

THE ARCHAEOLOGICAL SURVEY OF THE SHIPWRECK FROLIC

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It has taken almost 20 years to create California's 20th Marine Managed Park, but the efforts have been well worth it. The Gold Rush era shipwreck Frolic and the surrounding cove where it rests have joined the impressive list of underwater parks in California. The work done in preparation for the park set a new benchmark in the creation of underwater parks focusing on cultural and biological resources important to the heritage of California.

In 2003 and 2004, through a grant from the California Department of Parks and Recreation (State Parks), the Point Cabrillo Lightkeepers' Association of the State Park Point Cabrillo Light Station and Preserve administered the archaeological survey of the shipwreck *Frolic*. Indiana University's Underwater Science Program and the PAST Foundation partnered with State Parks to provide logistical support, public access, and students. The communities of Mendocino, Caspar, and Fort Bragg rallied around the project, providing facilities, volunteers, and support. In both years the project was run as a field school drawing students from around the world. In 2003 The History Channel, through PAST, joined the project and featured the research on the series *Deep Sea Detectives*.

The focus of the project was to survey the underwater archaeological shipwreck site, visually document the previously recovered artifacts that had been returned to the public domain, and produced a set of baseline information for future site management and assessment. The recent publication of the database and report completed the project.

FROLIC HISTORY

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 (Figure 1). 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 China trade goods intended for the miners of the gold fields and the burgeoning population of San Francisco.

On the early evening of July 25th, 1850, the lookout sighted land and the captain, thinking he was 30 miles off the northern California



Figure 1: The Baltimore-built brig Epratah closely approximates the look and rigging of the Frolic (courtesy of The Kelton Foundation).

coastline, steered his vessel southeast toward the Golden Gate and booming San Francisco (Figure 2). Unfortunately, Faucon's charts were incorrect, and in the haze of the summer evening he did not recognize that the peaks he saw were the coastal mountains that drop dramatically to the sea along the rugged coastline. Just after sunset, his men spotted breakers, but the captain was unable to successfully ware the brig around and avoid the treacherous reef rocks. The brig hit stern-first, immediately disabling the steering, and Faucon was forced to drive the vessel into the adjacent cove that has come to bear the ship's name.

The brig settled into the shallow waters of the cove, and the captain and crew abandoned ship. Faucon and his officers made it back to San Francisco and reported the loss. Although their telling of the sinking would lead readers to believe that the *Frolic* sank in deeper waters, the archaeological site stands as mute testimony to the fact that the ship was driven up into the shallows, most probably using the force of the prevailing swell and the wind in the sails. For all intents and purposes, the *Frolic* was forgotten and only marginally salvaged by local ranchers and the native Pomo peoples. Then, in the latter half of the twentieth century, the site was rediscovered, first by sport divers who

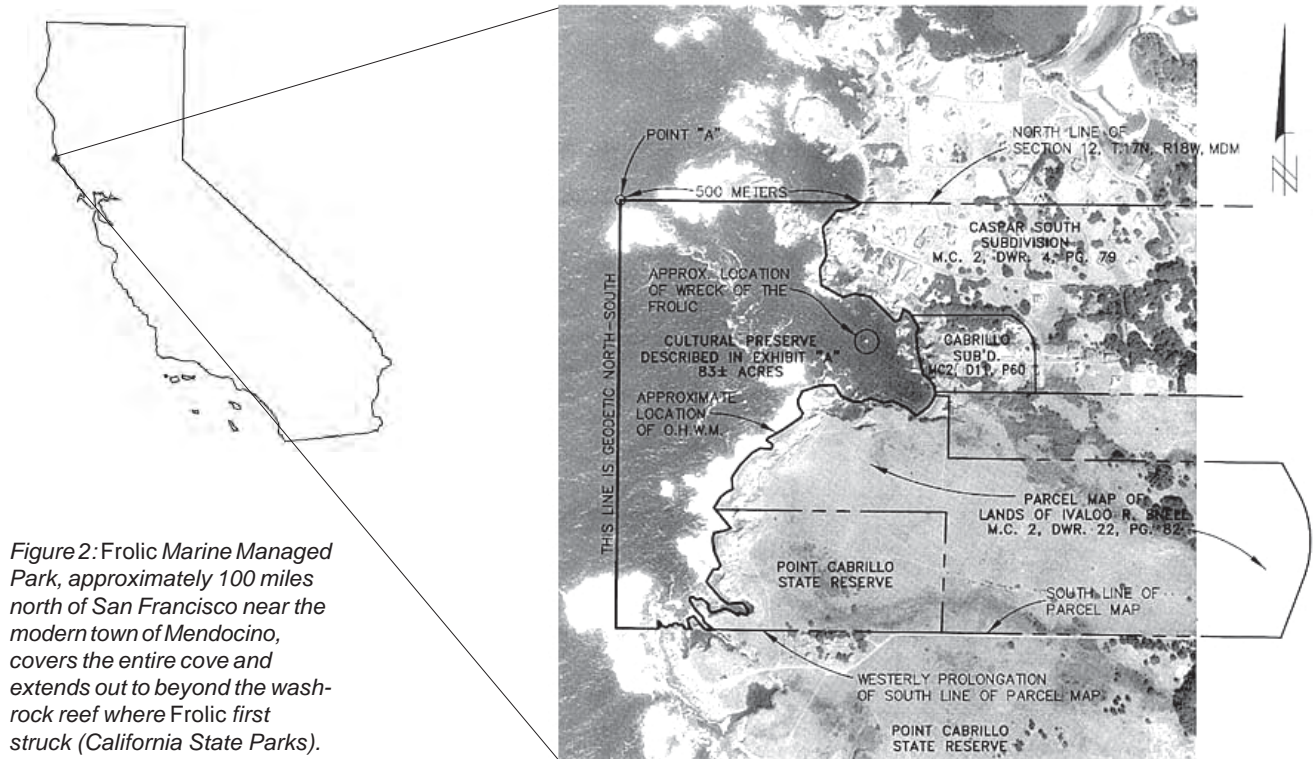


Figure 2: Frolic Marine Managed Park, approximately 100 miles north of San Francisco near the modern town of Mendocino, covers the entire cove and extends out to beyond the wash-rock reef where Frolic first struck (California State Parks).

salvaged the remnant China trade goods, then by archaeologist Dr. Thomas Layton, who connected the shipwreck site to a contact-period Pomo site known as Three Chop Village (Layton 1990). After making the connection, Layton began in-depth research regarding the Heard Company, who owned *Frolic*. Ultimately, he published two books on the China trade goods and the historical documents identifying the shipwreck as the *Frolic* (Layton 1997, 2002). He is slated to publish two more books on the Heard Company and their business network in China. After examining many of the artifacts salvaged by sport divers, Layton pushed to return the objects to the public domain and place the shipwreck site on the National Register of Historic Places. He succeeded at both. Today, almost two decades after his summer project at Three Chop Village, the majority of the *Frolic* artifacts have been placed under the custodianship of the Mendocino County Museum, where a permanent exhibit explores the wreck of the *Frolic*. In 2004 the waters and bottomland surrounding *Frolic* were placed under the stewardship of California State Parks, creating the State's twentieth underwater park (Figure 2). The finalization of the parkland transfer was a direct result of the archaeological survey and renewed community support.

It was not until 2003 and 2004 that the actual archaeological site of the *Frolic* was systematically explored. Immediately after wrecking, the brig settled into the waters of the northern side of the cove, with the bow in only nine feet (2.74 meters) of water and the stern in 40 feet (12.2 meters). According to historical accounts, any indication of the site was erased in the fall and winter storms following the wrecking (Layton 1997:156). Today very little remains of the brig. The wood has long since disappeared in the nutrient-rich surf zone. Dynamiting and extensive dredging of the site by salvage divers in the 1970s opened all areas of the site to aerobic conditions, and so today only the most impervious of materials remain underwater, but an extensive collection

of previously removed objects now resides in the Mendocino County Museum.

THE ARCHAEOLOGICAL SHIP SURVEYS

The archaeological survey team approached the study in a multi-pronged method. First the team reviewed the historical records gathered from the Heard Collection at the Baker Library at Harvard for important clues as to the look of the hull and distinctive rigging features. Comparing the documents—including registries, letters, and invoices—to those of known contemporary brigs, the team was able to discern that the hull was probably sharply built and over-rigged with much more sail than required or needed for a brig of that size (Chapelle 1960:67) (Figure 3). Sharp ship lines equate to speed. Valuable cargos required speed, which in reverse often reflects the shape of a vessel's hull. Opium a very valuable cargo and speed was preferred over quantity of cargo on any given voyage. The major career of *Frolic* was in the dangerous opium trade, garnering the vessel the dubious honor of 'Opium Clipper' (Blackburn 1978:99).

Second, the archaeological team photo-documented almost 3,000 artifacts that had been returned to the public domain, creating an extensive visual database (Figure 4). Data from previous studies were added to this database so that at the close of survey, the current research database is as complete as possible and available for future research and comparison (Smith 2005).

Armed with a familiarity of the objects, the archaeological team then went underwater to map the site and its immediate debris field (Figure 5). Over the years the prevailing swell across the cove had

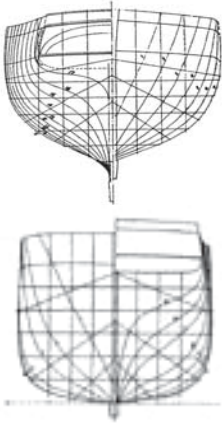


Figure 3: The two architectural drawings from the Smithsonian Watercraft Collection show how the shape of the hull differed even though the vessels were approximately the same length and breadth and both rigged as brigs. Frolic favored the sharper lines with a more "V"-shaped hull (Chapelle 1960).

washed ceramic sherds toward the southeastern beach, where visitors still comb the tidal sands for mementos. However, the immediate debris field of the archaeological site is well delineated within a narrow gully between two ridges of substantial wash rocks. The site was divided into 10 transects, each 10 feet (3 meters) wide, placed perpendicular to the site baseline and extending to the edge of the ballast line. Within each transect, archaeologists surface-collected artifacts representing different ceramic designs and material compositions. All recovered finds were documented as to provenience and assigned an accession number in the field lab (Figure 6).

The most concentrated area of finds is approximately 100 feet (30.5 meters) long and 30 feet (9.1 meters) wide, corresponding to the original length and breadth of the brig. Conveniently marking the bow area are two large bower anchors that appear to have fallen in place and a smaller kedging anchor just forward of the larger anchors. Between the anchors sits the barrel of the large windlass or hoist that was originally mounted on the foredeck. Ballast iron, known as 'pig', lays scattered down the axis of the site, closely aligned to what was the bottom of the hull. The largest concentration of artifacts is where the ship's hold was located, and there is also a fourth anchor situated in this area. The fact that the anchor, an early swivel-style Trotman, is disassembled suggests that this anchor and associated stud chain were part of the cargo intended to be sold in San Francisco (Curryer 1999). The pig in deeper water is smaller, reflecting its original location near the deadwood in the stern of the vessel. In the deeper area the concentration of artifacts also decreases, but the gravelly substrate at the base of the gully is where the richest cache of personal artifacts was initially found by salvage divers (Layton n.d.). The dearth of artifacts located in this area today reflects how thoroughly the area was dredged.

In 2004 the archaeological team returned to finish photo-documenting the previously recovered objects and to collect a baseline diagnostic sample of artifacts from the site reflecting the current state of site preservation and integrity. Artifacts within

the previously recovered collection spread across the entire range of artifact classes associated with a sailing ship, its running gear, personal crew belongings, defensive ordnance, and cargo. From parts of the compass and binnacle that guided the brig, to the piece of sail cloth and belaying pin that helped power the brig across the Pacific; from the broken gudgeon of the destroyed rudder hinge that broke in wrecking, to the copper sheathing that protected the hull from worm devastation; from the anchors that held the ship safe in harbor, to the square portholes that provided ventilation—there is no part of the *Frolic* that is not represented in the collection.

The most extensive reporting to date focused on the Chinese cargo items (Hagen-Jones 1992 and Layton 1997 and 2002). These include the ceramic blue-on-white wares, transport chests and associated hardware, ginger jars, and selected trade goods (Figure 7). These goods have been compared to the ship manifests of both the *Frolic* and a similar trading venture of the *Eveline* (Layton 2002:209). A reproduction of the prefabricated house shipped aboard *Frolic* was created by the San Francisco Maritime Museum for an exhibit. But there is still much more to investigate, including the ordnance and munitions, the glassware, the personal belongings, and the navigational instruments, along with the less-prolific Chinese trade wares.

The diagnostic collection of 2004 represents the most impervious materials that have survived the high-energy dynamics of the archaeological site. These are primarily ceramics, glass, and metals. Of the 124 artifacts recovered in 2004, 96 were ceramic. They represent five Chinese blue-on-white trade wares, including Fu, Peach and Fungus, Bamboo, Rock and Orchid, and Snail designs. Archaeologists also recovered fragments of the rare Dragon ware, Staffordshire transfer ware, and brown-glazed crockery. The majority of blue-on-white China

Figure 4: Field-school students worked in teams to photograph and date-enter all of the previously recovered artifacts housed in the local museums and private collections (photo by S. Smith).



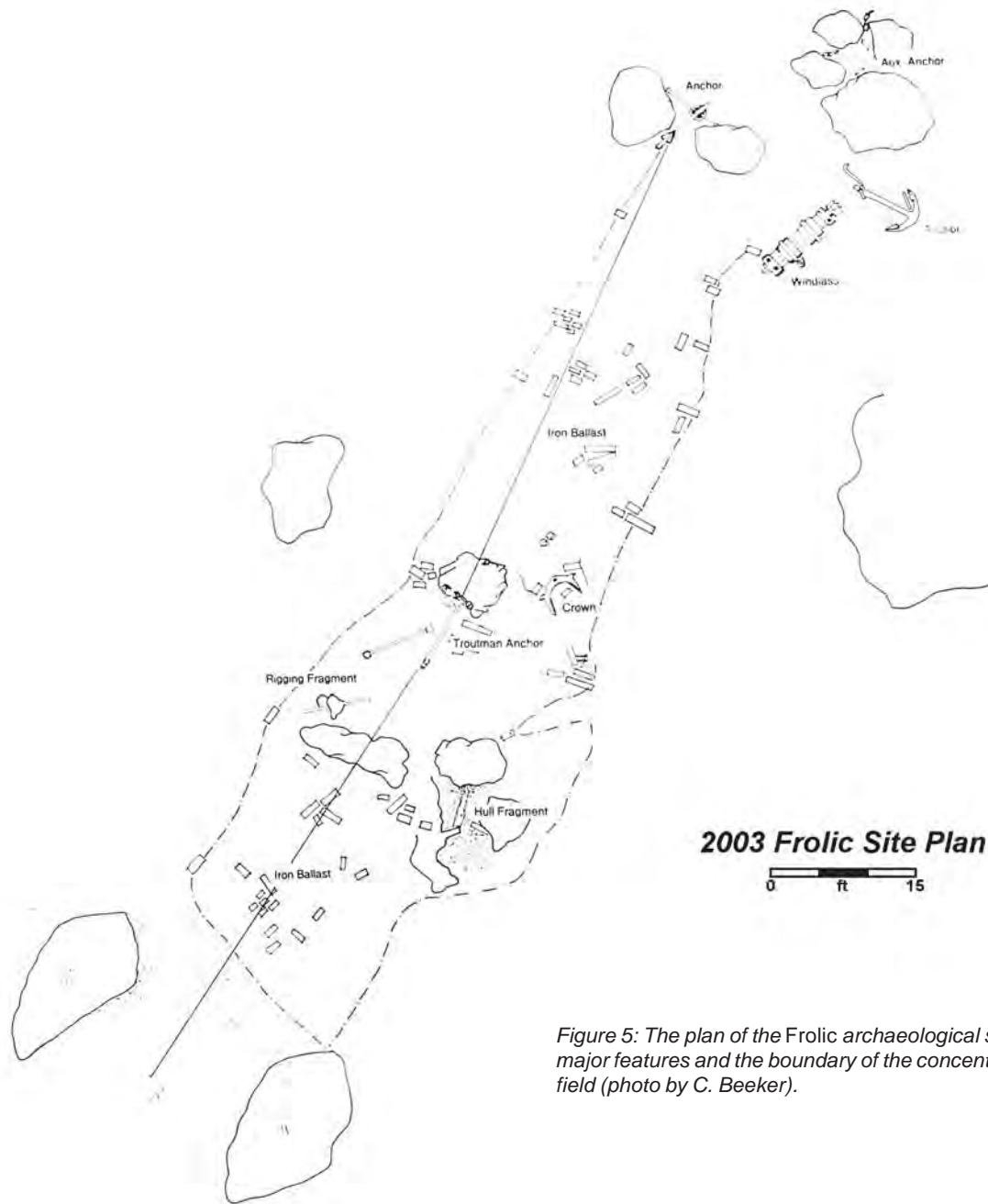
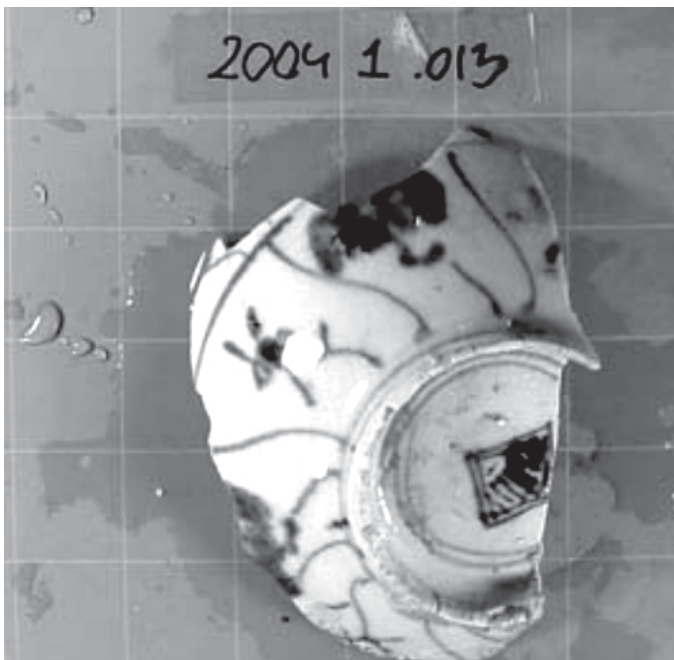


Figure 5: The plan of the Frolic archaeological site denotes major features and the boundary of the concentrated debris field (photo by C. Beeker).



Figure 6: A field conservation lab was set up on the beach to accommodate the recovered artifacts that are currently undergoing stabilizing treatments at Indiana University (photo by R. Rodrieguez).



trade wares come from the midship or cargo section of the site. The Dragon ware and Staffordshire ware were recovered in the stern, while the utilitarian crockery ware was found forward, coinciding with the location of the galley or caboose.

Both wine- and ale-bottle fragments were found in the cargo area intermixed with ceramics and glass beads that once sported faux pearl nacre. Fragments of copper sheathing from the outside of the hull were found across the site, reflecting that the entire hull up to the sturdy wale was protectively sheathed. Pieces of copper sheathing previously recovered still have remnants of tar-soaked felt caught in the rumpled sheet. A lead scupper, or drainpipe, was recovered from the midship area, along with a specimen of the iron ballast. An identical scupper was recovered previously. Both scuppers reflect the thickness of the hull at the main deck, where they

Figure 7: Of the 124 artifacts recovered for the baseline diagnostic sample, the majority were fragments of ceramic, which are relatively impervious to the high-energy dynamics of the underwater site (photo by R. Rodrieguez).

provided a drainage system from the deck out to the ocean. Concreted to the iron ballast are fragments of the Chinese blue-on-white wares. The location of the pig iron on the site and the concentration of ceramics suggest that the brig eventually settled on its starboard side, shifting the cargo in that direction. When the pig iron was recovered, a fragment of wooden hull with identifiable Teredo worm casings was also recovered. It appears that the ballast sat directly on the hull, and the leaching of irons helped preserve the small fragment of wood.

CONCLUSION

All of the recovered artifacts were kept wet and sent to the Indiana University Underwater Science Program's conservation lab for stabilization. The stabilized diagnostic collection will be returned to California State Parks for stewardship, study, and research. The database and detailed report on the survey are also on file with State Parks. The artifact collection of *Frolic* represents an important comparative assemblage that can provide insight and information regarding the burgeoning trade networks of the Gold Rush Pacific. 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 and morphed with repairs, modifications, and sustained damage throughout its career. *Frolic* and the associated artifactual and archival materials are truly a California treasure.

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