SEARCH FOR USS POMPANO

2014 SURVEY REPORT & SITE INVESTIGATION

Unknown Wreck Site, Tsugaru Strait, Japan

NOVEMBER 2014

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EXECUTIVE SUMMARY

Between 15 and 19 August 2014, the U.S. Navy conducted a survey and investigation of a wreck site in the Tsugaru Straits (Japan) that potentially represented the remains of World War II submarine USS *Pompano* (SS-181). The site was discovered during the 2013 Survey for *Pompano* and designated as a target of interest for further examination. The 2014 mission was executed off USNS *Safeguard* and utilized side scan sonar equipment, remote operated vehicle technology, and Navy divers equipped with underwater cameras to conduct a site analysis. The overall objective was to confirm or deny the wreck site as a submarine and further delineate its identification as USS *Pompano* or otherwise. The mission was successfully executed and it was determined that the site did not represent a submarine wreck. In the process, the expedition was able to provide challenging real-world operational training while supporting the Navy's dedication to locate its lost sailors and marines, and preserve its submerged cultural heritage.

PARTICIPANTS

Organizational participants in the 2014 USS *Pompano* survey included Commander U.S. Pacific Fleet, Commander U.S. Seventh Fleet (C7F), Commander Naval Forces Japan (CNFJ), Commander Task Force 73 (CTF 73), USNS *Safeguard* (T-ARS-50) officers and crew, Mobile Diving and Salvage Unit One (MDSU-1), and representatives from the Japanese Maritime Self Defense Force (JMSDF), Naval History and Heritage Command (NHHC), and Fleet Combat Camera Pacific.

Figure 1: MDSU-1 (UAB Photo: POMP_14-1).

Master and Chief Mate of *Safeguard* were James Driver and Gregory Phillip. MDSU-1 (CO 1 -8) was led by CWO Matthew Stevens and Master Diver Somsack Phantahvong. CTF 73 was represented by LCDR William Sumsion, JMSDF by Liaison Naval Officer Masayoshi Tamura, and NHHC by Dr. Robert Neyland, underwater archaeologist, and Morgan Wilbur, combat artist. In addition, Combat Camera provided MC3 Daniel Rolston.

SURVEY PLATFORM & EQUIPMENT

Figure 2: USNS *Safeguard* photographed from RHIB (Navy Photo: 140814-CN059-N-048).

The 2014 Search for USS *Pompano* was conducted off USNS *Safeguard,* a Military Sealift Command *Safeguard*-class rescue and salvage ship. USNS *Safeguard*, and her sister ships, have participated in similar missions to locate and identify historic U.S. Navy wreck sites. Additionally, *Safeguard* participated in the June 2014 DIVEX to identify the site of USS *Houston* (CA-30) off the coast of Indonesia. The vessel is aptly suited and equipped for survey and diving operations.

The survey team used side-scan sonar and ROV (SeaBotix LBV300-5) technology, in addition to manned diving operations conducted by MDSU-1. The Rigid-Hulled Inflatable Boat (RHIB) was utilized for both sonar and diving operations.

GEOGRAPHIC & ENVIRONMENTAL PARAMETERS

Figure 3: Map of Japan (left); close up of the Tsugaru Straits and survey area in red (right).

The survey was conducted in the southeast corner of the Tsugaru Strait a few miles off Shiria Zaki, Honshu (Fig. 3). Japan is an archipelago comprised of four principal islands: Hokkaido, Honshu, Shikoku and Kyushu (Heinrich 1983). Japanese territorial waters extend between 3 and 12 nautical miles over several straits between the Sea of Japan and the Pacific; namely La Perouse or Soya, Tsugaru, Osumi, and the Korea or Tsushima Strait.

The Tsugaru Strait runs between Hokkaido (the northernmost island) and Honshu (the largest and longest of the four main islands) connecting the Sea of Japan to the Pacific Ocean. Warm and saline tidal waters of the Tsushima Current enter the Sea of Japan through the Tsushima Strait, flowing northward along the western coast of Japan and out to the North Pacific through the Tsugaru Straits. This current has a major impact on the flow and dynamics of the Tsugaru Strait (Isoda et al. 1991).

Sediment in the Tsugaru Strait is composed almost completely of sand, with varied sloping ranging from <0.6˚ up to 2.9˚, with area around the site averaging 1.4˚ slope. Basalt, andesite, and rhyolite are observed in many places under the sand, particularly in the south. The current flows at an average of 1 and 2 knots. (Naval Oceanography [METOC] 2011)

The climate in this region is temperate. Winter weather (November - March) is dominated by clear skies, good visibility, little precipitation, strong winds and low temperatures averaging in the 30s and 40s (1 - 4°C). Sea surface temperature is slightly warmer than the average air temperature. Wave height remains stable between 4 and 6 ft. (1.2 to 1.8 m) and wind speed averaging from 15 to 17 knots from the west/northwest. (METOC 2011)

The summer season is hot and humid with most of the rainfall occurring during this time, peaking in July. Low visibility days occur frequently due to extensive fog in the area. The average air temperature increases from February to August (mid-70s; 24°C) and begins to drop in September. Sea surface temperatures average in the low 70s (21°C). Wave heights average 2 – 3 ft. (0.6 – 0.9 m) and winds average around 10 knots from the south. (METOC 2011)

The unknown wreck site has been severely degraded. In addition to the proximity of the site to the coast and location near a known fishing area, several natural forces such as earthquakes, typhoons, tsunamis, etc. may

have significantly impacted the wreck site. Research following the 2011 Tohoku-oki tsunami provided the first direct evidence that tsunamis can rework the sea bottom sediments (Sugawara and Goto 2012). Dunes developed off the Pacific coast of Japan where the earthquake hit with the highest dune at about 6 ft. (1.8 m) high and 65 ft. (19.8 m) long. However, the northeastern tip of Honshu seems to provide some protection to the cape from substantial disturbances of the sea floor. Strong and continuous currents flowing through the strait are likely to have more of an impact on the site in terms of disintegration of exposed sections and burying significant portions of the site in sediment.

HISTORY & PREVIOUS INVESTIGATIONS

Figure 4: USS *Pompano* off Mare Island Navy Yard 19 December 1942 (NHHC 19-N-38960).

History of USS *Pompano*

USS *Pompano* (SS-181), a 1330-ton *Perch*-class submarine, was laid down 14 January 1936 at Mare Island Navy Yard, California. Designated P-10, *Pompano* was commissioned 12 June 1937. In the years preceding World War II, *Pompano* operated out of Mare Island off the west coast of the United States, training her crew and patrolling the coast (Fig. 4).

Operating in the Pacific during WWII, Pompano sank ten enemy ships and damaged four in the six war patrols she completed before her loss. On 20 August 1943, *Pompano* left Midway bound for the coasts of Hokkaido and Honshu, Japan, but was never heard from again. The Navy declared that *Pompano* was presumed lost with all hands on 29 September 1943 when she failed to return. (Naval History and Heritage Command [NHHC] 2004)

Historical Documentation

After World War II, it was assumed that *Pompano* had been sunk by an enemy mine sometime in September 1943 off the coast of northern Honshu, Japan. However, a recent review of an action report from the Japanese Ominato Guard Squadron described an attack on a suspected submarine off Shiriya Zaki Lighthouse on 17 September 1943. According to the translation of the report, an Ominato-based seaplane spotted a moving oil slick and

dropped two depth charges before alerting the Ominato Naval District Headquarters. Japanese patrol boats and minelayers depth charged the oil slick until it stopped moving and was assumed to be trapped on the sea floor. On 18 September 1943, after another unsuccessful attempt was made to locate the target, a buoy was placed to mark the spot about 3,000 meters off Shiriya Zaki Lighthouse (Fig. 5).

Pompano had been credited with the sinking of two enemy vessels during September, *Akama Maru* on the 3rd and *Taiko Maru* on the 25th, which would indicate that it was not lost in the attack on 17 September (NHHC 2004). However, it is likely that *Taiko Maru* was sunk by USS *Wahoo* (SS-238), since the attack occurred west of the Tsugaru Straits in the Sea of Japan, where *Wahoo* was on patrol from September to October 1943.

Five U.S. submarines went missing off of northern Japan during WWII. All left Midway to patrol their assigned areas and were never heard from again. NHHC has tentative known locations for the missing submarines, but further research and survey is needed for confirmation. Based on historical records and proximity to the reported Japanese anti-submarine action, *Pompano* was determined to be the most likely candidate if the site discovered by USNS *Safeguard* was determined to be a U.S. submarine.

Previous Investigations

2012 USS Guardian *Survey*

While conducting normal operations in the Tsugaru Straits, U.S. Navy minesweeper USS *Guardian* (MCM 5) identified several uncharted wrecks, approx. 2.3nm northwest of Shiriya Zaki, Japan in an est. depth of approximately 130 ft. (39.6 m). Recently discovered Japanese records detail an attack on a submarine in this area on 17 SEP 1943 and USS *Pompano,* which had been on patrol in the area and reported lost around this same time, was put forth as a potential candidate for identification.

Following a request by CNFJ for permission for a U.S. Navy return site visit, the Japan Maritime Self-Defense Force (JMSDF) 45th Minesweeper SQDN (NAGASHIMA) visited the two sites discovered by *Guardian* from 12 to 15 May 2013. Through sonar and diver survey, the Japanese determined that two of the wrecks were fishing boats.

2013 USNS Salvor *Survey*

In 2013, USNS *Salvor* returned to the area off Shiriya Zaki to conduct a survey and investigation of the targets located in 2012 in a coordinated effort between CTF 73, Fleet Survey Team (FST), and NHHC. Utilizing side-scan sonar and remote operated vehicle technology, the mission successfully investigated and discounted the two targets of interest and, in the process, located a new target as a possible submarine-like shipwreck.

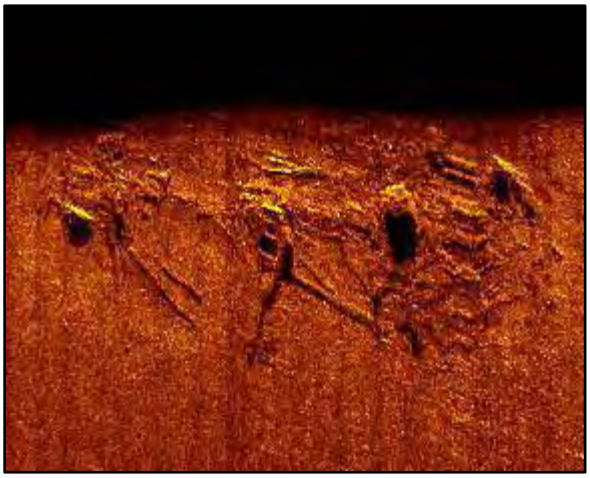

Figure 5: Side scan sonar image from FST of the wreck site from the 2013 survey.

Due to weather, equipment failure, and time constraints, the site was only minimally examined and not enough conclusive evidence was collected for NHHC to determine if the wreck site was a submarine. A return survey was recommended in order to conclusively identify the site.

SUMMARY OF OPERATIONS

Building on the results of the 2013 survey aboard USNS *Salvor*, the U.S. Navy made available assets from several commands to conduct a 2014 survey operation to investigate a target of interest in the search for WWII submarine USS *Pompano*. Since the site rests in Japanese territorial waters, the U.S. Navy, via CNFJ, requested and received permission from Japan's Ministry of Foreign Affairs to conduct the survey.

13 August

USNS *Safeguard* departed Yokosuka Naval Base for the northeast corner of Honshu on 13 August 2014 at 1442. Weather conditions were moderate throughout the voyage to the site.

15 August

Safeguard arrived on site at 0630. Seas were calm; sky clear; a moderate breeze from southeast; waves 0.5 to 1 ft. (0.1 – 0.3 m); current ran from the northeast paralleling the coast. A few fishing vessels were in the area.

Between 0830 and 0900, the RHIB was lowered into the water and launched; and by 1020 MDSU-1 was conducting a side scan sonar survey to relocate the wreck based on coordinates provided by FST from the 2013 survey. Once located, a buoy was dropped on the site. At 1315, following a Navy brief by the ship's captain, Master James Driver commenced laying the two point mooring system. At 1400, *Safeguard* was securely anchored on the mooring system.

16 August

Sunrise was at 0415. Weather was mild with light wind out of southeast; waves 1 to 1.5 ft. (0.3 - 0.4 m); current ran from the northeast. The forecast for the sea off Hidaka reported wind from the northeast later shifting east at 15 knots and cloudy. Visibility was 10 nautical miles.

The first dive was scheduled for slack tide at 0600 on SCUBA. The purpose of this dive was to verify that the buoy, located 200 yards off the starboard stern quarter, was positioned on the wreck site. Divers were instructed to move the buoy if it did not properly mark the wreck. If necessary, the ship's anchor and mooring would be repositioned. The dive team was transported in the RHIB to the buoy and began diving at 0630. Visibility was reported to be great and there was no current. The buoy was 20 yards from what was identified during the 2013 survey as a potential conning tower-like object.

The ship was repositioned closer to the wreck in order to facilitate surface-supplied dives, which consisted of two divers designated "red" and "green" based on the color of their umbilical hoses. The divers conducted a 7 minute decompression stop at 40 ft. (12 m) then surfaced and went directly into the decompression chamber for 40 to 50 minutes.

MDSU completed a series of 2 surface-supplied dives. Visibility was 20 ft. (6 m) and depth 132 ft. (40 m). During the first dive from 1036 to 1123, the divers examined the spherical structure, but their investigation suggested that it might be something else, possibly a boiler. The team measured an opening in the structure that was approximately 22 in. by 12 in. and noted that a number of square bricks or cement-like tiles were scattered around the structure (Fig. 16).

During the later dive from 1337 to 1430, the team located a propeller in the stern, to which they attached a go-line and buoy. In all, the screw propeller, a flange [10 to 15 ft. (3 to 4.6 m) forward of the screw], and a shaft or pipe like structure were recorded (Fig. 6). Visibility was good, but the current was running strong from 40 ft. (12 m) below to the surface.

Figure 6: Propeller and stern of wreck. Note 300 ft. tape and go line from ship for divers.

17 August

Divers were up at 0230 for an early morning slack tide dive in order to avoid the strong wind and current observed later in the day on 16 August. Sea conditions were mild with little current and wind from the southeast.

Increased winds and waves during the night caused the ship to crab, which pulled the go-line off the wreck site. During the first dive, from 0505 to 0610, the dive team relocated the stern and retied the go-line to the propeller shaft. A small peanut buoy was also tied there and released to the surface. Unfortunately, this buoy and a similar one released at the bow were never visible from the surface. A 300 ft. (91.4 m) tape reel was stretched between the screw and the forward end of the wreck. Red diver pulled the zero end of the tape to the bow area of the wreck and tied off there.

On the next dive from 0755 to 0848, the divers straightened and extended the tape further in the bow area and conducted video documentation using both GoPro and helmet cameras. Maximum depth was 134 ft. (41 m).

The third dive occurred from 1039 to 1140. The current was strong on the surface and on the bottom. The clump weight moved approximately 15 ft. (5.6 m) and the diver's stage tilted in the current at the bottom. Winds blew from the southeast to east at 18 knots and waves were 2 to 3 ft. (0.6 – 0.9 m).By end of dive, seas had built to 4 ft. (1.2 m).

The propeller was examined and Red diver determined that there were 4 blades, three of which were intact and one broken (Figs. 7-8). The extant propeller blades each measured 2 ft. 4 in. tall and 1 ft. 6 in. wide. The propeller hub measured 2 ft. and 1 in. Total maximum diameter of the propeller was 6 ft. 9 in. The shape of the blades was not symmetrical, consisting of a straighter edge to the left side of the blade and curved edge to the right. During this dive, a possible ladder and starboard side of the deck was noted.

All three dives were successfully completed and accomplished locating both ends of the wreck, examining the propeller, and noting other wreck features. The wreck site was determined to be 212 ft. (64.6 m) maximum in length of debris.

Figure 7: Diver inspects the propeller for any markings and notes missing blade.

Figure 8: Diver measuring propeller.

18 August

Weather was mild and the sky was overcast with some mist and fog in the morning hours. Seas were 0.5 to 1 ft. (0.1 – 0.3 m) and the wind blew from the southeast at 10 knots.

During the first dive, from 0506 to 0606, the water was cold, visibility was good to at least 20 ft. (6 m), and depth was 132.2 ft. (40.3 m). The stern area was explored and documented, and Red diver determined that there was no more debris aft of the stern section. Red diver moved forward around the wreckage and discovered a large double bitt, a winch or spool of cable (Fig. 12), pipe with flange, and bollard in two pieces. However, no sign of a pressure hull or any other features associated with the aft section of a submarine were found.

In addition, the large spherical feature that was identified in 2013 as a possible conning tower was explored and measured 11 ft., 6 in. in length. The bitt was measured to be 1 ft., 2 in. between the posts, and each post was 1 ft. in diameter and stood above a piece of attached deck by 1 ft., 8 in. Lastly, an intrusive fish or crab trap was discovered on the site (Fig. 14).

After the first dive, WCO Stevens determined there would only be enough O^2 for two more dives. MDSU-1 was using 1.5 bottles per dive for the decompression chamber and only 17 bottles total had been brought on board. Since at least one dive would be dedicated to clearing the site of lines, it was decided to save the O^2 and continue documentation with the ROV.

The first ROV dive occurred from 0820 to 0930. Although there was some current, the ROV worked very well and was able to hover over the wreck. The large spherical object was explored further for identification (Fig. 16-18). The shape was determined to be more rectangular than spherical as assessed during the 2013 survey (Fig. 15). The object was found to contain numerous tubes on the inside and there appeared to be an opening for a door and a hinge present (Fig. 17). In addition, mounting pads and pad eyes were noted as well as iron knees near the stern. Therefore, the object was determined to likely be a boiler or some form of evaporator.

The structure identified in 2013 as a possible Warren girder was documented around the 35 ft. mark on the baseline. In the bow, a capstan or windless like structure (Fig. 10) and a length of chain was discovered and documented. The chain did not have stud links.

Based on the data collected during the ROV dive combined with evidence from the previous dives, it was determined that the site does not represent the remains of a submarine wreck. The wreck, at 212 ft. (64.6 m) in length, was 73 ft. (22.3 m) too short to represent the pressure hull and 100 ft. (30.5 m) shorter than the entire length of *Pompano*. The propeller was not correct in shape, the number of blades and construction. Finally, there was no pressure hull, conning tower, torpedo tubes, guns or mounts, torpedo loading tubes, or other features consistent with a WWII submarine wreck.

The final ROV dive occurred from 1040 to 1140 and continued with the documentation. Water temperature was 53˚F (11˚C). The second ROV was fitted with two GoPro cameras; one placed looking forward and the other on the after end of the ROV looking down. The ROV was flown 10 to 20 ft. (3 - 6 m) above the wreck with several passes down the length of the wreckage as well as side to side.

The plan was to finish all operations on the following day with MDSU-1 conducting a final dive to remove lines and tape. However, at 2000, increased winds from the southeast caused the mooring to shift considerably. The ship's heading changed from 54 degrees to 349 degrees and the stern anchor line changed from a 45˚ angle to 90˚ angle off the starboard quarter. MDSU decided to conclude diving operations on the wreck as all necessary documentation had been collected. The clump weight was pulled off the bottom, but the NHHC tape was left on the site.

Figure 9: Large double bollard forward of the stern.

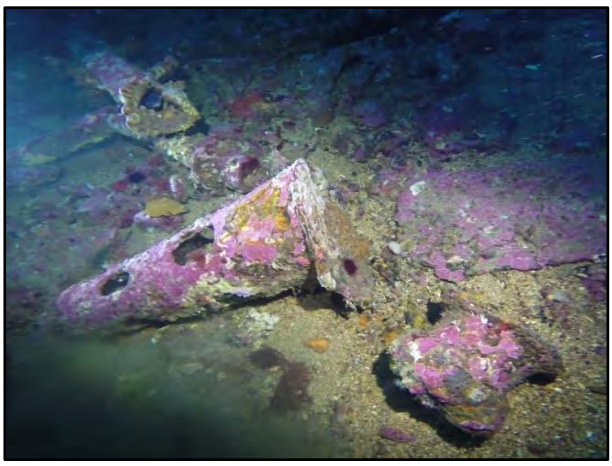

Figure 10: Capstan (aft), one of two noted on site.

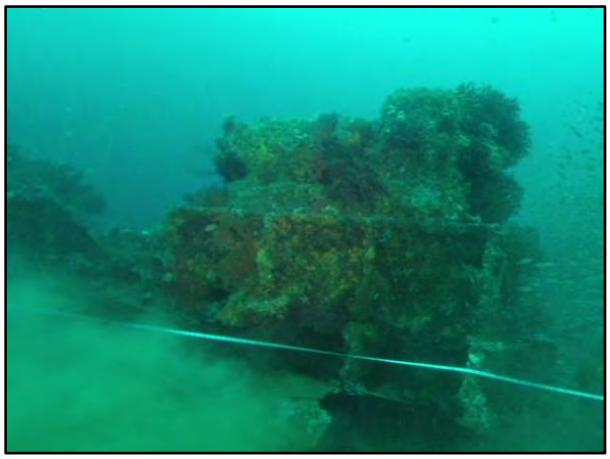

Figure 11: Reduction gears sitting on a platform, located forward of propeller and shaft remnants.

Figure 12: Winch found in aft half of the wreck.

Figure 13: Possible mast.

Figure 14: Fish or crab trap.

Figure 15: 2013 survey ROV video still identified as potentially representing the conning tower.

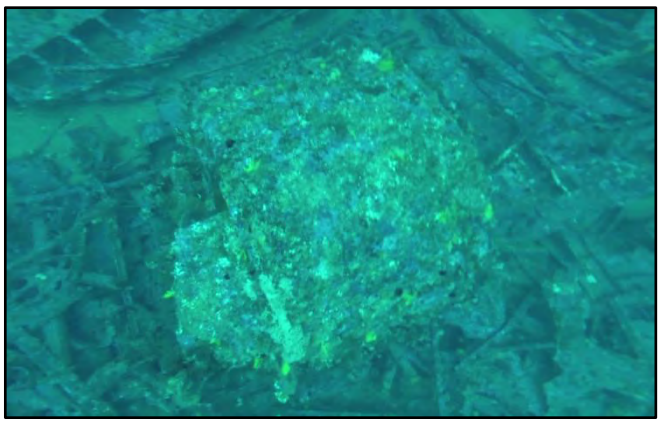

Figure 16: View of likely boiler from above.

Figure 17: Side view of boiler, notice what appears to be a door opening on the right.

Figure 18: Opening into the boiler with scatter of bricks or tiles around opening.

19 August

Since it was evident that the wreck did not represent the remains of USS *Pompano*, additional side scan sonar was proposed in the area immediately south and contiguous of the 2013 FST survey area. Four survey blocks were created south of the position of the buoy documented in the Ominato Guard Report (1943) as the location of the potential submarine. Each block was 1 nautical mile square.

Weather conditions were not optimal with winds at 14 knots, current at ¾ knot from the southeast, and poor visibility. Air temperature was in low 70s (~21°C) at 0551 and, in addition to the fog, the forecast for the day was cloudy and rainy with a chance of thunderstorms.

A side scan survey was initiated from the RHIB. Although the MDSU-1 sonar could not save all of the digital sonar data, any anomalies could be marked as targets. By 0830, after 2 ¾ lines were completed, the rain and seas increased with wind gusts up to 24 knots from the east. The survey was called off due to the weather and the RHIB recovered. The survey team completed 15% of the boxes, but no targets were identified. Some fishing nets were observed, but overall the bottom was very flat.

The survey was halted due to increasing wave heights and winds. The weather appeared to be deteriorating rapidly as near gale force conditions were forming west of the Tsugaru Straits and expected to move east over the next 24 to 48 hours. Therefore, it was decided to conclude all operations for the search of USS *Pompano* and depart for Yokosuka.

RESULTS & CONCLUSIONS

Wreck Site Analysis

Based on the site investigation, the wreck was determined to be the remains of a surface vessel. The absence of weapons or other common features of military vessels observed on site indicates that the vessel served a non-military function, possibly as a cargo or fishing vessel. The total length of the wreckage is 212 ft. (64.6 m). The breadth of wreckage was not measured, but is estimated to be about 70 ft. (21.3 m).

The date of the wreck is unknown, but the welded construction suggests sometime after the 1930s. No datable artifacts were found, however, a baseball-sized glass float was noticed tangled in the wreckage (Fig.18). Glass floats are hollow spheres used to keep afloat fishing nets (Pitch 2004). If not intrusive to the site, then the ship likely dates to a period when glass floats were in use. Glass floats were in use in Japan as early as 1910 and by the 1940s glass had replaced most wood and cork floats for much of the deep-sea commercial fishing industry. Although plastic is more commonly used in recent decades, glass floats are still utilized by some Asian fishermen and produced as collectables for tourists (Whitten 2014).

The wreck is extremely damaged and disarticulated. Very little of the outer hull remains intact and for the most part the wreckage consists of a scatter of frames,

Figure 19: Glass fishing float

beams, some deck plating, and machinery (Fig. 19-21). A small section of the stern, which contains the propeller and shaft, is the most articulated portion of the hull. The stern section lies on its port side with the starboard exposed in the water column. The ship had only the single screw with an estimated 4 blades. The blade shape appeared to be most similar to the type described as the chopper or the skew-back type (Smith and Slater 1998:26).

The ship gave the impression of being lightly constructed. No engine was observed, but propulsion machinery such as reduction gears (Fig.11), a boiler, and pads for other equipment were present. Winches were found in both the stern and bow sections. Also in the bow was a length of chain, but there were no visible anchors. Other identifiable structures included piping with flanges and decking fastened to beams with knees. The Warren truss structures, identified during both the 2013 and 2014 surveys, were likely part of a cargo crane or outriggers for fishing.

This wreck is not on the charts, however, due to its condition, it does not present a hazard to navigation. Several factors may have contributed to the extensive damage witnessed to this wreck including environmental factors, salvage, and demolition as an obstruction to navigation.

If already present on the sea floor during the reported Ominato Guard attack on a submarine, the wreck might have been damaged by the salvo of depth charges dropped in the vicinity.

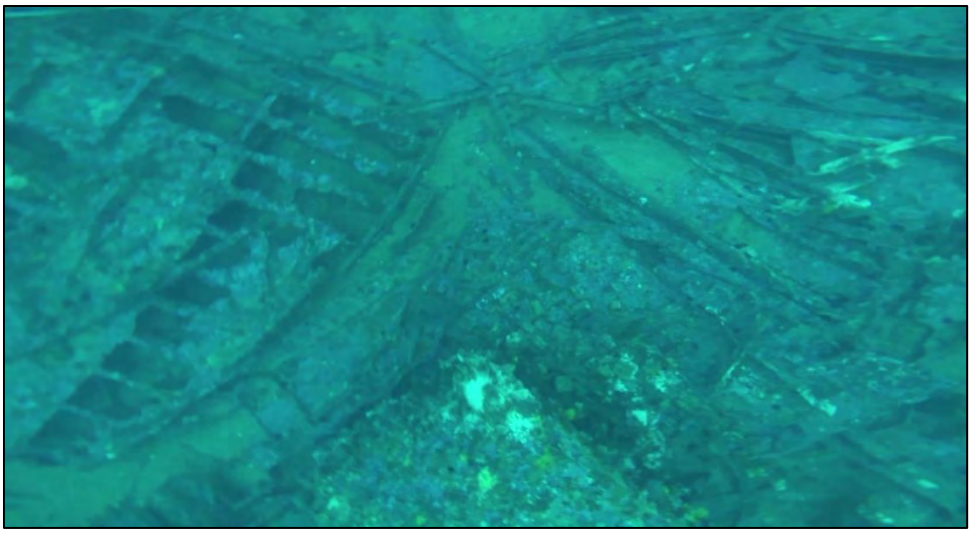

Figure 20: Overhead view of wreckage, upper surface of boiler in lower foreground.

Figure 21: View of the wreck site forward looking aft.

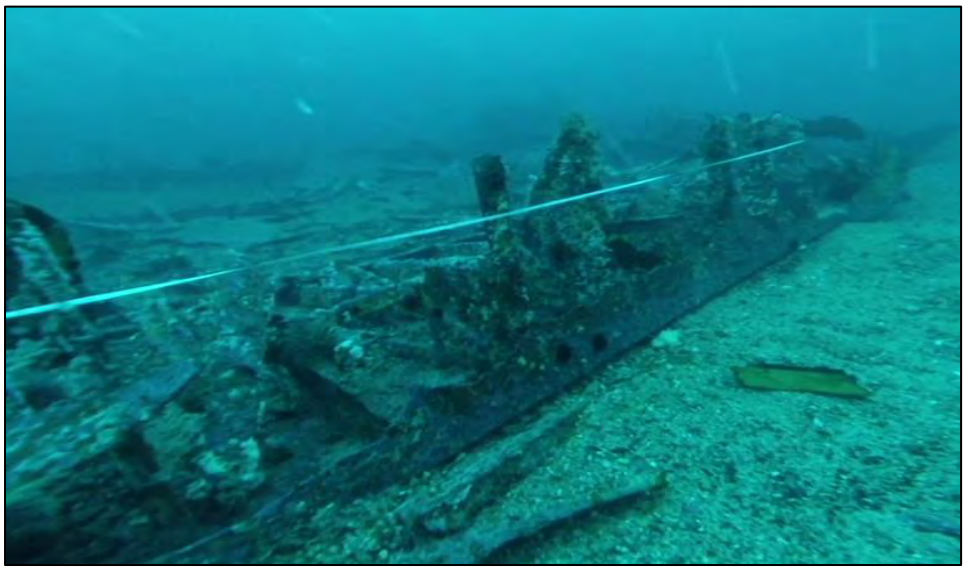

Figure 22: View of lower port side of wreckage looking forward. Keel possibly present at base of wreckage in the sand.

A few lessons learned from the survey confirmed that one should be careful in identifying a specific wreck even when the initial information looks promising. With a fully functional ROV and better bottom conditions during the 2013 survey, this wreck site would have been ruled out as a candidate for *Pompano*. Although each survey is different, similar shallow water projects in the future require adequate side scan sonar designed for area surveying and capable ROVs for ground truthing anomalies. Decompression diving operations should have additional O^2 bottles onboard in order to insure adequate supplies for extended dive operations. Although this mission had 17 bottles, the ship's racks would hold up to 41 bottles.

Conclusion

In regards to USS *Pompano*, it would appear that the Japanese Ominato Guard did not sink a submarine at either of the two locations provided in the historical documents. The Japanese reports do note that they could not confirm contact of a submarine on the bottom, although they reported oil gushing from the site. It is speculative, but possibly that the oil came from this wreck investigated in 2014 and the depth charging caused the leakage. It is possible that the submarine was attacked and succumbed elsewhere in the Straits or that it completely escaped and was eventually lost at another location.

The original positions plotted by the Japanese report were bracketed by two to three miles to the north, west, and east. The south however was not surveyed due to the fishing zone restrictions. An attempt was made to extend the survey that direction, but the operation was hindered by weather. The southern section could be reviewed if there is additional survey work to be done in the area.

However, as the survey area gets closer to shore, local fishermen would likely know of a submarine wreck located in shallower water as it would show up on their depth finders and would be an attractive structure for fish. Charts for the area reveal other wrecks both further offshore and to the south of the Shiriya Zaki Lighthouse point. Unless previously identified, these wrecks could be surveyed as potential targets. Additional avenues of research to determine potential survey areas include analyzing Japanese mine field data contemporary to the loss of *Pompano* and talking with local fishermen and dive groups.

Although the 2014 survey did not accomplish the ultimate goal of locating USS *Pompano*, the survey confirmed that the unknown wreck site was not a submarine, provided operational training, and troubleshooting experience for any future surveys in the Tsugaru Strait. If new information is discovered indicating a probable location for *Pompano* a future survey might be warranted. USS *Pompano* remains US Navy property and is protected from unauthorized disturbance under the Sunken Military Craft Act. As a war grave, the wreck site of *Pompano* should be accorded the highest honor and respect.

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APPENDIX: OPERATIONS LOG

NEYLAND NOTES		
WEDNESDAY, 13 AUGUST 2014		
	1442	Departed Yokosuka Naval Base for survey area. *Safeguard* averaged 17 knots.
FRIDAY, 15 AUGUST 2014		
	0630	On site, seas calm, waves ½-1 ft. Moderate breeze Starboard beam from NE. Some fishing vessels on site. No fog. Some haze. East to Northeast running current.
	0830	RHIB in water for pre-opt
	0900	Launch RHIB and bring back alongside
	1020	RHIB survey to relocate site
	1300	Navy Brief on 2 point moor system
	1315	Commence 2 point mooring
	1400	Securely anchored on 2 point moor.
	1430	TBD survey opts.
SATURDAY, 16 AUGUST 2014		
	0415	Sunrise, waves 1 to 1.5 ft., wind light SE. Plan to dive scuba on buoy which is off to SB ca. 200 yards. Place on wreck if not already there. Slack tide
	0600	If necessary relocate ship anchor. Load divers in RHIB and drop on buoy line. Current running from NE. Forecast: sea off Hiddake NE later to east at 15 knots, Vis is 10 NM. Seas 1.5 ft. **1500-1524** East, later SE 15 knots, cloudy. Port crane is out of operation and have to use SB for divers. Lee on port side and would be better to dive from.
	0630	Diving. Reacquire wreck. Buoy 20 yards from conning tower object. Visibility great and no current. Rest of morning spent repositioning the ship over the buoy. Plan to dive early morning tomorrow. Pull bow anchor use thruster to move ship if need to. If need a hospital there is one over ridge of NE Honshu Island. Transport by helo if there is trauma. Decompression sickness will be treated on board.
SUNDAY, 17 AUGUST 2014		
	0230	Diver up for early morning slack tide dive. Successful dive even though GO LINE to wreck had pulled off wreck. Relocated stern and propeller. Re-tie GO LINE to propeller shaft. Then tie buoy and release. Then tie reel end of tape to prop. Diver (red) pull tape to bow end of wreck and tie off. Next diver should straighten tape and tighten. Then begin video along tape; wind from east. Wave ca. 2 to 2.5-3 ft. Ship had crabbed during night and pulled line off wreck. Total 3 dives: Ends located, BL laid, propeller measured and blades counted.
	0500	Sea calm, 18 Knots by 1300
MONDAY, 18 AUGUST 2014		
	0550	First dive. After first dive, CO determined only enough O_2 for 2 more dives. Using 1/1/2 bottles per dive in decompression chamber. Decided continue with ROV. Two additional ROV dives that morning.

		Determined wreck is not submarine: 1) Propeller not correct in shape, number of blades, and construction. 2) Wreck is at least 73 to 100 ft. too short. 3) No pressure hull 4) No conning tower, torpedo tubes, guns or mounts, torpedo loading tubes, etc. Appears to have only the single screw. It is 212' in length. Lightly constructed. Probably fishing or coastal vessel. No engine observed. Nor any visible anchors, although there is chain in bow.
		MDSU 1 wants to finish their other 2 dives. Then conduct sonar operations to south of wreck. Find any anomalies investigate with ROV.
		Lessons learned: 1) don't be hasty in identifying a wreck, 2) if had fully functional ROV and better bottom conditions in 2013 would have ruled out site, 3) need good sonar and good ROV in these situations.
	2000	-Anchor drag: wind 14 knots, anchor drag when current change from slack to high. Winds SE. New info: change of tide current, low to high, strong after slack. Both anchors dragging but bow more so. -Anchor drag continued: Bow anchor initially but then also stern somewhat. Due to wind gusts up to 20 knots. Stern anchor was pulled and swung on bow. No more diving. Clump weight pulled. NHHC 300' tape left on bottom.
TUESDAY, 19 AUGUST 2014		
	0550	-Ship heading change from 54 degrees to 349 degrees when anchor dragged. Stern anchor line went from 45 degree angle to 90 degree off SB quarter. -4 survey blocks created to south of Japanese buoy location and target looked at. Each block 1 nautical mile square. Wind 14 knots. -¾ knot current to SE, vis poor, fog, rain all day, cloudy with thunderstorms, Temp low 70s. -Pictures of 8-19-14 numbers 135 to 136 showing ship heading. -Anchor dragged when current went from high to slack to outgoing. Had eddies both sides of ship.
	0830	Rain and seas increase, call off survey, wind speed gust to 24 knots from east. Completed 2 ¾ lines, each 1 mile. Did not see anything in search area. Did ca. 15% of boxes. Bottom very flat. Some fishing nets out. During the next 48 hours there is a near gale force front to west of straits. Warm and cold fronts colliding. Expected to move east over our area within 24 hours or longer. Our ship had dragged anchor until it was almost in shipping land.
		Decided to call project and head back into port.