint job too.—ed.)



Bruce Martin's new Scamp runs sea trials in Rick Teskey's pool.

SubRon4

The Hard Water Rules season is full and hard upon us here in the southern wastes of New England. Overnight just passed, we experienced our first good snow of the season. Building time! We've been pretty quiet as a group for various reasons, none of which are very pleasant. Life has happened to us in some big ways, but to quote Chief Dan George in *The Outlaw Josie Wales*:

"I will endeavor to persevere!"

The boys are doing their own things as much as these times will allow. Bob H. is working hard on his recovery; Tony G. is hitting the final details in here-and-there fashion on a 1:48 USS *Flasher*; Tim F. is finishing his Engineering Degree; and I am trying to touch a boat project pretty much daily. Doesn't always happen though. Damn you, YouTube!

Seems we had our January thaw early this year, as the really cold stuff is due to hit us within the next week. This usually extends into early March, with Feb. being particularly nasty. We'll see how it plays out!

Keep modeling, researching, and dreaming of better days!

- Bill Lambing

SubRon8 "The Rochester Gang"

Hi all, from SubRon8! The last couple of months we've been meeting back at the local Y pool to practice our fleet maneuvers, getting a great turnout and having a lot of fun. It's very nice not to have to beat back the weed monster that has been taking over our pond at the park—this year it got quite hungry. And large!

We just had a joint event with the Buffalo Model Boat Club out at the Tonawanda Aquatic Center. The center has been inviting us in every year to be a part of their WinterFest activities. It has a very large indoor pool that they blocked off half of for the models—a great place to run. We brought a number of submarines and a few targets; the Buffalo club had lots more targets, a few biologics, and several sailboats (the center puts out large fans for them).

I took along my shark submarine based (somewhat loosely) on the submarine in an old TinTin cartoon. It is a collaboration between Don May and I; we are each building one. We started with some *Skipjack* hulls

from old Mobius kits and made up a cockpit to replace the sail, plus a new tail, belly, and dorsal fins to add to the shark look. The new parts were all designed in Fusion 360 and then 3-D printed, which saved a lot of construction time. I got all the CAD work done and the parts printed, and Don is making us up some Static Dive cylinders. Aside from being the right shape for this sub, the *Skipjack* hulls have lots of room for the WTC. Since the cylinders are still under construction, I transferred the Dynamic Diver cylinder that I had made for my *Delphin* sub a few years ago, and have been running it that way in the meantime. The large shark fins make for a very maneuverable sub, so it works fine in either mode. There are no bow planes, but the belly fins can be adjusted to help pull down the bow.

We ran into a little danger when a crocodile from the New York City sewers apparently migrated west to invade our pool. That drove the surface fleet off in a big hurry. Fortunately, the croc got distracted by the swan boat one of the Buffalo crew brought!

Another nice boat was Paul Spielberger's *Merrimack*.

Quite a nice way to spend the day. Next week we are back at the Y pool for another SubRon8 session....

- Chris Rueby



3-D printed "TinTin" submarine's canopy.



Chris Rueby's "TinTin" cartoon shark submarine.



Uh-oh: a migrating New York sewer 'gator shows up at the run.



An avian lunch for a 'gator gourmand?



A beautiful Merrimack.

SubRonLA

Most of the usual gang showed up for SubRonLA's first true spring run on March 12. No-shows included Steve (Ventura County) Neill and Tom (Las Vegas) Chalfant—each more than understandable given what's happened to gas prices. *Dramatis personae* who were on hand included: Ralph Fendley, Mike Dory, Will Oudmayer, Farlan Clutters, Erik Viirre, newcomer Danny Nguyen (no boat yet), and moi.

We seem to be short on space here, so for once I'll try to be brief. A good run was enjoyed by all in that the weather was grand and no boats were lost. Water was cloudy compared to our usual, but still so much better than what most r/c sub skippers are dealing with right now. So, no complaints here. Everyone managed to get *something* in the water, and Erik brought back his umbilical-corded camera ROV, spending much of the day practicing underwater shots of passing boats. (Again, too murky for much success.) Both Will and Ralph brought dedicated sub rescue barges—each now a permanent addition to our squadron's hardware roster. Happily, only one minor incident required one's use. Murphy's Law dictates, however, that had they *not* been on hand, *many* rescues would've been needed via much wetter means. Keep bringing them, boys!

Pleasant conversations took place pondside, of course, including one to confirm our next squadron run on April 30th. Any out-of-townners able to join us?

- Jeff Porteous 



SubRonLA fields a few skimmers too. Erik's ProBoat PT-109.



Will Oudmayer's 1:96 Skipjack.



Two Small World 1:96 Bluebacks do the two-step. (Jeff's & Farlan's.)

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Name Change & New Contact!



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THE SUBMARINE

Historian

Jim Christley resurfaces here to review the classic naval contest of submersible vs. battlewagon—a steel-plated grudge match history doesn't take lightly. I think we all know who comes out on top....

Submarine vs. BATTLESHIP

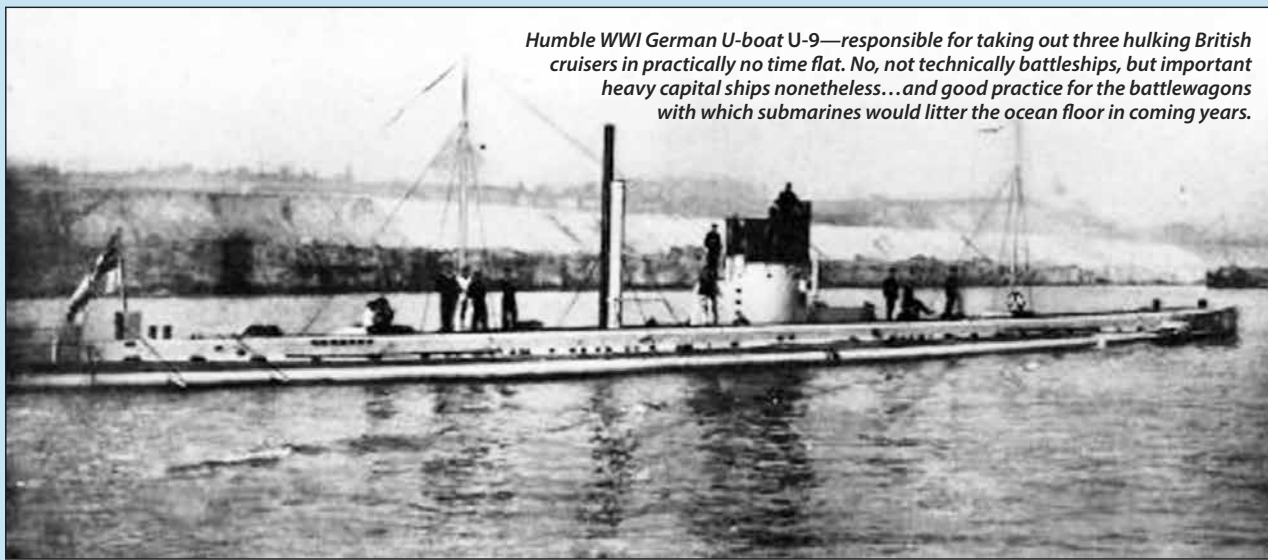


by Jim Christley

Threads and Snippets...

I like libraries. I like them a lot. Rows and rows of books on all kinds of subjects permit me the joy of pulling one out nearly at random, reading until a question comes up, then tracking down an answer via dictionaries, encyclopedae, or simply other books. Given enough time, I can go wherever a trail of interest takes me....

To me, the internet is just one giant library. In its early days there were those who felt its usefulness was limited by the cost of compensating data entry people to store information for access and use. What wasn't foreseen was that there were countless folks who would do this for free, plus all the companies finding it cost effective to employ and grow the internet for commerce. Now it's become a boundless library chock full of good stuff, moderately good stuff, iffy stuff and



Humble WWI German U-boat U-9—responsible for taking out three hulking British cruisers in practically no time flat. No, not technically battleships, but important heavy capital ships nonetheless...and good practice for the battlewagons with which submarines would litter the ocean floor in coming years.

of course, its share of truly crappy stuff. But even with the latter in abundance, the internet remains an amazing storehouse to wander through, bursting with wonders. Since I enjoy naval lore, I tend to follow threads through this particular field of historical knowledge. Along the way I have come across many interesting tidbits, in this particular case about battleships encountering submarines in wartime. Presented below is a collection of informative snippets taken from a pleasant research thread on the topic.

Battlewagons and Submersibles, Round One

It is early in World War I; September 22, to be exact, less than a month after war has been declared. The Royal Navy is on patrol with three big, aged cruisers of the *Cressy* class, just off the coast of the Netherlands,

watching carefully for any deployment of the German High Seas Fleet. They are running at ten knots in line abreast under the tactical command of Captain John Edward Drummond. Unbeknownst to them, the German submarine *U-9* lurks nearby, hunting for these exact British ships near Ostend. Their paths soon cross in a spot about ninety miles east of Norwich, UK, and fifty miles west of Amsterdam. The *U-boat* skipper first spots the *HMS Aboukir* and fires a torpedo at a range of about 550 yards, then goes deep. The torpedo slams into the starboard side of the cruiser's engine room. So begins quite a historically significant incident in the history of submarine warfare. *(The above should be sounding familiar after recent SCR articles about the U-9 from our overseas correspondent, Bernhard Wenzel.—ed.)*

Captain Drummond in *Aboukir*, believing he had struck a German mine either loose from a nearby

mooring or deliberately floated in the area, ordered the other cruisers to come to his aid. Slowing and turning to close, his two hapless helpers now also presented *their* broadsides to Kapitanleutenant Otto Weddigen's torpedo tube muzzles as *U-9* rose again to periscope depth. For Weddigen, this situation was what would come to be known as a "target-rich environment."

Drummond, after some thought, now realized he might've been torpedoed after all. Alarmed and recognizing the increasing danger, he quickly reversed his prior decision and ordered the other two cruisers out of the area.

By now *Aboukir* was listing heavily and starting to sink. *HMS Hogue*, under the command of Captain Wilmot Nicholson, decided to render assistance to *Aboukir* regardless of orders not to; an unfortunate decision he would come to regret. Weddigen now expertly set up and fired a two-torpedo spread at *Hogue*. Both struck her, opening up her engine room to the sea. The third cruiser, *HMS Cressy*, thoughtfully tried to launch boats for a crew rescue before exiting the area herself. Her Captain, Robert Johnson, while indeed beginning to move his ship away, now sighted what he thought was a periscope—and tried working up speed for an attempted ram. Johnson unknowingly had the wrong target however (likely having sighted earlier *Aboukir* wreckage or detritus thrown overboard), and Weddigen again had time to maneuver *U-9* into firing position, launching two more torpedoes at *Cressy*. One hit, causing immediate heavy flooding, and she too was soon seriously listing. Now *U-9* maneuvered to fire once more at *Cressy*. His

exuberant torpedo reload crew must have been tiring, but got another into a tube and sent it on its way. This one struck *Cressy* as well. Meanwhile, *Aboukir* had dipped completely under about twenty-five minutes after first being hit. *Hogue* didn't last long either before the ocean had likewise closed over her. And *Cressy*, now capsized, remained afloat only another twenty minutes before she too headed for the bottom.

In less than an hour *U-9* had fired six torpedoes and sent three fearsome and essential British capital ships to Davy Jones' Locker—cruisers, yes, but armed-to-the-teeth battlewagons nonetheless. This had been great luck for Weddigen, but also a series of poor decisions by the cruiser commanders. The whole story is a complex one, but can be found at various internet sites, including https://en.wikipedia.org/wiki/Action_of_22_September_1914.

Our thread now continues to follow Kapitänleutnant Weddigen as he leaves *U-9* to take up command of the *U-29*. March, 1915, in fact, finds him aboard her patrolling the waters off northern Scotland after already having racked up 17,000 tons of destroyed enemy shipping. Quite a career. But as you'd expect, he wasn't ready for a desk job yet.

His boat now hunts submerged in Pentland Firth, the passage between northern Scotland and Scapa Flow. And once again he creeps into a target-rich environment when he happily encounters battleships of the Royal Navy's Grand Fleet out on exercise and oblivious to his presence. Lumbering into his sights are now *HMS Temeraire*, *HMS Dreadnought*, and *HMS Neptune*. He quickly sets up first on *Neptune* and

fires. The weapon misses its mark and—horrors—*U-29's* rapid trim change from the exiting torpedo has caused her to broach within sight of the target. This time instead of aging cruisers, Weddigen is set upon by two modern *battleships*, both of whom have seen the decks-awash submarine and the torpedo track leading directly to her. *Dreadnought* arrives first, nearly colliding with *Neptune* in the process, but still managing to ram *U-29* amidships, cutting her in half. *HMS Dreadnought* thus becomes the only battleship

known to have sunk a submarine. Score one for battlewagons in their brushes with submersibles, yes, but the game is just beginning, as I was to learn by continuing to follow this internet thread.

The Contests Continue

Here's an interesting fact: only three times has the demise of a battleship actually been recorded on motion picture film. The *USS Arizona* at Pearl Harbor

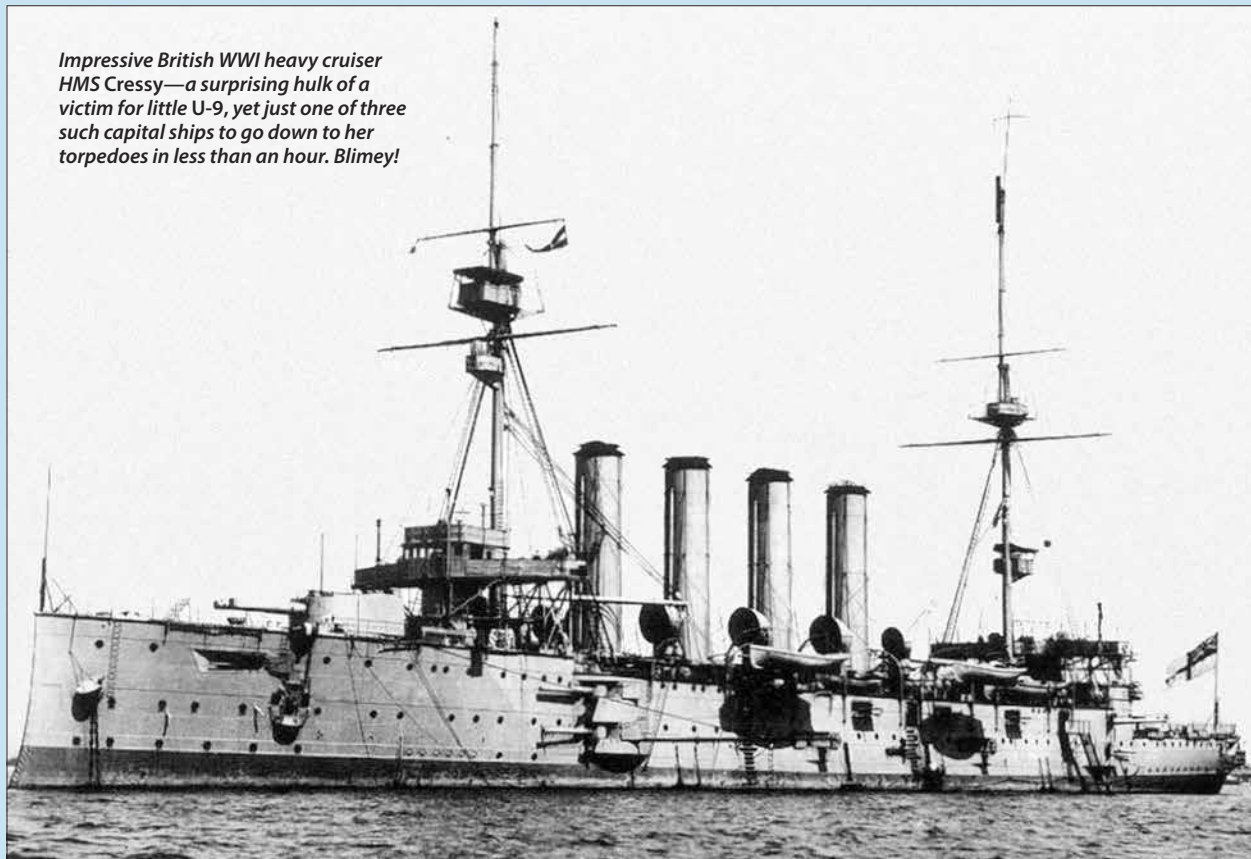


German U-29 in WWI—dwarfed by other ships of the Kriegsmarine—on her way into the history books as the only sub ever known to be sunk by a battleship. Score one for the dreadnoughts.

and the Austrian *Szent Istvan* were two, but they had been dispatched by aircraft and torpedo boat respectively, so I didn't follow that thread. The third of these was the sinking of HMS *Barham*.

When the First Battle Squadron of the Royal Navy left Alexandria, Egypt, as protective escort firepower for British cruisers hunting Italian convoys, the squadron consisted of HMS *Barham* and two other battleships: HMS *Queen Elizabeth* and HMS *Valiant*—plus eight screening destroyers. Patrolling German submarine *U-331* picked up on these Royal Navy ships early in the morning of November 25, 1941, and maneuvered for an attack. One of the battle group's destroyers actually detected the submarine on its ASDIC set, but because of the insignificant size of the echo, casually decided it was not a submarine—a tragic mistake: now *U-331* had penetrated the destroyer screen. Oberleutnant zur See Hans-Diedrich Von Tiesenhausen ordered the firing of his four bow tubes at *Barham*—at a range of a little over 400 yards. As *Valiant's* huge bulk swept past the small submarine however, *U-331* lost submerged trim and broached. Then she took a steep down angle and was below 850 feet—nearly twice her test depth—before recovering enough to start back toward the surface. While wrestling with his boat in this deep ocean struggle, three of Tiesenhausen's four torpedoes slammed home amidships on *Barham's* port side. The battleship's broad bulk rolled over on her beam, then a giant explosion tore her apart. She sank in mere minutes at 32.34N-26.24E, just off the border between Egypt and Lybia. There remains some debate as to whether the fatal explosion came from her boilers cooking off or the detonation of her 15" magazines.

Impressive British WWI heavy cruiser HMS Cressy—a surprising hulk of a victim for little U-9, yet just one of three such capital ships to go down to her torpedoes in less than an hour. Blimey!



World War I continued to be unkind to British battleships when it came to encounters with submarines. On New Year's Eve, 1914, the HMS *Formidable*—last in line of the Fifth Battle Squadron just completing gunnery exercises south of Portland Bill—would find she had little to celebrate this holiday evening. Though visibility was good, there had been a strong rising sea, causing Vice Admiral Commanding, Channel Fleet, Sir Lewis Bayly, to conclude there

was no real menace from any concealed submarine threat—even though his group sported no escorting destroyers. It was a foolish perception. *U-24*, under command of Kapitanleutnant Rudolf Schneider, fatefully lurked in the area, licking its chops. Just after the calendar clicked over to 1915, the U-boat launched a single torpedo at *Formidable*. It exploded amidships on the battleship's exposed starboard side.

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With the ship flooding quickly, *Formidable's* Royal Navy Captain, Arthur Noel Loxley, ordered her out of line and toward the shore in an attempt to beach her. A good idea, yes, but ultimately a failed effort. *Formidable* took on such a serious list that even deft counterflooding couldn't prevent her from slowly rolling to a steep angle of no return. Loxley had no choice: he ordered his battleship abandoned. By 0445 on January 1, she had fully capsized and begun to sink by the bow. As HMS *Formidable* disappeared from sight, Loxley was last seen trying to supervise his crew's harried evacuation. Happy New Year indeed.



French battleship *Danton*—sunk by German U-boat U-64.

to correct her deepening list, Hartwig fired again. This second salvo also scored on her starboard side. *Cornwallis* now rolled to starboard but stayed afloat long enough to get all but fifteen men off her doomed decks. Then she vanished.

HMS *Britannia* had just cleared the Strait of Gibraltar to the west when she was torpedoed off Cape Trafalgar. The German submarine *UB-50*, under the command of Oberleutenant zur See Heinrich Kukat, put at least one torpedo into the battleship's port side. The *Britannia*, commanded by Captain Francis Wade Caulfeild (yes, that's spelled correctly), took on a 10° list. She also was fighting a raging fire caused by a second torpedo hit to her 9.2-inch gun magazine. The toxic smoke from the burning cordite prevented proper flooding of the area, sealing her doom. It took two hours for the ship to sink however, which thankfully allowed time for removal of 792 of her crew of 842. HMS *Britannia* was one of the last warships to be sunk during WWI, lost only two days

Battleship HMS *Cornwallis* was next to get torpedoed by a German U-boat—off Malta on January 9, 1916. Kapitanleutenant Kurt Hartwig aboard *U-32* fired first into her starboard side. Later, while *Cornwallis* attempted

before the signing of the Armistice.

The French Navy gave up three battleships to submarine attacks. The *Suffren* was transiting from Gibraltar to Lorient on November 26, 1915 when the *U-52*, under the command of Kapitänleutnant Hans Walther, fired one torpedo at close range directly into her oncoming bow. It struck home, setting off *Suffren's* forward magazine and sinking her instantly; there were no survivors. Walther heard his torpedo detonate and then the followup magazine explosion. Surfacing shortly after the attack, he found no trace of the battleship and no one shipwrecked on

the surface. In fact, the French Navy never knew what had happened to *Suffren* until Walther's report was published later.

The second French battleship to be lost to a sub was the *Gaulois*, which went down to the skilled ministrations of *UB-47* off the coast of Greece the day after the *Suffren* had been sunk. The battleship could not control her flooding—she capsized an hour after being torpedoed and then headed for the depths. Most of her crew were successfully taken off; only four were lost.

The third was the French battleship *Danton*—sunk by the German *U-64* under the command of Kapitanleutnant Robert Moraht. This battleship, commanded by Captain Delage, was transiting from Toulon to Corfu. Moraht caught the *Danton* just



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south of Sardinia, even though she'd been zig-zagging. *U-64* struck her amidships with at least one torpedo. The battleship sank in about forty-five minutes with the loss of nearly 300 men—including skipper Delage.

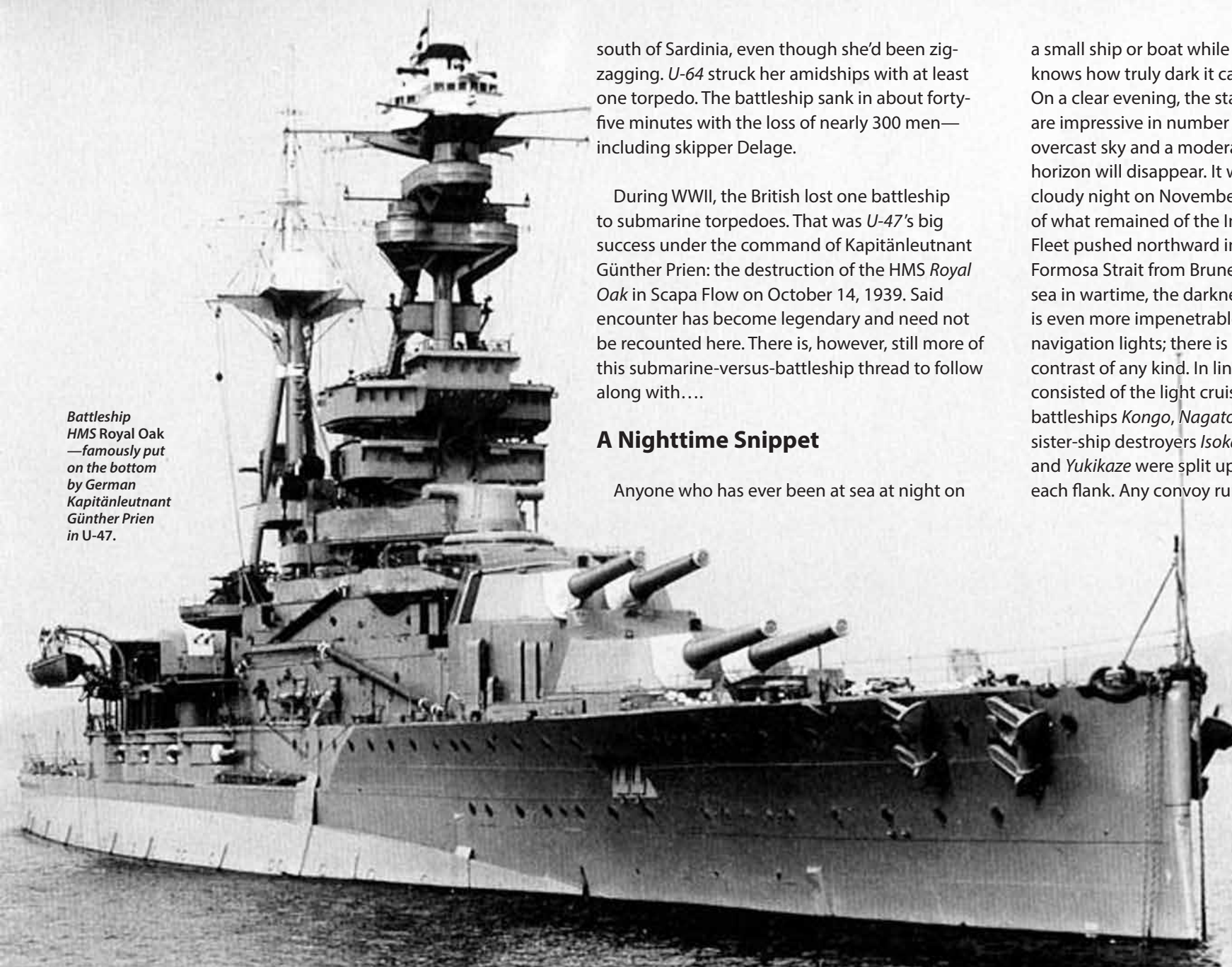
During WWII, the British lost one battleship to submarine torpedoes. That was *U-47's* big success under the command of Kapitänleutnant Günther Prien: the destruction of the *HMS Royal Oak* in Scapa Flow on October 14, 1939. Said encounter has become legendary and need not be recounted here. There is, however, still more of this submarine-versus-battleship thread to follow along with....

A Nighttime Snippet

Anyone who has ever been at sea at night on

a small ship or boat while out of sight of land knows how truly dark it can get out on the water. On a clear evening, the stars and Milky Way are impressive in number and size. But with an overcast sky and a moderate breeze, even the horizon will disappear. It was just such a dark and cloudy night on November 17, 1944, when most of what remained of the Imperial Japanese Battle Fleet pushed northward in a rising sea across the Formosa Strait from Brunei on their way home. At sea in wartime, the darkness of a nighttime transit is even more impenetrable because ships burn no navigation lights; there is nothing to focus on, no contrast of any kind. In line ahead, the formation consisted of the light cruiser *Yahagi*, then the battleships *Kongo*, *Nagato* and *Yamato*. Screening sister-ship destroyers *Isokaze*, *Hamakaze*, *Urakaze* and *Yukikaze* were split up, patrolling two out on each flank. Any convoy running at 16 knots and

Battleship HMS Royal Oak—famously put on the bottom by German Kapitänleutnant Günther Prien in U-47.



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trying to maintain consistent spacing in lightless conditions usually finds things difficult. But these were experienced mariners. Further, the high pagoda superstructures of the battleships were crowded with lookouts straining to detect any threats. Inside, technicians watched for telltale signs of radio transmissions signaling the presence of unknown, possibly enemy vessels. Among these vigilant watch standers were those monitoring radar transmission frequencies of U.S. ships and submarines—and indeed, intermittent signs of a radar set were detected sweeping the night in the area, apparently coming from either a distant aircraft or a submarine. This contact was soon being tracked aboard all the ships carrying such equipment, including Rear Admiral Morishita's giant *Yamato*.

It turns out that the electromagnetic waves

painting the sky that night emanated from USS *Sealion's* radar—the second U.S. submarine to bear that name, and thus sometimes referred to as *Sealion II*. Tonight the fleet submarine in question was nearly twenty-two miles away from the Japanese battle group, patrolling the northern waters of the strait.

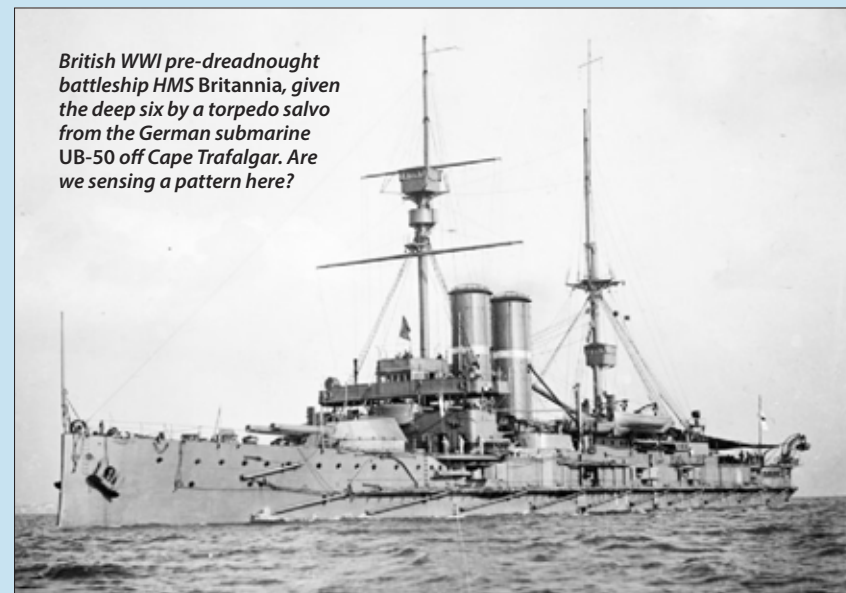
By shortly after midnight on November 21, however, the range had closed to sixteen miles. The radar picture aboard *Sealion* now resolved itself to display two targets of battleship

size and two of cruiser size. The formation did not appear to be changing course, which was reported as 060 true at a speed of 16 knots.

Sealion's skipper, Captain Eli T. Reich, ordered a sighting report sent to fleet headquarters at Pearl and then gave chase. He was required to pursue on the surface because submerged speed would not allow him to gain a workable

attack position. By 0245, Reich felt he was in a good spot for a torpedo attack, and so far had not been spotted by the ships he was hunting. Slowing now and turning, he set up to fire at the third ship, the *Kongo*. His boat's wakeless Mark 18 electric torpedoes were set to run at eight feet—not only a good depth to strike a big battleship in her side, but purposely shallow enough as well not to run beneath any screening destroyers who might get in the way. Captain Reich ordered a spread from all six forward tubes and sent them methodically on their way. His reward was that from a distance of 3,000 yards, two of the six streaking weapons struck *Kongo* with 600 pounds each of powerful Torpex explosive.

While these six fish were still making their transit, Reich had also launched three from his stern tubes



British WWI pre-dreadnought battleship HMS Britannia, given the deep six by a torpedo salvo from the German submarine UB-50 off Cape Trafalgar. Are we sensing a pattern here?



IJN battleship Kongo, torpedoed and sunk by USS Sealion (SS-315) under the command of Captain Eli T. Reich.

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with ten-foot depth settings. This time the target was *Nagato*. But when *Kongo* lit up with her two hits, the other ships in formation turned sharply to port to comb the tracks of any other incoming weapons. Thus, *Nagato* was spared.

Not so with destroyer *Urukaze*. A single torpedo connected with her in exactly the right spot to detonate her magazine. She disappeared in a flash of light in the velvety darkness.

One of *Kongo's* two hits had blown apart her port chain locker, tearing a large gash in the ship's side. The other one struck amidships, flooding the numbers Six and Eight boiler rooms. That second hit, though serious, did not slow the ship, since her remaining steaming capacity allowed continued speed through the night at 16 knots. The forward hit,

however, though not in a critical area, nevertheless proved responsible for the ship's demise. At 16 knots in rough seas, the torn hull plating forward of her torpedo blister soon bent, twisted and sheared off, the open gash continuing to flood the ship through ventilation pipes, cable penetrations and warping bulkheads. Soon the crew's desperate shoring efforts and counterflooding were not keeping up with the massive seawater ingress; *Kongo* began to take a port list down by the bow. Finally Captain Shimazaki was forced to slow his ship, first to 14 knots then to 12.

Sealion now struggled to gain another firing position in the pitching seas. Green water was breaking over her bridge and rushing down the open hatch to her conning tower. Electricians aft reported the propulsion plant—now at 125% of capacity—was headed for imminent failure as the main motors

overheated and began to spark badly; *Sealion* needed to reduce speed or risk becoming severely disabled deep in enemy waters.

As skipper Reich pondered his risks, radar reported the wounded battlewagon had turned out of line and was slowing. Reich could see his opportunity to move in and deliver the *coup de grâce*. Radar now chimed in again though: the slowing battleship's screen signature had stopped and was diminishing. *Kongo's* losing fight against the flooding was almost over; even with significant slowing, her pumps couldn't keep up with the incessant torrents of incoming water. Her fate was sealed, and she began a slow roll over onto her port side.

At 0524 the stricken ship exploded in a bright flash quite visible to Reich in *Sealion* still some distance

USS Salmon (SS-182) torpedoed and sank the IJN Asahi—a pre-dreadnought-class battleship similar to the British HMS Cornwallis. The Asahi had been converted and reclassified as a "repair" ship however, making her loss technically not a battleship kill (to the chagrin of Salmon's skipper and crew).



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Late-breaking SCR addition:
Click below to visit a website
featuring actual sound
recordings made aboard
USS Sealion during her
attack on the Japanese
battleship Kongo in WW2.
You can listen to them
through your device at:
[https://maritime.org/
sound/#sealion](https://maritime.org/sound/#sealion)

*USS Sealion (SS-315), proud holder of the title of
Only American Submarine to Sink a Battleship.
She successfully put the giant Japanese
battlewagon IJN Kongo on the bottom.*



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Japanese destroyer Urakaze, lost to a single torpedo from USS Sealion (SS-315) during her winning altercation with the Imperial Japanese Navy battleship Kongo.

away: *Kongo* was gone. Eli Reich and his *Sealion* was credited as the only American submarine to hang a battleship scalp on her belt during wartime.

And Here the Thread Begins to Fray

But is this really correct? Submariners are usually as fond of arguing technicalities as sports fans are of stats. So consider this: USS *Salmon* had already torpedoed and sunk the IJN *Asahi* 100 miles south of Cape Pandaran back on May 26 in 1942. *Asahi* had been Japanese-built as a “pre-dreadnought”-class battleship, similar to the British HMS *Cornwallis*. So—shouldn't this particular submarine vs. battlewagon contest also count in the tallies? As a result of the 1922 Washington Treaty however, *Asahi* had been demilitarized and reclassified as a “repair” ship through the removal of her gun tubes in 1937. But in 1938, once her conversion was complete, *Asahi* was refitted with a dummy wooden main battery, again appearing for all intents and purposes as the proud

battleship she once was. Same giant size and same deadly appearance, but no longer *really* a battleship? This technicality permits Reich in *Sealion* to retain his battlewagon-killing U.S. submarine crown. Anyway, so says the thread I went down when looking into this question.

Still another internet research snippet brought up the following potentially contentious analytic: Captain Joseph Enright in USS *Archerfish* holds the present

record for largest single ship ever sunk by a U.S. submarine—the 68,800-ton monster, IJN *Shinano*. Yes, as most of us know, a shiny new behemoth of an aircraft carrier, and Japan's last best hope at keeping her losing carrier air war going in the final months of the war. *But*, a beast originally designed and even partially built as a *Yamato-class battleship*...before being converted in mid-construction to a flattop. Should *she* perhaps be counted as another battleship loss to American WW2 submarine torpedoes?

Let me dive down the next internet thread rabbit hole and get back to you on that. 🐟



Brit battlewagon HMS Barham explodes on film in November of 1941—after receiving torpedoes launched by Oberleutnant zur See Hans-Diedrich Von Tiesenhausen in German U-boat U-331. It's not known whether this fatal explosion came from her boilers cooking off or the detonation of her 15" magazines.

WAHOO'S 3rd PATROL

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OFF DUTY in the Wardroom

Above is the 29 cribbage hand dealt by Capt. Morton on USS *Wahoo*, 3/18/43. Odds against it figured at 216,580 to 1.

Submarine Games and Other Pursuits

Sub game addict Matt Homeier docks here with an in-depth look at "Silent Victory"—a detailed fleetboat board game—in the first of what we hope will be a series of such reviews by Matt and others...

You won't be so quiet about...

SILENT VICTORY

by Matt Homeier

There are many facets to our hobby which the typical submarine aficionado will find himself interested in: modeling, of course—static display museum-quality builds and/or our unique devotion to radio-controlled boats. There's also museums, movies, books, collectibles and computer/video gaming. But did you know there further exists a wide realm of submarine *board games*? With this review, I'm going to introduce you to a fun and historically accurate one called "Silent Victory." And believe me, if you're anything like this game enthusiast, you're going to love it and profess that affection to anyone who'll listen!

What is Silent Victory? It's a solitaire board game where you control a World War II U.S. fleet submarine in the Pacific between 1941 and 1945. It's a quick and easy game. The game box comes with the rulebook, a ton of counters, several charts and tables needed to resolve patrol assignments, encounter and combat directives, and damage resolution (Fig. 1). Also included are many different submarine mats detailing each class of U.S. fleet submarine (Fig. 2), plus a nice patrol map showing the Pacific Theater of Operations (Fig. 3). Each patrol lasts about 15-20 minutes, in which time you'll encounter planes, convoys, and warships. Shoot torpedoes—and miss. Or hit ... only to find out

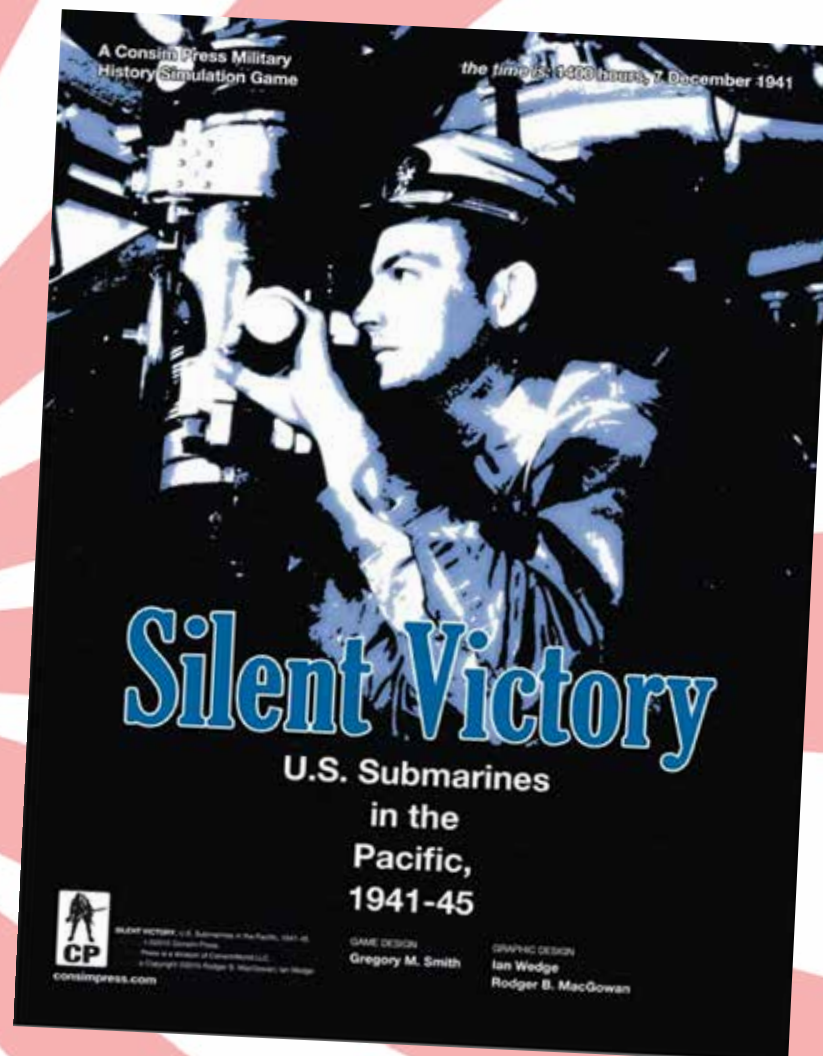




Fig. 1: Silent Victory table layout.

There are also random events where your crew might get sick; systems can break down; or worse, that passenger vessel you shot at yesterday turns out to be a hospital ship—prematurely ending your career labeled as a war criminal! There's even the possible misfortune of being washed overboard and lost at sea!

patrol for twenty minutes today, make some notes, put it away, then play another patrol for twenty more minutes tomorrow. Or, if looking to cover a whole career, you could sit and slug out a full campaign in one to two hours. You keep track of your skipper's career on Patrol Log Sheets (Fig. 4).

Silent Victory is full of role play elements which immerse

your onboard Mark 14 loadout is hampered by a considerable dud rate—failing to explode anything but your frustration as skipper while you watch your boat's morale head south. (But you'll get hits too!) You'll also evade escorts, take damage from depth charges, and may even find yourself going home early to repair serious operational casualties like inoperable diesel engines or jammed torpedo tube doors. Or you might get to do a quick turnaround in port (including "essential" crew leave ashore at the Royal Hawaiian Hotel, of course!), and then put back to sea. Or you could find yourself enduring a three-month-long refit as critical hull repairs are completed.

you in the submarine war effort. You can pick which class of sub you command (*Porpoise, Salmon, Narwhal, Argonaut, Tambor, Gar, Gato, Balao, or Tench*), and you can even select a historically correct name. (Want to play the *Harder* as your *Gato*-class boat? You can!) (*Now you're singing my song!—ed.*) There's also plenty of realistic record keeping as you sink ships, level-up your various crewmembers, and even earn rank for yourself too.

The game is super-easy to pick up or set aside. For instance, you can play an entire

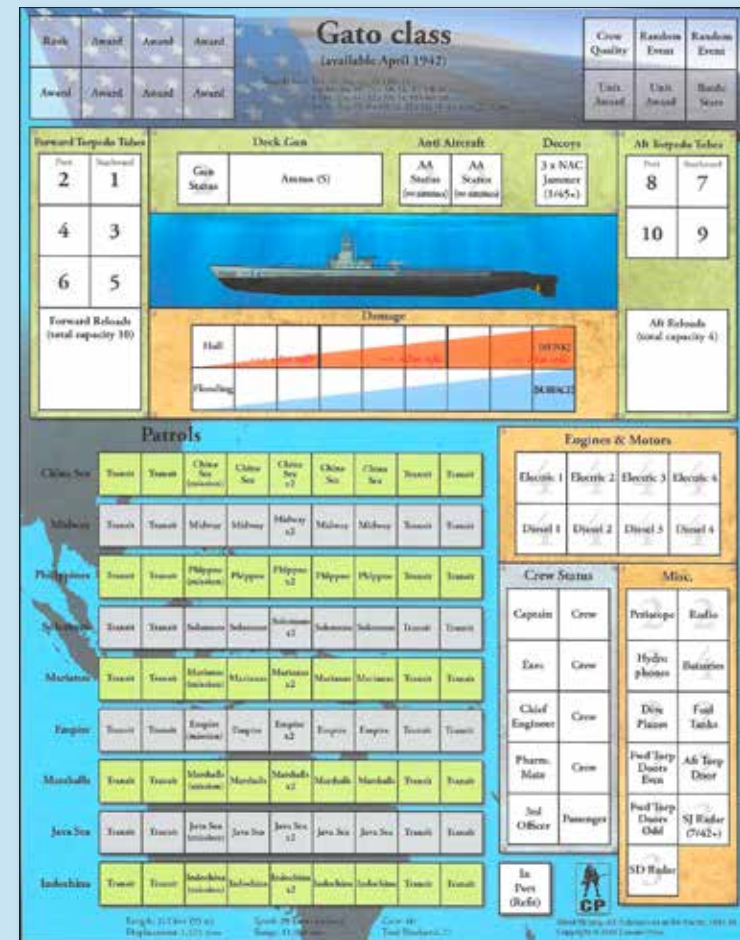


Fig. 2: Gato-class Submarine Mat.

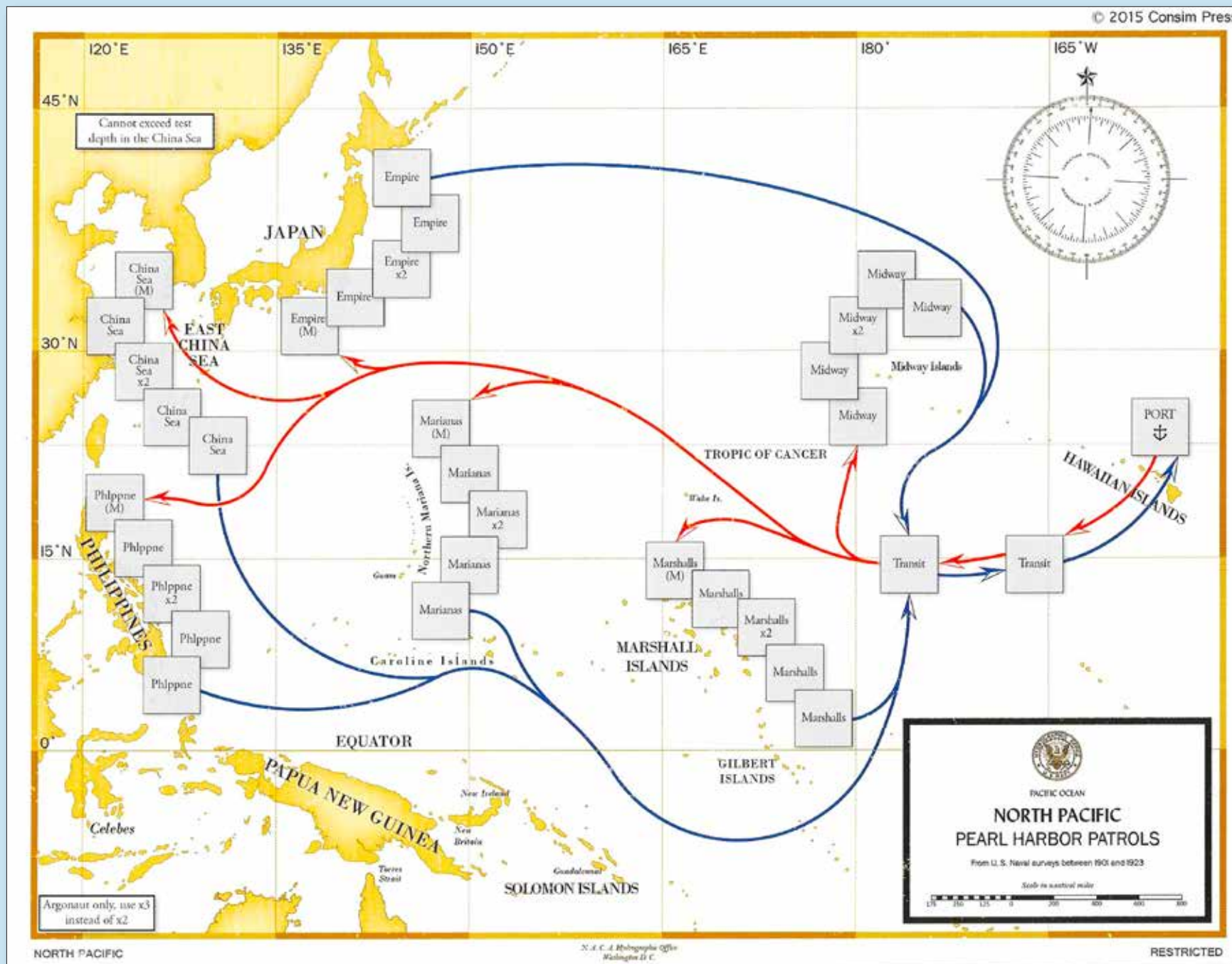


Fig. 3: Patrol Chart for a Pearl Harbor boat.

WAHOO'S 3rd PATROL

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Silent Victory Patrol Log Sheet

U.S.S.: CRAWLER Cpt: EDWIN HOMER Rank: LCDR Awards: BRONZE STAR II SILVER STAR III NAVY CROSS II

| DATE | PATROL | TARGETS (ship name + tonnage) | SCPI | JULIIT | BATTLE STARS | NAVY COMPENSATION RIBBON | SUNK TONNAGE | NOTES |
|--------|-------------|--|------|--------|--------------|--------------------------|--------------|-----------------|
| Dec-41 | | | | | | | | dud 1-4 |
| Jan-42 | | | | | | | | |
| Feb-42 | | | | | | | | |
| Mar-42 | SHAKEDOWN | ASSUMED COMMAND OF U.S.S. CRAWLER | | | | ASSIGNED TO AUSTRALIA | | |
| Apr-42 | CHINA SEA | KOTO MARU TAKASHIMA MARU SEIKYO MARU CANTON MARU | | | | | 11,000 S | |
| May-42 | | F. 3000 P. 5600 F. 2600 F. 2800 | | | | | | |
| Jun-42 | REFIT | AUSTRALIA - AWARDED THE BRONZE STAR | | | | | | |
| Jul-42 | REFIT | HULL REPAIRS | | | | | | SJ Avail. |
| Aug-42 | SOLOMONS | MAYACHI MARU TEMO MARU TOKO MARU | | | | | | dud 1-3 |
| Sep-42 | | F. 2200 T. 9600 P. 4200 | | | | | 12,000 S | |
| Oct-42 | REFIT | AUSTRALIA - HULL REPAIRS | | | | | | |
| Nov-42 | REFIT | HULL REPAIRS | | | | | | |
| Dec-42 | REFIT | SYSTEM REPAIRS | | | | | | |
| Jan-43 | SOLOMONS | YOSHIMARU MARU YAIKO MARU PLAKUOMARU KIRIKASIN MARU ESCORT | | | | | | Detect +1 |
| Feb-43 | | F. 1400 T. 900 F. 1300 F. 5000 DD 1200 | | | | | 8,900 S | |
| Mar-43 | REFIT | AUSTRALIA - PROMOTED TO CD. AWARDED THE SILVER STAR. PHARM. MATE BECOMES AN EXOBT | | | | | | |
| Apr-43 | REFIT | HULL REPAIRS | | | | | | |
| May-43 | PHILIPPINES | TIRAHAI MARU RYUSEI MARU ESCORT AMAHO MARU RYAKUNO MARU PIYAMA MARU ESCORT | | | | | | |
| Jun-43 | | P. 6800 P. 4800 DD 1200 F. 2800 F. 900 F. 2800 DD 1200 | | | | | 17,700 S | |
| Jul-43 | REFIT | AUSTRALIA - AWARDED THE NAVY CROSS. INSTALLED 5" DECK GUN | | | | | | |
| Aug-43 | CHINA SEA | JOKUWA MARU KOKUSEI MARU ESCORT SHIBAZONO MARU MIYAKAWA MARU MOSHINO MARU KAGAKIWA MARU | | | | | | |
| Sep-43 | | F. 6400 F. 5400 DD 1200 P. 1600 F. 900 F. 2300 F. 1000 | | | | | 10,100 S | MKR, dud 1-2 |
| Oct-43 | REFIT | AUSTRALIA - AWARDED 2 ND SILVER STAR | | | | | | |
| Nov-43 | REFIT | HULL REPAIRS | | | | | | |
| Dec-43 | REFIT | SYSTEM REPAIRS | | | | | | |
| Jan-44 | CHINA SEA | TONGI MARU TARAKAN MARU EIKYO MARU FUKAI MARU KYOKKO MARU ESCORT | | | | | | dud rate 1 only |
| Feb-44 | | P. 4900 T. 5100 F. 8200 P. 3800 P. 6800 DD 1200 | | | | | 18,700 S | |
| Mar-44 | REFIT | AUSTRALIA - AWARDED 3 RD SILVER STAR. SAILOR RECOVERED FROM APPENDICITIS. EXEC → EXOBT RESULTS 2 ND "GUN | | | | | | |
| Apr-44 | PHILIPPINES | EHWE MARU SHINGO MARU SHINGOSETSU MARU HAKUNO MARU ESCORT | | | | | | |
| May-44 | | P. 4700 P. 1900 F. 900 F. 900 DD 1200 | | | | | 1900 S | |
| Jun-44 | REFIT | AUSTRALIA - NOTED ONLY 3 OUT OF 16 TORPEDOES EXPLODED... 4 MISSED... 11 WERE DUDS!!! | | | | | | |
| Jul-44 | REFIT | SYSTEM REPAIRS | | | | | | |
| Aug-44 | PHILIPPINES | BUSSHUN MARU ESCORT SHUNSEN MARU | | | | | | |
| Sep-44 | | F. 6400 DD 1200 F. 1000 | | | | | 8600 S | |
| Oct-44 | REFIT | TRANSFERRED TO GUAM, AWARDED 2 ND BRONZE STAR | | | | | | |
| Nov-44 | REFIT | HULL REPAIRS | | | | | | |
| Dec-44 | REFIT | HULL REPAIRS | | | | | | |
| Jan-45 | REFIT | SYSTEM REPAIRS | | | | | | MK27, NAC. |
| Feb-45 | EMPIRE - L | RESUWE 4 DAITO MARU ESCORT AMAKUSA MARU ESCORT MIZUHO | | | | | | Detect +0 |
| Mar-45 | | AVIATORS F. 900 DD 1200 P. 2300 DD 1200 CV 9000 | | | | | 14,600 S | |
| Apr-45 | REFIT | GUAM - AWARDED 2 ND NAVY CROSS, NAVY COMPENSATION RIBBON | | | | | | |
| May-45 | REFIT | HULL REPAIRS | | | | | | |
| Jun-45 | REFIT | HULL REPAIRS | | | | | | |
| Jul-45 | REFIT | SYSTEM REPAIRS | | | | | | |

TOTAL PATROLS: 9 SHIPS SUNK: 33 26 MERCHANTS TOTAL TONNAGE: 103,400
SHIPS DAMAGED: 2 7 WARSHIPS 1 MERCHANT 1 WARSHIP DECISIVE VICTORY!!!
Log ships targeted during combat. Please checkmark to track damaged ships. Circle tonnage # to indicate sunk ships.

Fig. 4: Patrol Log Sheet of one of my few successful careers.

Tambor class

(available December 1941)

| | | | | | | |
|------------|------------|------------|------------|--------------|--------------|--------------|
| Rank | Award | Award | Award | Crew Quality | Random Event | Random Event |
| Award | Award | Award | Award | | | |
| Unit Award | Unit Award | Unit Award | Unit Award | Unit Award | Unit Award | Unit Award |

| Port | Starboard |
|------|-----------|
| 2 | 1 |
| 4 | 3 |
| 6 | 5 |

| 3" Gun Status | Ammo (5) | 50 cal Status (no ammo) |
|---------------|----------|-------------------------|
|---------------|----------|-------------------------|

| Port | Starboard |
|------|-----------|
| 8 | 7 |
| 10 | 9 |

| Damage | | | | | | | |
|----------|--|--|--|--|--|--|--------------------|
| Hull | | | | | | | [SUNK] (low right) |
| Flooding | | | | | | | [SUBMERGE] |

| Patrols | | | | | | | | | |
|-------------|---------|---------|-----------------------|------------|---------------|------------|------------|---------|---------|
| China Sea | Transit | Transit | China Sea (missions) | China Sea | China Sea x2 | China Sea | China Sea | Transit | Transit |
| Midway | Transit | Transit | Midway | Midway | Midway x2 | Midway | Midway | Transit | Transit |
| Philippines | Transit | Transit | Philippine (missions) | Philippine | Philippine x2 | Philippine | Philippine | Transit | Transit |
| Solomonis | Transit | Transit | Solomonis | Solomonis | Solomonis x2 | Solomonis | Solomonis | Transit | Transit |
| Marianas | Transit | Transit | Marianas (missions) | Marianas | Marianas x2 | Marianas | Marianas | Transit | Transit |
| Empire | Transit | Transit | Empire (missions) | Empire | Empire x2 | Empire | Empire | Transit | Transit |
| Marshallis | Transit | Transit | Marshallis (missions) | Marshallis | Marshallis x2 | Marshallis | Marshallis | Transit | Transit |
| Java Sea | Transit | Transit | Java Sea (missions) | Java Sea | Java Sea x2 | Java Sea | Java Sea | Transit | Transit |
| Indochina | Transit | Transit | Indochina (missions) | Indochina | Indochina x2 | Indochina | Indochina | Transit | Transit |

| Engines & Motors | | | |
|------------------|------------|------------|------------|
| Electric 1 | Electric 2 | Electric 3 | Electric 4 |
| Diesel 1 | Diesel 2 | Diesel 3 | Diesel 4 |

| Crew Status | | Misc. | |
|-----------------|-----------|---------------------|------------------|
| Captain | Crew | Periscope | Radio |
| Exec | Crew | Hydrophones | Batteries |
| Chief Engineer | Crew | Dive Plates | Fuel Tanks |
| Pharm. Mate | Crew | Fwd Torp Doors Even | Aft Torp Door |
| 3rd Officer | Passenger | Fwd Torp Doors Odd | SJ Radar (7/42+) |
| In Port (Refit) | | SD Radar (2/42+) | |

Fig. 6: Submarine Mat for a Tambor-class submarine.

APRIL 2022

THE MAGAZINE FOR THE SUBMARINE ENTHUSIAST

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| | | |
|--|--|--|
| <p>Richard H. O'Kane b.2 Feb 1911 - d.16 Feb 1994</p>  <p>Rank: Lt. Commander Start Date: Jan '44 Start Locⁿ: Pearl Harbor</p> <p>Game abilities:</p> <ul style="list-style-type: none"> • May fire fore and aft torpedoes without a "to hit" penalty. • May attack at close range with a detection roll of "12". <p>USS Tang Balao class</p>  | <p>Samuel D. Dealey b.13 Sep 1906 - d.24 Aug 1944</p>  <p>Rank: Lt. Commander Start Date: Jun '43 Start Locⁿ: Pearl Harbor</p> <p>Game abilities:</p> <ul style="list-style-type: none"> • Teamwork - his crew starts at "Veteran". • Wolfpack leader, chooses the wolfpack effect when attacking a convoy. <p>USS Harder Gato class</p>  | <p>Dudley W. "Mush" Morton b.17 Jul 1907 - d.11 Oct 1943</p>  <p>Rank: Lt. Commander Start Date: Jan '43 Start Locⁿ: Australia</p> <p>Game abilities:</p> <ul style="list-style-type: none"> • Aggressive - must always attack any ship contacts. Must always initiate an additional round of combat against non-sunk, unescorted targets. • May attack at close range with a detection roll of "12". <p>USS Wahoo Gato class</p>  |
|--|--|--|

Fig. 5: Captain Cards for O'Kane, Dealey and Morton.

It's easy to play, but also easy to get sunk if you're not careful ... or if you simply find yourself unlucky! (It happens—just as in the real world.) In the five different wartime careers I've played through, I've lived to the end in only two. Of course, that could be because I'm very aggressive—always attacking on the

surface at night at close range. (Maybe more times than I should!)

Aside from playing as yourself—your own alter-ego as a sub skipper on a fleetboat—there are other modes of play too: "Captain" cards allow you to role

play as a historical skipper, such as Dudley Morton on *Wahoo*, Dick O'Kane aboard *Tang*, or Sam Dealey commanding the *Harder* (Fig. 5). Their statistics for ships and tonnage sunk are listed on the cards, so you can see if you can actually do better than they did. Or—more likely—you'll find out you're weak

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Fig. 7: USS *Thresher* starboard bow shot.Fig. 8: Full shot of 1:144 Trumpeter *Gato* model as *Thresher*—differences are minimal

give him the deep six, never to be heard from again. You'll just keep going back and forth like this until either the war is over, a previously agreed-upon designated end date or number of patrols is reached, or one player's fleet sub winds up on the lost boat roster back in Lockwood's office at Pearl!

Let's get underway on a war patrol! For this playthrough, we're going to be in command of USS *Thresher* (SS-200), a *Tambor*-class fleet-type submarine (Fig. 6 on page 47). As a background, the *Tambor*-class established the design formula the successful *Gato*- and *Balao*-class fleet submarines would later be based upon.

With six torpedo tubes forward, four tubes aft, a three-inch deck gun, and four diesels, this is definitely a beast of a submarine for the Imperial Japanese Navy to contend with. To further immerse ourselves in and enhance this experience, on the table I have added a static model of the *Thresher* herself! This model is a 1:144 scale Trumpeter 1941 *Gato*-class submarine (Fig. 7). Trumpeter made 1941 and 1944 variants of the *Gato* class, so you have a choice between the pre-war large conning tower or the late-war trimmed-down and slim version. Conveniently, a *Tambor*-class boat looks very similar to the physical appearance of the *Gato*-class submarine (Fig. 8). The biggest differences are that

sauce and can't compare to those Silent Service legends. (The game does provide special abilities to simulate the skills and successes of these skippers.)

The game itself is normally a single-player solitaire experience, but there is also a two-player mode you can play. You and your Academy roommate—or any sub bud will do!—can compete to be the best skipper by alternating turns on a given war patrol. One player actually patrols while the other rolls the dice for Japanese ships trying to minimize the skipper's tonnage—or worse,

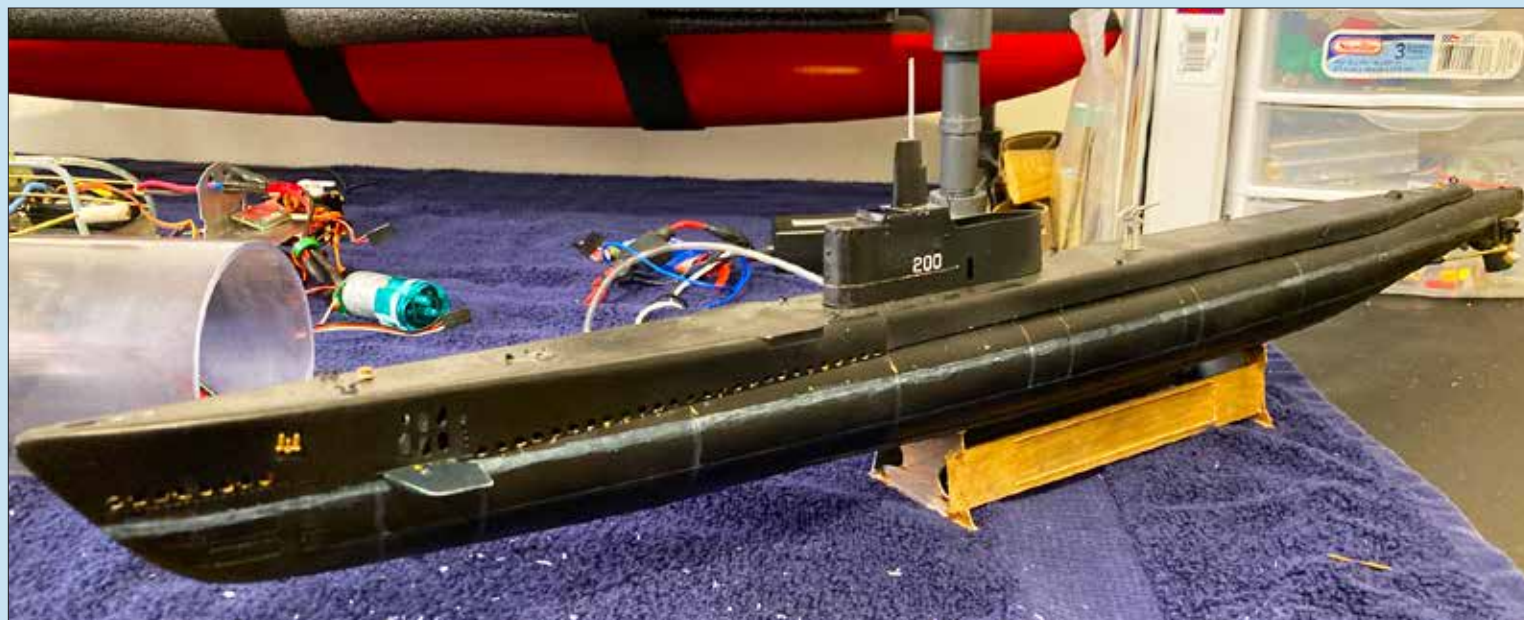




Fig. 9: Closeup on Thresher sail showing some weathering

the *Tambor*-class has three-bladed propellers compared to the *Gato*-class's four, as well as the *Tambor*-class's round ballast tank flood holes along the keel compared to the *Gato*-class's square and angular ballast tank flood holes. I elected to present my *Thresher* in her pre-war all-black hull livery, and included the "200" hull number on her conning tower. I also chose to give her a bit of a

weathering and rust

(Fig. 9), as I imagine she would have

looked during her peacetime patrol when that momentous "unrestricted submarine warfare" order came in over the air from COMSUBPAC. (While my *Thresher* is currently a display model, I do have plans to eventually convert her to r/c using one of Dave Merriman's small 1.25-inch Subdrivers—the type that was originally designed to fit in the tiny Aurora 1:230 *Skipjack*-class boat.)

We're going to start out on our patrol from Pearl Harbor, shortly

[P1p] PATROL ASSIGNMENT - Pearl Harbor boats *Roll 2d6*

| Roll | 1941 | 1942 Jan - Jun | 1942 Jul - Dec | 1943 Jan - Jun | Roll |
|------|-----------|----------------|----------------|----------------|------|
| 2 | Empire | Marianas | China Sea | Empire - M | 2 |
| 3 | Empire | Marshalls | China Sea | China Sea | 3 |
| 4 | Marshalls | Midway | Marianas | Marshalls | 4 |
| 5 | Empire | China Sea | Empire - M | Marianas | 5 |
| 6 | Marshalls | Empire | Empire | Empire | 6 |
| 7 | Marshalls | Empire | Marianas | Empire | 7 |
| 8 | Marshalls | Marshalls | Empire | Empire | 8 |
| 9 | Empire | Marianas | Marshalls | Philippines | 9 |
| 10 | Empire | Midway | Empire - M | Marianas | 10 |
| 11 | Marshalls | Midway | China Sea | China Sea - M | 11 |
| 12 | Empire | China Sea | Marianas | Philippines | 12 |

| Roll | 1943 Jul - Dec | 1944 Jan - Jun | 1944 Jul - Dec | 1945 Jan - Jun | Roll |
|------|----------------|-----------------|-----------------|----------------|------|
| 2 | Marshalls - R | Philippines - W | China Sea - M | China Sea | 2 |
| 3 | Marianas - W | Empire | Empire | Empire | 3 |
| 4 | Marshalls - R | Marianas - L | Philippines - L | Empire-W | 4 |
| 5 | Empire | Marshalls | Empire | Empire | 5 |
| 6 | Marshalls | Marshalls | Philippines | Empire - L | 6 |
| 7 | China Sea | Philippines | Empire | Empire | 7 |
| 8 | Empire | Marianas | Philippines - W | Empire - L | 8 |
| 9 | Marianas | China Sea | China Sea | Empire | 9 |
| 10 | Marshalls-L | Empire | China Sea | China Sea | 10 |
| 11 | Philippines-T | Empire | Empire | Empire - L | 11 |
| 12 | Empire -W | Marianas | China Sea - M | China Sea | 12 |

Mission Types: (L) = Lifeguard (T) = Transport
 Historical Note: The "Marshalls" area includes patrols to Truk and the Gilberts.

Fig. 10: Patrol Assignment Chart. I rolled an 8. In 1941, that'll assign me to the Marshalls.

[E1] ENCOUNTER CHART *Roll 2d6*

| Roll | Transit | China Sea (shallow) | Empire | Indochina | Java Sea | Roll |
|------|-------------------|------------------------|---------------------------|-----------------------|-----------------------|------|
| 2 | Aircraft | Aircraft | Minefield | Aircraft | Warship | 2 |
| 3 | — | Two Ships+Escort | Aircraft | — | — | 3 |
| 4 | — | Ship | Warship | Warship | — | 4 |
| 5 | — | — (S.) | — (S.) | — (S.) | — (S.) | 5 |
| 6 | — | — | Two Ships+Escort | — | Ship | 6 |
| 7 | — | — | — | Ship | — | 7 |
| 8 | — | Two Ships+Escort | Ship+Escort | Convoy | — | 8 |
| 9 | — | Ship | — | — | Ship+Escort | 9 |
| 10 | — | — | — | Two Ships+Escort | Convoy | 10 |
| 11 | — | Convoy | Convoy | — | Ship+Escort | 11 |
| 12 | Ship ¹ | Minefield ¹ | Capital Ship ¹ | Aircraft ¹ | Aircraft ¹ | 12 |

| Roll | Marianas | Marshalls | Midway | Philippines | Solomons | Roll |
|------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|------|
| 2 | Warship | Capital Ship | Capital ship | Capital ship | Capital ship | 2 |
| 3 | Ship | Warship | Warship | Ship | — | 3 |
| 4 | — | — | Ship+Escort | — | Warship | 4 |
| 5 | — (S.) | — (S.) | — (S.) | — (S.) | — (S.) | 5 |
| 6 | Two Ships+Escort | Two Ships+Escort | — | — | Two Ships+Escort | 6 |
| 7 | Ship+Escort | — | — | Ship+Escort | — | 7 |
| 8 | — | Convoy | — | — | — | 8 |
| 9 | — | — | Ship+Escort | Ship+Escort | Ship+Escort | 9 |
| 10 | — | — | — | Convoy | — | 10 |
| 11 | Convoy | Ship | Warship | — | — | 11 |
| 12 | Aircraft ¹ | Aircraft ¹ | Aircraft ¹ | Aircraft ¹ | Aircraft ¹ | 12 |

Fig. 11: Encounter Tables. Each patrol space requires you to roll two d6 dice to see if you encounter the enemy.

after the devastating carrier air attack on the base. COMSUBPAC wants us to ship out with a full load of Mark 14 steam torpedoes and patrol the Marshall Islands, executing unrestricted warfare against all Japanese-flagged vessels (Fig. 10). *Thresher* gets underway on December 10, 1941 and executes a one-week long cross-Pacific trek to the Marshalls. We experience a relatively quiet surface transit, with plenty of time for diving drills, gunnery practice, and approach-and-attack practice runs. We take station in our designated patrol area and commence hunting Niponese game, searching toward the southeast. For the first week-and-a-half on station, no vessels or aircraft are seen (Fig. 11).

[T2c] Large Freighter Target Roster c Roll 1d10+1d10

| Roll | Tonnage | Ship ID | Roll | Tonnage | Ship ID | Roll | Tonnage | Ship ID | Roll | Tonnage | Ship ID |
|------|---------|-------------------|------|---------|--------------------|------|---------|------------------|------|---------|---------------------|
| 01 | 5200 | T Yuho Maru | 26 | 7300 | P Atlas Maru | 51 | 6000 | F Batopatha Maru | 76 | 6900 | F Taijo Maru |
| 02 | 5500 | P Hashin Maru | 27 | 8000 | P Atsuta Maru | 52 | 7300 | T Ogura Maru #2 | 77 | 6900 | F Toyo Maru |
| 03 | 6900 | F Aisakasan Maru | 28 | 5900 | F Thames Maru | 53 | 8500 | P Mizuho Maru | 78 | 5100 | T Tarakan Maru |
| 04 | 5900 | F Atlantic Maru | 29 | 6700 | F Ryuyo Maru | 54 | 6000 | F Fukurei Maru | 79 | 6400 | P Tamagawa Maru |
| 05 | 6000 | P Tokushima Maru | 30 | 15100 | P Teiko Maru | 55 | 5200 | F Jinbu Maru | 80 | 6200 | F Hiyama Maru |
| 06 | 9400 | P Mayasan Maru | 31 | 5100 | T Teikon Maru | 56 | 5400 | F Banshu Maru #7 | 81 | 5300 | F Hakodate Maru |
| 07 | 5300 | P Fukuju Maru | 32 | 7100 | P Toyooka Maru | 57 | 5400 | F Hayo Maru | 82 | 6400 | P Taiten Maru |
| 08 | 5500 | P Clyde Maru | 33 | 9200 | A Akitsu Maru | 58 | 5600 | P Meiyo Maru | 83 | 7100 | F Chihaya Maru |
| 09 | 5700 | F Havre Maru | 34 | 7300 | T Kiyo Maru | 59 | 6400 | A Kamogawa Maru | 84 | 5900 | P Ume Maru |
| 10 | 5400 | F Shonan Maru | 35 | 6200 | F Tango Maru | 60 | 6400 | F Uyo Maru | 85 | 7300 | T San Ramon Maru |
| 11 | 19300 | T Tonan Maru #2 | 36 | 6500 | F Nittai Maru | 61 | 5900 | F Oregon Maru | 86 | 7000 | F Lima Maru |
| 12 | 6500 | P Nichiran Maru | 37 | 9800 | T Teiyo Maru | 62 | 5200 | P Konan Maru | 87 | 5100 | T Medan Maru |
| 13 | 5800 | P Seattle Maru | 38 | 17500 | P Teia Maru | 63 | 8500 | P Nichiro Maru | 88 | 5500 | P Boston Maru |
| 14 | 7100 | P Tatsutake Maru | 39 | 6700 | F Onoe Maru | 64 | 5300 | P Uchide Maru | 89 | 7400 | T San Clemente Maru |
| 15 | 8400 | P Kinai Maru | 40 | 5300 | F Hokko Maru | 65 | 8600 | A Kanto Maru | 90 | 5700 | F Hakyuo Maru |
| 16 | 5200 | F Kimishima Maru | 41 | 6800 | F Yuri Maru | 66 | 10200 | T Akatsuki Maru | 91 | 8400 | P Nankai Maru |
| 17 | 7500 | F Mogamigawa Maru | 42 | 5600 | F Heiwa Maru | 67 | 5400 | F Shoko Maru | 92 | 9400 | P Rakuyo Maru |
| 18 | 7000 | P Maebashi Maru | 43 | 6100 | P Tenpei Maru | 68 | 6500 | T Tachibana Maru | 93 | 5700 | F Shiraha Maru |
| 19 | 6100 | F Soyo Maru | 44 | 5800 | T Kyoko Maru | 69 | 6900 | A Kimikawa Maru | 94 | 10100 | T Toa Maru |
| 20 | 5500 | P Malta Maru | 45 | 5200 | T Janbi Maru | 70 | 8600 | P Kansai Maru | 95 | 7200 | P Segami Maru |
| 21 | 5600 | F Horai Maru | 46 | 5300 | P Zuisho Maru | 71 | 10000 | T Nippon Maru | 96 | 5300 | P Shoto Maru |
| 22 | 5400 | F Teian Maru | 47 | 5900 | T Nansei Maru | 72 | 6400 | P Yuzan Maru | 97 | 7500 | F Asuka Maru |
| 23 | 5400 | A Bangkok Maru | 48 | 7000 | P Taketoyo Maru | 73 | 6100 | P Kokuryu Maru | 98 | 6400 | F Getsuyo Maru |
| 24 | 7000 | P Tsuyama Maru | 49 | 5100 | T Asanagi Maru | 74 | 6900 | F Akigawa Maru | 99 | 10400 | S Kashino |
| 25 | 5300 | P Hamburg Maru | 50 | 5200 | F Nichinan Maru #2 | 75 | 9500 | P Hawaii Maru | 100 | 17000 | P Tatuta Maru |

F = Freighter T = Tanker P = Passenger/Cargo A = Auxiliary/Armed Merchant S = Special/Munitions

Roll once for each Large Freighter target. No Deck Gun Fire against "A" targets [B.3.1]. Optional: If you roll a ship ID that has already been sunk, re-roll.

Fig. 12: One of the target selection tables. On this one I rolled a 12, which yields the *Nichiran Maru* passenger ship, a whopping 6500 tons!

Finally, on December 26, 1941, we sight smoke on the horizon! Two large columns trailing behind a smaller plume. "All Ahead Full!"

We spot a large freighter, a large passenger ship, plus an escort—all identified as Japanese by our lookouts (Fig. 12). We run ahead of the plotted track of the three ships. "Clear the bridge! Dive, dive!"

We set up for a daytime submerged attack. It appears the escort is unaware of our presence. "Man Battle Stations Torpedo! Open outer doors on tubes One through Six!"

Thresher waits for the escort to churn past, then also for the range of both merchants to count down to 1200 yards. (Ha! As Sam Dealey, I would've gone after the escort first!—ed.) ;-) I plan to release three

fish at each merchant ship in a spread (Fig. 13). "Fire One! Fire Two! Fire Three! Shift targets... Fire Four! Fire Five! Fire Six!" Sonar reports torpedoes running hot, straight, and normal.

After waiting, the sonarman now reports he has heard the first torpedo thud against the large freighter's hull—a dud! Fortunately, the second and third torpedoes hit their marks... WHAM! WHAM! All fish aimed at the passenger ship have either missed or are duds (Figs. 14 and 15). Damn! (*I'm really getting into this!—ed.*)



Fig. 13: Lineup of targets and torpedo assignments.

[S1] Torpedo/Deck Gun Fire Chart Roll 2d6

| Close Range | | Medium Range | | Long Range | |
|-------------|------|--------------|------|------------|------|
| Roll | Hit | Roll | Hit | Roll | Hit |
| 8 or less | Hit | 7 or less | Hit | 6 or less | Hit |
| 9 or more* | Miss | 8 or more* | Miss | 7 or more* | Miss |

Die Roll Modifiers

- 1 Surface Torpedo Attack
- 1 Elite Crew
- +1 Green Crew
- +1 Warship/Escort, Fast Capital Ship
- +1 Exec Firing or all Crew KIA/SW
- +1 Second Salvo Torpedo (1)
- +1 Mk 18 Torpedo at Medium Range
- +2 Mk 18 Torpedo at Long Range
- +2 3rd Officer Firing

[S3] Attack Damage Chart Roll 1d6

| Roll | Torpedo | Deck Gun |
|-----------|----------|----------|
| 0 | — | 2 damage |
| 1 | 4 damage | 2 damage |
| 2 | 3 damage | 1 damage |
| 3 | 2 damage | 1 damage |
| 4 or more | 1 damage | 1 damage |

Die Roll Modifiers

- 2 6" Deck Gun
- 1 5" Deck Gun
- +1 3" Deck Gun

Roll once for each Hit, using the appropriate column.

Damage applies to Damage Points needed to sink target per the table below.

| Points to Sink | Ship Type |
|----------------|--------------------|
| 5-7 damage | Capital Ship |
| 4 damage | 10,000+ tons |
| 3 damage | 5,001-9,999 tons |
| 2 damage | 1,001-5,000 tons |
| 1 damage | 1,000 tons or less |

Damaged ships can be automatically followed.

[S2] Torpedo Dud Chart Roll 1d6

| | Mk 14 | Mk 18 | Mk 27 |
|------------|-------|-------|-------|
| 12/41-7/42 | 1-4 | | |
| 8/42-8/43 | 1-3 | | |
| 9/43-12/43 | 1-2 | 1-2 | |
| 1944 | 1 | 1 | |
| 1945 | 1 | 1 | 1 |

Notes:
Roll once for each Torpedo that scored a "Hit."
Apply +1 modifier if you have Superior Torpedoes [R1]

Explanation of Results:
indicates Die Roll resulting in Torpedo Dud. Duds have no effect and cause no damage to Target Ship

[E2] Escort Detection Chart Roll 2d6

| Roll | Result |
|------------|--------------------------|
| 8 or less* | Undetected |
| 9-11 | Detected |
| 12 or more | Detected (+1 Attack DRM) |

Unmodified 2 "snake eyes" roll automatic Undetected
* Close Range (before firing) Detection occurs on roll of 10 or higher (apply year modifier below only)

Die Roll Modifiers

- +1: 1943-44 (only modifier for Close before firing)
- 1 Escort Attacked, Scored a Hit
- +1 Escort Attacked, Missed
- +1 Captain is SW
- +1 Fuel Tanks Damaged
- +1 Dive Planes Out
- +1 Capital Ship, Warship/Escort
- +1 Mk 14 Torpedo/Day
- +1 Previously Detected
- +1 Close Range (after firing)
- +1 Night Surface Attack ('42-'43)
- +1 Firing Fwd + Aft (1st Round only)
- +1/-1 Wolfpack Attack on Convoy
- 1 Long Range
- 1 Exceeding Test Depth

[E3] Escort/Air Attack Chart Roll 2d6

| Roll | Escort 41- June 43 | Air/Escort July 43+ |
|------|--------------------|---------------------|
| 2-3 | Miss | Miss |
| 4-6 | 1 Hit | 1 Hit |
| 7-8 | 2 Hits | 2 Hits |
| 9-10 | 2 Hits | 3 Hits |
| 11 | 3 Hits | 4 Hits |
| 12 | 4 Hits | 5 Hits |
| 13+ | 5 Hits | Sunk |

Die Roll Modifiers

- +1 Fuel Tanks Hit
- +1 Hydrophones out
- +1 Batteries Damaged
- +1/+2 Electric Motor Damaged (10.2.2)
- +1 Night Surface Attack (First Round only)
- +1 Rolled 12+ on Detection
- +1 Air Attack

Roll once if Sub was Detected.
Hits equals number of rolls on the Sub Damage Chart [E5].

Fig. 14: Combat resolution sheet and tables.

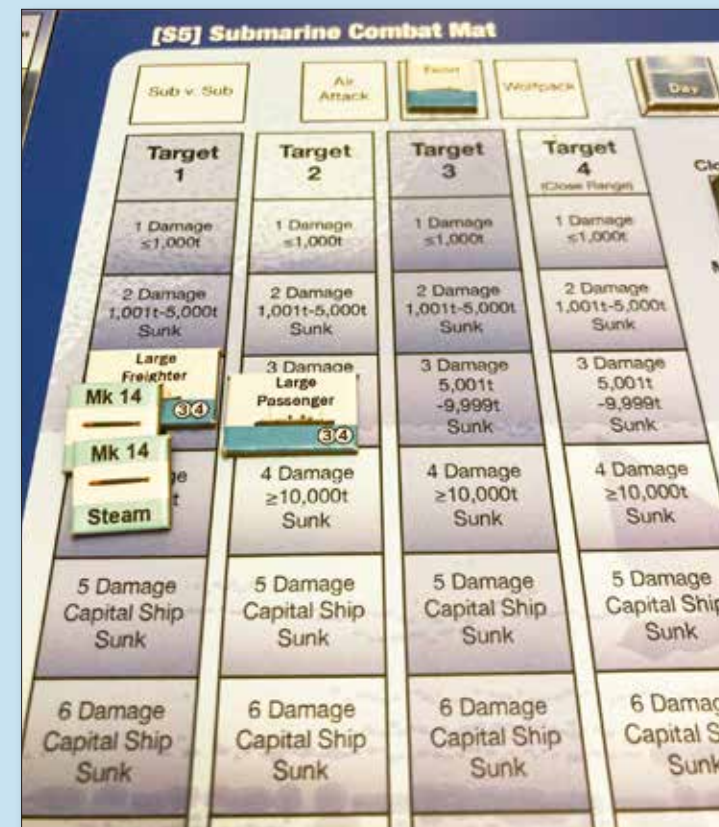


Fig. 15: Two of six torpedoes hit and explode!

Now the escort's screws rev up and he turns toward *Thresher*. "Down 'scope! Take 'er deep!" The escort must have picked up on our Mark 14s' steam bubble trails.

After several minutes of intense, nerve-wracking sonar pinging, the escort finally drops his first salvo of depth charges—whack-BOOM! (Figs. 14 and 16.) It sounds like something has been badly damaged topside (Fig. 17). The escort now trails off,

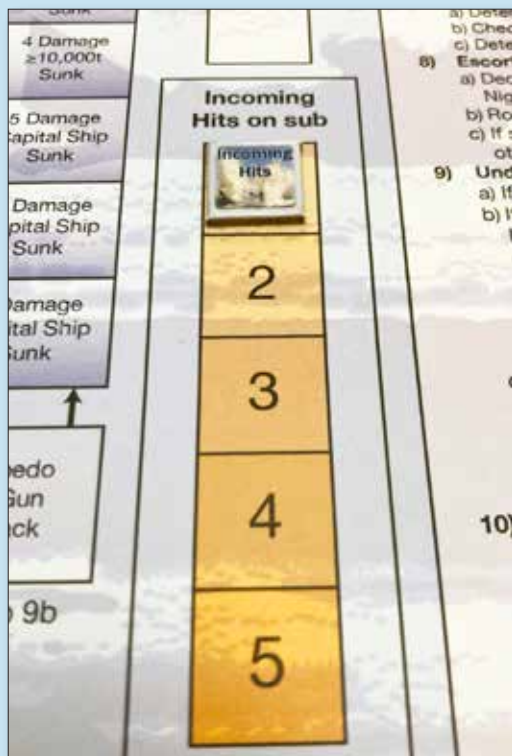


Fig. 16: Incoming depth charge!



Fig. 18: AA gun has been crushed by a depth charge!

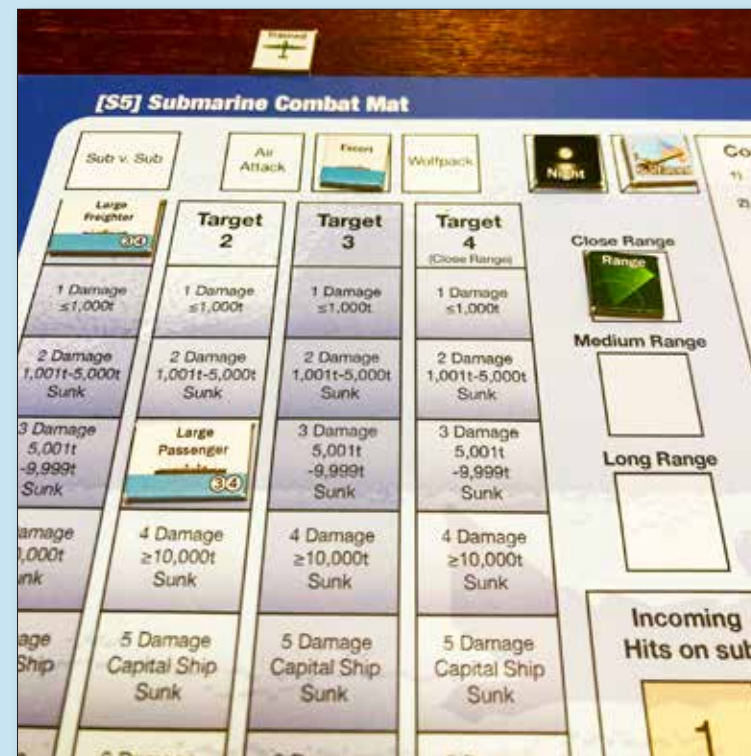


Fig. 19: Lined up for a night surface attack.

and the screw noises of both the passenger ship and escort finally fade away. We come up to the surface to find an oil slick where the freighter (later identified as the *Koyu Maru*, 5300 tons) was last seen. Our .50 caliber AA gun has been smashed by a direct concussion wave from a depth charge; no way to repair it while still on patrol. (Fig. 18). Our lookouts now have to be extra vigilant in spotting aircraft!

The smoke plumes from the passenger ship and escort are still visible, so I consult with the XO about continuing the pursuit. We agree to trail until nightfall, and then we'll pounce on the passenger ship again. With all torpedo tubes

[E4] Sub Damage Chart Roll 1d6+1d6 (Roll once for each Hit taken from Escort/Air Attack)

| | | | | | |
|-------------------|-------------------|-------------------|-----------------|-------------------|-------------------|
| 11 Batteries | 21 Flooding | 31 Flooding | 41 Hull | 51 Flooding | 61 Hydrophones |
| 12 Flooding | 22 Electric Mtr 2 | 32 Minor Damage | 42 Radio | 52 AA Gun | 62 Aft Torp Doors |
| 13 Crew Injury | 23 Diesel Eng 1 | 33 Crew Injury x2 | 43 SJ Radar | 53 SD Radar | 63 Fwd Torp EVEN |
| 14 Periscope | 24 AA Gun | 34 Crew Injury | 44 Flooding | 54 Flooding x2 | 64 Fwd Torp ODD |
| 15 Dive Planes | 25 Diesel Eng 2 | 35 Hull | 45 Hull | 55 Electric Mtr 3 | 65 Hull x2 |
| 16 Electric Mtr 1 | 26 Diesel Eng 3 | 36 Deck Gun | 46 Diesel Eng 4 | 56 Electric Mtr 4 | 66 Fuel Tank |

Explanation of Results:
Damage Results that cannot be applied are ignored (example: "SJ Radar" hit in 1941). For any **Flooding** results following a Combat Round, be sure to check for additional flooding (roll 1d6: 5-6 results in one extra Flooding damage taken).
 For a full explanation of Damage Results, please consult the *Sub Damage and Repair Chart [E5]*.

Fig. 17: Combat resolution sheet and tables. I rolled a 52, which damages the AA gun.

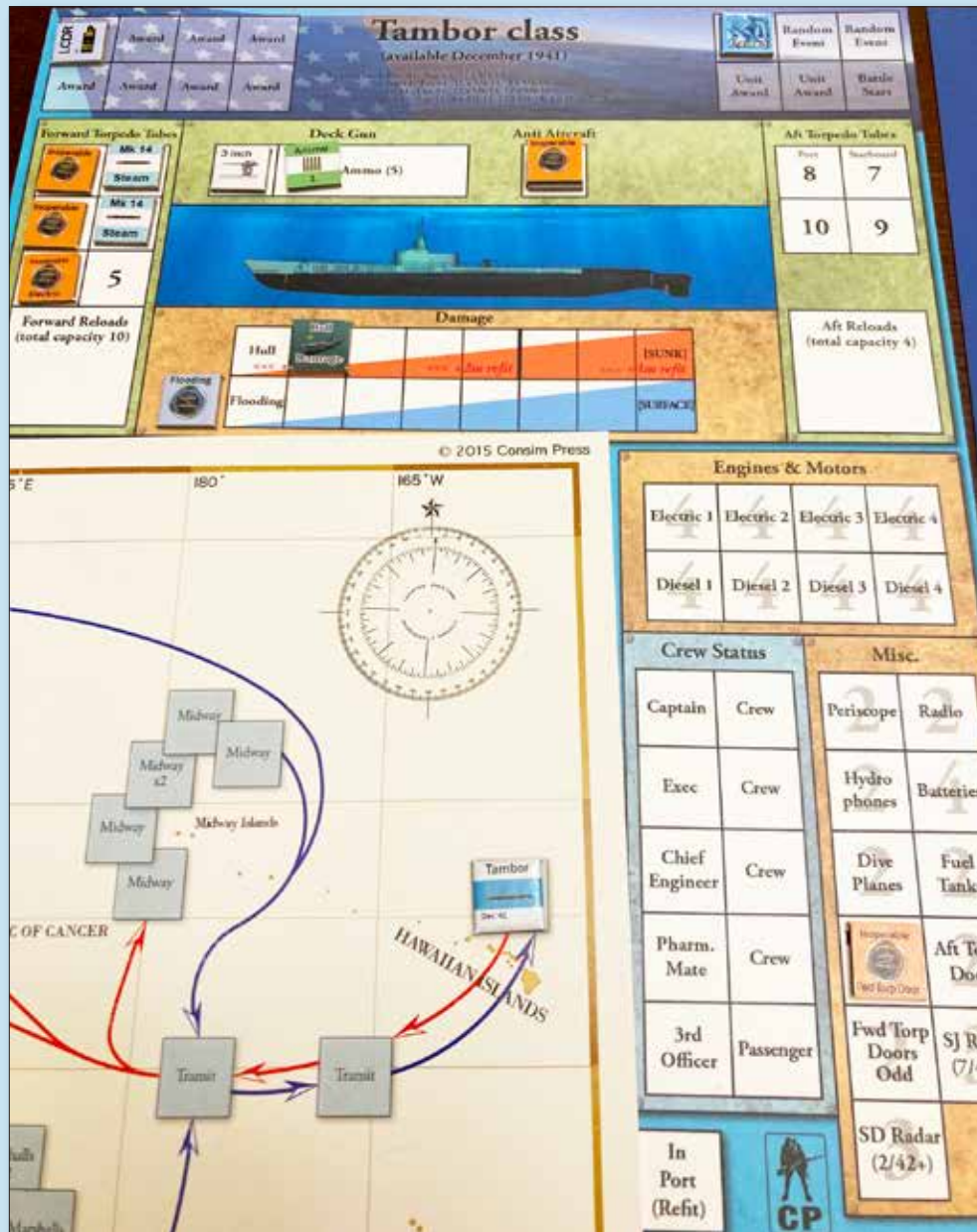


Fig. 20: Hull and forward port torpedo tubes damaged!

reloaded, we ring up All Ahead Flank and drive ahead of the ships to wait for nighttime. We plan out a night surface attack; this allows us to be more maneuverable, but also makes us more detectable by the now-alerted escort (Fig. 19).

After darkness settles in, we ring up Battle Stations again and drive quickly in toward the passenger ship. Miraculously, we slip past the escort. "Open outer doors on tubes Seven through Ten!"

At 1500 yards from the target, I order up a Left Full Rudder and point our four stern tubes at the passenger ship. This also permits me to open the range immediately after firing. "Bearing, Mark! Set! Fire Seven, fire Eight, fire Nine, fire Ten! Clear the bridge, standby to dive!"

Shortly afterward, four pronounced BOOMS fill our eardrums as the passenger ship violently explodes into a huge fireball. They must have been carrying a full cargo of ammo in their hold! The explosion lights up the entire vicinity, including *Thresher*, painting her clearly against the dark nighttime backdrop. The escort now immediately turns toward. "Dive, dive!"

We go deep, but the destroyer knows exactly where we are. Three distinct splashes are heard as she passes over, followed by three rocking whack-BOOMS! *Thresher* rolls as her hull creaks and bits of cork fly everywhere. I order all compartments to check in with damage. The Forward Torpedo Room reports the gauges on the forward portside torpedo tubes have been smashed. The Engineering officer finds that several places in the hull appear warped inward between frames along the port side, but that hull integrity remains intact—no flooding reported (Fig. 20). Fortunately for us, the escort appears to think this depth charging has done the trick and so has veered off. The sonarman listens intently as his screws now slowly fade into silence.

We surface to discover our portside torpedo tube doors are

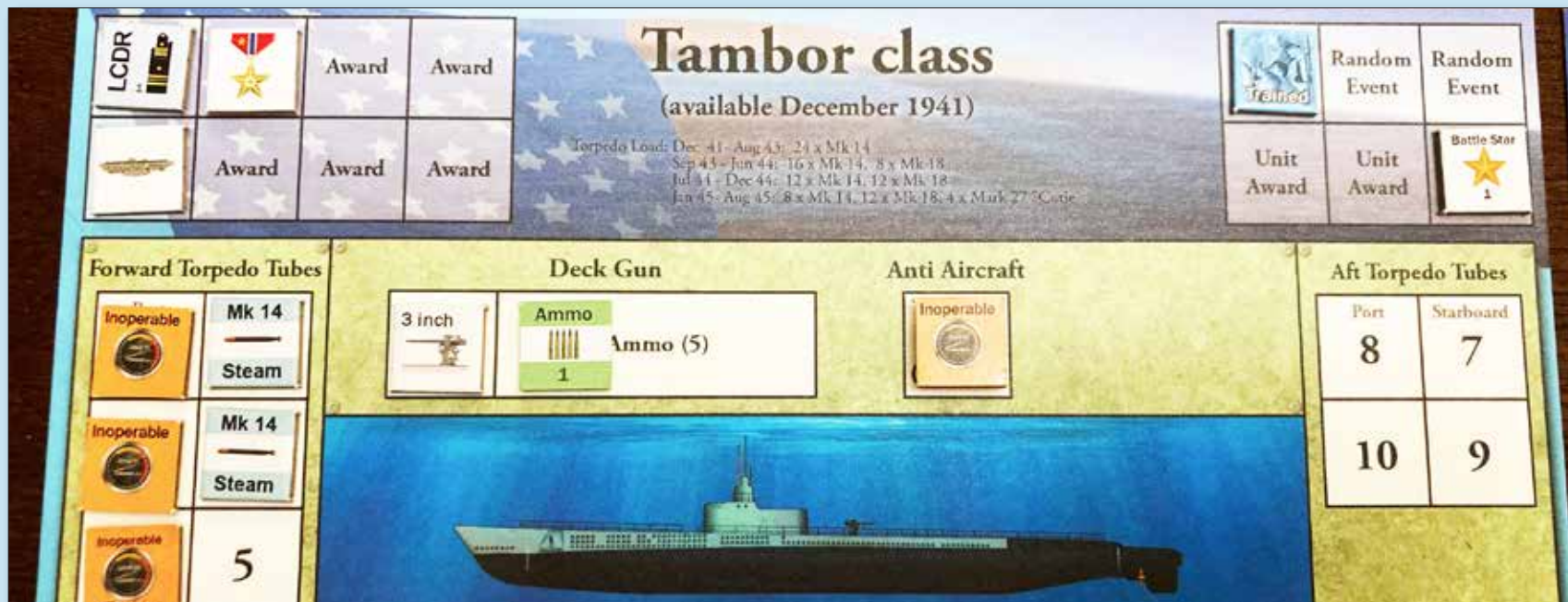



Fig. 21: End of Patrol with damage and awards. These awards give you some special abilities later on.

jammed shut—fully unable to be opened. Useless. As we flip through the visual recognition books, one of our ensigns identifies the passenger ship as the *Nichiran Maru*, listed at 6,500 tons. We then continue with the rest of our patrol in the Marshalls. The remaining weeks are uneventful, with no contacts encountered, as we continue our search toward the southeast. Eventually, on January 28, 1941, with our fuel tanks reaching the lower limit of endurance, we turn eastward again toward Pearl. Not too bad for a first patrol: *Thresher* has sent two Japanese ships to Davy Jones' Locker for 11,800 tons! As we moor at Submarine Base Pearl Harbor, I think back to those damned malfunctioning torpedoes and wonder when we'll ever overcome that problem for good. As for my crew, well, they have all earned their first Submarine

Combat Patrol pins, with *Thresher* gaining her first Battle Star (Fig. 21). COMSUBPAC himself has come across the brow to award me a Bronze Star for our tenacity in sticking with the enemy ships until they were on the bottom.

Back to 2022 now: all this has come from twenty exciting and fast-paced minutes of play through an entire war patrol. Of course, a lot of it comes from your imagination as well, but it does tell a thrilling story of the Silent Service. If you liked this review of Silent Victory and are interested, it's published by GMT Games, and is currently in its second print run, so it's still available directly from their website (see www.gmtgames.com and search for Silent Victory, you'll find it listed for \$55.00). There are also plenty of great

videos on YouTube as other people review and play through a game of Silent Victory as well; check them out by all means. If you're not quite into U.S. Pacific submarine operations, or are simply more interested in German U-boats in the Atlantic, check out their two other games: "The Hunters" (German U-boats at War, 1939-1943) or "The Hunted: Twilight of the U-boats" (German U-boats at War, 1943-1945). Both of these allow you to take command of a U-boat during the Battle of the Atlantic, the Germans' unrestricted submarine warfare campaign against Allied convoys.

That's it for me for now. See you for highballs over at the Royal. And tell Yeo he'd better finish those reports pronto if he hopes to catch the bus with the rest of the crew. 

WAHOO'S 3rd PATROL

BOATS IN THE KEY OF WEST

SUB vs. BATTLESHIP

SILENT VICTORY GAME

CHINA'S SUBMARINE FORCE

UNTERSEE OVERSEAS

China Turns to the Sea

by Tom Dougherty

During the Cold War, the Chinese submarine force of the People's Liberation Army Navy (PLAN) was not considered a credible threat to Western forces. Indeed, their diesel submarines were mostly either castoff Soviet "Whiskey"-class boats, or a Chinese variant of the Soviet "Romeo"-class design, designated the Type 033, or its missile-launching variant, the Type 033G. But with the post-Cold War rise of Chinese power, the geopolitical situation dictated that for it to become a true competitor on the world stage

Chinese submarines in an exercise patrol line.

The PLAN Submarine Force

Submarine research enthusiast Tom Dougherty submits his intel on the latest developments in Chinese submarines and capabilities. Is our fleet ready to take them on in the South China Sea?



Fig. 1. Type 033-class submarine, originally derived from the Soviet Union's "Romeo" class.

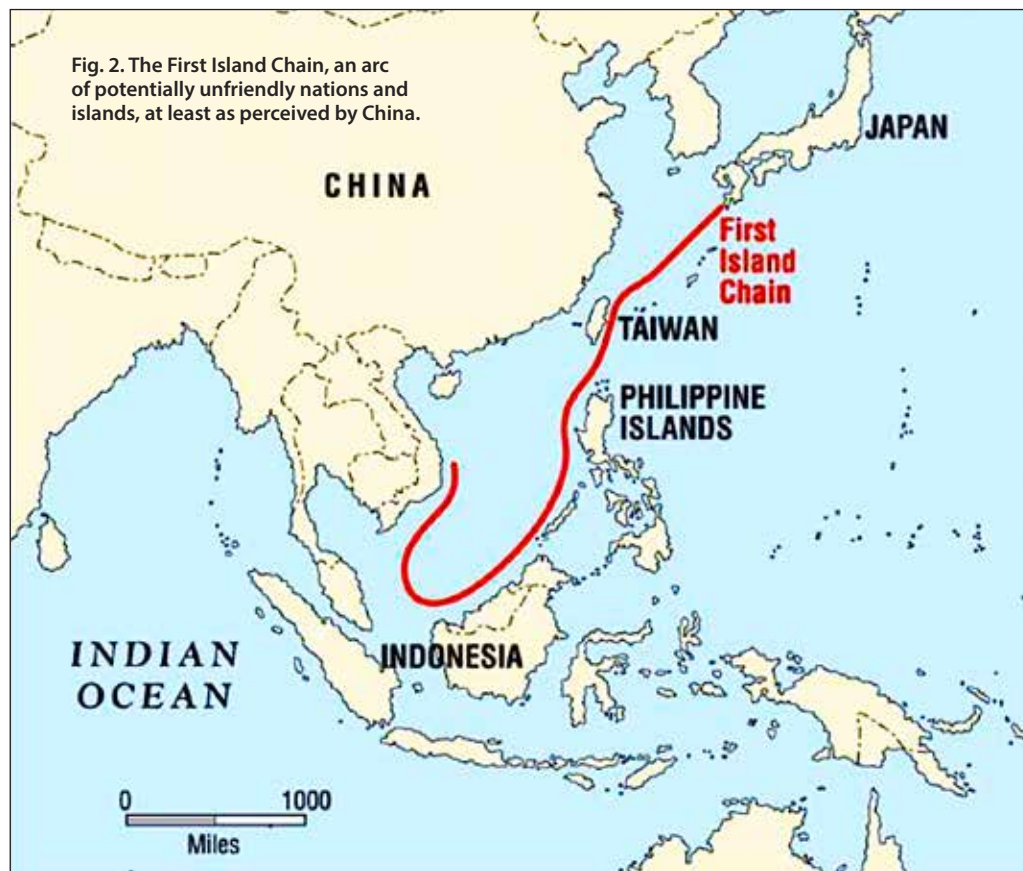


Fig. 2. The First Island Chain, an arc of potentially unfriendly nations and islands, at least as perceived by China.

and a dominant power in Asia, China had to field a modern navy—including a credible submarine force. As stated in a 2020 Dept. of Defense report to Congress: “Beijing seeks to reshape the international order to better align with its authoritarian system and national interests, and a vital component of its strategy to achieve the ‘great rejuvenation

of the Chinese nation.’” The PLAN’s sixty+ diesel, AIP (Air-Independent Propulsion), and nuclear submarines are a crucial part of that goal.

The Chinese Geopolitical Problem

It’s important to understand the background of China’s increased focus on the sea. Looking at a map, the country’s access to the ocean

is concentrated solely along its eastern coast. The Bohai Economic Rim on the northern part of the East Coast includes the seaport of Tianjin, and just inland, the Chinese capitol, Beijing. Seagoing access is also available via the central Yangtze River Delta Economic Zone, which includes the port cities of Nanjing, Shanghai and Ningbo. There's also the southern Pearl River Delta Economic Zone, including Zhuhai and Hong Kong. Chinese commercial shipping and military ship movements are primarily out of these various ports. Given the huge overseas market for Chinese goods, it's understandable how China is concerned about expanding its PLAN to guarantee freedom of navigation in the region. However, China has also laid territorial claim to large areas of the South China Sea, and has even built bases on the Spratly and Paracel Islands. These claims are disputed, since the locations border on Taiwan, Indonesia, the Philippines, Malaysia and Vietnam. Ironically, it's actually been the Western powers which have for years—ever since the close of WWII, in fact—ensured open seas in the region; even now the U.S. Navy continues to sail “freedom of navigation” cruises through the area.



Fig. 3. Type 035 *Ming*-class diesel submarine on patrol. An improved model of the Type 033.



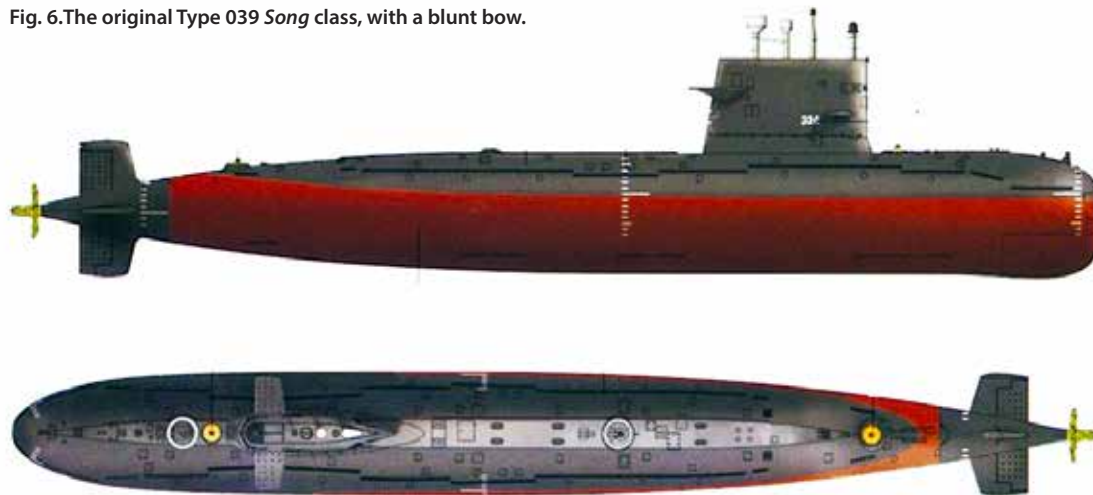
Fig. 4. Type 035A *Ming*-class diesel submarines in line abreast at sea.



Fig. 5. The single Type 033G *Wuhan*-class submarine, capable of firing short-range missiles.

Stretching from South Korea to Japan and on through the Ryuki Islands to Taiwan—but also south to the Philippine archipelago and Malaysia—is what's deemed “The First Island Chain” (Fig. 2). This arc of islands borders a series of straits, from Soya in the north to Palawan in the south, perceived by China as limiting her access to the open waters beyond. This chain—aligned with Western influences and ideologies rather than being in Chinese hands—is thus seen by Chinese political pundits as something of a barrier to full national access to the Pacific Ocean. One Chinese writer even claims his country is “suffer[ing] from the harshest global geopolitical security situation among the great powers. China's eastward oceanic geostrategic structure is abnormally complex and unfavorable.” With this as its prominent viewpoint, China seeks to break free of such constraints, a key component of which is to return Taiwan to its direct influence. For this reason and others, the Chinese have embarked on a massive and modern PLAN fleet buildup, financed by its ever-burgeoning economy. In addition to an operational aircraft carrier and another under construction,

Fig. 6. The original Type 039 Song class, with a blunt bow.



"Romeo" (Russian Project 633) model; over eighty of them were built in all (Fig. 1). A substantially improved Chinese Type 033 derivative was also developed: the 249-ft./4-in. long Type 035 *Ming* class with a 25-foot beam (Fig. 3). The initial units were unsatisfactory in performance, but the redesigned 035A *Ming* featured significantly upgraded propulsion plus improvements in noise reduction, weapons, sensors and crew living quarters (Fig. 4). The single Type 033G *Wuhan*-class submarine built was a modified Type 033 derivative which could fire six YJ-8 anti-ship cruise missiles via launching tubes erected from the deck casing—similar to the Soviet NATO-named "Juliett" and "Echo" cruise missile submarine classes (Fig. 5).

The Next Generation of Diesel and AIP Boats

In a step toward modernization, the PLAN next

the expansion has included numerous advanced destroyers, frigates, and corvettes, plus a notably larger submarine force of newly enhanced capabilities—the subject of this article .

The Chinese Submarine Force

Early Submarines

China's original submarine force after the 1949 Communist Revolution was made up of Soviet-supplied submersibles and engineering plans. These diesel boats were not seen as any real threat to Western interests and included five of the Soviet NATO-named "Whiskey" class and sets of parts for twenty-one more. These were designated "Type 03" submarines. The later Type 033 attack submarine (251 feet in length with a 22-foot beam) was basically a Russian

Fig. 7. A Type 039 Song class submarine at sea.



Fig. 8. Type 039A *Yuan*-class submarine: an improved design derived from the original *Song* class.

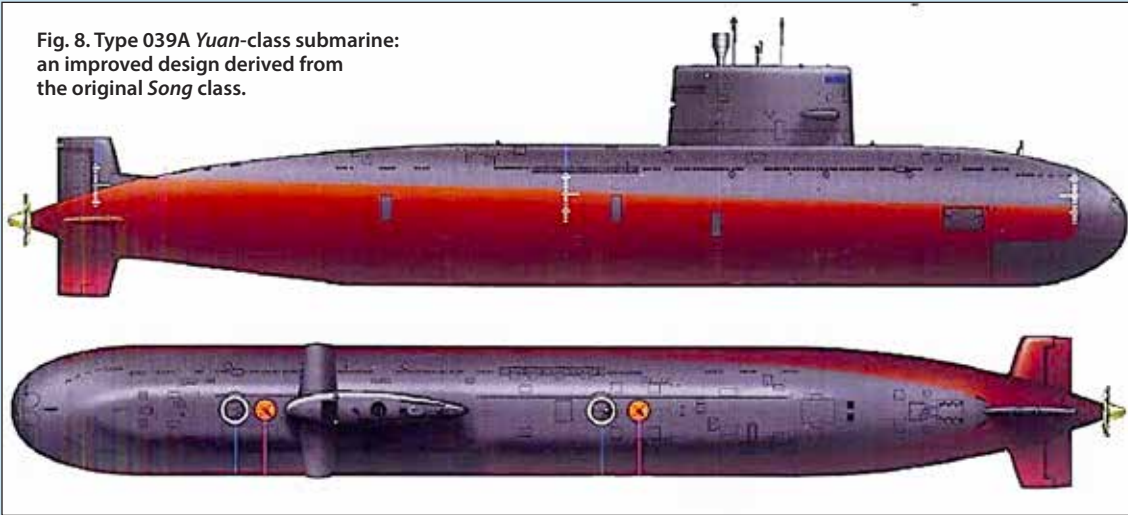


Fig. 9. A Type 039A *Yuan*-class submarine dockside.

embarked on several building programs in the late 1980s through early 1990s. The first was a new generation of diesel submarine, the Type 039 *Song* SSK class. Again, the initial unit, launched in 1989, was ultimately not put into service until 1993 due to design deficiencies. The 245.7-foot length and 27.5-foot beam of the original Type 039 *Song* design featured a low-drag hydrodynamically profiled hull and sail—the first Chinese boat to employ a teardrop shape, though its bow was blunt, not a dome (Fig. 6). The hull was covered with anechoic tiles to attenuate sonar (Fig. 7). Problems with noise levels and underwater performance led to revisions in the design and ultimately only a single boat was built to the original specifications. Improvements and changes resulted in the Type 039G (“G” for “Gai”—meaning improved), which became the bulk of Chinese submarine production at the time, with seven of the type eventually entering service. *Song*-class weapons included Yu-4 torpedoes and YJ-82 anti-ship missiles. On October 26, 2006 a Chinese *Song*-class



Fig. 10. A Type 039B *Yuan* with a modified, more streamlined sail.



Fig. 11. The unusual sail shape of the Type 039C Yuan class.

submarine surfaced without prior detection within torpedo firing range (five nautical miles—9 km) of the U.S. aircraft carrier *Kitty Hawk* while she was operating in the East China Sea between Japan and Taiwan.

The redesigned and modified submarine developed next—

confusingly designated Type 039A (but also listed in some publications as Type 041)—was the *Yuan* class (Fig. 8). It was meant as a direct follow-on to the *Song* class. Design-wise, the hull was similar to the *Song* boats, but now with a rounded bow (Fig. 9) similar to the U.S. *Albacore* and *Skipjack* classes. The most obvious external visual difference between the new Type 039A and its predecessor Type 039/039G *Song*-class boat was the shape of its sail. The design change reduced the submarine's acoustic signature while also improving its underwater performance (Fig. 9). Most notably, the boat also featured Air-Independent Propulsion (AIP) capability, which was the *Yuan* class' biggest technical leap. While most likely comprising a Sterling AIP plant in the Chinese vessel in question, there have been numerous different implementations of AIP

technology in submarines around the world. The core concept remains the same: AIP is a method by which submarine propulsive power is produced extremely quietly and for prolonged periods of submergence without need for snorkeling.

As for weaponry, the *Yuan*s carry Yu-3 and Yu-4 homing torpedoes, and they can also launch the YJ-82 anti-ship turbojet cruise missile, an advanced weapon with an estimated range of 120 kilometers (72 miles). The Type 39A boats can also carry the CM-708 UNB missile, allegedly featuring a range of about 290 kilometers (180 miles). Both of these airborne weapons—in addition to the new Chinese missile for their SSNs (described later)—pose a serious threat to U.S. carrier battlegroups. Long-range attacks on aircraft carriers and other large vessels by submarine-



Fig. 12. The Type 039C Yuan sail from a different angle. Somewhat similar to the Dutch Navy's *Zeeleeuw* sail modification.



Fig. 13.
A Chinese
Kilo-class
submarine
obtained
from Russia.



Fig. 14. A Type 091 *Han*-class SSN,
the first Chinese foray into producing
a nuclear-powered attack submarine.

launched missiles has thus moved from a PLAN strike capability wish list to practical reality for Chinese naval forces.

The first Type 039A submarine was launched in November, 1999 and commissioned in April of 2001. The second of the class was commissioned in December, 2001, and the third was placed in service at the end of 2003. A series of twelve of these submarines were built out of two shipyards. The impressive *Yuan*-class SSK integrates advanced noise reduction techniques, including anechoic tiles, with passive/active noise reduction and an asymmetrical seven-blade skewed propeller. The 039A is therefore suspected to be about as quiet as other modern diesel-electric submarines, which indeed have become quite difficult to track by passive sonar. Further changes to the *Yuan*'s



Fig. 15. The first Type
091 *Han*-class SSN
is now a museum,
open to public
touring.

sail have resulted in the Type 039B- (Fig. 10) and C-class designations. The Type 039C version's sail modifications—including a noticeable bulge at its top—may be related to an upgraded sonar or communications system, according to one source (Figs. 11, 12). The number of *Yuan* 039A- and 039B-class submarines is now about seventeen, with the new 039C-class boats just coming into production.

Also, in the mid-1990s, the PLAN purchased twelve Russian-built *Kilo*-class submarines: two of the original design (Project 877), plus ten of the later, improved Project 636 types (Fig. 13). The latter are equipped with improved MGK-400EM sonar and anechoic hull tiles. The two early Project 877 boats have since been decommissioned.



Fig. 16. The original Type 093 *Shang*-class SSN, an improvement over the previous *Han* class.

The New Generation of Nuclear-Powered Submarines

• The SSNs

The PLAN began a program to create nuclear power for submarines in the late 1950s, and after developing a land-based prototype, the Type 091 *Han*-class boat came to fruition (Fig. 14). The first attack submarine in this class, *Changzheng 1* ("Long March 1"), was commissioned in 1974; the last of the five boats was launched in 1990. The first two, however, have since been decommissioned. These 321.5-foot long (almost 33 feet in beam) submarines again feature an *Albacore*-style teardrop hull. Displacement is about 5,500 tons. They're powered by a 90-MW pressurized water reactor (PWR) and are armed with six forward torpedo tubes. Noteworthy is that these SSNs employ turbo-electric propulsion rather than a steam-driven turbine drive. The propeller is a five-bladed version with no blade skew, meaning there's more detectable low frequency blade rate acoustical noise. Purportedly, these early SSNs are acoustically noisy, of limited reliability, and their propulsion plants of relatively low thermal efficiency. To their credit though, in the 1970s the Chinese were able to develop integrated sonar, a sound trajectory tracer,

reconnaissance sonar and underwater sound detection systems without assistance from Russia—despite the limited technological and manufacturing capabilities of local Chinese industry. As stated, the first two *Hans* are retired, but three do remain in service. The first Type 091 *Han*-class submarine, *Changzheng-1*, was actually converted into a museum in 2017 and now resides at the Qingdao Naval Museum in Shandong Province (Fig. 15).

With the *Han* class having been recognized as possessing significant deficiencies, a new SSN design was developed to replace it: the *Shang* class (Fig. 16). This boat has a displacement of roughly 7000 tons, is just short of 361 feet in length, and sports a 36-foot beam. There has been some confusion over its reactor plant. One suggestion has it that it might be powered by two PWR reactors. But a Chinese source claims the *Shang* runs on a gas-cooled reactor, which would definitely be a first; this is considered unlikely by Western observers however. The boat does



Fig. 17. A nice photo of the Type 093 *Shang*-class SSN underway.



Fig. 18. The improved Type 093A (or G - "Gai") SSN with a noticeable fillet at the leading edge of the sail and a "hump" abaft it for a towed array reel, deployed from the upper rudder.



Fig. 19. The Chinese Type 092 Xia-class SSBN at sea. A somewhat rare event due to technical problems.



Fig. 20. Another photo of a Xia heading out to sea. Note the many limber holes in its missile turtleback.

implement a seven-bladed skewed propeller to help reduce its low frequency blade rate acoustic signature. This new Type 093 is armed with six torpedo tubes, although their diameter remains uncertain (Fig. 17). The submarine may also carry either the YJ-12 or YJ-82 anti-ship missile. Chinese sources reported in 2002 that their noise level at sea was equal to a Flight III *Los Angeles*-class boat. However, the U.S. Navy's Office of Naval Intelligence said in 2009 that the *Shang* was more in the range of the Soviet "Victor III" class of 1979. Only two of this early version were built; they were launched in 2002 and 2003.

Before long a more advanced version, the Type 093A *Shang II*, was developed to supplant the early *Shangs* (Fig. 18). Longer than the preceding class, they featured six torpedo tubes and a vertical launch system (VLS) for YJ-18 supersonic anti-ship missiles, plus anti-ship variants of the CJ-10 cruise missile. The YJ-18 weapon is especially concerning to the West, since it features a subsonic cruise mode and supersonic (Mach 2+) terminal attack capability with a purported range of some 290 nautical miles. Armed with conventional high explosives, it's a credible threat to surface ships from well beyond torpedo range. At this date, four of the Type 093A Chinese submarines are reported to be in service.

Currently under construction is the Type 095, a third generation SSN design. Relatively little is known about this class. In some circles, it's thought the boat will feature both a reduced acoustic signature and an improved hull type. It may also be powered by a natural circulation nuclear reactor, and brandish VLS tubes and greater number of advanced sensors—such as a new active/passive flank array sonar as well as a towed sonar array.

• The SSBNs

On the southern edge of Hainan Island sits one of China's most important military facilities: the Yulin Navy Base. This is the home of China's impressive and growing fleet of missile-firing SSBN nuclear submarines.

The first Chinese SSBN was the single Type 092 *Xia* class of ballistic missile nuclear boat, commissioned in 1983. It was 393.7 feet in length, had a beam of almost 33 feet and a submerged displacement of 6500 tons (Fig. 19). Derived

Fig. 21. A Type 094 *Jin*-class submarine dockside with open missile hatches. The turtleback has numerous free-flooding limber holes, resembling the Russian "Delta IV."



from the Type 091 SSN, the submarine featured twelve launch tubes for the JL-1 missile. This solid fuel missile had a limited range of 1100-1200 miles, but carried a powerful nuclear warhead. Initial tests of the missile were carried out with a modified "Golf I"-class submarine obtained from Russia before the Sino-Soviet split.

The *Xia* class is reportedly slow and noisy, and its PWR reactor problematic (Fig. 20). The initial JL-1 missile failed its first live firings in 1985, and it took three years to finally achieve a successful test launch. The Type 092 boat has now undergone numerous refits, adding new black paint, possible quieting technologies, and upgraded sonar. It's also newly outfitted with the improved, longer-range JL-1A SLBM—capable of striking from 4,800 miles distant. It's believed the Type 092 has never actually conducted strategic patrols outside of Chinese regional waters. Interestingly, a second *Xia* was reportedly also constructed, but might possibly have been lost in a 1985 accident. The truth remains uncertain.

The follow-on PLAN class of SSBN submarine is

the Type 094 *Jin* (Fig. 21). These are a true second generation SSBN: 436 feet in length, with a 41-foot beam and 9000 tons of submerged displacement. Externally, the 094 class appears to be a scaled-up version of the previous Type 092 *Xia* class. It also incorporates some technologies of the Type 093 SSN described above, and is powered by a single PWR reactor. The new boat carries twelve JL-2 SLBM missiles, each with an estimated range of about 4200-4800 miles (Fig. 22). The JL-2 is believed to contain either a single 250-1,000 kiloton nuclear warhead or three or four smaller warheads with a yield of ninety kilotons each. Six torpedo tubes are also fitted into this class. At this point it's believed six of these *Jin* SSBNs now exist.

The most recent one or two Type 094 boats may actually be an improved variant Type 094A class. One of them clearly shows

visible external differences (Fig. 23). For instance, it appears to mount a modified and improved sail. It might possibly also carry sixteen missiles instead of twelve, and its design features a more prominent missile turtleback—perhaps to accommodate a next generation SLBM. Other changes in the hull contours are seen as well. This new Type 094A further appears to mount a retractable towed sonar array atop its upper rudder. According to the U.S. Navy's Office of Naval Intelligence, the Type 094 is two orders of magnitude louder than current U.S. and Russian SSBNs however, and is even noisier than the old Soviet "Delta III" SSBN first launched in 1976. The Type 094 *Jin*-class SSBNs and the Type 093 *Shang I*-class SSNs are all based at Yalong Bay, on Hainan Island, as part of the Chinese South Sea Fleet. Now under development is also the Type 096 (*Tang?*)-class SSBN. Little is known about this future combatant. It may



Fig. 22. Topside view of the Type 094 *Jin* class, with its twelve missile tube hatches visible.



Fig. 23. Type 094A Jin-class boat, with a slightly higher turtleback and a small sail fillet.

carry sixteen and possibly as many as twenty-four of the JL-3 SLBM—a new missile fitted with MIRVS and offering a 6000-mile range.

It's certainly obvious that China has embarked

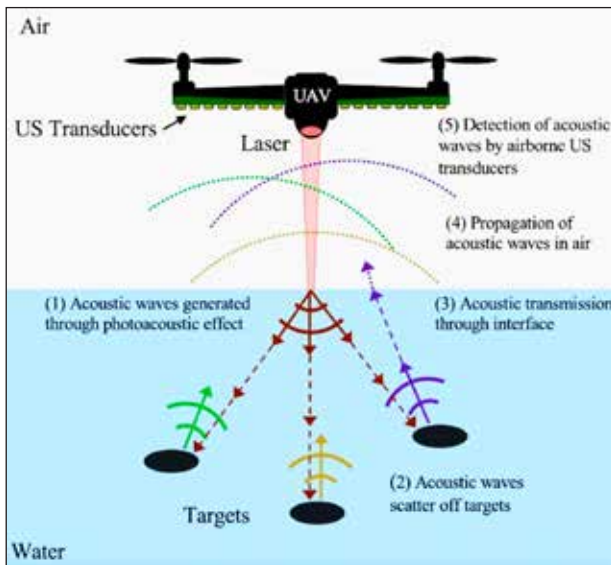


Fig. 24. An acoustic UAV uses a laser system to generate sound waves, and a capacitive micromachined ultrasonic transducer (CMUT) to detect the returning acoustic signals.

on an aggressive fleet-building program of quiet diesel-powered submarines—some with AIP—plus nuclear-powered attack submarines and ballistic missile submarines.

Their goal is clearly to operate a world class Navy by 2049—the anniversary of their Chinese Revolution. How will the West respond to this future PLAN force? The United States is currently developing a next generation SSN (SSN[X]) and SSBN (*Columbia* class). The SSN(X) design will return to the size of the formidable *Seawolf* class, bringing a distinctly increased weapons loadout and sensor capability. The new attack boats will also incorporate the highly maneuverable X-tail stern plane design, plus the same quiet electric drive already in progress for the new *Columbia* class. In addition, on September 16, 2021 the Australian government announced it would also acquire nuclear-powered submarine capability via newly agreed support from the UK and the U.S.

For more effective ASW hunting against future underwater foes, new technology under development includes submarine-launched, AI-enhanced, Unmanned Underwater (UUV) and Unmanned Aerial (UAV) Vehicles. The Navy is further sponsoring research into a UAV deploying a Photoacoustic Airborne Sonar System, or PASS, which uses a laser to focus pinpointed heat pulses upon the

ocean's surface, generating sound waves (Fig. 24). The same hovering drone then senses returning sound waves, but this requires extremely sensitive detection due to the degradation of sound as it transfers from water to air. Most current sonar sensors are piezoelectric, which generates an electrical potential in detecting sound. PASS uses an extremely efficient array of sensors known as capacitive micromachined ultrasonic transducers (CMUTs). These arrays consist of multiple tiny capacitors made up of two thin parallel plates very close to one another. Any disturbance of the plates—such as the vibration of a sound wave—changes the electrical properties of the capacitor, making the wave easily detectable (Fig. 25).

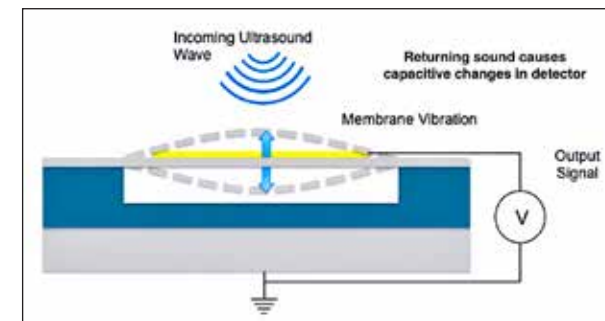



Fig. 25. The capacitive micromachined ultrasonic transducer (CMUT) is far more sensitive than current sonar transducers: it's capable of detecting ultrasound across the air/water interface.

The capability of submarines and surface ships to launch multiple UUVs and UAVs equipped with advanced technologies such as PASS will certainly reshape Western sea power projected toward the Far Pacific. And only the Chinese know what further submarines and weapons they will bring to bear in affecting the balance of naval power in any future conflict close to their shores. 

WAHOO'S 3rd PATROL

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UNTERSEE OVERSEAS

UNTERSEE Overseas

A sub column from the German perspective by
Bernhard Wenzel

Regular SCR contributor Bernhard Wenzel is an old hand at r/c subs and we're thrilled to have him with us. He hails from Germany, where he regularly publishes SONAR, a slick international r/c submarine periodical. In our last issue he tackled an early British C-class boat from a provided hull; this time he reports in from a major Austrian r/c sub event. Our SubCommittee Regattas of old and Bob Martin's recent SubFests have indeed been World Class submarine meets—but perhaps pale a bit in comparison with those held by our offshore brothers, particularly the Germans and Austrians, who have put on a doozy of a show here. We stand reminded of the truly global talent involved in this unique hobby...and aspire to continue to improve the stature of our own boats and gatherings on this side of The Pond.

Once again, we have employed online translation services to adapt Bernhard's copy here. And once again, the results are mixed. I've done my best to make sense of the sometimes senseless, and fully admit the fault of any departure from Bernhard's intent is strictly my own.—ed.



Note the large number of participants!

Attending Neulengbach #21

Let's go!

I had two years to be teased about how I was only awarded the Most Beautiful Submarine trophy at the previous Neulengbach r/c sub event so that I would definitely come back to hand it over again—that it would be my duty. But since it



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had been such a wonderful meet two years ago, and the worldwide pandemic had flattened almost everything since then, my joy clearly outweighed that duty.

"Meep, meep, meep," chirped the alarm at four o'clock in the morning to get me out of bed and onto the 450 km from Ammersee to Neulengbach. Nothing much was going on on the Autobahn but dark, cold and foggy—nothing to ease my transit, that is. Yet precisely at 9:00 a.m. I found myself standing in front of the venue's gated swimming pool. The meeting had been made possible under ongoing COVID conditions via a green armband for those who had been vaccinated and recovered,

a white armband for those who had been tested, a one-way line in front of the food trolley, and serious hygiene concern from many donors. A happy "hello" to the group and then the usual lugging of boxes...but at this end with some help.

No sooner had I set up my petrol boat flotilla on the tables than I went for a needed coffee. It was cold, after all. Talking with other participants and looking around at their work provided the usual entertainment; there was again a large

*Yes, there
sure is
plenty to
see!*



Bernhard Wenzel comes to us from SONAR magazine, a German sub hobby publication, and the SCR is so pleased to have him with us!



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Gentlemen recognizing the true value of "play."

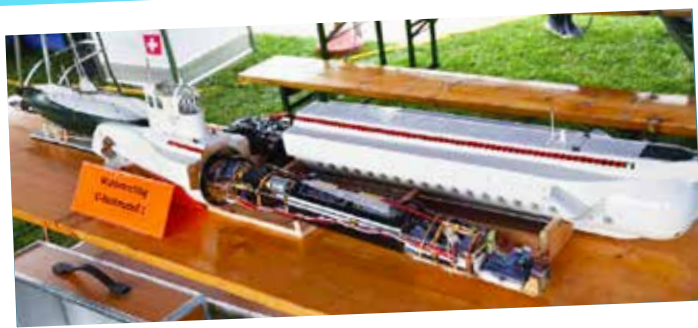


"We all live in a..."

The Southern States were represented by the Hunley.



The Auguste Piccard shows us the color of her insides.



Italian CB.

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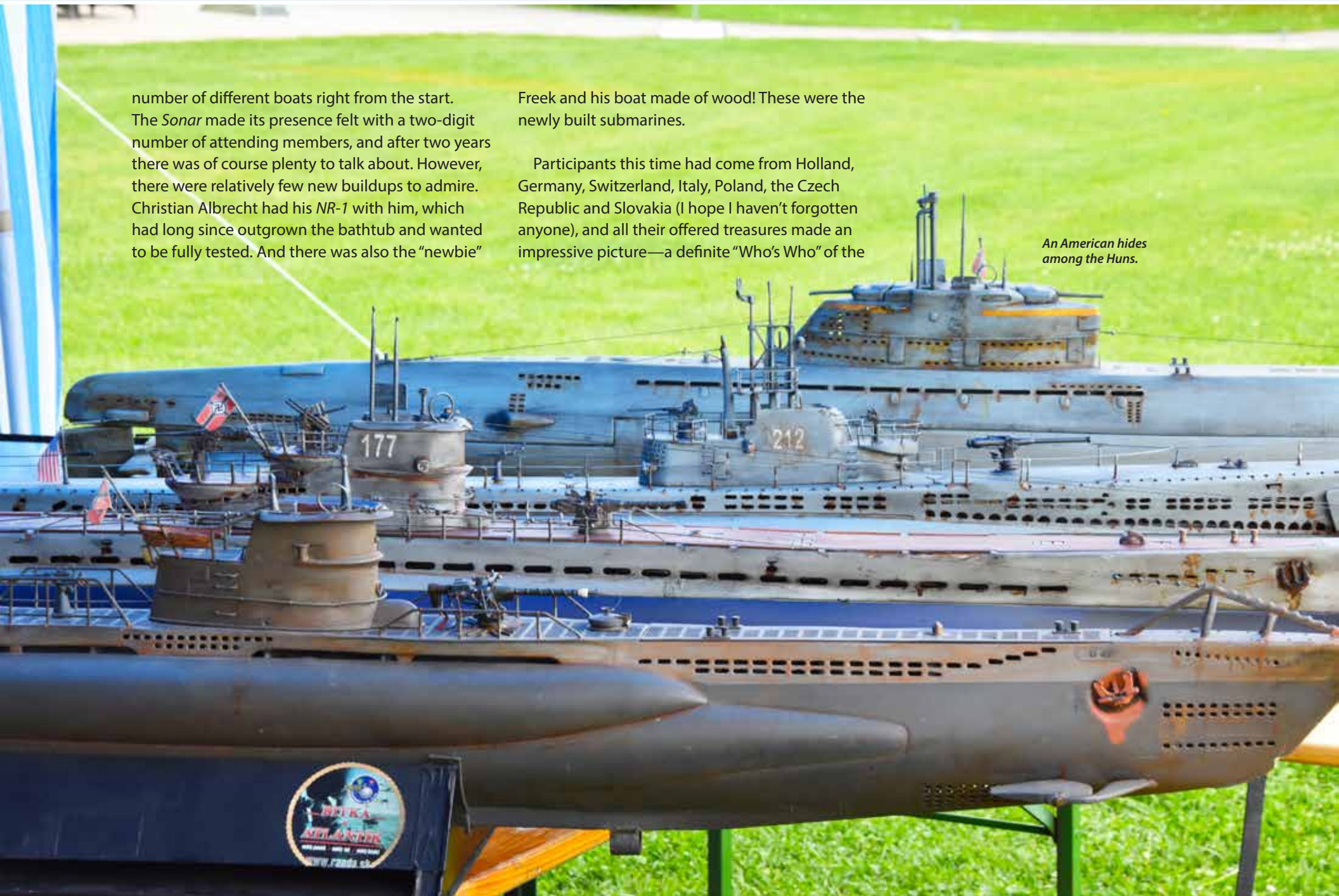
UNTERSEE OVERSEAS

number of different boats right from the start. The *Sonar* made its presence felt with a two-digit number of attending members, and after two years there was of course plenty to talk about. However, there were relatively few new buildups to admire. Christian Albrecht had his *NR-1* with him, which had long since outgrown the bathtub and wanted to be fully tested. And there was also the “newbie”

Freek and his boat made of wood! These were the newly built submarines.

Participants this time had come from Holland, Germany, Switzerland, Italy, Poland, the Czech Republic and Slovakia (I hope I haven't forgotten anyone), and all their offered treasures made an impressive picture—a definite “Who's Who” of the

An American hides among the Huns.



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Half of the Austrian submarine weapon is on the table...



Just sitting and awaiting the "go" mission signal...



Very rarely seen Type XIV "Milk Cow."



Rare 212 kit from Robbe.

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An Italian "Maiale."



The Holland, by Freek.



This little one is still hanging onto its umbilical cord.



Russian Minoga ("Lamprey").



Beautifully built by Ludwig Seitz: K&K SM U12.



The Auguste Piccard does indeed dive.



Another party on hand, of course: my SM U9.



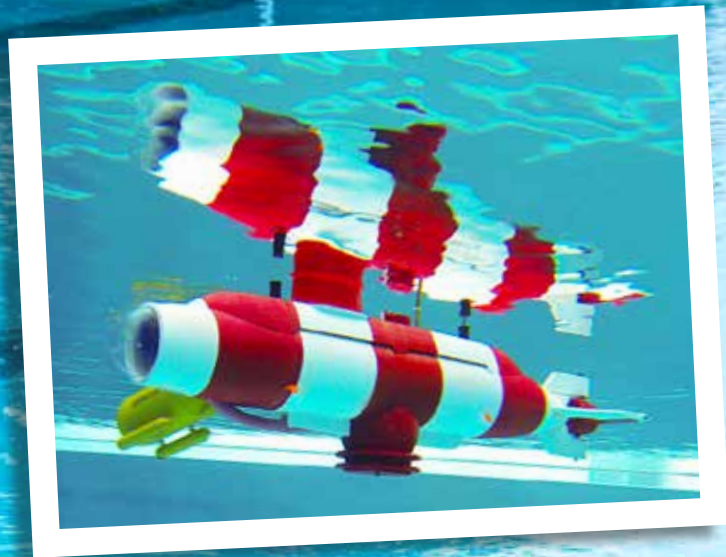
K&K SM U7.

model submarine scene! All boats were soon eagerly entrusted to the water.

But then—voodoo? Witchcraft? One boat after another stopped operating and wouldn't come back up, yet there was no trace of this being the Bermuda Triangle... A fishing rod with a magnet helped to rescue damaged vessels a few times, but a diver was required in the middle of the basin as well. By early afternoon, no less than five mysterious foundering incidents had occurred, but the boats all turned out to be dry inside once recovered and opened up. This seemed to speak of radio reception failures because of the stainless steel pool. Thankfully, activating FailSafes



Take-home prize for all participants: the Hunley.



was not an impossible task...

It remained cold, and the hope for some warming rays from the sun dimmed just as quickly as the sky did. Eventually the feared downpour came, so the boats all got a shower instead of a bath. Wet is wet—it happens. By the time the grill was up to operating temperature later though, everything was dried out again—so

Also on hand for event security: a DSRV.



Who has the Right of Way here?

nothing stood in the way of a cozy dinner with sausages and beer. The night run was a bit lackluster; it was just too cold. Still, as a social gathering, the laughs lasted a long time.

The next morning it cleared up and the first rays of sun provided needed incentive. There were also significantly



Switching sides?

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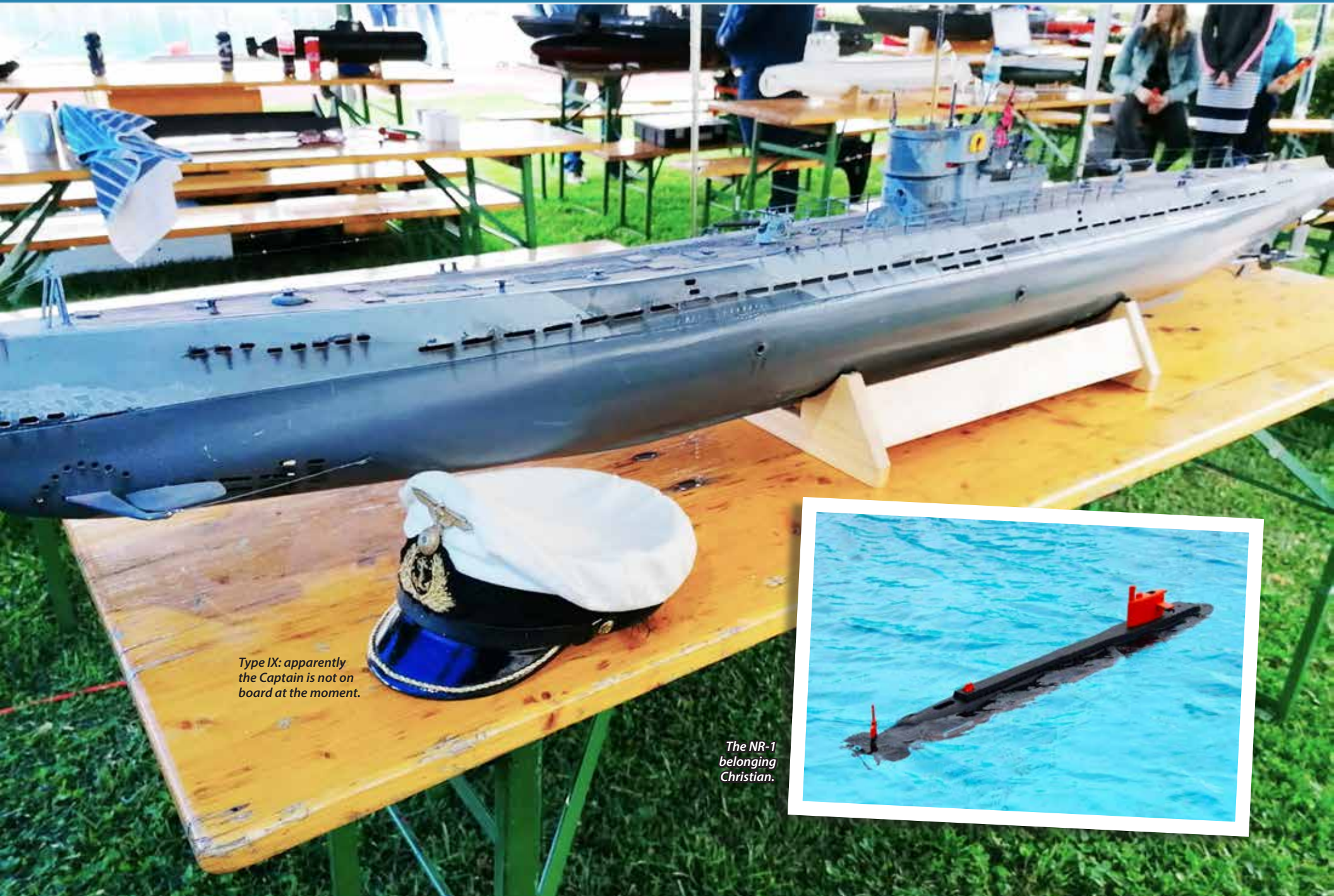
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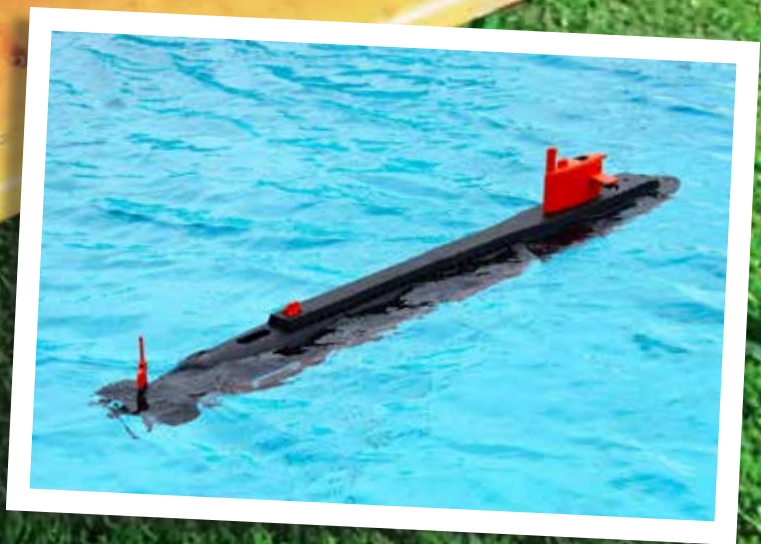
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Type IX: apparently the Captain is not on board at the moment.

The NR-1 belonging Christian.



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Torpedo switchout on the "Milk Cow."



Any fish in this pool?



A friendly diver can help in any emergency!



Are they biting today?



Freek screws together his Auguste Piccard passenger sub.

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Impressive-looking submerged.

more visitors than the day before, marveling at our many boats in action. I especially wanted to demonstrate my *Pluviôse*, since the last time I'd tried to run her, her technology and electronics were too rudimentary and she hadn't been operational. Since then I had found

time to work on my skills, but unfortunately she still couldn't dive. One thing I've learned: the more complex the technology, the greater the maintenance effort is required. If smoke comes out of her chimney, the lock is open. If there's no smoke, either the smoke generator

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A Russian Typhoon.

Full tables!



itself is nonfunctional or there's been an issue with its closure. Worst case scenario? The lock is wide open. The generator problem (voodoo again?) turned out to be its closure: the grease had congealed through lack of use and made it stiff. At least the boat remained impressive running out on the surface. But as is so often the case, I encountered some hobby captains who could not adequately assess the rudimentary maneuverability of WWI boats—and hung out just in front of my bow, of all places. (Until I cried Uncle!)

Didn't matter. I grabbed the C-class and put it on the edge of the pool to switch it on. Beep, beep—the servos and piston tank go on, but not



It's obvious right away—intensive technical discussions go on here!



A dolphin "released back into the wild."

U-X1 Project of the Austrian Navy.

the engine. It... Just. Won't. Work.. At home the thing switched right on again, of course, and ran perfectly. More witchcraft? Occultism? Or the interstellar dead zone? Technique is such a dog.

The meet, as always, was entertaining. Norbert Brügggen was busy doing his rounds with his ROV—including real time video transmission and taking wonderful underwater photos—until the joint photo session reminded us that the meeting was drawing to a close. To say goodbye this time, in addition to the obligatory attendance certificates, there was a model of the *Hunley* for everyone—once again another piece of jewelery for my sideboard! The trophy

WAHOO'S 3rd PATROL

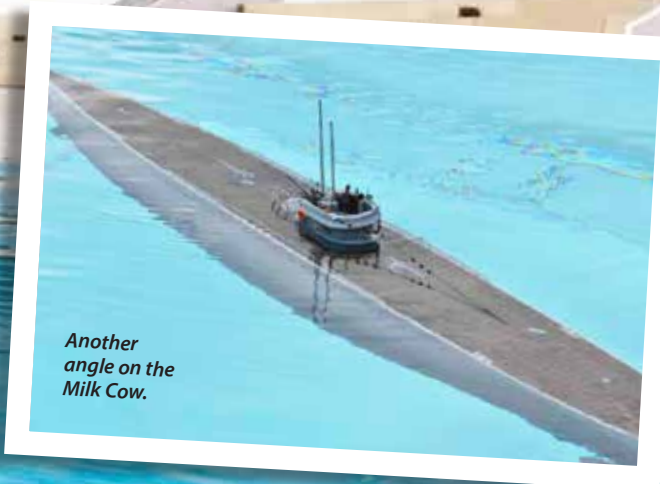
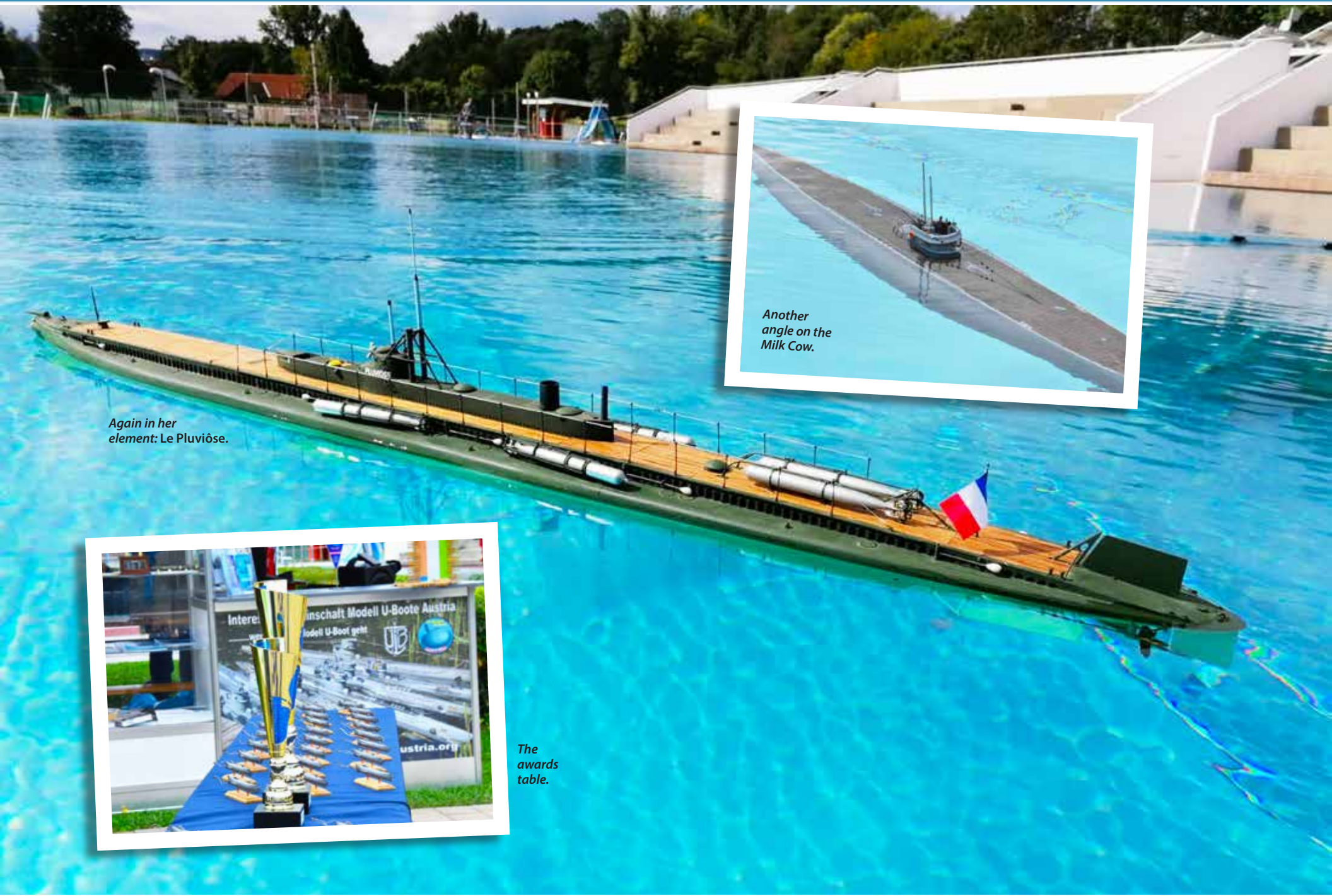
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Another angle on the Milk Cow.

Again in her element: Le Pluviôse.



The awards table.

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for the longest journey went to Freek Schepers, as did the trophy for the Most Beautiful Submarine model—his *Mesoscaphe Auguste Piccard*. Congratulations, sir!

In my imaginary diary there is the laconic entry “March back, 1700.” From Salzburg, the return trip consisted of constant traffic jams and rain. That grounded me again. But Hans Hofmann had again organized another successful meet with his gang from IGU Austria! Particularly note-worthy were the girls with homemade cakes and smiles always on their faces. Perfect organization; thank you very much for that!

I think I might come back next time after all: prepare that trophy to be returned once again to its rightful owner! ;-) (It really was a great time!)

Till next time,
—Bernhard



Type VII
with a large
wintergarden
and snorkel.

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Type IIB - 1:32
53 inches



Molch - 1:9
48.25 inches



Seehund - 1:9
53 inches



Type VII - 1:32
82.25 inches



Hecht - 1:9
46 inches



Type XXIII - 1:25
55 inches

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Honoring Harder

by Jeff Porteous

Building Revell's 1:72
Gato boat as SS-257



Part 4



Ghosts' Glory

WOLFPACK



Harder's starboard-side shears. A research photo for cosmetic conversion work.

When making my first trip back to the workbench since last time, I immediately set about moving that poorly positioned "front porch light" overlooking the forward gun deck. This is what I had finished up with in the previous installment. Now it looks so much better!

Next in construction order (according to the kit instructions, anyway; I figure there must be *some* convenience to their build logic, so I have pretty much followed along) came the guardrail around the so-called "cigarette

Editor's Note: I'm sorry to acknowledge a significantly shortened *Harder* build entry with this issue. There simply wasn't time to work on her, nor space left within these pages to document much anyway. Here's hoping for more progress depicted next time. —Jeff



Railings in place fore and aft; textured piece added on top; detailing and guns await...

deck" aft of the bridge and shears. Study of *Harder* photos showed she had those skinny, insubstantial stanchions and cabling back there instead of the thick, pipe-like railings represented by the kit's styrene parts. So I elected to go with Oto Gerza's photetch parts (www.RCsubs.cz) for this. These PE railings are indeed thin and frail, and I do wonder how well they'll stand up to handling, eventual travel and pond patrols. Still, they look much more scale, and I figured I might get by simply by doubling up the parts to make them a bit more robust. Worth a try, anyway, before defaulting back to the too-big kit railings. Also very much in their favor was the fact that they were created in the correct extended length to fit properly around the sail's newly widened deck aft (previously added PE parts). Since the kit pieces were not extended and would therefore require tiny added bits of cutup spare railing or even sprue stretched to fit, that decision was pretty easy to make.

Both Oto's railings and the kit's railings, however,

the same on the kit parts if later forced to go back to them instead.

As for the railings around the gun deck forward, happily, the kit parts don't appear oversized here. Even better, they exhibit the correct bowed-out shape that *Harder's* had—a great relief, given that some other *Gato* boats of the era sported forward railings of different shapes which might well have been Revell's choice to reproduce instead. As such, I obviously elected to go with the kit railings, as seen in the above photo. Definitely a win—yay! Earlier, I'd found among my parts stash some nylon-coated woven steel cabling meant to be threaded through those forward stanchions. It's made by Prather Products, Inc. (Part No. 7060), and if memory serves, it was given to me for this boat by old friend Mark Jones ("The Small Sub Guy") up in No. Calif. some years back. Sadly, it turned out to be too thick to fit through the tiny holes molded into the stanchions, so I wound up using thinner wire I'd picked up from a model railroad

include the raised round support section (center aft) which acts as a rest and securing point for the long barrel of a Bofors 40mm gun. Since this gun appeared later in the war and *Harder* never had one anyway, this raised section had to go: I clipped it off the PE railings and will do

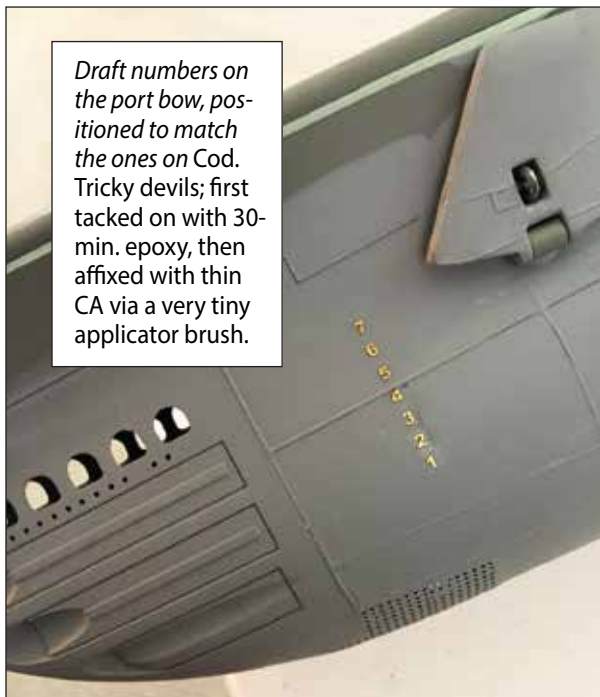
hobby shop instead: Woodland Scenics foam cutter replacement wire, actually—meant to be heated in a cutter to slice through styrofoam. (No. ST1436.) But later on I finally decided I wasn't happy with it, removed it, and carefully bored out the delicate little styrene stanchions to accept Mark's larger cable after all. It looks so much better now. Thanks again, Mark!

Around this time I also noticed I had a textured PE piece from Oto intended to go onto the flat base of the periscope shears above the bridge. I have no idea if this texturing is actually correct for *Harder*, but I suspect it might not be, that it was present only on later boats or perhaps even a postwar mod. I believe early *Gatos* likely had just that grit-infused, rubbery gunk ("non-skid") painted over all their metal walkways and standing areas, offering traction for crew shoe leather. (A quick photo check proved *Cod*—SS-224—had only more teak strips up there, so that didn't help much.) But I decided I liked the look of the textured piece in that position anyway. It adds further eye candy, so I'm going to go with it regardless. I figure my final choice won't much matter, since I can neither prove nor disprove the part's existence. And Oto found it on *some* fleetboat, after all!

Another detail involving decision-making was the installation of PE draft numbers on the hull. I hadn't originally planned to wade into such fine detail, but then I saw shots on Oto's Facebook page of the draft numbers a customer had installed on his own Revell *Gato*...and was instantly sold on the idea of taking the extra trouble. His numbers were positioned somewhat differently than as directed by the PE instructions however, so I wondered about



Stern draft numbers on the starboard side just above the prop and prop shaft —masked off here from a primer test.



Draft numbers on the port bow, positioned to match the ones on Cod. Tricky devils; first tacked on with 30-min. epoxy, then affixed with thin CA via a very tiny applicator brush.

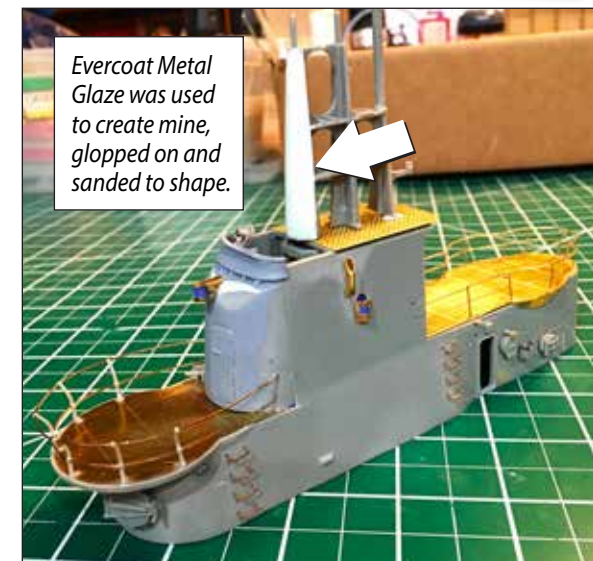
their accuracy. Images of *Harder* in research photos proved too distant and unclear to confirm correct draft number placement, though scrutiny of shots in a photo book devoted entirely to USS *Cod* (SS-224) —again, another EB boat of similar configuration— revealed the exact position of the numbers and the fact that they only ascended to “7” feet in their four-corner appearances on the hull, not “10” as installed by Oto’s customer on *his Gato*. I easily decided to go with matching *Cod*’s draft number selection and placement, as the photos here reveal.

Finally it was time to start getting into the conversion of *Harder*’s periscope shear area. For starters, research photos like the one on page 83 show her shears to be significantly different not only from the kit’s, but from other *Gato* boats as well. As just one example, the periscope forward has an added fairing or half-housing of a conical shape— not only offering more strength and protection for the instrument, but less hydrodynamic drag as well, I’d imagine. I haven’t seen this on many other older *Gatos* when going through photos, but it appears clear as a bell on *Harder*, looking actually somewhat similar to the conical ‘scope housings prevalent on the follow-on *Balao* class.


To create it as an alteration for the kit piece, I simply used a coffer dam to fill in that forward ‘scope area with Evercoat Metal Glaze (an old friend by now!) and sanded to shape. Yes, the stuff is very smelly and pretty goeey till it kicks off, but sands fairly well afterward. Fortunately, only the forward periscope required this altered shape—at least as far as I could discern from scrutinizing my reference photos.



Half-cone forward ‘scope fairing is clearly visible in this *Harder* ‘44 refit photo.



Evercoat Metal Glaze was used to create mine, glooped on and sanded to shape.

All of which brings us to the end of this short installment. Next time we’ll continue with fairwater modifications and maybe even get down on deck for some work too. See you then. 

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SUBCOMMITTEE BUSINESS



President's Comments



Good day, fellow bubble-heads! I sincerely hope your 2022 is off to a good start as you start to pull your boats out of hibernation and prepare them for this year's running season.

Lots of exciting things are happening behind the scenes at the SubCommittee from an organizational standpoint. The long-awaited forum

upgrade is in its final stages of preparation for launch. This was a massive undertaking as our forums were about four versions out of date, making the upgrade highly problematic. If things go well, by the time you read my next article we should be up and running and enjoying all of the new features. The new website is also about 95% complete. Launch should be within a month or so. This will make things like membership administration exponentially easier for everyone, and it'll also have tons of new features everyone will love.

More exciting news! As we have done in the past (though admittedly it's been some years), the SubCommittee will be sponsoring trophies at the upcoming IPMS National Convention in July. We will, of course, be honoring winners in the static/display submarine modeling category. This puts us in front of thousands of potential new members. We are also in the preparation stages of having a SubCommittee booth present at the event; I'm planning on being there myself to represent us.

Lastly, a big shoutout to Tom Chalfant, who caught the fact that we had inadvertently permitted the SubCommittee's non-profit status to lapse some time back. He's working to rectify the issue and get us back on the straight and narrow. Lots of work, and this jumped out at us by surprise. But Tom is now on top of it and we'll be properly set back up very soon.

Best regards,
Bob Martin, President
(president@subcommittee.com)

Vice President's Comments



Happy Anniversary! Our first year is under our belt and a lot has been done, believe it or not! But I'll leave that up to the other EC members to elaborate on. Regardless, I'm hoping everything that comes to pass brings *you*, my valued shipmate, hope and excitement about the future.

About this time last year, I reached out to all the local SC squadrons to get a feel of which ones are actually active, and who was running them. If the EC can get a better, regular handle on these local chapters, we can better support them. Note the recent formation of two new ones: SubCom*LoneStar and SubComSouthEast!

So I kinda want to take ownership in acting as the "Chief of Staff" for Bob and the rest of the EC to help

the squadrons have a say in what's going on, and for them to receive support from the National/International level. In other words, become the local squadrons' advocate and representative at the Executive level.

We need to try to integrate more formally, more substantially than as just a band of sailors slapping on the SubCom/SubRon name and calling it a day—not that there's anything wrong with that! But we think we can do more together, like swapping ideas, setting up local Regattas, financial support, even finding ways to have competitions at a local levels that work their way up to National—like a Sub Photo Pageant, for instance.

Look, I'm not sure what will work—or what won't—but we're free to try anything. Nothing is cast in stone. The local chapter/squadron is the grass roots level for recruitment and membership in this organization. Let's leverage that with regular and formal communication.

So let me know if you're interested, or have some ideas. Though any local "Commander" can reach out to me any time, I would be tickled pink to have a monthly or every-other-month "Chapter Staff" meeting online with Zoom or GMeet with you guys, to share ideas, hear your concerns, and grow the SC at the Member/Squadron/National/International levels.

Again let me be clear, the level of participation is up to you. It's okay any way you decide, including silence. But I'm here if you want to try something new.

"Sub" Ed Tordahl, Vice President
(vicepresident@subcommittee.com)



SUBCOMMITTEE BUSINESS



Membership Chair Comments



Greetings SubCommittee Membership!

In terms of local chapter activities, it's mostly been quiet due to winter weather's making most outdoor venues a little cold, plus holiday travels and COVID concerns getting in the way of

some squadron operations. Those chapters who *have* made it to the pond are noted in the FOX Schedule column as usual.

However, with respect to *internal* chapter activities and affairs, there's been plenty of action!

In Texas, we now have **SubComLoneStar** in full swing and operation. If you're anywhere in Texas, especially near the Houston area, check out **SubComLoneStar**! This new chapter just held a Trim Party this past weekend, so they are active and ready to give out mission orders and area assignments. Toward the southeast end of the U.S., efforts are underway to revive the old **SubComDeepSouth** local chapter. It all started with members like *you*, banding together via e-mail chain correspondence, to pursue the re-branding of an older chapter under a new name and banner: **SubComSouthEast**. This squadron

further expands from the original chapter's coverage of South Carolina, Georgia, Alabama, and Florida to also now include North Carolina, Virginia, and Tennessee. There's plenty of e-mail correspondence and activity occurring between new squadron members. They've been putting forth the effort to make connections with like-minded bubbleheads across quite an expansive region that's rich in lakes and ponds.

If *you're* looking for a squadron near you, check out the "SubCommittee Local Chapters" threads on the SC Forums, or see pages 32 and 33 here in this *SCR*. Also, as Bob mentioned in his column on the previous page, very soon you'll have newly reworked Forums and a fully revamped and upgraded SC website to enjoy too. Things are really happening these days at the SubCommittee!

Ready in All Respects,
Matt Homeier, Membership Chairman
(membership@subcommittee.com)



Stationed in So. Carolina, Membership Chair Matt officially docks his Key West in SubComSouthEast.

Treasurer's Comments



Hello once again from the Treasurer's desk. Thanks for your continued support of The SubCommittee! Since the previous *Report*, we have had the expenses and income shown below:

Beginning Checking Balance:
26 November, 2021: \$6,966.60

Income:
Dues: \$1,484.34
Total Income \$1,484.34

Expenses:
Internet \$316.54
Reimbursement for Coins and Patches \$994.50
Web Expenditure \$241.86
Total Expenses: \$1,552.90

Ending Checking Balance, 24 March, 2022: \$6,898.04
Beginning Savings Balance, 29 October, 2021: \$15,094.86
Interest: \$1.00
Ending Savings Balance, 28 February, 2022: \$15,095.86
Ending total bank balance: \$21,993.90

NOTE: We continue to have a deposit balance with Ace Party Rentals of \$871.44, which is not reflected in the above total. This was the down payment for the tent for use at the Carmel Fun Run which was cancelled last year due to the COVID 19 pandemic. This balance will be available for our use for this year's event. As in the past, The SubCommittee puts up the funding for the event and is then reimbursed afterwards. This makes our actual net worth \$22,865.34.

Respectfully Submitted,
Tom Chalfant, Treasurer
(treasurer@subcommittee.com)

THE SUBCOMMITTEE REPORT

This is SC Treasurer Tom Chalfant's very photogenic 1:72 Skipjack-class USS Scamp. If you're tired of looking at his and your editor's own boats so often lately, do something about it. I've been asking you guys to submit hi-res dramatic shots of your boats ever since taking over this rag, and my inbox hasn't exactly been overflowing. ;-) —ed.

