

# *SS Copenhagen: Steamer, Artificial Reef and Underwater Archaeological Preserve*

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*Figure: 1 Diver on the wreck of SS Copenhagen (Florida Division of Historical Resources)*

*“The Copenhagen shipwreck is listed as site 8BD2567 in the Florida Master Site File. As with all other historical or archaeological sites on public uplands or submerged bottomlands, title to its remains is vested in the State of Florida, under Chapter 267 of the Florida Statutes. This law forbids unauthorized disturbance, excavation, or removal of artifacts, in order to protect the site for the people of Florida.”*

## **Introduction**

The wreck of *SS Copenhagen* is a multi-faceted part of Broward County’s heritage, simultaneously representing a tragic episode in history, an example of changing transportation technology, a scuba diving destination and a vibrant artificial reef (Figure 1). The *SS Copenhagen* is a unique shipwreck and a cultural treasure that is not only one of Florida’s Underwater Archaeological Preserves, but is also on the National Register of Historic Places.

The steamer was at the forefront of a shift in design, propulsion and building materials from the fully-rigged wooden sailing vessels of the nineteenth century to the steel cargo carriers of today. Her history is one of failure just on the verge of success, but even in her demise she has taken on a new purpose, becoming a popular dive spot that is home to thousands of marine creatures.

## **History**

In early July of 1900, a small fleet of vessels abruptly abandoned their work assisting the *SS Copenhagen*. Loaded with coal from Philadelphia and bound for Havana, Cuba, she ran aground on Pompano Reef on May 26 of that year and had been stranded since.<sup>1</sup> Her pumps could not keep up with the water pouring in through punctures in the double hull, and she settled onto the reef after striking it in shallow water.

Reversing the engines failed to free the vessel, and attempts to kedge the steamer off the reef were equally fruitless.<sup>2</sup> The aft end of the freighter sunk lower than the bow, according to early reports.<sup>3</sup> Getting the particulars

of the incident to the press was a difficult undertaking. The closest telegraph was 13 miles away in Fort Lauderdale, on a road “alive with alligators, rattlesnakes, and mosquitoes.”<sup>4</sup>

The reef became abuzz with activity as wrecking crews set about to repair the damaged hull and began the onerous task of recovering her cargo, which required diving inside her flooded holds and the use of heavy industrial apparatus. Centrifugal pumps transferred coal to waiting tugs while divers manned the intake cages to prevent clogs, a dark and dangerous job.<sup>5</sup>

The wreckers spent the better part of a month working against time and weather trying to salvage both vessel and cargo. After several weeks, their task neared completion. The coal cargo was transferred off the steamer, the holds were empty, workers patched her holes and SS *Copenhagen* was ready to be pulled off the reef. Then, the untimely call came from New York that she was to be abandoned to the elements.

The wire the wreckers received from their company, Merritt and Chapman, was short, simple and unequivocal: “Abandon *Copenhagen* and send outfit to New York. Urgent.”<sup>6</sup>

The wrecking vessels were needed elsewhere. Just at the apex of the rescue effort, SS *Copenhagen* was left to be torn apart by the sea. The brig *San Blas*, left to break apart decades before, is the only other known instance in Broward County history where a ship that could have been salvaged was left behind.<sup>7</sup>

On June 30, 1900, a fire raged at the American terminal of Lloyd’s North German Line in Hoboken,

New Jersey, over a thousand miles from Hillsboro Reef. The inferno sealed *Copenhagen*’s fate with more finality than her running aground. A maritime disaster of grand scope, a contemporary newspaper article described the conflagration in Hoboken as “a sight that has probably had no counterpart in this city’s history.”<sup>8</sup> Buildings, piers, and stores along the waterfront were destroyed or damaged. Several steamships burned. The financial toll was estimated as \$6 million in losses in the currency of the day.<sup>9</sup> Casualties numbered in the hundreds. Adding to the chaos of the aftermath, many of the injured were from Europe and did not speak English.<sup>10</sup>

In the end, the number of dead could only be estimated; many were simply never found. The wrecking vessels at work on the *Copenhagen* were needed in Hoboken with such urgency that the company decided that abandoning the steamer, even just as she was about to be towed from the reef, was an economic necessity. Although still visible above water for decades, the wreck slowly succumbed to the waves and now rests below the surface.

A marine underwriter Board of Inquiry investigated the events surrounding the wrecking of the SS *Copenhagen* and found that Captain W. S. Jones had improperly navigated his ship. They also found that he had not used a sounding lead when the situation warranted its use. Only his previous outstanding service saved the commanding officer’s career. The board did not revoke his master’s certificate because up until the incident Jones’ record had been exemplary.<sup>11</sup>

Although most of SS *Copenhagen* is still on Hillsboro Reef, parts of

the steamer found their way ashore. The ship’s bell was sold by the crew to a pioneer family from Pompano Beach, who used it as a dinner bell until it was stolen.<sup>12</sup> Ralph M. Munroe, beach agent for Merritt and Chapman Wrecking Company, related that a mahogany board table in the Biscayne Bay Yacht Club had come from *Copenhagen*’s saloon.<sup>13</sup>

More salvage may have occurred. Wreckage from what is likely the bow section is currently one half mile from the rest of the vessel.<sup>14</sup> Some posit that inexperienced salvors attempted to recover it, but could only move it a short distance before their equipment failed.<sup>15</sup> Another hypothesis contends that the vessel was leveled with explosives so as not to be an obstruction, and the bow was dragged into deeper water.<sup>16</sup>

Most of the freighter remains where she ran aground, broken apart by time and weather, a process that took years. Wreckage was still visible above the waterline during World War II, enough so that U.S. Navy pilots used her remains as target practice. Fifty caliber ammunition still litters the site, a testament to thousands of rounds spent in aerial strafing attacks.<sup>17</sup>

### **A Steel-Hulled Steamer**

SS *Copenhagen* was a steel-hulled screw steamer of British registry, hailing from Glasgow, Scotland. Three hundred twenty-five feet long, she was 47 feet wide with a depth of more than 25 feet and a registered tonnage of 2,116. She was built in Sunderland, England, in 1898, by J. Priestman & Company. Propeller-driven, she was equipped with a three-cylinder triple expansion steam engine generating 312 horsepower.<sup>18</sup> Her

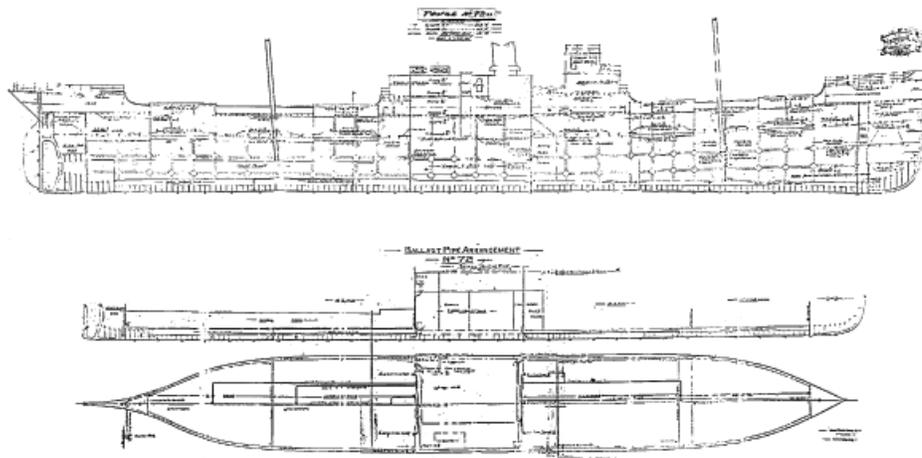


Figure 2: SS Copenhagen plans (London: J. Priestman and Company 1897)

forged steel crankshaft was 12¾ inches in diameter.<sup>19</sup>

The freighter was built to carry long distance cargo in an age when steam power had overtaken sail as the primary means of propulsion. In this regard, the wreck is a fine example of the change in marine technologies that revolutionized waterborne commerce in the latter half of the nineteenth century. Representing the tail end of this transition, *Copenhagen* was fitted with two masts configured in a schooner rig. At the end of the nineteenth century it was not uncommon for screw steamers to carry auxiliary sail.

As steam replaced sail in propulsion, iron and steel replaced wood as hull materials. Ferrous hulls, especially steel, could be made much larger and sturdier than their wooden counterparts. After the 1850s and 1860s, the Bessemer and Siemens production processes made steel an affordable option for shipbuilders in the United Kingdom.<sup>20</sup> Steel proved a better and more ductile hull material than iron.<sup>21</sup> Steel hulls could be larger, cheaper and stronger than wood.<sup>22</sup> Steamers were more likely to be built with ferrous hulls at the

close of the nineteenth century, and were often larger than sailing craft. Statistics for British vessels lost in 1900 reflect this, with sailing vessels averaging a third of the tonnage of their steam-propelled counterparts.

Even for a steam vessel of her day, *SS Copenhagen* was a large vessel to be lost, at nearly three times the registered tonnage of the average British steam vessel wrecked in 1900.<sup>23</sup> However, the vast British merchant fleet had hundreds of vessels of her gross tonnage or larger in service in that year.<sup>24</sup> Shipbuilding in the United Kingdom reached a milestone when in December of 1898, “the highest figures recorded in the history of the shipbuilding industry occurred... 1,401,087 tons were reported to be under construction.”<sup>25</sup>

At the time *Copenhagen* was launched, Great Britain was the world’s economic juggernaut; its shipbuilding paralleled its other industrial achievements.

*Copenhagen’s* design plans show a vessel with lines not terribly dissimilar from the tramp steamers of the early twentieth century, or the tankers and freighters of today

(Figure 2). Her lines amidships maximized space, with a sharp, but curved, turn of the bilge and very mild tumblehome above the waterline. This shape created, in essence, a moving shipping container. She had a short superstructure including a bridge, set forward of a prominent smoke stack. Her forecastle and poop rose slightly above the main run of the deck. Built to haul cargo, she featured four large hatches, each 16 feet by 20 feet, accessing two forward holds and two aft holds. These holds were numbered one through four, from bow to stern. Steering required a massive rudder six feet wide, held in place with five pintles.<sup>26</sup>

During and after construction she was inspected and given a rating of “100 A1 Steel.”<sup>27</sup> Her inspectors found her in good quality. The ship forgings, the stern frame, rudder frame and stem were also categorized as sound.<sup>28</sup> For insurance purposes, merchant vessels were periodically inspected and assessed starting at their construction. Her last survey or report was undertaken in Baltimore in December of 1898.<sup>29</sup>

## The Site

Already a popular diving destination before it was designated as an archaeological preserve in 1994, the site is located in 15-30 feet of water on the Pompano Ledge, less than a mile off Lauderdale-by-the-Sea and 3.6 miles south of Hillsboro Inlet. The wreck runs roughly north-south, with the stern pointed northward. Although time, aerial bombardment and the elements have largely flattened the wreck, visitors to the site today will find several identifiable features above the limestone ledge.

Intermediate and deep frames, the “ribs” of the vessel, are visible on



Figure 3: Structural elements. (Florida Division of Historical Resources)

either side of the site (Figure 3). They provided the structural strength needed to allow the vessel to be so large. The bow itself is missing and disarticulated; wreckage appearing to be part of it rests at a significant distance southeast of the main site. Plating from the double hull is visible in the stern section, where visitors will also find a pillow block, which once provided support for the propeller (Figure 4).

On the starboard side, the hull has collapsed toward the ledge, while the remaining structure on the port side is now in slightly deeper water. Anthracite coal, remnants of her cargo, is visible on site, as well as the beds for the main boilers and parts of an auxiliary “donkey” boiler.

## Biology

The wreck offers more than an interesting piece of history; it is also a marine habitat. *Copenhagen* serves as an artificial reef and over the years it has become home to an abundance of marine life. Soon after



Figure 4: The pillow block. (Florida Division of Historical Resources)

she was embedded in the seafloor, sea creatures began to colonize the wreck, using her structure as a substrate.

With time, *Copenhagen* developed an ecosystem consisting of a wide variety of aquatic plants and animals from fish to sponges. Invertebrates include sea fans, sea rods, loggerhead sponges and star corals that find purchase on various parts of the steamer. Spiny lobster use small spaces in the wreckage for shelter. Red and yellowtail snapper, angel fish, porgies, sergeant majors, goatfish and wrasses are just some of

the fish that a visitor may encounter on this biologically rich shipwreck.

## Preservation

Preservation of Florida’s underwater archaeological sites poses interesting challenges; *SS Copenhagen* is no exception. The sites belong to the people of Florida and are legally protected. The agency managing these resources, Florida’s Bureau of Archaeological Research (BAR), is committed to maintaining public access whenever possible. It has been argued that public access and the preservation of archaeological sites are conflicting goals, perhaps even mutually exclusive.<sup>30</sup>

Some heritage managers question the reasoning behind a largely positive outlook toward site access for the public, especially in light of widespread problems with looting.<sup>31</sup> Florida’s Underwater Archaeological Preserves program, however, uses access as a tool to promote site stewardship and preservation. Public participation is the cornerstone of the program, which rests on the idea that if the public is involved and given access to properly interpreted sites, it will be a force for preservation.

In order to achieve this, the community is involved in all aspects of the process, starting with the

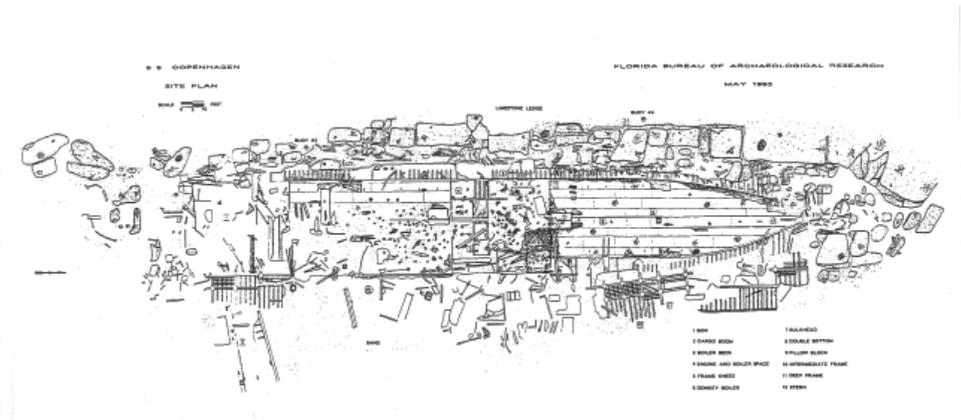


Figure 5: *Copenhagen* site plan. (Florida Division of Historical Resources)

nomination of a site and through its stewardship and management.<sup>32</sup> The program harnesses public enthusiasm by providing education, stressing the need to conserve our submerged cultural resources for future generations. The result is a partnership; the public and the state work together to create the preserves and members of the public maintain and monitor them. Thus far, this has been a successful formula. The program includes 11 preserves across the state, with examples ranging from a Spanish galleon in the Florida Keys, to a U.S. Navy battleship near Pensacola, to an Italian sailing bark off Stuart.

Community nomination of a site is the crucial first step. In this way, preserves are a response to public demand, not a decree from the state level. This approach ensures that there is community interest in designating a preserve from the start of the process.

In the case of *SS Copenhagen*, the site was nominated in 1993 by Tom Thompson, a boat captain and dive book author. After nomination, the Bureau of Archaeological Research evaluates sites according to a set of criteria. All sites need to be identified, have historical significance, be located in state waters, have visible structural features and a vibrant biology, as well as be accessible to the public.<sup>33</sup> After the state received the nomination form, it evaluated the site and found that it met each of the criteria. State Underwater Archaeologist Roger C. Smith noted that “it has the accessibility, the history and the ecology” to make it a successful preserve.<sup>34</sup>

The archaeologists then visited area dive shops and charter boat businesses and found support



Figure 6: The bronze plaque. (Florida Division of Historical Resources)

for the creation of a preserve. Interested individuals formed a group known as the “Copenhagen Clan,” that assisted in establishing the preserve and participated in site maintenance and monitoring.<sup>35</sup> With the assistance of the Marine Archaeological Council (MAC), BAR produced a site plan (Figure 5).

A proposal to designate *Copenhagen* as a preserve, written by BAR and MAC, was distributed to the local community. The response was positive. Local and state organizations cooperated in placing a bronze plaque mounted in a concrete monument at the site (Figure 6).<sup>36</sup> Designation was a collaborative effort involving BAR with the assistance of MAC, the Florida Department of Environmental Protection and the Broward County Department of Natural Resource Protection.

An unveiling ceremony took place underwater at the site on June 4, 1994.<sup>37</sup> BAR produced printed brochures and an underwater guide to promote site visitation and heritage tourism. Also, as part of an online

initiative, a web page including short videos about the history, archaeology and biology of the site allows people to tour the site without getting wet or even leaving home. To view material on *Copenhagen*, or Florida’s other Underwater Archaeological Preserves, visit [www.museumsinthesea.com](http://www.museumsinthesea.com).

For many years local dive shops have been taking charters to the site, highlighting another aspect of the preserves: the promotion of local heritage tourism. *SS Copenhagen* remains one of the most popular of the eleven Preserves in the program.

Visitation has apparently not produced any adverse effects to the wreck. An assessment in 2007 found no discernible human disturbance to the site.<sup>38</sup> Designation as a preserve apparently has increased the number of visitors without compromising site integrity. The Preserves program works on the supposition that an educated populace is the best way to ensure site stewardship. At the *SS Copenhagen* shipwreck site, this approach has been successful.

In addition to its designation as a preserve, *Copenhagen* was nominated to the National Register of Historic Places and was placed on the list in 2001. The site was found to be eligible under several criteria including historical significance, design characteristics and archaeological value.

## Conclusion

Visitors to the SS *Copenhagen* today will experience more than the physical remains of a steamer left to break apart on Pompano Ledge. They will get to see with their own eyes a grand example of a change in technology, from a time when sailing vessels of the past were transforming into the cargo carriers of today. A reef abundant with life is made more diverse, in part, because the remains of the broken steamer provide a place for aquatic life to live on, in and around. As an Underwater Archaeological Preserve listed on the National Register of Historic Places, the site celebrates the history and the heritage of the SS *Copenhagen*, a popular dive destination and a multifaceted part of Broward County's heritage. ■

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