

A BUBBLE SLOWLY RISING: SHIPWRECKS AND THE DEVELOPMENT OF NAUTICAL ARCHAEOLOGY IN CALIFORNIA

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California was “discovered,” explored, and colonized by sea. Beginning perhaps with Paleoindians following a “kelp highway” from Beringia (Erlandson et al. 2007), and subsequent Polynesian sailing canoes in the 5th - 9th centuries (Jones and Klar 2005), a series of maritime cultures found their way to the Pacific coast for exploration, settlement, imperial conquest, resource exploitation, and trade. Iberian frigates, Manila galleons, Yankee whalers, Russian barques, China clippers, gold-rush side-wheel steamers, dog-hole schooners, vernacular boats and U.S. Naval warships have all left their mark on the Pacific heritage of California. Our lee coast, sometimes fog-bound and unforgiving, has witnessed thousands of historic shipwrecks. In spite of this potential, the development of an archaeologically oriented study of California shipwrecks has developed rather slowly compared to other regions. This paper presents a few milestone examples of management efforts and shipwreck studies, as well as the prospects for future vessel investigation on California’s submerged coastal landscape.

SHIPWRECKS BECOME PROTECTED RESOURCES

For many years, California shipwrecks were ignored by the state and fell outside the minimal protections afforded to heritage sites on land. We all know those laws are imperfect, but at least they provide some statutory protection and inclusion in planning processes. West of the beach was a different matter; shipwreck management was mostly unknown and unseen. As SCUBA became popular in the 1960s and more people entered the ocean, shipwrecks were a natural attraction. They quickly became the focus of wreck divers and clubs who gathered artifacts for sport and trophy value (Figure 1). The most active club was the California Wreck Divers (CWD). They organized dives where members included among their dive gear pry bars, hammers and chisels to remove, “preserve” and sometimes sell shipwreck artifacts. They exhibited their finds, sometimes highly polished brass fittings wrenched from a historic shipwreck on public property, at county fairs and trade shows to highlight wreck diving exploits. A finders-keepers ethic thus became well established for shipwreck diving in California.

That had to change. Something needed to be done to convince the public that shipwrecks had value as heritage resources equivalent to their terrestrial counterparts. A significant management milestone occurred in 1987 with the Federal prosecution of CWD for looting Channel Islands shipwrecks including the 1853 Gold Rush-era steamer *Winfield Scott*. The National Park Service (NPS) had been trying to counter shipwreck artifact theft and placed an undercover Ranger team on board a commercial dive boat from Santa Barbara chartered by the CWD. The divers looted a series of shipwrecks within Channel Islands National Park and National Marine Sanctuary, and were instructed how to avoid detection by an acoustic signal from the boat in the event law enforcement people were to approach. The undercover team documented all these activities and those involved were cited upon return to the dock. Criminal and civil proceedings concluded in 1990. All told, NPS went after 20 people, pursuing 32 misdemeanor criminal charges in Ventura County and Santa Barbara County courts, and 31 civil charges before a federal administrative law judge through the National Oceanic and Atmospheric Administration (NOAA). Fifty-six of the 63 charges were upheld. The CWD dive master was fined \$100,000 for mocking the law and encouraging violations (Swartz 1990, Reynolds 1990). Seven divers paid fines up to \$10,000 each for their looting. Word quickly spread through the wreck diving community that NOAA and NPS were serious about affording protection to underwater heritage resources - active California shipwreck conservation in the public interest was born.



Figure 1. The author documenting anchors confiscated from salvage divers in Fort Bragg, 1984. The first step in managing submerged cultural resources in California was to curtail the illegal salvage of shipwreck artifacts for commercial gain.

A second message was sent to divers raising historic anchors and other artifacts from the Sacramento River in 1985. A well-known salvage vessel positioned itself on the Old Sacramento waterfront and began to haul up Gold Rush-era anchors from the bottom where sailing ship hulls had recently been found. Quick action by park rangers resulted in an intervention just as a historic anchor reached the surface. Citations were issued (later rescinded) and the salver's ill-gotten artifacts turned over to California State Parks (State Parks). The word quickly spread that looting underwater artifacts was not going to be tolerated. The confiscated anchor was of the "Admiralty" design (pat. 1841) and when conserved, revealed a date of "1844" scribed on the crown (Figure 2). It probably came from the Gold Rush-era bark, *Sterling* (Foster 1988).

The 1980s saw state and federal agencies push ahead with efforts to quantify shipwrecks in their jurisdictions. The State Lands Commission (SLC) took some important policy and management initiatives in preservation. This state agency owns title to all submerged bottomlands offshore to the 3-mile limit and the bottoms of all navigable rivers and streams, so the vast majority of all California shipwrecks fall under their jurisdiction. The SLC initiated a review process whereby the Office of Historic Preservation and State Parks would examine salvage applications of resources on its sovereign or public trust lands. This practice was intended to protect the public interest in historic resources as opposed to the salvage of modern materials. Goodyear Kirk Walker, a SLC agency specialist, compiled a shipwreck database and entered some 1500 wreck sites within the state's offshore jurisdiction. Most entries were incomplete – based on newspaper accounts and insurance records, but the effort was significant and refined over the years as more data mining was done.



Figure 2. The crown of this Gold Rush-era anchor recovered from the Sacramento River in 1985 is scribed with a date of “1844” on the iron. Underwater archaeology confirmed it came from the Sterling which sank on the Sacramento embarcadero in 1855.

The Minerals Management Service (MMS) compiled other early shipwreck data for federal offshore oil leases. Typically there would be side-scan data collected of a proposed lease block and contract archaeological review of any interesting targets. Drilling and pipelines would avoid any flagged areas so efforts to identify the shipwreck target shown in side-scan images were not done in most cases, but the increased awareness as part of a planning process was significant. MMS did produce some important overview studies of California shipwrecks including predictive modeling of shipwreck-sensitive areas (Gearhart et al. 1990). At the same time, State Parks began to extend its park philosophy offshore management approaches and interpretation sought to explain their heritage values and conservation needs. That effort continues today.

EARLY SHIPWRECK SURVEYS AND MANAGEMENT

Credit goes to NPS and its Submerged Cultural Resources Unit for carrying out the first large-scale remote sensing survey of underwater resources in California. Under the direction of Daniel Lenihan, a proton-magnetometer, side-scan sonar and sub-bottom profiler were used in a systematic search for shipwrecks on the submerged landscape of Drake’s Bay within Point Reyes National Seashore in 1982-83. This effort provided important technical experience to others interested in the techniques (including this author). The survey resulted in the location of five shipwrecks: steam schooners *Pomo* (1914), *Hartwood* (1929), and *Shasta* (1939) as well as the freighter *Munleon* (1939) and oil tanker *Richfield* (1930) (Carrell 1984). Media attention was drawn to the possibility of discovering Cermeño’s Manila galleon *San Agustín* (1595), but although hundreds of porcelain sherds had been recovered from nearby middens and beach deposits, the wreck itself escaped detection (Douglass 2003).



Figure 3. The windlass from the gold-rush bark *LaGrange* produced growth rings that demonstrated a cut date of 1844.

Beginning in 1984 and continuing for several years, the Gold Rush-era embarcadero at Sacramento was systematically surveyed for shipwrecks. This work was necessitated by waterfront developments as part of Old Sacramento State Historic Park. Side-scan sonar identified two concentrations protruding from riprap boulders at the base of a floodwall. At the foot of “J” Street the copper-sheathed hull of a sailing ship was found. She was identified as the Gold Rush-era brig *Sterling*, built in Duxbury, Massachusetts in 1833 and sailed to California as part of the “49er fleet” – arriving after a voyage of 180 days. By July of 1850, *Sterling* was abandoned on the Sacramento waterfront, where she sank at her moorings in 1855 (Foster 1988:102). A second concentration of timbers was recorded just below the I-Street Bridge. It proved to be remains of the bark *LaGrange*, which after abandonment on the Sacramento waterfront during the Gold Rush became the city’s first jail (Foster 1988; Hunter et al. 1984). A cable crossing the river had disturbed her timbers, but diagnostic features included the windlass and shackle attachments for securing prisoners (Underwater Archaeological Consortium 1988) (Figure 3). These river discoveries and others that followed demonstrated the preservation of significant heritage features from Gold Rush California in the alluvial deposits of the Sacramento River and their potential for future study (Foster and Smith 2009; Underwater Archaeological Consortium 1988).

MILESTONE STUDIES

The development of nautical archaeology in California was helped along by some milestone shipwreck projects conducted over the last three decades (Figure 4). This occurred in spite of the fact that no academic program in nautical archaeology has ever become established in California – a remarkable lack given the growth of university programs in anthropology and archaeology as well as the many ongoing marine biology programs and institutes. In summarizing three such sites I acknowledge there were many others as well, but these played a particularly important role. I’ve chosen them because they involved actual nautical archaeology techniques, used National Register of Historic Places criteria for evaluation of significance, and resulted in the sites being actively conserved.



Figure 4. Significant underwater archaeological projects in California. As technology improves for locating and examining deep water sites, we can expect many more to be added in the future.

Brother Jonathan

Brother Jonathan's sinking in July of 1865 stands as one of the greatest maritime disasters in California history. Of the 244 passengers and crew aboard, only 19 lucky souls made it to safety when she became impaled on a rock protrusion off St. George's Reef near Crescent City (Walker 1999) (Figure 5).

Brother Jonathan is a significant shipwreck by any measure. She began her life as a Panama steamer in 1850, making numerous runs with passengers intent on an isthmus crossing with whatever they had gleaned from the California diggings'. Twelve years later she was refitted and carrying passengers and cargo between San Francisco and Victoria B.C. (Bowers 1998). On her fateful last voyage Captain DeWolf complained she was being overloaded, but her owners insisted she set sail. The last cargo item placed on deck at the Broadway Wharf was a 3-ton ore crusher that caused *Brother Jonathan* to ride very low in the water (Walker 1999).

From the exhaustive assembly of survivors' accounts and newspapers descriptions, the following tragic events have been pieced together. On Sunday morning, July 30, 1865, the steamer anchored in Crescent City harbor on the first leg of its trip to Portland and Victoria, B.C. After leaving the safety of the bay that Sunday afternoon, the ship ran headfirst into more stormy conditions. The seas were so bad near the California-Oregon border that the captain ordered the ship turned around for the safety of Crescent City. Forty-five minutes later on that return and close to port, the ship struck the rock, tearing a large hole in its hull. Within five minutes, the captain realized the ship was going to sink and ordered the passengers and crew to abandon ship. Despite having enough lifeboats to hold all of the people on board, only three could be deployed. Acts of courage and desperation, fear and self-sacrifice, were numerous. The rough waves capsized the first one that was lowered and smashed the second against the vessel's sides. Only a single

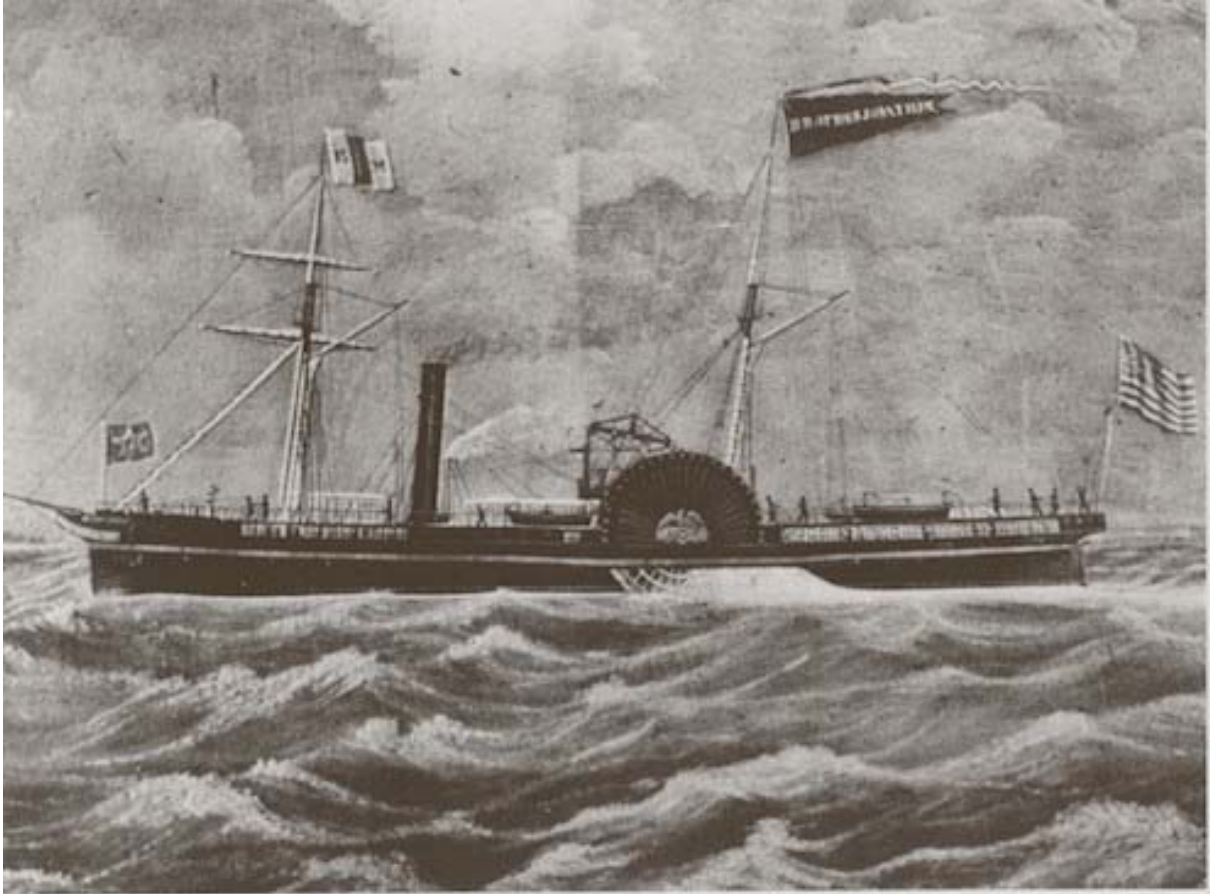


Figure 5. The steamship Brother Jonathan sank on July 30, 1865 in the stormy Pacific near Crescent City. Her discovery in 1993 prompted a legal battle over ownership of this historic shipwreck within California waters. In an agreement with the finders, the state of California was conferred ownership of the ship and its artifacts. She was listed on the National Register in 2002. Public domain image (Wikimedia 2013).

surfboat, holding eleven crew members, five women and three children managed to escape the wreck and make it safely to Crescent City. Among the victims were Brigadier General George Wright, the Union Commander of the Department of the Pacific; Dr. Anson G. Henry, Surveyor General of the Washington Territory, who was also Abraham Lincoln's physician and closest friend; James Nisbet, a well-known publisher, who wrote a love note and his will while awaiting his death; and Roseanna Keenan, a colorful San Francisco madam, who was traveling with seven "soiled doves."

Captain Samuel J. DeWolf was also lost.

Brother Jonathan is also significant in that it is one of the few "treasure wrecks" in California. Her cargo is said to have included a U.S. Army payroll of \$200,000, gold coins for annual treaty payments to the northwestern tribes, and crates of \$20 gold pieces for private transfer (Walker 1999). Dreams of gold recovery led to many salvage attempts over the years, but *Brother Jonathan* was an elusive prize. Finally, a company called Deep Sea Research, Inc. (DSR) discovered the wreck in 1993 using a mini-sub and hardhat divers; they promptly laid claim to its contents. A legal battle ensued and after nine years of court decisions reaching all the way to the Supreme Court, DSR Inc. and the State of California reached a settlement whereby the state was awarded title to the shipwreck and received 200 gold coins as well as all non-monetary artifacts and permit authority over any further salvage (Figure 6). The remaining 1,007 coins were granted to DSR as a salvage award. They were reportedly sold at auction for \$4.5 million.



Figure 6. The *Brother Jonathan* is one of the few “treasure wrecks” in California. She carried a cargo of gold coins freshly minted in San Francisco. This 1865 double eagle was recovered from the site.

On the positive side, California was awarded title to the ship, its cargo and equipment. The Del Norte County Historical Society in Crescent City conserves some 325 recovered *Brother Jonathan* artifacts. A wooden chest was retrieved from the wreck (Sowden et al. 2001) and *Brother Jonathan* was listed on the National Register in 2002 (Pelkofer 1999). She is perhaps the best-preserved example of an oceanic side-wheel steamer in California waters. Considerable archaeology work could still be done at the site, but with its depth being 250-275 feet with frequent storms and strong currents, it presents a serious technological challenge. Based on remotely operated vehicle (ROV) documentation:

The appearance of the wreck is that of a vessel that sank more or less intact and has slowly disintegrated through organic activity, leaving a number of artifacts in relative position to their original placement in the vessel. This argues for a high level of archaeological integrity and research value as the site formation process was, after sinking damage, apparently gentle and gradual (Delgado 1995).

Historic preservation interests owe a debt of gratitude to Peter Pelkofer, Senior Counsel of the SLC, for his tireless efforts in representing the public interest to protect the *Brother Jonathan* site. His work secured a future for the shipwreck; she awaits further study as a heritage legacy site.

Frolic

The *Frolic*, a Baltimore clipper wrecked in 1850 on the Mendocino coast, is perhaps the most thoroughly studied vessel of California’s maritime past. Thanks to the exhaustive work of Tom Layton, her history has come to life in books, articles, *Frolic* Ale, and even theatrical performances featuring its characters.

Built in Baltimore in 1844 for the opium trade, the brig *Frolic* was put into trans-Pacific trade at the beginning of the California Gold Rush. Under the command of Captain Edward Faucon, who had successfully traded for six years in the opium trade routes of the Orient, the *Frolic* headed to California on its last voyage laden with Chinese trade goods intended for the miners of the gold fields and the burgeoning population of San Francisco (Figure 7). She was a virtual “Cost Plus” venture of her day – a diverse cargo including 21,000 porcelain bowls, marble inset tables, a prefabricated house with oyster shell windows, and 6,109 bottles of Edinburgh ale (Layton 1997; Layton 2002).



Figure 7. The *Frolic* was a Baltimore Clipper Brig built in 1845. After a lucrative career in the opium trade, she was wrecked at Point Cabrillo in 1850. Image depicts the *Spirit of Dana Point*, a replica Baltimore Clipper (Photo credit: Michael R. Perry).

On the early evening of July 25th, 1850, the lookout sighted land and the captain, not seeing a distinct coastal horizon, estimated he was 30 miles off the northern California coast. Moments later the shout “breakers ahead” alerted Faucon to his error. It was too late for the *Frolic*. She struck the rocks stern-first, lost her rudder, and was unable to be saved. She came to rest in the small cove that today bears her name (Smith 2006:43).

San Francisco investors anxious to recover *Frolic* cargo items did minimal salvage over the next few years. Local *Mitom* Pomo Indians quickly discovered the exotic treasures landed on their homeland and brought useful items back to their villages. Over a century later Dr. Thomas Layton, excavating shallow housepits at a site called “Three Chop Village” within Jackson State Forest, began to find blue and white porcelains and bottle glass projectile points and tools (Layton 1990). A local forester gave him a clue to their origin – pointing to “pottery cove,” some ten miles away. The connection proved correct, and Layton’s archaeological study led to the *Frolic*.

Local divers had made this discovery in the 1950s and helped themselves to artifacts, including “pistols, muskets, swords, coins, gold filigree jewelry, and beads” (Layton 1997:163). Some divers used explosives to break up the cast iron ballast in their search for treasure. One of the significant achievements of Tom Layton’s *Frolic* study was his outreach to divers who had discovered and salvaged the wreck in the 1960s and 1970s. By giving them a place in *Frolic*’s history, Tom was able to eventually bring much of the looted collection into the public domain. *Frolic* was listed on the National Register of Historic Places in 1991.

Sheli Smith and the PAST Foundation carried out the first systematic underwater survey of the site in 2003-4. This was a remarkable effort. Smith was able to document many of the surviving features –



Figure 8. The Frolic was ballasted with pig iron bars and carried a large cargo of export porcelain. These became concreted together on the shipwreck site.

anchors, the windlass, mast-partners, copper sheathing, a lead scupper, and cast iron ballast bars marking Frolic's grave (Figure 8). She noted the survival of impervious artifacts in spite of the high-energy dynamics of the archaeological setting. Her mapping established the Frolic's final orientation and relative position of contents (Smith 2005). By studying Faucon's account of her loss, Smith was able to determine the outer reef where she first struck the rocks and demonstrate some disparities in the Captain's account of her demise.

Frolic collections reside in the Mendocino County Museum and Point Cabrillo Light Station State Historic Park. A 6-pound iron cannon recovered by sport divers and abandoned in nearby Mendocino has been conserved and put on display at Point Cabrillo. Smith's intensive underwater survey and analysis added great detail to our knowledge of the *Frolic*. Building on porcelain studies previously done (Hagen-Jones 1992) Smith created a database for future analysis. The preserved *Frolic* collections will continue to lend perspective.

The artifact collection of *Frolic* represents an important comparative assemblage that can provide insight and information regarding the era's burgeoning trade networks across the Pacific Ocean. Even without solid artifact provenience due to salvage, the closed-system nature of a ship and shipboard life limits the possibilities of artifact placement. Thus the 2004 baseline collection, along with the information garnered during Layton's ethnographic interviews with the sport divers, helps generally to place many of the artifacts previously recovered and reinforces the traditional layout of a sailing ship. The artifacts directly associated with the brig also represent an important comparative assemblage that can be tied to repair invoices remarkably preserved in the Heard Company archival collection. Together they provide a remarkable data set, revealing how a vessel changed with repairs, modifications, and sustained damage throughout its career. *Frolic* and the associated artifactual and archival materials are truly a California treasure (Smith 2006:48).

SS Pomona

The *Pomona* was launched in 1888 and was the first vessel to employ a triple expansion steam engine as a passenger steamer. She was also the first to be fitted with electric lights – a technological marvel of its day. She departed St. Patrick's Day, 1908 from the Pacific Mail and Steamship Company docks in

San Francisco to begin her northern run to Eureka. The seas were brisk and for passenger comfort, Captain Swansen chose to stay close in. According to L. F. Puter, a self-described veteran of 350 trips between San Francisco and Eureka, the *Pomona* was running closer to shore than he had ever seen a vessel go – “so close to shore you could tell the color of a cow on the hillside...the truth is the *S.S. Pomona* could not buck the weather” (*San Francisco Morning Call*, 19 March 1908). Turns out that’s too close.

As she neared Fort Ross Reef, the ship struck a submerged pinnacle and the bow was opened to the sea. The Captain quickly decided the only way to save the ship was to beach her in the nearby cove at Fort Ross and applied maximum power to make the four miles to safety. He did so, but as she approached the cove, down in the bow with six feet of water and sluggish to the helm, *Pomona* struck a wash rock and became impaled. Her 84 passengers, a crew of 62, and much of her 300 tons of general merchandise was safely offloaded. No one was seriously injured, so, as far as shipwrecks go, she had a peaceful ending.

In April 1981, State Parks performed its first systematic underwater survey at Fort Ross in Sonoma County. Under direction of the author, a team was assembled to perform a magnetometer survey of the cove, ground truth targets of interest with divers, and note concentrations of debris and artifacts within the historic anchorage (Foster 1981). The US Navy Diving Salvage Team from Treasure Island was recruited to assist in this survey -- the first to be carried out by State Parks. A total of 55 anomalies was charted and grouped into clusters for future study. Some of the wreck scatter is attributable to the loss of the schooner *J. Eppinger* (1901) in the cove as well as the passenger steamer *SS Pomona* (1908). Two historic anchors near the wash rock were part of the landing chute system at Fort Ross (Foster 1984, 2001).

This initial survey, while technologically primitive by today’s standards, covered both coves at Fort Ross out to the 120-foot contour. A 200-ft. grid spacing was established by marker buoys for the magnetometer survey. Lanes were run in the research vessel from a north-south and east-west direction. As anomalies were located, they were marked by a chase boat and investigated by dive teams. Position was maintained by LORAN, and anomalies were charted by transit from two stations on the bluff above (Foster 1981, 2001).

Mapping the *Pomona* shipwreck was done in incremental steps over the course of two decades. While the triple-expansion steam engine and propeller were salvaged at the time of her loss, *Pomona*’s two boilers, driveshaft, capstan, single and double bollards, hull elements and other features were archaeologically documented (Simoulin 2000; Foster 1984). Indiana University held field classes at the *Pomona* site for several years and their expertise produced a map of the site and its major elements. Archaeologists also recovered some unique ship fragments for conservation and display.

On March 17, 2008, a century after the sinking, *Pomona* was listed on the National Register of Historic Places. She earned national recognition for her role in California maritime history. *Pomona* is associated with events that made a significant contribution to the broad patterns of history, such as the expansion of trade and migration on the west coast. She is associated with persons (J. T. Scott, marine architect) and entities (Pacific Coast Steamship Company) that made significant contributions to the maritime history of California. *Pomona* also represents the first triple-expansion, steel hulled coastal liner built on the Pacific coast (Figure 9).

At the centennial event, a diver offered State Parks the *Pomona*’s steam whistle, removed in the 1960s. This whistle was studied and conserved by Indiana University and returned to State Parks for display (Drake n.d.). It is in perfect condition – ready to sound once again the arrival of the “Pride of the Coaster Fleet.”

Pomona is a gift that keeps on giving. While many ships lost along the rugged Pacific coast have never been found, or the ocean dynamics are so intense that remains are broadly scattered making identification and interpretation difficult, *Pomona* is an exception. In Fort Ross Cove the first seasonal growth of kelp outlines the remains of the shipwreck each spring – a reminder of her life and loss. She awaits more study and active management (Simoulin 1999).

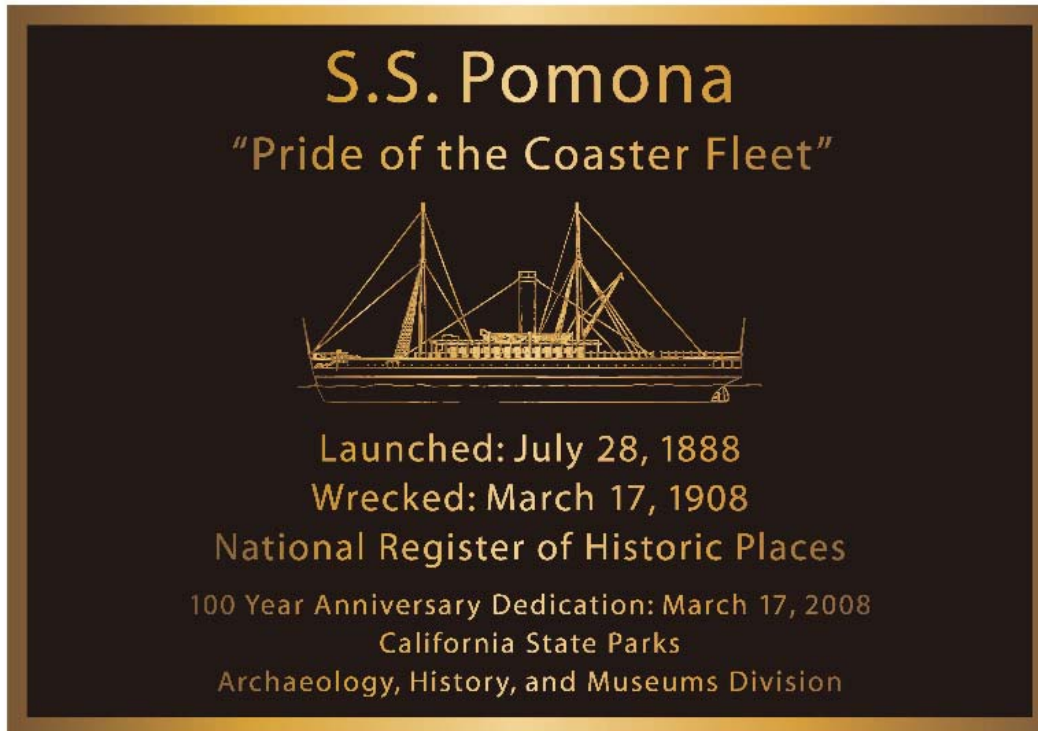


Figure 9. The SS Pomona was listed on the National Register of Historic Places on March 17, 2008 – the 100th anniversary of her sinking.

SUMMARY AND PROSPECTS

If nautical archaeology is something of a redheaded stepchild in the family of historical archaeology, in California that stepchild is malnourished and underdeveloped. In my role as the California State Underwater Archaeologist for over 30 years, curious students often asked me, “Where can I go in California to study underwater archaeology?” I sadly directed them to East Carolina, Indiana, West Florida, Texas A&M or some other distant academic outpost. Most never returned.

Why the lack of emphasis, I can’t be sure. Are California shipwreck resources somehow less important or more poorly preserved than those of other regions? Do we lack treasure shipwrecks that generate public interest and demand state investment? Is there a less-developed recognition and promotion of California’s maritime heritage compared to other coastal regions? Is the absence of a California academic program in nautical archaeology or maritime history the cause or the result of this underachievement?

Some critics have pointed out the historical particularism of nautical archaeology and its perpetual “discovery mode” (Douglass 2003:341). While this may be a valid criticism, it does not explain why California has not embraced archaeology beneath the sea. The potential is there. The sea is the world’s greatest museum of human history, and California’s 840-mile coastline, ranking only behind Alaska and Florida, holds vast promise for shipwreck discovery (Delgado 2004).

There’s reason for optimism about the future of nautical archaeology in California. Recent studies at Emerald Bay have adopted a landscape approach to submerged cultural resources and vernacular boats. The study of a potential maritime heritage trail will generate interest and connectivity among sunken recreational craft, lumber barges and steamer landings. Continued survey by State Parks is adding inventory to the “miniature fleet.” Citizen science and OpenROV technology invite new expertise in shipwreck

studies. Plans are in the discussion stage for a resurvey of the *SS Tahoe* – the legendary steamer sunk in deep water.

A recent NOAA expedition to the Gulf of the Farallones National Marine Sanctuary demonstrated deep-water survey and ROV technology may reveal well-preserved historic shipwrecks. Within a week, archaeologists and historians examined a dozen wrecks including the 1863 clipper ship *Noonday*, which struck a rock and sank near the Farallones, and the *SS City of Chester*, which sank after a collision outside the Golden Gate in 1888 (Gannon 2014). It's estimated that some 300 historic shipwreck lie near the entrance to San Francisco – one of the world's great ports. I'm confident that extending archaeological research into deep water will reveal many preserved shipwrecks over time and bring greater attention to the analysis of California's maritime past.

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