Historic shipbuilding of the Pacific Northwest of North America: A thematic analysis of regional museum exhibits

By
Clifford T. Wilkey
Flinders University - Student ID 2232189
wilk0307@flinders.edu.au
S2 2024

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Abstract

Since the 1960s, the public has considered maritime archaeology primarily as dealing with shipwrecks for their understanding of past people and cultures with which these vessels interacted (Ford et al. 2020:11). More recently, the field of maritime archaeology expanded its interests to include other aspects of maritime activities, including aspects of submerged landscapes and coastal industrial sites. This last interest is related to aspects of a ship's lifecycle as it has recently gained attention, especially over the past two decades, focused on the shipyards, whether an active urban waterfront or a rural riverway (Moser 2011:835). Shipyards produce maritime cultural materials ranging from the vessels themselves to fixed maritime structures and portable tools used by many shipbuilders throughout the centuries.

An investigation of historical shipbuilding relies on the ship's remains and the materials used to create that vessel. The material could range from the most minor tool, such as a wood file, to the immovable infrastructure needed to support the vessel's construction, like slipways and sheds. Smaller shipbuilding endeavours rarely leave many traces within the archaeological record, as these sites sometimes need proper identification (Moser 2011:849). In contrast, the more prominent shipbuilding locations involving a business or government entity would leave more traces along the shoreline site as these sites have long-lasting infrastructure (Moser 2011:847–849). Examples of durable structures at a shipyard include its slipway and vertical posts embedded in the intertidal zones (Stammers 1999:259).

Shipbuilding within the Puget Sound and Strait of Georgia regions, located in the northwestern section of North America, began in the second half of the 19th century and continues until today. A few historic shipyards survived to the present day primarily as just structural remains along a shoreline, while most have perished. This is where the museum's role comes into play and takes those perished sites and construction materials to present them as an educational opportunity to the public. Through these spaces, the public, whose knowledge about historical shipbuilding could range widely, provides an opportunity to showcase the maritime cultural materials and the individuals' stories from the region's maritime past. As the public gains more knowledge and experience with wooden

shipbuilding from first-hand observation within a museum, they could apply this knowledge to other situations when they encounter such vessels in other environments. This study investigates six maritime museums to find how they present the subject of shipbuilding in general and, more specifically, the local maritime traditions and people of shipbuilding throughout the central waterways of the Pacific Northwest to their visitors through exhibits.

Background

Shipbuilding within Puget Sound in North America began in the middle of the 19th century in response to California builders' demand for quality Northwest Coast Douglas fir lumber. Builders highly desired this wood for its durability, growth to 60 metres, and resistance to decay (Cline and Knapp 1911:67; Perem, McBride, and Keith 1981:11–12). The lumber demand then expanded to other cities and ports throughout the Pacific Ocean (Hitchman 1990:37). Mill companies determined that it was more economical for the business model to support a private fleet of ships to transport their lumber cargoes rather than to rely on another shipping company while paying additional operating costs (Coman and Gibbs 1978:15). The easy access to milled timber allowed regional shipbuilders to supply those same mills a regular flow of new transport vessels as well as offering repair services for their aging ships.

The study of historic shipbuilding includes more than just the manual process of building a ship; it also includes studying the people involved. It also utilised a thematic approach to compare exhibition spaces within six museums around the Puget Sound region. Braun and Clarke's (2022) six-step approach provided the structure for determining the themes used to compare the museums. The materials used as data in this analysis primarily source from the maritime cultural objects found with each of the exhibitions, as well as printed signage and other forms of multimedia, as these mediums provide supplementary information to explain or engage museum visitors with the cultural materials on display.

Using thematic analysis to compare the six museums throughout the Pacific Northwest of North America allowed for viewing the variation of themes and how the public understood the exhibition materials through these themes. By approaching the study of exhibitions

through the lens of thematic analysis, all sites maintain a consistent interpretation of the maritime cultural materials found within each.

Statement of the problem

Published studies involving shipyards and shipbuilding activities typically come from a historical perspective and use documentary sources. At the same time, those studies with an archaeological approach are fewer and have a limited scope in their design (Moser 2011:836–837). Even less discuss the individuals who worked constructing those vessels. There is a research gap between these material and cultural studies and the public education related to shipbuilding, particularly in the maritime region between Seattle, Washington, and Vancouver, British Columbia. This region housed many shipyards over the past century and employed thousands of people of diverse cultural backgrounds, highlighting the inclusivity of this study. Shipbuilding was essential to the region's social, economic, and military development during their operations. As modern shorelines repurposed themselves for new industries and those historic shipyards disappeared or closed their workshops, the museum spaces provided the forum to engage the topic of shipbuilding directly with the public. Archaeology concerning shipyards must incorporate topics more than just a physical investigation of the industrial site, as it could result in just a 'descriptive site report or database entry (Harris 2014:6615).

Scope of the study

The scope of this study focused on shipbuilding within the greater Puget Sound and Strait of Georgia regions of the Pacific Northwest of North America through an investigation of maritime materials found in those museums' exhibits (see map on page 26). The term 'Pacific Northwest' in American archaeology typically refers to the entirety of the regions of southeast Alaska, western British Columbia, Washington State, Oregon and northern California of the United States, much of their marine territory encompasses the coastline of the Pacific Ocean. This study focuses on the interior areas of water away from the

immediate coastline facing the Pacific Ocean. In addition to the geographical limitation, this study focuses on the activities of the American, European, and Asian shipbuilders and the diverse workers who settled in this region to build the vessels. While Indigenous people also constructed canoes and other marine vessels throughout this same period, this study excludes the topic of traditional Indigenous boat construction.

Six regional and local museums are the subjects of this study's research. The first five are the Bainbridge History Museum, the Museum of History and Industry in Seattle, the Poulsbo Maritime Museum, the Harbor Maritime Museum in Gig Harbor, and the Vancouver Maritime Museum. Investigating each of their collections involved examining the site's maritime materials on display within their exhibition halls and documenting the signage accompanying these objects.

The sixth locale included in this study is an existing historic shipbuilding facility, the Britannia Shipyards National Historic Site, in Richmond, British Columbia, Canada. This site showcases how historical structures and immersive activities related to shipbuilding became a tourist destination. The approaches provided by public archaeology allow viewing both sites through the lens of how they educate the public about historic shipbuilding activities.

Research aims, objectives, and research questions

The aims of this study are:

- Understanding how museums present the subject of historical shipbuilding to the public;
- Investigate how exhibit displays integrate within the overall purpose of public education; and
- Explore workers' contributions to learning about local shipbuilding.

The objectives of this study are:

- To document each museum's exhibits and how they present cultural materials and the people related to the region's shipbuilding.

- To conduct a desktop assessment of the literature related to these sites and throughout the region concerning shipbuilding.
- To analyse how exhibits reveal various maritime-focused themes within each museum's exhibit spaces and then compare how the themes appear in each museum.
- To understand how aspects of public archaeology within the context of museums engage with the community and encourage their participation.

This investigation answers these three research questions:

1. How extensively do museums present the topic of historic shipbuilding in terms of maritime materials and the associated people within their exhibit spaces?
2. How do the engagement models found at each museum work when presenting their maritime materials and historical people to their visitors?
3. How do the themes found within the shipbuilding exhibits vary when comparing the studied museums?

Justification

A limitation exists in the study of themes among maritime cultural materials and the individuals who used them within the extent of published research, and this study contributed to that growing body of data and its interpretation. The information contained within highlights the types of maritime materials, the people, and the themes found within display engagements at each of these six museums around the Pacific Northwest, as the data is nearly impossible to obtain without visiting the facility oneself. This marine-related information would interest maritime archaeologists, maritime historians, and cultural anthropologists researching such topics.

Through the study of building wooden sailing vessels, non-specialists learn about the construction of ships and how these same ships could deteriorate if left in a derelict state. With this new knowledge, the public could better understand how shipwreck structures appear in the archaeological record, on display within a museum, or when viewing the

wooden structures of historical vessels that may still be in use. A desktop assessment found little in survey inquiries about the population's popularity or knowledge level throughout North America. Within the United Kingdom, a formal survey by Heritage Crafts, the Pilgrim Trust, and the Wooden Boatbuilders' Trade Association asked UK boatbuilders about resulted in an endangered field classification (Henwood and Lewis 2023). In this survey of 90 respondents, its conclusion resulted in classifying the field as endangered for several reasons, including most people in the boatbuilding field are growing older, and the costs involved are high for most people (Henwood and Lewis 2023:8–12). If North America had a similarly conducted survey, it is possible that results would be comparable given that the two regions share many common industries and workforces.

Structure of the thesis

- The first chapter of this study provides an overview of the history of shipbuilding in the Pacific Northwest, the current research gap, and the study's purpose.
- The second chapter reviews the literature on archaeology, museum studies, and the application of thematic analysis over the past decade.
- The third chapter details the data collection method used for this study and how the data generated the various codes and themes that conformed to Braun and Clarke's multiple-phase thematic analysis approach.
- The fourth chapter provides a site-by-site review of all the data collected. Each museum review comprises two sections: a review of the material objects displayed in each exhibit and a section discussing all the signage presented for visitors to read about the objects themselves or aspects related to shipbuilding.
- The fifth chapter analyses the data to answer the research questions found in the second chapter. Finally, it provides an interpretation of the current state of educating the public regarding shipbuilding.
- The sixth chapter concludes with a review of the key findings from the data collection analysis, a summary of the analysis, research limitations, and recommendations for future work.

Chapter 2. Literature Review

Introduction

The literature regarding the theoretical and practical approaches of professional archaeologists engaging with the public is ample (Matsuda and Okamura 2011; McGimsey 1972; Merriman 2004; Moshenska 2017). Meanwhile, the literature focused on public archaeology's approach to educating non-specialists about historical shipbuilding using museum materials is severely deficient. Within the museum environment, archaeologists and museum staff work with cultural materials to provide an educational experience for their visitors.

This chapter begins with the theoretical groundwork of public and museum archaeology and its applications within museum environments. Next, case studies from modern literature present research into maritime history and archaeology. Finally, this chapter concludes with an explanation of the research gap and its relationship to the purpose of the study.

Public archaeology

In the opening statement of his book, archaeologist Charles McGimsey wrote that 'there is no such thing as "private archaeology"' (McGimsey 1972:5). He stated that archaeology, its materials, and the resulting knowledge belonged to the entirety of the public due to its use of governmental funds at that time (McGimsey 1972:24). His proposal centred around the idea that government entities would perform archaeology on behalf of public interest, as the government was representative of its people.

McGimsey's public archaeology concept developed over several decades to encompass cultural resource management, including archaeology in educating the public and community involvement within the field (McDavid and Brock 2015:160–165). Nick Merriman of University College London saw the field of archaeology becoming more professional since the time of McGimsey and recognised that the diversity of voices of both past and present communities was missing from the presentation of the archaeological discussion (Merriman

2004:3). He proposed two approaches for archaeologists when engaging with the public: the 'Deficit Model' and the 'Multiple Perspective Model' (Merriman 2004:16–17). The former model assumed the public needed to fill a deficiency in their knowledge concerning the past as seen through the archaeological record. The latter model, in contrast, encouraged the engagement of various people and, through their agency, to have a 'reflection and creativity' in the materials brought forth by archaeology (Merriman 2004:17).

Even in just this past decade, these approaches have seen further developments. Akira Matsuda of the University of Tokyo expanded Merriman's two-approach model to four, as summarised in Table 1. Instead of viewing the public's lack of knowledge in archaeological topics, Matsuda saw it as an opportunity to view a 'deficit' for educating the public and espousing the field's virtues. Matsuda considered the second group ground in theory as they dealt with the views of the 'other' and their considerations within archaeological research. The purpose of archaeological materials within a museum's exhibit space is to educate the visitors and expose them to interpretations of modern archaeology. The field has come a long way from the early days of treasure hunting and showcasing the finds in a personal collection. Modern archaeology is progressing by including many people, backgrounds and voices who may be critical of other archaeologists and their interpretations. Understanding and then integrating the multi-vocal nature of the 'public' in research better situations in archaeology into the diversity of the 21st century.

	More practice-oriented		More theory-oriented	
Merriman's models (2004)	deficit model		multiple perspective model	
Holtorf's models (2007)	education model	public relations model	democratic model	
Four approaches to public archaeology	**educational approach**	**public relations approach**	**pluralist approach**	**critical approach**

Table 1 Comparison of the approach models (A. Matsuda, 2016).

The 'public' of public archaeology

A common discussion throughout the literature concerning public archaeology is how the authors interpret the word 'public'. Who or which groups compromise that term? As many concepts vary between archaeologists within the field today, the term 'public' means different things to different people. For a reader, understanding how a writer uses the word 'public' early in their reading sets the context for the rest of the literature.

In the collected work edited by Nick Merriman, the book's opening section asked, 'What do we mean by 'the public'?' (Merriman 2004:1). This would indicate that the question remained unanswered for over thirty years after McGimsey. Merriman acknowledged there are two specific meanings related to the term 'public' when discussing the topic beyond the historical usage referring to a 'collective body of citizens (Merriman 2004:1). His meanings came down to the dual concepts of 'the state' and 'the people' (Merriman 2004:2). 'The state' as a singular entity acts on behalf of its citizens, while 'the people' is a collective term encompassing everyone found within that country or community. A challenge to the widespread use of the term 'public' is that the explanation fails to address the multi-faceted dimensions of the entirety of people within a given population (Merriman 2004:2). When using the word 'public', the need to recognise that some people are intensely interested in archaeology and others are not or have alternative views.

A second archaeologist, Tim Schadla-Hall, considers the 'public' as anyone who is not an academically trained archaeologist (Schadla-Hall 1999:147). He saw public engagement occurring more within American archaeology as 'different interests and stakeholders, as there was active work with the Indigenous communities' (Schadla-Hall 1999:150). In Europe, he believed public-facing activities typically occur primarily within museums, given their continuous interactions with visitors (Schadla-Hall 1999:150). He suspects that European archaeologists pay little credence to the interpretations by the public within the field and lessen the importance of public archaeology within their activities (Schadla-Hall 1999:155).

The type of involvement by non-professionals within maritime archaeology can differentiate between the public interested in the subjects of history and archaeology while another group of individuals would be the 'citizen scientists'. This second smaller group of

individuals is set apart from others in the 'public' as they actively gather and handle data from archaeological projects (Scott-Ireton et al. 2023:1). In contrast, 'public' are those who engage with archaeology by visiting museums, attending public lectures, or may partake in limited hands-on activities to experience what an archaeologist may perform during their fieldwork. They have minimal involvement with the actual process of archaeology.

Museum archaeology

In the introduction of the Oxford Handbook of Museum Archaeology, Alice Stevenson noted that academic literature discussing archaeology and museum studies 'rarely intersected in a substantial or sustained way' (Stevenson 2022:3). When such an intersection occurs, it takes form within a museum's exhibited displays with an archaeological narrative related to the cultural materials positioned within a collection (Stevenson 2022:3). It is through these encounters of museums and their exhibitions in which the public, as a visitor, comes face-to-face with the past and learns about that subject (Swain 2007:4). These exhibits may be the first opportunity for a portion of the visitors to learn about new topics related to region's archaeology and history. The museum tended to be the end of the line for most archaeological work after the excavation and acquisition of the artifacts, resulting in the next step providing the opportunity to display these cultural materials for the public's consumption (Stevenson 2022:3). This perception draws a distinct line between the work conducted by the archaeologist in the field and the transformative work of curators in the museum, who play a crucial role in bringing the past to life for the public.

At this point, the role of a museum archaeologist becomes crucial. They can bridge the gap between archaeology and museum studies, turning the public from passive observers to active participants in the investigative process (Swain 2007:12). Many museums suffer from a shortage of staff with a background in archaeological studies, which can lead to a lack of qualified specialists in the field. This shortage can impact the quality of displays and exhibit descriptions (Stevenson 2022:4).

Along with the museum's displayed artifacts, signage typically supplies information on many of the objects, allowing the visitor to understand better what it is, its utilisation, its age, or

providing questions for the reader to further think about afterwards to engage them to further interpret the object and its usage by people of the past. Through this avenue, museums interweave the cultural material, the museum environment, and the interpretation through narratives for the visiting public (Stevenson 2022:3; Swain 2007:13). Literature from both fields of archaeology and museum studies tended to remain siloed, and they rarely crossed over to the other side to integrate the subject matter of the two realms (Stevenson 2022:3).

Swain classified the types of museums into three categories: the great civilisation museums, regional museums, and site museums (Swain 2007:35–39). For example, in this comparative study, the classification of the Poulsbo Maritime Museum is a regional museum, as it exhibits the maritime history of the region surrounding the town of Poulsbo, Washington. In contrast, the Britannia Shipyard is a regional and site museum as its facilities incorporate the historical boatshed structures and display the region's fishing and boat-building past. Classifying these museums allows for comparing their size, the content of their cultural materials, target audiences, and the specialisation of their staff members.

An issue that museums encounter today, including maritime and ship museums, is the need for exhibits and the displayed materials to interest a wide range of visitors. Philip Byrd discussed the need to expand the presentation of the U.S. Liberty ship John Brown, a vessel with a long history rooted in World War 2, and afterwards as a high school and finally a ship museum (Byrd 2017). He saw the vessel's presentation stuck in the World War II era, which limited the experience to a narrow part of the vessel's life and all of those who encountered it. As fewer people were interested in that period and that generation passed away, the number of visitors to the museum decreased year after year. To draw in new visitors, Byrd proposed expanding the exhibit to incorporate the other periods of the museum's vessel with oral stories of those who attended ship-bound high school or how the management organisation refurbished the aging ship and continues to maintain the vessel today (Byrd 2017:63-64). Personal stories and imagery of the people associated with a site or ship give the visitor a more personal connection with those past individuals by giving them a name and a voice. A shipbuilding workshop filled with hand tools and machinery could interest a modern-day woodworker. Still, including story placards telling visitors about the workers

adds another layer of an individualised touch. It may allow the visitor to see someone in their family's past shaping a board that will go onto a ship under construction.

Literature of thematic studies

The application of thematic studies has been part of research within maritime archaeology for decades. Nathan Richard provided a historical perspective of thematic studies within Australia, mainly how it developed from the earlier approach of historical particularism to the more recent concept of an 'idea' (Richards 2006:53). Richard discussed that thematic studies within Australia fell into two groups. The first consisted of sites bounded within a specific geographic region, as the theme of one's research is specific to sites or materials found within a specific area. The second group was that of studies whose primary focus is on themes, especially topics centring around behavioural issues found within the changing nature of ship construction or the economics of maritime vessels, to name a few (Richards 2006:48–52). Richard views the development of thematic research as a step that occurs early in one's investigation, as the researcher was already interested in pursuing the theme. This approach runs counter to reflexive thematic analysis (RTA), as that approach develops themes directly from one's dataset, as set forth by Bruan and Clarke (2022). Rather than beginning research with predetermined themes, RTA's approach has the gathering of data precede the creation of the themes. Although both have different approaches to forming themes, they result in similar goals of interpreting beyond a single site or event to better understand past people and their 'behaviours' spanning geography and time.

Within North America, maritime research involving thematic analysis emphasises regional studies to provide a limit on the scope of a research topic. Ben Ford wrote about the maritime cultural landscape of Lake Ontario (2017), and his approach to the regional study examined beyond the modern-day political boundaries of the United States and Canada and interpreted the entirety of shoreline communities of the past (Ford 2017:11–12). Cultural experiences and interactions with others around the lake influence the individuals working in that maritime space. Like Lake Ontario, the region of Puget Sound and the Strait of

Georgia to its north, people were in continuous contact, allowing for exchanging ideas and experiences.

Another approach to thematic studies is Cláudia Garradas and Alice Semedo's utilisation of a data-first method in determining the themes of their study regarding education with maritime museums (Garradas & Semedo, 2023). This approach of data-first-then-theme is based on the reflexive thematic analysis model by Braun and Clarke (2022). It was from a desktop assessment of museum websites and interviews with staff, these two researchers developed four research questions and themes for analysis related to the museum's objectives in education, how they 'effectively engage', how they 'promote inclusivity and accessibility', and how to 'address contemporary and contested subjects' (Garradas & Semedo 2023:64). This article showed how RTA can apply to subject matter of maritime museums and how these facilities approach educating their public about history.

Empirical research

Like the published literature on public and museum archaeology related to the public's education of historical shipbuilding, the published literature with detailed case studies investigating the topic within museum environments was also meagre. The application of public archaeology at an archaeological site or within a museum environment varies widely, as the definition of public archaeology could include many aspects of the archaeological field. Moshenska states: 'One of the challenges of public archaeology is its all-encompassing nature … while its practice ranges from grassroots community activism to high-level international diplomacy' (Moshenska 2017:3).

Using signage or object tags is one of the primary methods of educating the visitors to the museum's exhibits and artifacts. The investigation of how signage and its associated textual content are of interest to both archaeologists and museum specialists as it is one of the forms of passive communication to reach the non-specialist. Signage has been integral to museum displays for many years (Skeates 2002:209). Robin Skeates surveyed the usage of texts within museum environments, particularly those found within the United Kingdom. His survey also included an analysis of the previous criticism of signage presentation since the

1980s, in which he described the texts as narratives, social constructs, and educational tools, and the attached labels devalue the objects (Skeates 2002:211). More recently, museums shifted to a 'cultural approach' to label-making. Their texts include different perspectives in interpreting the objects as opposed to a single authoritative voice of the museum's curator and incorporating a 'dialogue' between the words of the curator and the visitor (Skeates 2002:211–213). An example of this cultural approach occurred at a gallery in the Museum of London in 1994, and Nick Merriman initiated its usage (Skeates 2002:212). Merriman and the museum staff realised that the displays needed an additional historical explanation as most of their visitors were children or people from outside the local region (Skeates 2002:213). Understanding the types of visitors, from their prior exposure to the exhibited materials and the general knowledge about a part, is critical for any museum text to engage with the public and allow the visitors to independently generate their interpretation of the cultural materials.

As with terrestrial archaeology, maritime archaeology supplies a similar public engagement with maritime subjects. The recovery of the Civil War submarine, H.L. Hunley, from the bottom of Charleston Bay, South Carolina, United States, ignited public interest in this maritime vessel and its military history (Hunter 2007:214). The Warren Lasch Conservation Center opened for public tours during the vessel's multi-year conservation project. Nick DeLong, a maritime archaeologist at the Center, described in an interview that the purpose of having the real submarine displayed behind a large viewing window inside its conservation bath is to have 'public engagement … interest … and appreciation' (American Battlefield Trust 2024). Also housed within the museum space is a reproduction of a section from the submarine, allowing the visitors to experience first-hand the restricted environment in which the sailors of H. L. Hunley operated the crank propulsion.

The Roskilde Viking Ships Museum in Denmark is an example of such a site museum; according to the Swain classification method, a part of the museum overlooks the waterways where the recovery of these historical Viking ships occurred and are now on public display (Swain 2007:246–247). Simple black metal frames hold the surviving timbers of each ship together to showcase the vessels' wooden structures. Museum specialists strategically placed descriptive signage along the sides of the room to provide an unrestricted view of the ships and the region's marine environment. An entire wall of

windows supplies the backdrop to which the visitors can imagine these five Viking vessels sailing those same waters back in the 11th century and then sinking off Kolholm Island to the museum's north. Installing large windows overlooking the waterway is a powerful way for visitors to understand the Viking ships and their marine environment and ask questions about the individuals and cultures who may have sailed those same waters centuries ago in those vessels. Although the process of constructing these vessels is minimised in the display, the presence of the vessels' remains allows visitors to see the assemblage of ships of that era and region first-hand. Historical vessels from the archaeological record provide an alternative experience to modern vessels to teach construction methods and approaches to the public.

One museum of this comparative study, the Britannia Shipyards of Steveston, British Columbia, was the focus of an earlier study by Kimberly Baker, a shipyard educator (Baker 2014). She investigated how the museum staff restored the shipyard's many structures, how the 'multi-ethnic community ha[s] been realised through the exhibits, school and public programs', and provided a summary review of the collaborative projects with the community, including those related to boatbuilding (Baker 2014:27). Active community participation was central to the organisation's vision of their work, as seen in the example of the restoration work of the Japanese fishing boat Silver Ann (Baker 2014:27). It is through this public participation that non-specialists can learn about the building techniques of these styles of vessels. As the shipyard and its associated structures are situated along the shoreline of active residential and commercial environments, the shipyard and its educational programs needed to incorporate the community and the considerable number of tourists visiting each year. The primary shipbuilding structure, originally a fish cannery, showcases aspects of the boat-building process, including the site's original marine rail engine and the workshops for the metal and woodworkers, in a manner that gives the visitor a 'feeling that the 'workers' have left for lunch' and some of these exhibits contain marine machinery with associated interpretive texts (Baker 2014:31). This study is a prime example of how a museum can move away from a ship being the centrepiece of an exhibit to focus on both the inclusion of the diverse workforce and what their unique backgrounds contributed to the local shipbuilding industry.

In her 2006 master's thesis, Peta Knott investigated the representation of shipwrecks within museum exhibitions throughout Australia (Knott 2006). Her investigative methodology included museum visits and distributing questionnaires completed by museum workers and visitors to gather insight into their views concerning the topics of the displayed shipwrecks and, in general, maritime archaeology (Knott 2006:v). A study such as this complements a study of shipbuilding as they bookend the life cycle of ships as observed through the vessels' representation within museum spaces. Knott's work guided how to investigate these museum exhibits through direct observation of the museum exhibits.

The research gap

The existing literature regarding historic shipbuilding conducted within the Pacific Northwest region of the United States and Canada primarily consists of the exploration of historical narratives, including the histories of individual shipbuilding masters, shipbuilding families, and shipbuilding companies (Marine Retirees Association 1977; Price 1990; Taylor 1986; White 2008). Another common type of literature involved the compilation of photographic materials showcasing historic vessels sailing throughout the region or of the crew working on the vessel, along with brief histories of those ships and the region's maritime history (Weinstein 1978; Williamson and Gibbs 1976).

The written histories tend to explain shipbuilding history through the scale of the ships built by the local builders; for example, '[f]orty-three yards in Washington and Oregon and 12 in British Columbia built over 250 ships, mostly wooden hulls…' (Hitchman 1990:90). Although this information sheds insight into the magnitude of shipbuilding within the Pacific Northwest region, it does not examine the localised vessel construction technologies, styles, and the workers through an examination of the physical maritime tools and infrastructure from those historic periods. These tools and cultural shipbuilding materials of the past appear today in various local museums as part of their exhibitions. Historical photographs can provide visual evidence of shipbuilding: the process or the workers involved. Often, through a museum, one can learn about historical shipbuilding as these facilities house the relevant materials in their collections. The extent of that maritime material varies among

the museums throughout the region, depending on the museum's nature, the staff's knowledge, and the space available to display the materials. A research gap exists in the published literature regarding the public's education on shipbuilding within the Pacific Northwest using the maritime materials recovered from regional shipyards or private collections found now in museums.

Conclusion

Current literature needs to include the study of maritime exhibits within museum spaces to educate visitors about shipbuilding in the Pacific Northwest using the physical remains of that past industry. Most literature focuses on understanding public archaeology and museum archaeology throughout the field. Examining the published use cases demonstrates a limited number of examples, including public engagement within museum spaces related to maritime activities. Using signage as a printed medium in conjunction with presenting maritime materials is another avenue of study as museum visitors spend time reading the printed materials as an opportunity to gain more experience about the attached materials.

Chapter 3. Methodology

Introduction

This chapter provides the methodologies used to assemble the data for this study. The research involved in this study provided two significant opportunities to utilise a methodological approach for conducting a deductive investigation. These sections include the process for selecting museums, how to document the exhibition space, and the thematic analytical approaches while comparing the previously collected data. The concluding section describes the challenges and limitations encountered during the data-gathering phase.

Museum selection process

The centrepiece of this study investigates the use of maritime materials currently exhibited at local museums. In the material's role as a pathway to educate the public, one of the initial steps is determining which museums within the Pacific Northwest contain relevant material. According to the Washington Museum Association (WMA), there are approximately 475 museums located within the State of Washington. Museum topics and educational materials group each facility into a respective bucket, including those of historical societies, cultural centres, and history museums. The WMA's website provides an electronic directory of all the associated museums, including the facilities' names and street addresses. One of the first challenges faced was determining the types of exhibits or even the focus of a museum, as the WMA website does not provide that level of granular description of each facility.

Although lacking in defining each museum's specific theme, the WMA website classifies each museum based on a keyword, including but not limited to the words: 'general,' 'historical societies', and 'history/heritage museums.' A further review of the individual museum names limited the directory search to these categories of 'historical societies' and 'history/heritage museums'. The next step was creating a museum list with maritime or industrial themes, including terms such as 'shipyard,' 'seaport,' and 'maritime.' The initial list of museums identified within the western region of Washington State includes:

- Bainbridge History Museum (Winslow, Washington)
- Bellingham International Maritime Museum

- Columbia River Maritime Museum (Astoria, Oregon)
- Semiahmoo Park Maritime Museum (Blaine, Washington)
- Foss Waterway Seaport (Tacoma, Washington)
- Gray's Harbor Historical Seaport (Aberdeen, Washington)
- Harbor Maritime Museum (Gig Harbor, Washington)
- Island County Historical Society Museum (Coupeville, Washington)
- Museum of History and Industry (Seattle, Washington)
- Poulsbo Maritime Museum
- Puget Sound Navy Museum (Bremerton, Washington)
- Westport Maritime Museum
- Willapa Seaport Museum (Raymond, Washington)

Within British Columbia, Canada, the BC Museums Association (BCMA) offers a website containing a regional museum directory like the WMA. A review of the member directory of the BCMA shows 193 museums throughout the province. Instead of categorising each member organisation by subject matter like WMA, the BCMA website lists the museum members by their names alphabetically. Of that total number, only seven facilities emphasise the theme of a maritime or industrial past, as seen in the organisation's name. These organisations are:

- Campbell River Maritime Historical Society (Vancouver Island, Campbell River)
- Cowichan Wooden Boat Society (Vancouver Island, Cowichan Bay)
- Maritime Heritage Gallery and Discovery Centre (Vancouver Island, Port Alberni)
- SS Sicamous Marine Heritage Society (Penticton)
- The Alberni Project – HMCS Alberni Museum and Memorial (Vancouver Island, Courtenay)
- Vancouver Maritime Museum
- Vancouver Naval Museum & Heritage Society

In addition to these museums, the Britannia Shipyards National Historic Site is included in this list of facilities located within British Columbia. Although not a traditional museum, the Britannia Shipyards property provides visitors with a re-created shipbuilding experience from its past. This historical facility and the other museums from Washington State and British Columbia completed the initial selection process for narrowing down which facilities could be a part of this study.

The next step was to investigate the organisation's website and other online presence to further understand the museum's exhibit spaces and narrow them down to a smaller manageable list of relevant museums. The evaluation of each facility's online presence addressed the following questions, which Appendix A contains the answers-

1) Does the museum's website indicate that they house any maritime materials, and if so, are any related to that region's shipbuilding past?
2) Are there detailed descriptions or working examples of their exhibits?
3) Does the museum offer lectures or hands-on learning about wooden boatbuilding, as listed on its calendar or event pages?
4) Who is their target audience for this material?
5) How is this target audience assumption conveyed on their website?
6) Is the curator's contact information listed?

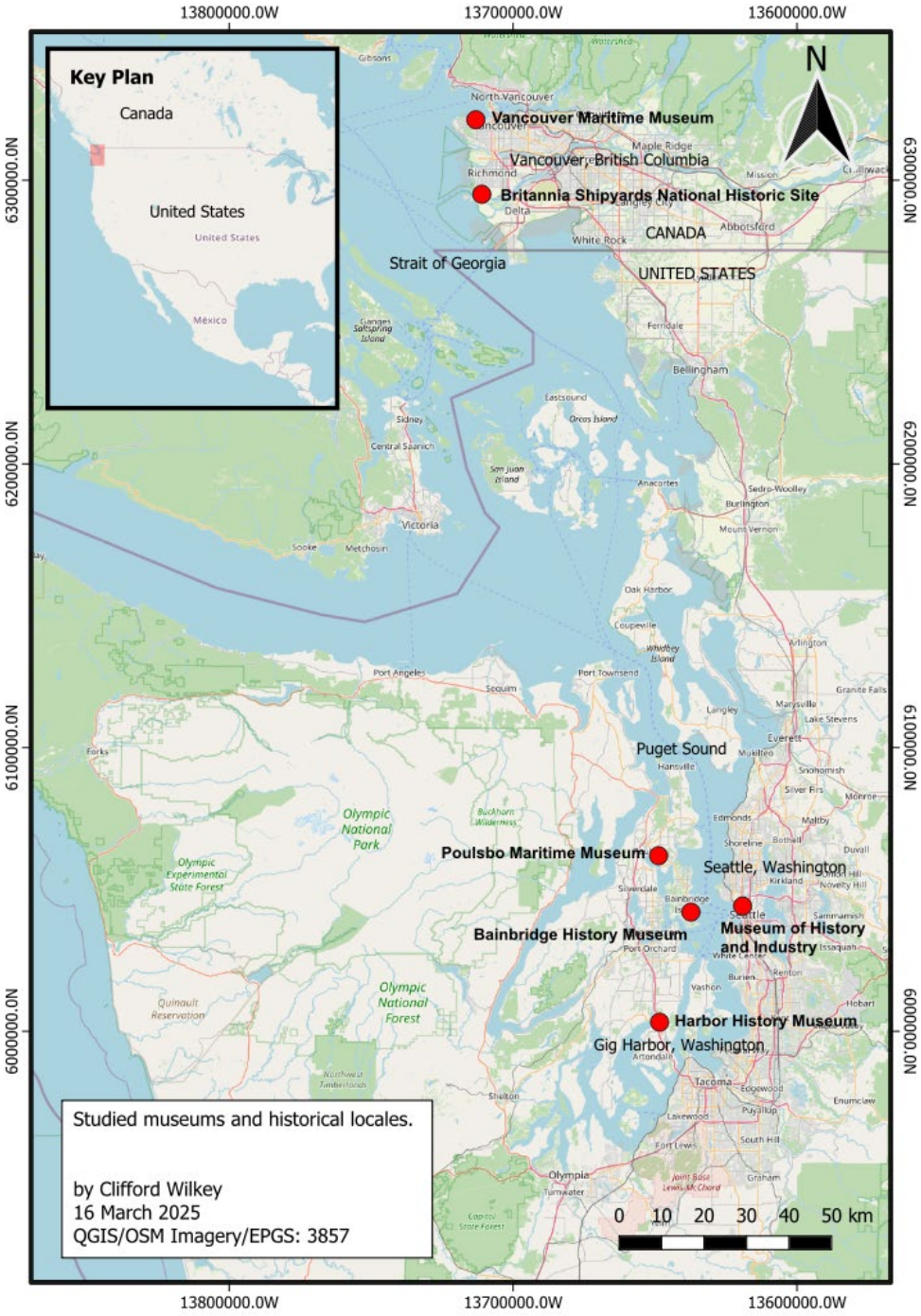
This consolidation into an electronic document easily allows for comparing the data from each location with one another. The site selection process consisted of two primary factors. First, if the museum's website explicitly shows exhibits on shipbuilding. The second was if the site had an active vessel restoration project open for visitor viewing and engagement. The final selection of museums based on the above criteria for this study is:

- Poulsbo Maritime Museum
- Britannia Shipyards National Historic Site
- Vancouver Maritime Museum
- Museum of History and Industry
- Bainbridge History Museum
- Harbor Maritime Museum

The study excluded other museums that housed potentially lesser amounts of shipbuilding materials, even though the facility's focus may have been on a different topic. The time limitation also permitted only the selection of museums with an obvious maritime connection, such as those with a direct maritime association in their name.

A geographical limit restricted the area where this study conducted its data gathering and the focus of the subject matter. For this study, the term 'Pacific Northwest' meant to limit the geographical region to the Puget Sound waterways of Washington State and the southern portion of the Strait of

Georgia, including the greater Vancouver, B.C. area. The selection process omitted shipbuilding facilities along the Pacific coastline and the region's many inland waterways.



Map of the studied museums and historical locales, created by C. Wilkey. Map from OpenStreetMap.

Museum exhibit documentation process

After selecting the relevant museums, the next step involves visiting each facility. The purpose of the visit is to document and photograph the current exhibits that contain materials related to shipbuilding, especially those from the region. Documentation creates a written record of the displayed cultural materials, historical photographs, and the associated signage. The photos allow a visual record of the display for future reference, especially to fill in any gaps the written documentation may have excluded.

Creating a list of questions formulated before the start of the museum visits allows for consistency in the line of inquiry across all the facilities. These questions are like those previously asked regarding the museum's websites, but they relate to one's observation of the exhibit space and its contents. These exhibit-focused questions are:

It may not be practical to note one's observations in response on an electronic tablet or computer at the museum, but one can record them using a pen and notebook. Later, one inputs these written records into an electronic spreadsheet if one loses a notebook or the penmanship becomes illegible.

The fundamental idea behind the written record of the observations is understanding how the museum educates its visitors through primarily maritime cultural materials and the written words on the exhibit's signage. In addition to the dedicated space for shipbuilding exhibited in the museum showcases, other exhibits elsewhere in the facility may contain aspects of the region's shipbuilding past. Therefore, there is a need to investigate the entity of the museum. In some cases, historical photographs or other materials of the region's shipbuilding past are elsewhere in the museum, such as in an exhibition of the 'Local Business Community' display at the Bainbridge History Museum. Recording the other locations of these materials also allows an understanding of how the museum views shipbuilding beyond the immediate shipbuilding process by displaying various hand tools and other maritime components. The study of shipbuilding is not only that of the ship structure itself but also the social aspects of the multiple groups of workers, the local economics, and the effects of displaced Indigenous peoples from the land.

In addition to the written documentation of the museum exhibits and their displayed materials, photographing the exhibit space is equally crucial. First, a picture of the exhibited area records the precise layout and the placement of the maritime materials and their associated signage. Second, photographs record the shipbuilding exhibit's relationship to other exhibits in the museum, as the placement could infer its importance within the exhibit spaces.

The practical usage of the photographs for this study differs from that of the traditional photography process of an archaeological project in the field. For an archaeologist, photographs create a detailed and technical record of an artifact or a particular aspect of the archaeological site (Burke 2004:220). The pictures for this study require a degree of detail to show the types of materials housed in the display, their location among one another and other exhibits, and verify that all the signage is legible.

An iPhone 12 mini captured all the photographs in this study. Using a camera within a smaller form-factor mobile phone made the entire process convenient, as the phone can easily fit into one's pocket and has automatic backup functionality. The usage of such a camera also depended on available funding, the room-wide photographs, and the consideration of the public visiting the locale. The default file format for the iPhone 12 mini is the HEIF format, which is a 10-bit file. The technical need for RAW files, as a 14-bit format, is a typical standard requirement for traditional archaeological photography.

The need to capture multiple photographs of a subject provides the best outcome across all the pictures. Reviewing the captured images after the subject's capture quickly confirms that the photographed subject is clear and correctly positioned in the shot. The phone stores all the photographs on site and then sends them to a cloud storage server later. Using these digital photographs directly from the iCloud service allows easier viewing on a standard computer and their insertion into electronic documents.

Although these photographs differ from the traditional technical records of recovered artifacts recovered from archaeological field sites, conventional archaeological photography is still relevant to these pictures of museum exhibits and materials. Properly capturing the subject conveys to the viewer what the exhibit is like and complements the written documentation.

Compiling the collected data

This study compares six museum facilities using maritime materials to educate and engage visitors about historical shipbuilding within that region. The collection of data came through site visits to each of the museums. One aspect of the research aims to understand the similar themes between past people and their activities. It is through utilising a structured document that consistency in data collection allows for answering the questions among the various sites visited. Based on the answers

gathered in that document, the production of a comparison matrix offers a comparison spanning all the museum sites.

Each visit allowed for the collection of two data sets. The first is through the capture of photographs within the museum space, and the second is the notes written down based on observations concerning the exhibits and their materials. After gathering all the photographs in a single online database, a review determined which were relevant to answering the research questions. During this step, one reviews each photograph to better understand the exhibits and cultural materials contained within, including the main concepts the museum could be trying to present to its visitors. A spreadsheet entry for each photograph contains the answers to this examination. Any irrelevant photographs are discarded from the group but retained in cloud storage in case they may be needed sometime in the future.

From the remaining photographs, the data from the Excel spreadsheet creates a working table summarising the auto-generated file name, location, date of the site visit, and description of the contents visible within the photograph. Being as specific about the contents of the photograph helps generate the thematic coding that occurs later in this study.

Thematic analysis of the collected data

Braun and Clarke's approach (2022) starts its six-phase process by familiarising oneself with the collected data. In this study's case, this involved reviewing the data spreadsheet. Reviewing each photograph from each site visit helped to understand the commonalities among all museums. During the inspection of each photograph, a summary of the objects and initial interpretation of the materials contained in the photograph were noted in an Excel document.

Braun and Clarke's second phase began with creating codes from the collected data. A code is 'an analytically interesting data, concept or meaning associated with a particular segment' (Braun and Clarke 2022:53). This coding process depended strictly on the photographs of the museums' exhibit materials and the notes written during those visits. Table 1 lists the codes generated from this review. During this time, some codes moved into a 'miscellaneous bucket' if they fell outside the themes while the remaining codes aligned.

The codes generated are in the following table:

Photographs of construction	Machinery on display

Instruction of shipbuilding	Manual hand tools
Pathway to education	Hands-on experiences for the visitor
Inclusion of museum vessels	Signage to explain the topic
The workers in the yards	Administration role in business
Photographs of ships	

Table 2 Coding results

From this table of codes, the initial grouping of themes developed as a part of the third phase of Clarke and Braun. A theme is 'a pattern of shared meaning organised around a central concept' (Braun and Clarke 2022:77). This step utilises the previously generated codes to 'explore areas where there are some similarities of meaning' (Braun and Clarke 2022:79). The shared meanings among the dataset allow one to create the initial set of *candidate* themes, which one could later narrow down to the final group. These candidates' themes are just working topics that may be discarded or modified later for a different interpretation. It was from the development of the themes that the two were ultimately determined.

From the codes listed in Table 1, several candidate themes emerged from commonalities among the core concepts. First is the education of museum visitors concerning shipbuilding through the exhibition of the associated tools and machinery. These physical objects are directly involved in constructing or repairing wooden or metal vessels. A second theme developed through the lens of the individual workers and how these past workers helped educate the public about shipbuilding. A third theme is the business aspects of shipbuilding and how it operates in parallel with the construction activities of building the vessels. The creation of themes is subjective and could result in the development of different themes by other researchers who analyse the same data sets. As the research questions of this study focus on educating the public on historic shipbuilding, the resulting themes reflected this topic.

After determining the candidate themes, phase four involves refinement (Braun and Clarke 2022:97). This step allows one to re-evaluate all the candidate themes with the original codes and datasets to ensure they are on course with the data. This phase is a reflexive check to confirm that the themes align with the data. If a candidate's theme falls off the line, it is appropriate to reevaluate phase three for that candidate or start over with another.

The review of the three themes provided the opportunity to evaluate the strengths or weaknesses of each theme based on the complete data gathered from the multiple museum visits. The topic of education through the display of tools encompasses hand tools, machinery, signage, photographs,

and the active repair of the museum ships. The second theme of presenting the workers within the ship-building process also spans several codes, including photographs, personal tools of known individuals, and signage explaining their stories. The third theme concerns the business aspect of shipbuilding and its limitation in coverage within the codes, as there were only a few examples. The decision was to drop the third theme and proceed with the first two.

After one evaluates their themes against the entirety of the dataset, one can further develop and refine the themes and analysis within the themes. (Braun and Clarke 2022:108). Diving further into each theme from examples within the dataset permits one to begin writing one's research, which is the final sixth phase. It is here where specific data provides examples within each theme to explain to the reader how the dataset relates to the themes and, therefore, how it relates to the research questions.

The theory and practice of comparison of cultural materials permeate much of the archaeological research (Whittaker et al. 1998:130). A comparison study typically demonstrates how changes within material cultures developed over time or between neighbouring communities. This comparative approach applies to this study to understand how museums throughout the Pacific Northwest showcase their education of aspects from the local maritime past with maritime materials and secondary objects like photographs. Although the comparative analysis of museum exhibit spaces differs from that of artifacts like ceramics, the concepts from traditional theory and practices are similar in their application. The groupings of materials within exhibits included tool-type collections, marine machinery collections, educational and descriptive signage, museum boat collections, and demonstrations of boatbuilding skills between maritime communities.

In addition to comparing the physical materials and signage contained in the exhibit, this analysis study includes the practical approaches used to present the museum's educational perspective. The application of Matsuda's models of public archaeology, mainly through the educational and pluralist perspectives, provides a relevant avenue for accomplishing this investigation of museums and their educational engagement (Matsuda 2016). As each museum's approach to presenting their interpretation of the region's historical shipbuilding differently, the view of their engagement modem permits studying the exhibits more broadly in terms of themes rather than strictly by comparing just the displayed maritime materials, historical photographs, and signage written by museum staff. The educational model approach explains how the museum educates its visitors about the history and historical shipbuilding, typically in a unidirectional knowledge flow from the words of the sign writer to the reader. Meanwhile, with the pluralist model approach, the museum

encourages visitors to engage with the maritime materials, the exhibit space, and the material's history by asking questions or provoking ideas contained in signage or video displays.

Challenges

As mentioned previously, a challenge encountered was the time available to visit all the relevant museums that exhibited shipbuilding materials, and the exhibits provided an educational experience for visitors. Regarding the museum facilities, photographing any portion of the exhibition display requires the consideration of the other visitors within that same physical space to exclude them from the picture for their privacy. This can add to the time at the museum and the contents of the photograph. Another aspect encountered was lighting and having a clear line of sight of all the displayed materials. Some displays, such as at the Vancouver Maritime Museum, housed its maritime tools within glass cases, and the interior lighting and the sunlight from the windows made it challenging to photograph the objects.

One of the first challenges with using thematic analysis came early. This approach initially developed within the social sciences and utilised interviews to generate one's dataset. The approach needed modification to use photographs and observational notes instead of personal interviews and statements.

Conclusion

The methodology for this study began with selecting relevant museums within the Pacific Northwest, focusing on a smaller number of facilities that contain maritime and, more specifically, shipbuilding exhibits. Each of the visited museums gathers pertinent data on the facility's exhibition space, including the displayed shipbuilding tools, various marine machinery, signage detailing the materials or historical background, and other shipbuilding educational venues the museum offers their visitors. The resulting data from each museum visit provides a perspective of the physical materials, its exhibition structure, and the public engagement(s) approach the museum staff utilised. Finally, after collecting all the data from these six sites, the reflective thematic analysis method developed the codes and themes from the dataset. Finally, the analysis answered the study's research questions.

Chapter 4. The data

Introduction

This chapter presents the data collected from the visits to six regional museums in the greater metropolitan cities of Seattle and Vancouver between May and July 2023. The chapter comprised individual site sections, each containing a description of the materials with their exhibit spaces and how the museum staff presented the signage that provided the visitor with information about the region's shipbuilding past. The end of each section includes multiple photographs of the exhibits and the associated signage from that museum.

The Britannia Shipyards National Historic Site, Richmond, British Columbia

The space

The Britannia Shipyards are a 3.2-hectare site located along the shore of the Fraser River in the city of Richmond, British Columbia. Originally constructed as a fish cannery, the infrastructure was repurposed into a shipyard in 1917 after a significant decline in the fisheries market resulting from an upstream construction accident. This repurposed site contained several ship and boat building facilities, including the primary Britannia Shipyards owned by Anglo British Columbia Packing Company and the smaller operations of the Richmond Boat Builders and the Murakami Boatworks.

The cannery structure used by the historic Britannia Shipyards survives today in much of its original design. The core section of the ship shed consists of the working area for boats and a still-functional mechanical winch for pulling boats up and down the two marine railways (Figures 1-2). During the site visit, a fishing vessel, M/V Burnby, was on one of the marine railways and was part of an active restoration project. The restoration activity allows the public to see the shipwrights performing their work and an opportunity to ask questions. On either side of the facility, visitors view woodworking components of the shipbuilding process, including a mechanical planer, a steam box, pattern boards, and assorted sizes of milled lumber (Figs. 3–6). Although a sizeable portion of the machines appeared from other companies, the hardware represented the many types of machines the workers at Britannia Shipyards would have operated. As the visitors to the remaining interior sections of the ship shed building, they enter the various workshops, including carpentry, engine repair, blacksmithing, and machine repair areas (Figures 7–10). As mentioned earlier, the Britannia

Shipyard staff wanted to convey a feeling to the visitors that the workers had just gone out for lunch and left their workspaces as if they were in the middle of a project (Baker 2014). A handwritten sign on one of the carpentry tables says the worker was out for tea (Figure 11). Hand tools rest on the worktables and unswept wood shavings throughout the space (Figure 8).

Within the main building is a functional example of a Frasier River Skiff (Figure 12). These fishing vessels were approximately 20 feet long and had a flat bottom so the two-person crew could navigate it throughout the local waterways. These vessels typically had a set of oars and a spritsail to provide mobility options depending on the water and weather conditions. By providing a full-sized example, the museum demonstrated how the boat design allowed for the limited space to work and sleep of a two-member crew out on the water for weeks. Beyond its origins and usage on the Frasier River by local fishermen, the Britannia Shipyards staff needed more information on the vessel. Further information was needed on how and who built the displayed boat.

The site also contains two other structures from the town of Steveston's past: the Kishi Boat Works (a.k.a. Richmond Boat Builders, 1932) and Murakami Boatworks (1929). Japanese immigrants owned and worked these two boatworks and produced highly sought-after fishing vessels based on the shipbuilding knowledge they brought from Japan. Until recently, the Britannia Heritage Shipyard Society used the Kiski Boat Works building to refurbish wooden vessels and to train their society members on tool use within the facility. These activities stopped recently as the structure needed building envelope work and cleaning from recent contamination (Fernyhough 2018:36–37). The restoration of the Murakami Boat Works was in 1998 and then used as a meeting space.

The Richmond Boat Builders built its last on-site boat in 1969, the 11.3-meter wooden gillnetter Silver Ann (Figure 13). After its deterioration, volunteers at the Shipyards began the lengthy process of restoring this vessel in 2006 to its original state. This vessel showcased the craftsmanship of the original Japanese Canadian builder, Sadajiro Asari (Millian 2006). The wooden boats crafted by the Japanese Canadians were different from those of other builders in the region. Their building technique utilised temporary frame timbers to install the planks; later, permanent frames replaced the temporary ones (Millin 2006). This boatbuilding method allowed the boat's interior to remain completely dry. The typical method in Canada and the United States was the opposite approach, which involved attaching hull planks to the permanent frame timbers.

Located near the ship shed building is the seine net shed building; this large structure provides the space for repairing and drying fishing nets. Today, multiple maritime-related exhibits fill the interior, including one demonstrating the various steps of building a ship's wheel. This exhibit spans several workbenches, each showing a step in the wheel's construction process (Figures 14–16). Mallets and

machines present the creation of the wooden rim, the attachment of its numerous spokes and handles, and the polishing method for protecting the wooden components.

Signage

The signage at Britannia Shipyards provides context and history of the Anglo-British Columbia Packing company and the usage of the site. Four large-scale posters mounted on the wall at the entrance to the ship shed tell the company's story (Figures 17–18). The posters have different sections explaining the multiple usages over the years at the facility. Along with historical photographs from the City of Richmond (B.C.) Archives, the text is narrative, relaying its origins in the salmon cannery business and its later conversion into a shipyard.

Along with these narrative signs, a sign titled 'Shipyard Building' greets the visitors, summarising the site's history and a general statement about the work effort needed to run a shipyard business successfully (Figure 19). Its final sentence asks the reader to imagine 'which shop they would [they] have liked to work in the most'. A second engagement sign is located within the carpentry shop, encouraging visitors to find specific shipbuilding hand tools around the shop space by asking the reader,' As you look around the shop, can you find these woodworking tools?' (Figure 20). Pictured on the sign are drawings of a hand plane, a level, a hand drill, a wooden mallet, and a rasp, all of which the visitor needs to locate somewhere within the carpentry workshop. Much of the signage is descriptive in its contents by providing the object's name, a possible brief explanation of its usage, and sometimes where the shipyard obtained the object if it was not original to the site. Examples include the steam box, described as 'steams wooden planks for bending to the specific needs of a boat'.

The display of the wheel construction signage details the development of the ship wheel and the demand for mahogany lumber, which resulted in its import into the region. Each step in the wheel's construction had a printed sign briefly describing its role or how it operated. For example, the rim buffer display described the type of finish used on the rim to 'bring out its natural properties of the mahogany. On one of the workbenches was the 'The Wheel Production Line' chart, which provided a flow chart showing each step of producing the wheel rim, a spoke, or a hub component.

Vancouver Maritime Museum

The space

The Vancouver Maritime Museum houses permanent and temporary exhibitions related to the maritime past of the greater Vancouver, B.C. region. During the visit, the museum's main building exhibited rum running during the Prohibition years from a maritime perspective, a children's experience related to the early European exploration of the region, and ship models of Pacific Canadian ships associated with Vancouver's past. A second adjoined building houses an exhibit related to the Arctic exploration ship, R.C.M.P. St. Roch (Figure 21). The building's design permits visitors to walk around the vessel's exterior hull and the deck structures and to access several interior rooms.

Within this second building, a single display showcased the various original woodworking tools used by one of the vessel's builders, Horace Buckingham (Figures 22–23). These hand tools are from England, but Buckingham acquired them for his work on various ships in the Vancouver shipyards. These tools include types of planes, a joiner's mallet, and a spokeshave. This display case was on the museum ship's far side and consisted of a single point. A separate caulking iron on the opposite side of the room had no displayed context regarding its relationship to St. Roch or other shipbuilding within the region.

The museum provided its visitors with a hands-on experience with samples of two types of timber, the same types of lumber that constitute the hull of St. Roch. The display consisted of Douglas Fir from that region of Canada and a sample of gumwood from Australia. This display allowed visitors to compare the weight differences of the two wooden blocks and learn how these two types of wood had specific purposes on the vessel as the ship had to break up ice sheets during its wintery voyages across northern Canadian waters.

The signage

A single display case contains nearly all the signage explaining the shipbuilding around the greater Vancouver B.C. region, including St. Roch's construction. Each of the eight tools displayed has a corresponding number referring to a sign containing the object's name and a brief description of its usage. These descriptions explain how a shipbuilder could use such a tool. For example, object number 1 was Horace's jointer plane, and the accompanying sign explained that the shipwright would use the tool to "shave off a layer of wood at a time" (Figure 23). Additional background

information, albeit brief, about the purpose of the vessel's design and the place of its construction is provided on several small signs (Figure 24).

Poulsbo Maritime Museum

The space

Located in the downtown portion of the coastal community of Poulsbo, Washington, the Poulsbo Maritime Museum and Visitors Centre offers its visitors an opportunity to learn about local sailing and fishing history. Although the museum's facility is smaller than the others within this study, the topic of historical shipbuilding made up an ample portion of the museum's exhibition space, both within its interior and exterior spaces.

Inside the museum, two display cases exhibit various tools that local builders used during their work of both new construction and repair of wooden sailing vessels. The first display case includes a retrospective view of newspaper clippings and photographs of large and small ships that came to Poulsbo and the individuals who were part of that community (Figures 25–26). A sampling of these clippings include:

> "Mr. Guldjord and Mr. Holm, who have been working on the Hellison boat, have not finished the job and the boat is in fine shape. Mr. Guldjord is an experienced boat builder and has built some very fine round-bottom boats that have been sold in Seattle." KCH 6/14/1918.

> "Poulsbo has several places that would make good locations for ship building plants. In these days of much ship building it would be well to draw the attention of the building concerns to this place." KCH 8/17/1917.

Along with these newspaper clippings, a poster about repairing the halibut fishing boat Phyllis contained photographs showing the stages of this repair process (Figure 27). These detailed photographs let the viewer see how a vessel is first dry-docked on a beach and then the process of replacing the damaged planking timbers along its hull. Although this work was in Alaska before sailing to Poulsbo, this poster shows the visitor the overall repair procedures in just four pictures with a brief explanation.

A second neighbouring case contains more hand tools used in shipbuilding (Figure 28–30). A steam box diorama and a miniature boiler are located on top to show the equipment used to bend planks on wooden boats. Inside the case, various hand tools are on display. These tools include a Nelson

Saw Oiler, a caulking mallet, wooden vice grips, a carpenter's ruler, large wooden mallets, and multiple versions of the caulking iron. Hanging above this second case on the wall are several items, including a half-hull model of a 15 ft. skiff built by Ron Young in 1941, a wooden pattern board for an unnamed vessel, and multiple black and white photographs of boats built along the local waterways, including High C, Croth, and Dawn (Figures 31-32). Two photos show Croth resting on a wooden slipway on a local beach, which could indicate its repair or launch.

Outside the exterior door of this area, one finds three historic boats on display built by local builders during the first half of the 20th century. The main vessel, Pride of Poulsbo, is a prime example of a locally made, round-bottomed boat called the 'Poulsbo Boat' (Figure 33). Local builder Ron Young built these highly sought-after fishing vessels, which a local newspaper described as 'really seaworthy, especially the inboards. They kind of float in the water like a duck." (KDN 9/6/2019). The other two boats shown are small tender vessels built by the local shipbuilder, the Hall Brothers and the later known Winslow Marine Railway and Shipbuilding Co. (Figures 34–35). On the opposite wall of the three boats is another display showing many hand tools from Ronald Young's collection. (Figure 36) These tools are fixed to the wall but give the visitor a sense of what was needed to construct a vessel and the amount of physical labour involved, like the display cases inside the museum.

The signage

The signage within the Poulsbo Maritime Museum mainly consists of small placards placed on or next to objects. The other type of signage is large posters, which provide a more significant space to describe the topic. In both cases, the signs are accessible for the visitor to read and placed on rigid poster boards.

The placards' layout consists of text in a red-lined box to draw the visitor's attention. The object's name is in a bold format, in the same red colour as the box lines, and placed in the upper left corner. The remaining text describes the objects' purpose and the name of the individual who used them in the past. These descriptions provide insight into the object's importance for shipbuilders. For example, the half-hull models in the first display case have the attached placard reading-

Half Models. These boat-builder's half models were made and used by Halvor Veggen. More than just a pretty wall decoration, they served as the measurement model for developing the blue-prints for a boat. (Figure 37)

Another example is the signage attached to the pattern board above the second display case-

Pattern Boards are for boat builders, as a dressmaker's form is for a seamstress. The patterns, like this rib pattern, are set in place on the keel. Then, the ribs are formed around the pattern. Pattern boards, providing shape and stability to the hull, are removed from the boat when the hull is complete (Figure 31).

Museum staff wrote the nautical-related terminology used on the placards' descriptions in a manner that most visitors would easily recognise. In the above example, their usage of the term 'rib' refers to the boat's framing timber. Had the museum used the terms typically utilised by trained individuals within the maritime-related fields, such as maritime archaeology, the visitors may not have understood an object's use entirely without some guidance. A misunderstanding or confusion could result in the museum staff taking additional time to explain what was meant. Using familiar words and phrases resolves this potential situation.

The second type of sign used here is the poster, which is either hand-made or professionally printed. The first display cases demonstrate examples of hand-made posters, historical photographs, and a detailed text section. The two signs contain the previously mentioned newspaper clippings, pictures of local boats, and the repair of Phyllis S. (Figure 27). The professionally printed poster is located outside, showcasing the Poulsbo boat, Pride of Poulsbo. The sign provides an overview of the life history of Ronald Young, the local builder of nearly 900 Poulsbo boats (Figure 31). His work spanned almost thirty years. This poster includes the history of the boat Pride of Poulsbo and details regarding its restoration by the Poulsbo Historical Society in conjunction with the School of Wooden Boat Building in 2009.

Museum of History and Industry

The space

The Museum of History and Industry (MOHAI) in the South Lake Union neighbourhood of Seattle, Washington, explores the history of the Seattle region, spanning from the early days of the Indigenous peoples up to the modern era. The design of the multi-story building is of a linear progression of time for visitors to learn about the Seattle area. As the city is located along the waters of Puget Sound, maritime activities are central to its history, and MOHAI manifests this idea throughout its various exhibition spaces.

The presentation of shipbuilding within the Seattle area is within the business and industry exhibit spaces (Figure 38). The first display case the visitor encounters is intermingled with the Gold Rush

exhibition, as gold rushers needed maritime transportation on their north travels to Alaska in hopes of striking it rich. A large black and white photograph lines the back of the case, showing the many workers from a local shipyard. In front of the picture were various wooden-handled hammers, several wood planes, a hand saw, and a wood file. Alongside this case is another black and white photograph of an unnamed sternwheeler and the workers posing in front of the vessel (Figure 39). The picture was of the Moran Brothers Shipyard at the city's south end. Another photograph along the bottom of the case shows workers at the Moran Brothers Shipyard constructing another unnamed vessel, adding interior planks to the hull frame timbers (Figure 40). This second photograph was of an informational pamphlet released in 1900 advertising the Pacific Coast Steamship Company.

Another exhibition display shows the development of the Moran Brothers Shipyard but from the perspective of their involvement in supporting the American Navy after the Spanish-American War. The case exclusively concerns the construction and usage of the American warship Nebraska (Figure 41). An oversized image of a postcard showing the completed Nebraska at the Moran Brothers Company shipyard covers the back wall. A scale model provides a detailed example for visitors to investigate the ship's design and exterior structure. Along the bottom of the case are several photographs related to the development of the warship; the first is a photograph of the drafting room workers who drew the plans of the ship and a photo of the ship's launch in October 1904 with onlookers attending the event. A separate photograph shows the warship's framing and hull under construction while housed in the shipyard's large ship shed.

Further along in the museum, a different exhibition space contains a small display of a caulking iron and some oakum (Figure 42). Several photographs accompanying these tools show the Olson and Winge Marine Works shipyard in the 1930s in the Seattle community of Ballard. A picture shows the construction of a steel-hulled cargo ship, West Elcasco, at the Skinner & Eddy shipyard (Figure 43). Wooden scaffolding towers are on either side of the ship's hull while workers add decking to the vessel's topside.

The signage

Unlike the other sites in this study, the signage for the shipbuilding exhibitions at MOHAI is typically associated with photographs rather than the marine objects on display. The first display case near the Gold Rush section had no signs explaining the hand tools' names or functions (Figure 38). The

only placard displayed was a quote from an uncited document by the Seattle Chamber of Commerce in 1900, saying:

There is hardly a question that Seattle will continue to be the shipbuilding centre of Puget Sound and … in due time, one of the shipbuilding centres of the world.

Located alongside the case with the photograph of the Moran Brothers shipyard and their sternwheeler, a small sign tells of the history of the Moran Brothers and their building of twelve ships to transport the many miners up to Alaska for the Yukon gold rush in June 1898 (Figure 39).

The signage in the building of the warship Nebraska exhibit provides general information about the vessel, including that it was "about 15,000 tons displacement … she'll make a speed of 19 knots—nearly 22 mph" (Figure 41), had 12 coal-fired boilers to power its engine, and that 900 men served onboard during World War 1.

A small case displays the lone caulking iron and oakum with a sign explaining the objects' function (Figure 42). It provided a single sentence that the oakum was "soaked in pine tar … to fill the seams between wooden ship planks." The writer provided no additional insight into these materials. The signage within the modern steel shipbuilding display had a single or partial sentence. A large steel wrench had a sign saying its purpose was to "install engine mounts", and a welder torch was from the Lake Washington Shipyard during World War 2 (Figure 43).

Bainbridge History Museum

The space

The Bainbridge History Museum is on the eastern side of Puget Sound in Winslow, Washington. This community is also the final home of the Hall Brothers Shipyards, a well-known shipyard within the Puget Sound region. After James Griffith purchased the company in 1916, he renamed it the Winslow Marine Railway and Shipbuilding Company ("Griffith buys Hall Brothers' Shipyard" 1916). This facility is one of the smaller museums visited for this study. The entire museum is within a single room and contains multiple exhibitions encompassing diverse cultural and economic subjects of the island's past.

Even though the Hall Brothers Shipyard was a significant maritime business within the region, the museum space needed more displays related to shipbuilding. In addition to their local shipyard in Winslow, the Hall Brothers had two prior facilities at Port Blakely and Port Ludlow, both of which are

absent from the museum's limited presentation (Swanson 2017:99–105). The 'Maritime Community' area shows a black and white photograph of the 3-masted ship, Reuce of Richmond, which the local Hall Brothers Shipyard constructed in 1903 (Figure 44). It shows the vessel in its final stages of construction, as indicated by a wooden structure encircling the hull. This photograph is one of several within the display and is situated among dioramas of maritime scenes, including a model of the passenger steam ferry Liberty.

Several items related to the Hall Brothers Shipyards were available for visitors within the' Business Community' display. The first object is a photograph showing nearly a dozen men working on the interior hull of an unnamed ship (Figure 45-46). The picture shows the conditions of the workers as they laboured, including the milled lumber and shavings scattered across the walkways. A second object is related to the administrative operations of the business. The Company's copy of Lloyd's Register of Shipping from 1904-1905 is on display. A third more recent photograph from 1940 shows a group of workers posing for a picture (Figure 46). This picture could indicate that the Winslow Marine Railway and Shipbuilding Company workers had a diverse ethnic background, particularly during that period within the American past.

The signage

All the signage found within the exhibits of the BHSM are paragraph-length explanations for the attached photograph or historical object, as in the case of the 1904-1905 Lloyd's Register (Figure 46). The placards are on cardstock; first is the object's name in a highlighted position. Along with the title, the title includes the year of the object if that information is known to the museum staff. The remaining portion of the placard contains a description of the object, its history, and data related to the time of the object.

The sign of the first photograph of Reuce of Richmond briefly explains that Eagle Harbor, which is where the community of Winslow resides, and the various other harbours dotted around the island were locations that 'large, full-rigged sailing ships' once anchored (Figure 44). As described on the placard, some of these ships are from 'the local shipyard' or were in the process of loading milled lumber for transport to distant ports. A second sign in this section of the museum explains how boats were essential to the island and gives a historical summary of the development of the transition of sailing ships to steamships that visited these communities. As these were isolated communities, the development of ferry boats opened the region through Winslow. Local shipyards, including the Hall Brothers and the Winslow Marine Railway and Shipbuilding Company, typically

built and repaired the ferry boats. This repair operation persists today with the Washington State Department of Transportation as they purchased the old shipyard facilities to service their vessels.

In the 'Business' display, the signage focuses on the business operations instead of the manual process of building a ship. While the photograph of the workers depicts the range of people employed at the shipyard facilities, the sign is thought-provoking in acknowledging that the historical government census may not truly reflect the various ethnic groups or individuals living around Bainbridge Island (Figure 45–46). These individuals were essential to their involvement in many island businesses, including shipbuilding.

Harbor History Museum

The space

The final maritime museum of this study was the Harbor History Museum in Gig Harbor, Washington. As with the other maritime museums studied, the highlighted the local fishing and marine transportation industries dominated the exhibition spaces. In the 'Boatbuilding Comes of Age' display, an extensive photographic poster shows various workers standing and sitting on an unnamed boat under construction (Figure 47). Museum staff attached another unnamed ship's plans over that picture, giving the visitor a view of the types of documents that shipbuilders used during the vessel's construction.

A small shipbuilding display in the corner of a back hallway near the museum ship's outdoor entrance consisted of a shipwright's toolbox and various hand tools (Figure 48). Only the top tray of the tool chest is visible to the visitor, as a transparent sheet covers the top of the opened toolbox. The selection of tools includes adjustable wrenches, assorted sizes of drill bits, pliers, nails, and a small hammer. These tools and toolbox belonged to Gig Harbor resident John Holmaas, who built small boats.

Above the toolbox is a wall-mounted display showing a caulking mallet (aka a beetle) and a hawsing iron, which is a caulking iron fixed with a long metal handle with a curled end that a two-person caulking team used together (Figure 49). These tools mount to a wooden panel meant to mirror the look of the wooden planking along the side of a ship's hull. Some gaps between each strake contain oakum fibre, an example of finished work. The raggedness of the oakum fibres near the door seems to imply that visitors touched the display to feel what the materials felt like, as there is no signage prohibiting the touching of the display.

The museum ship F/V Shenandoah is a 65-foot seiner built by the Skansie Shipyard, a local yard in Gig Harbor, in 1925 (Figure 50). The museum has a shipwright actively restoring the boat within this outdoor facility, and all this work is visible to visitors. Like M/V Burnby at the Britannia Shipyards, engagement with the public within this space to observe the shipwright in action and to ask museum staff about their restoration activities. The vessel's current condition includes omitted strakes from the hull at head level, as these openings allow visitors to view the inner configuration of the ship, such as the inner panels, the framing timbers, and caulking.

The signage

The signage throughout the Harbor Maritime Museum is professional in its creation and presentation. From the start, large colourful posters greet the visitors, setting the atmosphere of the importance of maritime history to this region with its origins with Indigenous peoples through the modern period. The displays typically contain a sign explaining the overall topic and more minor signs with specific information related to the objects. Some displays have an audio and video component where visitors can listen for more details.

At the 'Boatbuilding Comes of Age' display, a summary of boatbuilding within Gig Harbor provides a basic understanding of the three local builders: Skansie Ship Building, Anderson & Sons, and Crawford Boat Building Company (Figure 47). A single sentence explains the local fisherman who worked at these yards during their off-season. By adding information about the seasonal workers, boat building encompasses more than just the company's owners; it includes the 'common' individual who is there to make income to live. Located at the front of the display, an audio and visual player (#117) gives the listener a history lesson about maritime activities in the region. A smaller sign next to the audio/video player briefly describes the types of vessels a shipwright could make. Then, it ties this work to the same kind of workers who dot the shoreline community today. This display is also one of the children's activities for crayon rubbing of a boat impression (Figure 52). These activities encourage families to stop at these displays, learn more about the maritime topic, and then take-home artistic souvenirs to remember the visit.

A popular attraction to the museum is the fishing vessel Shenandoah. As one approaches the outdoor exhibit, a sign briefly details the ship's history as a salmon cannery tender and later as a fishing vessel, including its remodelling work in the 1940s. A series of framed signs near the bow of the boat detail the work performed on the vessel along with the overall facility that houses it. One of the posters attempts to answer a typical question regarding spending vast sums of money to save an

old boat. The museum explains that the vessel is part of an educational program to explore the history of changes to boat shapes over time and the techniques used to repair and remodel them (Figure 51).

In the final exhibit, the shipwright's toolbox contains a small sign describing its contents and information on its owner (Figure 48). The owner was an immigrant from Norway, and his skill set included many aspects related to woodworking, not exclusive to boat building. The tools lack identification or a description of how the shipwright used them. Similar in the lack of context, the caulking mallet and hawsing iron mounted near the toolbox show a single sign that refers to the neighbouring wall-width photograph of the historic Gig Harbor waterfront (Figure 53). No other signage explains the purpose of the display, its usage within a wooden sailing vessel, or what the caulking process involves.

Conclusion

The data collected for this study spanned six different museums throughout the Pacific Northwest over approximately three months. Each of the regions and their museums showcase a variety of shipbuilding techniques and styles in their environments, from communities located on sheltered waterways to those sailing on the open ocean. Each museum presents the concept of boat building differently by offering different tools and materials, the information contained within the signage, and the direct observations of visitors with museum ships or boats, significantly if museum staff actively restore them. Not all museums are equal in their presentations, as it could be a matter of funding, access to historical materials for their exhibitions, or knowledge of the museum staff on boat building.

Chapter 5. Analysis

Introduction

The data collected from the six museum visits provided the opportunity to initially generate several themes that would form the basis of this study. This data then answers the original research questions regarding the common themes among the various exhibits and how those museum exhibits educated the public about historic shipbuilding. The analysis of these three research questions draws from the personal experience from these site visits, the interpretation of the various maritime materials found within each exhibit as recorded in digital photographs, and the incorporation of information gathered while performing the earlier literature review.

Presentation comparison

> How extensively do museums present the topic of historic shipbuilding in terms of maritime materials and the associated people within their exhibit spaces?

The manner of presenting the subject of shipbuilding through the exhibition of maritime materials varied significantly among the six sites visited as part of this study. At one end of the spectrum, the Bainbridge History Museum contained a single administrative object from the local shipbuilder along with several photographs of ships under construction at that same shipyard, while at the other end is the Britannia Shipyards, which offered a complete walk-through experience for their visitors. Materials often lacked labels through the displays, including the personal effects of known shipbuilders. The evaluation criteria of the museum exhibits included the types and scale of materials on display, the inclusion and exclusion of maritime objects and how the showcase of these objects helps educate the public about historic shipbuilding.

Based on the sheer size and history of the museum space, the Britannia Shipyards provides a potential opportunity for engaging with the public on wooden ship construction and repair. As this site was a working shipyard for over forty years, the entirety of its physical environment permits visitors to immerse themselves in historical shipbuilding, unlike other museum sites included in this study. The primary boat shed and its adjoining workshops demonstrate to the visitor the manner of workers needed and the skills one needs to work in such an environment (Figures 7–8). The multitude of tools and machines gives visitors a glimpse into the complexity of building a fishing vessel, especially for a shipyard operating during the transition period from wooden- to metal-hulled

vessels. Each workshop's tools appeared in disarray, as if the workers hastily left for afternoon tea (Figure 11). There is little to show how workers used these tools and machines during their workday to construct or repair a vessel. For example, boat pattern boards rest against the boatshed's exterior wall behind a stack of lumber (Figure 6). These boards lay upon one another, and this pile lacked any explanation to the non-technical visitor and seemed hidden away.

In prior years, the restoration work on historic wooden vessels at the Richmond Boat Works and the recent restoration on M/V Burnaby inside the main boat shed, the manual work by shipwrights provided a real-world example for their visitors to observe the shipbuilding process (Figure 1). Museum spaces such as Britannia Shipyards and Harbor Historical Museum return these disappearing skills into the modern world.

The Britannia Shipyards was also the only facility in this study that included a space with a detailed example of shipbuilding. The visitor followed the many stages of constructing a ship's wheel, with each stage explaining the tools and machinery involved in the process (Figures 14–16). Each step in the display provided Britannia's typical workshop example as if the workers had left for lunch, along with signage describing that process. Although this aspect of shipbuilding is secondary compared with the more significant aspects of the ship's structure, like its hull or decking, this exhibit provided insight into a topic rarely presented in depth by showing the woodworking machinery once used in the industry.

The remaining five museums take a traditional approach by offering their visitors a presentation of shipbuilding through the display of hand tools inside glass cases and their accompanying signage (Swain 2007:211). Many museums worldwide use a similar approach in their exhibit spaces, displaying cultural materials in glass cases. The only difference among the remaining sites was the scale to which they utilised the number of maritime materials and accompanying signage. At MOHAI, the primary shipbuilding case contained twelve unlabelled hand tools mounted to the back wall and lower shelving (Figure 37). Several tools had their names and functions printed on labels at the Poulsbo Maritime Museum, while the remaining tools remained unlabelled (Figures 29–30). Finally, at the small display of the Vancouver Maritime Museum, each of Horace Buckingham's hand tools had a corresponding card with the object's name and a description of its function (Figures 22–24). This last display provided the most information on the individual tools' roles in the shipbuilding process compared to the other sites with traditional-styled exhibits. Object labels and the posted signage could also relay information on the item's origin. These displays with descriptions of the materials typically convey their authenticity to the reader. Visitors want to view 'authentic' objects and have signage detailing this information (Swain 2007:214). The definition of 'authentic' varies, as

it could refer to an object recovered from that local shipyard or objects from the same era but recovered elsewhere. Most displayed tools across these six museum exhibits were typically unlabelled and thus contributed little to the visitor's understanding of the shipbuilding process. Only if the visitor has personal experience with woodworking would they be familiar with these tools.

Scale models are another way to convene an object's function and design as an alternative to signage, as scale models are a three-dimensional representation of a historical object (Swain 2007:229). The Poulsbo Maritime Museum has two such models of steam boxes with accompanying miniature boilers (Figure 28). A scale model allows visitors who are more visually oriented to learn about aspects of shipbuilding, including the larger-sized components that are difficult to show inside a museum facility. Despite the presence of the scale models at the Poulsbo Maritime Museum, an explanation of the steaming and shaping of the lumber into specific shapes for constructing a vessel is absent from these displays. Visitors must fill in the blanks from their imagination. At MOHAI, one display contains a scale model of U.S.S. Nebraska (Figure 41). The fully painted warship scale model juxtaposed several black-and-white photographs of workers and the ship during construction at the Moran Brothers Shipyard in Seattle and then launched in 1904. This comparative view gives the visitor an understanding of the magnitude of labour needed to build such a warship at the beginning of the twentieth century, as the construction photograph below the warship's scale model shows a complex latticework of wooden support beams connecting the ship's metal keel and internal frames. The warship's scale model hides all aspects of the construction process, so the photograph must provide that visualisation.

The Display of People

In addition to the shipbuilding materials displayed in spaces through the six museums of this study, an aspect of the industry that is sometimes minimised or absent is that of the individuals who used the hand tools and machinery now housed in the same museums while building an untold number of vessels. This line of investigation is at the heart of archaeology, the study of people and their cultures through the scientific study of the materials they left behind. The representation of the workers within these museum exhibits is through two main approaches. The first shows the person indirectly through maritime hand tools once owned by those individuals, along with their histories referenced in the accompanying signage. The second is with photographs of individuals or groups of the unnamed.

Archaeological studies spanning the last several centuries allow for studying named people, as more information about that individual is available through various recorded mediums. As time passes, associations of physical materials with specific individuals become distant as first-hand knowledge wanes. The story of immigrants is a common theme in these six museums, as immigration is one of the things shared throughout the history of the Pacific Northwest. The dusty wooden tool chest at the Harbor Maritime Museum told the story of its Norwegian owner, John Holmass (Figure 48). The museum provides little information about John's background; it states that he immigrated to the United States at age 16 and went on later to build boats. Elsewhere in the Harbor Maritime Museum, other displays showcase the migration of Croatians into the region and their impact on the fishing and shipbuilding communities, including the Skansie Brothers Shipbuilding Company.

The Vancouver Maritime Museum displayed tools once owned by Horace Buckingham (Figures 22–24). He was an immigrant from the United Kingdom who moved to Vancouver, Canada and utilised his woodworking skills at local shipyards. A third instance of a known builder to the museum is at the Poulsbo Maritime Museum, and their display of Ronald Young's tools was from the local community (Figure 36). A sizeable sign presented Ronald's personal history and influence on the local boat-building traditions. An example of one of his Poulsbo Boats is in front of the sign, and several of his tools hang on the opposite wall.

The second group of individuals presented in exhibits were unnamed and typically stood in place to tell the story of the community or activity rather than a specific person. All six museum exhibits included this type of representation within their exhibit spaces. Most examples are photographs of these unnamed workers who laboured on constructing the wooden vessels. As they are common representations in museums, these photos are an excellent source of understanding the shipbuilding process of a geographical region or of a specific shipbuilder. This evidence could counter contemporarily written sources as they provide direct visual information about a ship's style or construction technique.

One aspect that also seemed absent from these exhibit spaces was how the maritime materials and the museum exhibits themselves failed to provide the museum visitor with a sense of how the materials and exhibit could connect to their world today. Education is more than just learning about the past; it includes how it relates to modern topics and issues. Public archaeology needs to 'connect[ ] archaeology to contemporary issues' and 'an engaged archaeology involves looking beyond the disciple itself for ways in which archaeology can contribute to society' (Little 2009:43).

Engagement models

> How do the engagement models found at each museum work when presenting their maritime materials and historical people to their visitors?

As with the presentations of displays discussed earlier, the engagement models encountered in this study included several described by Matsuda. All six museum spaces utilise the 'Educational Model' to convey information about maritime history by displaying maritime objects to visitors, along with attached signage or object tags for them to read. Instructor-led lectures also provide an avenue for educating attendees on aspects of vessel building through hands-on presentations. The 'Educational Model' approach was similar among each of the six sites, although they did contain a degree of variation.

The method of educational engagement at these sites is predominately passive, as their approaches use signage and associated object labels. Only a few hand tools in the museums had an attached label, leaving most unknown to the visitor regarding the object's name and function. As the typical purpose of museums is to have their visitors leave with more knowledge than they came in with, the need to label the displayed object with its name and function should be a requirement. The display cases of tools at the Poulsbo Maritime Museum show that only a fraction of the hand tools have written references for the visitor to read (Figures 29–30). The website of the managing organisation of that museum, the Poulsbo Historical Society, states that their mission is "to record, preserve, and exhibit the history and culture of Poulsbo and the North Kitsap area. [They] accomplish this through educational programming" and "creating exhibits". On the display tags, the museum staff provided limited information on the object's name and, for a few objects, a brief explanation of the tool's function. These object labels and other posted signage also rely on the visitor to read them in English while the visitor is viewing the display. This approach has assumptions as it requires the visitor to be able to see the sign to read the printed words, and then they can read English. With restrained space inside their display cases, one solution would be to use QR codes that direct the visitor to an informational webpage containing all the tool names and an explanation of their functions within the shipbuilding world in their preferred language, but that also assumes the visitor has a mobile device with a camera.

Exhibit displays could supplement with either a video monitor narrating the local maritime history or a soundtrack of workers and machinery played in the background to give the impression that one was visiting a shipyard during a typical workday. Within the Britannia Shipyards, the sound of machinery played overhead within several workshop spaces to provide an immersive experience. Like the limitations and assumptions referenced in the earlier discussion of printed signage, they are also applicable when presenting matters in a video or audio format. At the 'Coming of Age' Boat display in the Harbor Maritime Museum, a video display provided a visual and auditory experience for visitors regarding the maritime activities of the region (Figure 47).

A unique opportunity at several studied museums, including the Harbor Maritime Museum and the Vancouver Maritime Museum, is public access to a museum ship. This is a direct method of the educational approach, allowing museum staff and shipwrights to provide real-world examples of repair work and remodelling in shipbuilding. Permanent exhibits of museum ships include F/V Shenandoah at the Harbor Maritime Museum and R.M.C. St. Roch at the Vancouver Maritime Museum, while temporary exhibits include F/V Burnaby at the Britannia Shipyards. These restored museum ships are good opportunities for the public to view how skilled shipwrights work on vessels, sometimes with the same type of hand tools on display in a similar technique used by shipbuilders a hundred years ago. When visiting the Harbor Maritime Museum, a shipwright was working on the hull on the stern portion of S/V Shenandoah. This allows museum staff to explain the construction process with an in-person presentation, printed signage, or an accompanying video monitor to relay information to visitors.

Overall, there is little engagement with the public regarding education at the six museums within their exhibit spaces. Engagement could ask visitors to think more about specific topics, even ones that may challenge their beliefs about the past or encourage them to participate in other museum activities. In nearly all cases, the educational method was one-way, from the written word of the museum's curator to the public in the word of stated historical facts. One of the few exceptions is at the Britannia Shipyards, where several signs proposed questions for visitors to think critically. One of these examples is at the entrance of the main shipyard building; a sign asks visitors to think about which workshop they could imagine themselves working in (Figure 19). This manner of question engages the visitor to

view each section of the shipyard differently and to picture themselves labouring in that same space a hundred years ago.

Finally, the shipbuilding displays are just one of the educational approaches within each museum space. A theme woven throughout these museum displays encompasses people and their immigration to the local communities. Immigrants form the basis of many communities throughout the region and bring their knowledge. Archaeology encapsulates more than just the study of material objects; it studies past people and their culture by investigating the materials they left (Smith and Ehrenhard 122). The people who relocated to the Northwest brought their customs, languages, and skilled knowledge to apply to their new lives. The tools displayed at the Vancouver Maritime Museum and the Harbor Maritime Museum were from known immigrants (Figures 22–24 and 48). Several museums also showcased immigrants of their community within other exhibit spaces related to business and social outreach, as seen in the Bainbridge History Museum. The people working at the shipyards are much more than their skills related to woodworking; they are multi-faceted individuals making contributions to a larger community.

Thematic analysis

> How do the themes found within the shipbuilding exhibits vary when comparing the studied museums?

Two themes emerged from the data coding process following the multi-phase approach set forth by Bruan and Clarke (2022). Although this study presents two themes, other researchers with the same data set could generate completely different themes. The first theme concerns various tools' role within exhibits, as they could educate the public about the techniques of manual shipbuilding. The second explores the involvement of the individuals utilising those same tools.

The first theme pursues to educate the public by presenting historic shipbuilding tools inside exhibit spaces, as the educational process may be easier to understand as a visual representation to the observer in terms of both the physical tools and signage explaining the object and its usage. These tools, especially hand tools, may be familiar to some visiting

public, as they could have previously encountered similar ones. However, the how and why of those tools in the construction process of a wooden sailing vessel may be missing from the observer's experience.

The inclusion of hand tools in exhibits was standard throughout five of the six visited museums, with the only exclusion being the Bainbridge History Museum. Facilities like the Poulsbo Maritime Museum and the Vancouver Maritime Museum had all or many hand tools inside glass display cases (Figures 22–26 and 29-30). In contrast, the Britannia Shipyards had their tools left on workbenches as if the workers left them while they went off to get a cup of tea (Figure 11). These two types are examples of differing approaches a museum could take in designing its exhibit space for presenting marine cultural materials from the historic shipbuilding industry to the visiting public. Using a display case gives the public an unobstructed view of most physical aspects of each tool. Accompanying signage or object tags provides an educational opportunity by giving the reader a multitude of information on the tool's name, history, and usage within the field of woodworking as it relates to shipbuilding. Having the historical materials inside a glass case provides visitors with a similar experience to visiting other museums with similar cases filled with archaeologically recovered artifacts from the past. However, as with other archaeological or historical materials in glass displays, often as individual objects, there typically is a loss of context in the presentation or discussion of the recovery of these objects within a personal collection or from a shipyard site.

In contrast with museums' tools housed within glass cases, the second type of exhibit presentation uses the same manner of hand tools and machinery as part of a simulated workshop environment. This approach provides a practical interpretation of these tools and their use by giving the visitor context of the tool's realistic role in typical workshop operations. As found in Britannia Shipyards, wood planes are next to piles of wood shavings, providing evidence of a woodworker using that plane on a piece of milled wood during their workday in the yard (Figure 8). Another example from Britannia Shipyards involves the ship's wheel-making process, showing each step of the manufacturing process along with examples. The display of the relevant hand tools and machinery showcases what is necessary for completing each step (Figures 14-16). Showing these processes through the place of the tools in their 'context' educates visitors regarding some aspects of shipbuilding

rather than having those same tools simply resting inside a display case. In addition to having the tools staged in a work environment, signage explaining or engaging with the visitors adds to one's education on the subject. This occurs within the Britannia Shipyards facilities, particularly within their workshops, such as the woodworking and engine room. (Figures 8 and 10) Without a guide explaining each section, the visitor must read the signage to understand further how the shipyard workers would utilise each room and its tools or machinery. This approach directly places these objects, from small hand tools to the largest vessels, in context with how past peoples used them.

A third method of presentation is with museum ships to educate the public through demonstrations of active repair using similar hand tools and building techniques. Many repair activities showcase woodworking used in shipbuilding, like those used to construct the vessel initially. The museum shipwrights' repair activities could include replacing strakes or using a caulking iron to set in the oakum between those strakes, all occurring while visitors observe them in person. At the Harbor Maritime Museum, the staff only repairs sections of the vessel Shenandoah, leaving other sections in their original state to showcase how the vessel used to appear when the museum obtained it (Figure 50). This vessel will continue to be dry docked at the museum after completion of the repairs as an ongoing effort to educate the public about local ship design and construction practices by the Skansie Brothers (Figure 51). The Britannia took a different approach to their museum vessels, such as Silver Ann, by restoring the fishing boat entirely by museum staff and volunteers. Afterwards, the staff moored the vessel at the pier next to the shipyard. This vessel, too, demonstrated the design and construction techniques of fishing vessels by Japanese immigrants who migrated to British Columbia in the 19th and early 20th centuries.

The second theme from the datasets was the representation of the workers throughout these exhibits. The museum exhibits contain two primary groups of working people. The first group is that of the nameless individual, either not directly referenced or generally described as a worker and customarily shown as a part of a larger group. The second group includes named individuals whose histories are known.

The primary exhibit material that showcases unknown individuals is a photograph. Photographs are standard throughout each visited facility for the museum to show what life and work were like in the past in a visual medium. The number of photographs on display

varied significantly between each site. Two photographs in the Bainbridge History Museum are prime examples of the role of ethnic minorities within the local shipbuilding industry (Figure 46).

The second group of workers shown in the museum exhibit spaces are through the objects owned or used by known shipyard workers. By the term 'known', the museum has documented the worker's name and possibly some of their life history. Unlike tools unattributed to a specific person, objects with a relationship with known people provide a direct connection with the past for the visitor. Visitors can imagine these individuals working on a ship with the displayed tools and written history. The Vancouver Maritime Museum houses a collection of hand tools owned by Horace Buckingham, which he used during the construction of St. Roch at the local Burrard Dry Docks. Visitors can peer into the display cases of Horace's tools, read the descriptions of how to use them, and then turn around to view St. Roch itself. Both reflect the skilled handiwork of a single individual. At the Harbor Maritime Museum, a large wooden chest belonging to John Holmass shows various metal tools. Holmass was a Norwegian immigrant to the Gig Harbor region and worked at the local shipyards where he 'craft[ed] small boats and even his gillnetter fishing boat' (Figure 48).

Overall, the exhibit materials presented to the visiting public regarding historic shipbuilding along the waterways of the Pacific Northwest are poorly developed, and visitors are limited in learning about the topic in significant detail in nearly all cases. In the case of the Bainbridge History Museum, although the island community had a large shipbuilding facility not far from the museum building, the museum only provided several photographs and a single business-related object from that shipbuilder. One would assume the museum would highlight this fascinating aspect of their community's past with a larger and more prominent exhibit.

Museums such as MOHAI displayed various hand tools, but they provided little information on them and primarily focused on the business aspect of the industry. Although maritime business may interest some visitors, other visitors investigating the construction of historic vessels by those same marine businesses would be disappointed.

The final group of museums could provide that educational opportunity for visitors. This group would include the Britannia Shipyards and the Harbor Maritime Museum. Both

facilities have an active ship repair facility integrated into the museum experience. Visitors can see the process in action, engage with the shipwrights and museum staff, and possibly participate in the repair as volunteers (depending on the museum's program).

Conclusion

This study asked three questions regarding regional museums in the Pacific Northwest and how they presented cultural materials and associated signage to educate their visitors about historic shipbuilding. A visit to each museum found that each museum did have some shipbuilding materials in its exhibits, but the amount varied greatly. The materials ranged from photographs showing vessels under construction, vintage hand tools used by shipwrights during their trade, and actual historic sailing vessels for visitors to explore. As for the type of educational approach, the museums used primarily a unidirectional method of relaying information about the exhibit materials with minimal interaction on the visitor's part. Finally, the variation of the exhibit spaces of the six Pacific Northwest museums affected how well each presented the shipbuilding topic and its effectiveness in educating their visitors, which lacked much depth on the subject matter in their presentations. The museums, which had an active ship repair facility on-site, provided the best opportunity for learning the topic.

Chapter 6. Conclusion

Overview

This chapter summarises the research conducted in this study and its resulting analysis based on the collected data. The investigation consisted of three questions to understand how museums presented the topic of historic shipbuilding to their visitors through the exhibition and signage of maritime materials used by shipwrights. Visits to the six museums in the Pacific Northwest of the United States and Canada occurred over several months during the summer of 2023.

Shipbuilding has declined in the United States over the past several decades, resulting in fewer people working directly in this field (Weddle et al. n.d.). Within the United Kingdom, Heritage Crafts listed 'boat building' on their endangered list of crafts due to the declining number of people with the needed skills (Henwood and Lewis 2023). The United States and Canada have comparable maritime histories of boat building, and an inference is that the public's knowledge of building historical wooden vessels is also waning. Through museums, this historical knowledge has the potential to pass to the visitor employing the contents of their exhibition displays.

Using marine cultural materials in these exhibits and discussing historical shipbuilding, an archaeologist could engage with the public to help them understand shipwreck remains and other historical vessels through their construction and repair. This materials-based approach provides a supplemental teaching experience rather than learning from just books or traditional academic lectures.

Much of the relevant literature focused on presenting the role of public archaeology within museums. Other areas of literature discuss individual museums and their maritime-related materials, typically through their display of museum ships. This study fills that gap by presenting an overview of the materials housed in each of these six museums and then comparing these materials using a theme-based approach to understand how the topic of shipbuilding educated their visitors.

This study first reviews the maritime materials displayed at six museums in the Pacific Northwest of North America. It then analyses how each museum presents its material and how a thematic approach allows for comparing each site by a structured method. The research questions proposed for this study first sought to determine the manner of material display within each museum's exhibits. Second, what educational approaches were these exhibits using to present the maritime materials to their visitors? Lastly, the last question analysed the themes found among the six museums.

The exhibits at the six museums varied in the maritime contents of their displays. At one end of the spectrum, the Poulsbo Maritime Museum exhibited only several photographs of the local shipyard and ships under construction. In contrast, the remaining five museums displayed many hand tools that shipwrights and crew once used during their trade. A final museum, the Britannia Shipyards, uses its former status as a shipyard as an avenue to educate its visitors about its past activities. Through these multiple exhibitions, museums utilise their displays to provide a unidirectional method of educating the public. The spaces have posted signage or tags on objects to pass along information about the tools or methods used by past builders to construct the vessels—only one of the museums engaged with the public through limited questions posted on some signage.

Clarke and Braun described a thematic analysis method to compare these six sites. After generating the codes from the review of the many photographs and journal notes, two themes appeared. First, museums use hand tools as the primary approach to discuss shipbuilding. Second, the role of the individual behind those tools is to create a personal interaction with the public. These are just two of many possible themes from the data.

The analysis of the two themes with the data found that the museums overall rated poorly when they presented the topic of shipbuilding as both a process and a historical study. A single exception to this conclusion was the ship's wheel build process at the Britannia Shipyard; all the sites failed to provide significant educational opportunities for visitors to learn about shipbuilding within their everyday exhibition spaces. Displays provided little explanation on using hand tools or other building equipment on display. Individuals referenced in some displays had cursory biographical information to the reader.

Critical findings

After completing the museum visits and the thematic analysis, it could be difficult for a researcher to completely understand museum exhibit spaces in terms of their educational potential without engaging with the museum staff and the visiting public. Analysis based solely on exhibit space can be limited, but it is the first crucial step in understanding the subject matter.

Several museums, such as the Britania Shipyards and MOHAI, have associated programs or organisations near their museum facilities that offer hands-on experiences on shipbuilding for the public. These external organisations manage programs that could provide additional opportunities to investigate the education of vessel building with the public.

Limitations

The most significant limitation encountered in this study was the availability of time to engage with the six museums. Additional time spent within these museums and their collections could have expanded the materials available for this research's analysis, as most museums had extensive spaces encompassing different topics, and maritime materials may be difficult to view in these other exhibit spaces. Second, collecting data exclusively from the current exhibits seen during one's visit limited the scale of materials reviewed, as museums typically have storage facilities housing the rest of the collection. Staff sometimes modify the contents of exhibit spaces throughout the year, or they may have special seasonal exhibitions that may include various shipbuilding topics.

Another limitation is geography. This study investigated the exhibits of six museums in the Pacific Northwest of North America. Shipbuilding materials and techniques can vary between regions and across nations. This study focused on a limited geographical area, resulting in a narrow scope of vessel construction techniques and the subject for educating the public.

Future work

This study incorporated six museums from the Pacific Northwest region of North America. Future research could expand that number of museums by utilising the same two themes within the greater Pacific Northwest region, around the country, or the world to conduct a comparative analysis among the different communities and their shipbuilding styles. A second line of future work could be reinterpreting the data collected from these six museums to generate new themes for one's analysis, as another researcher could bring their distinct perspective to the same data set. A third line of work could include interviews and questionnaires of museum staff to understand their exhibit spaces better and with museum visitors to understand the scope of their knowledge in shipbuilding before and after visiting that museum.

Contribution

The subject matter was unique in its approach. Public education about historical shipbuilding is rarely studied, and further understanding of this topic within the field of public archaeology and museum studies could lead to improved museum exhibit spaces regarding displayed materials and

signage presentation. The method utilised to determine the study's two themes could provide an alternative approach for researching topics within maritime archaeology and museum studies, as Clarke and Bruan's thematic analysis method provided a structure for locating themes within one's data set.

Conclusion

A museum is a space that can potentially educate visitors about local history through exhibitions and demonstrations. This topic incorporates the past and how it relates to the people and events of today. Encouraging their visitors to know about the historic shipbuilding of that region and the different people building those ships could provide context for that region's industrial development, provide an opportunity for people to learn and engage in the manual labour of boat or shipbuilding either as a hobby or a profession, as well as an open conversation with less-represented communities who may have been affected by the effects of the shipbuilding in the past.

Developing one's themes with an approach like reflexive thematic analysis allows the data within the museum spaces or even an archaeological site to drive the creation of the research themes instead of trying to work data around existing themes. The process could lead a researcher into aspects of a particular topic they may not have initially considered.

Public archaeology has greatly benefited archaeologists in engaging with various publics. It allows communication and action between the communities' concerns about their cultural heritage and how archaeology can positively intersect with it. This engagement must expand beyond the archaeological site and academic settings and reach where the public tends to come together, such as museums and community centres.

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Appendix A. Website evaluation

Name of Museum	**Bainbridge History Museum** (Winslow, Washington)
Website	www.bainbridgehistorymuseum.org
Manner of maritime material on website	Section of the website under "At the museum" -> "Exhibits" -> "Our Community: Past to Present", dedicated to "Maritime Transportation". Several sentences about the vital role of ships in the community. Several B&W photographs show various sailing and steam vessels. Within the "Business" section, B&W photograph of a wooden-hulled ship under construction at the Hall Brothers Shipyard.
Website description of exhibit spaces	None.
Website visual depiction?	None.
Educational approach described?	On-site research library. Their vision is to "spark curiosity and inspire people to connect, explore different perspectives, reflect, and celebrate the diverse stories of our community", listed on the "Our Museum" page. Also, "We encourage visitors to think for themselves ... We encourage two-way conversation and strive to design exhibits for social learning."
Target audience explicitly defined?	The website says the museum 'encourages both residents of the island or visitors to visit'.
Discussion of shipbuilding?	None.
Visual depiction of shipbuilding on display?	None.

Name of Museum	**Bellingham International Maritime Museum**
Website	www.bellinghammaritimemuseum.org
Manner of maritime material on website	The museum ceased operations in 2015.
Website description of exhibit spaces	N/A.
Website visual depiction?	N/A.
Educational approach described?	N/A.
Target audience explicitly defined?	N/A.
Discussion of shipbuilding?	N/A.
Visual depiction of shipbuilding on display?	N.A.

Name of Museum	**Columbia River Maritime Museum** (Astoria, Oregon)
Website	www.crmm.org
Manner of maritime material on website	Lightbooat museum ship, previously in drydock 2021/2022. According to their map, they have a Naval History and Shipwrecks section within the facility, along with several smaller vessels on display within the Brix Maritime Hall.
Website description of exhibit spaces	Map showcasing each section's topic. "Ariel view" video of the Brix Maritime Hall, showing the various smaller vessels on display. "Current exhibits" provides an overview of several museum sections, 'Shipwrecks!', 'Brix Maritime Hall', 'Crossing the Bar', and 'Graveyard of the Pacific". Short description with accompanying photograph of the area.
Website visual depiction?	Yes, mainly photographs, but also includes single video of Hall.
Educational approach described?	Directly working with local schools to provide hands-on experience to students regarding marine sciences and the history of the region. Unique STEM program for 4th to 6th grade students to learn by marine sciences and boat building. Adult classes and workshops available, including woodworking. Public lectures about maritime community and specific vessels. Online education through use of articles and their audio reading.
Target audience explicitly defined?	Nothing is explicitly stated. But it appears their target audience is anyone interested in maritime history and regional history.
Discussion of shipbuilding?	Very little is presented other than in the Online Education section of the website and hands-on

	work with local schools. The neighbouring building of the Barbey Maritime Center provides event/exhibit/workspace for small boat building and indigenous woodworking.
Visual depiction of shipbuilding on display?	None.

Name of Museum	**Semiahmoo Park Maritime Museum** (Blaine, Washington), now known as the Alaska Packers Association Cannery Museum
Website	www.draytonharbormaritime.com
Manner of maritime material on website	Housed in former APA cannery building. Contains an original 29-foot Bristol Bay sailboat. Management org is restoring a 116-year old sailboat, NN59. Process detailed on their Facebook page.
Website description of exhibit spaces	Yes, includes scale-model of fishtrap, machinery used at the cannery, various photographs of that era, and the sailboat.
Website visual depiction?	Single photograph on website partially showing the 29-foot Bristol Bay sailboat.
Educational approach described?	None provided as website provides little information about the museum and its exhibits.
Target audience explicitly defined?	None provided as website provides little information about the museum and its exhibits.
Discussion of shipbuilding?	Not on the museum's website.
Visual depiction of shipbuilding on display?	None.

Name of Museum	**Foss Waterway Seaport** (Tacoma, Washington)
Website	www.fosswaterwayseaport.org
Manner of maritime material on website	Various small vessels on display, including canoes, rowboats, racing shells, and pleasure crafts that were once used in the region. Boat shop at back of facility. Building remains on last remaining section of historic dock that was used to load vessels.
Website description of exhibit sp aces	Brief descriptions of some sections of the museum.
Website visual depiction?	Very little other than individual photographs of some sections of the museum space.
Educational approach described?	"Create the region's most compelling maritime heritage education and recreation resource" (website mainpage) Education section includes on for Schools and another for Community. School focuses more on marine sciences with hands-on experiences. Community has boat shop courses,with various wood-working options for boats and other wooden objects (spoons, boxes).
Target audience explicitly defined?	Not explicitly stated.
Discussion of shipbuilding?	Yes, the Heritage Boat Shop, "preserving the techniques of various regional boat builders." First Peoples exhibit on indigenous canoe building,
Visual depiction of shipbuilding on display?	Photograph of the Boat Shop in-action.

Name of Museum	**Gray's Harbor Historical Seaport** (Aberdeen, Washington)
Website	historicalseaport.org
Manner of maritime material on website	Replica of an 18th-century sailing vessel that sails around the PNW region for public experiences.
Website description of exhibit spaces	N/A.
Website visual depiction?	N/A.
Educational approach described?	N/A.
Target audience explicitly defined?	N/A.
Discussion of shipbuilding?	N/A.
Visual depiction of shipbuilding on display?	N/A.

Name of Museum	**Harbor Maritime Museum** (Gig Harbor, Washington)
Website	harborhistorymuseum.org
Manner of maritime material on website	Page dedicated to the vessel Shenandoah which the museum staff are actively restoring. Gallery section contains various photograph of various boats, ships, and building activities.
Website description of exhibit spaces	Quite limited. Single page on the restored vessel.
Website visual depiction?	Photographs including an archived gallery.
Educational approach described?	Hands-on exhibits and interactive computers.
Target audience explicitly defined?	Public education, especially with their school experience program.
Discussion of shipbuilding?	Yes, through their restoration of Shenandoah.
Visual depiction of shipbuilding on display?	Yes, on their Shenandoah page and within their Gallery section.

Name of Museum	**Island County Historical Society Museum** (Coupeville, Washington)
Website	www.islandhistory.org
Manner of maritime material on website	Centrepiece are native canoes, within their Native People, Native Places exhibit. Upcoming events include: Historical Reenactment of a historic dingy with a historian as a sailor from US Navy visiting the region in 1850. Second, the historic schooner Suva offers public sailing and historical lectures about the region's maritime history. The museum has a sailing ship as their logo.
Website description of exhibit spaces	Three Native canoes are the centrepiece of their native exhibit.
Website visual depiction?	None.
Educational approach described?	Providing lectures on various topics related to local history. Provide guided tours for their visitors within the museum and around town. "Work with local schools, non-profits and communities to spread knowledge about Island County's rich culture and history" from Education webpage.
Target audience explicitly defined?	Only thing stated was 'schools, non-profits, and communities'.
Discussion of shipbuilding?	None.
Visual depiction of shipbuilding on display?	None.

Name of Museum	**Museum of History and Industry**
Website	mohai.org
Manner of maritime material on website	A permanent exhibit includes 'Maritime Seattle, ' which shows how maritime activities shaped the city's development. The adjacent building is the Center for Wooden Boats, which provides hands-on experience with wooden boat building and includes a collection of 'over 100 historically significant boats'. Steamer Virginia V is moored outside of MOHAI. Several other vessels are also available at the Northwest Seaport. Their website provides additional information.
Website description of exhibit spaces	Yes, multiple exhibits are shown, and each has a webpage.
Website visual depiction?	Yes, some photographs of what is included in each exhibit space.
Educational approach described?	Provide hands-on experience for student visitors. Use of real historical materials to engage with students in 'teamwork, creativity, communication, visual literacy, crit thinking, observation and problem-solving skills'. (from Education webpage) Use of 'Portable Museum Programs' in the classroom.
Target audience explicitly defined?	Engagement with the community for conversation to explore, past, present, future. Interest in 'Seattle' can be for someone local or visiting. (from About webpage)
Discussion of shipbuilding?	None.
Visual depiction of shipbuilding on display?	None.

Name of Museum	**Poulsbo Maritime Museum**
Website	poulsbohistory.com/poulsbo-maritime-museum/
Manner of maritime material on website	Single page with overview of the exhibits the museum houses, including "commercial and sport salmon fishing", Mosquito Fleet, Logging transport, and Boat-building on Liberty Bay.
Website description of exhibit spaces	Just general information about types of exhibits. Nothing specific.
Website visual depiction?	Single photograph of a ship's wheel.
Educational approach described?	Explore local history 'through imaginative exhibits and interactive displays'.
Target audience explicitly defined?	Nothing explicitly stated.
Discussion of shipbuilding?	Yes, single line about boat-building on the local waters.
Visual depiction of shipbuilding on display?	None.

Name of Museum	**Puget Sound Navy Museum** (Bremerton, Washington)
Website	pugetsoundnavymuseum.org
Manner of maritime material on website	Life as a sailor about a US Navy nuclear aircraft carrier. Overview of the Naval shipyard's 100+ year history. Online exhibit showcasing the submarines built in Puget Sound. Overview/List of the multiple submarines built within Puget Sound.
Website description of exhibit spaces	The online exhibit provides reading material on several types of submarines and related images.
Website visual depiction?	Historical photographs of dry docks, the built vessels, and ship plans.
Educational approach described?	"sharing the naval heritage of the PNW" (from main webpage) "experience life as a sailor through exhibits about the Puget Sound Naval Shipyard, USS John C Stennis, Special Ops submarines, and much more'. (from History webpage)
Target audience explicitly defined?	Families with kids have hands-on learning for arts and sciences related to the US Navy. Museum provides speakers to provide lectures on various topics.
Discussion of shipbuilding?	Yes, particularly the submarines built for WW1 and WW2.
Visual depiction of shipbuilding on display?	Many photographs of vessels under construction and entirely built.

Name of Museum	**Westport Maritime Museum**
Website	www.wsbhs.org/museum
Manner of maritime material on website	"Exhibits include Grays Harbor Light Station, the Coast Guard, area shipwrecks, rescue operations, and the whaling and fishing industries". (from main webpage). Museum has a 30-foot Coast Guard surf boat on display. Fresnel light from the local lighthouse is on display and a working model.
Website description of exhibit spaces	Yes, each room of the historic build contains a different subject. Website provides an overview of each room and its materials. Surf Boat located outside of the museum.
Website visual depiction?	Several photographs of the Surf Boat. Lens exhibit photograph of the hall.
Educational approach described?	General education, through viewing of maritime materials on display.
Target audience explicitly defined?	Nothing explicitly stated.
Discussion of shipbuilding?	None.
Visual depiction of shipbuilding on display?	None.

Name of Museum	**Willapa Seaport Museum** (Raymond, Washington)
Website	willapaseaportmuseum.com
Manner of maritime material on website	Discussion of various vessels built locally, but none are displayed as they were salvaged or wrecked over the years.
Website description of exhibit spaces	Overview provided on 'The Gallery" page, with brief description accompanying the photographs.
Website visual depiction?	Yes, small photographs showing various exhibits.
Educational approach described?	Learning through the presented materials. Hands-on opportunities with some objects.
Target audience explicitly defined?	Nothing explicitly stated.
Discussion of shipbuilding?	Yes, details about several vessels built by local yards and those ships' histories.
Visual depiction of shipbuilding on display?	Ships not directly in the exhibits as they were wrecked or salvaged. Not sure if some materials from the ship may be present in exhibit space. Photographs provided on website of the vessels or historic literature about the vessels.

Name of Museum	**Campbell River Maritime Historical Society** (Vancouver Island, Campbell River)
Website	www.maritimeheritagecentre.ca
Manner of maritime material on website	Museum's webpage is limited in it coverage of their contents, other than "the Seine F/V BCP 45 and our fascinating maritime-themed exhibits."
Website description of exhibit spaces	None.
Website visual depiction?	Background photograph of F/V BCP 45 on their History page.
Educational approach described?	Primarily education through their collection, but they also provide hands-on courses like knot-tying.
Target audience explicitly defined?	Nothing explicitly stated.
Discussion of shipbuilding?	None.
Visual depiction of shipbuilding on display?	None.

Name of Museum	**Cowichan Wooden Boat Society** (Vancouver Island, Cowichan Bay)
Website	www.classicboats.org
Manner of maritime material on website	Museum page is under construction on their webpage, so no specific information about their exhibits available.
Website description of exhibit spaces	None.
Website visual depiction?	None.
Educational approach described?	Community-driven, hands-on approach regarding the heritage found along Canada's West Coast. Mandate page: (a) providing a facility and equipment for wooden boat building, restoration, and maintenance. (b) offering programs, workshops, and training in boat building. (f) creating interpretive and interactive displays that support our marine heritage.
Target audience explicitly defined?	Visitors from around the world and locals. Mandate: (e) increasing resident and visitor awareness and appreciation of our wooden boat heritage. (h) encouraging the participation of families and young people.
Discussion of shipbuilding?	Onsite Workshop for hands-on involvement in boat building. Boat-building courses throughout the year for families and community members. Active marine ways for boat repair, which visitors can observe in action.
Visual depiction of shipbuilding on display?	Photographs of the workshop.

Name of Museum	**Maritime Heritage Gallery and Discovery Centre** (Vancouver Island, Port Alberni)
Website	www.portalbernimaritimeheritage.ca
Manner of maritime material on website	Boat models on display covering early explorers to present day. Navigational tools used on ships, especially those vessels crossing the Pacific Graveyard and the West Coast of Vanc Island. Sailing vessels that worked through the area. Museum ships, SB Swan and Tug Tattosh.
Website description of exhibit spaces	Brief descriptions provided of each exhibition space.
Website visual depiction?	Yes, virtual tour provided for website visitor to explore their space remotely.
Educational approach described?	Education through the exhibit viewing.
Target audience explicitly defined?	Nothing explicitly stated.
Discussion of shipbuilding?	Overview of the recovery and restoration of S/B Swan.
Visual depiction of shipbuilding on display?	Several photographs of S/B Swan, underwater, restoration and present day.

Name of Museum	**SS Sicamous Marine Heritage Society** (Penticton)
Website	www.sssicamous.ca
Manner of maritime material on website	Museum is located on the ship, which is kept on the beach, next ot the Lake. Descriptions of each vessel associated with the museum are provided on the website.
Website description of exhibit spaces	Yes, each ship has its webpage with a through history and specifications.
Website visual depiction?	Multiple photographs of the museum ships currently and historic, showing the vessels 'in-action', advertisements, and drawings.
Educational approach described?	Educational through preservation of historic ships that once sailed Okanagan Lake.
Target audience explicitly defined?	Nothing explicitly stated.
Discussion of shipbuilding?	Ship and boat restoration projects provide visitors access to view building/repair.
Visual depiction of shipbuilding on display?	Photographs of the various work areas and vessels being restored.

Name of Museum	**The Alberni Project – HMCS Alberni Museum and Memorial** (Vancouver Island, Courtenay)
Website	www.alberniproject.org
Manner of maritime material on website	Mainly artifacts and materials of the Great War donated by the public. No word if the materials are primarily naval-related or the war in general.
Website description of exhibit spaces	Description of space divided into four sections. One has stories and artifacts of the Great War.
Website visual depiction?	Small photo gallery showing several areas of exhibit and gift shop, but not clear enough to make out details.
Educational approach described?	Schools and community involvement with veterans. The upcoming events page shows various lections and displays on Canadian operations in the Great War and WW2.
Target audience explicitly defined?	Visitors are locals and visitors from around the world (Our History webpage)
Discussion of shipbuilding?	None.
Visual depiction of shipbuilding on display?	None.

Name of Museum	**Vancouver Maritime Museum**
Website	vanmaritime.com
Manner of maritime material on website	The main exhibit is the vessel St. Roch, which visitors can tour. The nearby marina is home to ~16 historic vessels. Shipwrecks of the region are shown, presenting several of the most well-known wrecks. Visitors can view the recovered boiler of the steamship Beaver and a NASA submersible, Ben Franklin, among other maritime-related objects outside the museum.
Website description of exhibit spaces	Each exhibit has its own webpage containing related information.
Website visual depiction?	Historical photographs are included in each exhibit's description. But no pictures of the exhibit space are given.
Educational approach described?	Education through the exhibit viewing. Visitors can explore the areas within St. Roch as they climb about. Apart of 'Values' page is DEI, 'everyone should see themselves in the museum'. Also, work with diverse communities that each community identifies as respectful, inclusive, and accessible.
Target audience explicitly defined?	Visitors can explore exhibitions and take part in programs about life on and around the Pacific Northwest and Arctic Ocean.
Discussion of shipbuilding?	None.
Visual depiction of shipbuilding on display?	None.

Name of Museum	**Vancouver Naval Museum & Heritage Society**
Website	vancouvernavalmuseum.ca
Manner of maritime material on website	The Royal Canadian Navy's maritime history is in a military facility near downtown Vancouver B.C. Ships models, photographs of ships and personnel, uniforms, and medals. An exhibit of women in the navy with personal artifacts.
Website description of exhibit spaces	Yes, each section has a page with photographs and a brief description on the topic.
Website visual depiction?	PDF/Power point provided for website visitors to see what several areas of the museum is like. But photos are not high quality to see in detail.
Educational approach described?	Education through viewing the artifacts and reading signage.
Target audience explicitly defined?	Nothing explicitly stated.
Discussion of shipbuilding?	None.
Visual depiction of shipbuilding on display?	None.

Appendix B. Museum visit notes

Britannia Shipyards National Historic Site
Visited 20 May 2023.

- First house/building encountered was for the First Nations with Chief James Point.

- Main shipyard building-
    - Exhibits partially labelled, primarily with the name of the machinery and a range of years for when the hardware would have been used.
    - Some signage is asking visitors to think/interpret a situation of previous era. Imagine themselves in that environment.
    - Machinery was not from Britannia originally but acquired from other shipyards from around the area.

- Secondary boat builder onsite, 'Richmond Boat Builders'. Construction of Silver Ann.

- Representation/written discussion of the skiffs built by the yard and their purpose within the local environment.

Visited again 2 July 2023.

- Japanese boathouse and Richmond Boathouse under re-model and not open to the public.

- Entrance to main shipyard building has the recorded sound of a marine engine running to give the impression of an active facility to the visitor.

- Signage at the front include site history as a cannery then as a boat builder to repair the company's fishing fleet.

- Machinery used in woodworking on display in the front. Signs gave their name, from where the gear was acquired, and approximate year in use. Many of these are post-1920s.

- Signage explains the Frasier Skiff's history and purpose, along with an actual boat on display.

- Machine shop/engine shop/blacksmith shop area lso has an overhead recording playing with "work" noise of the various equipment being actively used. This gives the visitor an idea of daily life for these workers.

- Period signs showing boat plans.

- Signage describes named individuals who worked in these shops to give a personal touch of realism to the reader. This type of signage is more than just a description of a piece of machinery. It's a real person.

- Shipshed is still an active repair site. Fishing vessel on the marine rails undergoing refurbishment. Various boatbuilding components and equipment located across the shed.

Poulsbo Maritime Museum
Visited 30 May 2023.

- Museum founded by individual named Shields (according to front desk).

- Indigenous canoes and fishing at the front of the museum entrance. Emphasis on fishing throughout the region.

- Several glass cases with smaller ship components. Other maritime hardware in the open, such as motors and compasses.

- Lots of signage throughout the museum detailing the object and a brief description. Video and soundtrack playing overhead of a narrator talking about maritime activities in the area.

- Focus on local fisheries and boatbuilding, including the vessels C.A. Thayer and Wanoma (including its knees and span).

- Inclusion of a children's discovery/learning room, including hands-on with ship's wheel and bell.

- Outdoor boats from local builders, including Hall Brothers/Winslow Builders.

Musuem of History and Industry
Visited 16 June 2023.

- Museum setup is that of a timeline through history of the region, within an emphasis on Seattle.

- First section showcased Indigenous peoples with their canoes and methods/tools for fishing. Interpretative stories played on a video display by local Indigenous speakers.
- Next section was the European explorers who visited the area. Theme was that of the strike they created with the local Indigenous peoples.

- Final sections covered the 19th and 20th centuries, and the role of industry played in the development of the region.
    - The Alaskan Gold Rush brought many prospectors through Seattle, spurring the economy and the need for vessels to take them to Alaska.
    - Shipbuilding was primarily limited to one display case with just a series of hand-tools with no signage.
    - The only signage was in reference to Moran Brothers and their ships.
    - Other displays had isolated references to shipbuilding, up to WWII.

Vancouver Maritime Museum
Visited 2 July 2023

- Exhibits include Rum Running activities, Tugboats, and Fireboats. Canadian-Pacific ship models have their own dedicated space.

- Personal hand-tools from Horace Buckingham, used to build St. Roch and others within the Vancouver area. Tools are originally from England. He worked at Burrard Drydocks until his retirement in the early 1950s.

- Tool signs describe how the tools were used. Smoothing plane mentioned how it was used within the construction of St. Roch's galley and cabins.

- Design of St. Roch to ride over the ice not to crush it, as it was deployed to the arctic regions. It was inspired by arctic schooner Maud with a round, wood egg-shaped hull. Douglas fir from local sawmills and gumwood from Australia as it resists the grinding effects of ice. Ship originally known as Burrard Hull Nbr. 14. Sheet of quarter inch steel plate used to protect the ironwood planking.

Bainbridge History Museum
Visited 15 July 2023.

- Museum contained mostly in a single large room, former school room.

- The topic of shipbuilding primarily displayed through photographs and a postcard. Not much. These were placed within the 'Maritime Community' and 'Business Community' exhibitions.

- Other exhibits included the local lumber trade with various hand-tools and groups of people who lived or worked on the island.

- Reference to Hall Brothers Shipbuilders with photographs from their facility and their copy of Lloyd's Register of Shipping 1904–1905.

- 'Forestry community' exhibit mentions that local lumber was also used for shipbuilding.

Harbor Maritime Museum
Visited 15 July 2023.

- Limited amount of exhibit space dedicated or referencing boat building. One primary which covers boat usage within the area.
- Large print spanning back wall showing photograph of Gig Harbor waterfront in the past, which includes images of the Skansie Shipbuilding Company facilities.
- Since tool chest on exhibit with a small placard.
- Outside of the building, restoration of Shenandoah by shipwright.
- Access to most of the exterior of the vessel is possible so that visitors can view materials/construction.

Appendix C. Photograph review

Site codes:

BSNHS	Britannia Shipyards National Historic Site
VMM	Vancouver Maritime Museum
PMM	Poulsbo Maritime Museum
MOHAI	Museum of History and Industry
BHM	Bainbridge History Museum
HMM	Harbor Maritime Museum

Figure Number	Site	Notes of the photograph
1	BSNHS	Site staff are renovating/restoring the bow of the fishing vessel, which is resting on the marine railway.
2	BSNHS	The mechanical winch inside the main shipyard building is the infrastructure used to move boats into the sheds for repair.
3	BSNHS	Mechanical vintage planer with lumber example. From another company/site. Lumber in place to show its usage. Steam-powered via overhead belt system?
4	BSNHS	Steam box opening with an attached sign explaining the process in a single sentence.
5	BSNHS	Wooden pattern boards are neatly stacked along the wall. No signage.
6	BSNHS	Milled lumber and pattern boards are stored alongside the building wall, adjacent to the restored fishing vessel and the main building. No signage was provided. Pattern boards seemed to be tucked away and not used as a learning experience for visitors. They easily could have been overlooked.
7	BSNHS	Wide shot of the woodworking shop. Various tools and pattern boards are left on worktables. Few signs are visible. Left to seem like workers were just away on break, it was messy.
8	BSNHS	Closeup of the pattern boards left on the table. Each is numbered, indicating how they were ordered. Various hand tools are left on the back tables.
9	BSNHS	Closeup of the hand tool table with different woodworking gear. Several of the objects have name cards. The worker's sweater and tea cup left give the impression they were just on a break—tools left in a messy order.
10	BSNHS	A broad view of the machine shop shows various hand tools on a work table. A sign about the room gives the background of two workers at Britanna, one worker and one manager.
11	BSNHS	A handwritten sign, "The carpenter is out for tea!!" along with cut wood planks and a mallet. Wood shavings spread out on the table. Various pieces of lumber are ready to be worked on.
12	BSNHS	Museum ship of a Fraser River Skiff as discussed on adjacent signage. An example of a local vessel that a visitor can see and touch.
13	BSNHS	F/V Silver Ann, the museum boat. A Japanese construction on this site by one of the other boat works—recent restoration work.
14	BSNHS	Various sizes of wheel rims on display before the spokes are added.

15	BSNHS	Various ship's wheels at different stages. Wooden mallets and spare spokes provide context for the manual labour needed to construct them.
16	BSNHS	Mechanical rim buffer with example in the machine. Unfinished rims to its side. Work coats behind gear give the impression that this is an active workspace. Signage explaining the buffing process.
17	BSNHS	Informational signage. History of Shipyard from 1918-1971. Hells Gate Landslide beginning. Text and three photographs. Shipyard Work with two workers.
18	BSNHS	Informational signage. Fraser River Skiffs, Columbia River Skiffs, Gillnetters. Three photographs of boats in the marina or on land.
19	BSNHS	Signage on shipbuilding on the site. Proposes questions to visitors about which shop they would like to work in. Photographs included of the wooden vessel under construction, but not precisely at Britannia but along the Fraser River.
20	BSNHS	Sign explaining some hand tools in the carpenter's toolbox. Included a brief history of repair work at the shipyard. Sign tries to get the reader to find the pictured items when the actual object is within the room. Attempts to make it fun with a game. A vessel under construction is provided as an example of the woodwork involved.
21	VMM	Bow of RCM Police St. Roch. Wooden strakes are on top of the hull, while the metal bottom is below.
22	VMM	Woodworking tools on display. Signs with corresponding numbers describe their usage. The signs are only in English and in small print.
23	VMM	Additional woodworking tools used for building St. Roch.
24	VMM	Signs explaining the history of St. Roch's design and brief information on its construction location.
25	PMM	Display case (upper portion) with text, photographs of various completed vessels on the water, and four half-hull models.
26	PMM	Display case (lower portion) with some hand tools, photographs of a boat being repaired and a sign detailing the process. Use of older terms of ship components ("ribs").
27	PMM	Closeup of Repair sign, F/V Phyllis S. in Alaska. Photographs show hull/keel damage; the next one shows new frames being set, planking attached, and then its completion.
28	PMM	A broad view of various hand tools inside a display case. A miniature steam box rests on top. The wooden pattern board is on the wall behind.
29	PMM	Closeup of tools in display case. Some tools have tags that provide names and usage information. One sign provides background information on a 'Nelson oiler saw', and its local connection, C. E. Nelson.
30	PMM	A close-up of various hand tools in the display case, but no signs provide context to the visitor.
31	PMM	Large pattern board with a sign explaining its purpose. A small half-hull model is displayed. But overall, its presentation was disjointed.
32	PMM	Three black and white photographs of vessels. One at the shed's entrance and the other two of another vessel on wooden ways at an unknown bench. Possible repair work? No explanation was given.
33	PMM	A large sign, describing the history of a local boat builder, Ronald Young, and his building of "Poulsbo Boats," is displayed. Below is an example of a Poulsbo boat with a small engine. The sign gives insight into these boats, which were built to withstand the "fast-changing weather" around Puget Sound that a fisherman may experience during the day.

34	PMM	Boat from Hall Brothers Shipyard, 1910 Gig. A local shipbuilder. Visitors can thoroughly inspect or touch the vessel.
35	PMM	Millie, a gig built by Hall Brothers in the 1930s. A second vessel from a local shipbuilder.
36	PMM	Outdoor display of tools from Ronald Young, local boat builder. There is no signage explaining what the tools are or their function.
37	PMM	Closeup of four half-hull models, with a small tag explaining their purpose.
38	MOHAI	A display case holds various hand tools. An oversized photograph of workers posing at a shipyard shed is in the background. No signage explains the hand tools' names or their purpose, and the photograph is not explained either.
39	MOHAI	Sign and photograph referencing the need for shipbuilding to support the Alaskan gold rush. Twelve ships were retrofitted in seven months at Moran Brothers Shipyard. The photograph shows workers standing on/by the paddle wheel of one of the vessels.
40	MOHAI	Display case (lower portion) with two photographs of workers constructing a ship's hull at a local shipyard, and another shows the three Moran brothers who started the company.
41	MOHAI	Display of the construction of the metal-hull warship, Nebraska, in 1906. Ship model on display. Enlarged postcard showing the ship at the Moran Company shipyard in Seattle.
42	MOHAI	Display of a caulking iron and oakum. Items tagged with their name and a one-line description of their use in shipbuilding. Photo of Olson and Winge Marine Works in the 1930s in Ballard showing various vessels being repaired/constructed.
43	MOHAI	Display of WW2 shipbuilding effort in Seattle. A large wrench and welding torch are displayed. 'Women needed' ad showcased work at the yard, indicating male worker shortage from the war—a photograph of two women working at the local shipyard.
44	BHM	Photograph and sign of 'Reuce of Richmond', a fully-rigged vessel, built at the Hall Brothers around 1903, a local shipbuilder.
45	BHM	A display case on the "businesses" of the island. Three photographs from Hall Brothers Shipyard. Lloyd's register from Hall Bros office 1904-05. Photographs show workers building a vessel and one of the workers posing, including ethnic minorities like Asian immigrants and indigenous. Pho
46	BHM	Closeup of the maritime-related materials within the Business exhibit. Photographs of the workers who worked at the Hull Brothers and the later Winslow Marine Railway and Shipbuilding Company show diversity, as shown by the workers' ethnicities.
47	HMM	The boatbuilding exhibit, "Boatbuilding comes of age," provides a brief history of the industry in the region. It mentions that building was just part-time for locals, as they primarily fished. An oversized photograph on the back wall includes workers posing on the bow of a vessel.
48	HMM	The tool chest of local shipwright John Holmaas, a Norwegian immigrant, mainly consists of metal tools. It is displayed tucked inside a door and back hallway, so it could be easily missed as visitors go to or from the outside exhibits.
49	HMM	Wall-mount example of chaulking tools and reference of oakum between the planks. However, the sign doesn't relate to this display.

50	HMM	The bow of Shenandoah, including worker's scaffolding, is being actively restored.
51	HMM	Sign telling visitors about the ship's restoration and why it's being done (teaching role, techniques used, understanding local history). Provide context and justification for the need to restore the vessel.
52	HMM	Closeup of the exhibit sign. Photograph of three local shipbuilders. A rubbing stamp provides children (and perhaps some adults too). with a souvenir of the exhibit and a way to remember their time learning about shipbuilding at the museum.
53	HMM	Hallway location of the tool chest and chaulking sample right beside the back door. Could easily be missed.

Appendix D. Museum photographs

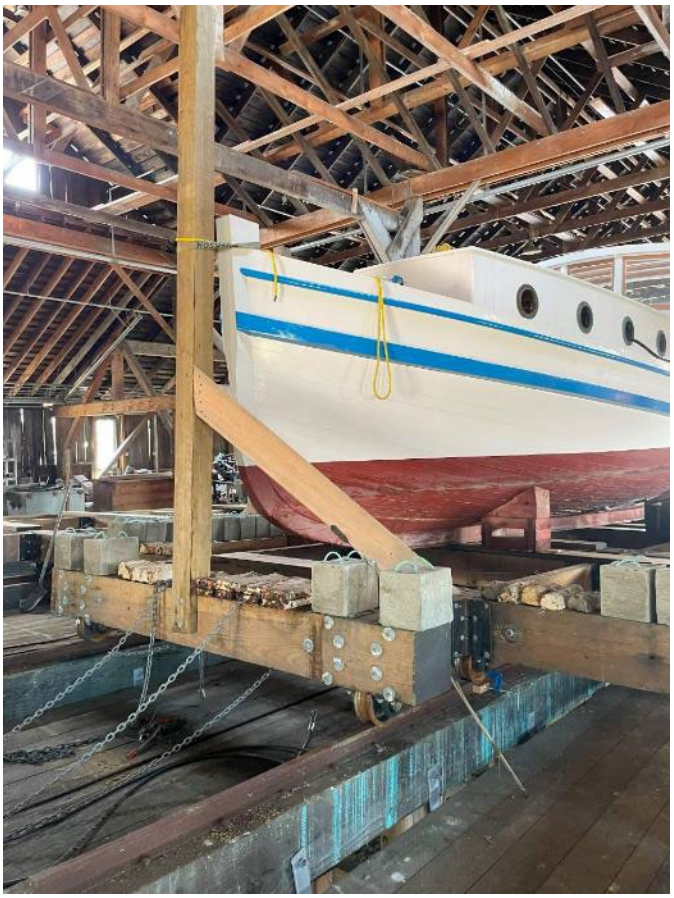

Figure 1 Restoration of a fishing vessel and marine railway. (C. Wilkey 2023).

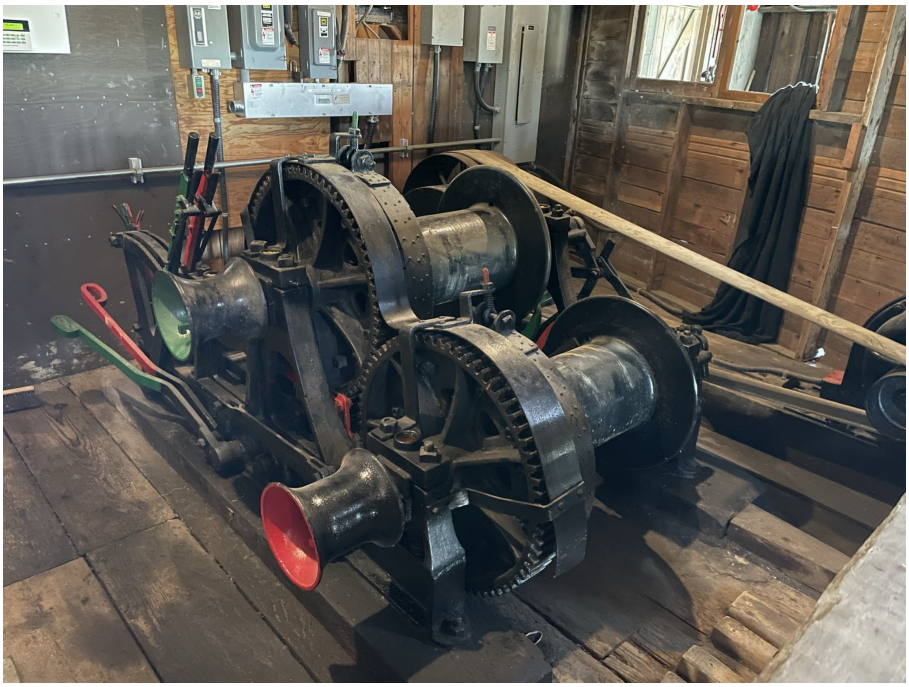

Figure 2 Operational marine winch. (C. Wilkey 2023).

Figure 3 Planer from the MacGregor Gourlay Co. (C. Wilkey 2023).

Figure 4 Closeup of the steam box and its attached signage. (C. Wilkey 2023).

Figure 5 Ship patterns, timber, and a steam box. (C. Wilkey 2023).

Figure 6 Pattern boards and lumber. (C. Wilkey 2023).

Figure 7 The carpentry shop. (C. Wilkey 2023).

Figure 8 Pattern boards and various woodworking tools rest on the workbench in the carpentry shop. (C. Wilkey 2023).

Figure 9 Woodworking tools on display within the carpentry shop. (C. Wilkey 2023).

Figure 10 The machine shop with assorted metalworking tools. (C. Wilkey 2023).

Figure 11 Workbench with the handwritten sign. (C. Wilkey 2023).

Figure 12 Frasier River Skiff. (C. Wilkey 2023).

Figure 13 F/V Silver Ann, a Japanese gillnetter. (C. Wilkey 2023).

Figure 14 Ship's wheel display with the creation of the rim. (C. Wilkey 2023).

Figure 15 Ship's wheel display with attaching the spokes and handles. (C. Wilkey 2023).

Figure 16 Ship's wheel display with the polishing machinery. (C. Wilkey 2023).

Figure 17 Entrance signage detailing the yard's history. (C. Wilkey 2023).

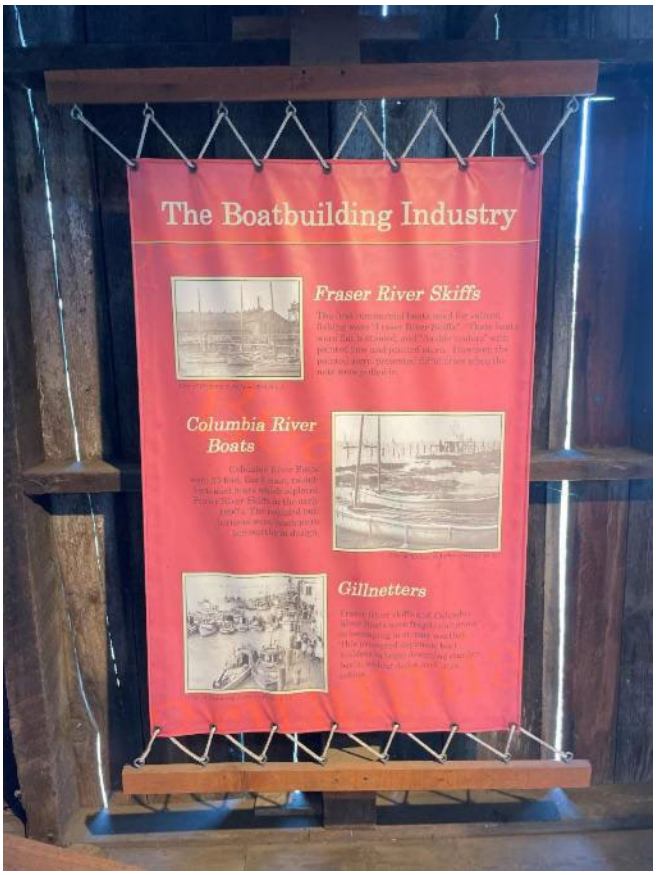

Figure 18 Second entrance signage explaining the boat types found in the area. (C. Wilkey 2023).

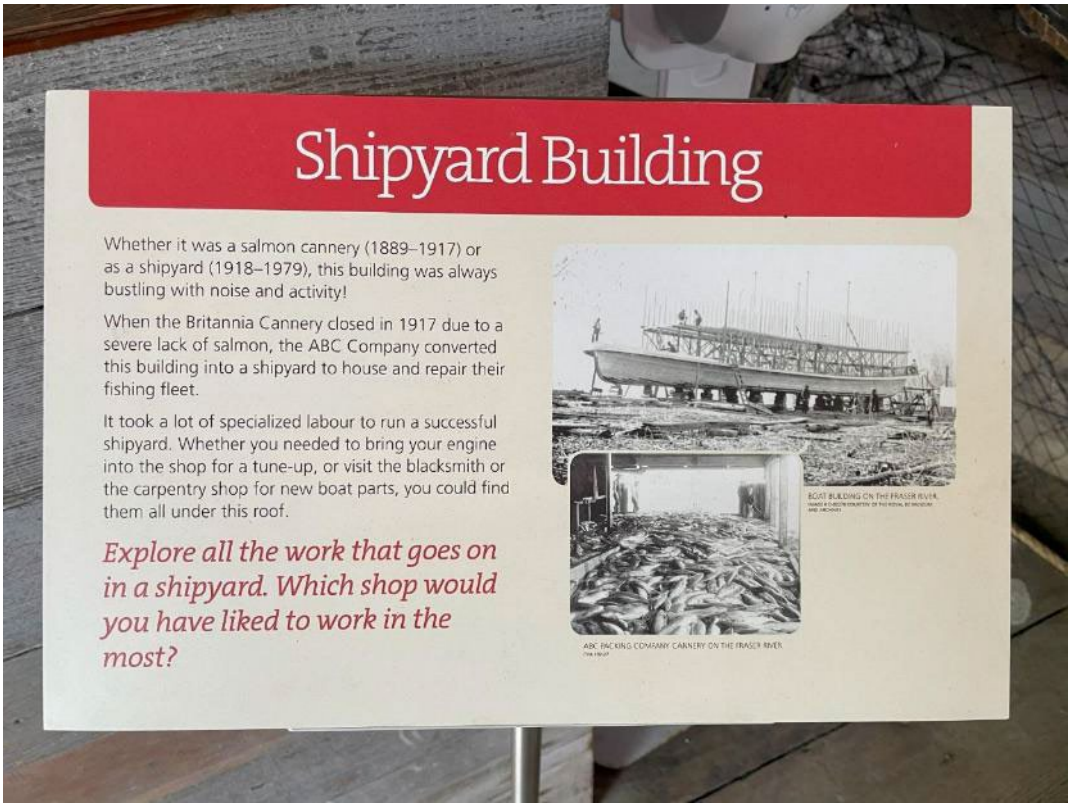

Figure 19 Entrance signage about the shipyard building. (C. Wilkey 2023).

Figure 20 Signage explaining the Carpentry shop and its tools. (C. Wilkey 2023).

Figure 21 Bow of RCMP St. Roch. (C. Wilkey 2023).

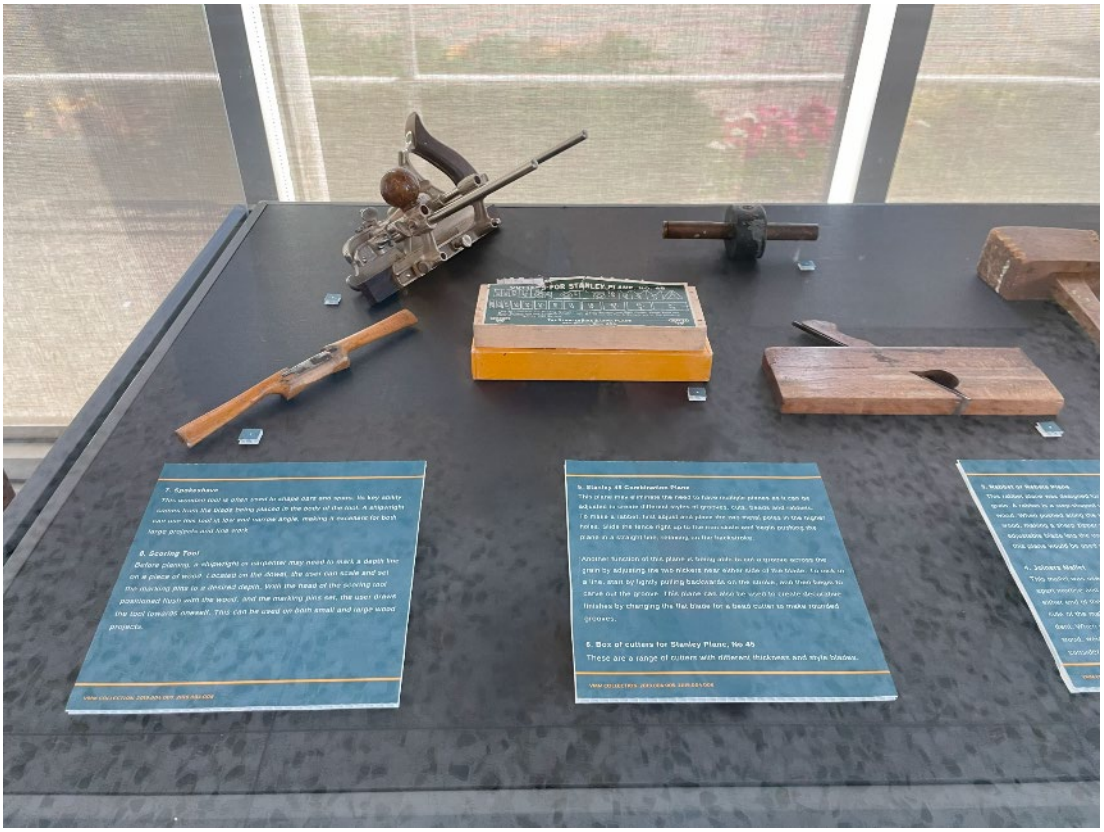

Figure 22 Woodworking tools of Horace Buckingham. (C. Wilkey 2023).

Figure 23 Woodworking tools of Horace Buckingham. (C. Wilkey 2023).

Figure 24 Background of St Roch and its construction (C. Wilkey 2023).

Figure 25 The upper half of the first display case. (C. Wilkey 2023).

Figure 26 The lower half of the first display case. (C. Wilkey 2023).

Figure 27 Closeup of 'The Repair of the Phyllis S.'. (C. Wilkey 2023).

Figure 28 The second display case of shipwright tools. (C. Wilkey 2023).

Figure 29 Closeup of display case contents. (C. Wilkey 2023).

Figure 30 Closeup of display case contents. (C. Wilkey 2023).

Figure 31 Closeup of the pattern board. (C. Wilkey 2023).

Figure 32 Black and white photographs of vessel repair. (C. Wilkey 2023).

Figure 33 The Poulsbo Boat sign detailing the life of Ronald Young. (C. Wilkey 2023).

Figure 34 A gig, built by local shipyard Hall Brothers in 1910. (C. Wilkey 2023).

Figure 35 Cruiser tender, Millie, built by 'the Hall Brothers' in the 1930s. (C. Wilkey 2023).

Figure 36 Hand tools from the Ronald Young collection. (C. Wilkey 2023).

Figure 37 Half-hull models and the associated tag. (C. Wilkey 2023).

Figure 38 Shipbuilding display case. (C. Wilkey 2023).

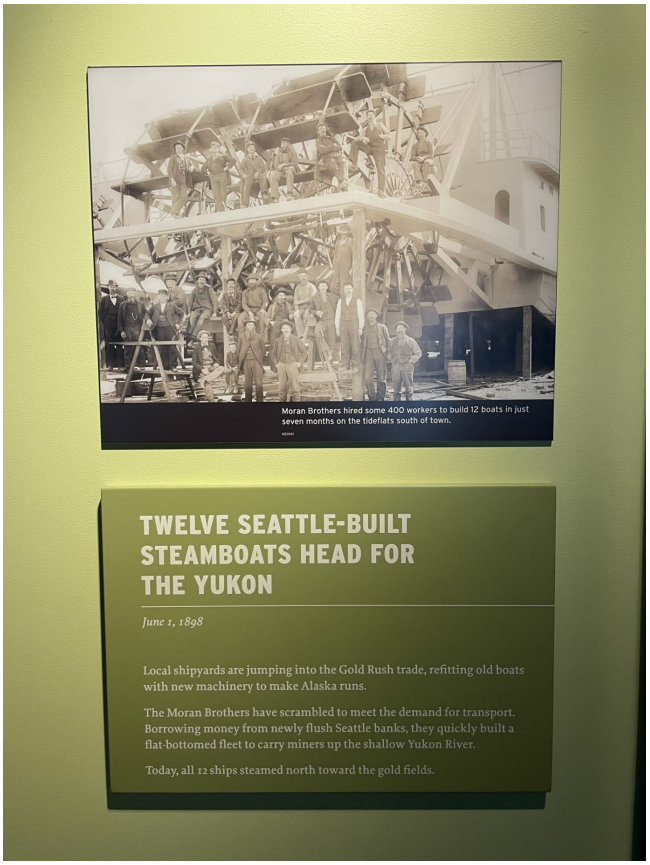

Figure 39 Moran Brothers built twelve steamboats in 1898. (C. Wilkey 2023).

Figure 40 Closeup of ship construction, a steamship advertisement, and owners of the Moran Brothers Shipyards. (C. Wilkey 2023).

Figure 41 Display case of U.S.S. Nebraska construction. (C. Wilkey 2023).

Figure 42 Iron, oakum, and a photograph from the Olson and Winge Marine Works in the 1930s. (C. Wilkey 2023).

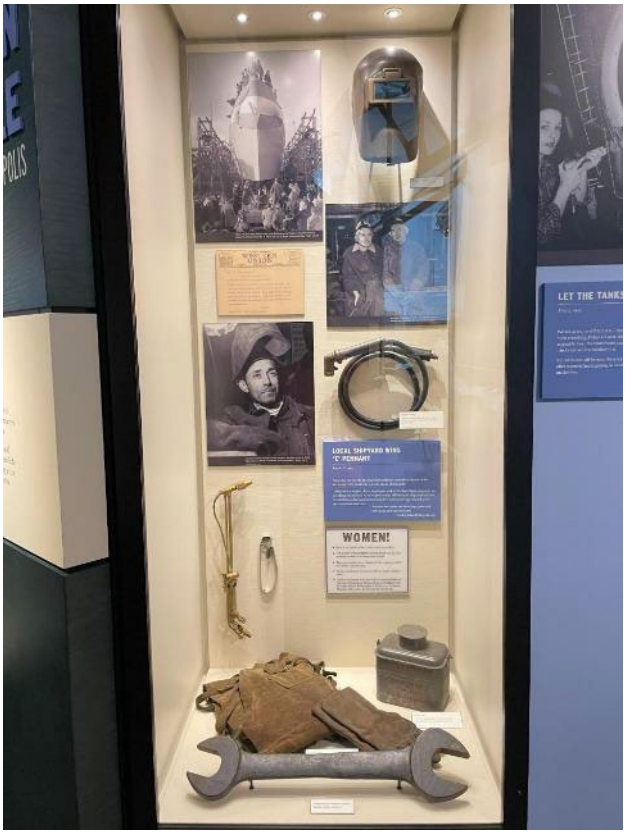

Figure 43 Display case of World War 2 era shipbuilding in Seattle. (C. Wilkey 2023).

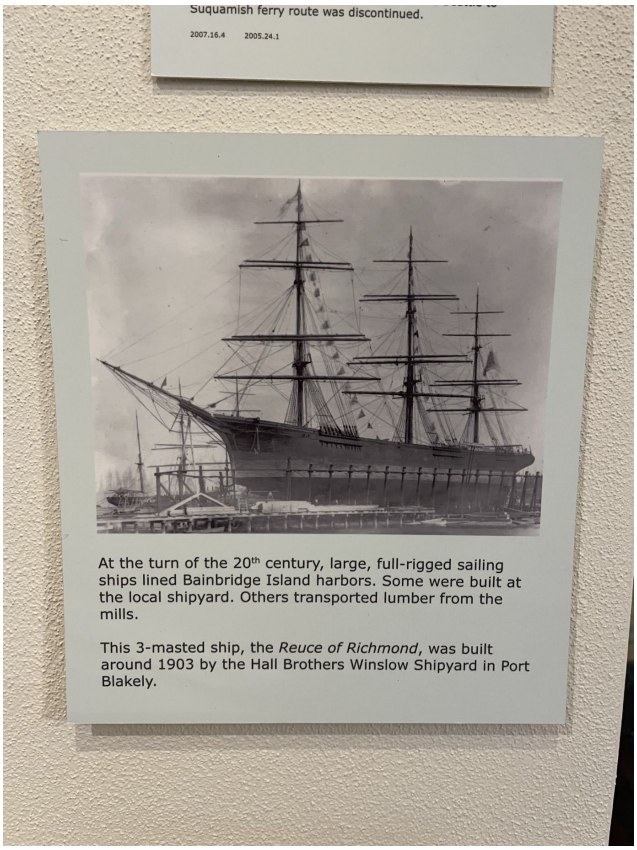

Figure 44 Closeup of Reuce of Richmond by the Hall Brothers in 1903. (C. Wilkey 2023).

Figure 45 Display case of the Business community, including objects from the Hall Brothers Shipyards. (C. Wilkey 2023).

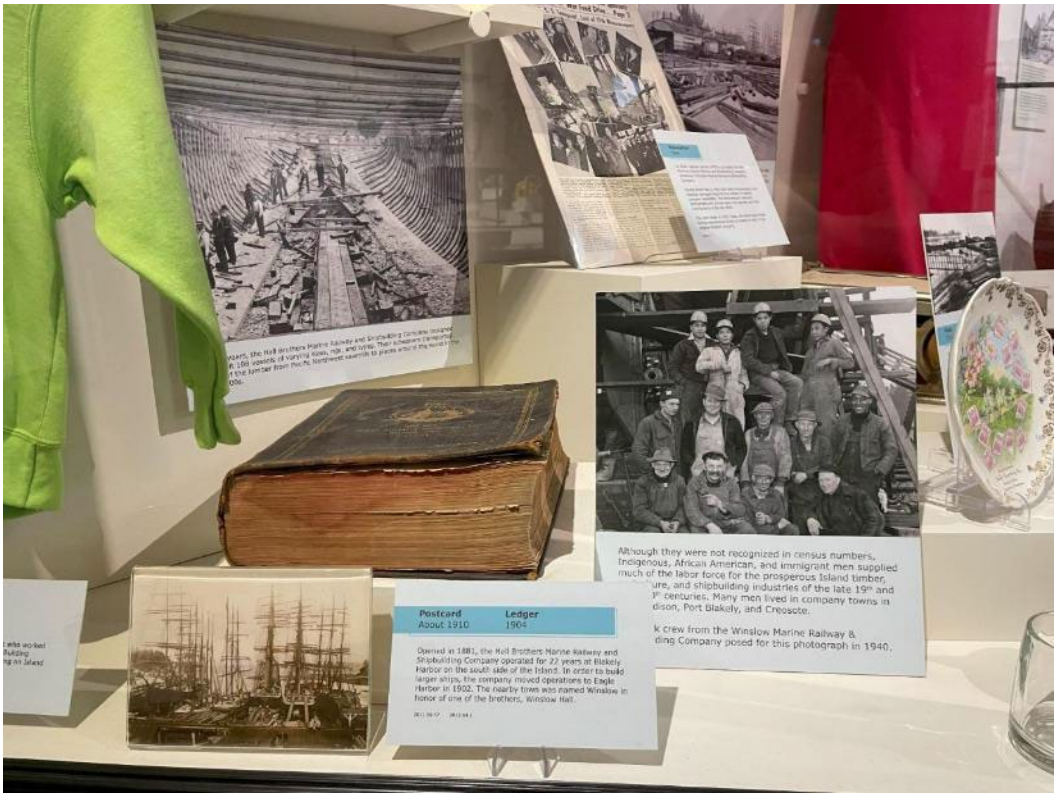

Figure 46 Close-up of the Hall Brothers photographs and Lloyd's Register. (C. Wilkey 2023).

Figure 47 Boatbuilding exhibit at the Harbor Maritime Museum. (C. Wilkey 2023).

Figure 48 John Holmaas' toolbox. (C. Wilkey 2023).

Figure 49 Wall-mounted caulking exhibit. (C. Wilkey 2023).

Figure 50 The museum ship Shenandoah. (C. Wilkey 2023).

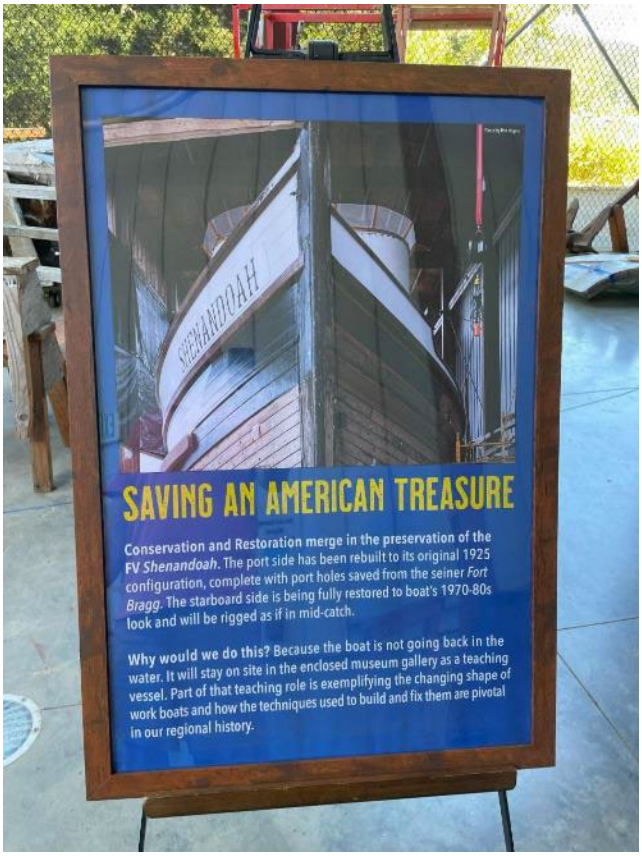

Figure 51 The 'Saving an American Treasure' poster explains why we should restore the vessel. (C. Wilkey 2023).

Figure 52 Closeup of the signs of the 'Boatbuilding Comes Of Age' exhibit. (C. Wilkey 2023).

Figure 53 Back hallway exhibit of shipbuilder's toolbox and caulking exhibit. (C. Wilkey 2023).