

THE DOWN-EASTER *AUSTRIA*: THE ARCHAEOLOGICAL,
HISTORICAL, AND EDUCATIONAL VALUE
OF A FORESHORE SHIPWRECK SITE

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ABSTRACT

THE DOWN-EASTER *AUSTRIA*: THE ARCHAEOLOGICAL, HISTORICAL, AND EDUCATIONAL VALUE OF A FORESHORE SHIPWRECK SITE

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The Down-Easters were designed to be the last great attempt for wooden sailing vessels to compete with steel and steam. Built in 1869, the *Austria* was one of the first Down-Easter vessels constructed. In January of 1887 the *Austria* struck shore on Washington State's Olympic Peninsula. Her remains, scattered in the intertidal zone at Cape Alava, were recorded by the author in July of 2007 while incorporating an experiential learning field school opportunity for undergraduate students. This thesis explores the hands-on educational value of foreshore shipwreck sites such as the mid-19th century Down-Easter *Austria* while recording the remains of the vessel for scientific and educational purposes, helping to fill a data gap on shipwreck sites on the Northwest Coast, and researching the little-known Down-Easter style vessel.

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CHAPTER I

INTRODUCTION

Even when all hands escape,
it is a dreadful thing for sailors to watch a ship drown,
to see her die.

Richard Hanser, from Gibbs (1987)

Very little is known about the shipwrecks of Olympic Coast National Marine Sanctuary (OCNMS), and the handful of shipwrecks that are accessible are disintegrating into oblivion. In an effort to illuminate the history that these resources embody, one of the prime mandates of OCNMS (2007) is “to conduct and apply research to preserve the area’s ecological integrity and *maritime heritage*, and to promote understanding through public outreach and education” (emphasis added).

Ever since its creation in 1994, OCNMS, managed by the Department of Commerce’s National Oceanic and Atmospheric Administration (NOAA), has been committed to the preservation of some of Washington State’s most rugged shoreline. Located on the westernmost coast of the state, the sanctuary encompasses over 3,300 square miles of coastal waters, stretching 135 north/south from Cape Flattery to the Copalis River, and extending 25-40 out to sea (OCNMS, n.d.; see Figure 1). There are over 180 shipwrecks lying in the tumultuous waters that fall under the jurisdiction of the sanctuary (OCNMS, 2005), several of which rest in the intertidal zone and on the beaches, exposed not only to the destructive forces of wind and water, but to the curious

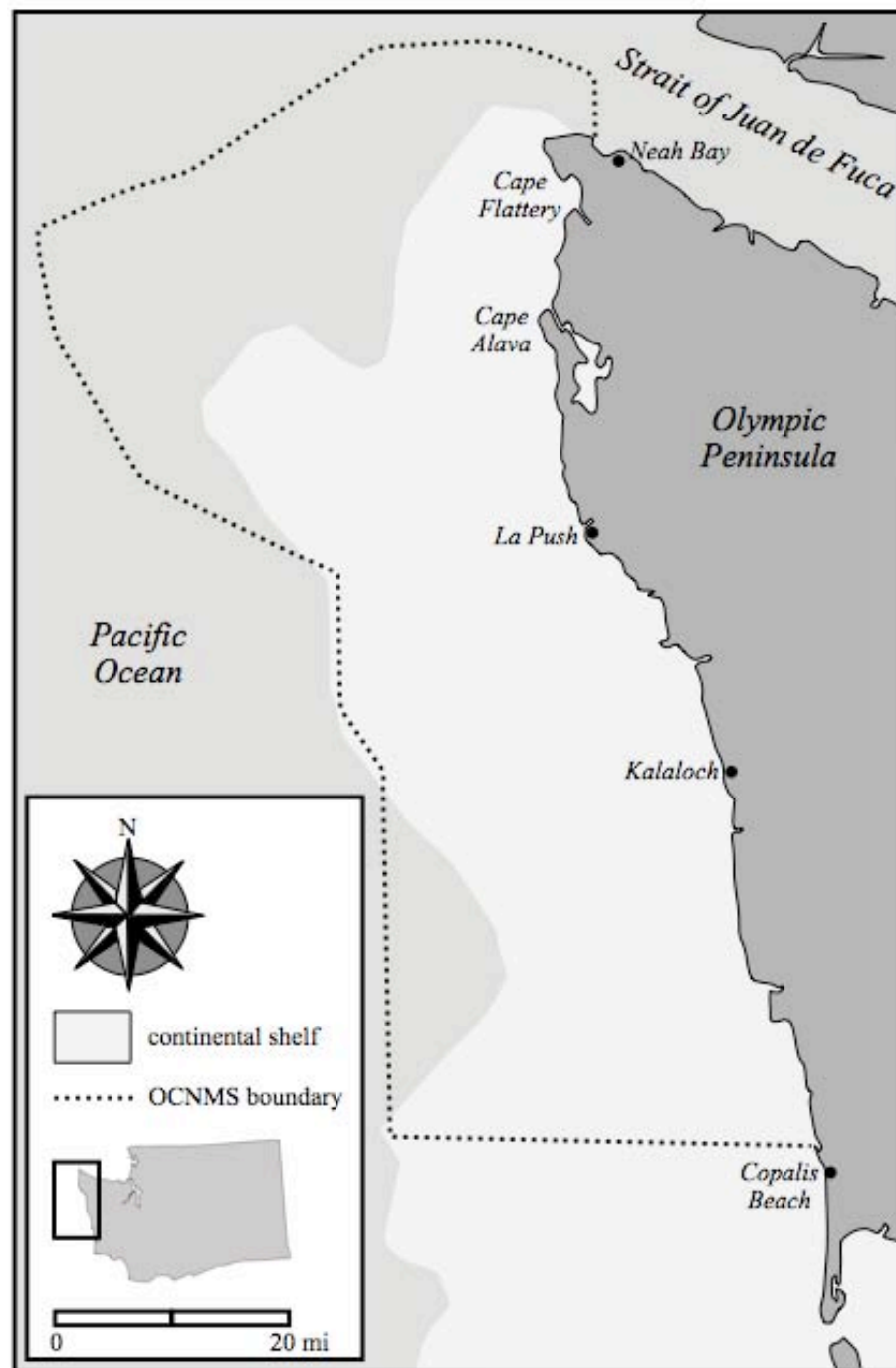


Figure 1. Location of Olympic Coast National Marine Sanctuary (OCNMS). Adapted from OCNMS (n.d).

hands of humans as well. Slowly these resources are deteriorating, vanishing into the unknown.

Preservation of our maritime heritage resources, though a priority to the National Marine Sanctuary system (NOAA, 2000), is nearly nonexistent on the Washington coast. Many wreck sites have been located in the sanctuary, at least approximately, but none have been thoroughly researched or inventoried, resulting in a data gap of recorded shipwreck sites and associated artifacts. NOAA must acquire this information in order to establish a base-line inventory of what they have within the sanctuary boundaries, a necessary step in managing the cultural resources they are charged with.

Shipwrecks are important vessels of our history, and are unique time capsules that depict a single moment in time (Green, 2004). Though laws and regulations are in place to protect the resources, pieces of them still tend to move to campsites, up and down beaches (otherwise known as the “Boy Scout effect”) and into private collections. As Robert Steelquist (personal communication, October 19, 2006), OCNMS Education & Outreach Coordinator, asserts, “Federal and state law protects shipwrecks, but many historic objects related to shipwrecks might not be recognized as such and are frequently removed just because of their appeal. This is a constant problem,” he adds, “first because it happens very frequently; second because it is viewed so casually by most of the perpetrators. After all, isn’t beachcombing something everyone does?”

The primary objective of this thesis is to tell the story of a shipwreck, illuminating both a time period (the role of wooden sailing ships in the Pacific Northwest during the mid to late 19th century) and a precise moment in time (the fateful night the ship wrecked). In doing this I identify, map, and interpret the remains of the shipwreck *Austria*: a mid-19th century wooden ship that foundered on the rocks of Cape Alava in

January of 1887 (see Figures 2 and 3), as well as provide a Global Information System (GIS) data layer and map of what remains of the *Austria* to NOAA for use in monitoring the shipwreck. This thesis is the result of literature review, historical research, including visits to the Department of Archaeology and Historic Preservation, and experiential learning (a field school) at the site location, where field school participants learned how to gather archaeological data, developed a sense of site stewardship, and participated in the production of a film geared toward public outreach and education.



Figure 2. The *Austria*, painted by Henry Loos in 1878. The shipbuilder's house flag flies from the main mast: *H* stands for *Houghton* (the shipbuilder), and *A* stands for *Austria*. The Houghton fleet was unique in flying a different house flag for each vessel (N. Lipfert, personal communication, October 9, 2008). Courtesy of the Maine Maritime Museum, Bath, Maine.

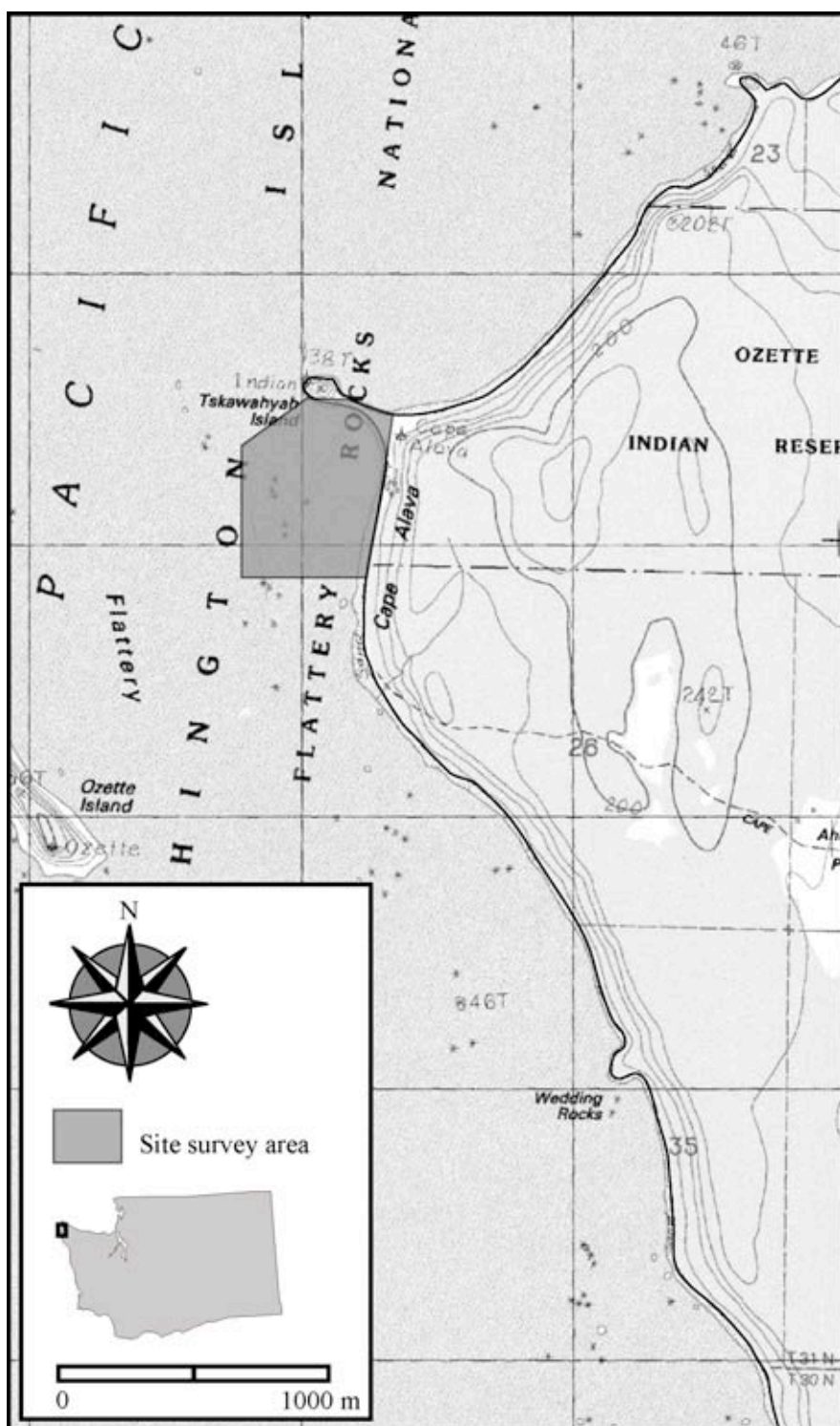


Figure 3. Location of the project area. Adapted from United States Geological Survey (USGS) Ozette Quadrangle, 7.5 minute series (1984).

Methods for site recordation primarily reflect those being used by the Nautical Archaeological Society, adopted by NOAA's Marine Heritage Program, similar to those demonstrated in Green (2004, pp. 95-96, 149-150), and the National Park Service Submerged Resources Unit (Lenihan, 1989). Since the majority of site recordation took place during low tide in shallow water and on the exposed beach, terrestrial archaeological survey and mapping techniques were also employed. The project was additionally documented through visual media, including photography and video, which has been edited into a 30-min documentary-style video for presentation to the general public and resource management professionals.

This inquiry benefits the scientific community by addressing a research data gap of inventoried shipwreck sites on Washington State's west coast and contributes to a discussion of the value of shipwrecks as educational tools. It additionally provides a useful venue for education and public outreach concerning maritime heritage resources through both the development of a week-long field school program and the production of a short film about the project.

CHAPTER II

BACKGROUND

Biophysical Context

Ships have traveled through the waters now protected by OCNMS in vast numbers for hundreds of years. Those numbers combined with the stormy nature of the northern Pacific and the jagged geological relief of the Washington coast has set the stage for many maritime tragedies. The sanctuary is located in some of the most chaotic waters on the West Coast of the US. It is also in a location that historically inspired adventure for early explorers in their attempts to map the New World, locate the mysterious Strait of Juan de Fuca, trade their wares, and lay claim on a land that was not theirs. Today, the sanctuary marks the entrance to the Ports of Seattle and Tacoma, two of the most important shipping ports in the world, and is the access point for several military bases as well as a huge cruise-line tourism industry.

The Pacific Ocean can be impetuous. The dramatic ebb and flow of tides, stormy waters, and strong currents characterize her waters. The Kuroshio Current (also known as the Black Stream or Japan Stream) speeds east from Japan, eventually turning into the North Pacific Current, which in turn helps form the Alaska Current (Baum, 2001). This vast movement of water is said to create “a river within the ocean” (Kirk, 1962, p. 24). Much of the flotsam and jetsam on the West Coast beaches are a result of this flow. Occasionally, a ship (or pieces of one) will ride the current and settle on one of the sanctuary beaches. A tale of “a drifting boat found south of Cape Flattery with 12

skeletons aboard” is retold by Ruth Kirk (1962, p. 25) in her book *The Olympic Seashore*. Apparently the junk Ryo Yei Maru lost its engine in a fierce gale 700 miles off the coast of Japan in 1927. The last entries in the log stated: “Only Captain Miki and I remain alive. Both ... too weak to tend the helm ... Wind is Northwest. Weather cloudy. Wind fresh. Sea rough. Drifting with remaining sails hoisted” (Kirk, p. 25). Many of the sanctuary’s shipwrecks possess similar stories, having drifted helplessly from across the sea only to rest in heaps upon this foreign shore.

Another current, the massive California Current, rotates clockwise in the North Pacific, moving debris and sediment in a generally southerly direction. Closer to shore, the current is affected by winds and changes course from down-coast (south) in the summer to up-coast (north) in the winter. Sediment from the Columbia River travels this current and deposits on the beaches, joining other sediments from the erosional shorescape (NOAA, 2001b). The beaches along the outer coast tend to be covered in rocks and pebbles with pocket beaches of exposed sand, such as the beach at Cape Alava.

Geologically, the exposed rock along the coast began as deposited sediments on the ocean floor, and consists of dark gray sandstones with the occasional conglomerate or breccia layer (Alt & Hyndman, 1984). The wave-eroded aesthetic of the Olympic shoreline is one of ruggedness. Seastacks, cliffs, and small roughly sculpted islands characterize the shoreline, hewn from the wind and tide. Shallow, gently sloping beaches are hidden under the dark blue Pacific waters. There is no hospitable respite on this coast for a ship; a vessel that rests here likely does so forever.

The sanctuary lies on a collision zone of plate tectonic turmoil. Earthquakes and tremors are not uncommon as the North American continental plate overrides the Juan de Fuca plate. As the North American plate drops in elevation from its uplifted mountain ranges into the sea, it stretches out as a shallow continental shelf to the westward boundary of the sanctuary. This gradually sloping shelf reaches a depth of only 660 ft 40 miles from shore (NMS, 2008a). Glacial deposits left during the Pleistocene underlie current-driven sediments that migrate from the Strait of Juan de Fuca and are exposed again on the ever-changing beaches (OCNMS, 2004a). These beaches are attractive locations for resource procurement, and are the setting for much of the sanctuary's resource management issues concerning looting.

Drastic tidal variations, at times more than a nine-ft exchange in a single day (Kaleburg, 2008), and constant wave action are also components of the biophysical setting of the area. The erosional forces of these mechanisms are huge, and not only shape and sculpt the landscape, but also have deleterious effects on the cultural resources of the sanctuary. Objects are thrown about, moved, grated, ground, buried, revealed, and pounded. Tides and waves, often the forces behind the causes of shipwrecks, can work to erase a vessel's very existence.

Water salinity of the Pacific Ocean also has an immense impact on the preservation of the wrecks. Once an artifact is removed from the sea, the sea-water begins to evaporate and the salts crystallize and increase in volume (Cronyn & Robinson, 1990). Salt, with this predisposition to expand when dry, can literally blow apart an artifact, and can be particularly destructive to porous materials such as wood. When considering

ferrous shipwreck remains, “there are far too many iron cannon, cannon balls, anchors, etc, lying ashore which are rapidly deteriorating into a spongy mess” (St. John Wilkes, 1971, p. 249). Due to this destructive nature, Zimmerman, Vitelli, and Hollowell-Zimmer (2003, p. 65) stress the importance of proper conservation of any removed cultural resources, and state that it is “clearly unethical to disturb a shipwreck site without the commitment and means to conserve it.” To avoid the destruction that improper conservation can have on drying artifacts, it is advisable to simply let them be. This is one of the reasons why amateur collecting and looting of submerged cultural resources is thought to be so detrimental.

In addition to salt, marine life is also abundant in the waters of the Pacific Coast, including whales, sea lions, seals, seabirds, fish, and plankton, to name but a few. Wood-boring isopods can also play a part in the alteration of submerged cultural resources, and evidence of their handy-work is often visible on wooden debris. Two isopods, *Limnoria lignorum* (the “gribble”) and *Bankia setacea* (the “shipworm”)—sometimes referred to as “the termites of the sea”—are well documented in the Pacific Northwest (Kozloff, 1996, p. 76).

Native Peoples

The Pacific Northwest boasts a rich past of human occupation, with beginnings as early as 10,000 BP (before present), as evident in archaeological sites documented along the North American West Coast (Carlson, 1990). Native American groups that are known

to historically inhabit the northwest Olympic Peninsula include the Makah (Wakashan-speaking), Quileute (Chimakuan-speaking), Hoh (Chimakuan-speaking), and Quinalt (Salishan-speaking) (Ruby & Brown, 1992).

Makah territory historically included Cape Alava, where the *Austria* ran aground, and much of the land and water surrounding the area. Fish, land and sea mammals, and birds provided an abundance of resources for the Makah, and the fur sealing grounds at Cape Alava were of particular importance (Renker & Gunther, 1990). The tribal lands boasted a great variety of flora and fauna, which were extremely valuable for medicinal and nutritional purposes (Renker & Gunther, 1990).

Northwest Coast peoples were, and in many cases continue to be, known for their skills at fishing, hunting, gathering, and woodworking. The hunting of whales was central to the culture of the Makah during the late spring and summer, and whalers held special status in the community, preparing for months in advance in anticipation of a successful hunt (Makah.com, n.d.a).

Perhaps one of the most impressive examples of life in the Pacific Northwest before European contact comes from the Ozette village site (45CA24), located on the terraced shore of the *Austria*'s final resting place. The site, occupied from 2,000 BP until the 1920s, was partially covered by a seismic-induced mudflow roughly 300 years ago (Kirk & Dougherty, 2007). As reported by Samuels (1991, p. 3), the clay layer that capped a portion of the village allowed the recovery of "a virtually complete material culture record of daily life." Samuels further describes how excavations spanning 20 years yielded an array of exceptionally preserved artifacts; from three long-houses alone

archaeologists recovered over 1,434 arrow shafts, 629 halibut hooks and hook shanks, 324 canoe paddles, 112 wooden bowls, and “30 iron blades (the metal probably from disabled ships that drifted across the Pacific from the Orient)” (Samuels, p. 107). All materials collected from the Ozette site are housed at the Makah Cultural and Research Center in Neah Bay, Washington (Wessen, 1989).

Site occupation continued, despite the mudflow event, and it was residents of the Ozette village that came to the aid of the distraught sailors of the *Austria* during that frigid January night in 1887 (Channel Islands National Marine Sanctuary, n.d.). This was not the first shipwreck the Makah had witnessed, and it is reported that the Makah took captive several Russian and Aleut sailors in 1809-1810, as well as three Japanese sailors in 1833 (Renker & Gunther, 1990).

The Makah had ceded much of their land to the United States government under the terms of the Treaty of Neah Bay in 1855, and the Makah had already endured several decades of “assimilation” by the time of the *Austria*’s stranding (Renker & Gunther, 1990). The tribe, however, was strident in maintaining their maritime skills, despite attempts by the United States government to make them agrarian. By the late 1800s the Makah had successfully revitalized the regional fur seal trade (Collins, 1996, pp. 184). According to Collins, they were so successful in the endeavor that tribal members were acquiring their own sealing ships and hiring white laborers.

The Makah were superior mariners, able to navigate the treacherous waters of the Pacific Coast and Strait of Juan de Fuca without difficulty. They traditionally employed

the use of sails on some of their vessels, and were perhaps the first Pacific Northwest navigators to successfully harness the wind in their exploits (Makah.com, n.d.b).

Shipping in the Pacific Northwest

Throughout history, the romance of the sea, promise of adventure, hope for good fortune, and curiosity of the unknown has seduced men (and a few women) to forgo their landlubbing ways and set sail. For over 400 years, European sailors have been exploring the passages of the West Coast in their maritime pursuits. This section outlines the forces that drove these quests, illustrating European and Euroamerican shipping in the Pacific Northwest up to the time of the *Austria's* sinking in 1887.

Juan de Fuca, a Greek seaman with a Spanish name, claimed to have discovered the legendary Anian Straight—or Northwest Passage (a passage between the Atlantic and Pacific Oceans)—in 1592 (Kirk, 1962, p. 71). In his search for this route, he claimed to have found a broad inlet between 47 and 48 degrees north latitude, and, having “sailed inland for more than twenty days ... found a land rich in gold, silver, and pearls, and a people who wore the skins of beasts” (Johansen & Gates, 1967, p. 25). This search for a waterway between the Pacific and Atlantic was the initial driving force behind exploration along the northern Pacific coast (Fuller, 1952). Though scholars today believe he was likely spinning a yarn, his tale caught enough attention to warrant the naming of the strait north of the Olympic Peninsula after him (Kirk, 1962, p. 72).

It wasn't until the 18th century, however, that European and Euro-American exploration occurred in earnest. Though Spain mapped and plundered Mexico and California as early as the 16th century, there was little incentive for seafarers to set their ships northward. But eventually the fur trade, led by Russians crossing to Alaska and sailing south along with Spanish missionaries driving north from California, "combined to connect the Pacific Coast with the rest of the world" (Hitchman, 1990, p. 5). As ships from these two countries sailed up and down the coast, British scientific curiosity prompted the commissioning of Captain James Cook to embark on explorations spanning the globe. During his third voyage, from 1776 to 1779, Cook skimmed the Washington coast, just missing the mysterious mouth of the Columbia and the Strait of Juan de Fuca, and naming Capes Flattery (about 20 miles north of Cape Alava), Foulweather, and Perpetua (Hitchman). Cook continued north in hopes of finding the Northwest Passage but was stopped by ice at the Bering Strait. During his return voyage south, Cook and his men learned of the lucrative otter pelt trade with China (Fuller, 1952; Hitchman). Thus the fur trade of the Pacific Northwest burgeoned: a proposition that, in a span of 50 years, would eventually drive the native sea otter species to near extinction. Profits were great, and "in 1785, five thousand sea otter sold in China for \$160,000 and a trader who invested \$50,500 might reasonably expect a yield of \$300,000" (Speck, 1970, p. 163). Intense contact between coastal Native American groups and Europeans also resulted from Cook's discovery, and there are numerous accounts of interactions between sailors and coastal Native American people (Arima & Dewhirst, 1990). Often these intersections

between cultures were problematic, as a historical marker at Destruction Island epitomizes:

In 1775, while at anchor under lee of this island the Spanish explorer, Bodega Y Quadra, commanding the schooner Sonora, sent seven men ashore for wood and water, all of whom upon landing were killed by the Indians. In memory of this incident Quadra named the island “Isla de Dolores,” The Island of Sorrows. (Scofield, 1967, p. 14)

A few years following Cook’s journey, the British and Americans began more intensive explorations, upping their stakes on a claim to the Pacific Northwest. In 1786, Charles Barkley definitively discovered the Strait of Juan de Fuca, accompanied by his wife—thought to be the first white woman on the Pacific coast (Fuller, 1952). According to Hitchman (1990), in 1792 Captain George Vancouver, sailing the *Discovery II*, conducted an astonishingly quick and accurate survey of the Strait. Hitchman also attributes American fur trader Robert Gray’s brief journey into the Columbia River, together with Lewis and Clark’s overland exploits, to contributing to the United States’ claim on the Oregon Country—a portion of which would later become Washington State. In 1789, Robert Gray, commanding the *Lady Washington*, would sail the American flag around the world for the first time (Fuller).

Hitchman (1990) gives a good summary of the development of trading posts leading to British retreat. According to Hitchman, as trading posts were erected as the result of the great fur trade, including those at Forts Langley, Vancouver, and Nisqually, the Hudson’s Bay Company ensured British influence throughout what would later become the United States. Hudson’s Bay Company steamships, such as the 100-ft sidewheeler *Beaver*, maintained trade between Alaska and the Columbia River. The

company merged with another trading company known as the North West Company in 1821, and in the 1840s, due in part to the depletion of furs, the British retreated above the 49th parallel. This agreement was stipulated in the Treaty of 1846 (Hitchman, 1990, p. 10).

The mid-19th century population in the Pacific Northwest was very small, with commerce relying almost solely on the fur trade. According to Fuller (1952), though initial settlement was on the west coast, the predominant population increase occurred in the interior due to mining. The growth of shipping terminals at Portland, Seattle, and Tacoma, however, instigated a spurt of growth west of the Cascades. Hitchman (1990) illustrates how some ambitious entrepreneurs found markets abroad, such as Dr. John McLoughlin with his bark *Cowlitz*, which shipped salmon, flour, and spars to Hawaii in 1845. Others would sail ships filled with grain: 2,000,000 bushels left the Pacific Northwest in 1859, increasing to 30,000,000 by 1884 (p. 41). Hitchman further reports how it would be the California Gold Rush of 1848 that would truly invigorate growth in the Pacific Northwest, as towns began to emerge in response to the heightened demand for lumber. According to Hitchman, logging and milling became the largest industries on Puget Sound, and the first mills were built at Tumwater, Port Gamble, Fort Vancouver, and Seattle. There were over forty lumber mills operating in Washington and Oregon in the 1850s (Hitchman, 1990, p. 41). Over the years, maritime traffic into the Strait of Juan de Fuca steadily increased as population grew and economy developed in the ports of Puget Sound.

Hitchman (1990) gives a thorough account of the increase of local trade in the 1850s, as Puget Sounders and their northern neighbors exchanged livestock for coal, wool and liquor. According to Hitchman, a prolific mosquito fleet of ships, both sail and steam, plied the waters of the Sound and straits, moving everything from horses to mail. The most popular at the time was the *Eliza Anderson*, a slow yet reliable 144' sidewheeler that "often concealed Chinese and opium below when entering the United States from Canada" (p. 42). Pacific Northwest boatyards began to appear at this time, and the first vessel to be built in the Puget Sound was a schooner named *Undine*, built on Bellingham Bay by Roeder and Peabody in 1853 (Hitchman, p. 47). About 90 sailing vessels were built in Washington State between 1856 and 1877 (Hitchman, p. 47). Approximately 15 ships involved in foreign-trade entered Puget Sound per year in the mid-1850s, increasing substantially to 628 by 1860 (Hitchman, p. 43). The Pacific Coast handled \$12,000,000 in exports and imports during this time, as opposed to \$465,000,000 of the Atlantic ports (Hitchman, p. 43). These numbers—for both coasts—nearly tripled in the 1870s.

As indicated by Hitchman (1990), by 1870, the year after the *Austria* was launched in Maine, there were 90 ships registered in Puget Sound, with 19 steamers moored there (p. 43). Washington and Oregon traded most heavily with British Columbia, the British Isles, Chile, China, and Hawaii. Puget Sound in particular helped supply the world with wheat, coal, flour, fish, fruit and lumber, while predominant imports included cattle, household goods, rice, liquor, and textiles (Hitchman, 1990). Fuller (1952) reports that large sailing vessels designed specifically for the lumber trade

began being built in the Puget Sound in 1874. The U.S. Federal Census of Seattle taken in 1870 (the year following the city's incorporation) was 1,151, while King County had a population of 2,120 (HistoryLink, 2007a). A decade later, around the time of the *Austria's* incident at Cape Alava, population had increased in Seattle to 3,553 and 6,970 in Puget Sound, and the *Austria's* destination port of Tacoma had a population of 1,098 (HistoryLink, 2007b).

As shipping increased in the Pacific Northwest, so did the need for lighthouses. Dozens of lighthouses and signal lights emerged up and down the West Coast, at first nothing more than blazing logs set on bluffs (McCroskey, 2000). The first true lighthouse north of California was built at Cape Disappointment in 1853, at the mouth of the Columbia River, and by 1889, the time Washington became a state, nearly all major passages and marine obstacles were marked by lights (McCroskey, p. 5). These were first lit by coal or wood then candles fueled by whale oil. Metal deflectors were used to project the flame, until the revolutionary invention of the glass prism beehive lens by Frenchman Augustin Fresnel in 1822 (McCroskey, p. 6). Cape Flattery lighthouse, located on Tatoosh Island, at the mouth of the Strait of Juan de Fuca, was built between 1856 and 1857 (Hanable, 2004, p. 1). Due to the potential for heavy fog, dangerous tides, strong currents and wind gusts up to 100 miles-per-hour, Cape Flattery's lighthouse is an absolute necessity for safe passage into the Strait, as illustrated by English explorer Captain James Cook when he noted in 1778 that "beetling cliffs, ragged reefs, and huge masses of rock cut by the waves abound on every side" (Hanable, 2004, p. 1).

The Management of Shipwrecks in the Sanctuary

Over 180 Pacific Northwest shipwrecks have been historically reported in the vicinity of Olympic Coast National Marine Sanctuary (OCNMS, 2004b). OCNMS has compiled a shipwreck database for the sanctuary, and includes general information on 30 shipwrecks (see table 1), most of which met their end in the twentieth century. Usually a result of bad weather, “many ships simply disappeared, their last known location recorded by the lighthouse tender at Tatoosh before they disappeared into watery oblivion. “Last sighted, Cape Flattery,” is the grim epitaph for many unfortunate ships and crew” (OCNMS, 2004b).

Management of shipwrecks in the sanctuaries can be complicated, as remains do not always adhere to jurisdictional boundaries between varying agencies. For example, the *Austria* has elements scattered over the beach, intertidal zone, and nearshore ocean below the mean low tide line. In this case, the Makah Reservation has jurisdiction of the beach, sea floor and water above the mean low tide. The State of Washington has jurisdiction of the sea floor below the mean low tide out to the territorial boundary of three nautical miles. NOAA has jurisdiction for the water column below the mean low tide within sanctuary boundaries. Outside of the Makah Reservation, the shoreline is within the boundary of Olympic National Park, under the jurisdiction of the National Park Service. In this area, there is overlap between NOAA and National Park Service jurisdiction above the mean low tide line (R. Steelquist, personal communication, November 17, 2008). None of the *Austria*'s remains have been located within the park.

Table 1

Thirty Documented Shipwrecks at Olympic Coast National Marine Sanctuary

Ship name	Built-lost	Cargo	Cause
<i>Alice B.</i>	1912-1929	Ice and bait	Lost mooring
<i>Austria</i>	1870-1887	Ballast	Navigation
<i>Cassandra Adams</i>	1876-1888	None	Navigation
<i>Charles B. Kenney</i>	1878-1886	Lumber	Unknown
<i>Chetzemoka</i>	1927-1977	NA	Unseaworthy
<i>Coast Trader</i>	1920-1942	Newsprint	Torpedoed
<i>Commodore</i>	1856-1877	Ballast	Strong gale
<i>Condor, H.M.S.</i>	1898-1901	Unknown	Gale
<i>Ellen Foster</i>	1852-1867	Ballast	Gale
<i>Emily Farnum</i>	1854-1875	Railroad iron	Gale
<i>Free Trade</i>	1866-1878	Lumber	“Act of God” (storm)
<i>General Meigs</i>	1944-1972	Solvent, tug lashed to deck, steel lifeboats	Gale
<i>Grace Darling</i>	1854-1878	Coal	NA
<i>Graywood</i>	1904-1915	NA	Heavy seas
<i>H.F. Alexander</i>	1915-1922	NA	Navigation
<i>Harvey Mills</i>	1876-1886	NA	Gale
<i>Hunter</i>	1883-1920	NA	Unseaworthy
<i>Lake Gebhart</i>	1919-1923	Sugar	Navigation
<i>Lamut</i>	1919-1943	NA	Navigation
<i>Matterhorn</i>	1882-1909	Barley	Storm
<i>Mogul</i>	1886-1895	None	Collision with <i>Darra</i>
<i>Port Gordon</i>	1882-1889	NA	Navigation
<i>Skagway</i>	1908-1929	Glycerine, alcohol, plaster, graphite, oils, tires, oranges	Fire and rough weather
<i>Southerner</i>	1846-1854	NA	Leak due to storm
<i>St. Nicholas</i>	NA-1808	NA	Currents plus dead calm then lee shore
<i>Temple Bar</i>	1928-1939	Scrap iron	NA
<i>The Sir Jamsetjee Family</i>	1863-1886	Ballast	Gale
<i>Umatilla</i>		Coal	Uncharted hazard
<i>W.J. Pirrie</i>	1883-1920	Lumber and oil	Lost Hawser
<i>Wide West</i>	1877-1889	NA	Poor judgment and gale

Note: Adapted from Olympic Coast National Marine Sanctuary Shipwreck Database. “NA” refers to ships that either had no cargo or where the information is not available.

The Sanctuary developed a management plan in 1993 (implemented in 1994 and up for review this year), focusing on Sanctuary goals, objectives, responsibilities, and guidelines. Though heavily directed at the management of natural resources, part of the management plan focuses on cultural resources by mandating baseline studies:

A historical context study, including a general literature search building on existing work, will be conducted to identify probable historical sites (including cultural, archaeological and paleontological sites) within the Sanctuary. This research will be followed by a field reconnaissance-type remote sensing survey and archaeological assessment to locate and evaluate the extent to which historical resources are based in the Sanctuary. These baseline historical resource studies will provide the fundamental information necessary for developing a historical resource management strategy and education/interpretation program for the Sanctuary. (OCNMS, 1993, p. V-14)

The management plan also states that where the Sanctuary shares jurisdiction over resources with the Makah Tribe (as it does regarding the *Austria* above the mean low tide line), the Sanctuary shall work closely with the tribes to “coordinate research, education, monitoring and resource protection initiatives” (OCNMS, 1993, p. V-25). As noted in regulations specific to Olympic Coast National Marine Sanctuary, 15 C.F.R. Part 922.152 (prohibited or otherwise regulated activities), it is unlawful for anyone to move, remove, or injure a Sanctuary historical resource.

A new NOAA report was released in September of this year, illuminating the condition of the sanctuary system’s natural and cultural resources. The Olympic Coast 2008 Condition Report rated the maritime archaeological resources as being in fair to good condition, with undetermined trends regarding the integrity and level of human impacts to the resources. The report requests a “need to conduct inventories and monitoring, and to assess possible impacts of sea level rise on coastal archaeological

resources” (NMS, 2008b). It is expected that the new management plan will address this recommendation.

Legislation such as the Antiquities Act of 1909, the National Historic Preservation Act of 1966 (NHPA), the National Marine Sanctuaries Act of 1972, the Archeological Resource Protection Act of 1979 (ARPA), and the Abandoned Shipwreck Act of 1987 provide a framework for site assessment and protection (see table 2). Though the Marine Sanctuary System is administered by the federal government agency of NOAA, and should in theory comply to all of the laws mentioned above as part of the Federal Archaeological Program, ARPA does not apply to the sanctuary system. As stated by Terrell (2002, p. 285), “NOAA is only a trustee, since it only manages the federal bottomlands either in conjunction with state partners or as stewards for the U.S. government.” This, he adds, “has hobbled the sanctuary program’s ability to protect archaeological resources in some areas” (p. 785). Perhaps the most applicable to the sanctuary system is NHPA, which in section 110 requires the sanctuaries to conduct inventories of their submerged cultural resources, and requires both inventory and assessment of National Register of Historic Places eligibility for these properties (Terrell, 2002). The National Oceanic and Atmospheric Administration has the legal responsibility to manage the maritime heritage resources within the sanctuary boundaries, and is directed by the U.S. Congress to comply with the Federal Archaeological Program (National Oceanic and Atmospheric Administration, 2006).

Table 2

Laws Pertaining to Maritime Heritage at Olympic Coast National Marine Sanctuary

Law	Date	Summary
Antiquities Act	1906	Requires permitting for professional archaeological study and establishes penalties for looting
National Historic Preservation Act (NHPA)	1966	Directs federal agencies to develop programs to protect archaeological and historical resources
Section 106		Requires agencies to actively assess archaeological resources for significance and eligibility for NRHP nomination
Section 110		Directs agencies to consider potential impacts on archaeological resources
National Marine Sanctuaries Act (NMSA)	1972	Identifies and manages marine areas of national significance through protection, restoration, and education
Archaeological Resource Protection Act (ARPA)	1979	Further protects archaeological resources on public and tribal lands and promotes collaboration between the government, academia, and the public
Abandoned Shipwreck Act	1988	Gives the federal government title to embedded shipwrecks on State land, then usually releases said title to the State, requiring proper management

Source Antiquities Act of 1906 (16 USC 431-433), NHPA (16 USC 470 et seq.), NMSA (16 USC 1431-1445), ARPA (16 USC 470aa-mm), Abandoned Shipwreck Act (43 U.S.C. 2101-2106).

CHAPTER III

THE *AUSTRIA*

“District of Bath, Maine

Port of Bath, January 26, 1870

I, Silas A. Houghton MASTER CARPENTER of Bath
do certify that the ship named the “Austria” was
built under my direction at Bath during the year 1869 & 1870
for Levi W. Houghton 3/16–Silas A. Houghton 3/16–John
R. Houghton 3/16–Henry L. Houghton 3/16–Otis Kimball
guardian of heirs of Clara A. Kimball, 1/8–John P. Delano 1/8

that the said ship is United States built, has two decks
three masts is 198 9/10 feet in length, 39 8/10 feet in
breadth, and 23 9/10 feet in depth, of 1300 02/100 tons burthen.

As witness my hand the day and year aforesaid, Silas A. Houghton

SWORN TO THIS twenty-sixth day of January 1870.”

*From the original ship registry,
located at the Penobscot Maritime Museum,
Searsport, Maine*

The *Austria* was a three-masted Down-Easter—a full-bottomed vessel designed for speed and capacity (described more thoroughly in the following chapter)—built in the small shipbuilding town of Bath, Maine. She was originally ship-rigged with square sails, and constructed of oak and yellow pine in the yards of the Houghton Brothers (Baker, 1973). According the *Bath Daily News*, the *Austria* was launched on December 22, 1869 from the Houghton yard. “A large crowd including many of the fair sex witnessed the

launching,” the article states, “which was in every particular, a perfect success” (“Town and Country,” 1869, p. 3).

One of the greatest sources of Pacific Northwest shipwreck documentation is the *Hazel Niendorff Collection*, a collection of 17 scrapbooks containing photographs, newspaper clippings, reports, and anecdotal accounts of shipwrecks spanning decades. Two rare photos of the *Austria*’s wreckage, likely taken in the early 1940s, were found in the collection (see Figures 4 and 5). The majority of information about the *Austria* was gleaned from this source, located in the Special Collections of the Museum of History and Industry in Seattle, Washington.



Figure 4. Wreckage of the shipwreck *Austria* at Cape Alava (Niendorff, n.d., p. 27).



Figure 5. Wreckage of the shipwreck *Austria* in front of Cannonball Island (Niendorff, n.d., p. 30).

According to Niendorff (1896), the *Austria* began her career in the trans-Atlantic cotton trade and was subsequently transferred to the Cape Horn run to San Francisco. Later, she joined the Pacific trade, her ship-rigging changed to bark-rigging, with fore and aft triangular sails on her mizzen mast instead of square sails (see Figures 6 and 7) to better maneuver in Pacific Coast conditions, and likely traded wheat, lumber, and coal between San Francisco, Australia, and Honolulu (Niendorff, 1896).

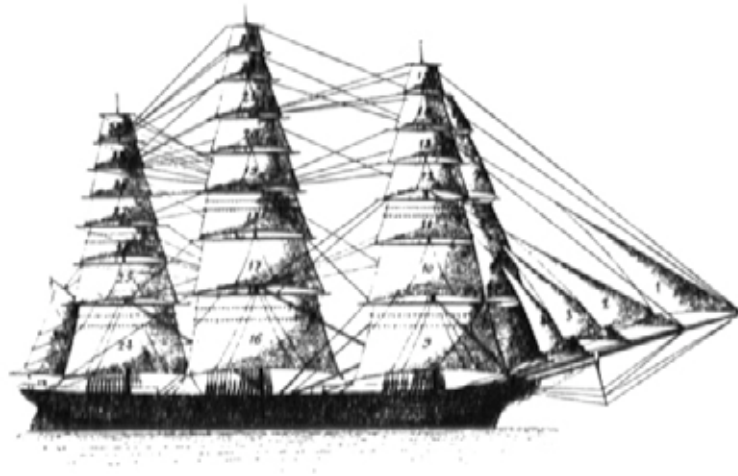


Figure 6. The rigging of a ship. From Desmond (1998, p. 123).

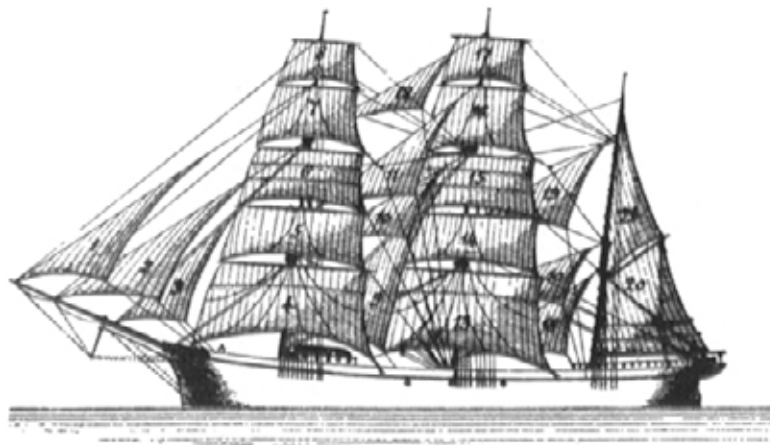


Figure 7. The rigging of a bark. From Desmond (1998, p. 123).

As noted by Niendorff (1896), the *Austria* was considered “a good carrier” with a good record for her class (p.11). Under the command of Captain John P. Delano, *Austria* made a run from San Francisco to Liverpool between the years of 1873-1874 in 102 days, and in 1881 made a passage from Cardiff to Rio de Janeiro with a shipment of coal in 50 days (Fairburn, 1897a, p. 2147). She then nearly broke the record of the famous *Flying*

Cloud (“Greyhound of Cape Horners”) on a return trip from Rio de Janeiro to San Francisco in a speedy 70 days (Fairburn, 1897a, p. 2147). As Niendorff notes in her collection (1896):

[The *Austria*] loaded a full cargo of wheat and passed through the Golden Gate, Dec. 2nd, for Queenstown, arriving out after a passage of 111 days. She later proceeded to Hull and from that port made the passage back to S.F. in 199 days. Capt. David Gilmore was in command during this period. (p. 11)

On September 21, 1886, once again in San Francisco, the *Austria* was bought by the firm of A.M. Simpson of Oakland, with 1/8 of a share each going to Samuel Perkins of San Francisco, Isadore Burns, George E. Delano (the *Austria*’s final Captain), and David Gilmore (one of the ship’s previous Captains; see Figure 8).

Once the *Austria* was re-rigged as a bark, she made a final international trip to Australia and was then committed to coastwise trade (Niendorff, 1896). She encountered a hurricane on her way back to San Francisco from Sydney and lost several sails, water swept her decks, and she endured much damage to her bitts, rigging, spanker, lower main topsail, fore topmast staysail, and main capstan, as well as losing her spare topmast and much of her iron work (Niendorff, 1896). The ship was forced to Honolulu for repairs, and finally arrived in San Francisco on May 22, 1886 under the command of Captain George E. Delano (Niendorff, 1896, p.11).

Certificate No. **45**
Permanent

THE UNITED STATES OF AMERICA.

Sec. 4319, Rev. Stats.  Catalogue No. 538.

CERTIFICATE OF ENROLLMENT.

ENROLLMENT. In conformity to Title L, "REGULATION OF VESSELS IN DOMESTIC COMMERCE," of the Revised Statutes of the United States.

Am. Simpson of Oakland State of California
having taken and subscribed the *C. & G. S.* required by law, and having *specie* that he *is*
together with *Samuel Perkins of San Francisco's*
Isador Burns's and *George E. Delane of said place's*
State aforesaid and *David Situmor of Medwich*
State of Maine's.

George E. Delane *Austrian* *all*, citizens of the United States, and sole owners of the
ship or vessel called *Austrian*, of *San Francisco*, whereof
George E. Delane is at present Master, and is a citizen of the
United States, and that the said ship or vessel was built at *Salt Lake of Maine*
in the year *1870* as appears by *Permanent Register No. 2150*
of the *Port of Salt Lake* the *January 26 1870* *San Francisco, Apr. 1870*
by *District changed*, and *Said Register*

vessel has *Two* decks and *Three* masts, and that
her length is *178* feet,
her breadth, *39* feet,
her depth, *23* feet,
her height, *23* feet,
that she measures *Twelve hundred and thirty eight* and *43* tons, viz:

	Tons.	OWNS.
Capacity under tonnage deck	1211	73
Capacity between decks above tonnage deck		
Capacity of inclosures on the upper deck, viz:	58	29
Gross Tonnage	1300	02
Deductions under Section 4153, Revised Statutes, as amended by Act of August 5, 1882	61	59
Net Tonnage	1238	43

that the following described spaces, and no others, have been omitted, viz:

and that she is a *Sark*, has a *Butt* head
and a *Diaple* stern, and *is* sufficient security
having been given, according to the said Title, the said SHIP or VESSEL has been duly ENROLLED at the port
of *San Francisco*

Given under my hand and seal at the Port of *San Francisco*, this *21st* day of
September, in the year one thousand eight hundred and eighty *80*.

J. D. Rupp Naval Officer. *W. M. M. M.* Collector of Customs.

*Insert here the name of the vessel, with the number and place of deck, by which the ship or vessel is to be made.
†If more than one owner, insert the words "together with," and the name or names, occupation or occupation, place or place of abode of the owner or owners, and the part or portions of vessel belonging to each owner.
‡State (insert previous document)

Figure 8. The United States of America Certificate of Enrollment for the vessel *Austrian*.
Provided by Robert Schwemmer.

The *Austria*, still under Captain George E. Delano's command, set off under ballast towards Tacoma to pick up a load of coal on January 21, 1887. Captain Delano's account of this final voyage is captured in the *Hazel Niendorff Collection* (Niendorff, 1896):

We had a fine run of 8 1/2 days to the vicinity of Cape Flattery; the wind had been from the south and east, when it hauled to the westward and blew a heavy gale. We did not calculate ourselves so near the coast until we made Cape Flattery light when we knew the current had taken us inshore, the light bearing west by north. Immediately made all possible sail and headed N.W. by N. The vessel making leeway, work around heading S.S. W. Lost foresail, foretopsail and mizzen staysail, all new canvas, blown out of the bolt ropes, the vessel still making leeway and drawing nearer the shore. Fortunately daybreak was drawing near. The sea was a mass of living breakers to leeward and as daylight dawned we realized our dangerous position and did not know how soon the vessel would dash itself to pieces on some hidden rock. Our principal sails being blown away there was nothing left for us to do but steer through the network of rocks to the smoothest place visible and about 7:30 A. M. she struck a hidden rock, part of which must have gone through her bottom as the tide ebbs and flows through her as she lies upright and apparently uninjured. During the day the wind hauled to the northward the sea went down sufficiently to allow us to make a landing in the boats and as we approached the land the Indians came out in their canoes and assisted us in getting safely ashore. We suffered very much with the cold until the next day when the sea had sufficiently moderated to allow us to return on board and get bedding, clothes and some provisions. (pp. 11-12)

Captain Delano continues to describe how he and his crew attempted to signal a passing ship (the steamer *Mexico*), which did not stop to give aid. With hopes that the ship would at least report their location, the Captain and his crew of 16 men (and one passenger) set out to salvage what they could, including sails, rigging, food, and "all moveable articles" (Niendorff, 1896, p. 12). Once the ship had been stripped, Captain Delano proceeded to walk 30 miles over rough terrain, in the dead of a Pacific Northwest

winter, to Neah Bay. In the meantime, according to Seattle Post-Intelligencer articles as noted in Niendorff (1896, p. 9), the *Mexico* had indeed seen the *Austria* but, due to the extreme hazardous conditions, could not lend her aid (Seattle Post-Intelligencer, February 2, 1887). Nor could the Captain or crew of the *Mexico* discern what ship it was that they saw wrecked. They assumed it was the ship *Nellie May*, 28 days out from Honolulu (Seattle P.I., February 3, 1887). Five days later, the P.I. reported that it was actually the American bark *Austria*.

On February 9, 1887, the Captain persuaded the cutter *Oliver Wolcott* to depart from Neah Bay and return with him back to the wreck (Seattle Post-Intelligencer, February 9, 1887). Subsequent Seattle P.I. reports (as noted in Niendorff, 1896, p. 9-10) reveal that the Makah-owned schooner *Champion* was chartered to salvage what the *Oliver Wolcott* couldn't manage, including the upright steam donkey engine, a piano and some furniture. Original journal excerpts from the U.S. Revenue Steamer *Oliver Wolcott*, under the command of Captain Russell Glover (provided by Gamble & Schwemmer, 1997), record the series of events in the salvaging of the *Austria*'s wreckage and delivering her crew to Port Townsend:

Neah Bay, W.T.
Sunday, February 6, 1887

8 to Mid. As per cols. AT 8:50 got underway with Capt. Delano of the bark "Austria," (wrecked off Flattery Rocks) on board, and steamed to the W. down the sound. At 10:55 passed Dungeness Lt. at Mid. Ediz Hook Lt. abeam

F. Tuttle 1st. Lieut

Puget Sound W.T.
Monday, February 7, 1887

At 8:45 got underway and stood out of the bay. At 9:25 rounded Tatoosh Rock and stood down toward Flattery Rocks.

At 11 came to anchor near wrecked bark "Austria," big Flattery Rock brg. S. 1m. Sent two boats to the wreck to aid in transporting the personal effects of the officers and crew of the "Austria" to the "Wolcott."

F. Tuttle 1st. Lieut.

4 to 8 P.M. As per cols. At 4:20 got underway and stood up the coast. At 6:10 rounded Tatoosh Lt. At 7:05 came to anchor in Neah Bay.

8 to Mid. Gentle E.S.E. breeze and clear.

C.D. Kennedy, 3d. Lt.

Neah Bay W.T.
Tuesday, February 8, 1887

Mid. to 8 A. M. Light variable airs and cloudy.

At 6:50 got underway and steamed out of the harbor to the WS. At 7:30 passed Tatoosh L. H.

C.D. Kennedy, 3d. Lt.

8 to Merid. Moderate S. E. breeze and overcast with snow. Standing to the S.E. toward the bark "Austria" in search of the schooner "Champion," tending on the wreck. At 8:50 sighted wreck, but the schooner had got underway; went about and steamed up the coast. At 10:25 sighted the schr. "Champion," stopped and took her in tow for Neah Bay. At 11:50 anchored in Neah Bay.

F. Tuttle 1st. Lieut.

Merid. to 4 P.M. Moderate E'ly breeze with snow squalls from 3"30. At 2:15 got underway and left the harbor with one boat belonging to the "Austria" in tow. Course E.N.E. Crew of the "Austria" on board.

C.D. Kennedy, 3d. Lieut.

4 to 8 P.M. As per cols. At 4 stopped to secure boat. Got hawser in propeller. Cut it adrift and steamed ahead at 4:30. Weather thick and snowing.

F. Tuttle 1st. Lieut.

8 to Mid. Moderate N.E. breeze with snow squalls. Stopping occasionally to sound.

At 10 sighted Race Rock Lt. brg. North.

At 10:15 sighted Dungeness Light.

Latter part of watch clearing weather.

C.D. Kennedy, 3d. Lt.

Straits of Fuca, W.T.

Wednesday, February 9, 1887

Mid to 8 A.M. Moderate N.E. breeze with rain squalls.

At 12:25 passed Dungeness Lt.

At 2:00 Point Wilson. At 2:20 came to anchor off Port Townsend.

F. Tuttle 1st. Lieut.

8 to Merid. Gentle W'ly breeze with light snow. At 9:30 got underway, and at 9:45 made fast to Bartlett's wharf. Officers and crew of bark "Austria" went ashore. Landed effects taken from bark "Austria" on shore in care of Captain DeLano. Received on board 644 rations for February, 1887.

C.D. Kennedy, 3d. Lt.

The anchor and chains were reportedly left on the wreck (Seattle P.I., February 10, 1887, p.3, in Gamble & Schwemmer, 1997, p.14). Nearly everything was salvaged and later sold at an auction held by C.C. Bartlett & Co. The vessel herself was valued at \$20,000, and insured for \$3,500, according to the original Wreck Report (see Figure 9). Accounts from the Seattle P.I. on February 17 and 18, 1887, note that the *Austria* was sold on the 17th, with the "rigging, ropes and stores" bringing "good prices," the ropes going for 12 cents per pound, purchased principally by R.W. DeLion & Co. (Gamble & Schwemmer, 1997, p. 14). Total proceeds from the auction came to \$2650—the donkey

engine went to Harry Tibbals for the original price of \$855, and the hull was bought by Waterman & Katz for \$400 (Gamble & Schwemmer, 1997, p.14).

Cat. No. 221.

WRECK REPORT.

[Under act June 20, 1874, and Treasury Circular No. 69.]

Rupert Sound Collection District.

1. Date, (hour of day, day of week, day of month, year.)	1. Jan 30 th 1887 at 7 o'clock A.M.
2. Nationality, rig, and full name of vessel, (wood or iron.)	2. American Bark "Austria"
3. Tonnage.	3. 1238
4. Age.	4. 16 years old
5. Port where registered.	5. San Francisco
6. Official number.	6. 1887
7. Name and residence of master.	7. Geo. E. DeLano San Francisco, Cal.
8. Name and residence of owner.	8. A.M. Simpson & Thos. " "
9. Port last sailed from and date of sailing.	9. San Francisco, Cal. Jan 21 st 1887
10. Where bound.	10. Tacoma W.T.
11. Number of passengers.	11. one
12. Number of crew, including masters, mates, &c.	12. 16
13. Number and names of persons lost.	13. 0
14. Estimated value of vessel.	14. \$20,000.00
15. Estimated value of cargo.	15. none
16. Nature of cargo.	16. Ballast
17. Had vessel a deck-load?	17. no
18. Was she overlaid?	18. no
19. Weight of cargo.	19. none
20. Estimated loss or damage to vessel.*	20. Total loss
21. Estimated loss or damage to cargo.	21. —
22. Amount of insurance on vessel.	22. \$3,500.00
23. Amount of insurance on cargo.	23. 0
24. Locality of casualty, (giving precise point of land or other object seen in case of stranding.)	24. Bluff, about 10 miles from Main Land
25. Nature of casualty, (whether foundering, stranding, or other disaster.)	25. Stranded
26. Cause of the casualty, (specifying particularly.)	26. Caught on lee shore. West side. Set on by S.E. current & Saily blow, very
27. Force of wind, state of weather and sea; if at night, whether moonlight, starlight, or dark.	27. 55 miles per hour, heavy westerly sea, just at day light
28. State, in detail, measures taken to avoid casualty.	28. carrying all possible sail, heading S.S.W. but was carried by swift current & heavy swell
29. By whom and to what extent assistance was rendered.	29. No assistance rendered from shore. Crew launched ship's boats and thrust with great difficulty
30. Remarks. (All particulars not included in the foregoing will be here stated.)	30. —

Portland, Me. Feb 6th, 1887. Geo. E. DeLano
Master Bark "Austria"

* Estimated total amount of loss to be stated, without regard to what may be covered by insurance, and should be expressed in figures.
 † In case of collision, the name and calling part of the colliding vessel should be given if possible.
 ‡ Whether calm, gentle breeze, strong breeze, moderate gale, strong gale, storm, or hurricane.
 § The person making this report will sign his name as managing owner, agent, or master, as the case may be.

(Ed. 5-24-86—3,000.)

Figure 9. Official wreck report for the vessel *Austria*. Provided by Robert Schwemmer.

The *Austria*'s Captain

Captain George E. Delano (sometimes referred to as DeLano or De Lano), was born in Woolrich, Maine around 1853, and—following the disaster of the *Austria*—continued to sail the Pacific in the ship *Seminole* and the barkentine *Echo* (Niendorff, 1896, p. 12; McCurdy & Newell, 1966, p. 232). Captain Delano is then said to have opened a ship chandlery store in Tacoma, and then finally moved to Portland, Oregon (Niendorff, 1896).

Anecdotal accounts of Captain Delano's life fill out what little is written in Niendorff's collection. In a paper for *The Fortnightly Club*, Kenneth O. Ghormley M.D., whose grandparents purchased a summer home at Delano Beach, Washington, says that facing bankruptcy after wrecking the *Austria*, Captain Delano wrote to his father-in-law proclaiming, "Y (sic) don't know what I will do now, but I guess I'll have to go to farming" (Ghormley, 1999). Delano then proceeded to buy land, start a small farm, and build a dry-dock for repairing boats—all ventures that eventually failed. Ghormley continues to explain how Mrs. Delano persuaded the Captain to build a hotel, which she would manage while he sought work at sea. The hotel quickly evolved into a thriving resort, complete with tennis and croquet courts, cabins, and an open-air dining area with fabulous views of the bay. Guests and supplies arrived via a small steamer on its way to Tacoma.

William Goodrich Bellman, another past visitor to Delano Beach, adds that Captain Delano's original property is part of current day Penrose Point State Park, and

much of the later property is being used as a youth camp for a church (Bellman, n.d.). Bellman notes that the Delano family had started a hop-growing venture during their attempt at farming, and that the ensuing resort (eventually with 24 separate sleeping cottages) was “a very successful resort for over forty years.”

Captain George E. Delano passed away in 1913 near the age of 60. He was about 34 when he commanded the *Austria*. His obituary can be found in *H.W. McCurdy's Marine History of the Pacific Northwest* (McCurdy & Newell, 1966):

Capt. George E. De Lano died at St. Johns, Oregon on January 22 [1913], in the offices of the St. Johns Lumber Co. He had recently brought the schooner *W.H. Marston* to the Columbia River from Callao, and had suffered an earlier heart attack while bringing her over the bar. Capt. De Lano was about 60 years old at the time of his death and had been a master mariner for 35 years, his commands including the six-masted barkentine *Everett G. Griggs*. He had made his home ashore Tacoma for many years, De Lano Beach near that city having been named for him. He had settled in the Northwest following the wreck of the bark *Austria*, commanded by him, at Cape Alava in 1887, where her anchor, bitts and other wreckage are still available on the beach. (p. 232)

The Builders of the *Austria*

Fairburn's account of the Houghtons in *Merchant Sail* (1897b) provides a thorough history on the respected shipbuilding family. Briefly, the author describes how the Houghtons were known worldwide for deep-sea wood square-rigged vessels—especially between the 1840s and 1890s. Nineteen-year-old Levi Houghton, future founder of the Houghton yard, arrived from his hometown of Boston, Massachusetts in 1802. Young Houghton obtained employment with shipbuilder

Jonathan Davis, eventually buying the business from him in 1808. The first vessel to be constructed by Levi Houghton was the 121-ton brig *Bolton*, built in 1819. Levi went on to build 25 additional vessels until his death in 1857, when the business was transferred to his four sons, Levi Jr., Silas, Henry, and John, who continued to build boats until the launch of their final ship, the *Parthia*, in 1891 (Fairburn, 1897b). American wooden shipbuilding was an apprentice-based profession rather than one supported by books, and it was very common for shipwright skills to be passed from one generation to the next (Bennett, 1896; Thiesen, 2006).

During the course of nearly 90 years the Houghtons built 45 vessels totaling some 40,000 tons—the *Austria* was their 36th (Fairburn, 1897b, p. 3263). Eight of the Houghtons' vessels, including the *Austria*, were eventually sold to Pacific Coast operators. Documented in a special unreferenced and undated government report on shipbuilding, a man by the name of Henry Hall, as quoted by Fairburn (1897b, p. 3265), comments that all of the Houghton vessels sailed the cotton trade from the American East Coast to Liverpool, which was revived after the Civil war and provided much employment for ships built in Bath (Baker, 1973). Hall also mentions how the introduction of southern pitch-pine to Bath for use in planking was attributed exclusively to the Houghtons.

Fairburn (1897a) explains how the Houghton's exclusively named their ships to end in "ia" between the years of 1860-1891. The family was also particularly well known for their unique use of salt to fill the spaces between the wooden framing as well as the pouring of brine through holes bored into the top timbers (timbers forming the upper

portion of a frame in a ship's hull). As quoted in Fairburn (1897b, p. 3266), "timbers thus treated were often as bright after 20 years' service as when first put in."

The young Houghton Brothers were prominent builders from just before the Civil War to the decade that followed, and they—along with another Bath family, the Sewalls—were the only pre-war shipbuilders to have remained considerably active after the war (Owen, 1936). The Houghtons, like many builders, engaged in the ownership and operation of their ships as well as building them (Pert, 1995). The Houghton yard is now occupied by the Bath Iron Works (the only remaining yard in Bath), which now builds ships for the United States Navy (N. Sewall, personal communication, February 13, 2008). The Houghton ship *Bohemia*, built in 1875 and sunk in 1931, was likely the last Bath-built wooden square-rigger ever to be seen under sail (Baker, 1973).

Other noteworthy shipbuilders on the banks of the Kennebec River in Bath during the mid-1800s included Flint & Chapman, Goss, Sawyer & Packard, and the Sewells (Lubbock, 1929). These family names persist in Bath even today, and a glance through a local directory or introductions at the waterfront pub give ample evidence to the shipbuilding lineages. Conversations with folks inevitably (and often initially) bring mention to a great-grandfather or great-uncle whom built such-and-such ship or captained for so-and-so's company.

The Down-Easters

The *Austria* was built in Bath, Maine during a turbulent time in shipbuilding history—clippers, the favorites up to that time due to their great speed, were finding new competition with large cargo-hauling steam ships. The answer was the Down-Easter—a sleek yet slightly bulkier version of a clipper hull, compromising little speed for extra cargo space. These vessels were termed “Down-Easters” because they were built in the Down East ports of Maine, Massachusetts, New Hampshire, and Connecticut (Lubbock, 1929).

Unfortunately, there are very few records remaining of the ships built in Bath due to fire or loss (Baker, while researching his book *A Maritime History of Bath* [1973], commiserates), and it is difficult to gather much information about Down-Easters in particular from what little records exist due to the methods of documenting ships. Vessels were not recorded as “Down-Easters,” which is a label attributed to the hull shape, but rather referred to as “barks” or “ships” or any other numerous reference to rigging type. That being said, this section is an amalgamation of the diverse information that I acquired through several different books and a visit to Bath and Penobscot, Maine, the archives located at the cities’ maritime museums, and discussions with local residents of Bath, often descendents of prominent shipbuilders.

According to Allin and O’Leary (1995), “Maine shipbuilders created what were probably the finest commercial sailing vessels ever built, the great ‘Down-Easters’ ... [combining] speed, handiness, cargo capacity, and low operating costs to a degree never

before obtained by square riggers” (p. 306). Three-quarters of all Down-Easters were built in Maine (Allin & O’Leary, 1995, p. 301), and these large vessels contained vast amounts of metal bracing to support the weight of shifting cargo in turbulent weather. Bath led the final surge of wooden sail-shipbuilding during the last quarter of the 19th century with the creation of these magnificent crafts (Labaree et al., 1998).

Lubbock’s seminal work *The Down-Easters* (1929) provides an exquisitely thorough account of these vessels. Built to ship grain from California around Cape Horn for hungry markets in the eastern United States, the British Isles, and Europe, the Down-Easters would replace the clipper as the primary grain carrier. Clipper ships were going to the wayside. Entire fleets had been demolished during the Civil War and the new, sturdy iron vessels from Great Britain found favor (Lubbock, 1929). The sturdy build of the Down-Easters worked well for the heavy, shifting bulk of grain, yet only required half the crew to sail them (compared to a clipper) due in part to advancements in windlass and capstan technology. Though they often resembled the clippers in appearance, they were fuller-bottomed to carry greater cargo (Lubbock, 1929).

It is difficult to say what life was truly like on one of these ships, yet Gibbs (1987) offers a descriptive pondering regarding the subject. He states:

In a nuclear-space age, amid our pleasant surroundings, it is hard for one to imagine the rugged life of the underpaid, underfed, seafarers of old. Among them were both the scum of the earth and the bravest of men—men of every nation and color rubbing elbows in their raw surroundings. Courageous, trusted skippers or fierce masters who loved nothing better than to rule their little floating worlds with an iron fist, once out of sight of land.

Few voyages were ever completed without a bloody fracas among crewmen, illness in the fo’c’sle, hostility between officers and seamen.

The captain's word was law and woe to him that challenged that authority.
The code of the sea was binding.

It took a peculiar kind of man to furl canvas in a 60-knot gale, out on a yardarm 150 feet above the sea—one hand for the ship, and one hand for himself, with only a wildly swaying foot rope between him and eternity. Freezing weather, bleeding hands and lack of sleep or food were no excuse for not performing well. Woe to the man who shirked his duties.
(p. vii)

According to Lubbock (1929), as the Cape Horn route was considered one of the most demanding routes in the Sea, the Down-Easters were often the most well-provisioned and appointed sailing ships. They were noted for their meticulous upkeep (often attributed to their Down-East masters), clean lines, and tidy decks. The quarters were very comfortable and—since many captains often brought along their families for the long voyage—were spacious enough to entertain guests while at port and allow for personal space when under way (Lipfert, 2008).

Down-Easters were rarely built using foreign sources for materials. These vessels were usually constructed of white oak and southern pitch-pine, the logs of which were often used for the keel and keelsons (see Figure 10). Yellow metal (or brass), iron, or copper bolts/fastenings were used throughout some of the ships, and knees cut from native Maine coniferous trees were fastened with treenails (wooden pins used for securing a ship's timbers to its frame) made from locust wood. Many lumbermen were employed to cut timber from Maine to Virginia for use in the bustling Down-East shipyards (Lubbock, 1929).

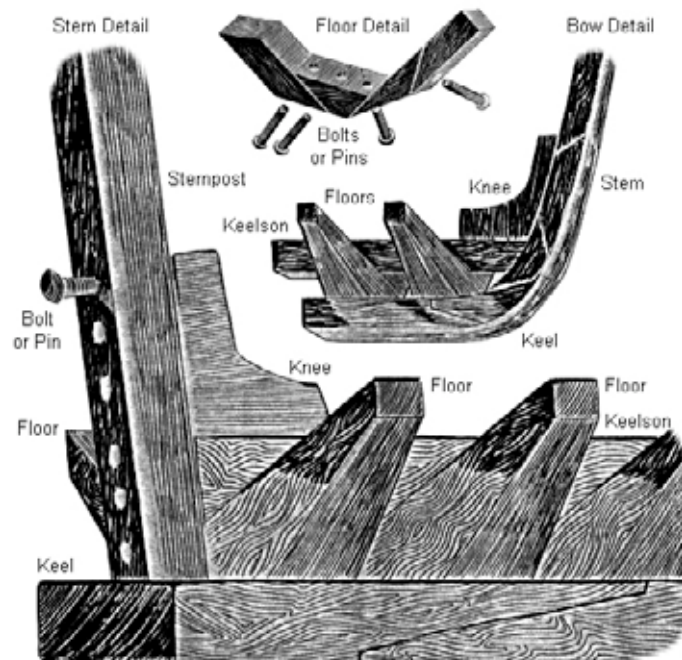


Figure 10. Illustration of a keel, keelson, and other parts making up the floor of a ship (Wood, 2008).

The spick and span-ness of the Down-Easter was a subject often revisited by Lubbock (1929), and he states how the mates of these “Cape Horners” frequently spent calm moonlit nights scrubbing and sanding away until the ship was as smart as could be. “Woe betide the man who was caught expectorating tobacco juice or dropping spots of paint on a Down-Easter’s maindeck” (Lubbock, p. 9). Their simple clean lines, white decks, and brightly varnished masts with red or white mast hoops made them distinctively beautiful. According to Gibbs (1987), Down-Easters’ “three upper yards squared and equally spaced gave them a handsome appearance” (p. 32). Their large wheelhouses, long boats at mid-ships, monkey-poop deck (a small deck in the aft), and whale-boats swinging from davits on either quarter made the vessels particularly recognizable from a distance (Gibbs, 1987).

The first Down-Easter, the *Glory of the Seas*, was launched in November, 1869 by Donald McKay of the East Boston yard (Lubbock, 1929). Not as modestly fashioned as her successors, *Glory* was fitted with an intricately carved figurehead of the Goddess Athena. She had three decks, could carry a capacity of 4,000 tons, and was known to haul over a million and a half feet of lumber in her later days (Lubbock, 1929, p. 62). Her typical run consisted of New York to San Francisco (averaging 115 days), San Francisco to Liverpool (116 days), and Liverpool back to San Francisco (132 days)—a speed that rivaled some of the clippers of the day (Lubbock, 1929, p. 63). In 1885, the *Glory of the Seas* went to work for the Pacific Coast coal trade, became an Alaskan cannery ship in 1910, and finally, in 1913, converted to a cold-storage barge to haul Alaskan salmon to Puget Sound (Lubbock, 1929, p. 65). Her fate, like most wooden ships, was to be drug to shore and burned for the recovery of her copper fastenings—an event that occurred on May 13, 1923 at Three Tree Point near Seattle (Lubbock, 1929, p. 66).

The most interesting illumination from Lubbock's description of the *Glory of the Seas*—at least in relevance to the *Austria*—is that the *Austria* was launched only one month following the *Glory* ("Town and Country", 1869) thus making her one of the earliest examples of a Down-Easter as well; perhaps, one might speculate, second only to the *Glory of the Seas*. Since vessels were usually registered by their rigging type and not their hull shape (the *Austria*, for example, was often recorded as either a *ship* or a *bark*), it would be nearly impossible to know for sure.

The Role of Down-Easters in the Shipping Industry

Wooden sailing merchant ships began their downward spiral in the years during the Civil War, when 105,000 tons were seized by raiders from the South and roughly 800,000 tons sailed away to find work under foreign ownership (Bauer, 1988, p. 241). The Union Army also had a destructive hand to play, as it acquired a large portion of the merchant marine vessels and used them until they were worn out or obsolete (Kilmarx, 1979). As British iron and steel ships became more affordable to build, fewer and fewer wooden hulls were built. U.S. ships lost their cotton commissions to the UK, Canada, and other European countries, and prohibitively high American wages, escalating US tariffs, and an increasingly poor view of sailor life advanced the drive of wooden vessels from the sea. Unfortunately, the US Congress denied any relief through subsidies (Bauer, 1988). The wooden merchant ships would have to look inward and focus on domestic endeavors if they were to survive.

Luckily, the San Francisco grain trade began to boom around 1855. In 1860, it is documented that “1088 tons of wheat and 58,926 barrels of flour were exported from San Francisco,” increasing steadily over the years to “the bumper harvest year of 1882...[when] 559 ships carried 1,128,031 tons of wheat and barley, and 919,898 barrels of flour” (Lubbock, 1929, p. 3). Though merchant shipbuilding found itself in an unfortunate slump during the Civil War, shipbuilding began to increase as the United States post-war commerce picked up. An average of 90 wooden ships were built per year in the U.S. between 1865 and 1870, dropping to 28 per year between the years of 1871-

1873 (Lubbock, p. 4). As British shipbuilding focused on iron during this time, the Down East builders continued to do what they did best, carving fast square-riggers from New England timbers. With some apprehension due to hard times during the war, many shipyards were hesitant to invest in the construction of large, fancy clippers. To compete with the fast steamers leaving ports in Britain, wooden vessels had to be increasingly capacious.

Bauer (1988) relates that other economies also picked up during this time to help the once-dwindling maritime trade. As American farmers increased demand for guano-derived fertilizers, more and more ships found themselves heading towards ports in Peru and small guano-bearing islands. Additionally, the Central American fruit trade was initiated. Though these offered some relief for the merchant mariner, it was the California grain trade requiring seaworthy ships to travel around Cape Horn that would temporarily stave off the end for wooden sailing vessels. United States cabotage regulations reserved inter-coastal trade for American ships only. In other words, ships sailing from the East Coast to carry iron, coal, and other goods around Cape Horn to the West Coast, where they would offload and then pick up the grain cargoes, had to be American vessels (Labaree et al., 1998). This singular internal trade route gave American ships a much-needed advantage over the British carriers, who were restricted from taking part in this national trade (Bates, 1892).

The big boom years of the Cape Horn trade occurred between 1881 and 1885 and, according to Lubbock (1929), the finest wooden full-rigged ships were built during this time. Building held steady until 1886, when a real slump began. Only one wooden

merchant vessel was built in 1889 (Lubbock, p. 5). Later in their careers, these large Down-Easters, once the quick and sturdy carriers that ventured round Cape Horn, usually found employment carrying lumber between the ports of the Pacific Coast.

As alluded to previously, the main rivalry in shipping during the mid to late 19th century was between the United States and Britain over the grain trade. Captain William Bates, in *American Marine* (1892), studied the politics and economics behind shipping—particularly looking at the efficiency, capaciousness, and seaworthiness of wooden Down-Easters in comparison to British iron sailing vessels. Through numerous statistics, tables, and narratives, Bates promotes American wooden ships, declaring their economic benefit (easier and less expensive to repair) and ease of handling. Underlying Bates' love for the wooden boat—he was a sailor for fifty years before he wrote his book—is an acute fear for a failing shipping economy. Though the domestic grain trade was protected in the United States, it seemed as though the British were increasingly successful at the expense of the Americans. Bates states:

The United States has long been the victim of skillful aggression on the part of certain European powers, eager to engross our trade. It is true that we retain our domestic navigation, but, under present conditions of railway development, the home-trade is only a small part of our transportation by sea. The destruction of our coastwise navigation would only be an inconvenience, while the ruin of our foreign-trade shipping business has greatly impaired our financial strength, weakened our defensive power, and daily threatens our national peace. At whatever cost, we must have the means of regaining the relative position that has been long lost, and of rescuing all that is still imperiled. (p. 3)

Though iron-hulled ships gave the wooden Down-Easters a run for their money in the grain trade, it would be the increased use of steam-powered vessels (first iron and

then steel) that would be the nail in the coffin for these magnificent ships (Allin & O’Leary, 1995).

Nearing the end of the 19th century and into the 20th, Down-Easters could be found primarily in the West Coast lumber and coal trade, the Hawaiian sugar trade, and working as Alaskan salmon packers (Lubbock, 1929). Though rigging schemes often changed for Pacific coast work—from square sails to a mix of square and fore-and-aft sails—vessels traveling between the contiguous US and Hawaii and Alaska maintained their classic square rigging. Problems emerged with employing younger crews, as they were often untrained in handling all-square-rigged ships. Lubbock attributes this phenomenon to the Alaska Packers gradual culling of “their magnificent fleet of sailing ships, which in 1925 consisted of 32 square-rigged ships and barques” (p. 225). Once those ships were no longer in service, there were few opportunities for young crewman to learn how to handle the more complicated rigging of an all-square-rigged (or “ship-rigged”) vessel.

As discussed by Russell (2002) the lumber trade likely began in earnest during the late 1840s, ignited by the demand for lumber in the development of cities spawning from the gold rush in California. The Pacific trade saw a boom in the 1860s, when demand for East Coast lumber faltered, and another in the 1880s as California saw a large development boom (Russell, 2002, p. 370). Puget Sound offered the only protected natural harbor between San Francisco and Canada and, as a result, became the predominant source for lumber on the Pacific Coast. With San Francisco as the primary processing and distribution center for the lumber industry, there was constant commerce

between Puget Sound ports and those of San Francisco. Over 160 million boardfeet (bf) of lumber were cut in Puget Sound during 1880 (Johansen & Gates, 1957, p. 320). This increased as California continued to grow, due in large part to the Santa Fe Railroad's entry into Los Angeles fueling the development of real estate in the area. Mill owners began to find it more profitable to own their own ships instead of relying on independent shippers, and vessels—including many Down-Easters like the *Austria*—were acquired for the trade (Russell, 2002).

The last Down-Easters to be employed in the lumber trade were the *Henry Villard* and the *Invincible*, both built in Bath, Maine in 1873 by the Sewells (*Henry Villard*) and Moses (*Invincible*) (Lubbock, 1929, p. 246). As of Lubbock's writing in 1929, the *Henry Villard* was working as a barge out of Seattle, though I speculate that she has since been lost.

One final intriguing note in the life story of the Down-Easters is their use in Hollywood films during the early 1900s. Producer Cecil B. DeMille and other Hollywood producers and studios, apparently bought many of these old ships for use in movie productions. They were eventually dragged to shore and burned for the easy recovery of their metal fastenings (Allin & O'Leary, 1995).

CHAPTER IV

FIELD STUDY OF THE SHIPWRECK *AUSTRIA*

Background

An ongoing initiative to inventory historic shipwrecks within Olympic Coast National Marine Sanctuary has been taking place since the mid-1990s. So far, the sanctuary has been successful in locating only four historically reported shipwrecks within the boundary. The *Austria* was one of these few. According to Terrell (2007), “these surveys underscored the effects of the fierce winter storms in the region, [as] shallow water wrecks in this area were apparently demolished by wind and waves or covered in sand” (p. 34).

The shipwreck *Austria* was first investigated during a volunteer pedestrian survey conducted by Olympic Coast National Marine Sanctuary and the Westend Community Shipwreck Project during the spring of 1996 (Terrell, 2000). A year later, from June 4 to June 6, 1997, a more intensive survey took place by an archaeological team from OCNMS, headed by Bruce G. Terrell, maritime historian archaeologist for NOAA’s National Marine Sanctuary Program (Terrell, 2000). Since the remains of the *Austria* are scattered among the Ozette Reservation (above the mean low tide line) and the sanctuary (below the mean low tide), representatives from the Makah Indian Nation also participated in the field survey (Terrell, 2000). The team conducted a survey, mapped and photographed the shipwreck remains, and then held a public education workshop at the end of the survey (Terrell, 2000).

The team located several artifacts, including the following: davit, Porter anchor, plank assemblage, hawse hole (2), gammoning iron, anchor chain piles (4), Roger's anchor, riveted iron pieces, iron pins, "barrel," "keelson," and miscellaneous metal fasteners and pieces—some with uncertain association to the *Austria* (Terrell, 2000; see Figure 11, an explanation of terms can be found in the Results section of this chapter).

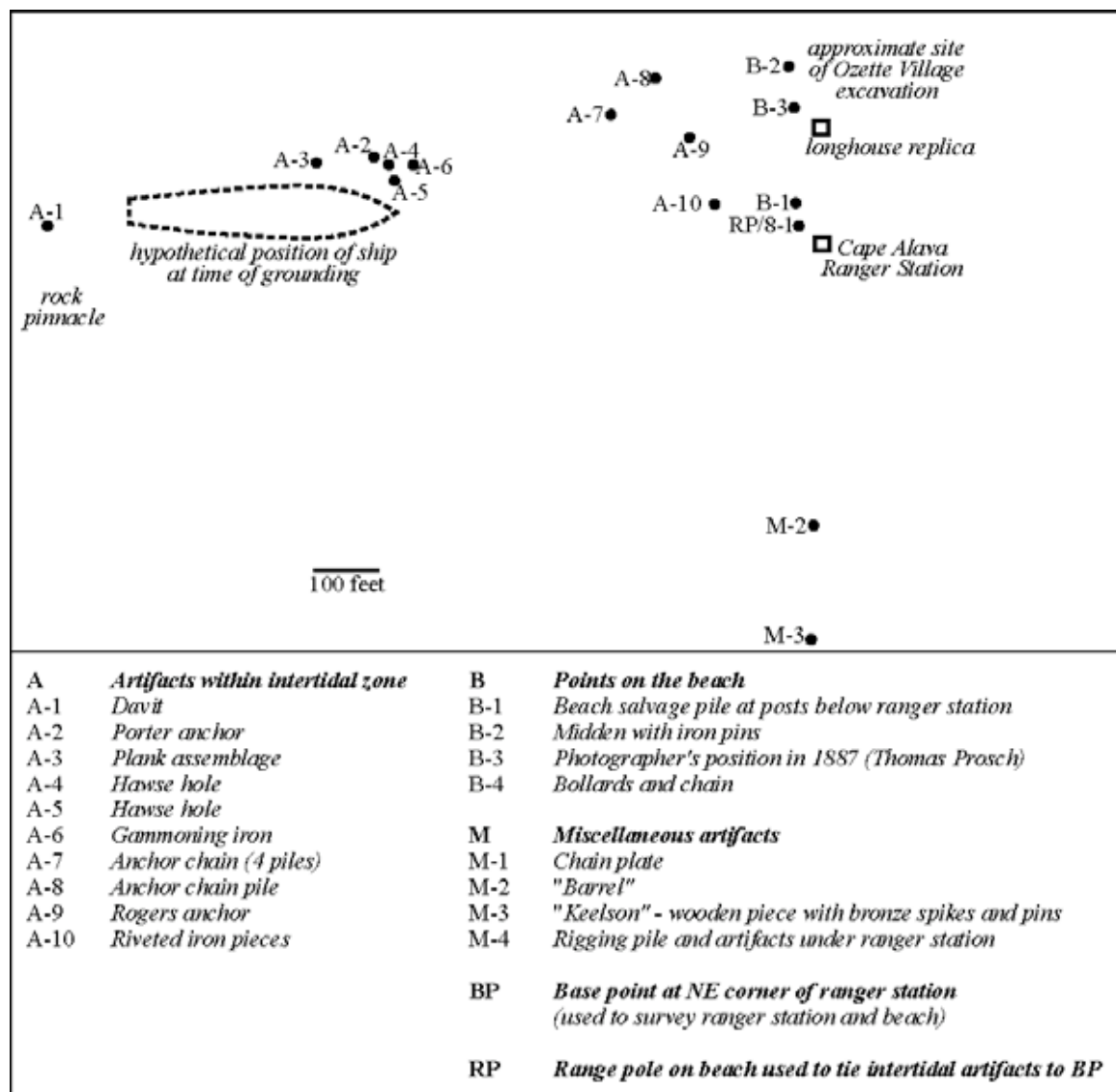


Figure 11. Artifacts located by Terrell et al. in 1997 (Terrell, 2000, p. 14).

Though Terrel et al.'s 1997 site visit yielded a wealth of information, there were some elements that OCNMS was eager to strengthen 10 years later. The sanctuary was hoping for (a) a GIS data layer to be obtained through a GPS survey to indicate artifact location and distribution, (b) an update on the condition of the artifacts, (c) a survey to locate previously recorded artifacts as well as those not yet identified, (d) photographs, illustration, and video documentation of the artifacts and site, and (e) additional historical research on the *Austria* and Down-Easters. Through a serendipitous meeting between Robert Steelquist, OCNMS outreach and education coordinator, and myself, a plan was hatched to develop a thesis project that would incorporate this research into a public education opportunity at the site.

From July 12 to July 18, 2007, I directed an experiential learning event in the form of an archaeological field school at the site location (see Figures 12 to 16). I was assisted for the duration of the project by archaeologist and marine affairs specialist Simon Geerlofs, and Robert Steelquist joined us for nearly two days as well. Participants included students Katie Beers, Jennifer Bertolani, Manda Perrine, Jack Peters, and Kim Peterson. The site was accessed by a boardwalk trail, 3.1 miles in length, followed by a half-mile hike up the beach. A campsite was designated on the Ozette Reservation an additional quarter mile further north, tucked into the trees along the shore (a permit was required from both the Makah Tribe and the National Park Service). Many students had never camped in the backcountry before, and—having no running water or toilets—this added a whole other element to the experience, which they fortuitously adapted to rather quickly.



Figure 12. Field school students Kim Peterson, Manda Perrine, and Jack Peters record the *Austria's* bower anchor.



Figure 13. Jennifer Bertolani and Katie Beers record a section of planking.



Figure 14. The field school crew surveying in the intertidal zone.



Figure 15. Site overview at high tide, looking due west from the foot of the Ozette Village site (45CA24).



Figure 16. Site overview, due south.

Some financial assistance was obtained through a Central Washington University Graduate Student Summer Research Grant, and equipment was provided by OCNMS, CWU, and a sponsorship from Suunto compasses. Course packets were developed and paid for by myself, and included a 34-page document containing background and miscellaneous information, release forms, medical forms, and additional information about the project and the vessel. Food (with the exception of transit days), transportation, compasses, all field gear, some tents, cook-wear, water filters, forms, notebooks, film/memory cards, cameras (digital and video), tuition and student fees were all provided and paid for in part by the course fee of \$400 per student. The course was credited as Anthropology 320 “Research/Laboratory in Archaeology” by Central Washington University.

Objectives

The project goals, as stated in the advertisement flyer for the course, were to a) locate scattered shipwreck remains, b) map remains using both GPS and compass mapping techniques, c) photograph and film artifacts to obtain images for the OCNMS Web site, d) research the ship and artifacts, and e) contribute to the production of a public presentation about the findings. This course was a unique opportunity for students to gain field skills in both terrestrial and nautical archaeological techniques in order to obtain high quality contextual information, learn to survey, record and map a site, as well as develop an understanding of maritime heritage in the Pacific Northwest. The course, designed to be a “hands-on” learning experience, included supervised fieldwork, lecture, discussion, and demonstrations. A tour of the tall-ship *Lady Washington* (a full-scale working replica of the original ship of the same name) was also planned in order to enhance the participants understanding of the lifestyle of the merchant sailor and illustrate the sorts of artifacts they might encounter at the site location.

Students were additionally assigned an artifact and were expected to thoroughly record the assigned item in the field in order to conduct meaningful independent research following the field session. Their final report was to be 4-6 pages in length, double-spaced (not including cover page, images, illustrations, and/or maps), with a minimum of four sources (no more than two from the Web, with the exception of peer-reviewed electronic journals/books). The paper was to include an introduction, describing the project area and objectives, a description of the artifact, including what it is, what it looks

like, dimensions, size, shape, material, and condition, a narrative on the historic uses of the item and description of where it was likely located on the ship, all wrapped up with a succinct conclusion.

Grades were based on the following areas: a) attitude—general attitude and interest level, willingness to help, ability to cooperate as a team, respect the environment and other people; b) work habits—care, reliability, ability to follow through, efficiency, ability to “pull their own weight”; c) work quality—care in fieldwork and note taking, project outcome, general competence; and d) the report—depth of research understanding, coverage of topic, clarity of report presentation, and contribution to the final product.

Methods

Methodology for artifact and site measurement followed techniques demonstrated by the Nautical Archaeological Society in their courses, in which Simon Geerlofs, Robert Steelquist and myself have all participated previously. These same procedures can be found in *Maritime Archaeology: A Technical Handbook* (Green, 2004, pp. 95-96, 149-150). The use of video for recordation was also adopted, as demonstrated by the NPS Submerged Resources Unit (Lenihan, 1989). Since this is a foreshore archaeological site that is exposed at low tides, terrestrial site survey techniques were also incorporated, as illustrated by E. B. Banning (2002) in his book *Archaeological Survey*.

Methods demonstrated and employed included setting up a baseline with a decimal-inch engineering tape (feet in these tapes are broken down into tenths instead of

twelfths) tied in to a datum (see Figure 17). Secondary datums were established when artifact distances from the primary datum made use impractical. Artifact locations were mapped in using either trilateration (determining position by the intersection of two lengths from a baseline) or offset techniques (perpendicular measurement from a baseline). Compass-work integrating triangulation (determining position by the intersection of two lines on a topographic map) was employed for large features at great distances and site boundaries. This project also relied on illustrative and video documentation of the shipwreck site and associated artifacts, utilizing the video to fill in details where mapping or illustration alone may not suffice. Video was also adopted to document the experience of the students and instructors, for later use in public education productions.

Survey of the site area, measuring approximately 650 meters North/South and 550 meters East/West, was determined to slightly overlap the area previously surveyed in 1997. Pedestrian survey transects at the end of ebb, the duration of slack, and the beginning of flood tide occurred at 10-meter intervals running N/S. End-points were mapped using a GPS unit. Artifacts were marked with pin-flags and flagging tape, and also mapped with a GPS (in addition to offset and trilateration, as mentioned above). Artifacts were drawn, photographed, and filmed; none were collected.



Figure 17. Simon Geerlofs standing at the datum rock, used for site mapping in the 2007 field season. Cannonball Island is in the distance.

Results

Wreckage from the *Austria* was found scattered in the intertidal area and shore during lower tides—the lowest tide being at -2 ft. The crew located the following artifacts: bower anchor, stream anchor, boat davit, truss parrel, gammon iron, planking, hawsepipe (2), chain piles (3), chain plate (4), dead-eye, and numerous fasteners and miscellaneous pieces of iron (see table 3). These artifacts are explained in greater detail below, along with a map of their distribution on the site.

Table 3

Artifacts Located During 2007 Field School

Type	Description	Condition	Length (ft.)	Width (ft.)	Height (ft.)	Diameter (ft.)
Anchor	Bower anchor. Large Porter's-style, with iron stock	Corroded, heavily covered with barnacles. Appears to be complete.	13 (tip of stock ring to tip of crown), shank length 12.75	12.65 (across stock)	NA	.40 (shank)
Anchor	Stream anchor. Smaller than bower, with folding stock.	Partially buried and submerged, wedged under large boulder. Corroded, heavily covered with barnacles.	6.40 (tip of shank to tip of crown)	NA	NA	.30 (shank)
Truss parrel	Large iron parrel.	Broken on one side, wedged between several boulders. Corroded, heavily covered with barnacles.	4.20	5.10 (tip of one arm to the other)	NA	.30 (parrel arm)
Hawse-pipe 1 (N)	Other half of hawse-pipe 2.	Iron, partially submerged, split in half. Corroded, heavily covered with barnacles.	2 (length at base)	1.80 (cylinder, exterior)	2.05 (tall side), 1.80 (short side)	1.30 (cylinder, interior)
Hawse-pipe 2 (S)	Other half of hawse-pipe 1.	Iron, partially submerged, split in half. Corroded, heavily covered with barnacles.	1.80 (length at base)	1.30 (cylinder, exterior)	1.90 (tall side), 1.80 (short side)	.95 (cylinder, interior)
Boat davit	One davit.	Corroded, heavily covered with barnacles. Appears to be complete.	11.50 (from tip to tip)	3.4 (length of curved end)	NA	0.35

Table 3 (Continued)

Type	Description	Condition	Length (ft.)	Width (ft.)	Height (ft.)	Diameter (ft.)
Double bitt 1 (W)	One set of bitts.	Weathered and partially buried in sand and cobbles. Lying on one side. One bitt knob is broken open.	4.32 (at base)	NA	1.71 (tip of bitt knob to bottom of base)	.75 (at base of bitt knob)
Double bitt 2 (E)	One set of bitts.	Weathered and partially buried in sand and cobbles. Positioned upright. Both bitt knobs are broken open.	NA	NA	NA	.95 (at top of bitt knob)
Gammon iron	One gammon iron, possibly once attached to the bowsprit.	Corroded, heavily covered with barnacles. Appears to be complete, though one side of the bracket is damaged with a broken shaft present.	1.75	1.10	1.90	1.10 (collar)
Planking	Section of planking, possibly from hull or a deck.	Mostly submerged and partially buried by sand, rock and vegetation. Exposed boards are soft and damaged.	18.10	6.65	NA	NA
Chain pile 1	Large chain pile.	Corroded and rusted together.	5.2 (N/S)	4.1 (E/W)	1.50	NA
Chain pile 2	Large chain pile.	Corroded and rusted together.	5 (N/S)	5.1 (E/W)	1.60	NA
Chain pile 3	Large chain pile.	Corroded and rusted together.	5.8 (N/S)	4.4 (E/W)	2.00	NA

Table 3 (Continued)

Type	Description	Condition	Length (ft.)	Width (ft.)	Height (ft.)	Diameter (ft.)
Concentration	Concentration of various pins and fasteners, including nails, bolts, chain-plates, and miscellaneous iron pieces. Total equals ~210 artifacts.	Corroded, sometimes broken, partially buried, and/or unidentifiable.	70 (N/S length of concentration)	30 (E/W width of concentration)	NA	

All of the previous artifacts from Terrell's 1997 survey were relocated, as well as additional bolts, spikes and other fasteners. According to Robert Steelquist, who participated on both surveys, there was a greater abundance of fasteners present on the beach during our 2007 field school site visit.

The bower anchor, likely one of the ship's main anchors, was a Porter's style anchor, originally designed by William Porter in 1838 (Curryer, 1999, p. 77; see Figure 18). Porter had the intention of producing an anchor with superior holding properties while being lighter weight—qualities that would appeal to the merchant ships, which were often short of crew (Curryer, 1999). The anchor was composed of two parts: the crown and arms in one part, and the shank ending in a fork in the other. The two parts would swivel at their attachment point, allowing one arm to dig into the sea floor while the other arm pushed hard onto the shank. A protruding "horn" near the palm of the anchor allowed for a stronger grip. Earlier models had a wooden stock, which was later



Figure 18. Porter's style bower anchor, similar to the *Austria's* (Curryer, 1999, p. 77).

replaced by an iron stock (Curryer, 1999), such as that found on the *Austria's* anchor. The *Austria's* anchor was 13 ft long, with a width of 12.65 ft at the stock (see Figures 19 and 20). According to *The Oxford Companion to Ships and the Sea* (Kemp, 1976), the bower anchors were “the two largest anchors the ship carried permanently attached to their cables, one on either bow with the cables running through the hawseholes so that the anchors are always ready for letting go in an emergency” (p. 102).



Figure 19. The *Austria's* bower anchor during the 2007 field school, looking due west.



Figure 20. The *Austria's* bower anchor circa 1960. From *The Olympic Seashore*, by Ruth Kirk, 1962, p. 60. Note the different position of the anchor compared to the photo taken in July of 2007 (*Figure 19*).

Austria's stream anchor, a small anchor used where it wasn't practical to use the larger and heavier bower anchor (see Figure 21), measured 6.4 ft long along the shank. Other measurements were not possible due to the position at which the anchor was wedged under a large boulder. We were unable to adequately study the artifact due to its position and condition (it was heavily corroded and covered in vegetation), and must therefore rely on Terrell's (2000) analysis of the anchor as being a Rodger's style. Lieutenant William Rodger created his first anchor design in 1821 (Curryer, p. 86). His first attempt was unsuccessful, but Rodger persevered to design several more anchor styles during his career, including the much successful Patent Kedge. In 1854, after becoming a Captain, Rodger patented his Moveable Iron Stock (Curryer, p. 89). It is very possible that the *Austria's* stream anchor may have had this patented Moveable Iron Stock, as it was evident that the iron stock was retracted when it was deposited under the boulder (possibly stowed for later salvage). According to Captain Rodger (in Curryer, p. 89), "this stock may be shipped or unshipped in a few minutes being half as heavy as iron stocks in common use.

One of the *Austria's* truss parrels (also spelled *parrell*) was also located (see Figure 22). A parrel (see Figure 23) held smaller yards to the mast (Kemp, 1976). Heavily corroded, concreted with barnacles and covered with sea vegetation, the truss parrel was found wedged between boulders near the western boundary of the site. The artifact was made of iron, and measured 4.2 ft long with a "wing-span" of 5.10 ft.



Figure 21. A stream anchor, similar to the *Austria's* (Desmond, 1998, p. 158).



Figure 22. The *Austria's* truss parrel, facing due south.

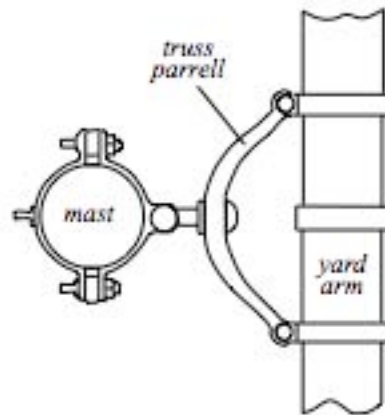


Figure 23. Illustration of a truss parrel. Adapted from Desmond (1998, p. 193).

The boat davit, located near the truss parrel on the western edge of the site, lay at the base of a prominent pinnacle (see Figure 24). Davits were used as “small cast-iron cranes, fitted with hoisting and lowering gear in the form of blocks and tackles and placed along both sides of the upper deck ... from which a ship’s lifeboats are slung” (Kemp, 1976, p. 231). The davit measured 11.5 ft in length and, though corroded and covered with sea vegetation, appeared to be complete.



Figure 24. The 2007 field crew recording the bower anchor and hawse pipes. The davit is located at the northern base of the pinnacle near the center of the photo.

Two halves of one hawse-pipe were also located in the intertidal zone (see Figures 25 and 26). The hawse-pipe was an angled tube with collars on each side (much like a rivet) that protects the wooden hull from wear of the anchor chain (see Figure 27). The anchor chain was then passed through this pipe (Kemp, 1976). Made of cast-iron and consisting of two separate pieces, hawse-pipes are constructed of ample thickness to withstand a great deal of friction when the chain is being hauled up, let out, or when the ship is at anchor (Desmond, 1998). The Austria's hawspipe halves measured 2 ft long and 1.8 ft long, with a maximum of 2.05 ft tall and 1.9 ft tall, and a diameter of 1.8 ft and 1.3 ft. With the exception of being separated, the hawse-pipe appears to be complete, though heavily corroded and covered with barnacles and sea vegetation.

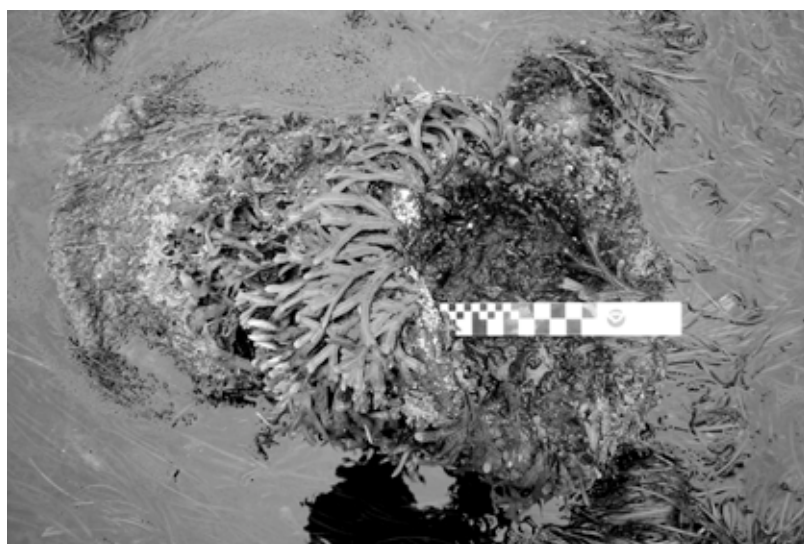


Figure 25. A hawse-pipe from the Austria.

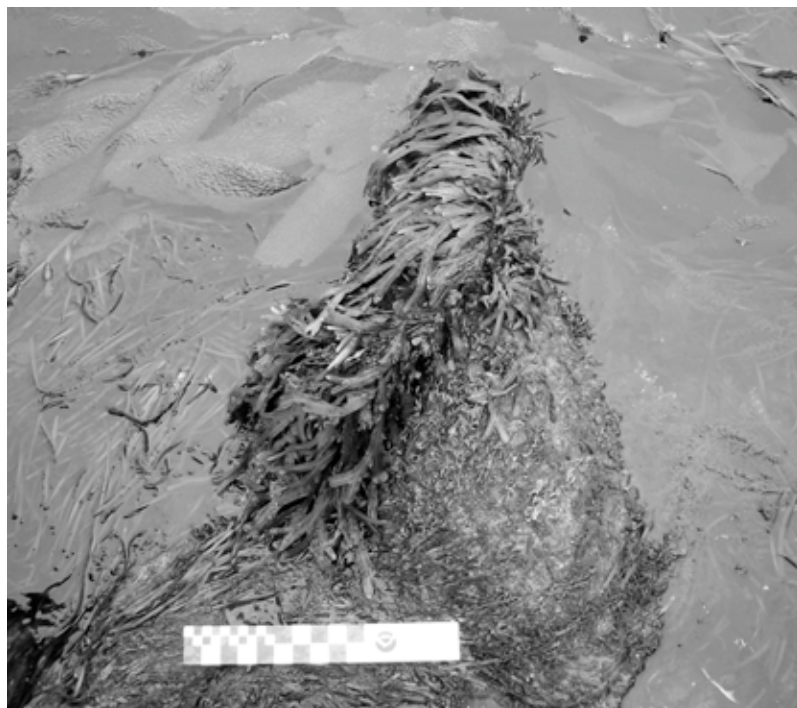


Figure 26. A hawse-pipe from the Austria.

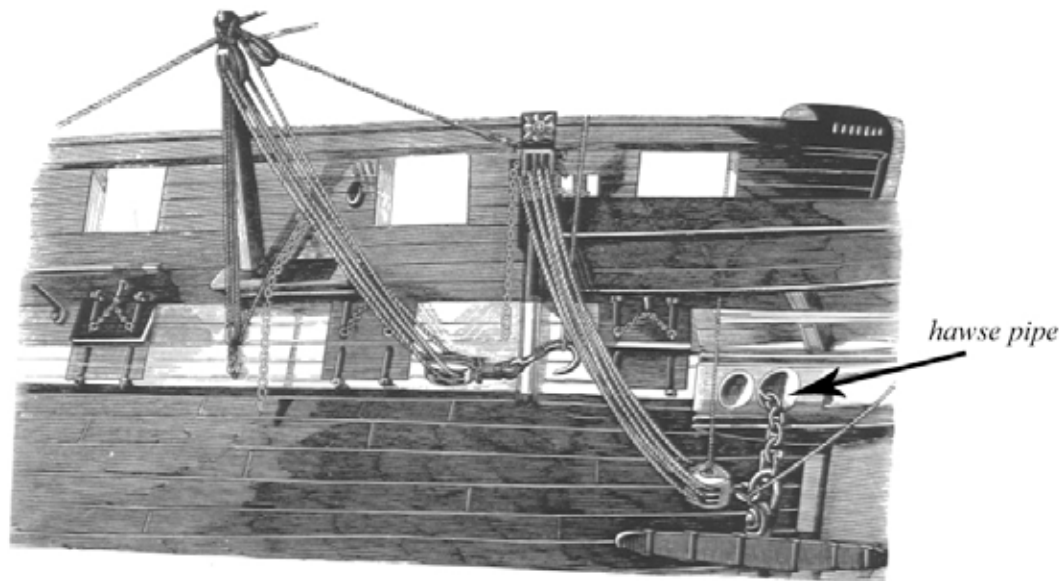


Figure 27. Illustration of a hawse-pipe. Adapted from Curryer (1999, p. 12).

Two sets of double bitts were found onshore (see Figures 28 and 29), at the base of the Ozette village archaeological site (45CA24). Bitts were positioned upright near the bow of the ship and were used to secure a ship (see Figure 30) when it was at anchor or under tow by running the cables or lines around them (Kemp, 1976, p. 86). The *Austria's* bitts were both damaged, with two out of four knobs being broken open (a third was heavily damaged and nearly opened). One knob had some sort of iron ball sitting in it—it is uncertain whether this was actually part of the interior structure of the bitt or if it drifted in from another source. Length along the base was 4.32 ft, with a height of 1.71 to the tip of the unbroken knob from the base.



Figure 28. A set of double bitts from the *Austria*.



Figure 29. A set of double bitts from the *Austria*. Note the metal ball in the right bitt knob.

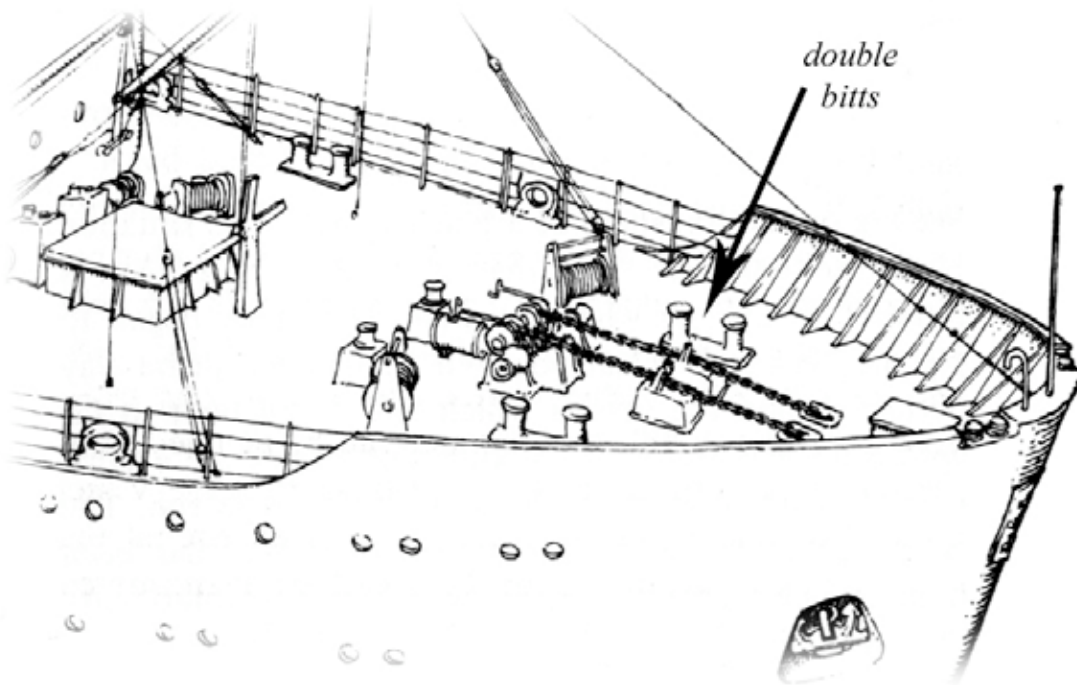


Figure 30. Illustration of the location of bitts on a ship. Adapted from Landström (1961, p. 307).

A possible gammon iron was also located, which was “a circular iron band used to hold a bowsprit to the stem of a sailing vessel” (Kemp, 1976, p. 337). An absolute identification could not be made due to lack of literature on the item, though, as Terrell mentioned during his investigation, “the shape implies that function” (Terrell, 2000, p. 17). The *Austria*’s gammon iron was 1.75 ft in length, 1.10 ft in width (the diameter of the collar), and 1.90 ft in height (see Figures 31 and 32).

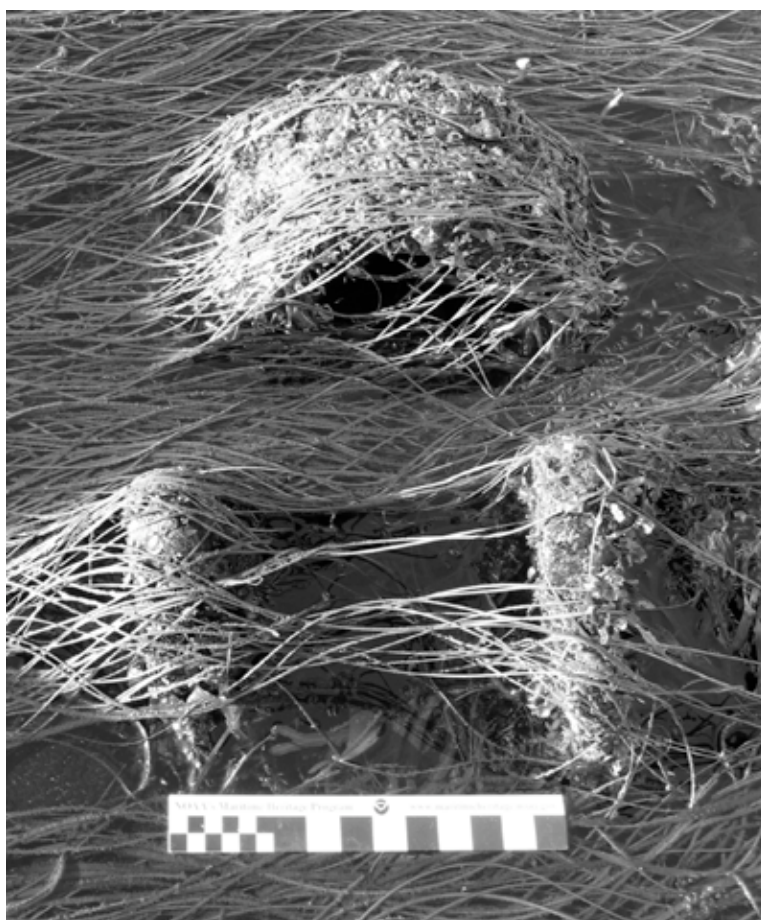


Figure 31. A possible gammon iron from the *Austria*, plan view.



Figure 32. A possible gammon iron from the *Austria*, lateral view.

A large section of planking was also observed, measuring 18.10 ft in length by 6.65 ft in width (see Figure 33). Wooden samples taken from the planking and analyzed by the U.S. Forest Service during Terrell's study indicate the wood to be yellow pine and white oak, signifying that it is indeed from the *Austria* (Terrell, 2000), though it is difficult to discern from where on the ship the planking came due to its poor condition and partially submerged/buried state.

Three metal fasteners were observed protruding from the boards (see Figures 34 and 35). According to Desmond (1998), metal fastenings used for connecting planking to

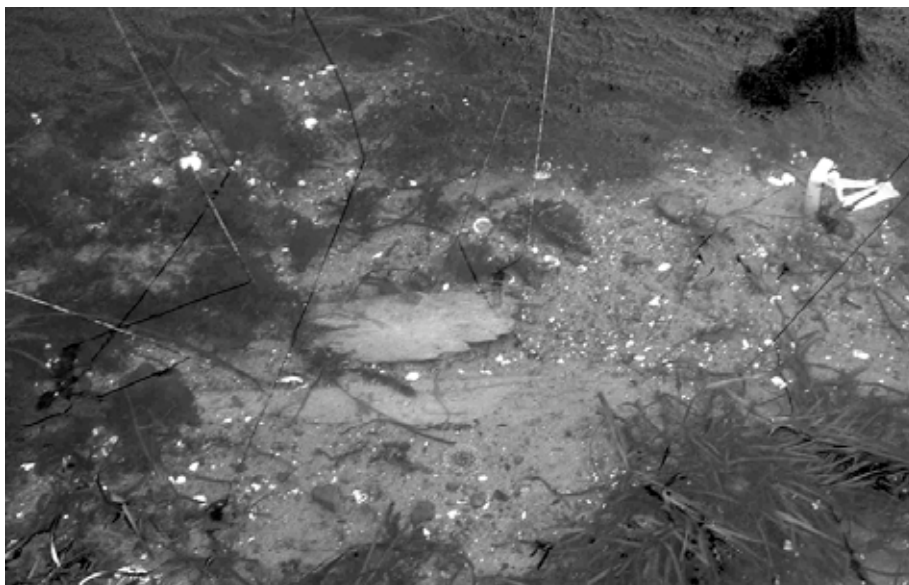


Figure 33. Plan view of planking. Note the fastener near the upper right corner of the photo.

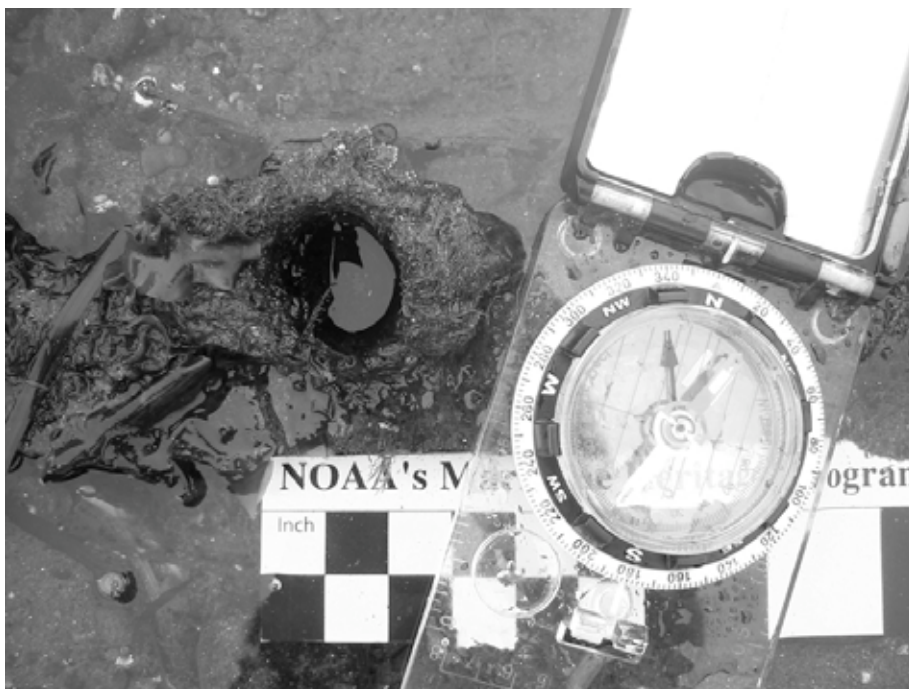


Figure 34. One-inch hole located in the planking.

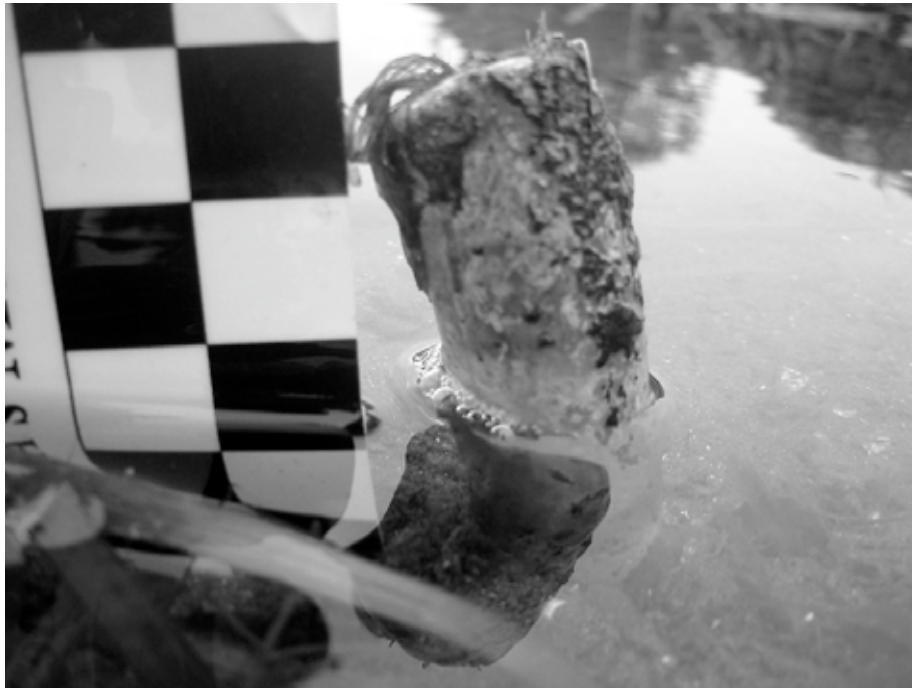


Figure 35. A copper or bronze fastener protruding from the planking.

the frame were made from copper, a composition metal, or iron. Holes in the planking measured at 1 inch in width, demonstrating that they likely held copper or bronze fasteners, like those still present in the planking, rather than a wooden treenail, or long oak dowels used to secure a ship's timbers to her sides and bottom (Kemp, 1976). As stated in *The Oxford Companion to Ships and the Sea* (Kemp, 1976):

Holes were bored with an auger through the planks and into the timbers, and the treenails driven home with a mallet. After the ends were cut flush with the planking and frame face, hard wood wedges were driven in at each end, the wedges lying at right angles to the run of the grain of planking and frame to prevent them splitting. They were of a diameter of one inch for every 100 ft of a ship's length: thus a ship with an overall length of 150 ft would use treenails 1 1/2 inches in diameter. (p. 887-888)

The ship was a reported 198.9 ft in length, which, according to Kemp (1976), would require a 2-inch treenail. A slightly different calculation is made by Lloyd's Fastening Dimension table (Desmond, 1998), which lists 1 1/2 inch diameter treenails for a ship of *Austria's* tonnage. Though the *Austria* most certainly also utilized treenails, as they were common fasteners used in the building of Down-Easters during the time the *Austria* was built (Lubbock, 1929), the poor condition of the planking combined with the fact that it was mostly buried, submerged and covered with sea vegetation precluded a more thorough examination of the boards and fasteners.

Three large anchor-chain piles were recorded positioned in a row running west to east, connected by a single strand of chain, likely deposited for the salvage operation that followed the ship's wrecking. Terrell et al. located one additional pile during their survey in 1997, and mentioned that several more had been found the year previous (Terrell, 2000). Chain pile 1 (the easternmost pile) measured 5.2 ft N/S, 4.1 ft E/W, with a height of 1.5 ft; chain pile 2 measured 5 ft N/S, 5.2 E/W, with a height of 1.6 ft; and chain pile 3 measured 5.2 ft N/S, 4.1 ft E/W, with a height of 1.5 ft. Individual links measured .95 ft by .6 ft with a diameter of .65 ft (see Figures 36 to 38). The stud through the middle, used to prevent the chains from kinking (Kemp, 1976), measured .25 inches long with a diameter of .6 inches. Chain, also called "chain cable," was first used around 1800 by the French (Kemp, p. 125); the center stud was added by Duncan McDougall in 1819 (Curryer, 1999, p. 101). According to a table listing the appropriate sizes of chain for particular tonnage vessels (Desmond, 1998; see Figure 39), this chain was likely used for the stream anchor rather than the bower.

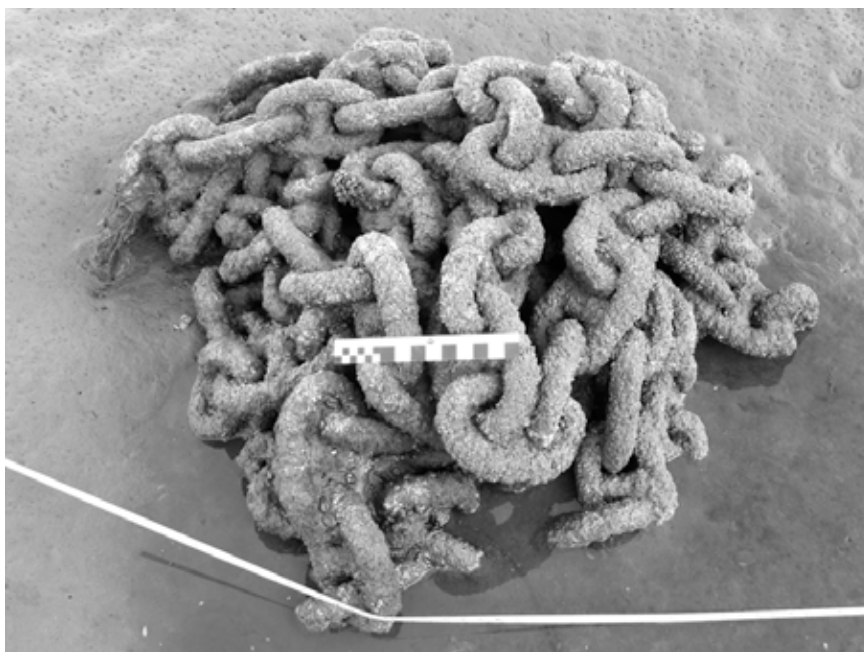


Figure 36. One of the *Austria*'s chain piles.



Figure 37. One of the *Austria*'s chain piles.



Figure 38. Detail of a link in one of the chain piles.

TABLE 16B
 ANCHORS AND CHAINS FOR SAILING VESSELS
 MINIMUM WEIGHTS OF ANCHORS, SIZES AND LENGTHS
 OF CHAIN CABLES

Tonnage	Anchors									Stud Chain Cable		Stream
	Number			Weight						Minimum Size	Lengths	Chain
				Bowers		Including Stock						
	Bowers	Stream	Kedges	Without Stock	Admiralty Test	Steam	Kedge	2nd Kedge				
									Lbs.	Tons	Lbs.	Lbs.
Ins.	Fat'ms	Inches										
100	2	1	1	700	8	200	110		7/8	105	1/2	
150	2	1	1	900	10	280	140		1	120	9/16	
200	2	1	1	1100	12	400	200		1 1/8	120	5/8	
300	2	1	1	1450	14	500	250	125	1 1/4	135	1 1/16	
400	2	1	1	1850	17	600	300	155	1 5/16	150	3/4	
500	2	1	1	2125	20	775	400	195	1 7/16	165	13/16	
600	3	1	1	2450	22	900	450	225	1 1/2	180	7/8	
700	3	1	1	2800	24	1000	500	250	1 9/16	180	7/8	
800	3	1	1	3125	26	1125	615	280	1 5/8	180	5/16	
900	3	1	1	3350	28	1225	650	310	1 11/16	180	15/16	
1000	3	1	1	3575	29 1/2	1250	675	335	1 3/4	180	15/16	
1200	3	1	1	3800	31	1450	725	360	1 7/8	180	1	
1400	3	1	1	4000	32 1/2	1550	780	395	1 15/16	180	1 1/16	
1600	3	1	1	4250	34	1600	840	420	2	180	1 1/16	
1800	3	1	1	4500	35 1/2	1800	900	450	2	180	1 1/8	
2000	3	1	1	4700	37	1900	950	500	2 1/16	180	1 1/8	
2500	3	1	1	5000	39	2100	1120	560	2 1/8	180	1 3/16	
3000	3	1	1	5400	41	2350	1230	615	2 3/16	180	1 1/4	
3500	3	1	1	5800	43 1/2	2600	1300	650	2 1/4	180	1 1/4	

Two of the Bowers Anchors must not be less than the weight named; but for the third a reduction of 15 per cent will be allowed. No reduction will be permitted in the lengths of cables.

Figure 39. A table used to determine the minimum weights of anchors (Desmond, 1998, p. 166).

In addition to the larger artifacts mentioned above, numerous corroded, ferrous fasteners (rods, pins and bolts), were located, including four chain-plates (the cable attaching the deadeyes—which secured the rigging—to the side of the ship; see Figures 40 and 41), one with an attached deadeye, and a few unidentifiable pieces of cast iron. It is reported in the *Hazel Niendorff Collection* (cited in Gamble & Schwemmer, 1997) that the *Austria* carried a 7 x 12 Upright Donkey Engine weighing two tons. Steam donkeys were used to provide power for mechanical duties on board (Kemp, 1976). Though the donkey engine was salvaged and sold at auction (Niendorff as cited in Gamble & Schwemmer), it may be possible that another boiler or donkey may have been on-board and is the source of the iron pieces found on the beach.



Figure 40. One of the *Austria*'s chain-plates with deadeye still attached.

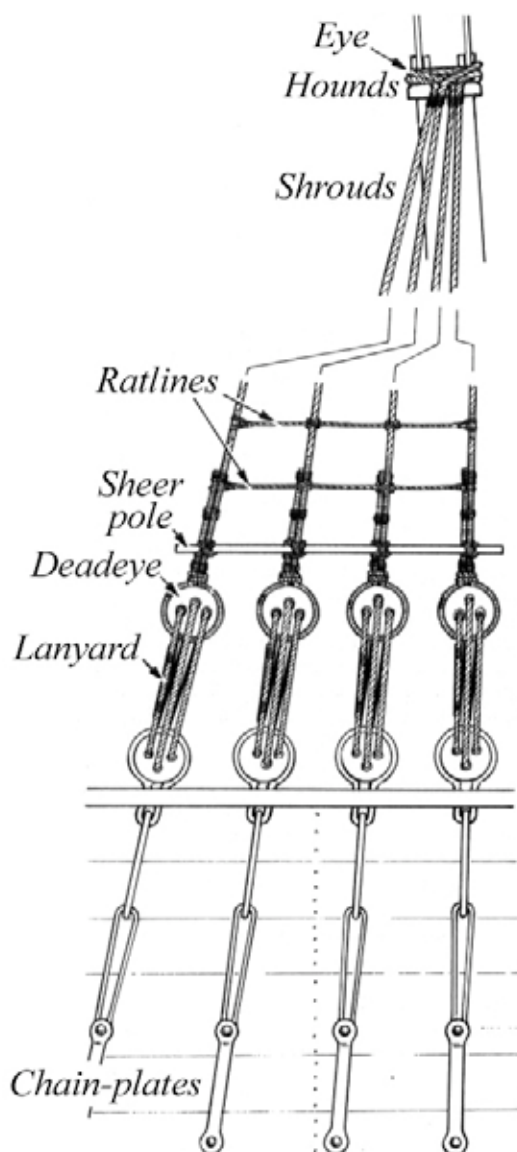


Figure 41. Illustration of the standing rigging of a ship, including deadeyes and chain-plates. Adapted from Kemp (1976, p. 800).

Of the roughly 250 pins and fasteners located on-shore, approximately 210 were found in a dense concentration measuring 70 ft by 30 ft, on the beach at the base of the Ozette Village archaeological site (45CA24; see Figures 42 to 45). Sizes of these artifacts average from roughly 2 to 5 inches in length for smaller nails, up to 3 ft in length for

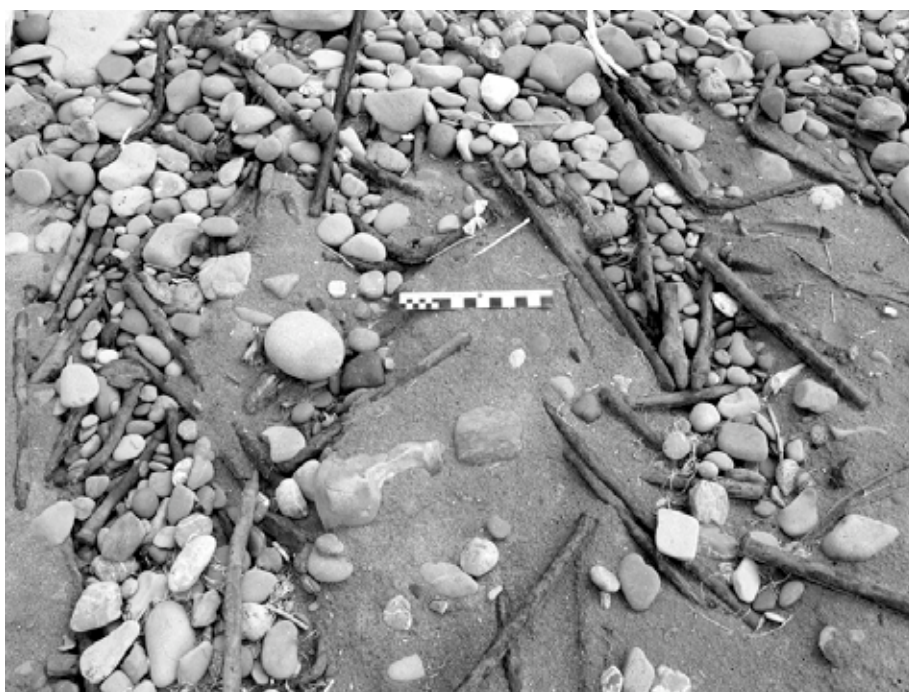


Figure 42. Concentration of pins/fasteners.



Figure 43. Concentration of pins/fasteners.



Figure 44. Field school participants Jack Peters and Katie Beers record the pin/fastener concentration using offset recordation techniques.



Figure 45. Various pins and fasteners being exposed as sand is washed away.

larger bolts, and nearly 6 ft in length for chain-plates. The vast quantity of artifacts in such density demonstrates the possibility that a section of hull may have been deposited in this location at one time, with the metal pieces remaining after the wood had deteriorated. Another possibility is that the deposition is a remnant of collector's piles that have been slightly scattered over time. One small recent collectors pile with ten artifacts was evident on a log near the concentration. Thick sand surrounding the concentration partially blanketed many artifacts, and it is very likely that, had we been able to excavate, many more pins and fasteners would have been found beneath the sediment. A photo taken circa 1890 of the wreckage illustrates many of the large bolts found on the site (see Figure 46).



Figure 46. The *Austria*'s remains circa 1890. Note the pins and fasteners protruding from the wreckage. Photo courtesy of the University of Washington Special Collections.

In summary, all of the directives set forth prior to the field school were met. Nearly every artifact discovered by Terrel et al. in 1997 was relocated, mapped, photographed and filmed. The students proclaimed to have learned a great deal and, despite the early hours, periodically marginal weather, rustic accommodations, and distance from “civilization,” profess to have truly enjoyed the experience. Student writing projects were received on time and completed according to specifications set forth in the syllabus. The budget was only slightly exceeded, and—with the exception of my personal camera—there were no incidents leading to broken or lost field equipment.

All information for the GIS data layer has been obtained, and completed site maps and site form have been developed (see Figure 47). Video footage has been edited and presented at the 2008 annual meeting of the Society for American Archaeology and the 2008 Northwest Anthropological Conference, as well as viewed at both the Peninsula College and a volunteer dinner at the OCNMS Discovery Center in Port Angeles, WA.

In addition, a preliminary assessment of eligibility for the National Register has been conducted. Eligible properties are required to meet one or more of four significance criteria and must retain integrity. Integrity is evaluated for seven aspects, namely location, design, setting, materials, workmanship, feeling, and association (Shrimpton, 1990).

With the evaluation criteria and assessment of integrity in mind, I recommend that the shipwreck *Austria* is not eligible for placement on the National Register of Historic Places. Though there are fairly compelling aspects to the ship, such as the vessel’s

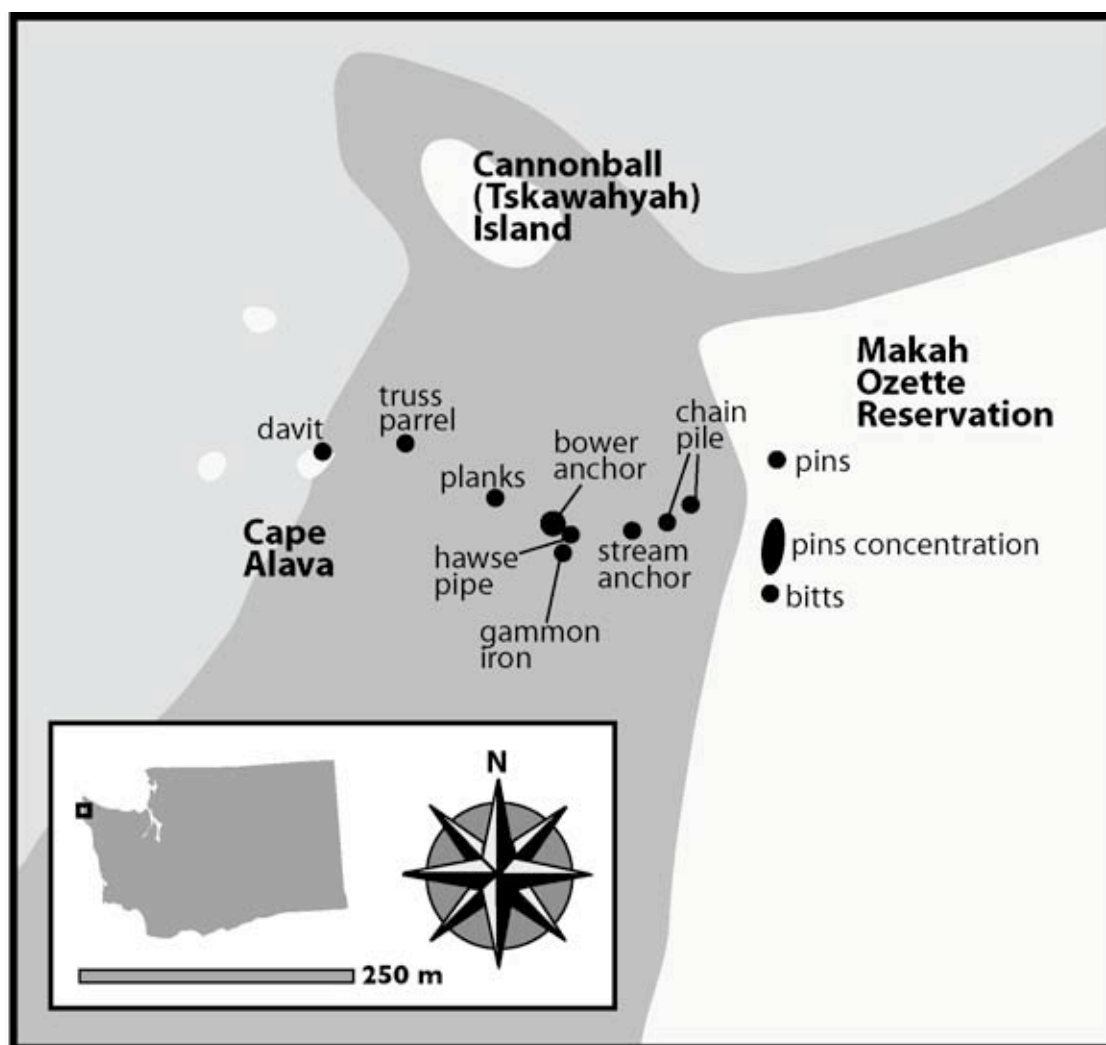


Figure 47. Distribution of major artifacts at the shipwreck *Austria* site, as of July 2007.

Table 4

Eligibility Criteria for the National Register of Historic Places

-
- | | |
|---|--|
| A | be associated with events that have made a significant contribution to the broad patterns of our history |
| B | be associated with the lives of persons significant in our past |
| C | embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction |
| D | have yielded, or may be likely to yield, information important in prehistory or history |
-

Adapted from Shrimpton (1990).

association with the Cape Horn grain trade (potentially meeting Criterion A), her association with Captain Delano, whom a park is named after near Olympia (potentially meeting Criterion B), and her significance as an early example of a Down-Easter, one of the last wooden ship types (potentially meeting Criterion C), the remaining wreckage is extremely deteriorated and often mostly unrecognizable (such as in the case of various corroded pieces of broken and concreted metal). Though the wreckage inspires historic research and information gathering, the artifacts themselves do not actually yield information important to history or prehistory, and therefore the site likely does not meet Criterion D.

One may argue that the wreckage still holds integrity to feeling and association—indeed one gains a sense of the turmoil of wrecking a ship and life at sea

while visiting the remains—but very little integrity of location, design, setting, materials, and workmanship remain as the wreckage continues to degrade rapidly and scatter due to its volatile location in the intertidal zone. As a result, I feel that there is not sufficient integrity for the *Austria* to qualify for nomination.

Additional Field Study

Following the field study at the site location, the final resting place of the *Austria*, I decided to visit the vessel's place of birth in Bath, Maine. I had two goals in mind: 1) to visit the archives at both the Maine Maritime Museum in Bath and the Penobscot Maritime Museum in Searsport in order to acquire primary sources and documentation of the vessel and her builders, the Houghton Brothers; and 2) to interview via digital video the directors and/or education directors of both museums.

Following interviewing techniques illustrated in Taylor (1992), a directed interview was conducted with Betty Schopmeyer, Education Coordinator of the Penobscot Museum. Unfortunately, Nathan Lipfert of the Maine Maritime Museum was unavailable, and after some sleuthing about the town of Bath I was directed to Nick Sewell, direct descendent of the prominent Sewell shipbuilding family. A nondirected approach was taken with Mr. Sewell's interview, as he drove me throughout the town and imparted his vast knowledge on the shipbuilding history of Bath.

Video images of the town, the site location of the Houghton yard, and scenery of the down-east coast of Maine were additionally acquired. In total, three full days were

spent in the vicinity of Bath. Videotaped interviews of Betty Schopmeyer and Nick Sewell combined with the footage that was acquired in Bath, Maine, greatly added to the footage that was attained over the course of the previous year while documenting the field school, wreck site, and discovered remains of the *Austria*. I believe that this footage enhances the message of the importance of maritime heritage, adds to the interesting story that has unfolded about the *Austria*, and brings the project full-circle, from the birthplace of the ship in Bath, Maine to her final resting place on the Olympic Coast.

I also made two additional visits to the *Austria* site, with the assistance of Simon Geerlofs. The first site re-visit, on August 26, 2007, allowed for the acquisition of supplementary video and site photographs. The site had not changed much since the field school the previous month, though a new artifact was found near the location of the bitts. Research revealed that the artifact was a boom chain, used historically in logging operations. A boom chain was used to attach the ends of two logs together in the construction of a log-boom (see Figure 48). Though the artifact was very corroded and appeared quite old, it is unlikely that it came from the *Austria* or was washed ashore from another source. The chain itself was 85 inches in length with a 6.5-inch ring on one end and a metal “toggle” on the other end measuring 10.7 inches long by 2.7 inches wide and .7 inches thick.

The second re-visit, on August 23, 2008, demonstrated striking changes in the site. A thick layer of beach cobbles nearly 3 ft deep in some areas obscured all artifacts on-shore and there appeared to be a great deal of beach debris movement over the surface



Figure 48. The logging boom chain, located near a set of bitts.

(see Figure 49). Only two fasteners/bolts were relocated, and only the top 5 inches of one set of bitts protruded from the rocks, sand and grass. The metal ball that was inside one of the bitt knobs during the field school was missing, and the knob was filled with cobbles (see Figure 50). A thick deposit of rotting seaweed stretched from the high-tide zone and well into the cape, and high tidal waters did not allow for survey in the intertidal area. The condition of the site during this visit dramatically illustrates the need to expediently record foreshore sites when they are visible. The ephemeral nature of these sites leaves much to chance when site recordation is delayed.



Figure 49. Deep cobbles and sea vegetation strewn upon the shore.



Figure 50. A set of the *Austria*'s bitts, nearly overgrown and buried. Note the right knob, once holding a metal ball, now full of cobbles.

CHAPTER V

THE VALUE OF A SHIPWRECK

Many Values

Shipwrecks hold many potential values—as indicators of a dynamic event, storytellers revealing a time period or event in time, holders of archaeological data, tools for education, sources of income, outlets for adventure, instigators of mystery, or even suppliers of usable materials. Antique merchants relish the economic value of shipwreck remains, scuba divers enjoy the exhilarating oddity of exploring a ship beneath the surface, beachcombers take pleasure in the surprise of a find revealing a moment in history, shipwreck hunters are thrilled by the adventure of search and recovery, and archaeologists benefit from the meticulous study of the various parts of the vessel.

Even scattered shipwreck sites such as the *Austria* hold many, if not all, of these uses. As surmised by Matthew Russell (2002), though sites consisting of scattered beach remains are often dismissed as insignificant, they can yield information about the period of construction, the processes behind site formation, and serve as a “baseline for future research” (p. 369). To this I add that sites like this are potentially promising classrooms for the education of future resource managers and site stewards. Through relative ease of access (no diving support needed), scattered foreshore sites offer an inexpensive and logistically simple look at the remains of a once-working seagoing vessel. Because of this ease of access, however, they also face increased exposure to looters as well as the destructive forces of nature encountered by being submerged and exposed repeatedly

with the fluctuation of the tides. Foreshore sites share all of the problems that underwater and terrestrial sites encounter.

A meeting of experts on shipwreck management was held at the Woods Hole Oceanographic Institution in Woods Hole, Massachusetts in 1993 (Hoagland, 1993). During the gathering, select individuals were organized to discuss such topics as public policy, ethics, technology, law, and resource management. A discussion on the value of historic shipwrecks ensued, focusing on conflict and management. One idea that was presented was that “historic shipwrecks are multiple-value resources,” ranging from public goods to private goods (Hoagland, p. 4). Hoagland asserts that, in order to understand the multi-value potential in these resources, it is crucial to understand the forces behind the dynamic shift that changes a shipwreck from a salvage resource with commercial value to a culturally significant archaeological resource. Cultural, social, and political value need to be considered when determining the best use for these resources, and meeting participants agreed that both economics and ethics must also be included in the decision-making process.

Overview of a Conflict

When researching the economic value of a shipwreck, I offered a query on the subject to SUB-ARCH, a popular underwater archaeology list-serve, on May 30, 2007 (the names of respondents have been withheld, as recommended by Central Washington University’s Human Subjects Review Board). A derisive discord arose rather quickly

regarding the subject matter, and the majority of the quotes in this section were a result of the inquiry. Though I also hold opinions regarding the matter, I will attempt to illuminate the debate in this section in an unbiased tone, reflecting both sides (and perhaps a few shades of grey) without apparent judgment. I should also note that this is a rich subject, one that could make up an entire thesis in itself, and my discussion here is by no means exhaustive.

The conflict, primarily between archaeologists and treasure hunters, has been raging for ages. Archaeologists (or “academia”) generally hold the position that shipwrecks are vessels of knowledge about our past, and intrinsically valuable because of the insight we can gain from studying them. Treasure hunters, to many archaeologists, are specters that steal the resources for their own greedy gain, making personal profit from a public resource without regard for provenience and context. Treasure hunters (or “salvagers”), on the other hand, believe that they provide a valuable service to the public by presenting to them relics from the past that they would otherwise not be able to see. They often possess the technological means and limited bureaucratic constraints that make it possible for them to recover the remains quickly. By selling these finds, they are reintroducing wealth into the public realm, and giving individuals the opportunity to hold a piece of history. To them, archaeologists are greedy keepers of intriguing treasures.

Early shipwreck salvage operations began in the 16th century, with little effect on the archaeological record (Green, 2004). The 19th century saw the dawning of underwater archaeology as a discipline as archaeologists began to take interest in shipwreck sites and directed research endeavors predominately from the surface (Green,

2004). In the 1940s, increased access to shipwreck sites was provided by the invention of the aqualung (Fontenoy, 1998). It wasn't until the 1950s that a distinction between the archaeologist and salvager camps began to emerge (Green, 2004). As maritime heritage resources were increasingly being pilfered by treasure hunters, more archaeologists declared war on the treasure hunting community.

In defense of a large-scale Florida treasure hunting operation, a member of the SUB-ARCH listserve, also a wreck hunter, proclaimed that operations such as this have taken the effort to put artifacts on display with historical documentation "so that the ordinary person can have in his hand a look at history" (anonymous source, May 30, 2007). In some cases it may be true; treasure hunters provide a means to acquire aesthetically pleasing and monetarily valuable artifacts in order to display a portion of the booty in their museums or distribute them amongst the populace. But it is likely that the vast majority fills their coffers at the expense of another truly valuable resource: the ship. Regarded as precious finds in themselves, ships can represent a preserved moment in time, an example of a style of shipbuilding, evidence of a trade route, or a piece to a larger puzzle toward understanding seafaring during a different era.

A member of the Archaeological Data Service in the UK sees this conflict as being simply about an archaeologist's thirst for knowledge against a wreck hunter's greed (anonymous source, May 29, 2007). Where archaeologists are likely to study sites for educational gain, treasure hunters are in it for personal gain—for profit. There is little doubt that some salvors have garnered considerable earnings from shipwrecks. In 1985, Mel Fisher's crew found a ship called the *Atocha*—a Spanish galleon with over \$450

million dollars worth of gold and silver (Motivation Inc., 2007). Another company, Odyssey Marine Exploration (n.d.), was recently noted for their discovery of a shipwreck (code-named “Black Swan”) holding over 500,000 silver coins; a treasure estimated at \$500 million. On the other hand, one might also argue that archaeology professionals are also participating in recovery activities for their own personal gain, whether it’s prestige, to satisfy their own sense of adventure, or as payment for their services, which, especially in larger environmental firms, can be substantial.

And then there is the discussion of publication and peer review. An Assistant Professor at Nautical Archaeology at Texas A&M University remarks that he has never seen any sort of publication or sophisticated archaeological program conducted by treasure hunters (anonymous source, May 30, 2007). Many SUB-ARCH list-serve members agree. However, personal communication with a representative from a treasure-hunting operation describes attempts at presenting the valuable information they have gleaned from meticulous documentation obtained during their investigations. Virtually blacklisted from most professional conferences and meetings, this particular publicly held company feels that it is not allowed the opportunity to contribute (anonymous source, Feb. 10, 2008). Until treasure hunters and shipwreck exploration companies are recognized as producing legitimate scientific data, there will always be a divisive rift between the parties. Fortunately, there appears to be an increasing interest in this knowledge among the general public, and a realization on the part of the treasure seekers that the objects are worth more when they are backed by a complete history.

Having much first-hand experience at the front line of this conflict, Wilburn Cockrell, Florida State Archaeologist, doesn't see the situation so black-and-white. According to Cockrell, there is so much varying opinion regarding ethics, professional ability, site significance, and interpretations of the law that it is difficult to come to agreement regarding the treatment of shipwreck sites. The ultimate threat resulting from wreck hunters, he believes, is to the database—or the information that the site provides *as a whole* (Cockrell, 1998). Once the site is disturbed, that information is gone forever.

Over time, there has been an increased interest in the preservation and interpretation of shipwreck sites for public use. In 1964, the president of the Florida Keys Underwater Guides Association wrote to the governor of Florida, concerned about salvage operations, asking to preserve historic shipwrecks “for the present and future enjoyment of the public” (Spirek & Scott-Ireton, 2003, p. vii). Since that time, many archaeological professionals have made strides towards revealing the history contained in these sites to the general public. The value of the shipwreck site as an educational tool has slowly been discovered by some of these professionals, and they are joining forces to encourage public education through interpreted parks, trails, and preserves. The idea is to “foster in the visitor a sense of preservation through stewardship and to provide education through recreation” (Spirek & Scott-Ireton, p. ix). Many treasure hunter/salvager groups have also hopped on the education bandwagon, including Mel Fisher's Motivation, Inc. and Odyssey Marine Exploration. They have taken great strides in incorporating professional archaeological data recovery, historical research, meticulous conservation, and education and outreach programs as a major part of their efforts.

According to Halsey (1990), artifacts can hold emotional, scientific, and interpretive value among collectors, historians, and the general public. Halsey perceives the biggest threats to shipwrecks come from those who have the most interest in them: sport divers, salvors, and underwater archaeologists. His belief is that there is, indeed, a need to collect some artifacts for study and exhibition, “but these should be kept to an absolute minimum, taking only what is needed to tell the story” (1990, p. 51).

The 2001 United Nations Educational, Scientific and Cultural Organization (UNESCO) Convention on the Protection of the Underwater Cultural Heritage, adopted by the UNESCO General Conference, “intends to enable States (or “Nations”) to better protect their underwater heritage” (UNESCO, 2001). The result of the Convention includes a 7-page document encompassing 35 articles followed an Annex outlining 36 rules concerning activities directed at underwater cultural resources. The primary determination by the Conference is that all submerged cultural resources, unless under immediate threat, should remain “preserved” on the sea floor forever. Artifacts must *never* enter into commerce. The UNESCO treatise offers opportunities for public outreach and education through such things as underwater museums, photography, illustrations, and videography. However, for many, this simply cannot replace the ability to study an artifact in person, or capture the same interest and wonder as a real artifact—especially in conventional museum settings. There is also the question of preservation. How long, in reality, can artifacts and shipwreck remains exist on the sea floor, where they are subjected to fishing nets, currents, corrosive elements, and sea-life? Would recovery and conservation be better? There are inherent risks in both action and

nonaction. The Convention recently acquired the final ratification necessary to put it into force, and will go into effect globally in January 2009 (UN News Service, 2008).

What has resulted from this conflict is a breakdown of communication, a code of secrecy, and an ever-growing rift between the camps. Some hope that there will be a tie that can bind the two groups through cooperation and maybe even collaboration. Many suspect that education and outreach will be a big part of that endeavor.

Shipwrecks as Educational Tools

In the early 1970s a differentiation arose between cultural resource management (CRM), which dealt more with salvage and recordation as a result of development, and academic archaeology, concerned with broader research questions. The term “public archaeology” was coined in McGimsey’s 1972 volume of the same name, and was associated directly with CRM due to the fact that it relied heavily on public support to promote protection and mitigation. Over time, however, the increasing professionalism of the field encouraged the management of cultural resources on *behalf* of the public rather than *with* the public (Merriman, 2004). This trend has led to an unfortunate exclusion of the public from archaeology. As Green (2004) asserts, “sites do not necessarily ‘belong’ to archaeologists, but instead are a cultural resource that belongs to everyone” (p. 3). Over the past several years there seems to be a push towards the re-involvement of the general public in archaeology—whether through personal interpretation or directed education—and many programs have developed as a result.

Any web search on the subject of shipwrecks as educational tools yields a wealth of programs espousing the value of these sites. For example, Pennsylvania Sea Grant's Project STEAR (Shipwreck Training Education Archaeology Research) offers interactive games and educational materials as a means "to promote math and science skills, environmental awareness and stewardship, and to motivate and inspire youth through scientific exploration" (Education-Resources, n.d.). Another program, the Lake Champlain Maritime Museum's Field Trip program, provides the opportunity to visit an actual wreck via a remotely operated vehicle (Lake Champlain Maritime Museum, n.d.). The Queen Anne's Revenge project, supported by the North Carolina Department of Cultural Resources, promotes the protection of maritime heritage sites through limited shipwreck site visits for experienced divers (North Carolina Department of Cultural Resources, 2007). Several field school opportunities are available for those interested in hands-on experiences, such as the Past Foundation's Boca Chica Shipwreck field school (Past Foundation, 2006), Flinders University's field school in underwater archaeology (The Museum of Underwater Archaeology, 2007), and the University of San Diego's nautical archaeology field school (University of San Diego, 2007).

An additional query on October 17, 2007 to the previously-mentioned SUB-ARCH listserv about the subject of shipwrecks for education yielded over a dozen responses from archaeological professionals and treasure hunters alike, directing to project websites and literary sources in support of the educational value of these resources. Smardz-Frost (2004) attests to the growing interest in educational archaeology projects, and notes that they are often very driven by the agendas of stewardship and

preservation. “Archaeologists from every branch of the discipline are becoming aware of the need to reach and teach the members of the general public,” Smardz-Frost states, “They do this in order both to engage their enthusiasm to help in site preservation, and to enlist their support in political, legislative and financial arenas where decisions that affect heritage conservation are made” (p. 80).

Smith (2002) affirms that “education is the mightiest tool archaeologists possess” (p. 585), and many “hands-on” programs have been developed with this in mind (referred to as *creating the experience*; p. 587). One example similar to the 2007 *Austria* field school program was an opportunity offered at North Carolina’s Kure Beach Unit, where experiential learning involving the recordation of beached shipwrecks successfully combined “mud, kids, and old shipwrecks” (Smith, p. 587). The experience, Smith asserts, was a phenomenal amalgamation promoting maritime education. Every student was a part of the experience—there was no standing on the sidelines. They were encouraged to make connections themselves, unraveling mysteries both on their own and as part of a team. According to Smith, “The feeling of success enfranchises the youth of our nations, giving them ownership of their own histories and stewardship of our fragile past” (p. 588). Adding to these benefits is the camaraderie that happens between participants. As Little (2007) humorously puts it: “Particularly in the experience of fieldwork, archaeology can serve a nearly ritual function as it bonds people together in doing something a little strange” (p. 4).

Watts and Mather (2002), add to the discussion of public archaeology by surmising that professional archaeologists “recognize that the privilege of investigation

carries responsibilities to the public,” which includes “publishing in nonacademic journals, supporting education and training programs for the avocational, and providing opportunities for the public to have controlled access to the archaeological record and the cultural material that it comprises” (p. 609). They list over 40 such programs around the nation and abroad, all of which involve submerged shipwrecks or museum-based courses. Public education programs, both authors feel, are perhaps the most important contributions archaeologists can make. Not only do the participants benefit; projects with such educational programs are more likely to find future funding.

The Plenum Series in Underwater Archaeology’s publication *Submerged Cultural Resource Management: Preserving and Interpreting Our Sunken Maritime Heritage* (Spireck & Scott-Ireton, 2003) includes over a dozen articles illustrating the theory and concept behind underwater parks, the application of education and outreach programs, and the development of interpretive trails. Though sites like the *Austria* are accessible on land rather than solely underwater, the concepts are still applicable.

Another organization noted for their use of shipwrecks as educational tools is the Underwater Archaeological Society of British Columbia (UASBC). Founded in 1975, UASBC as a non-profit organization “dedicated to promoting the science of underwater archaeology and to conserving, preserving, and protecting the maritime heritage lying beneath our coastal and inland waters” (Stone, 1994, p. 5). The UASBC conducts inventories of submerged cultural sites that are not being addressed by professionals, and strives to provide location data, conduct historic research, and report on the status of the sites to aid in conservation management (Stone).

Promoting Education in the Sanctuary

Since the inception of the sanctuary in 1994, OCNMS has made a charge to promote education through public outreach. According to Terrell (2002), OCNMS relies heavily on public volunteers to assist with the sanctuary's cultural resource management, including the development of and collaboration with such programs as the local Westend Shipwreck Project (volunteers who gather interviews pertaining to local maritime lore locally), California's CMAR team (a group who helped with a four-year survey of the Cape Flattery area and database compilation), and the initial survey and recordation of the *Austria* in 1997 (which included the participation of volunteers).

In 1996 and 1998, two-day workshops were implemented to discuss research and education opportunities, followed by development of the National Marine Sanctuary Education Plan in 2000. Olympic Coast National Marine Sanctuary Research Workshop (1998) addressed financial support for research projects—the first step in any outreach program - and challenged participants to increase the level of research opportunities (NOAA, 2001b). Workshop participants additionally talked about the promotion of education programs, including presentations at schools, information exchanges with museums, the establishment of volunteer opportunities, the development of an underwater field school, and the development of publications (both interpretive and academic).

Adding to the push in education and outreach, the National Marine Sanctuary System (NMSS) developed a 10-year education plan in 2000 to be implemented in all of

the Sanctuaries. This plan, aptly titled *The National Marine Sanctuary System Education Plan*, lists eight goals (NOAA, 2000, p. 5):

1. Provide leadership for the future of national and international marine science education.
2. The NMSS education is proactive in planning and implementing educational programs at each site and at the national level.
3. The NMSS will build and sustain an effective and efficient education team.
4. The NMSS will develop a network of interpretive facilities that will heighten visitors' experience and convey sanctuary messages.
5. NMSS will strategically build and maintain effective connections with the educational community.
6. The NMSS will equip the education team with the appropriate tools and training necessary to ensure its effectiveness.
7. The NMSS will recognize the significance of education in the program, and will provide and maintain a level of funding that enables the education team to carry out the tasks outlined in this plan.

8. The NMSS will create communication strategies to protect the nation's marine resources and serve its geographically and culturally diverse communities.

With these goals in mind, OCNMS is setting out to increase public awareness. A direct result of the Plan, the new Discovery Center, which opened at the waterfront in Port Angeles, Washington in 2004, is attracting audiences from all over the world (it was strategically placed near the US/Canadian *Blackball* ferry run). The Center highlights numerous shipwrecks, as well as scientific research at the sanctuary, technology (a magnificent model of a remotely operated vehicle hangs from the ceiling), prehistory and history of the area, and illuminations of the varied marine life.

As video has become a more accessible medium, there has been rising appeal in utilizing it as a tool for public outreach and education as well as scientific documentation. Janet Lamont, Volunteer Coordinator and Manager of the Olympic Coast Discovery Center, has expressed a great interest in acquiring video footage to display in the Center (J. Lamont, personal communication, October 18, 2006). Endeavors in documentation are also making strides with video and film, as Roderick M. Farb demonstrates in his article, "Computer Video Image Digitization on the USS Monitor: A Research Tool for Underwater Archaeology" (1992). The use of the medium can speed up the process of site or artifact recordation, as well as provide a spatial component to site layout and artifact distribution that is difficult to portray with still images or site maps alone. Daniel Lenihan (1989), during his study of the *USS Arizona*, found video to be extremely

beneficial not only in making sense of mapped points and features, but also as a means to keep the public involved in the project as it was happening.

CHAPTER VI

RECOMMENDATIONS AND CONCLUSIONS

Shipwreck sites are a public resource; they yield a fascination for archaeologist, treasure hunter, and citizen alike. In managing these resources, we must try to avoid a *Tragedy of the Commons* (see Hardin, 1968) scenario, where conflict between self-interest and the common good ensues over finite resources. A beachcomber happening upon an artifact on the shore will find joy in that relic, but once they pocket it no one else will benefit. Leave it be and the next person may take it for themselves, or—perhaps even more tragically—it will be lost to the sea forever, taking with it potentially archaeologically significant information and an intriguing glimpse into past events. Foreshore sites present an opportunity to access shipwreck remains with relative ease and offer the chance to introduce many people to what is left, encouraging an appreciation for maritime heritage and instilling in them a respect for what remains; for the sake of site integrity and with regard to the potential others who may happen upon it.

Green (2004, p. 371) offers a model cultural resource management plan in an effort to fulfill the desires of archaeologists, resource managers, and the public alike. His plan consists of the following nine steps:

1. Identification of the issues
2. Identification of the resource
3. Identification of the interest group
4. Establishment of the infrastructure (the organization and equipment)

5. Locate sites
6. Develop plans and implement these plans to manage sites
7. Educate to create attitudes that understand the need for protection of sites
8. Training
9. Publication

Green then immediately follows with five steps toward planning an archaeological research program, including:

1. Geophysical survey to determine the extent of the area that is to be managed
2. Location of archaeological sites
3. Predisturbance recording of the sites
4. Archaeological investigation and excavation of the sites
5. Education, which is the process of communicating the archaeological information to as wide a group as possible including the general public, divers, local people, the tourist industry, and professionals

Education plays a large role in both of these plans and can be implemented in many different forms: through education programs like field schools, interpretation at visitors centers, video to be broadcast in public venues, brochure distribution at common tourist locales, classroom curricula, and on-site or trailhead interpretive signage.

In the case of the *Austria* shipwreck site, and many foreshore sites like her, interpretive signage near the site location could be useful in informing beach visitors that a historic site is indeed located in that area, and that the artifacts they may encounter are small, necessary parts of a larger picture rather than solitary insignificant items. This could potentially deter collecting, or, at the very least, provide some historical context to the artifacts ensuring that they would represent something meaningful to the people who see them rather than just be another mysterious lump on a dusty bookshelf. One fear, however, is that interpretive signage may actually draw the attention of potential looters who otherwise would not have known of the site's location or significance. Because of this, interpretative displays at venues away from the actual site location may be preferable. Visitor's centers, such as the Olympic Coast Discovery Center, the Makah Museum, and the Olympic National Park Visitors Center may provide a better location for signage or brochures.

One of the more profound ways to impart the importance of maritime heritage and foreshore shipwreck sites to the public may be through experiential learning programs. The 2007 archaeological field school at the *Austria* site was a success, and I have received many requests from students to participate in future field schools at the site. The crew located and recorded all of the previously documented artifacts as well as numerous additional fasteners and bolts. A dense packet of information, including sketches, photographs, video, student reports, and a GIS data table pinpointing the artifacts was completed and provided to OCNMS. The students proclaimed their satisfaction with the project, performed exceptionally, completed their assigned research report on time and

with good effort, and, perhaps most importantly, developed a strong sense of stewardship with the site. Additional experiential learning events, perhaps even incorporating a survey for other foreshore shipwreck sites, will further promote an appreciation of maritime heritage resources in OCNMS.

In summation, I would like to make the following recommendations:

1. that the *Austria* site be registered with the Makah Tribal Historic Preservation Office and the Washington State Historic Preservation Office to aid in the legal protection of the site and to contribute to the growing archaeological record;
2. that the *Austria* site is not eligible for listing on the National Register of Historic Places;
3. that, given the ephemeral nature of foreshore sites, as demonstrated by repeated visits to the *Austria*, these sites be investigated with urgency when the opportunity arises;
4. that video from the previous field season be utilized in the sanctuary's visitor's center to help promote site preservation; and
5. that Olympic Coast National Marine Sanctuary continues with experiential learning programs as part of their cultural resource management program, incorporating the use of video in outreach programs.

The use of video was an immense contribution. It served as a tool for recordation, a storage device for documentation, an icebreaker for students, a record of students' thoughts and actions, and provided a means for disseminating information to a broader public audience. Small video clips that were produced from the footage have already received positive responses from viewers. There is great outreach potential through the use of video, and future presentations will only add to an appreciation of shipwreck sites and maritime history. More and more, students are expecting entertainment as part of their education curriculum, and video can be a concise, cost-effective, and extremely interesting medium. Museums have, with great success, relied on a mix of entertainment and instruction for years (Gardner, 1976). A combined effort incorporating volunteers—especially as education and outreach programs—with the expediency of video will help with this endeavor.

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