

ARCHAEOLOGICAL SURVEY AND IDENTIFICATION OF
USS *CONESTOGA* (AT 54) OFF SOUTHEAST FARALLON ISLAND
GREATER FARALLONES NATIONAL MARINE SANCTUARY
MARITIME HERITAGE ASSESSMENT EXPEDITION
SEPTEMBER 2014 - OCTOBER 2015



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Cover Photo
Modern painting of USS *Conestoga* just before the tug's loss, March 1921
Image: Danijel Frka, ©Russ Matthews Collection



Table of Contents

Abstract	iii
Chapter 1: Background, Research Goals, Equipment & Methodology ...	1
Instrumentation	2
Video Camera	2
Chapter 2: Description of Wreck Site	6
Site Formation Process/Wrecking	16
Chapter 3: Identification of the Wreck	17
Conestoga	18
The Southeast Farallon Island Tugboat and USS <i>Conestoga</i>	26
Probable Cause of Loss	28
Concluding Remarks	34
Expedition Personnel, 2014 Survey	38
Expedition Personnel, 2015 Survey	39
Sources Cited	40

Abstract

During a September 2014 maritime heritage survey mission in Greater Farallones National Marine Sanctuary aboard the R/V Fulmar, a previously undocumented multibeam sonar target thought to be a shipwreck was investigated. The target was the wreck of an unknown vessel of late 19th or early 20th century vintage in Greater Farallones National Marine Sanctuary. Utilizing a Remotely Operated Vehicle (ROV), three survey dives were conducted to characterize the target, which proved to be a steel-hulled, steam-powered oceangoing fleet tug. Subsequent historical research found no documented tug losses for this time period, either through accident or deliberate scuttling, in the sanctuary. After assessing historical accounts of tugs that departed the Golden Gate and were never again seen, and a detailed analysis of the “mystery” tug’s features, the wreck was identified as USS Conestoga (AT 54). This U.S. Navy fleet tug went missing with all hands after departing Mare Island Naval Shipyard on March 25, 1921 for Pearl Harbor Naval Station and thence Tutuila, American Samoa, its new assigned duty station. A subsequent mission to the wreck in October 2015 provided additional information on the site with selective ROV penetration of the hull and careful examination of diagnostic features that included a 3-inch/50 caliber gun.

Chapter 1

BACKGROUND, RESEARCH GOALS, EQUIPMENT & METHODOLOGY

A NOAA/Fugro multibeam sonar survey (H11965) for NOAA's Office of Coast Survey of the area around the Farallon Islands was conducted by the vessel F/V *Pacific Star* from August 3-9, 2009. It documented a probable shipwreck with an estimated length of 51 meters (167 feet) at a depth of 56.5 meters (185 feet). The wreck was previously uncharted, and there was no NOAA Automated Wrecks and Obstructions Information System (AWOIS) documentation assigned to this target. The sonar image of the wreck was brought to NOAA's attention by Steve Lawson. It was processed by Gary Fabian for potential maritime heritage expeditions as a target of opportunity. This target, designated "Southeast Farallon Island," was selected as a priority for the Maritime Heritage expedition in Gulf of the Farallones National Marine Sanctuary (NMS) (changed to Greater Farallones National Marine Sanctuary in 2015), aboard the R/V *Fulmar* slated for September 11-15, 2014 (see Fig. 1).

The expedition to this wreck was part of a three-year maritime heritage mission in accordance with the Greater Farallones NMS Final Management Plan (2008) and the Office of National Marine Sanctuaries' Maritime Heritage Program Tactical Plan (2011), to provide ongoing stewardship of wreck sites by site documentation of new discoveries, as well as updating site documentation on previously surveyed sites to supplement previous years' observations. This has been achieved through systematic site investigations of possible ship and aircraft wreck sites to identify vessel and aircraft type, construction details, and identify diagnostic artifacts. In 2014-2015, this work was conducted from the NOAA Sanctuaries vessel R/V *Fulmar* utilizing an Autonomous Underwater Vehicle (AUV) for side scan sonar surveys of wreck sites, and a Remotely Operated Vehicle (ROV) for data acquisition through HD video-capture and still imagery. No artifact recovery was planned for these missions nor has any taken place. R/V *Fulmar* is a 20.4 meter (67-foot) aluminum-hulled hydrofoil research vessel. Its primary function is research and monitoring and the vessel is heavily utilized for up to 180 key missions annually. Data collected during these cruises helps inform management decisions at all three sites and with state and federal partners.

A total of three ROVs dives were made in September 2014. In October 2015, on the second mission to the wreck, a total of four ROV dives were made. The 2014 mission deployed a Phantom HD2 ROV. This lightweight (91 kg) system is easily deployed by two operators and was designed as an underwater platform that provides support services including color video, digital still photography, navigation instruments, lights and a powered tilt platform. For this mission, the ROV had a single forward-looking video camera and two GoPro Hero3+ cameras strapped in watertight housings to its frame.

The specifications for the Phantom HD2 are:

Instrumentation

Fluid-gimbaled fluxgate compass: Accuracy: $\pm 3^\circ$

Electronic depth gauge: Accuracy: \pm

Auto heading, auto depth: Standard

Audio feedback of ROV condition

Leak detector

Onscreen graphic video display

Lasers set 10 cm apart

Video Camera

DOE 18:1 optical zoom high-resolution color camera

PAL/NTSC >470 Lines— 1/3" CCD

Sensitivity 1 Lux @ f1.4

Auto-iris, wide angle lens, viewing angle 7–58°

Auto/Remote focus select

External motorized camera tilt $\pm 90^\circ$

Built-in video switch for 2nd Camera

1,000 m rated, recessed and hardened port



Robert V. Schwemmer, NOAA ONIMS

Fig. 1: Phantom HD2 Operations on R/V *Fulmar*, September 2014

For the 2015 mission, the team utilized the industry-donated services of the Teledyne SeaBotix vLBV300 ROV. This is a highly capable vectored ROV offering a stable and powerful platform for a diverse range of applications. It is rated to 300 meters. Teledyne SeaBotix also provided an Autonomous Underwater Vehicle (AUV). This is a 100 meter depth rated man portable AUV equipped with Starfish side scan sonar for close range side scans (5-30 meter distance). The plan was to deploy the AUV at each target with a programmed survey pattern executed close to the seabed to record a close range side scan survey of the target of interest. Teledyne SeaBotix provided the raw data recorded by the AUV in Starfish Scanline Log Document format, file extension .logdoc. Native files are visualized with free StarFish Scanline software.

HD video output was digitally recorded in broadcast quality HD 1080p format. Secondary output was from a fixed GoPro Hero3+: HD Video output digitally recorded in HD1080p format. File extension .MP4. The ROV was controlled and monitored using Trittech SeanetPro software.

The software records:

1. ROV Thruster status
2. Horizontal and vertical gain
3. ROV Light intensities
4. Water Temperature

5. Internal Temperature
6. Camera tilt angle
7. Depth
8. Altitude when Altimeter is installed
9. ROV Pitch and roll angle
10. Ship Position and heading
11. ROV position and heading
12. Clump weight position when used with a remote beacon
13. Standard definition video from primary camera
14. The file format is .v4LOG for ROV status and acoustic imagery

Acoustic imagery was recorded using different scanning and multibeam sonars. The outputs were in the native format offered by the Sonar manufacture; (Teledyne BlueView, Moog Trittech, Kongsberg Mesotech, Imagenex). Native files were provided. The small size of the Teledyne SeaBotix vLBV300 ROV made the vehicle optimal for penetration into the wreck, and with a vectored thrust was capable of maneuvering in current without a clump weight. Its portable nature also made it easy to deploy and recover manually. The feed from the ROV on both missions was linked into *Fulmar*'s dry laboratory, where the ROV pilot worked alongside the archaeological team and followed direction from them as the wreck was documented. The ROV operator relayed instructions on moving *Fulmar* via handheld VHF to the captain, who free-boated above the site.

Real-time video feed from a high definition DEEPSEA Power and Light Multi SeaCam mounted on the ROV not only guided the dives but also as noted was recorded. The vLBV was reconfigured several times during the expedition to change the sensor payload. Imaging sonars measured the beam and length of the shipwreck and other construction features.



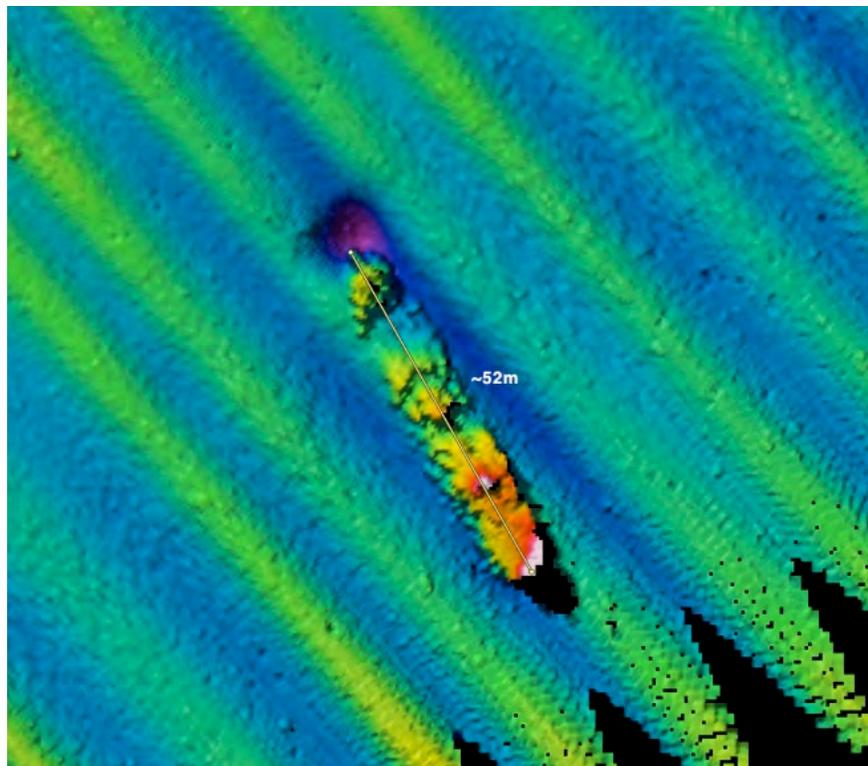
NOAA ONMS

Fig. 2: 2015 Expedition team and U.S. Navy leadership (Vice Adm. Nora Tyson, Third Fleet, and Rear Adm. Markham Rich, Southwest Region) with the SeaBotix ROV.

Chapter 2

DESCRIPTION OF THE WRECK SITE

Additional processing of the multibeam sonar data estimated the wreck to be 52 meters (167 feet) in length with a beam of 8-9 meters or nearly 30 feet (Fig. 3). The hull rises 4.5 meters (15 feet) off the seabed at both bow and stern as measured by the ROV (The NOAA/Fugro report from the 2009 survey reported target relief at 5 meters). Approximately 1-2 meters (3-1/2 to 7 feet) of hull is embedded in the sediments that surround it. The wreck is more or less on a level keel, with a slight list to port. The seabed in this area is characterized by mixed substrates of sand and silt, with occasional rock outcrops. The seabed immediately surrounding the wreck is a coarse to fine sand/silt mix.



Fugro/NOAA

Fig. 3: Multibeam image of Southeast Farallon Island target from Survey H11965 with additional processing and measurement estimates by Gary Fabian.

The ROV documented water temperatures around the wreck that varied from 11.8°C to 12°C. The current on the site is generally stronger at the surface than at the seabed. The direction of the current is on the longitudinal axis of the wreck, and it shifts to opposite directions depending on the tide, when it appears to reverse a full 180 degrees. The current runs from 0.08 to 1 knot depending on tides. The current inside the wreck (below deck) as observed was zero or close to zero.

The form of the hull is utilitarian and evidences a solidly built ocean-going tugboat, with the remains of two rub rails on both beams. The wood once mounted inside the rails is gone, but the iron/steel that lined the outer face of each is in position, in some cases detached or pulled away from the hull by fishing line. The upper rub rail runs the length of the hull just below the bulwarks; the lower rub rail runs from the bow for approximately three quarters of the length of the hull. Extensive marine growth has colonized the wreck, primarily white plumose anemones (*Metridium farcimen*) that cover much of the outer hull, obscuring features such as portholes (see Fig. 4).

Species observed on and in waters adjacent to the wreck, as noted by Mary Jane Schramm of Greater Farallones NMS include:

Canary rockfish - *Sebastes pinniger* (most common species seen)

Rosy rockfish - *Sebastes rosaceus*

Vermillion rockfish - *Sebastes miniatus*

Olive rockfish - *Sebastes serranoides*

Chilipepper rockfish - *Sebastes goodei*

Yelloweye rockfish (juvenile) - *Sebastes ruberrimus*

Greenling spp.

Lingcod - *Ophiodon elongatus*

Striped goby spp.

Giant green anemone - *Anthopleura xanthogrammica*

White plumose anemone - *Metridium farcimen*

Wolf eel - *Annarrhichthys ocellatus*



NOAA ONMS, 2014

Fig. 4: Port bow of the wreck, showing the rub rail mounts, a hawse hole, marine growth and an octopus

However, portholes are present, with glass intact in the deadlights, at the bow. Penetration of the forecastle with a small ROV in 2015 documented five ports on each beam of the hull that illuminate this compartment (see Fig.5).



NOAA ONMS/Teledyne SeaBotix

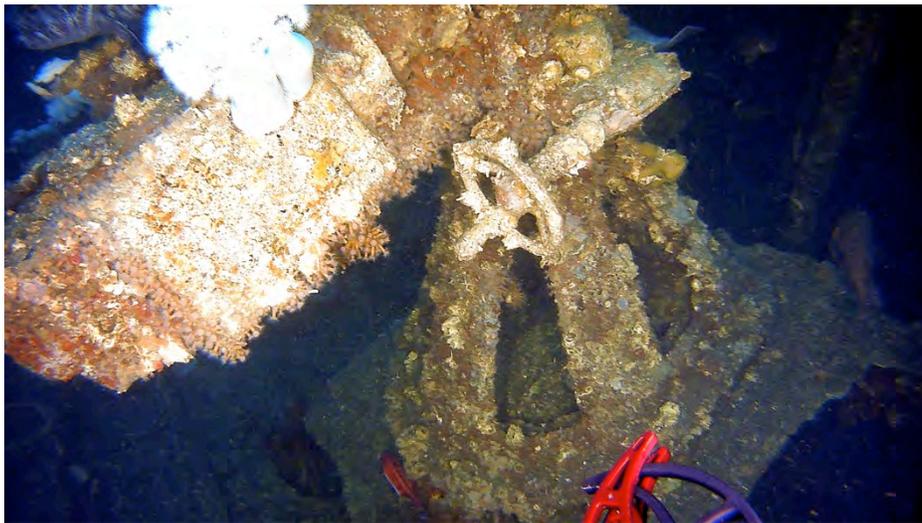
Fig. 5: Interior of the forecastle, starboard beam, showing portholes

At the bow, two hawse holes are defined in the metal hull with oval openings and a thicker lip at the lower end; this type of hawse hole lining is indicative of heavier cable or

chain, most likely chain, and what appears to be chain was observed on the forecastle head in association with the anchor windlass and passing through the port hawse hole. The bulwarks are steel or iron plate, but the wooden cap rail is no longer extant. The metal bulwarks appear to be damaged at the stern, with a section missing on the port quarter. The deck is also missing with the exception of steel or iron plate on which machinery is mounted; there is a large opening through main deck into the hull which approximates the position of the deckhouse, which is no longer standing as it has collapsed into the hull.

Abaft of the stem is a steam windlass fitted with mooring/towing H-bitts. Forward of it is a section of what appears to be chain, and a single iron anchor stowed, arms and flukes aft. Moving aft of the windlass, the deck disappears, leaving only visible iron or steel deck beams, but a substantial, curved metal beam, a davit, stanchion or support for a raised deck above the weather (main) deck, was observed on the starboard side. The stubs of what appear to be two other similar stanchions or davits, equally spaced, are also evident rising from the starboard bulwark. Outside the bulwark is a fitting that appears to be a chain-plate; from its position, it would be for a foremast.

In the forward opening below the main deck, three significant and diagnostic features were observed. The first, sitting upright immediately aft of the anchor windlass is a single naval gun, which from its form and estimated dimensions, as well as its mount, is a U.S. Navy 3-inch/50 caliber single purpose gun on a WWI-era mount. Based on its position, this gun has fallen into the hull through the main deck. The gun retains its spotting telescopes (Fig. 6).



NOAA ONMS/Teledyne SeaBotix

Fig. 6: 3-inch/50 caliber gun lying inside the forward hull

The second feature, aft of the gun, is a steam steering engine of the Williamson Brothers patent type (Fig. 7). The engine is missing its steering chains or cable. It is displaced

from its original position, and like the adjacent gun, appears to have fallen into the hull as the superstructure above disintegrated.



Fig. 7: Williamson Brothers patent combined steam and hand steering gear, lying inside the forward hull next to the 3-inch/50 caliber gun.

The third feature(s) are two closely spaced Scotch marine boilers, side by side, spanning the breadth of the hull (Fig. 8). The boilers are coal-fired, and aft of their compartment is the coal bunker, which is partially filled with what appears to be anthracite coal. The associated piping, including the main steam line is intact and run aft into the engine room.



Fig. 8: Inside the boiler compartment, showing part of one boiler and collapsed debris from the upper works of the tug

Also, lying inside the hull on the port and starboard sides are a pair of mooring bitts just forward of the boilers. These appear to have fallen in as the deck collapsed. Close to the gun is an electric running light, presumably from the wooden foremast, and metal mast deck collar which have fallen into the forward hull with a variety of steel plate and frames from the disintegrated superstructure (Fig. 9).



NOAA ONMS/Teledyne SeaBotix

Fig. 9: Foremast electric running light inside the forward area of the hull, where it appears to have fallen as the superstructure and masts disintegrated and collapsed

While this area was not entered in 2014, the smaller and more maneuverable ROV used in 2015 allowed penetration of the forward space and closer inspection of the gun and the artifacts and structure lying close to it. The gun, other artifacts and debris from the upper works lie on an intact, intermediate steel deck. The compartment beneath it, extending into the forecabin, appears intact. The access hatch to it is covered with steel debris. The ROV was able to enter the forecabin, which is now essentially an empty space with no trace of joinery or other fittings. The portholes that illuminated this area, five on each beam, are as previously noted, all intact with their glass deadlights in place (see Fig. 5). The forward bulkhead, which separates the forecabin from the chain locker, is intact, but it is open, with its access plate or hatch missing or fallen free and lying prone on the deck.

Moving aft, there are few deck beams; there is a substantially-built metal “A-frame” that is roughly amidships. While its use is undetermined it may be related to the steam steering mechanism located on the main deck aft of the boiler room. Aft of the boilers below the frames is the smoke stack collar. Continuing aft is the previously mentioned coal bunker. A partially collapsed steel bulkhead separates the coal bunker from the engine room.

The fourth significant feature observed in the engine room is the tug’s triple expansion marine steam engine. The engine is intact and remains mounted in position (Fig. 10). The

cylinder heads are intact with no evidence of cracking or any other damage to the main body of the engine.



NOAA ONMS/Teledyne SeaBotix

Fig. 10: The engineering spaces lie below the triple-expansion marine steam engine, as shown here in this view looking towards the stern. Loose debris from the superstructure and deck cover the top of the engine's low compression cylinder.

The ROV was too large to safely enter the engine room, especially the engineering spaces, for a closer examination without fear of damage to the wreck or loss of the ROV in 2014. When entered in 2015, it disclosed a compartment with intact machinery, catwalks and ladders, with steam pipes and railings intact. A variety of engine room machinery, covered with debris from the collapsed upper works and deck including plate, framing, beams, and miscellaneous artifacts that include portholes, two porcelain marine heads (one of which may be the engine room head), piping, and machinery, steel or iron floor grating. On the starboard side is what appears to be a lifeboat davit, which from its position seems to have fallen from an elevated position, perhaps an upper deck. On the port side on deck is another steel or iron artifact that appears to have the shape of a lifeboat davit.

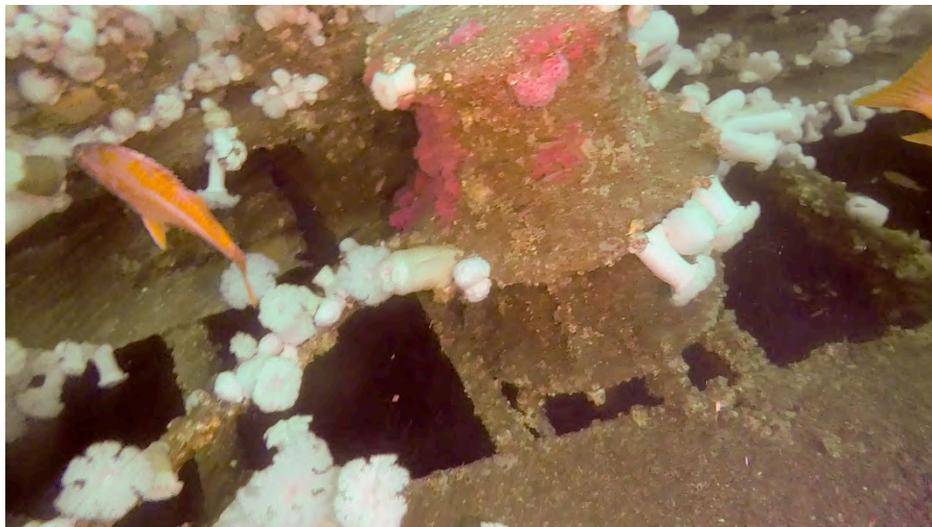
Aft of the steam engine, the deck resumes as a steel or iron plated surface. A large steam-towing winch (also known as a “towing engine”) is situated amidships (Fig. 11). The drum is wrapped with steel cable, which terminates in a wire loop. The wire is not neatly wrapped, and it appears to have “spooled” as if quickly hauled in. Stowed aft and below the winch is possibly a tow shackle.



NOAA ONMSTeledyne SeaBotix

Fig. 11: The steam towing winch or “towing engine” on the aft deck

Two large mooring bitts are mounted to the deck on either side of the towing winch; to starboard a substantial steam gypsy is positioned in place and near the bulwark and mooring bitts (Fig. 12). This piece of machinery was used to handle tackle such as mooring lines.



NOAA ONMSTeledyne SeaBotix

Fig. 12: Steam gypsy mounted on the deck to the starboard beam of the towing winch

Aft of the towing winch, the deck is metal and clear except for four openings, which from their position appear to be the round base mounts for the port and starboard ventilators, square holes for the wooden towing bitts that are no longer visible. Just aft of the openings is a four-bladed iron or steel propeller stowed on deck; this was a spare (Fig. 13).



NOAA ONMMS/Teledyne SeaBotix

Fig. 13: Spare propeller on the deck aft of the towing winch

Aft of the propeller are scuttles with their covers in place, and the steering quadrant, which is rotated hard to port, with the collar of the rudder head pushed up through the deck plate. On port and starboard beam of the steering quadrant are the cable fairleads and remnants of the steering cable.

The head of the rudder shaft is mounted to the rudder, which as the quadrant's position indicates, is sharply turned to starboard at least a 90-degree angle. The propeller, a four-bladed screw of substantial size, with each blade roughly measuring nearly a meter and half or more (suggesting an original "wheel" or screw diameter of three or more meters), is in place, with the lower blades partially buried in the sediment (Fig. 14).



NOAA ONMMS/Teledyne SeaBotix

Fig. 14: The rudder and two of the propeller blades at the stern port side of the rudder, one partially buried in the seabed

As previously noted, the wreck is heavily draped in a variety of invertebrate growth. The fantail, however, was carefully examined in 2015, and raised metal letters spelling part of the vessel's name were documented. The outline form of what appears to be the leg of the letter "T" with an adjacent letter "O" was observed through the marine growth (Fig. 15 and Fig. 26).



NOAA ONMS/Teledyne SeaBotix

Fig. 15: The stern of the wreck, showing the heavy marine growth and the position of the rudder hard to starboard and steering quadrant on deck hard to port

There was no netting observed on the wreck; two sections of rope or line were caught on the structure, and two crab pots of undetermined age were observed lying close to the starboard bow. Lying on the seabed at parallel locations, both off the starboard and port beam are detached mooring bitts, as well as loose, light-gauge riveted plate (Fig. 16). On the starboard side on the seabed is a rectangular frame, possibly one of the window frames.



Fig. 16: A detached mooring bitt lying on the seabed next to the wreck

NOAA ONMS/Teledyne SeaBotix

Site Formation Process/Wrecking

The wreck from the initial characterization appeared to be a sudden, perhaps a catastrophic loss. The immediate impression was that the vessel may have been caught in a storm or heavy seas, perhaps while towing or after having lost a tow. The position of the rudder and the damage to the rudder head as it passed through the deck suggests the vessel may have sunk by the stern in water slightly deeper than the tug's overall length. The position of the rudder may suggest a turn, or it may have been forced sharply to starboard as the vessel struck the seabed. The stowed position of the anchor suggests the vessel was not anticipating anchoring, and was likely underway.

Our initial thought on the first survey was that the superstructure's absence was perhaps attributable to it being wood, and like the wooden decks and rub rails, consumed by marine organisms. However, the third and last ROV survey of 2014 and the subsequent 2015 survey showed that the tug sank with its superstructure intact (more or less, perhaps) and that corrosion and age caused the upper works to collapse into the hull, including the gun, steering engine, and the various beams, portholes, plating and the two marine heads.

While the level of corrosion and marine growth varies on wrecks in different environments, and is not necessarily an indicator of how long a vessel has been submerged, the initial sense of the time of loss based on the relative condition of the wreck, the disintegration of the superstructure, and the basic level of corrosion and growth, compared with other Central/North Pacific shipwrecks we have observed, was that this vessel was lost within a span of several decades to a century ago.

Chapter 3

IDENTIFICATION OF THE WRECK

Subsequent to the expedition, research into known losses of tugboats in Greater Farallones sanctuary found no tugboat losses adjacent to the Farallon Islands with the exception of a 90-foot tugboat lost 13 miles off the islands in 1996; other known losses were in proximity to the “heads” (i.e. Point Bonita and Point Lobos) and were smaller, wooden-hulled tugs. There were anecdotal reports of a post-war scuttling of tugs off the heads, but these were smaller, wooden-hulled vessels. The possibility of a wartime loss not disclosed due to wartime censorship was considered, but the apparent age of the wreck and the fact it is a coal-fired vessel (the central area between the boilers and engine room is an open coal bunker) did not readily support a 1940s date for loss in a diesel-fired era. There was also the fact that the wreck is a large tug for the period in which it appeared to have been built, which we estimated to be approximately a century ago. The “mystery tug” in particular struck us as being similar in many ways, including hull form, machinery and deck equipment to the 1907-built tugboat *Hercules*, a National Historic Landmark vessel berthed at Hyde Street Pier at San Francisco Maritime National Historical Park.

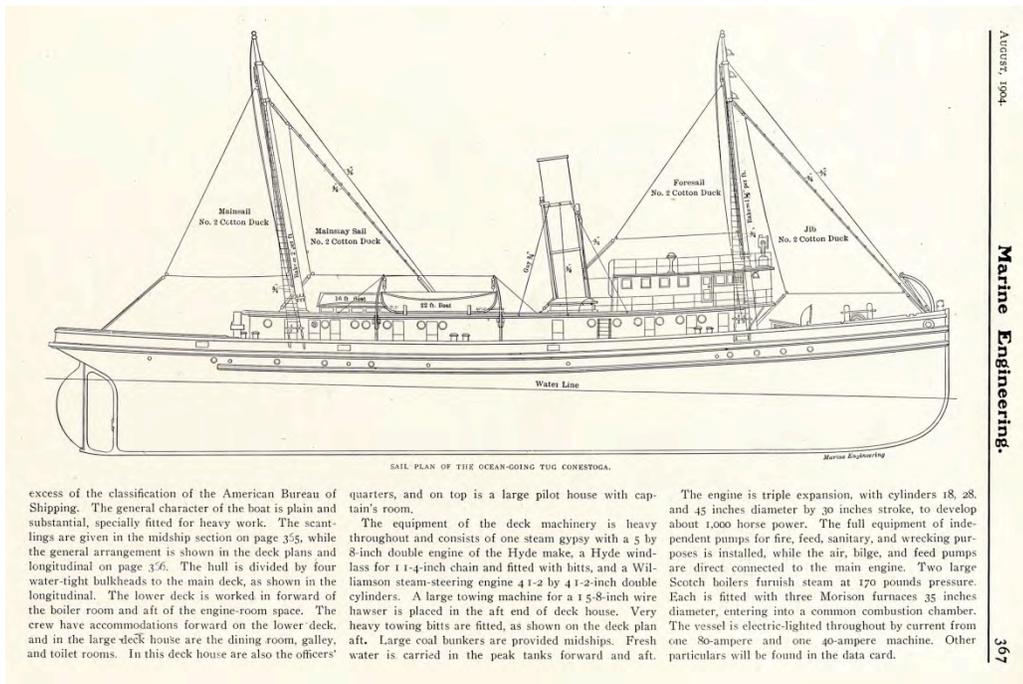
The likely possibility that the wreck was an unreported, undocumented loss was also considered. The fact that the wreck was not charted until 2009, and that discussions with local wreck divers who have extensively dived a large number of wrecks in the region found that they did not know of the tugboat wreck argue for a wreck that had happened, even in close proximity to Southeast Farallon Island and its manned lighthouse, without notice and without survivors.

A search of records for tugboats that “went missing” from 1890-1960 either en route to or from San Francisco suggested a few potential candidates, but none of them an iron or steam tug with the wreck’s length. The length, as we noted at the time of the survey, was unusual for a tug of its apparent age. Research found only one missing tugboat of that size that happened to be in the proximity of San Francisco in the several-decade span that we believed the tugboat wreck to date to. That tug was the 1904-built, 617-ton steel tugboat *Conestoga*, later commissioned USS *Conestoga*, which disappeared with its 56-man crew in 1921.

Conestoga

Conestoga was built for the Philadelphia and Reading Railroad Company by the Sparrow's Point Shipyard of the Maryland Steel Company in Baltimore to tow coal barges. Laid down in 1903 as Hull No. 41, the tug was reported as being "plated up" in the *Marine Review* of September 10, 1903 (*Marine Review* 1903:20). The *Coal and Coal Trade Journal* of November 11, 1903 noted that *Conestoga* was to be launched that week (*Coal and Coal Trade Journal* 1903:806). The launch took place on Friday, November 12 (*Baltimore American*, November 13, 1904). Maryland Steel delivered *Conestoga* to the railroad owner on February 6, 1904. "These tugs are under steam, with but short intermissions, for months at a time. As soon as they bring one tow of barges into port another one for the return trip is assembled and the tug boat starts out to sea with only a few hours' delay for coaling and taking on provisions and stores" (*Marine Engineering* 1904:365). The August 1904 edition of *Marine Engineering* reported on the tug and reproduced a profile and cross section (Figs. 17, 18 and 19) along with a brief description of the vessel and its characteristics:

The *Conestoga* is heavily built throughout, being in excess of the classification of the American Bureau of Shipping. The general character of the boat is plain and substantial, specially fitted for heavy work....The hull is divided into four water-tight bulkheads to the main deck....The lower deck is worked in forward of the boiler room and aft of the engine-room space. The crew have accommodations forward on the lower deck, and in the large deck house are the dining room, galley, and toilet rooms. In this deck house are also the officers' quarters, and on top is a large pilot house with captain's room (*Marine Engineering* 1904:367).



excess of the classification of the American Bureau of Shipping. The general character of the boat is plain and substantial, specially fitted for heavy work. The scantlings are given in the midship section on page 355, while the general arrangement is shown in the deck plans and longitudinal on page 356. The hull is divided by four water-tight bulkheads to the main deck, as shown in the longitudinal. The lower deck is worked in forward of the boiler room and aft of the engine-room space. The crew have accommodations forward on the lower deck, and in the large deck house are the dining room, galley, and toilet rooms. In this deck house are also the officers'

quarters, and on top is a large pilot house with captain's room. The equipment of the deck machinery is heavy throughout and consists of one steam gypsy with a 5 by 8-inch double engine of the Hyde make, a Hyde winlass for 1 1/4-inch chain and fitted with bits, and a Williamson steam-steering engine 4 1/2 by 4 1/2-inch double cylinders. A large towing machine for a 1 5/8-inch wire hawser is placed in the aft end of deck house. Very heavy towing bits are fitted, as shown on the deck plan aft. Large coal bunkers are provided midships. Fresh water is carried in the peak tanks forward and aft.

The engine is triple expansion, with cylinders 18, 28, and 45 inches diameter by 30 inches stroke, to develop about 1,000 horse power. The full equipment of independent pumps for fire, feed, sanitary, and wrecking purposes is installed, while the air, bilge, and feed pumps are direct connected to the main engine. Two large Scotch boilers furnish steam at 170 pounds pressure. Each is fitted with three Morison furnaces 35 inches diameter, entering into a common combustion chamber. The vessel is electric-lighted throughout by current from one 80-ampere and one 40-ampere machine. Other particulars will be found in the data card.

Fig. 17: Profile View of Conestoga, as reproduced in Marine Engineering (1904)

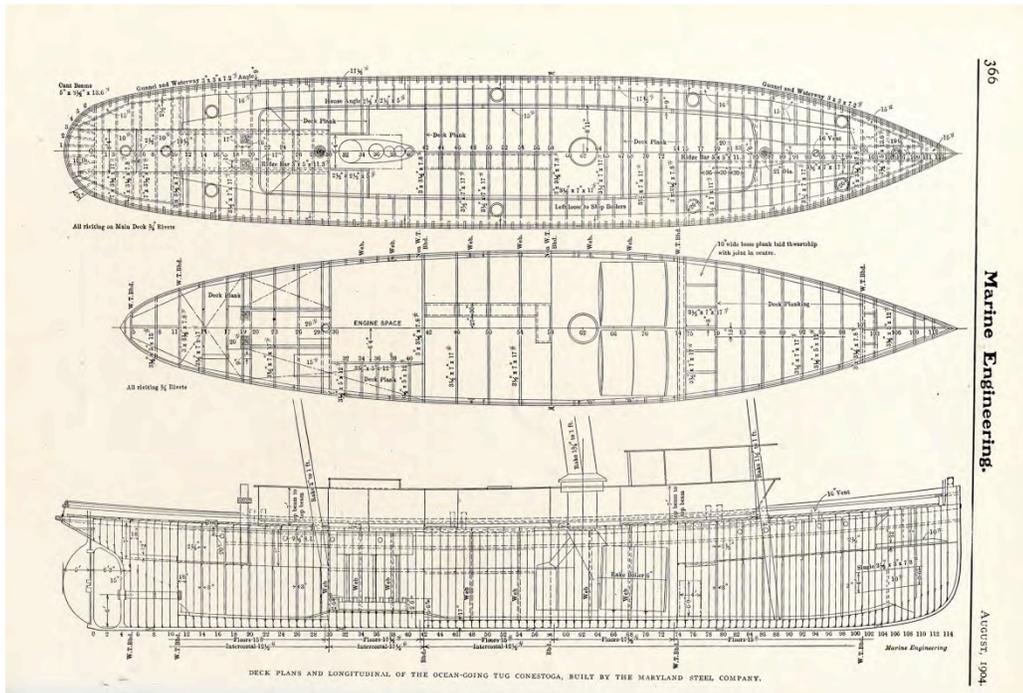
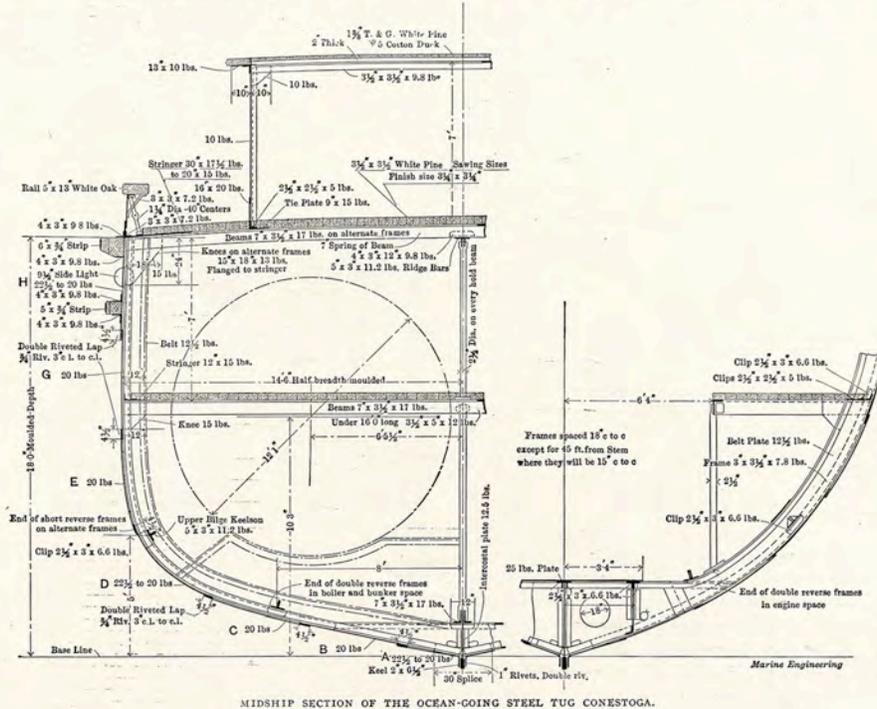


Fig. 18: Deck and Longitudinal View of Conestoga, as reproduced in Marine Engineering (1904)

Ocean-Going Steel Tug Conestoga.

Towing coal in barges along the coast has required an increasing fleet of barges and tug boats. The Philadel-

going tugs of this company's fleet. These tugs are under steam, with but short intermissions, for months at a time. As soon as they bring one tow of barges into



MIDSHIP SECTION OF THE OCEAN-GOING STEEL TUG CONESTOGA.

MARINE ENGINEERING DATA CARD.		AUGUST, 1904.
NAME—Conestoga.	NATIONALITY—American.	TYPE—Ocean tug.
LAUNCHED—1904.	BUILDERS—Maryland Steel Co.	OWNERS—Philadelphia and Reading R. R. Co.
Length over all 170 ft. 0 ins.	Circulat. pump. suction diameter..... 9 ins.	
" between perps..... 163 " 6 "	" " engine..... 7 by 7 "	
Beam, molded..... 29 " 0 "	I. H. P..... 1,000	
Depth at side..... 18 " 0 "	Propellers: Diameter..... 11 ft.	
Load draft..... 14 " 0 "	Pitch..... 13 "	
Trial " .. 11 " 3 1-2 "	Area..... 50 sq. ft.	
Displacement, load..... 950 tons	Boilers: Number..... two Scotch	
" trial draft..... 590 "	Diameter..... 12 ft.	
Tonnage, gross..... 612	Length..... 12 ft. 6 ins.	
" net..... 420	Working pressure..... 170 lbs.	
Engines: Number..... one 3-cylinder triple expansion	Furnaces: Number..... three	
Cylinder diameters..... 18, 28 and 45 ins.	Diameter..... 35 " 1/2 "	
Stroke..... 30 ins.	Tubes, diameter..... 3 "	
Shaft, crank diameter..... 9 "	Common combustion chamber.	
" tail..... 9 1-8 "	G. S. two boilers..... 113.7 sq. ft.	
Condens. built in..... 1,588 sq. ft.	H. S. "..... 3,168 "	
	Donkey boiler.. 46 ins diameter by 7 ft. height	

phia and Reading Railroad Company, which owns many a craft of this kind, has recently had built at the yards of the Maryland Steel Company the tug Conestoga, much similar in size and design to other large sea-

port another one for the return trip is assembled and the tug boat starts out to sea with only a few hours' delay for coaling and taking on provisions and stores. The Conestoga is heavily built throughout, being in

Fig. 19: Midship Section of Conestoga, as reproduced in Marine Engineering (1904)



National Museum of American History

Fig. 20: Model of the original *Conestoga*

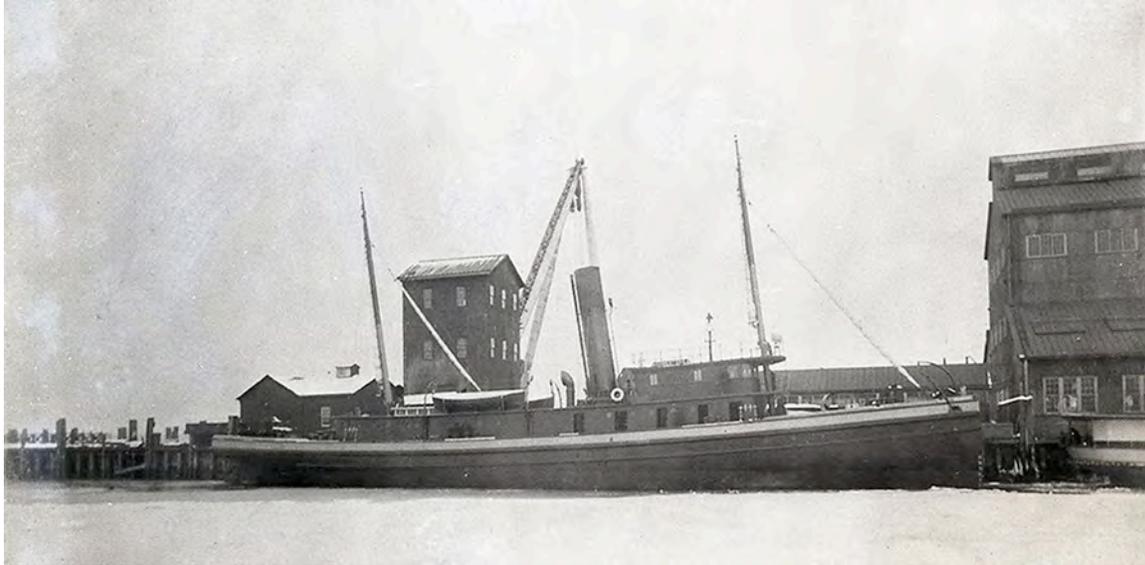
The account also enumerated the deck machinery:

The equipment of the deck machinery is heavy throughout and consists of one steam gypsy with a 5 by 8-inch double engine of the Hyde make, a Hyde windlass for 1 1/4-inch chain and fitted with bits, and a Williamson steam-steering engine, 4 1-2 by 4 1-2-inch double cylinders. A large towing machine for a 1 5-8 inch wire hawser is placed in the aft end of deck house (*Marine Engineering* 1904:367).

The account went on to note the coal bunkers were “provided amidships,” and that the

...engine is triple expansion, with cylinders 18, 28, and 45 inches diameter by 30 inches stroke, to develop about 1,000 horse power. The full equipment of independent pumps for fire, feed, sanitary and wrecking purposes is installed, while the air, bilge, and feed pumps are direct connected to the main engine. Two large Scotch boilers furnish steam at 170 pounds pressure. Each is fitted with three Morison furnaces 35 inches diameter, entering into a common combustion chamber. The vessel is electric-lighted throughout by current from one 80-ampere and one 40-ampere machine (*Marine Engineering* 1904:367).

Conestoga's length overall was 170 feet and 163 feet, 6 inches between perpendiculars. The molded beam was 29 feet, (registered depth of hold 15.0 feet) with a depth at side of 18 feet, and a load draft of 14 feet. The tug's loaded displacement was 950 tons, and the registered tonnage was 612 gross and 420 net (*Marine Engineering* 1904:365). The tug was rigged with two pole masts. The annual *List of Merchant Vessels of the United States* for 1921 noted that the tug was still coal-fired, with bunker capacity of 286 tons, at 42 cubic feet of coal per ton (Department of Commerce 1921:531).



Mystic Seaport, Steven Lang Collection

Fig. 21: *Conestoga* being fitted out at the Maryland Steel Company's Marine Department shipyard. The photograph was probably taken soon after its launching since the tug's name is visible on the name board, but has not been added to the bow, a requirement of United States Bureau of Navigation.

Conestoga entered service and served uneventfully except for occasional mishaps. One such incident was a grounding in December 1904 that disabled the rudder stock and damaged the steering gear after hitting a rocky shoal off Fishers Island, New York, when towing three coal-laden schooner barges from Philadelphia to Boston, resulting in the total loss of the barge *Alburtis* (*The [New London] Day*, December 19, 1904:6). Two years later in August 1906, *Conestoga* was towing barges near Boston when the steam trawler *Spray* collided with the tug, suffering minor damage to the steel hull.



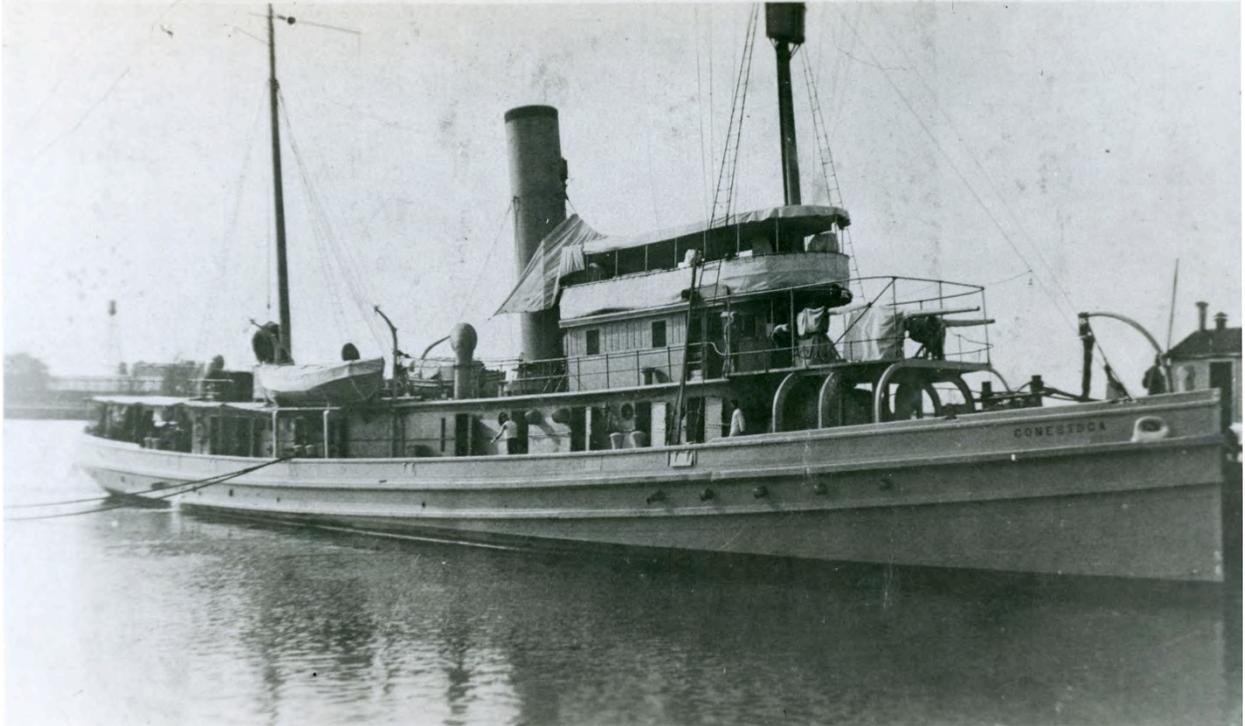
Danijel Frka, ©Russ Matthews Collection

Fig. 22: Modern painting of *Conestoga* towing schooner barges loaded with coal

With the outbreak of World War I and the United States' subsequent entry into the conflict, the United States Navy purchased *Conestoga* from the railroad on September 14, 1917. The tug was commissioned as USS *Conestoga* (SP 1128) and listed as a minesweeper in the Navy Department's *Ship's Data U.S. Naval Vessels* publication in 1918. The *Dictionary of American Fighting Ships* briefly notes *Conestoga*'s naval career:

Assigned to the Submarine Force, *Conestoga* carried out towing duties along the Atlantic coast, transported supplies and guns, escorted convoys to Bermuda and the Azores, and cruised with the American Patrol Detachment in the vicinity of the Azores. At the end of the war she was attached to Naval Base No. 13, Azores, from which she towed disabled ships and escorted convoys until her arrival at New York 26 September 1919. She was then assigned to harbor tug duty in the 5th Naval District at Norfolk. Ordered to duty as station ship at Tutuila, American Samoa, *Conestoga* underwent alterations and fitting out at Norfolk, and cleared Hampton Roads 18 November 1920 for the Pacific. Arriving at San Diego 7 January 1921, she continued to Mare Island 17 February for voyage repairs. *Conestoga* put to sea from Mare Island for Samoa 25 March 1921. No further word was ever received from the ship or from her crew of 56. A lifeboat with the letter "C" on the bow was located by the steamship

Senator 17 May 1921 in 18°15' N., 115°42' W. but a thorough search of the islands in the vicinity by all available naval and air forces, could locate neither men nor wreckage. *Conestoga* was declared lost with all her crew 30 June 1921 (Navy Department 1969:161)



NHHC NH 71299

Fig. 23: USS *Conestoga* likely during WWI when it was equipped with two machine guns in addition to the main 3-inch/50 caliber naval gun

The fate of USS *Conestoga* led to a variety of opinions, and reminiscence. In a March 1958 article on the loss in the Navy magazine, *All Hands*, the most common opinion expressed was the tug had been dragged down by its tow, or overcome by heavy seas and capsized. The article included a list of all 18 U.S. Navy ships that had disappeared with all hands, from 1780 to 1921, *Conestoga* at that time being the last (*All Hands* 1958:20-21). *Conestoga* is one of only four U.S. Navy ships lost in peacetime without a trace in the 20th century that was not subsequently after a search, and it has remained an unsolved mystery now for 95 years (*All Hands* 1958:20-21).

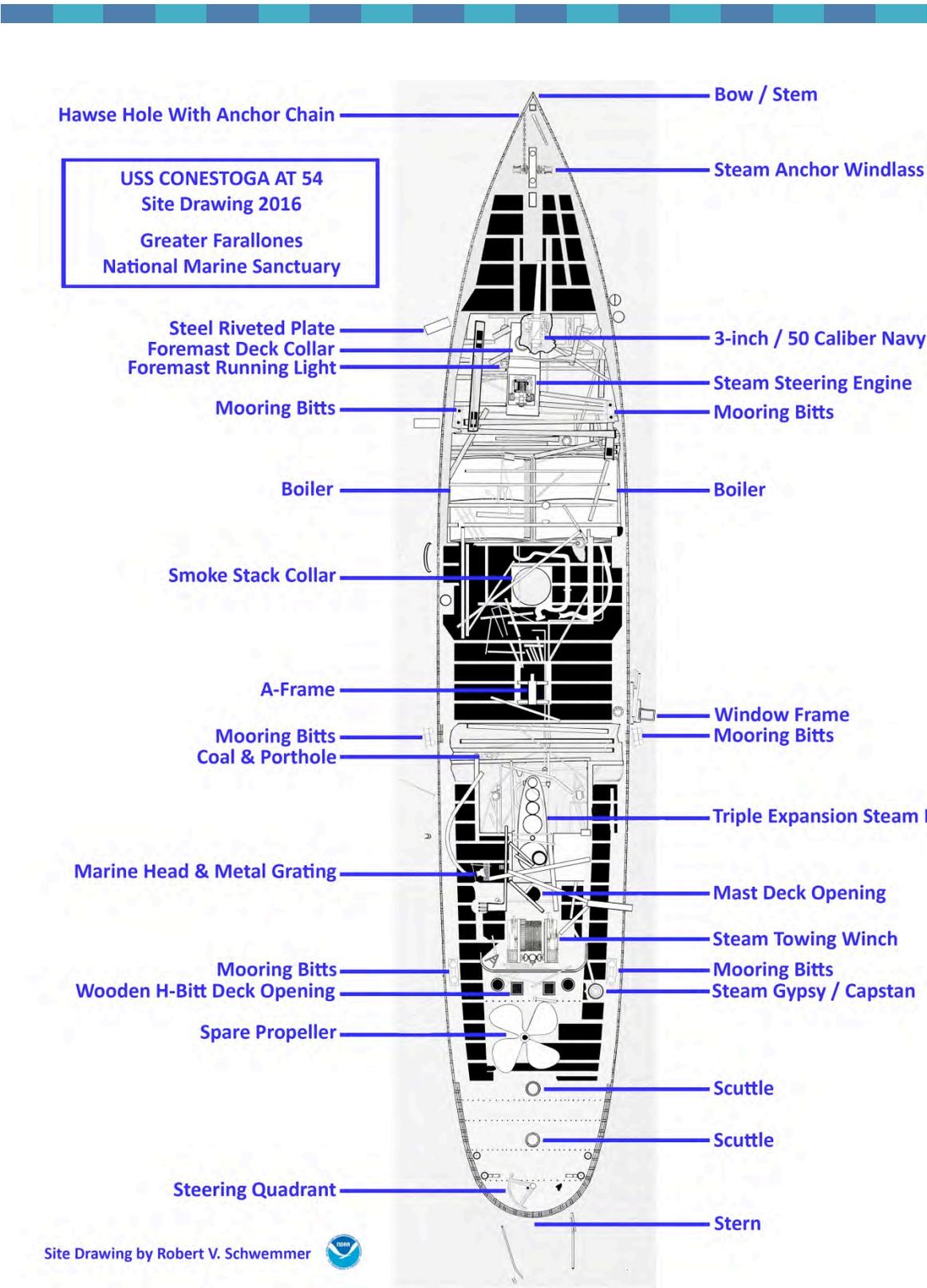


Fig. 24: Site plan of the wreck of USS *Conestoga*

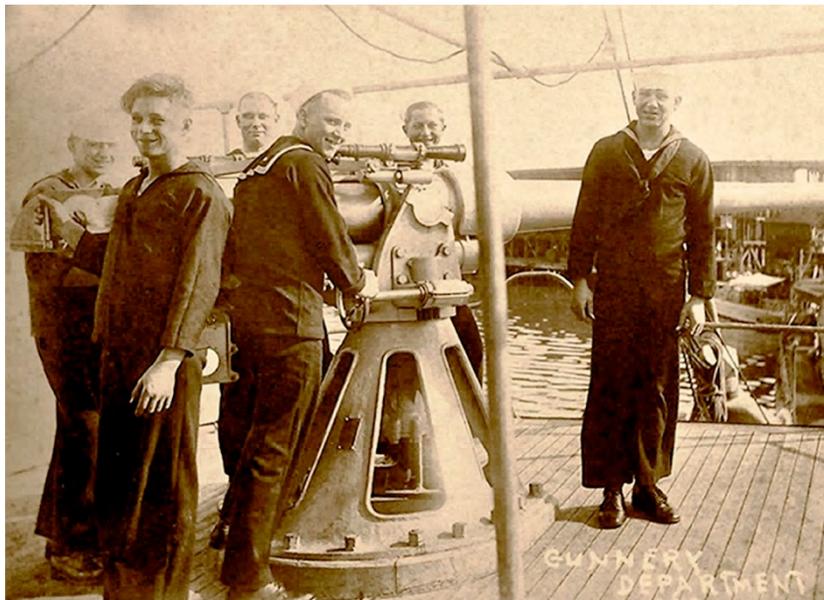
The Southeast Farallon Island Tugboat and USS *Conestoga*

A detailed assessment of the tugboat wreck during the 2014 and 2015 missions identified a range of identical matches to USS *Conestoga*. These include:

- The length, beam and depth of hold are consistent with *Conestoga*.
- The wreck is that of a riveted steel ocean-going tug whose lines and form match that of *Conestoga*'s as built drawings. (*Marine Engineering* 1904:366-367).
- The wreck has a single screw as did *Conestoga*. The wheel (propeller) is large, and seems to fit the published four-bladed, 12-foot 3-inch diameter of *Conestoga*'s.
- The engine is a single triple expansion marine steam engine, and the boilers are two tightly spaced Scotch boilers, consistent with *Conestoga*'s. There are no visible fuel tanks, but a void between the engine room and boiler flat on examination was found to be a coal bunker with coal that appears to be anthracite. It is amidships, as was *Conestoga*'s.
- The hull of the wreck is divided into four main areas and is consistent with the description and plans of *Conestoga* published in 1904.
- A systematic review of every visible deck and hull feature on the wreck matched those both on the 1904 plans and photographs of *Conestoga*. This includes the number and location of portholes, hawse holes, mooring bitts, chain-plates from the masts, scuttles, ventilator locations, the location of the now vanished wooden aft towing bitt, and the broken ends of what appear to be the curved supports for an elevated gun deck forward of the pilothouse. The now missing deck areas (as opposed to surviving steel deck) conform to areas shown on *Conestoga*'s plans as wood. Wooden deck fasteners are clearly visible on the stern main deck between the towing winch and steering quadrant.
- The machinery on deck, as well as the steam steering engine lying inside the hull match *Conestoga*'s – the steam anchor windlass while obscured fits the basic form of a Hyde windlass, and is fitted with an H-bitt, as noted in the 1904 description of the tug. It has a large steam towing winch aft, and an adjacent steam gypsy. On the main deck just aft of the towing

winch is the base of the deckhouse. “The equipment of the deck machinery is heavy throughout and consists of one steam gypsy with a 5 by 8-inch double engine of the Hyde make, a Hyde windlass for 1 1/4-inch chain and fitted with bits, and a Williamson steam-steering engine, 4 1-2 by 4 1-2-inch double cylinders. A large towing machine for a 1 5-8 inch wire hawser is placed in the aft end of deck house” (*Marine Engineering* 1904:367).

- Remains of the “missing” superstructure are present on the wreck and was riveted, lighter gauge steel; elements of it, including plate, frames, a window frame, portholes, and two porcelain marine heads lie alongside or inside the hull. This is all consistent with *Conestoga*.
- The wreck holds a single, pedestal-mounted 3-inch/50-caliber gun that retains its spotting telescopes. This gun was apparently mounted and combat ready on a level above the main deck forward of the pilot house, as was *Conestoga*'s. The configuration of the gun and its pedestal mount are identical to an historic image of *Conestoga*'s with its gun crew in 1921 (see Fig. 25). This artifact is particularly diagnostic in terms of its location, and the make and model of gun and its mount. It proves the tug was a military vessel in active service.



NHHC NH 71510

Fig. 25: The 3-inch/50-caliber gun and its gunnery crew on USS *Conestoga*, 1921

- The condition of the tug in addition to the gun indicates it was active, and operating when lost. It was not scuttled. The anchor, spare propeller, all of the machinery, especially the gun with its spotting telescopes, are not items to be left behind on a discarded ship.
- While corrosion and marine growth have obscured the fantail, careful observation showed what appear to be part of the “T” and the “O” of *Conestoga*’s name on the fantail (Fig. 26).



Fig. 26: Probable letters on fantail from the vessel's name

NOAA ONMS/Teledyne SeaBotix

In conclusion, the preponderance of evidence confirms this wreck as the long-missing USS *Conestoga*.

Probable Cause of Loss

The condition of the wreck suggests the tug foundered. The burial of the hull below the waterline in the seabed and debris lying inside the hull blocking access for a detailed inspection complicates any analysis of what happened to sink the tug. It should also be noted that the following represents the opinion of the archaeological team with assistance from Kevin Tweed, a veteran regional tugboat operator/owner who joined the team for a portion of the October 2015 mission. We are not naval architects or experts in the forensics of ship loss.

The wreck is oriented north/northwest, three miles off Southeast Farallon Island, which lies 23 miles true 252° of Point Bonita (the North Head of the Golden Gate bight). The island is the largest in the Farallones and the site of a light station established in 1853. The position and orientation of the wreck suggest to us that *Conestoga's* officers and crew were steering the tug to get into more protected waters in the lee of the island or to reach the landing for the lighthouse station in Fisherman's Cove. This would have been a desperate act, as the approach is difficult and the area was the setting for five shipwrecks between 1858 and 1907. However, if *Conestoga* was in trouble and filling with water, it would have been the only choice to make. Weather logs for the period the tug left on March 25, 1921, and for these waters, show that *Conestoga* sailed into heavy seas that we believe quickly led to the loss of the tow, and the eventual swamping of the tug with a loss of every man on board.



San Francisco Public Library

Fig. 27: Aerial view of Southeast Farallon Island and the anchorage that *Conestoga* was likely headed. This image was taken April 4, 1925.

It was Navy protocol for the ship's officers to log daily weather observation that included wind direction and force, barometer readings and temperature on an hourly basis. The day before *Conestoga* was to head to sea, the weather report from the deck log of the U.S. Lighthouse Service's lightship *San Francisco* (LV 70) located three miles outside the bar, 10 miles from the headlands, just northward of Fort Point and Alcatraz range was as follows: 8:00 a.m. haze overland, overcast, sea smooth, no wind, vessel steady, barometer 30.36, temperature 54 degrees (U.S. Lighthouse Service 1921).

But by 4:00 p.m. the weather shifted to cloudy, with choppy seas, wind direction west-northwest at Force 4 (moderate breeze, over 18-23 miles per hour) with clear blue skies. At 8:00 p.m. the wind, still blowing from the west, had increased to Force 5 (fresh breeze

over 23-28 miles per hour). By midnight, the wind direction was at Force 6 (strong breeze over 28-34 miles per hour (U.S. Lighthouse Service 1921).

The next day, *Conestoga* steamed out of the Golden Gate at 3:25 p.m. and into increasing wind and choppy seas. The same afternoon *Conestoga* cleared port, San Francisco Bar pilot Captain Charles J. Bruguere was guiding a steamer past the bar and out to sea. Bruguere was an experienced pilot. The San Francisco *Chronicle* of March 27, 1921, noted that the pilot had not disembarked from the steamer after taking it out due to heavy seas: “Bar Pilot Charles J. Bruguere took a little sea trip as far south as Monterey and returned home yesterday via rail. He boarded the British steamer *El Lobo* to take her out of here Friday afternoon as far as the lightship. A northwest gale of forty-mile velocity was blowing along the coast, and to leave the steamer via a Jacobs’s ladder ‘to windward’ to board the pilot boat was not pleasant, so Captain Bruguere continued on the *El Lobo* until Monterey was reached. Captain Bruguere boarded a train at Monterey yesterday morning and arrived here last night.” It was into these conditions that *Conestoga* headed to sea, probably with a towed barge on the wire.

The lightship’s weather report for March 25, 1921, was “choppy to rough sea, at intervals vessel rolling, wind direction west-northwest at Force 6 (strong breeze over 28-34 miles per hour) clear blue skies.” At 4:00 p.m. the report was “strong gale blowing, rough seas, wind direction west northwest at Force 8 (fresh gale over 40-48 miles per hour) with clear blue skies.” By 8:00 p.m. it was “a moderate gale, vessel rolling and pitching, wind direction west northwest at force 7” (moderate gale over 34-40 miles per hour). Over the course of the day, the wind picked up until midnight. The San Francisco *Chronicle*’s weather report from the “Farallones,” reported the wind increased from 23 mph to 40 mph by 5:00 p.m. on March 25 (San Francisco *Chronicle*, March 26, 1921). The seas were rough, with high waves. Based on the position of the wreck and the weather report, we believe *Conestoga* ran into trouble outside the San Francisco Bar soon after leaving the Golden Gate. Heavy seas past the Farallones may have caused the tow, allegedly a barge, to break free. Careful examination of the tow winch on the wreck shows the wire is twisted and not neatly spooled on the drum, which suggests a towing problem.

After *Conestoga* went missing, a report in the San Francisco *Chronicle* on May 13, 1921, suggested that a garbled radio transmission from the tug was received that stated it was “battling a storm and that the barge she was towing had been torn adrift by heavy seas” and that *Conestoga* was heading to port. The *Chronicle* suggested the message had come soon after the tug departed. Later accounts in the Los Angeles *Times* and the San Francisco *Examiner* stated, however, that the date of the transmission was said to be April 8, but it was suggested that the April 8 date was simply a report of a re-broadcast of the transmission from another ship that had picked up *Conestoga*’s. The Navy in 1921 found no evidence to corroborate the story of the transmission or to fix a date for one, if indeed there had been a message sent.

Based on the evidence now at hand, we believe the message was authentic and that the *Chronicle's* account was essentially correct. We believe the message may have been sent late on the evening of March 25 or early in the morning of March 26. The message was then either later relayed, or subsequent press accounts of the timing are inaccurate.

Based on the assumption the tug had almost reached its first port of call, meanwhile, the Navy in 1921 assumed the tow had been lost closer to Hawaii and focused searches for *Conestoga* in that part of the ocean. Instead, *Conestoga* lay some 2,000 miles away.

The loss of the tow most likely did not contribute to the loss of the tug. The forensic evidence shows the wire is secured on the winch, showing the crew professionally responded to the loss of the tow and rigged for a return to port as the radio message indicated. What caused the loss of *Conestoga* was the fact that in heavy seas, the tug, an older vessel that had previously been noted to not be a good sea-keeping vessel as a “wet boat,” was shipping water. This would have come from deck openings, it may have come from strained seams as the tug pounded in gale-whipped seas, and it may have come from the bilge pumps failing.

In the list of requested repairs submitted to Mare Island for work prior to *Conestoga's* departure was the need to “overhaul and renew parts where necessary direct connected bilge pumps. Reason: The bottom of both present pumps are deteriorated and metal eaten away where suction and discharge valve are in pumps causing constant trouble and cannot keep pumps working or water out of bilges” (Commanding Officer USS *Conestoga* 1921).

The extent of repairs was to renew the valve seats, the valves and throat bushing. In the opinion of tugboat captain Kevin Tweed, who was a consulting member of the project team in October 2015, is that in the heavy seas, the “related piping up or downstream of the repairs failed. In my experience when one part of the system is in poor condition the rest is not far behind. If there was a piping failure in the bilge system, which would quickly cause the casualty.” Also:

“Going into the wind and seas are usually when bad things happen since the motion is the worst. Some of the usual mishaps on tugs are lines being washed overboard and into the propeller, doors or hatches failing, tow with brakes failing or tow wires parting, and my favorite (been there) having the wheel house windows fail. Vessels of that era being wood also would be prone to working in the seaway and making water, I have been on riveted ocean tugs and they did the same thing to a lesser extent, it's still disconcerting when water just starts appearing in small amounts everywhere (Tweed personal communication 2015).”

Without extensive and intrusive examination of the debris-buried engine room, this possibility cannot be directly assessed, but the fact that the tug settled to the bottom on a

more or less even keel while seemingly keeping a course suggests a sudden swamping and loss.

During the October 2015 interior ROV survey in the forward hold, the steam steering gear was absent of chain and/or cable that could be an indicator that *Conestoga* may have lost control of steering, the rudder would no longer answer the helm. In examining the rudder on the wreck site, it was hard to starboard, beyond its normal steering radius, possibly a factor of loss chain or cable or possible impact with the seafloor stern first. A newspaper article in the *The Oregon Daily Journal*, May 21, 1921, stated in-part that

“Mechanical trouble, causing the ship to fall off into the trough of the sea, is given by Captain Ernest G. Heinrici... Serving as a lieutenant in the navy, Captain Heinrici commanded the *Conestoga* during the war and afterwards when she was doing harbor duty at Point Degarda in the Azores. He stated the ship was a sturdily built craft with powerful set of engines. At the time he served on her crew, including officers, numbered 48. That some difficulty was experienced with the engines or perhaps the steering gear, causing the ship to fall into the trough and capsized during the gale that was sweeping the sea at the time is what Captain Heinrici believes happened to the ship.”

Perhaps leaking from the strain of laboring in heavy swell, and shipping water seas that over-washed the decks, with water overwhelming the bilge pumps, *Conestoga* headed to the potential sanctuary of the Farallones, marked not only on the charts but by its lighthouse. Commanding officer Ernest Larkin Jones and his officers would have known of the anchorage and the possibility of a safe haven to lie to, make repairs or abandon ship in more protected waters.

In addition to the lighthouse, there was a U.S. Naval Radio Station (established in 1905 and operated several structures and a number of naval personnel through the 1930s and then replaced by a secret radar facility through the end of the Second World War) on Southeast Farallon Island, and the *Coast Pilot* described what they likely had quickly surmised from their charts, that their closest hope was either “a small cove where anchorage can be had in 8 fathoms ...and having a boat landing on a small sand beach in it...there is another boat landing on the south side of the island. Both are marked by derricks and landing stages (U.S. Coast and Geodetic Survey 1917:84).



Fig. 28: The boat landing at Southeast Farallon Island in 1877

Therefore, in conclusion, it is our opinion as previously stated that USS *Conestoga* was lost due to steaming into gale-force winds and heavy seas on the afternoon and evening of its departure. Within a matter of hours, if she was towing a barge it was lost, and the tug was taking on too much water to remain afloat. Southeast Farallon Island was the closest point of possible refuge or where an attempt to land the crew could be made. A heavy sea notwithstanding, the island was the only option other than founder on the open water. Battened down and steaming for the island, *Conestoga* was on approach as the engineers worked to maintain steam and keep pumping. Ultimately, the incoming water overtook them, despite their professionalism, attention to duty and hard work, and *Conestoga* sank, with a loss of every man on board.

Concluding Remarks

When the Navy determined that *Conestoga* was overdue, an extensive sea and air search commenced. An initial inquiry to Pearl Harbor asking if the tug had arrived there was mistakenly answered positively, but a subsequent inquiry found *Conestoga* had never arrived. As was later noted in a legal case determining the presumed date of death of the crew (and the cessation of pay):

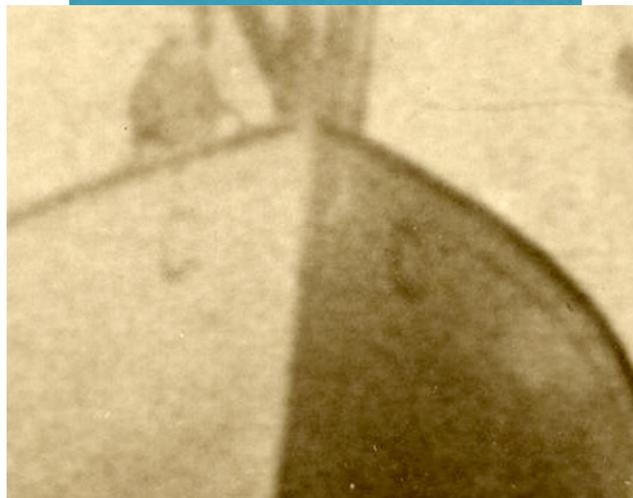
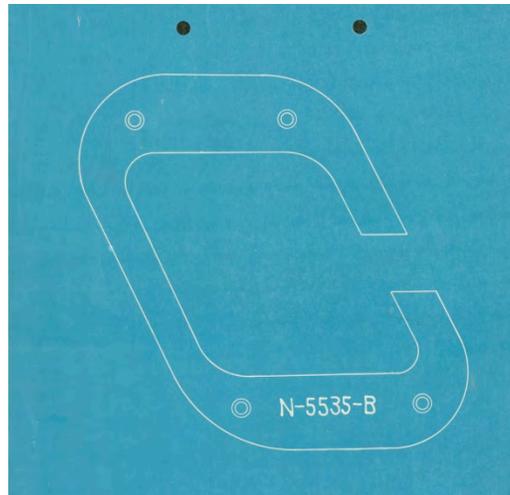
“It appears that had the *Conestoga* met with no misfortune she would have arrived at Pearl Harbor about April 5, 1921. The time necessary for a searching vessel to have made a round trip between the two ports would have been about 24 days and this office added the 24 days necessary for such a search to the date of the anticipated arrival at Pearl Harbor and fixed April 30, 1921, as the time when the vessel would have been unheard of for so long that a wreck could be presumed...” (General Accounting Office 1924:480).

A century later, in an era of satellite communications, vessel tracking systems and the Internet, it may be surprising that a vessel could go missing and not be found, leaving only guesswork to determine (wrongly) where and when the disaster had happened. However, this was a time of imperfect radio communications, on a vast ocean without benefit of modern imaging and mapping; searching for the tug was looking for the proverbial needle in the haystack. The Navy expended considerable effort to find the tug and its men nonetheless, in the best traditions of the service.

Complicating the search was that *Conestoga*'s loss, so close to its point of departure had been unseen by anyone despite the proximity of the wreck to Southeast Farallon Island. It may have been dusk or dark, or no one may have been watching offshore on a windy day; even the deck log of the San Francisco lightship did not log her passing. The realization that *Conestoga* was in trouble only came with the end of April, more than a month after the tug had left Mare Island. The Navy launched an extensive sea and air search off the Hawaiian Islands. In all, some 60 vessels (including the entire destroyer fleet at Pearl Harbor and submarines) as well as two-dozen aircraft searched from May 2 to May 13, 1921. They found no trace of the tug, because it had sunk five weeks earlier and 2,058 nautical miles from Pearl Harbor.

After the end of the search, the Navy analyzed a bronze letter “C” recovered from a derelict whaleboat discovered afloat off the Mexican coast 650 miles west of Manzanillo

and 30 miles from Clarion Island by the steamer SS *Senator* on May 17, 1921. It was thought that the boat could have been one of *Conestoga*'s, but the letter alone was inconclusive (*All Hands* 1958:20-21). Had the boat been recovered, it would have had a serial number that would have determined if it was from *Conestoga*. With what is now known, given current and wind patterns, it is possible that the boat was from *Conestoga* and had been adrift since March 25/26. At the time, it was an inconclusive clue and a bewildering one at best.



National Archives (a) and NHHHC (b)

Fig. 28a and b: A tracing of the letter "C" recovered from the drifting whaleboat thought to be from *Conestoga* and a close-up of a similar whaleboat aboard *Conestoga* in 1921

Another clue discounted at the time was wreckage from *Conestoga* that washed ashore near Monterey at the end of May. We believe that the submerged tug's superstructure likely had begun to deteriorate, and partial collapse released still buoyant provisions and a lifejacket as noted in the local press:

Wreckage on Shore Evidence of Sea Disaster.

Pacific Grove. May 27 – A quantity of wreckage found today on the beach between Asilomar, and Point Joe, which has been washed ashore within the last few days, is believed here to be evidence of a marine disaster. The debris includes a keg marked "Goat Island Lighthouse, No. 400"; a box marked "Stow cool; keep away from boilers": evaporated apples from Guggenheim & Co.; codfish packed by the Union Fish Company of San Francisco; peaches packed by Hunt Brothers, besides a miscellaneous variety of articles with no identifying marks (San Francisco *Chronicle* Saturday, May 28, 1921).

Conducting further research, we traced all the company's names listed on the wooden kegs to businesses based out in San Francisco. The vessel in question related to a "marine disaster" would have departed San Francisco and these kegs were likely provisions for the voyage. Goat Island (Yerba Buena Island) in 1921 was a U.S. naval training station, and government supplies may have been part of the manifest.

Lost "Conestoga" Believed Wrecked at Pacific Grove

Special to the Mercury Herald

Pacific Grove, May 29 – A life preserver marked "U.S.S. *Conestoga*," found on Moss Beach near here, where it had been thrown up by the waves, would indicate that the ship of that name, reported lost March 18 [25], was wrecked in the vicinity. The recent heavy seas have also cast considerable wreckage upon the beach, consisting in the main of boxes and kegs. The beach is now being search for other signs of the wreck. The life preserver, when discovered, was in good condition, but has since been partially destroyed by souvenir hunters (*San Jose Mercury News*, May 30, 1921).

In 1921, Mrs. Blanch Hamilton, a local resident, wrote a letter to Admiral A. S. Halstead in San Francisco after discovering the life preserver and stated the following.

“About three weeks ago I noticed a life preserver lying on Moss Beach, near Asilomar Y.M.C.A. U.S.S. *Conestoga* was on the main part in large letters, and again on the straps in smaller letters. It was in good condition but water-soaked, being so heavy I could not lift it. It seemed to be filled with some sort of fiber that had absorbed the water. I supposed at the time it had been lost off some ship and washed ashore.

A week ago I learned of the *Conestoga*'s loss, and went to the beach again to see if the life preserver was still there. It was but almost destroyed. I will get what remains, however, if it is there yet and send it to you, if you

care for it. I could cut the main part having the letters on off, and send that. The straps have been removed, by souvenir hunters, I suppose.”

When the news of the lifejacket was shared with the Navy, it was dismissed as being something likely washed off the tug, “In view of the fact that the *Conestoga* passed the vicinity of Monterey in the month of March, while en route to Mare Island Navy Yard, and previous to her departure for Pearl Harbor, it is possible that the life preserver in question may have been lost overboard at the time rather than on the occasion of her being lost at sea.” (U.S. Navy District Commandant addressed to The Chief of Naval Operations 1921).

The evidence did not fit with what was known of the “facts,” such as they were. Even if the find had been taken as evidence of a need to search closer to the Golden Gate, there was a faint chance the wreck would have been found. As it was, *Conestoga* was not discovered until a sonar survey in 2009 revealed a “mystery” target, despite the sunken ship’s proximity to a major port and shipping lane, and location within a national marine sanctuary.

The Navy officially listed *Conestoga* as lost at sea with all hands effective June 30, 1921, and with that, the story of the tug entered the history books as one of the great, unsolved mysteries in Navy history. As of 2016, Internet search results include articles listing *Conestoga* as one of the top 5 or 10 great maritime mysteries.

As much as *Conestoga* has remained somewhat in the public mind because of the mystery of its disappearance, it has never left the memory of the families of its lost crew. As the century anniversary of its loss nears, we are certain that living grandchildren, great nieces and nephews and other relatives remember the men of USS *Conestoga*, and that this discovery will bring for them some measure of closure.

The mystery of *Conestoga*’s disappearance has in part been solved. There will likely never be a complete understanding of why the tug foundered, but we believe the two field seasons of non-intrusive examination have likely answered the question. For the families, what is now clear is exactly where their relatives lie at rest, inside the tugboat where they paid the ultimate price for their service to country.

The wreck is significant for a variety of reasons. It is the grave of its 56 crew, some of whom could remain entombed inside the hull. It is a historic resource we believe is eligible for listing in the National Register of Historic Places. It is also a vibrant “reef” and habitat within the waters of Greater Farallones National Marine Sanctuary. The wreck is protected within the sanctuary as both an historic sanctuary resource but also by the fact that it remains a U.S. Government-owned vessel subject to protection under the Sunken Military Craft Act (2004). The Office of National Marine Sanctuaries and the

U.S. Navy are cooperating on the management and protection of the wreck as a military gravesite, and as a historic site within the sanctuary. The site lies in an area heavily populated by white sharks who feed on the nearby marine mammal population of the Gulf of the Farallones and the sanctuary. That fact, as well as propriety suggests that *Conestoga* and any crew remains will remain undisturbed.

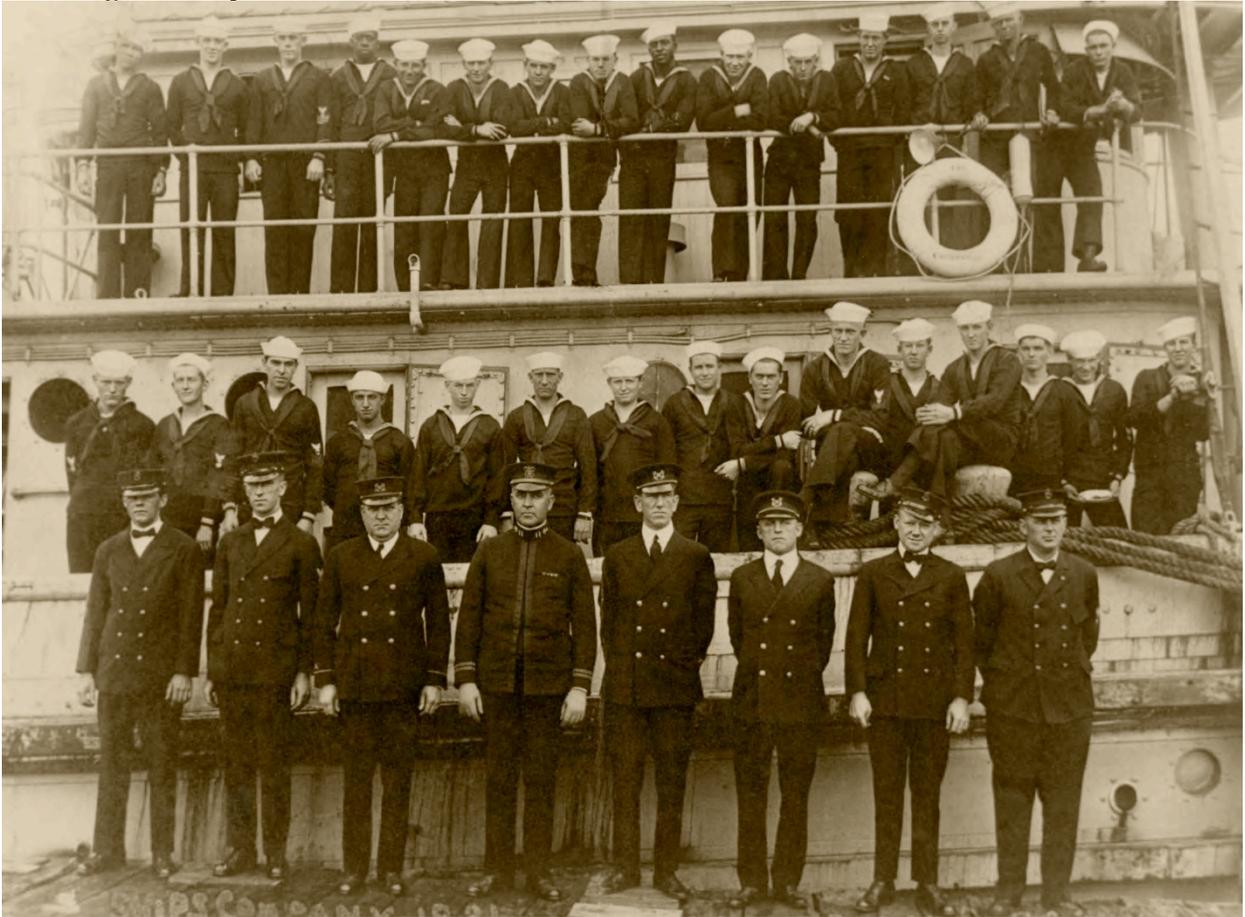


Fig. 29: The last portrait of the crew of *Conestoga*, San Diego, California, 1921

NHHC NH 71503

Expedition Personnel, 2014 Survey

James P. Delgado, PhD, Co-Principal Investigator

Robert V. Schwemmer, Co-Principal Investigator

Dave Minard, Captain, R/V *Fulmar*

Hans Bruning, Mate

Ian Griffith, ROV Pilot

Michael Carver, ROV Pilot/Logistics

Tim Reed, Navigation/Tether Management

David Lott, Logistics, Plotting, Technical Support
Max Delaney, Tether Management
Jean deMarignac, Logistics and Communications
David Ball, Bureau of Ocean Energy Management
Craig Howard, Volunteer Videographer
Bruce Lanham, Volunteer
George Belcher, Volunteer
James Allan, Volunteer
John A. Martini, Volunteer
Emily Aiken, Nancy Foster Scholar/Marine Biologist
David Ruck, Videographer

Expedition Personnel, 2015 Survey

James P. Delgado, PhD, Co-Principal Investigator.
Robert V. Schwemmer, Co-Principal Investigator.
Chris Eubank, Captain, R/V *Fulmar*
Marshall Stein, Mate
Bryan Begun, NOAA Corps
Cyril Poissonnet, ROV Pilot, AUV Operations
Gary Fabian, Volunteer/Sonar data analysis
Peter Franklin Hess, Volunteer, family member of PO George Franklin Kaler, USS *Conestoga*
Alexis Catsambis, PhD, Naval History and Heritage Command Representative and Archaeologist
Brian Johnson, Logistics
Jean deMarignac, Communications
Michael Carver, ROV Observer
David Lott, Technical, logistics
Paul Chetirkin, Videographer
Kevin Tweed, Volunteer/Tugboat Expert
Craig Howard, Volunteer/Videographer
Russ Matthews, Volunteer
Rear Admiral Markham Rich, USN, Navy Observer
Lieutenant Theresa Tocco, Flag Aide to Admiral Rich
Tricia Dodds, California State Parks Archaeologist
Denise Jaffke, California State Parks Archaeologist
William Douros, Regional Director, West Coast Region
Maria Brown, Superintendent, Greater Farallones NMS
Jan Roletto, Research Coordinator
Mary Jane Schramm, Media Coordinator

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AMERICA'S UNDERWATER TREASURES