

Tortugas Shipwreck (*Buen Jesús y Nuestra Señora del Rosario*), 1622

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Country: USA

Place: Straits of Florida, some 20 km south of the Dry Tortugas, near the southwest corner of the Florida Platform.

Coordinates: *Lat.* 24° 16.76' N; *Long.* 82° 50.66' W

Type: *Navio.*

Identified: *Buen Jesús y Nuestra Señora del Rosario.*

Dated: Sunk 1622 (historical associations for *Tierra Firme* fleet correlated to artifact assemblages).

Beam: closest to 10 *codos* (5.7 m) estimated reconstruction (based on length to width formula). AGI *Contratación* 1172, N.2, R.1 for the *Buen Jesús* specifies 11 *codos* (6.3 m).

Keel Length: Measured from lower sternpost to where keel starts to form the lower stempost at 17.4 m. Keel length closest to 30 *codos* (17.25 m).

Length Overall: Historical sources specify for the *Buen Jesús* stern to prow, 37 *codos* / 21.3 m (AGI *Contratación* 18; AGI *Contratación* 1172, N.2, R.1).

Number of Masts: Presumably two.

History of the shipwreck

Found in 1965 when a shrimp trawler pulled in intact Spanish olive jars, metal artifacts, rigging and wood. The fishing hang was ground-truthed in 1989 by Seahawk Deep Ocean Technology at a depth of 405 m by ROV. Extensively excavated during 138 dives in 1990 and 1991 (approximately 1,489 hours bottom time). 16,903 shipboard objects were recorded *in situ* and recovered. The hull was only partly sampled. Historically, the world's first comprehensive deep-sea wreck excavation conducted by ROV. Identified by geographical location, artifacts' characterization and comparison to the *Atocha* and *Margarita* as a *Tierra Firme* fleet vessel sunk during the hurricane of 5-6 September 1622. The most plausible candidate is the 117-ton Portuguese-built and Spanish-operated *Buen Jesús y Nuestra Señora del Rosario* owned by Juan de la Torre and captained by shipmaster Manuel Diaz that had sailed for Nueva Cordoba (Cumana) on the Pearl Coast in modern Venezuela and was inbound for Seville. The Seahawk collection was subsequently purchased by Odyssey Marine Exploration. Two volumes of publications have been published, the first focused on the

project technology, site formation and characterization, ship identity, coins, animal bones and tobacco pipe fragments. The second volume is dedicated to the ceramics (see below).

Date

Build date unknown. The *Buen Jesús* departed from the River Guadalquivir in late March 1622 with the fleet of General Juan de Lara Morán for Santa Marta, Rio de la Hacha and Nueva Cordoba. The homeward bound Tierra Firme *flota* left Havana on 4 September and sank on 5-6 September. The Tortugas coin assemblage includes a silver issue dated to 1621, but no issues post-dating 1622. The latest examples match by mint and assayer those recorded on the *Atocha* and *Margarita*. Additional sets of artifacts recovered from the *Atocha* are duplicated on the Tortugas site: gold finger bars stamped with identical mint, *quinto* and karat quality production marks, four forms of olive jars (including parallel *graffiti* notations), tablewares (Columbia Plain, Blue-on-Blue Seville maiolica, Blue 'Morisco' ware) and non-Spanish kitchen colonowares.

Description of the site

The Tortugas shipwreck lies in the Straits of Florida, approximately 20 km south of the Dry Tortugas Islands, Florida, located around 113 km west of Key West and 60 km west of the Marquesas Keys. The Gulf of Mexico borders the area to the north. The Tortugas wreck is located within one of America's most famous shrimp fishing grounds. The site was found covered by a thin veneer of soft, carbonate muds and sandy muds. The Tortugas shipwreck lies at a depth of 394-406 m on a northwest to southeast orientation with a 150° keel line. The site is dominated by a low-lying mound of amorphous ballast stones extending across 10.0 x 4.8 m. The total wreckage covered 19.2 m in length and 15.6 m in width. The heavily deteriorated rudder signifies the stern to the northwest. 25.2% of the cargo and domestic wares overlay the main ballast and hull, while 74.8% were scattered around its perimeter, subjected to post-depositional scrambling, presumably by shrimp net displacement. All finds were buried within the uppermost 30 cm stratum of sediments.

Cargo

The preserved cargo was limited to 6,639 pearls (636 drilled), round, pear, egg, drop, button, baroque and blister shaped, originating in the Pearl Coast, Venezuela. The 258 beads (around 34% glass, 17% cut crystal, 14% ceramic, 35% organic) are interpreted as a remnant of the outbound cargo, manufactured in Venice, Paris, Spain and in the case of one agate bead central India, used to barter along the coasts of Colombia, Venezuela.

The 209 Andalusian 'olive jars' excavated (three types of *botijas* and one type of *orza*) are interpreted as ship's stores loaded at Seville for the *Buen Jesús's* entire round journey. The

elongated Type 1 jars (92% of the assemblage) probably held wine and vinegar, the small globular Type 2 olive oil (5% of the assemblage), and the Type 3 conceivably honey. Analysis of the jars' metrologies in relation to the volume of the Castilian *arrobas* revealed an absence of precise standardization in manufacture. The Type 1 jars equate very broadly to vessels of 0.75-1.5 *arrobas* size, and the Type 2 jars from under 0.25 to over 0.5 *arrobas*, but with excess volume for each *botija*. The wide differentiation in metrology suggests the assembly piecemeal over a lengthy period of time and recycling following former commercial transactions.

The 27 gold bars and 12 gold bits from Colombian mines and 1,184 silver $\frac{1}{2}$ *reale* to 8 *reales* cob coins from Mexico, Potosi and Bogota/Cartagena or an Old World mint are interpreted as payment for the variety of wine and oil jars, mixed foodstuffs, fabrics, shoes, metal items and art works unloaded at Nueva Cordoba (Cumana along northeast Venezuela's Pearl Coast) and the River Hacha (northeast Colombia).

Domestic Assemblage

The excavation yielded ceramic tablewares almost exclusively originating in Seville. The 2,031 rims, handles, bases and sherds represent 21 principal types of tableware from a minimum of 61 tin-glazed wares, ten unglazed coarsewares and seven lead-glazed wares. The collection is dominated by 1,477 tin-glazed sherds representing eight individual types almost completely produced in Seville, followed by 336 lead-glazed wares and 218 unglazed coarseware sherds (Seville Blue on Blue 47.5%, Seville Blue on White 13.7%, Plain White Morisco 6.4%, Seville White 5.9%, Seville Polychrome 2.3%, Linear Blue Morisco 1.8%, Decorated Blue Morisco 1.8%, Mottled Blue Morisco 1.8%). Lead-glazed Wares account for 7.3% of the tablewares.

Ballast

The main nucleus of the ballast mound extended across an area measuring 10.0 x 4.8 m. Samples were examined visually by Dr Stephen Pollock of the Department of Geosciences, University of Southern Maine, followed by x-ray diffractometer analysis of six samples. The following rock forms were identified: basalt, chert nodules, granite, basalt, quartz, oolitic limestone. The scientific analysis did not permit a positive identification of the ballast's provenance. Sandstone was the prevalent form within the hull.

Anchors

Four concreted iron anchors were present on the Tortugas site: A1 (L. 2.5 m, arm W. 1.3 m) to the southwest in the bows, seemingly originally lashed to the ship's port flank; the shank from A2 underlies it. A3 (shank L. 2.30 m long, ring L. 37 cm, broken arms L. 67 cm) lies at

the north end of the site, seemingly out of context, and may have been displaced by bottom trawler activities. A fourth large anchor was salvaged in 1972. The arms of all anchors are rounded. Inspection of the *Buen Jesús* at Seville stipulated the ship should carry four anchors (AGI *Contratación* 1172, N.2, R.1).

Guns

Historical sources indicate the *Buen Jesús* should carry to the New World four cannon with ammunition, a hundred flat bullets, twelve muskets, lead bullets and two dozen “magpies” (AGI *Contratación* 1172, N.2, R.1). No ordnance was discovered on the Tortugas wreck, which may have been jettisoned. (The lead musket balls published as from the site were erroneously registered and derive from a mid-18th century wreck off St Augustine, Florida.)

Hull remains

The hull’s preservation is continuous with articulated strakes, frames and ceiling planking. Less than an estimated one-quarter of the upper hull was examined, focused on the stern third of the vessel. The stem was uncovered with the sole objective of determining the ship’s length. Major structural elements preserved include a wood-lined pump well retaining shaft, several stepped deck stanchions, what appears to be the stump of the main mast stepped into the keelson just forward of the pump well, and the top of the stempost (with a scarf and associated forward plank hoods butting into the vertical rabbet). The heavily degraded rudder has snapped off to starboard of the sternpost. To its east lies a long timber with chamfered edges, potentially a spar or part of the tiller assembly.

Sternpost

The sternpost was located interconnected to the hull. The stern terminates at a 10.8 cm sided post, which widens forward to 28.1 cm. A second tail frame measured 18.7 x 12.5 cm. Three hooding ends, the upper line 5.4 cm thick, are rabbeted into the sternpost. The upper strake flanking the portside sternpost is 6.9 cm thick.

Bilge Pump & Keelson

At a distance of 7.8 m forward of the sternpost the bilge pump well’s wooden framed retaining shaft *arca* (103.7 x 76.3 cm) is built of 14.5 cm-wide and 2.5 cm-thick planks set sideways on. The retaining shaft is centrally placed in the hull overlying the keelson, which measures close to 28 cm wide at this point and displays what resembles a mortise for the mast step just aft of the pump.

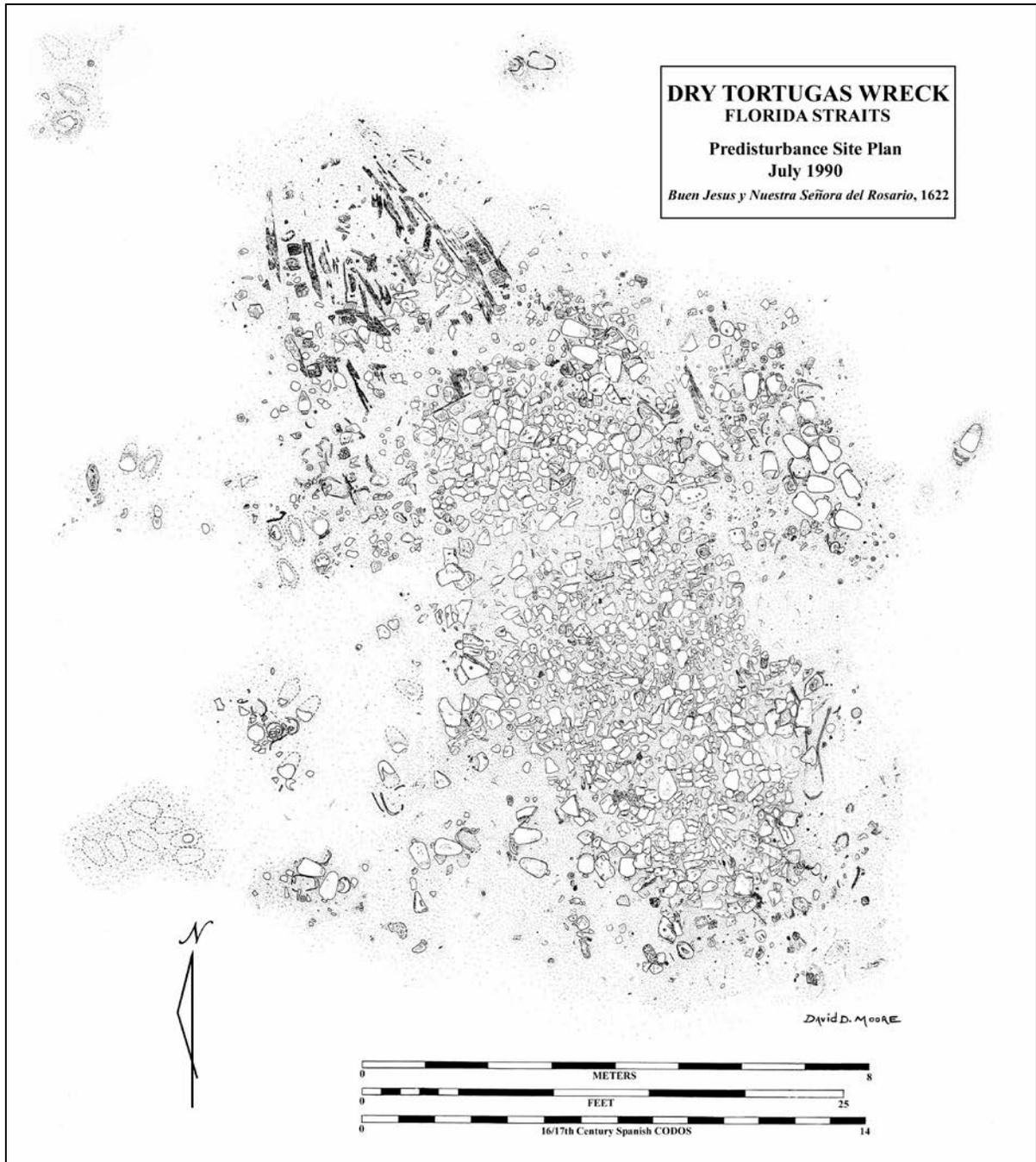


Figure 1. Site Plan (David Moore).

Frames

Some 6.3 m forward of the sternpost along the starboard hull, closely aligned frames, sided thicknesses of 14.1-15.6 cm, molded heights of 10.3-13.1 cm. In many the outer surface was left naturally rounded and retained the external curvature of a tree trunk/branch.

4.8 m forward of the sternpost, closely aligned frames along the starboard hull, 15.0 cm sided thickness and 10.3 cm molded height and spaced 2.2cm apart.

Along the uppermost midship portside hull, 6.0 m forward of the sternpost, three frames sided 18.8-21.3 cm and molded 13.1-13.7 cm. Two tightly abut one another with less than 1 cm space between.

Planking

To portside of the pump and keelson, two ceiling planks, both 27 cm wide. 6.3 m forward of the sternpost to starboard, ceiling planking 6.2 cm thick. 4.8 m forward of the sternpost to starboard, 6.2 cm-thick ceiling plank. Midships, 6.0 m forward of the sternpost, two 25 cm-wide ceiling planks. Midships portside hull, 6.0 m forward of the sternpost, ceiling plank 23.6 cm wide and 9.4 cm thick.

Midships portside hull, 6.0 m forward of the sternpost, uppermost strake 16.3 cm wide and 6.6 cm thick. 4.8-6.3 m forward of the sternpost to starboard hull, strakes 5.2-6.2 cm thick.

3 m from the sternpost, two disarticulated planks (strakes?) interconnected, 15 cm wide butt joints covered with an unidentified coating of organic resinous waterproofing.

Size and scantlings

The estimated length overall of this ship is 21.3 m (37 *codos*), the keel length 17.4 (c. 30 *codos*), and the beam 5.7 m (c. 10 *codos*).

Table 1. Scantling of the timber remains of the Dry Tortugas Shipwreck

Timber	Sided [cm]	Molded [cm]
Keel	c. 28	?
Sternpost	10-28	?
Floor timbers	14.1-21.3	10.3-13.7
Room-and-space	1-2.2 +	-
Planking	16.3	5.2-6.6

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