

NAVIGATING THROUGH HISTORY: INTERPRETATION AT
HISTORIC LIGHTHOUSES AND RECOMMENDED MEASURES
FOR BEST PRACTICE- AN OREGON CASE STUDY

By
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TERMINAL PROJECT ABSTRACT

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Title: Navigating Through History: Interpretation at Historic Lighthouses and Recommended Measures for Best Practice- An Oregon Case Study

Eleven light stations and one lightship once constituted Oregon's coastal lighthouse system. Of this system, nine lighthouses remain standing, as well as the last Columbia River lightship.

While each of these structures has its own unique history, they are united in their representation of a brief, but important era in the history of Oregon, as well as the larger Pacific Northwest region. Together, these lighthouses serve as reminders of a time when ships plied up and down America's west coast, importing vital goods from the East and exporting valuable commodities through numerous harbors. Through the years, the need for these beacons steadily declined, and most of Oregon's lighthouses were either decommissioned or automated by the late 1960s.

During the second half of the twentieth century, public agencies were given charge of most of these beacons, and extensive preservation efforts took place over the following decades.

Presently, seven of these structures, as well as the lightship *Columbia* (WLV-604), are accessible to the public and feature interpretive programming. Each of these sites facilitates interpretation according to individualized plans and policies; there are no overarching guidelines for this practice other than the brief suggestions provided within the *Historic Lighthouse Preservation Handbook* and a few guiding principles from regional agencies. Using three case studies, this project examines some of the interpretive strategies currently employed at these

sites, which range from the simple placement of informational plaques to fully guided tours and living history presentations. Ultimately, this work proposes several guidelines, themes, and strategies for relevant, consistent, and thorough interpretation at historic lighthouses. Keeping the unique character and history of each site in mind, the proposed guidelines can be easily tailored to the needs and capabilities of each resource. Moreover, though the historic context and case studies that are presented deal specifically with Oregon's coastal lighthouses, the proposed guidelines and strategies may be theoretically applied to any historic lighthouse. In the end, this project aspires to contribute to the larger discussion about how historic preservation can actively incorporate interpretation.

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To my wife, Hannah,
For visiting so many lighthouses with me, and for always reminding me to stop at the scenic viewpoints.

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Introduction

Lighthouses possess a unique and ubiquitous position within American culture. Steadfastly performing their duty in the face of the harshest conditions, these structures have taken on a great cultural importance, and the lighthouse has become the very icon of safety, security, and stability. For over two centuries, American poets, artists, and authors have commemorated lighthouses in their works, and these structures have always drawn countless numbers of admirers. While the romantic perception of lighthouses cannot be attributed to a single feature or characteristic, several factors may help to explain their appeal. Because lighthouses (and their associated lifesaving stations) helped to save the lives of innumerable mariners, they are associated with safety, stability, and hope. Moreover, their ability to weather the harshest storms evokes a feeling of shelter and permanence. According to one blog that posed the question, “Why Do People Like Lighthouses?,” these beacons are appealing because they represent the “dramatic edge between land and water.”¹ In this way, they symbolize a tether of safety between the familiar and the unknown.

However, lighthouses are not limited merely to a symbolic significance, as they are also renowned for their beauty and unique scenic surroundings. Lighthouses are the subject of innumerable paintings, photographs, and book cover art, not to mention the abundant volumes of “coffee-table” books that are filled with beautiful images of the structures. Moreover, millions of visitors flock to lighthouses across the United States every year to gaze upon the structures, snap photos, and enjoy the scenery. Uniquely among historic sites, lighthouses often feature a landscape that is as alluring as the building itself.

¹ Shed Some Light on Lighthouses, “Why do People Like Lighthouses?,”
<https://lighthouse43.wordpress.com/2012/12/05/did-you-ever-wonder-why-people-like-lighthouses/>.

Though the symbolic and picturesque qualities of lighthouses contribute to their cultural importance, they are also significant historic resources that symbolize an important era of local, regional, and national history. While the physical preservation of lighthouses is both an imperative and challenging task, it alone does not adequately convey this history to the public. Rather, preservation must be coupled with intentional and effective interpretation. By demonstrating the significance of these resources to visitors through visceral, memorable, and thought-provoking experiences, interpreters can preserve the intangible history of lighthouses alongside their tangible materials. This project explores the elements that constitute high-quality interpretation and applies these ideas to Oregon's historic coastal lighthouses. Drawing upon the similar history, themes, physical characteristics, and interpretive challenges shared among these resources, a common set of guidelines and strategies would make interpretation at these sites more thorough, relevant, and informative, while still allowing each site to continue to convey its own distinct story.

Problem Statement

Since the passage of the National Historic Preservation Act (NHPA) in 1966, as amended, tremendous efforts have been expended towards the restoration and rehabilitation of Oregon's historic coastal lighthouses. Some of these structures, such as the Coquille River lighthouse near Bandon, and the Yaquina Bay lighthouse in Newport, were on the verge of collapse when they were finally preserved. Others have required extensive repairs due to vandalism, and Oregon's harsh coastal weather requires frequent maintenance of the building envelope (windows, doors, and surface coatings) at each of these sites. Most of the state's lighthouses have undergone significant preservation projects at some time during last several decades, but the availability of funding and the level of community support often affects the

scale of such endeavors. Consequently, treatments have ranged from comprehensive restoration projects to minor repairs. As of this writing, Heceta Head is the only lighthouse in Oregon that has undergone a complete, internal and external restoration.² Notably, some of the workrooms at these sites have been rehabilitated for use as interpretive centers or gift shops, some remaining outbuildings have been rehabilitated for similar uses, and Tillamook Rock Lighthouse was famously converted into a columbarium during the 1980s.

Although preserving these historic structures is of the utmost importance, their story cannot be fully conveyed without adequate interpretation. Currently, a wide range of interpretive strategies are applied at Oregon's coastal lighthouses. For example, at the Coquille River light, visitors are not permitted into the tower due to concerns about public safety, and interpretation takes place via a series of plaques in the fog-signal building of the lighthouse, where volunteers also give presentations and answer questions. Conversely, at the Yaquina Head light, visitors begin their tour at the Yaquina Head Outstanding Natural Area interpretive center, and are later guided all the way up the tower by a costumed tour guide acting as a lightkeeper from the 1890s. As a result of variations in the site characteristics, structural conditions, and availability of funding, a wide variety of interpretive programming occurs at Oregon's coastal lighthouse sites. The project at hand explores some of these approaches, and ultimately provides a set of interpretive guidelines that may help to coordinate and improve interpretation at these sites.

While this project does not intend to establish a formal interpretive plan for Oregon's coastal lighthouses, it will provide suggestions for improving or rethinking the interpretive programming at these sites. Through high-quality interpretation, lighthouses may provide visitors to the Oregon coast with a better understanding of their significance in both local and national

² Comment from Sue Licht, preservation architect and terminal project committee member.

history, and may also inspire them to visit similar sites in the future. Although the goals, strategies, and themes described within this project are set against the backdrop of Oregon's history, they could theoretically be applied to any historic lighthouse.

Literature Review

An abundance of literature addresses the history of lighthouses in the United States. Although the bulk of lighthouse scholarship dates to the mid-twentieth century, a few works have been published in recent years. Notable among these publications is Francis Ross Holland's *America's Lighthouses: An Illustrated History* (1972), which is frequently cited in secondary sources regarding lighthouses. While the information presented is reliable, this work does not go into great depth in its descriptions of individual lighthouses or regions and does not sufficiently inform the topics of Oregon lighthouse history or interpretation. However, another of Holland's works, *Great American Lighthouses* (1989), provides a very useful, succinct narrative of American lighthouse history. Dennis Noble's *Lighthouses and Keepers: The U.S. Lighthouse Service and Its Legacy* (1997) provides great narrative descriptions of lighthouse administration and operation, and includes valuable descriptions of lightships, buoys, fog signals, and tender ships.

Another valuable resource relating to general lighthouse history is Hans Christian Adamson's *Keepers of the Lights* (1955). While this work is somewhat dated, it provides valuable information about lighthouses during the final years of their historic operations, when they were subjected to rapid change. A modern example of American lighthouse scholarship can be found in *Brilliant Beacons: A History of the American Lighthouse*, written by Eric Jay Dolin

and published in 2016. Although this work primarily addresses East and Gulf Coast lighthouses, it provides an excellent developmental history of the United States lighthouse system.

Regarding the history of the lighthouse service itself, reliable information can be found within *The Lighthouse Service: Its History, Activities and Organization* (1926) by George Weiss, as well as in *Sentinel of the Coasts: The Log of a Lighthouse Engineer* (1937) by George Putnam, long-time Commissioner of Lighthouses. Each of these publications was written before the Bureau of Lighthouses was transferred to the United States Coast Guard, and both offer valuable descriptions of lighthouse operations at the turn of the century. Specifically, these sources describe the emergence of radio beacons, the rise of automation, and the maintenance and inspection of light stations under the authority of the Lighthouse Service. Robert Erwin Johnson's book, *Guardians of the Sea: History of the United States Coast Guard* (1987) devotes a few pages to the transition of the lighthouse service into the Coast Guard in 1939.

The National Register nomination forms for each of Oregon's lighthouses provide an abundance of information regarding individual sites, as well as the development of the state's lighthouse system. Similarly, Sally Donovan's 1991 Multiple Property Documentation form for Oregon's lighthouses includes a thorough context statement describing the history of Oregon's maritime economy. Beginning with Native American history before the arrival of European settlers, this document describes the opening of the west, the establishment of Oregon as both a territory and state, and the continuous increase in maritime traffic that necessitated the construction of lighthouses in the Pacific Northwest. Although this document does not pay particular attention to any specific lighthouse, it narrates the architectural trends that characterize these structures, as well as the various methods and materials utilized in their construction.

Several publications address West Coast or Oregon lighthouses specifically. Most prominent among these sources are the works of lighthouse historian James Gibbs, a former Coast Guard lighthouse keeper at Tillamook Rock, whose work on the subject is rather prolific. The bibliography for this project includes five books authored or co-authored by Gibbs, which address the lighthouses of the Pacific Ocean, the West Coast, or Oregon specifically. However, two of these books are not particularly informative; *Sentinels of Solitude: West Coast Lighthouses* (1981) contains mostly photographs, and *West Coast Lighthouses: A Pictorial History of the Guiding Lights of the Sea* (1974) provides little information about specific light houses. *Lighthouses of the Pacific* (1986) provides valuable descriptions about the regional structure and local operation of lighthouses in Oregon, and *Sentinels of the North Pacific: The Story of Pacific Coast Lighthouses and Lightships* (1955) contains a historical summary of each of Oregon's lighthouses, as well as the lightship *Columbia*.

Co-authored with Bert Webber and published by the Webb Research Group, Gibbs' *Oregon's Seacoast Lighthouses* provides a brief historical narrative and structural description for each of Oregon's extant lighthouses; it serves as a great quick-reference guide. Two similar books, Jeremy D'Entremont's *The Lighthouse Handbook: West Coast* (2016), and *Umbrella Guide to Oregon Lighthouses* (1994) provide brief overviews of Oregon's lighthouses. Of these sources, Gibbs's supply the most information, but D'Entremont's updated descriptions and information about recent preservation projects are particularly useful.

Randy Leffingwell and Pamela Welty's *Lighthouses of the Pacific Coast* (2000) provides an excellent narrative regarding the development of the West Coast and the increase in maritime traffic that led to the need for lighthouses in Oregon. Though this work only addresses a few of Oregon's lighthouses specifically, it adequately describes the challenges of preserving these

structures. Only one other work cited within this bibliography approaches Oregon's lighthouses from a preservation perspective. It is a master's thesis from the University of Oregon, entitled "Preservation of the Remote Sentinel: Offshore Lighthouses of Washington and Oregon," written by David F. Steele and published in 2002. Steele's thesis explores the physical preservation of several offshore lighthouses, and explores some of the difficulties involved in their treatment.

In 2008, Alicia L. Thomas wrote a master's thesis for the University of North Carolina regarding interpretation at lighthouses in that state. It is entitled *Pushing Past the Romantic: Preservation and Interpretation at Historic Lighthouses in North Carolina*. While the focus and theme of her work differ substantially from this project, Thomas addresses similar problems and difficulties in interpreting lighthouses. Chiefly, her work demonstrates that the problem statement pertaining to this project is true of other regions across the United States.

The National Archives in Washington D.C. retains an immense collection of primary sources related to the nation's lighthouses, including keepers' logs, congressional documents, maintenance and inspection reports, and historic photographs. While the author was not able to visit the archives for primary source research, the historic photographs that were accessible via the internet were very useful.

Several key sources provide both general information and statistical data regarding interpretation at historic sites. Chief among these works is Freeman Tilden's *Interpreting Our Heritage* (1957). Tilden is widely considered to be the "father of interpretation" in the National Park Service, and this book is cited in nearly every source that is written about interpretation at cultural or historic sites. Within this work, Tilden establishes a philosophy for interpretation, explains what it means to the visitor, and provides insightful suggestions for implementation strategies. Though it was written before the advent of computerized technology, the strategies

within *Interpreting Our Heritage* can be applied to the interpretation of virtually any historic site in a modern context. *Interpretation of Historic Sites* (1976) by William Alderson and Shirley Payne Lowe provides a similar framework for interpretation, and provides numerous case studies. This work, like Tilden's, is also outdated; while the principles described in these books are worthy of consideration, they must be tempered with contemporary perspectives and research.

The chapters of this work dealing with interpretation draw heavily upon Sam H. Ham's *Interpretation: Making a Difference on Purpose* (2013). This book provides a foundational understanding of the interpretive profession, as well as key recommendations for the creation of effective interpretive programming. Edited by David Larsen, *Meaningful Interpretation: How to Connect Hearts and Minds to Places, Objects, and other Resources* (2011) provides much information about relevant interpretation. Regarding children's interpretation, Carolyn Widner Ward and Alan E. Wilkinson's *Conducting Meaningful Interpretation* dedicates an entire chapter to the creation of programming for school-groups.

Many journal articles present findings that provide insight into the value of quality interpretation at historic sites. Educational researchers such as Roy Ballantyne, Jan Packer, and David Uzzell have published numerous articles that encourage interpreters to facilitate emotional connections between visitor and site, and to strive for learner-centered approaches. While these ideas are also reflected in current research, much of this scholarship dates from the 1980s and 1990s, and is therefore somewhat dated. Further alienating these sources, a large portion of these studies were conducted in Australia and New Zealand. While these factors do not invalidate such studies, they are utilized in this work primarily where they are reinforced by more recent findings.

However, interpretation is a very active subject of research, and there is no shortage of modern studies. For example, James Farmer and Doug Knapp published “Interpretation Programs at a Historic Preservation Site,” in the *Journal of Mixed Methods Research* in 2008. The article utilizes an original, statistically significant study to demonstrate the correlation of quality interpretation with the long-term retention of information. The study found that those who developed personal connections with a site retained more information about the site over a six-month period. Most useful in this regard is the *Journal of Interpretation Research*. Published bi-annually since 1996, this journal provides articles related to visitor studies, the effectiveness of interpretive strategies, and education at heritage sites, among other topics.

Definitions and Background Information

Lighthouse Terminology

Within this work, various technical terms will refer to lighthouses, their sites, and the navigation systems of which they were a part. In this context, a lighthouse refers to a tower-like structure, constructed of brick, stone, wood, or metal, that serves as a base for a lantern. The lantern itself is usually composed of three sections: the service (watch) room, the optic section, and the dome (roof).³ Often, a walkway and iron railing encircles the service room, optic section, or both; this is called a gallery. Throughout this document, a lighthouse may also be referred to as a lighthouse tower, tower, beacon, or simply a light.

³ Editorial, “The Lantern Room,” *The Keepers Log* 1, no.1 (Fall 1984): 15-17.

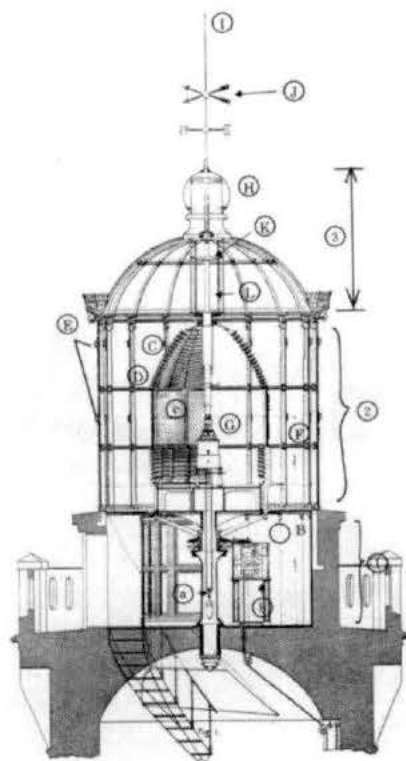


Figure 1: Lantern Diagram (From *The Keepers Log* 1, no.1)

Until the late twentieth century, lighthouses were formally one part of a larger complex called a light station, or lighthouse station. These stations varied in size, but the *Historic Lighthouse Preservation Handbook* specifies that a “completely equipped” light station could include, besides a tower, a “keeper’s quarters, oil storage house, fog-signal building, workshop, water supply, privy, landing wharf, boathouse and ways, barn, roads, walks, and fences.”⁴ Oregon’s light stations almost always featured a Head Keeper’s quarters and an Assistant Keeper’s duplex. Until the mid-twentieth century, most of Oregon’s light stations also included a garden. Generally, when this work refers to a light station, it is meant to reference the historic built environment that once existed at the site. Conversely, the term “lighthouse” specifically refers to the tower constructed at a light station.

⁴ National Park Service, et al., *Historic Lighthouse Preservation Handbook*: 1997, Part II, 5.

A light station should not be confused with a lifesaving station. This term describes an outpost, maintained by the Coast Guard or a preceding agency, which housed a crew and equipment to rescue endangered mariners before or after shipwrecks. At various points, this paper makes reference to lighthouse tenders. These were ships that traveled between light stations to deliver construction supplies, as well as food, equipment, and other items necessary to ensure the proper operation of the lighthouse and the survival (and comfort) of keepers and their families. Lighthouse inspectors also traveled upon these tenders to perform quarterly inspections of lighthouses within their jurisdiction.

Perhaps most importantly, it must be understood that lighthouses are only one type of beacon utilized to guide ships along and through waterways. Other types include lighted buoys, lightships, automated beacons, and fog signals. Collectively, these beacons are known as aids-to-navigation. Though this paper mentions multiple types of aids-to-navigation in passing, it focuses exclusively on lighthouses and the light stations with which they were historically associated. Along Oregon's coast, only the light stations at Coquille River, Cape Arago, Tillamook Rock, and Point Adams (demolished in 1912) were equipped with a fog-signal.

Between the 1850s and the 1930s, eleven light stations and one lightship were established along the Oregon coast. Including towers that collapsed or were eventually demolished, a total of fourteen lighthouses were constructed at these stations over time. These figures do not include Oregon's two river lighthouses; the Willamette River light was located at the confluence of the Columbia and Willamette rivers, near Kelley Point, and the Warrior Rock light is on the east side of Sauvie Island, in the Columbia River. As of this writing in 2018, nine of Oregon's coastal lighthouses remain standing, as the structures which formerly stood at Point Adams and Desdemona Sands were demolished during the early twentieth century. Additionally, the

lightship *Columbia* (WLC-604) has been preserved, and is anchored at the Columbia River Maritime Museum in Astoria, Oregon.

From 1939 until the late twentieth century, the United States Coast Guard retained authority over all of Oregon's coastal lighthouses. However, these beacons were gradually decommissioned beginning in the 1950s, and the Coast Guard ultimately passed along ownership, or management authority, to a variety of public and private agencies. Presently, Oregon Parks and Recreation Department (OPRD) operates and maintains four lighthouses: Coquille River Light, Heceta Head Light, Yaquina Bay Light, and Cape Meares Light. Of these, OPRD only owns Heceta Head and Yaquina Bay, and the others are owned by the Coast Guard. The Bureau of Land Management (BLM) maintains two lighthouses: Cape Blanco and Yaquina Head. Although the Umpqua River lighthouse is within the boundaries of Umpqua Lighthouse state park, it is operated and maintained by Douglas County. Cape Arago is owned by the confederated tribes of the Coos, Lower Umpqua, and Siuslaw, and Tillamook Rock is privately owned. Cape Arago and Tillamook Rock, both offshore beacons, are currently not accessible to the public for interpretation.

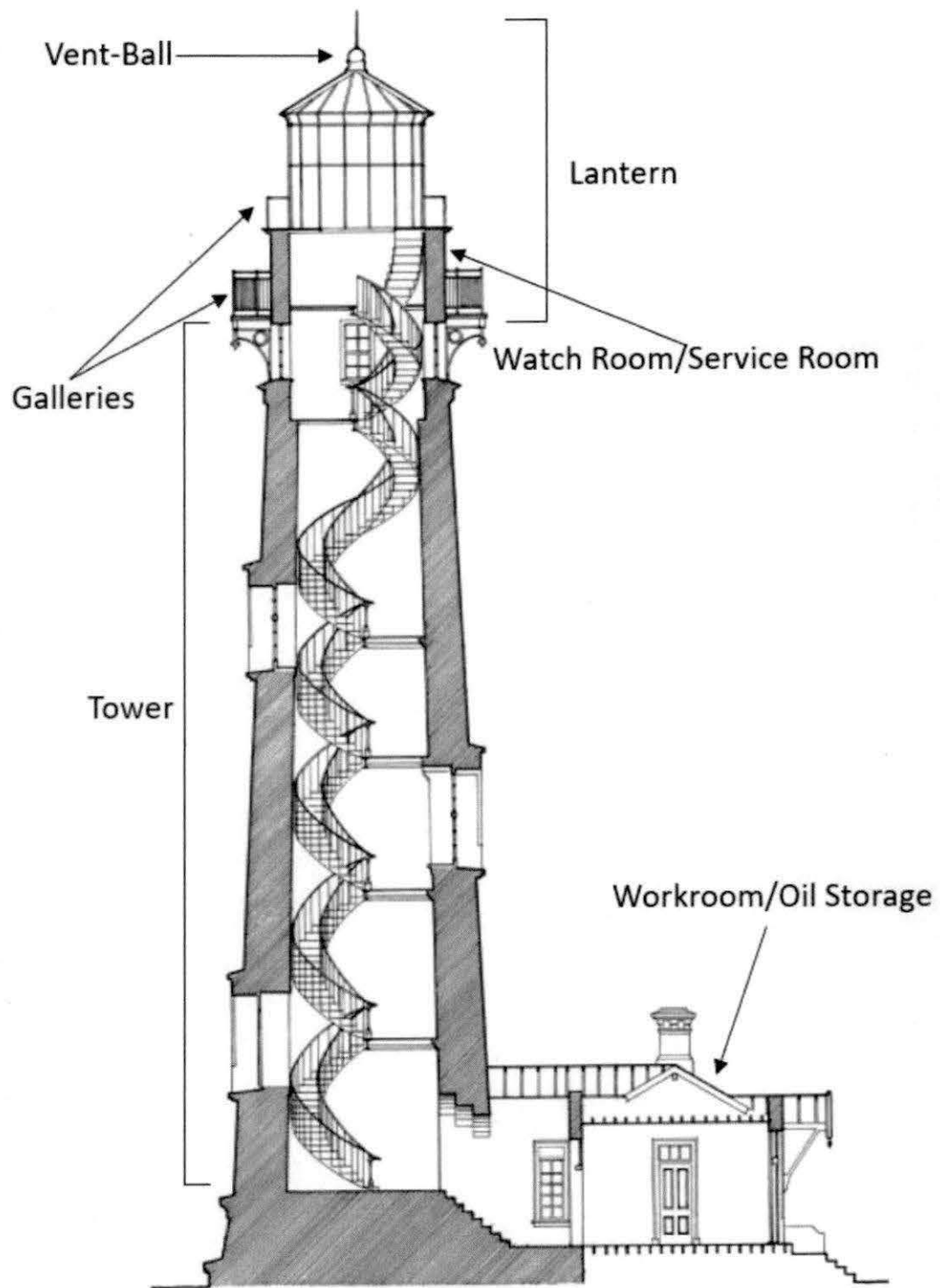


Figure 2: Lighthouse Parts Diagram (Pigeon Point Lighthouse, HABS Drawing)

Historic Preservation Terminology

Throughout this document, various terms will be employed to describe historic preservation practice, treatment, and evaluation. Most importantly, the terms preservation, restoration, rehabilitation, and reconstruction will be used to describe the physical treatments and preservation strategies that have been applied at Oregon's lighthouses. The definitions of these terms, as provided by the *Secretary of the Interior's Standards for The Treatment of Historic Properties*, are provided below:

- **Preservation-** “is defined as the act or process of applying measures necessary to sustain the existing form, integrity, and materials of an historic property.” Preservation emphasizes “ongoing maintenance and repair rather than extensive replacement and new construction.”
- **Rehabilitation-** “is defined as the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural, or architectural values.” Put simply, rehabilitation is adaptation of a historic building for a new use, while preserving its most important architectural features.
- **Restoration-** “is defined as the act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time.” Restoration seeks to restore a structure as closely as possible to its historic appearance and/or function, and relies upon extensive documentation to do so.
- **Reconstruction-** “is defined as the act or process of depicting, by means of new construction, the form, features, and details of a non-surviving site, landscape, building, or object for the purpose of replicating its appearance at a specific period of time and in its historic location.”⁵

⁵ Anne E. Grimmer, ed., *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings* (Washington, D.C.: U.S. Department of the Interior, National Park Service, 2017), 2-3.

Additionally, this paper will utilize the National Park Service (NPS) framework for the evaluation of historic sites. Primarily, it will make use of the NPS criteria for nomination to the National Register of Historic Places (NRHP). A resource that is at least 50 years old (unless an exception is granted) might be nominated under:

- **Criterion A:** Resources that are associated with events that have made a significant contribution to the broad patterns of our history
- **Criterion B:** That are associated with the lives of significant persons in our past
- **Criterion C:** That embody the significant characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent and a significant and distinguishable entity whose components may lack individual distinction (Architectural significance)
- **Criterion D:** That have yielded or may be likely to yield, information important in history or prehistory (Archaeological significance)⁶

However, in order to be listed on the NRHP, the NPS also considers the integrity of a historic resource, or its “ability of a property to convey its significance.” The NPS utilizes seven criteria to evaluate integrity:

- **Location-** where the property was constructed or where a historic event took place
- **Design-** the composition of elements that constitute form, plan, space, structure, and style of a property
- **Setting-** The physical environment of a property that illustrates the character of the place
- **Materials-** The physical elements combined in a particular pattern or configuration to form the resource
- **Workmanship-** the physical evidence of the crafts of a particular culture or people

⁶ National Park Service, “National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation, II. National Register Criteria for Evaluation” accessed May 3, 2018, https://www.nps.gov/nr/publications/bulletins/nrb15/nrb15_2.htm.

- **Feeling-** the quality that a historic property has in evoking the aesthetic or historic sense of a past period of time
- **Association-** The direct link between a property and the event or person for which the property is significant⁷

⁷ National Park Service, "National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation, VIII. How to Evaluate the Integrity of a Property," accessed May 3, 2018, https://www.nps.gov/nr/publications/bulletins/nrb15/nrb15_8.htm.

Chapter 1: Lighthouses of the United States: A Historical

Summary

Although various civilizations have constructed beacons for coastal navigation since ancient times, the history of lighthouses on the North American continent dates only to the early eighteenth century. Colonial merchants, concerned with the continual loss of both ships and their cargoes, often built signal fires on shore, but the colonies could not boast of a proper lighthouse until the construction of the Boston Light in 1716.⁸ After a lighthouse was built in Boston's harbor during this year, aids-to-navigation sprung up along the Atlantic coastline, bringing relief to mariners and merchants alike. However, these early beacons utilized primitive technology, and were constructed according to local needs rather than a coordinated regional system.⁹ By the middle of the twentieth century, the United States lighthouse system had expanded to include thousands of beacons, comprised of lighthouses, lightships, and lighted buoys, which covered the East, West, and Gulf coasts, as well as the Great Lakes, Alaska, Hawaii, and several major rivers. Though lighthouses are widely revered as symbols of steadfastness and permanence, their history is marked by constant and consistent change. From their initial establishment to their eventual elimination, lighthouses in the United States continually improved and evolved. This evolution can be observed through the technological, regional, and administrative changes to which these structures were subjected during their nearly two centuries of service.

Perhaps the most obvious change undergone by American lighthouses is the improvement of their lighting apparatuses. According to lighthouse historian Dennis Noble, the

⁸ Dolin, *Brilliant Beacons: A History of the American Lighthouse* (New York: Liveright Publishing Corporation, 2016), 6.

⁹ Francis Ross Holland, Junior, *Great American Lighthouses* (Washington, D.C.: The Preservation Press, 1989), 16.

history of lighthouses is synonymous with the “search for the best light.”¹⁰ In the beginning, this light was achieved by lighting a small fire at a strategic location, and hoping that the faint glimmer was high enough, and bright enough, to attract the attention of a passing ship. However, Americans quickly discovered the benefit of utilizing a lamp (usually fueled by whale-oil), which was amplified by the placement of a parabolic reflector located just behind the flame.¹¹ During the early nineteenth century, the businessman and inventor Winslow Lewis heartily supported this system, and earned a contract to install reflective apparatuses of his own design in all existing U.S. lighthouses.¹² Though designs featuring parabolic reflectors were inefficient and produced a weak light, improvements in lamp technology, most notably the invention of Aime Argand’s efficient oil lamp, continually strengthened the lights beaming from America’s aids-to-navigation.¹³

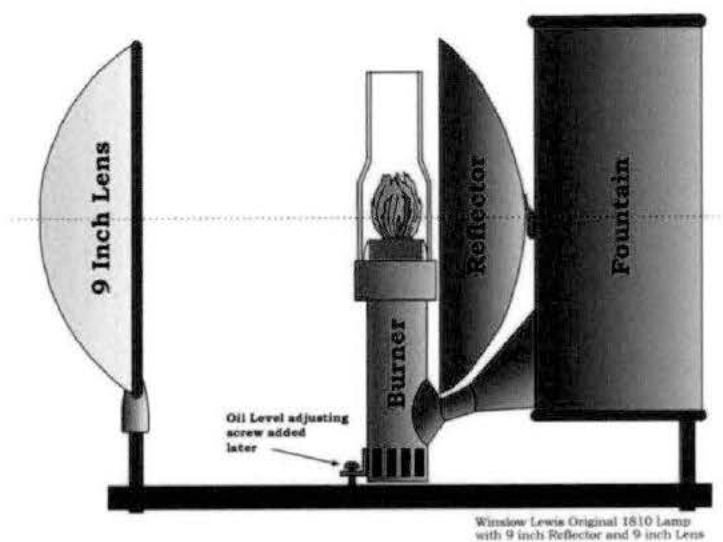


Figure 1-1: Diagram of a Winslow Lewis Reflecting Apparatus (From Thomas Tag, “Reflectors,” USLHS)

¹⁰ Dennis Noble, *Lighthouses & Keepers: The U.S. Lighthouse Service and its Legacy* (Annapolis: Naval Institute Press, 1997), 13.

¹¹ Holland, *Lighthouses*, 16.

¹² Dolin, *Beacons*, 84.

¹³ Holland, *Lighthouses*, 29.

Inarguably, the most significant improvement in lighthouse technology was the invention of the Fresnel lens, invented by the Frenchman Augustin-Jean Fresnel in the early nineteenth century. Realizing that a parabolic reflector reflects, at maximum, fifty percent of the light that contacts its surface, Fresnel set out to create a lens that would focus light rather than reflecting it.¹⁴ This lens utilized ground glass prisms that completely surrounded a lamp and channeled all of its light into a concentrated beam.¹⁵ Although a substantial work could be written regarding the competition between the supporters of Winslow Lewis's reflectors and those of Fresnel's lens, it is sufficient to say that the superiority of the latter was proven beyond a doubt in America by the 1850s; Europeans had discovered this long before. During this decade, federal regulation required all new lighthouses to be equipped with Fresnel lenses, and a schedule was established to reinstall them in all existing lighthouses in the United States.¹⁶

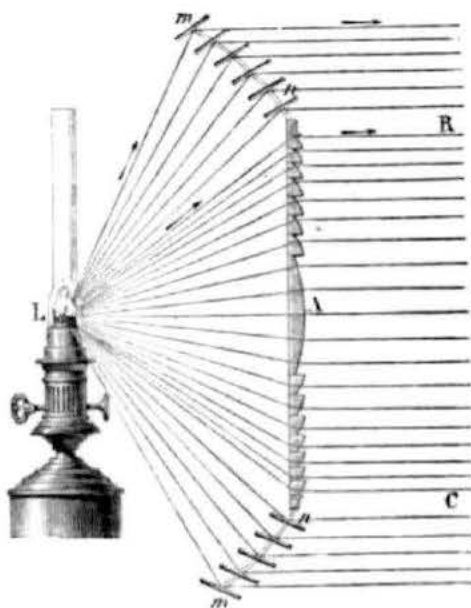


Figure 1-2: Diagram showing Fresnel lens reflecting light horizontally (Wikimedia Commons)

¹⁴ Dolin, *Beacons*, 97.

¹⁵ Noble, *Lighthouses*, 22.

¹⁶ Dolin, *Beacons*, 137.

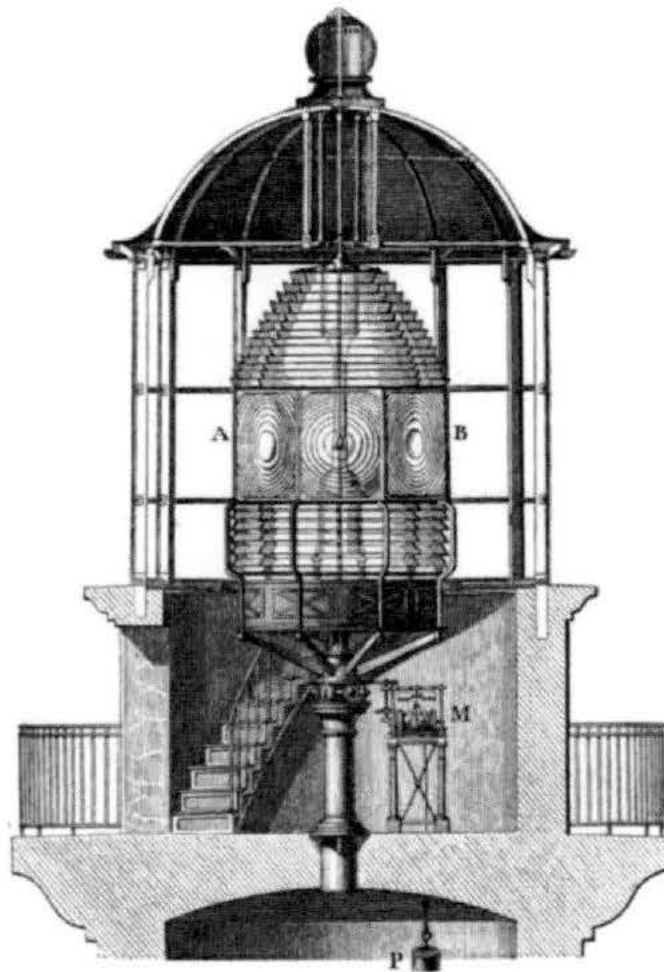


Figure 1-3: A Fresnel lens placed within a lighthouse lantern (Wikimedia Commons)

Eventually, Fresnel lenses were produced in six sizes, or orders. A first-order Fresnel, the largest, could measure up to twelve feet tall and six feet in diameter, while a sixth-order lens was only one foot in diameter.¹⁷ Because larger lenses produce a light that can be seen from further distances, Coastal lights typically utilized first-order lenses, while harbors, light-ships, and other minor lights employed smaller orders (a first-order Fresnel can be seen for over twenty miles in comparison to a fourth-order's twelve). To help sailors identify a lighthouse in the dark, each beacon featured a unique flash signature, which was printed and distributed annually within a

¹⁷ Ibid., 139.

Light List. This signature was achieved by rotating the lens around the lamp, eclipsing the lamp with a metal panel or shutter or, after the advent of electricity, systematically turning the lamp off and on. Often, rotating lenses were fitted with red panels so that the light's flash signature could be more easily identified (Cape Meares and Umpqua River in Oregon feature such lenses).

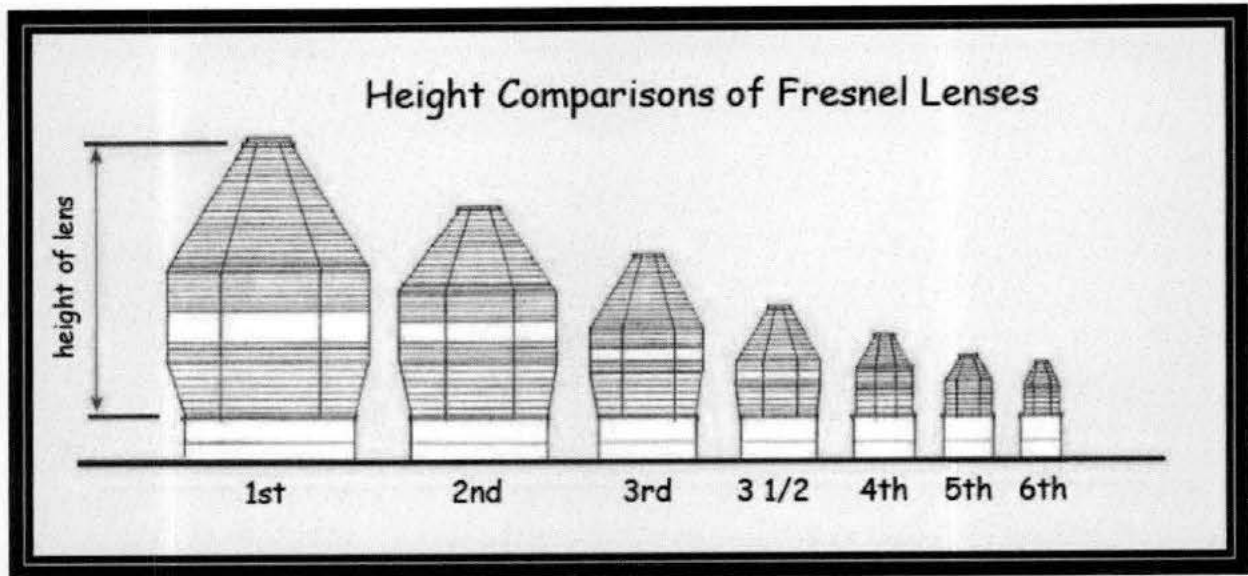


Figure 1-4: Graphic demonstrating size differences between Fresnel lenses (chsd.us)

Another significant technological change in American lighthouses regards the lamps used to produce their lights. As mentioned above, early lamps were fueled by whale oil, and were improved by the introduction of Amie Argand's lamp technology.¹⁸ By the latter half of the nineteenth century, the unregulated harvesting of whales decreased their population so significantly that whale oil became prohibitively expensive. Sensing a profitable method of disposing of their waste, the owners of Chicago's stockyards began pressing the oil out of excess

¹⁸ Argand's invention placed a small glass tube over a lamp's flame, which concentrated the oxygen supply and produced a brighter flame with less smoke.

animal fat and marketing it to the public as lard-oil.¹⁹ Lard-oil presented an affordable alternative to whale-oil for lighthouses, and the government utilized this fuel for several decades.

Near the turn of the century, lighthouses began to utilize kerosene for their lamps, which was more widely used after the invention of the safe and efficient incandescent-oil-vapor (IOV) lamp in the early twentieth century.²⁰ By the 1920s and 1930s, most of America's lighthouses had entered the electric age, as generators and direct lines were installed to power incandescent-bulb lamps. Surpassed only in significance by the invention of Fresnel's lens, the electrification of America's lighthouses ushered in great change, and opened the way for the complete automation of light stations. In the words of Dennis Noble, "This last improvement in the illumination of lights spelled the beginning of the end of a way of life."²¹ By this, Noble meant that technological improvements at lighthouses would thereafter greatly alter the lives of both lighthouse keepers and the mariners that depended upon their sentinels.

While Noble is correct in attributing great significance to this event, his statement precludes one of the most important inventions in lighthouse history, the radio beacon. Largely due to the work of the Italian inventor Guglielmo Marconi, radio technology improved rapidly during the early years of the twentieth century, and it became possible for ships to maintain communications with distant shores. Capitalizing upon this technology, on-shore stations, usually located at light stations, broadcasted a unique morse-code signal that could be received on board properly equipped vessels. Specialized equipment then traced the signal to its origin and provided mariners with their exact bearing relative to the signal.²² Installed along America's

¹⁹ Living History Tour, Yaquina Head Lighthouse, Newport, Oregon.

²⁰ Thomas Tag, "Lighthouse Lamps Through Time," United States Lighthouse Society, accessed April 30, 2018, <http://uslhs.org/lighthouse-lamps-through-time>.

²¹ Noble, *Lighthouses*, 34.

²² George Putnam, *Sentinel of the Coasts: The Log of a Lighthouse Engineer* (New York: W.W. Norton & Company, 1937), 202.

shorelines throughout the 1920s and 1930s, this improvement was so significant that George Putnam, former commissioner of the Bureau of Lighthouses, called the radio beacon the “most important advancement” in lighthouse technology.²³ Indeed, this was the greatest change to affect America’s lighthouse system since the adoption of the Fresnel lens. Although GPS systems utilizing satellites have since rendered the radio beacon obsolete, this invention dramatically decreased the need for lighted beacons.

Combined, the technological improvements thus described led to the automation, and subsequently the elimination, of traditional lighthouses. By the late-twentieth century, keepers were gradually dismissed from their posts, as electric timers and automatic bulb-changers could allow lighthouses to operate on their own. Only occasional maintenance was deemed necessary at these structures, and they were otherwise left in isolation. Eventually, nearly all of these stations were decommissioned entirely, and a duty that once required the construction of a large complex in the wilderness is often now carried out by a lighted metal post that occupies only a few feet.²⁴ Perhaps Gibbs captures this shift in technology most succinctly in that “the latest navigational aids compared to the traditional lighthouse and foghorn is like comparing jet plane travel with crossing the country with horse and wagon.”²⁵

Many variations and improvements can be observed in the construction of American lighthouses throughout the nineteenth and twentieth centuries. The earliest East Coast lighthouses were usually constructed of cut stone or wood, although brick quickly became the most common building material nationwide.²⁶ Until the mid-nineteenth century, lighthouses

²³ Putnam, *Sentinel*, 203.

²⁴ Holland, *Lighthouses*, 29.

²⁵ James A. Gibbs and Bert Webber, *Oregon’s Seacoast Lighthouses* (Medford: Webb Research Group, 1992), 18.

²⁶ Holland, *Lighthouses*, 19.

required stable rock surfaces to support a heavy masonry tower, but improvements in both materials and engineering eventually allowed for the construction of lighthouses upon a variety of surfaces, including submarine environments.²⁷ According to the *Historic Lighthouse Preservation Handbook*, American lighthouses can be divided into ten construction types: wooden, masonry, wave-swept, concrete, cast-iron plate, skeletal, straightpile, screwpile, crib, caisson, and Texas Tower.²⁸

Because the foundation type and materials used to construct a lighthouse depended upon the substrate and environment of the building site, several regional variations are apparent across the United States. For example, the Chesapeake Bay region features a soft, sandy bottom along much of its shoreline, and consequently has boasted no fewer than forty-nine screwpile lighthouses throughout its history.²⁹ Similarly, the Mid-Atlantic region exhibits a low, flat coastline, and therefore contains the tallest lighthouses in the country.³⁰ The hazardous reefs that threatened ships in Florida necessitated the construction of many submarine-foundation lighthouses,³¹ and a similar situation resulted in the widespread use of crib-construction in the Great Lakes region.³² Because the west coast possesses a steep, rocky shoreline, the lighthouses built along its shores are shorter than average,³³ and multiple beacons were erected directly atop off-shore hazards.³⁴

²⁷ National Park Service, et al., *Historic Lighthouse Preservation Handbook*: 1997, Part II, 3.

²⁸ *Ibid.*, 6.

²⁹ Candace Clifford, "Light Stations in the United States," National Register of Historic Places Multiple Property Documentation Form, NPS National Maritime Initiative, 2002.

³⁰ *Ibid.*

³¹ *Ibid.*

³² *Ibid.*

³³ National Parks Service, *Handbook*, Part II, 4.

³⁴ Clifford, "Light Stations."

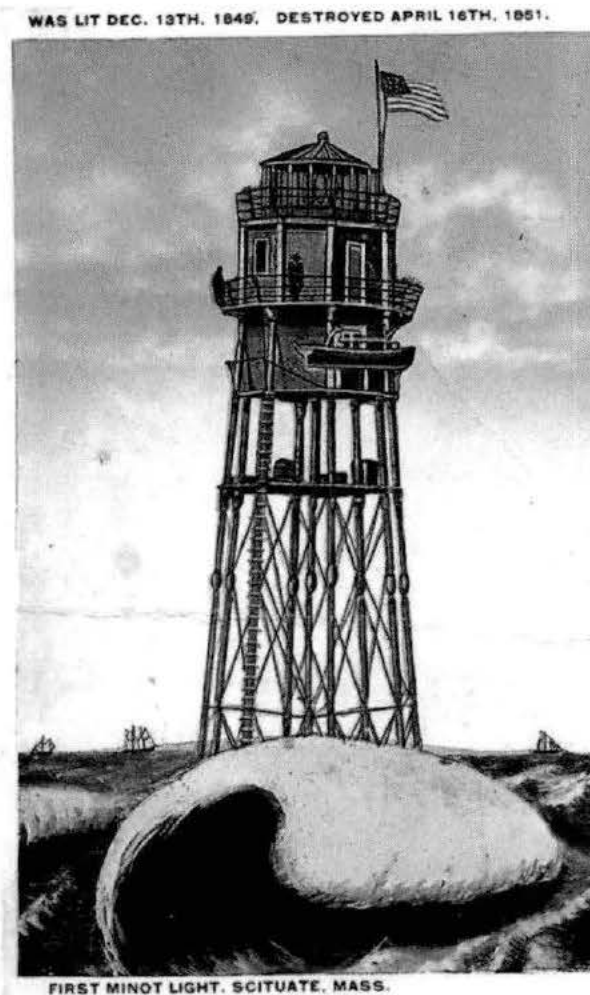


Figure 1-5: The innovative Minot's Ledge lighthouse, made of iron, collapsed in 1851

Between 1789 and the present, lighthouses in the United States have experienced three major administrative changes, each of which effected many improvements within the lighthouse system. As mentioned above, the earliest aids-to-navigation along the east coast were funded and maintained by merchants with vested interests in maritime commerce. However, in 1789 the United States Lighthouse Establishment was created, and authority over all matters relating to lighthouses was given to the U.S. Department of the Treasury. Under the stewardship of Fifth Auditor Stephen Pleasonton, America's lighthouse system grew exponentially. In fact, by 1838,

the U.S. boasted more than 200 lighthouses along its shores.³⁵ However, while the creation of the Lighthouse Establishment brought about many positive changes to America's lighthouse system, mariners, engineers, and other officials found that Pleasonton valued thrift over quality in America's lighthouses.³⁶ They were further irritated with his refusal to adopt the obviously superior Fresnel lens, which he claimed was expensive and not definitively proven to shine brighter than Winslow Lewis's reflectors.³⁷

In 1852, America's lighthouses were plucked from Pleasonton's grasp and placed under the authority of the newly established United States Lighthouse Board. This body made many significant changes regarding the construction and operation of the country's lighthouses. Perhaps most significantly, they abolished the use of Lewis's inferior reflector technology; instead, they required that all newly constructed lighthouses were to be equipped with Fresnel lenses, and strove to upgrade older lighthouses.³⁸ Dividing the nation into districts, the Board assigned an inspector and an engineer to each.³⁹ In order to ensure the quality of maintenance at each beacon, the inspector made quarterly visits to each light station under his jurisdiction, usually with a scrutinizing eye and a penchant for disciplinary action.⁴⁰ The district engineer was typically responsible to both oversee the construction of new lighthouses and to handle the repairs of existing ones.⁴¹ The Lighthouse Board also sought to appoint qualified keepers, and established a reward system whereby a positive review by an inspector could help a keeper earn promotions and transfers.⁴²

³⁵ Noble, *Lighthouses*, 12.

³⁶ *Ibid.*, 13.

³⁷ Dolin, *Beacons*, 128.

³⁸ Holland, *Lighthouses*, 31.

³⁹ Noble, *Lighthouses*, 28.

⁴⁰ Randy Leffingwell and Pamela Welty, *Lighthouses of the Pacific Coast: Your Guide to the Lighthouses of California, Oregon, and Washington* (Stillwater, MN: Voyageur Press, 2000), 87.

⁴¹ Noble, *Lighthouses*, 28.

⁴² Leffingwell, *Guide*, 81.

During the early years of the twentieth century, Congress was dissatisfied with the administrative structure of the Lighthouse Board, and initiated another major change. As the lighthouse system improved and expanded, it became obvious that there was not a sufficient executive position to guide policy and make important decisions. Moreover, because district inspectors and engineers did not defer to one another, their equal authority over lighthouse districts often resulted in conflict.⁴³ For these, and additional, reasons, Congress created the Bureau of Lighthouses in 1910, and placed it beneath the Department of Commerce. With the charismatic George Putnam in charge for nearly all of the Bureau's existence (1910-1935), the American lighthouse system grew to become the largest in the world, boasting 16,888 aids-to-navigation of all kinds.⁴⁴ The Bureau also helped to bring about the electrification of lighting apparatuses, the improvement of fog signals, and the introduction of radio beacons.

The last organization to take charge of America's aids-to-navigation was the United States Coast Guard. In 1939, Franklin Roosevelt initiated an act entitled Reorganization Plan II, wherein the Bureau of Lighthouses was abolished, and authority over aids-to-navigation was given to the United States Coast Guard. While this change was primarily intended to reduce the costs of operating light stations and light ships, the transition from a civilian to a military organization resulted in a major reorganization of the lighthouse system. Most significantly, keepers were now required to be enlisted Coast Guard Officers, with the exception of former Bureau keepers who did not wish to enlist.⁴⁵ Where previous keepers made a career out of the profession, and sometimes spent decades at one light station, Coast Guard assignments were

⁴³ George R. Putnam, *Lighthouses and Lightships of the United States* (New York: Houghton Mifflin & Company, 1917), 46.

⁴⁴ Noble, *Lighthouses*, 37.

⁴⁵ Robert Erwin Johnson, *Guardians of the Sea: History of the United States Coast Guard, 1915 to the Present* (Annapolis: Naval Institute Press, 1987), 163.

usually temporary.⁴⁶ More significantly, light stations and life-saving stations within a close proximity were incorporated into a single unit, and placed under the command of a Coast Guard officer.⁴⁷ During World War II, many light stations effectively became military installations. Alarmed at the prospect of a coastal attack, the Coast Guard, temporarily under the control of the United States Navy, dimmed or darkened the lamps of many lighthouses. Additionally, many light stations were converted to submarine-watch stations, and functioned as bases for coastal patrols.⁴⁸

During the latter half of the twentieth century, the Coast Guard facilitated the greatest change in lighthouse operation that had ever occurred. With the process of electrification long-completed, the Coast Guard began to experiment with automation technologies, which resulted in the Lighthouse Automation and Modernization Program (LAMP) by the late 1960s.⁴⁹ Though early automated systems exhibited many problems, these were quickly corrected, and lighthouses were gradually de-staffed during the 1960s, 70s, and 80s.⁵⁰ Without the maintenance that they had received daily for over a century, America's lighthouses began to crumble and decay. Making matters worse, the Coast Guard's insistence on rotating the lenses 24/7 severely damaged many motors and carriages, and vandalism plagued outbuildings and towers alike.⁵¹

From the 1960s to the present, the Historic Preservation movement has resulted in the protection of most remaining lighthouses. Through special acts of Congress, the Coast Guard has leased or sold many of these structures to both private and public agencies, and special-interest

⁴⁶ Dolin, *Beacons*, 386.

⁴⁷ Johnson, *Guardians*, 165.

⁴⁸ Dolin, *Beacons*, 386.

⁴⁹ Leffingwell, *Guide*, 132.

⁵⁰ Rachel Cox and Michael Bowker, "The Lighthouse: Endangered Species?" *Historic Preservation* 37, no.6 (December 1985): 52.

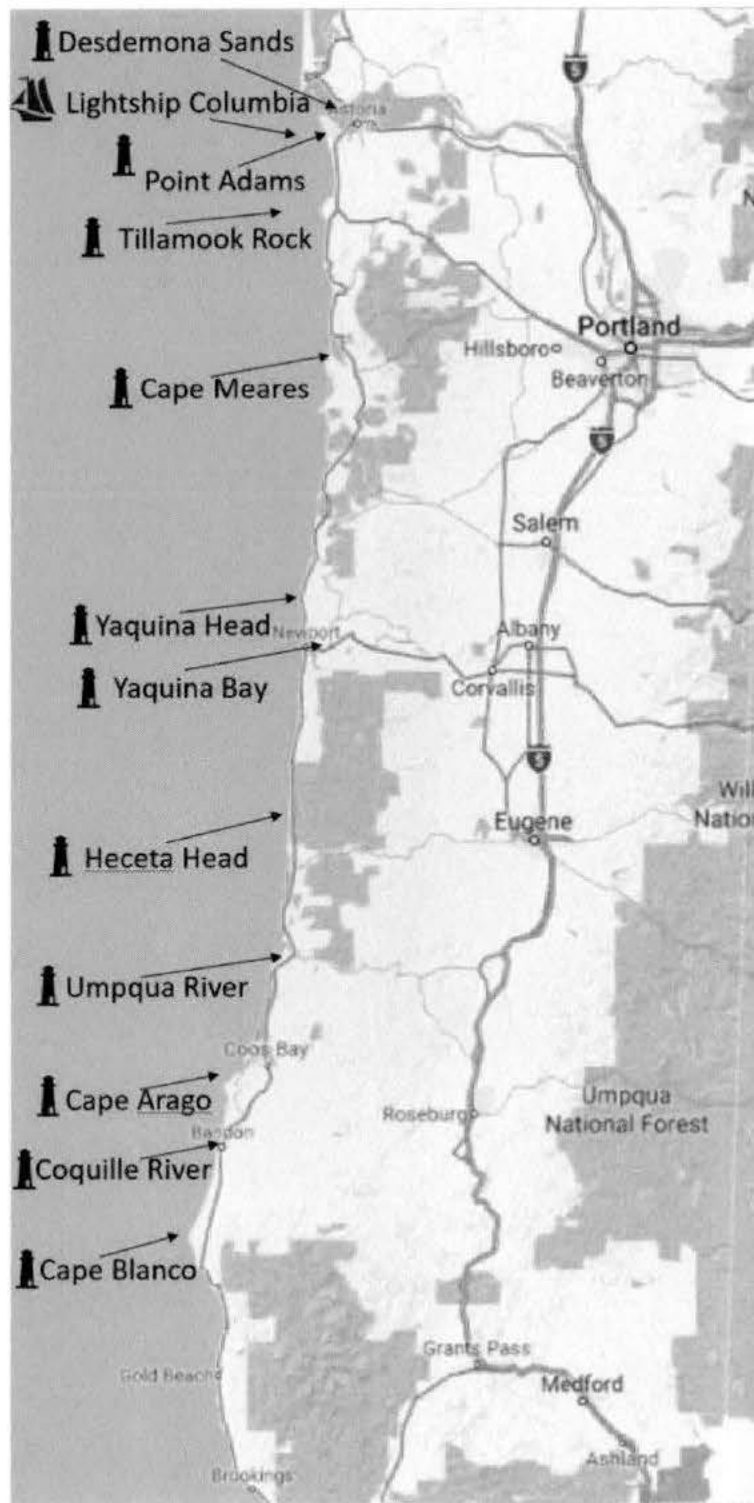
⁵¹ James A. Gibbs, *Lighthouses of the Pacific* (West Chester: Schiffler Publishing, 1986), 115.

groups such as the United States Lighthouse Society and the Lighthouse Preservation Society have greatly aided restoration efforts. Notably, one amendment to the National Historic Preservation Act of 1966 pertains exclusively to historic lighthouses; the National Historic Lighthouse Preservation Act of 2000 (NHLPA; Public Law 106-355; 16 U.S.C. 470w-7), allows the Federal government to transfer ownership of lighthouses to “Federal agencies, State and local governments, nonprofit corporations, educational agencies, and community development agencies.” Although the act allows such transfers to occur at no cost, the receiving agency must prove their financial capability to maintain the site, and allow for public use of the structure “at reasonable times and under reasonable conditions.”⁵²

From the early eighteenth to the late twentieth centuries, the lighthouses of the United States were subjected to continuous change. Technological improvements evolved the weak, whale-oil lamps of early lighthouses into astonishingly powerful, electrified beacons featuring beautiful and complex lenses. Other improvements allowed lighthouses to be constructed in hazardous, off-shore areas, and to communicate with far-off ships utilizing radio signals. Administrative changes drove many of these improvements, and also reorganized and expanded the American aids-to-navigation system into the largest in the world. Before the end of the twentieth century, technology had improved to the extent that light stations were no longer necessary for navigation; many have since fallen into disrepair, while many others have been restored. Collectively, these structures represent an extensive and complex period of America’s history, and have much to teach those who choose to visit them.

⁵² National Park Service, “National Historic Lighthouse Preservation Act of 2000,” accessed April 30, 2018, <https://www.nps.gov/maritime/nhlpa/intro.htm>.

Chapter 2: Oregon's Coastal Lighthouses: History and Significance



Map 1: Oregon's Extant and Demolished Light Stations

Boasting a rugged, rocky coastline that extends for nearly 365 miles along America's west coast, the state of Oregon has historically depended upon its numerous bays, harbors, and river mouths to export its abundant natural resources. Like other coastal regions, Oregon long relied upon a system of lighted beacons to guide mariners along rocky shores and through shifting sandbars. Begun in the 1850s and completed by the early 1900s, Oregon's aids-to-navigation system consisted of lighthouses, fog signals, a lightship, and, eventually, unmanned beacons. Utilized for over a century, Oregon's coastal lighthouses were subjected to many of the administrative, technological, and material changes that characterized most other lighthouses in the United States. In the 1960s, the Coast Guard began to automate those lighthouses which were still in active use, but gradually deactivated most of them over the following decades. Major preservation efforts for Oregon's coastal lighthouses took place beginning in the 1970s, and continue to the present day.

Along Oregon's coast, aids-to-navigation served several purposes. While all lighthouses, lightships, and lighted buoys provided markers by which mariners could determine their location, they were more often employed in an effort to steer ships away from, or through, nautical hazards. Along the coast of Oregon, the lights at Tillamook Rock, Cape Arago, Coquille River, and Umpqua River were constructed with the primary purpose of alerting ships to dangerous hazards; others served this role as a secondary purpose. In an effort to combat the dense fog that surrounded many headlands in Oregon, several light stations were equipped with fog signals to alert ships of their proximity to unseen dangers. Coquille River, Cape Arago, Tillamook Rock, and Point Adams (for a time) featured steam-powered fog signals, attesting to the dangerous weather conditions that frequently occurred in these areas. Illustrative of the fog signal's

importance in some parts of the state, the foghorn at Coquille River Light sounded for a total of 1,086 hours in 1929.⁵³

Oregon's earliest lighthouses owed their existence to an economic boom associated with the California Gold Rush of 1849. During this time, southern Oregon became a veritable "supply base" for the booming town of San Francisco, primarily due to the abundance and quality of the region's lumber resources.⁵⁴ However, the United States had only recently acquired its Pacific Coast territories by the time of the California Gold Rush, and had not constructed any formal aids-to-navigation along this coast by 1849 (the Oregon Territory did not definitively belong to the U.S. until 1846, and California was brought into the Union at the conclusion of the Spanish American War in 1848). This lack of guiding beacons, coupled with a drastic increase in maritime traffic along the west coast, resulted in many shipwrecks. Demonstrating this problem, lighthouse historian Randy Leffingwell points out that only 44 ships are known to have sunk along the west coast between 1500 and 1849, while over 130 sank off of California's shore in the single decade between 1849 and 1859.⁵⁵ Not surprisingly, Congress granted the Lighthouse Board abundant funds for the construction of West Coast lighthouses in 1850.⁵⁶

Oregon's first lighthouse, located at the mouth of the Umpqua River, was one of the first recommended for America's Pacific coast. Completed in 1857, the beacon served as both a coastal and river light, and helped to facilitate the profitable export of lumber from southern Oregon to San Francisco.⁵⁷ However, the lighthouse tower was placed upon an unsuitable, sandy

⁵³ James A. Gibbs, *Lighthouses of the Pacific* (West Chester: Schiffler Publishing, 1986), 110.

⁵⁴ Sally Donovan, "Light Stations of Oregon," National Register of Historic Places Multiple Property Documentation Form, August 21, 1992.

⁵⁵ Randy Leffingwell and Pamela Welty, *Lighthouses of the Pacific Coast: Your Guide to the Lighthouses of California, Oregon, and Washington* (Stillwater, MN: Voyageur Press, 2000), 26.

⁵⁶ *Ibid.*, 26.

⁵⁷ James A. Gibbs and Bert Webber, *Oregon's Seacoast Lighthouses* (Medford: Webb Research Group, 1992), 79.

bank of the river, and it collapsed in 1864, only four years after it was constructed.⁵⁸ Ironically, the fallen tower endangered offshore vessels for a time after its collapse; not only did its wreckage present a physical hazard at the river's entrance, but it remained on the light lists of foreign ships, and the absence of its light mislead many sailors.⁵⁹ The tower was rebuilt in 1894 upon higher, and more stable, ground.

Gregory Point, near Coos Bay, was chosen as the location for Oregon's second lighthouse, and the station there was given the title of Cape Arago. By the 1860s, this region was exporting vast amounts of timber and coal to San Francisco, and the Lighthouse Board elected to build a new beacon near Coos Bay rather than rebuilding the fallen light at Umpqua River.⁶⁰ Due to concerns about the natural erosion of the cliffside at Gregory Point, three lighthouses have been constructed at Cape Arago. Only the third, built in 1935, remains standing. Significant economic developments also occurred near Port Orford in the 1860s, where the discovery of gold and the abundant supply of Port Orford cedar trees drew both settlers and maritime traffic.⁶¹ To protect these ships, the Cape Blanco lighthouse, north of Port Orford, was completed in 1870; today, it is the oldest extant lighthouse in the state of Oregon, and is largely considered to be the westernmost lighthouse in the continental United States, although there is controversy about this claim.

⁵⁸ Dave Pinyerd, *Lighthouses and Life-Saving on the Oregon Coast* (San Francisco: Arcadia Publishing, 2007), 71.

⁵⁹ Gibbs, *Lighthouses of the Pacific*, 114.

⁶⁰ Pinyerd, *Lighthouses*, 72.

⁶¹ National Register of Historic Places, Cape Blanco Lighthouse, Sixes, Curry County, Oregon.



Figure 2-1: First Cape Arago Lighthouse-Constructed 1866, Decommissioned 1908, Demolished 1937 (From LighthouseFriends.com)

While the southern coast developed largely due to the California Gold Rush, the economy of northern Oregon centered upon the Columbia River, and the number of ships navigating its treacherous bar steadily increased throughout the nineteenth century. In 1849, ships were already loading up goods on the Columbia to take back to San Francisco gold-seekers,⁶² and by the 1850s Gibbs claims that the “Columbia River bar had already gained a world-wide reputation for its sinister gateway as well as its great potential.”⁶³ The Cape Disappointment lighthouse, constructed in 1856 on the north (Washington) side of the Columbia River, was the only beacon helping to guide ships into the river until the construction of the Point Adams lighthouse in 1875. Within the current site of Fort Stevens State Park, the Point Adams light featured both a fourth-

⁶² Dorothy Johansen and Charles M. Gates, *Empire of the Columbia: A History of the Pacific Northwest* (New York: Harper & Row, 1957), 235.

⁶³ Gibbs, *Seacoast*, 226.

order Fresnel lens and a fog-signal to mark the southern approach to the Columbia (the fog-signal was discontinued in 1881). After jetties were constructed on the banks of the river in the 1890s, Point Adams was no longer positioned at the Columbia's mouth; the lighthouse was decommissioned, and the structure was intentionally burned down in the early twentieth century.⁶⁴ It was replaced, in some capacities, with the erection of the Desdemona Sands lighthouse in 1902, which was positioned upon a sand bank within the Columbia's mouth.

In 1881, after nearly two years of painstaking efforts, a light shone brightly from the top of Tillamook Rock, over one mile out to sea between the modern communities of Cannon Beach and Seaside. This world-famous lighthouse warned sailors of their proximity to this dangerous, offshore rock formation, and helped to guide them northward towards the Columbia.⁶⁵ Finally, the Lightship *Columbia* was anchored approximately five miles south of the Columbia Bar in 1892. Gibbs illustrates the importance of this beacon in that "ships entering and departing the Columbia came to depend on her presence, especially in foggy weather when the 12-inch steam foghorn blasted at regular intervals."⁶⁶ The effort to establish aids-to-navigation at and near the Columbia River bar reflects not only the dangerous nature of the inlet but, more importantly, demonstrates the economic circumstances that compelled mariners to navigate it.

⁶⁴ Sharlene and Ted Nelson, *Umbrella Guide to Oregon's Lighthouses* (Seattle: Umbrella Books, 1994), 73.

⁶⁵ Nelson, *Umbrella*, 63.

⁶⁶ Gibbs, *Seacoast*, 235.



Figure 2-2: Tillamook Rock lighthouse, 1947 (Wikimedia Commons)

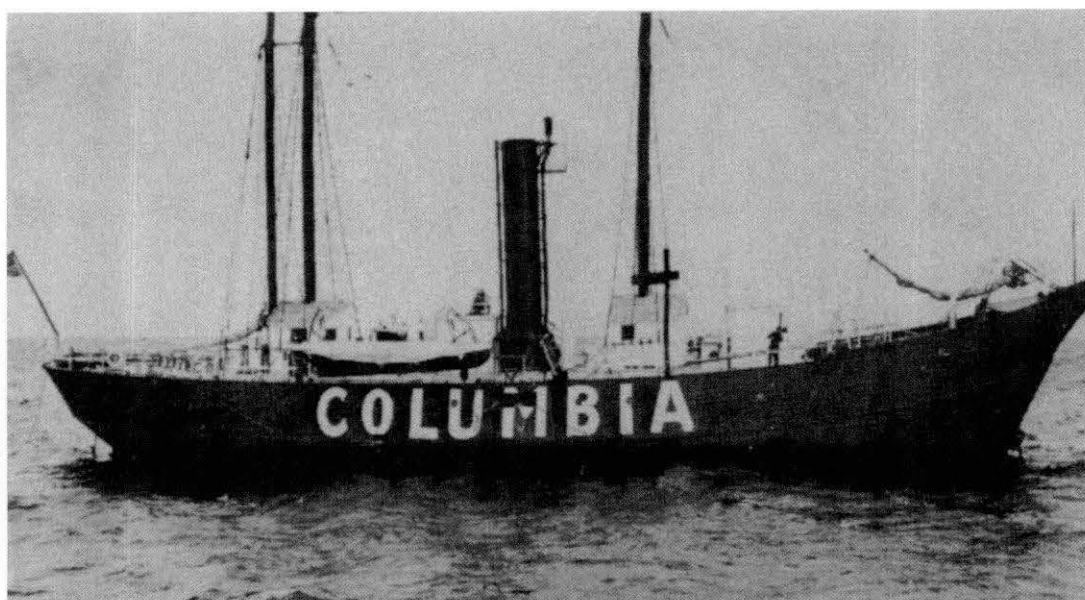


Figure 2-3: Columbia River Lightship No.88, 1908 (From Gibbs, *Oregon's Seacoast Lighthouses*)

Unlike the north and south sections of Oregon's coast, its central region was essentially an "untapped resource" for many years.⁶⁷ However, settlers began to take advantage of the region's lumber and seafood resources during the 1860s, and the dire need for aids-to-navigation in this region was evidenced by coastal residents who reportedly hung lamps from trees in an attempt to guide ships before lighthouses were constructed.⁶⁸ In 1871, the Yaquina Bay lighthouse was built to guide ships in and out of Newport's harbor, but it was quickly replaced with the Yaquina Head lighthouse, erected only a few miles to the north in 1873.⁶⁹ Deemed a redundant signal, the Yaquina Bay lighthouse was officially decommissioned in 1874.



Figure 2-4: Yaquina Bay Lighthouse, Newport, 2010 (Wikimedia Commons)

⁶⁷ National Register of Historic Places, Yaquina Head Lighthouse, Newport, Lincoln County, Oregon.

⁶⁸ Dorothy Wall and Bert Webber, *Yaquina Lighthouses on the Oregon Coast* (Medford: Webb Research Group), 13.

⁶⁹ Jeremy D'Entremont, *The Lighthouse Handbook: West Coast* (Kennebunkport: Cider Mill Press, 2016), 135.

In 1889, the Lighthouse Board issued a statement declaring that “each coast shall be so set with towers . . . that a vessel on the coast shall never be out of sight of a light, and there shall be no dark places between lights.”⁷⁰ To this end, a lighthouse was completed at Cape Meares in 1890, thus filling a major gap between the lights at Yaquina Head to the south, and Tillamook Rock to the north. Heceta Head, the last major coastal light constructed in Oregon, was built north of Florence in 1894 to fill a similar “dark” section, as well as to aid vessels navigating the Siuslaw River.⁷¹ The last coastal lighthouse constructed in Oregon was built at the mouth of the Coquille River, near Bandon, in 1896. The Coquille River lighthouse served as both a harbor and coastal aid-to-navigation, although the beam issuing from its fourth-order Fresnel lens could only be seen for about twelve miles out to sea.⁷²

Beginning in the 1890s and continuing into the early 1900s, the vibrant maritime commerce along Oregon’s coast necessitated the construction of river jetties and the dredging of river-bottoms. While such endeavors did not involve light stations or their keepers explicitly, the operations were intimately connected.⁷³ Together, the construction of light stations and jetties provided a safe environment for ships to navigate hazardous waters. In fact, beacons themselves were often not very effective before harbor improvements.⁷⁴ During the 1890s, jetties were constructed at the Columbia Bar, Yaquina Bay, Cape Arago (Coos Bay), and Coquille River. By the 1930s, Umpqua River and Tillamook Bay also boasted extensive jetty systems.

⁷⁰ Wall, *Yaquina*, 33.

⁷¹ Waldport Ranger District, *Heceta House: A Historical and Architectural Survey* (1980), 7.

⁷² Gibbs, *Seacoast*, 48.

⁷³ *Ibid.*, 63.

⁷⁴ National Register of Historic Places, Cape Arago Lighthouse, Coos Bay, Coos County, Oregon.

Lighthouses and Oregon's Coastal Climate

Oregon's coastal lighthouses are located in an incredibly harsh environment and were continually subjected to fierce storms and other severe weather conditions. At Cape Meares, incredibly strong winds sometimes threatened to blow the station's residents off of the nearby cliffs.⁷⁵ Keepers at the Point Adams Light, located near the constantly shifting Columbia River bar, were plagued by shifting sands that "blew into the dwelling, completely covered the picket fence, and threatened the station's water supply."⁷⁶ Of course, no light station faced more severe storms than did Tillamook Rock. The gales that swept over this offshore beacon were so fierce that large pieces of basalt were hurled into the lantern room, over 130 feet above the water, on multiple occasions. Lighthouse historian Edward Rowe Snow expresses this concept poetically, "Tillamook Light will always represent one of man's great triumphs over nature, although nature is always on the alert to try reclaiming for her own this dangerous Pacific rock."⁷⁷

In some cases, the natural erosion of the coastline has threatened, or destroyed, Oregon's lighthouses. As mentioned previously, the first lighthouse at Umpqua River collapsed after only four years of operation when the sandbank washed out from beneath its foundation. Similarly, the continual erosion of the cliffside at Gregory Point (Cape Arago) necessitated the construction of two replacement lighthouse towers, one in 1908, and the other in 1934. Minor erosion also occurred at Cape Blanco, but was alleviated with the introduction of natural grasses.⁷⁸ Although Tillamook Rock lighthouse still stands, the ocean continually chips away at the sheer cliffs of its

⁷⁵ Nelson, *Umbrella*, 58.

⁷⁶ *Ibid.*, 69.

⁷⁷ Edward Rowe Snow, *Famous Lighthouses of America* (New York: Dodd, Mead and Company, 1955), 266.

⁷⁸ NRHP, Cape Blanco.

perch. During a particularly ferocious storm in 1912, a piece estimated to weigh over 100 tons was torn from the cliff's face.⁷⁹

Life at Oregon's Light Stations

The Pacific Northwest was a remote region for many years. In fact, as one historian points out, 86 percent of Oregon's roads consisted of dirt or mud in 1914.⁸⁰ Demonstrating this lack of infrastructure, Oregon governor Oswald West declared the state's coastal beaches to be a public highway in 1913 to ensure citizens' ability to travel and transport goods.⁸¹ This was even more true of coastal communities, and Oregon's light stations were incredibly isolated for many of the years during which they were active. In fact, some light stations on the west coast were so secluded that the Lighthouse Board had to offer higher wages than elsewhere in the United States to attract keepers.⁸²

Moreover, the isolated nature of these stations often required additional keepers or assistant keepers to share the workload, who usually brought their families to their posts.⁸³ With so many mouths to feed, keepers and their families cultivated gardens and raised livestock by necessity. Combined with frequent fishing and hunting forays, such efforts kept food on the table at many remote stations. To provide education for their children, some keepers formed their own schools;⁸⁴ at Cape Meares, the station's school teacher lived in the head keeper's quarters.⁸⁵

⁷⁹ Gibbs, *Seacoast*, 192.

⁸⁰ David Peterson Del Mar, *Oregon's Promise: An Interpretive History* (Corvallis, Oregon State University Press, 2003), 163.

⁸¹ Lori Tobias, "Oregon owes its public beaches to a decision by Oswald West 100 years ago," *The Oregonian*, February 13, 2013, accessed April 30, 2018, http://www.oregonlive.com/pacific-northwest-news/index.ssf/2013/02/oregon_owes_its_beaches_to_dec.html

⁸² Wall, *Yaquina*, 109.

⁸³ Pinyerd, *Lighthouses*, 120.

⁸⁴ Nelson, *Umbrella*, 34.

⁸⁵ Gibbs, *Seacoast*, 167.

Of course, some light stations were more isolated than others. Demonstrating this contrast, the Coquille River station was separated from Bandon only by the width of the Coquille River, while Tillamook Rock was more than a mile from shore. However, such isolation was not a permanent condition of life at an Oregon light station. By 1910, several stations were connected to the outside world through telephone,⁸⁶ and the completion of Oregon's coastal Highway 101 in the 1930s allowed light station residents to travel more easily for supplies, send their children to nearby schools, and receive mail much more frequently.⁸⁷

Lighthouses and Lifesaving Stations

Oregon's light stations were closely associated with the lifesaving stations managed by the United States Coast Guard and its predecessors, although no official relationship existed between the two entities until the Coast Guard inherited the Bureau of Lighthouses in 1939. Dave Pinyerd, who has published multiple works on Oregon's lifesaving stations, clearly defines the difference between these operations. While the primary purpose of lighthouses was to help ships avoid impending danger, it was the responsibility of lifesaving stations to "clean up the mess" after a shipwreck, and attempt to save those who were in peril.⁸⁸ Although a lifesaving station crew might attempt to warn a ship from danger, they were primarily tasked with rescuing endangered mariners, and recovering property after a shipwreck.⁸⁹

During the late-nineteenth and continuing into the twentieth century, the Coast Guard and its predecessor, the United States Lifesaving Service, constructed thirteen lifesaving stations in

⁸⁶ Waldport, *Heceta House*, 26.

⁸⁷ *Ibid.*, 51.

⁸⁸ Pinyerd, *Lighthouses*, 7.

⁸⁹ David A. Pinyerd, "The Preservation of Pre-World War Two Coast Guard Architecture in Oregon," (Master's Thesis, University of Oregon, 2000), 39.

Oregon. These stations provided protection for ships traveling along “major waterways” in the state, and were historically located near: the Columbia River, Tillamook Bay, Yaquina Bay, Siuslaw River, Umpqua River, Coos Bay, Coquille River, and Port Orford.⁹⁰ Several of Oregon’s lifesaving stations were located at or near light stations. This is likely because early lifesaving stations on the pacific coast, like lighthouses, were constructed at “selected points of danger to shipping” rather than a “contiguous chain.”⁹¹ In this way, each of these entities were strategically placed to protect both lives and commerce along Oregon’s shores.

In fact, several of Oregon’s lifesaving stations were constructed near, or at, light stations. The first lifesaving station in the state (then called a “lifeboat station”), was located on Gregory Point, “next door” to the Cape Arago lighthouse. However, this station was “one of the most impractically sited life-saving stations erected on the Oregon Coast,” as it provided no lookout for distressed ships, and was manned solely by one keeper who had to travel via boat to the nearest town to summon rescue crews.⁹² The post was moved to the North Spit of Coos Bay in 1891, and then to nearby Charleston in 1916.

After the collapse of the first Umpqua River lighthouse in 1861, the number of shipwrecks at the mouth of the Umpqua River steadily increased.⁹³ To help alleviate this issue, a lifesaving station was built on the North Spit of the river in 1891 (the second lighthouse was lit in 1894). In 1939, when the Coast Guard absorbed the Bureau of Lighthouses, a new, large lifesaving station was built on the same site as the second Umpqua River lighthouse. Unlike other light stations in Oregon, this placement allowed a commander to maintain a light station and a lifesaving station from a single onsite headquarters. Demonstrating this fact, tour guides at

⁹⁰ Pinyerd, “Preservation,” 1-3.

⁹¹ Ibid., 23.

⁹² Pinyerd, “Preservation,” 82.

⁹³ Pinyerd, *Lighthouses*, 76.

the Umpqua River lighthouse point out the commander's bedroom window at the lifesaving station; he was given a south-facing window so that he would be able to see if the light ever went out during the night.⁹⁴

Interestingly, the Yaquina Bay lifesaving station occupied the Yaquina Bay lighthouse from 1906 until 1932. Abandoned since it was decommissioned in 1874, the lifesaving service took advantage of the former beacon's high vantage point and attached living quarters. In fact, the lofty surroundings and elevated tower of the lighthouse afforded such an adequate view of the coastline that beach patrols were unnecessary during the lifesaving station's tenure at the structure.⁹⁵ Notably, the Yaquina Bay lighthouse is the only lighthouse in the United States known to have housed a lifesaving station.⁹⁶

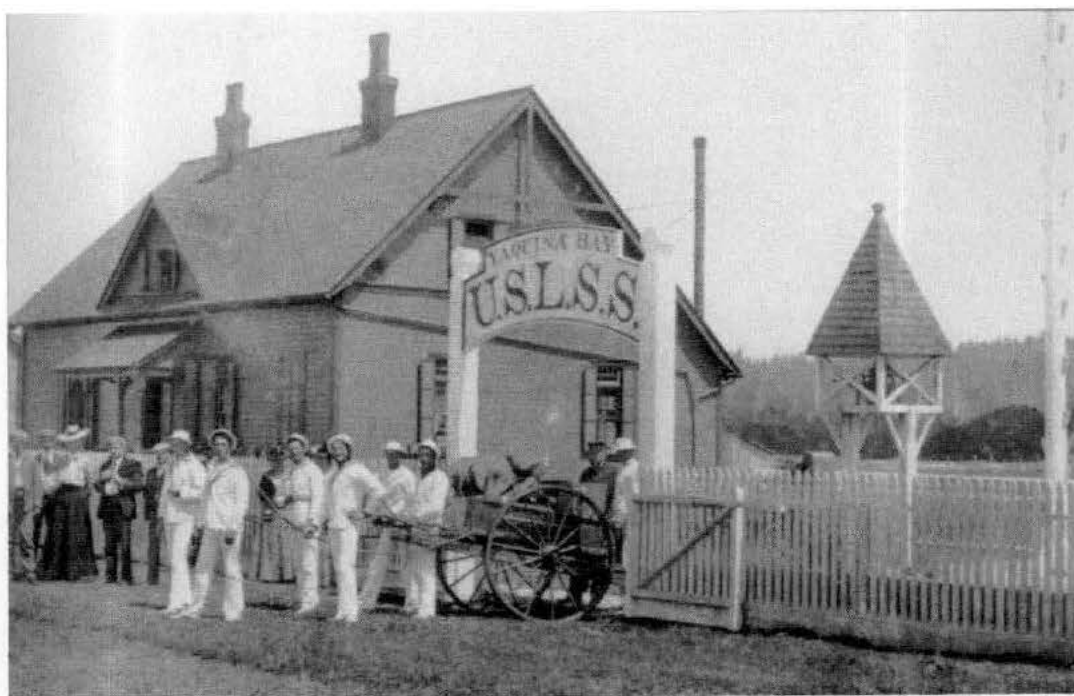


Figure 2-5: Yaquina Bay Lifesaving Station and crew, c.1905 (From Pinyerd, *Lighthouses and Lifesaving Stations on the Oregon Coast*)

⁹⁴ Tour, Umpqua River Lighthouse, October 2018.

⁹⁵ Pinyerd, "Preservation," 199.

⁹⁶ *Ibid.*, 200.

Other lifesaving stations were located near light stations, but did not share a site or facilities. For example, the Point Adams lifesaving station was constructed near the current town of Hammond, just over a mile from the Point Adams lighthouse. The Coquille River light station was located less than a half-mile from the Coquille River lighthouse. Established in 1890, the original station was lost during the massive fire that swept through Bandon in 1936, and the extant station building was built in 1939.

Still more lifesaving stations were located even farther from light stations: Tillamook Bay's lifesaving station was located approximately six miles from the Cape Meares light station, and on the opposite bank of the bay's entrance; the lifesaving station at Port Orford was over seven miles southeast of the Cape Blanco lighthouse; the Siuslaw River lifesaving station was located in Florence, at the mouth of the Siuslaw River, over twelve miles from the Heceta Head lighthouse.

As outlined in David Pinyerd's master's thesis for the University of Oregon, primary buildings from eleven lifesaving stations remained in 2000. Notably, at Port Orford and Umpqua River, these buildings function as museums, and provide interpretation related to the historic function and operation of lifesaving stations in Oregon.

Oregon's Light Stations During World War II

During World War II, the Coast Guard was temporarily placed beneath the authority of the Navy, and was tasked with protecting America's coastlines from invasion or attack. During this time, the Coast Guard regularly engaged in beach patrols, which sometimes included "mounted patrols, Jeeps, and war dogs."⁹⁷ To this end, several of Oregon's light stations took on new roles and, as watch stations and communication centers, these sites were "instrumental in

⁹⁷ Pinyerd, *Lighthouses*, 82.

the defense of the Pacific Northwest.”⁹⁸ During this time, a naval observation deck was installed at the Cape Blanco lighthouse, and the nearby beaches were patrolled 24/7 to guard against a surprise invasion by the Japanese.⁹⁹ Similar defensive activities occurred at the Heceta Head and Yaquina Head light stations, and a radar center was built near the Cape Meares lighthouse.

Despite the Coast Guard’s extensive defense efforts, Japanese forces managed to assault the Oregon coast on two occasions during World War II. Interestingly, some historians claim that enemy forces depended upon Oregon lighthouses to determine their location before each of these attacks. In June 1942, the Japanese submarine *I-25*, which had patrolled the west coast since 1941, surfaced near the mouth of the Columbia River and fired multiple artillery shells at one of Fort Stevens’s installations. Allegedly, *I-25* was able to determine its location in the dark by referencing the light at Tillamook Rock.¹⁰⁰ In September of the same year, *I-25* returned to the Oregon Coast when it launched Nubuo Fujita into United States airspace within a small floatplane. Attempting to spark a large forest fire by dropping incendiary bombs into the forest near Brookings, Fujita is reported to have used the Cape Blanco lighthouse as a reference landmark during his flight.¹⁰¹

Automation and Deactivation

Reflecting national trends, increasing efforts were expended towards the automation of Oregon’s lighthouses throughout the twentieth century. To this end, two approaches were utilized for automation; either the lighthouse was put out of service and replaced by an unmanned beacon nearby, or the existing lamp and rotation equipment were automated. An early

⁹⁸ Donovan, “Light Stations.”

⁹⁹ Gibbs, *Seacoast*, 36.

¹⁰⁰ *Ibid.*, 201.

¹⁰¹ Oregon Historical Society, “Cape Blanco Light,” *The Oregon Encyclopedia*, accessed May 2, 2018, https://oregonencyclopedia.org/articles/cape_blanco/#.WuoAsYgvxPY.

example of the first approach occurred in 1934, when the Bureau of Lighthouses replaced the Desdemona Sands lighthouse with an electrified beacon that was controlled from the shore.¹⁰² Similar projects took place at Coquille River and Cape Meares. In 1939, the Coquille River light was replaced with an unmanned beacon on that river's south jetty, and an automated beacon (just east of the tower) replaced the Cape Meares lighthouse in 1963.

During the 1960s, the Coast Guard automated the lamps of four lighthouses in Oregon: Umpqua River in 1960; Heceta Head in 1963; and Yaquina Head and Cape Arago in 1966. As these beacons could now run 24/7 with little to no maintenance, the keepers at these stations were promptly dismissed from their posts. Notably, while these actions decreased operating costs and made lighthouses more efficient, they often resulted in adverse effects to the structures. For example, without the daily maintenance which they had received for decades, automated lighthouses and ancillary station buildings quickly fell into decay.¹⁰³ This process was accelerated in the Oregon coast's damp climate and, in the words of Sally Donovan, Oregon's light station buildings were "systematically demolished" after automation occurred.¹⁰⁴ Moreover, Coast Guard policy requires automated beacons to rotate twenty-four hours per day, and this extended usage resulted in substantial damage to the carriage equipment at both Umpqua River and Heceta Head. Fortunately, in both cases, public advocacy resulted in the repair, rather than replacement, of the lenses and associated equipment at these sites.¹⁰⁵

Despite the tremendous role that Oregon's lighthouses played within the state's development, all but four (of an original 11) were eventually decommissioned. However, a

¹⁰² Nelson, *Umbrella*, 85.

¹⁰³ Leffingwell, 136.

¹⁰⁴ Donovan, "Light Stations."

¹⁰⁵ Nelson, *Umbrella*, 28; "Heceta Head Lighthouse," Lighthouse Friends, Accessed February 25, 2018, <http://lighthousefriends.com/light.asp?ID=131>.

distinction should be made between lighthouses that were abandoned by necessity, and those that were intentionally decommissioned. Falling within the first category, the first Umpqua River light (1857) fell into the ocean in 1861, and the first two Cape Arago lights (1866/1908) were abandoned due to concerns about erosion at Gregory Point.

The Yaquina Bay light was the first in Oregon to be intentionally decommissioned. Constructed in 1871, the lighthouse became unnecessary when the Yaquina Head light was lit five miles to the north in 1873. Similarly, by the late 1890s, the construction of the Columbia River's south jetty (1889) and the placement of the first Columbia River lightship (1892) rendered the Point Adams lighthouse unnecessary; it was discontinued in 1899 and demolished in 1912. As mentioned above, soon after the Coast Guard inherited the nation's lighthouse system in 1939, they replaced the Coquille River light station with an automated beacon on that river's south jetty. The reasoning behind this decision remains unclear.

Nearly twenty years later, in 1957, the Coast Guard decommissioned the Tillamook Rock light, citing the fact that it was the most expensive lighthouse to operate in the United States.¹⁰⁶ Indeed, located more than a mile from the shore, "Terrible Tilly," as it was known, required constant maintenance and extensive repairs. The lighthouse was briefly replaced by a lighted whistle buoy near the rock, but this too was shortly abandoned.¹⁰⁷ As mentioned previously, the Cape Meares lighthouse was decommissioned after the construction of an onsite, unmanned beacon in 1963. For three decades (1934-1964) the Desdemona Sands light was repeatedly deactivated and reactivated, but it was finally discontinued in 1964 and demolished the following year.¹⁰⁸ The most recent lighthouse to be decommissioned in Oregon was Cape Arago. In 2005,

¹⁰⁶ Nelson, *Umbrella*, 67.

¹⁰⁷ Gibbs, *Seacoast*, 202.

¹⁰⁸ Gibbs, *Seacoast*, 221.

the Coast Guard received no objections to their notice regarding the potential darkening of the light, and officially discontinued the beacon.

In 2018, the lights still shine at five of Oregon's historic coastal lighthouses. The lamps at Cape Blanco and Yaquina Head, two of the state's oldest beacons, remain under the authority of the Coast Guard. Both the Umpqua River light and the Heceta Head light remain lit as private aids-to-navigation. Ownership of Umpqua River was transferred to Douglas County in 2009, and OPRD became the owning agency of Heceta Head in 2000. Additionally, the Yaquina Bay lighthouse, also owned by OPRD, was relit as a private aid-to-navigation in 1996. Although seldomly mentioned, Oregon's coastline features two privately-owned lighthouses constructed within the last forty years. The Cleft of the Rock lighthouse, at Cape Perpetua near Yachats, OR, was constructed by lighthouse historian Jim Gibbs in 1976, and the Pelican Bay light has shone over the Brookings Harbor in southern Oregon since 1997.

	Year Built	Year Automated	Year Decommissioned	Reason for Decommissioning
Desdemona Sands	1902	1934	1964*	Replaced by lighted buoy
Point Adams	1875	N/A	1899**	Unnecessary as of 1890s
Tillamook Rock	1881	N/A	1957	Expensive to maintain and shipping lanes changed
Cape Meares	1890	N/A	1963	Replaced by automated beacon onsite
Yaquina Head	1873	1966	Still Active (USCG)	N/A
Yaquina Bay	1871	N/A	1874 (Private Aid-OPRD-Relit 1996)	Not needed after the construction of Yaquina Head (1873)
Heceta Head	1894	1963	Still Active (Private Aid-OPRD)	N/A
Umpqua River (Two Towers)	1857/1891	1960	2009 (Private Aid-Douglas County)	No longer necessary for navigation
Cape Arago (Three towers)	1866/1908/1934	1966	2005	No longer necessary for navigation
Coquille River	1896	N/A	1939	Replaced by automated beacon on south jetty
Cape Blanco	1871	1980	Still Active (USCG)	N/A
Columbia River Lightships	1892	N/A	1979	Replaced by navigation buoy

Oregon's Coastal Lighthouses: Construction, Automation, and Decommission Dates

*Desdemona Sands was deactivated and reactivated intermittently between 1934 and 1964, and the structure was demolished in 1965¹⁰⁹

**Point Adams lighthouse was demolished in 1912

¹⁰⁹ Gibbs, *Seacoast*, 221.

Native American History at Lighthouse Sites

Although the literature surrounding Oregon's historic lighthouses does not describe many significant interactions between lighthouse personnel and Native Americans, it must be mentioned that lighthouse sites were often sacred to local tribes. In this regard, coastal natives attributed great spiritual significance to many prominent headlands, and congregated at such places to hunt, fish, and gather food.¹¹⁰ For example, local natives believed that Tillamook Rock was the "home of a god."¹¹¹ Significantly, Lighthouse Island, upon which the Cape Arago light station was constructed, was known to the Milluk Coos as "Chief's Island," and was of great cultural importance.¹¹² In fact, a sector of the lighthouse reservation at Gregory Point is an ancient Indian burial ground. Ironically, the occupation of this site by the United States government may have helped to protect this site. According to Jim Gibbs, the cemetery was "desecrated by thoughtless pioneers" during the early settlement of Oregon, but the restrictions associated with the lighthouse reservation put a stop to such vandalism and theft.¹¹³

¹¹⁰ Donovan, "Light Stations."

¹¹¹ Pinyerd, *Lighthouses*, 25.

¹¹² Nelson, *Umbrella*, 15.

¹¹³ Gibbs, *Seacoast*, 73.

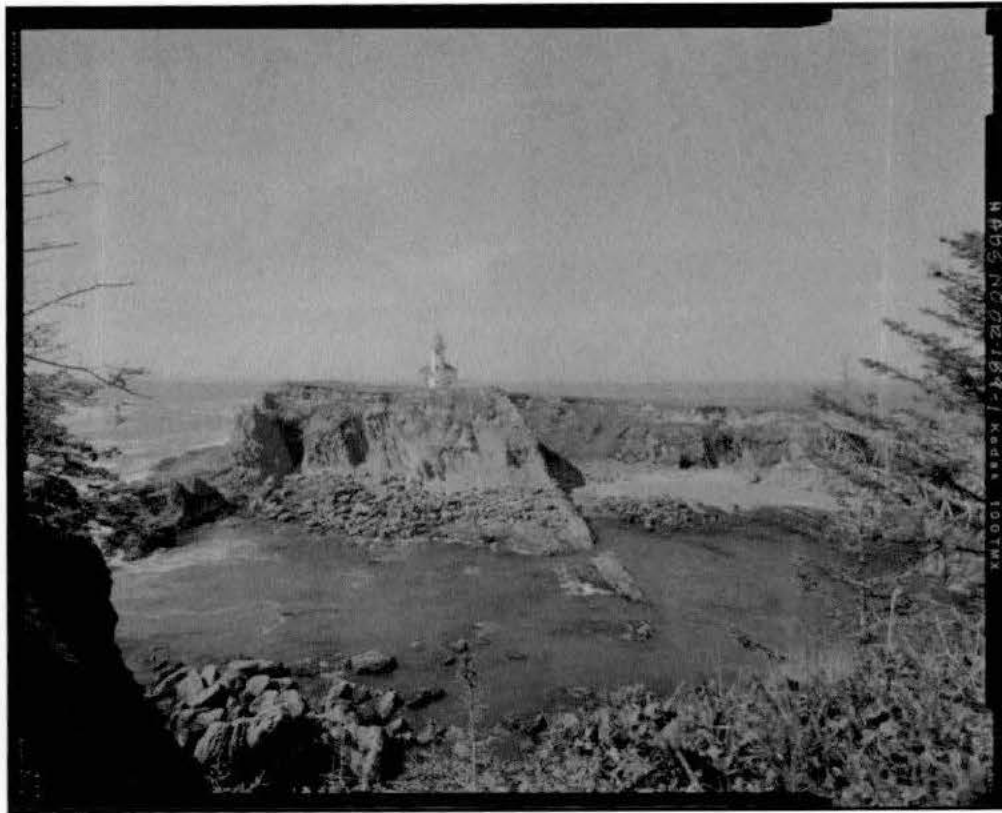


Figure 2-6: The extant Cape Arago lighthouse sits upon Chiefs Island, a significant cultural landmark of local indigenous peoples (From HABS, 2008)

At the Yaquina Head light station, archaeological evidence indicates that an ancient Native American village was located on the headland for over 2,000 years, although it was long abandoned by the time the lighthouse was constructed.¹¹⁴ Unfortunately, the process of construction at lighthouse sites severely damaged much of the archaeological record relating to Oregon's coastal Native Americans.¹¹⁵

Several sources describe an armed confrontation between a group of Native Americans and the builders of the first Umpqua River lighthouse in the 1850s, although the circumstances prompting the altercation are unclear.¹¹⁶ There is no doubt that the Lighthouse Board feared such

¹¹⁴ "Shifting the Sands of Time," Interpretive Panel, Yaquina Head Interpretive Center.

¹¹⁵ Donovan, "Light Stations."

¹¹⁶ Holland, *Lighthouses*, 158.

attacks, as the lighthouse tender *Shubrick*, designed specifically for the Pacific Northwest, was armed with multiple cannons and a device for throwing boiling water onto attackers; these armaments were intentionally designed to repel Indian attacks.¹¹⁷

During the 1890s, engineers at the Coquille River's mouth blew apart Tupper Rock, an ancient mound of blue schist near the light station, for material to build the jetties. This rock formation was known as "Grandmother Rock" to local Native Americans, and was a sacred site.¹¹⁸ A more peaceable interaction occurred during the construction of the Cape Meares lighthouse, where local natives were hired to excavate and fire clay to make the bricks for the lighthouse tower.¹¹⁹

Notably, in 2013, the Coast Guard transferred ownership of the Cape Arago lighthouse to the Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw Indians.¹²⁰ Previous to this legislation, the tribe only possessed an onshore easement pertaining to the previously described burial ground.¹²¹ Although the tribe has agreed to make the lighthouse accessible to the public, it is currently not open for public visitation or interpretation. In fact, the pedestrian bridge that historically provided access to the island became a public safety hazard and was demolished just before the transfer in 2013.

Economic Significance

As described within their corresponding National Register nominations, Oregon's lighthouses are historically significant under Criterion A, for their close association with the

11. ¹¹⁷ Richard D. White, Junior, "Saga of the Sidewheel Steamer *Shubrick*," *Keeper's Log* 1, no.1 (Fall 1984),

¹¹⁸ Interpretive panel, "Protecting the Bandon Harbor," Coquille River lighthouse.

¹¹⁹ Clara M. Fairfield and M. Wayne Jensen, Junior, *Cape Meares and Its Sentinel* (Tillamook: Tillamook County Pioneer Museum, 2000), 46.

¹²⁰ "Cape Arago Lighthouse," <http://lighthousefriends.com/light.asp?ID=129>.

¹²¹ NRHP, Cape Arago.

economic development of both coastal communities and the state as a whole (Criterion C, architectural significance, is discussed later in this chapter.) As described within many of these documents, lighthouses demonstrate Oregon's "critical reliance on maritime transportation, and the aids that made navigation possible during the state's early history."¹²² In this way, lighthouses reflect both where and when economic developments took place within the state of Oregon.

In 1993, the Oregon State Historic Preservation Office (SHPO) collaborated with Sally Donovan to produce the National Register of Historic Places Multiple Property Documentation form for Oregon's light stations.¹²³ Following a statewide standard for providing historic context, Donovan neatly divides the construction of these beacons into three economic eras. According to this framework, Cape Blanco, Yaquina Head, Yaquina Bay, and Tillamook Rock are best associated with the "Railroad and Industrial Growth" period in Oregon, which encompasses the years between 1866 and 1883.¹²⁴ These two decades represent a time "when rapid growth and settlement occurred," and when commercial industries were merely developing.¹²⁵ As discussed above, southern Oregon flourished as it sent lumber and coal to San Francisco, first through the Umpqua River and then out of Coos Bay. At the same time, traffic on the Columbia increased rapidly as the nineteenth-century progressed.

The extant lighthouses from this era represent the economic development and prosperity of communities such as Port Orford, Newport, and Astoria. Though no longer standing, the first Umpqua River light and the first Cape Arago light would undoubtedly fit into this category as well, as they were established as a result of the economic development occurring within and

¹²² NRHP, Cape Blanco Lighthouse.

¹²³ According to Henry Kunowski, Chair of this terminal project.

¹²⁴ Donovan, "Light Stations."

¹²⁵ *Ibid.*

around Scottsburg (the former Douglas County Seat), Winchester Bay, and Coos Bay during the 1850s and 60s.

Donovan defines the second wave of lighthouse construction in Oregon as the “Progressive Era,” and characterizes the years between 1884 and 1913 as a time when large industries and international commerce became prominent in Oregon.¹²⁶ Cape Meares, Heceta Head, Coquille River, and the second Umpqua River lights were constructed during this time, and thus represent the great economic changes that took place in Oregon during the late nineteenth and early twentieth centuries. In Oregon, this era saw the transformative introduction of both railroad and highway systems, which revolutionized the transportation of people and commodities throughout the Pacific Northwest. Demonstrating the dire need for such infrastructure, especially along Oregon’s coast, Governor Oswald West declared the entirety of the Oregon Coastline a public highway in 1913.

Demonstrating the prominence of maritime transport during this “progressive era,” in 1890 Portland exported \$750,000 of commodities overland to Seattle, \$5,000,000 down the coast towards domestic markets, and \$6,600,000 to foreign markets. 80% of this commerce consisted of wheat and flour from Oregon’s heartland.¹²⁷ Elsewhere in the state, the lumber industry drastically increased during the late-nineteenth and early twentieth centuries, and combined with an increase in fruit production, these changes resulted in a boost of maritime activity along Oregon’s coast.¹²⁸ One author contends that Coquille River, constructed in 1896, was erected during the “Golden Age” of coastal shipping in Oregon.¹²⁹ Reinforcing this statement, no fewer

¹²⁶ Donovan, “Light Stations.”

¹²⁷ Johansen, *Empire*, 330.

¹²⁸ Donovan, “Light Stations.”

¹²⁹ Chad Ehlers and Jim Gibbs, *Sentinels of Solitude: West Coast Lighthouses* (Portland: Graphic Arts Center Publishing Company, 1981), 77.

than seven lighthouses (more half of Oregon's completed light-station network) were constructed in the state between 1880 and 1910.¹³⁰

Lighthouses further reflect the economic development of Oregon in that they aided the growth of early coastal communities. As previously discussed, the California Gold Rush (1848-1855) served as the impetus for much of the initial economic development along Oregon's coast. This tremendous event set in motion industries such as logging, coal mining, and commercial fishing, which resulted in the formation of many towns and communities near natural resources or the locations where those resources were processed. After lighthouses were installed to encourage maritime commerce, the early communities of Winchester Bay, Scottsburg, and Coos Bay flourished. Later in the nineteenth century, lighthouses contributed to the economic success of Newport, Tillamook, Florence, Bandon, and Astoria.

Lighthouses and the Natural Environment

While lighthouses directly represent the economic development of Oregon, they also reflect the perpetual and transformative relationship between Americans and the natural environment in the West. Beginning in the early 1840s, migrating pioneers continually adapted the land of the Pacific Northwest to suit their needs. These settlers introduced livestock to grasslands, all but exterminated natural predators, and altered the courses of major rivers for the purposes of navigation, flood control, and irrigation.¹³¹ Of course, migrating American settlers were not the first human inhabitants of the Pacific Northwest, as numerous indigenous peoples had occupied the region for thousands of years. However, the rapid pace of American settlement and the immediate need for Oregon's water routes, fertile soil, timber, coal, fish, and other

¹³⁰ Donovan, "Light Stations," 24.

¹³¹ Del Mar, *Promise*, 104-105.

natural resources effected a profound and long-lasting change upon the landscape. The construction of aids-to-navigation and the improvement of their associated water-routes (jetties, harbors, and dredging) symbolize how Oregon's coastal environment was altered to better facilitate maritime commerce.

Most obviously, the construction of Oregon's coastal lighthouses often involved significant alterations of the natural landscape. Such changes could be minor, such as the felling of trees to protect the station's buildings and ensure the visibility of the light, or excavating the ground to create a cistern. However, major changes were often required to create a suitable building site for a lighthouse and its associated station buildings. An example of altering the natural landscape to accommodate a light station may be found at Heceta Head. Here, in 1894, 1,000 barrels of black powder were used to level the cliff's edge and provide a level foundation for the lighthouse. Similarly, in a major feat of engineering, engineers leveled the top of an ancient, offshore basaltic outcrop before erecting the Tillamook Rock lighthouse in 1881.¹³²

Closely associated with lighthouses, the improvements made to bays and river mouths present a more pronounced alteration of the coastal landscape. Extending into the ocean, jetties both altered the natural landscape of river mouths and changed the pattern of currents. Perhaps the most dramatic change occurred at the Coquille River lighthouse. Though the tower was originally constructed on a basaltic outcrop in the river, approximately one-tenth of a mile from the shoreline, by the time that jetties were completed, the Coquille's current had been altered such that there was no longer any water in between the lighthouse and the outbuildings of the station. The changes to the natural landscape which helped to increase commercial activity during Oregon's development are visible in both lighthouses and harbor improvements.

¹³² Nelson, *Umbrella*, 33.

Architecture and Physical Characteristics

In addition to their historical significance, all of Oregon's coastal lighthouses were listed on the NRHP under Criterion C for architectural significance. In this way, the design, form, and building methods of these structures reflect the littoral architectural trends of their time, as well as regional characteristics. As mentioned in the previous chapter, lighthouses on the east, west, and gulf coasts, and in the great lakes, were designed and constructed differently. The variations between these structures involve their form, materials, construction methods, and location. Moreover, West Coast lighthouses were built in substantially fewer numbers than their East Coast counterparts; because the west coast features a straighter coastline,¹³³ and because ports are located farther from one another, fewer beacons were required to direct maritime traffic.¹³⁴

Often built upon high, rocky cliffs rather than low lands or beaches, West Coast lighthouses are shorter than many found in other regions.¹³⁵ Moreover, their elevated locations provide these beacons with a scenic quality that is unlike anywhere else in the United States. As described by the eminent lighthouse historian Francis Ross Holland, Junior, "On the west coast so many of the lighthouses are positioned on high and rugged settings that give them [a] spectacular, majestic quality" with "music supplied by the crashing sea."¹³⁶ Demonstrating the beauty of these settings, the Heceta Head lighthouse is often listed as one of the most photographed lighthouses in the United States.

¹³³ Hans Christian Adamson, *Keepers of the Lights* (New York: Greenburg Publishers, 1955), 198.

¹³⁴ Pinyerd, *Lighthouses*, 7.

¹³⁵ Donovan, "Light Stations."

¹³⁶ Holland, *Lighthouses*, 11.

Although the Army Corps of Engineers approved the locations and plans for Oregon's lighthouses from 1852 until 1910, they feature a wide variety of designs. Of Oregon's nine extant coastal lighthouses, five were constructed of masonry in a conical form, one features an octagonal masonry tower sheathed in cast iron plates, one was constructed of stone masonry, one of reinforced concrete, and one with a wood frame. Notably, lighthouse designs changed over time, and thus some prominent architectural features help to indicate their age. For example, the oldest lighthouses in the state, at Cape Blanco and Yaquina Head, feature attached oil houses. By the 1890s, the more flammable kerosene had replaced whale and lard-oil as a lamp fuel, and storage buildings were built at a safe distance from the tower to prevent accidental fires or explosions.¹³⁷ Similarly, the cast iron modillions of Yaquina Head's lower gallery are reflective of Oregon's industrial period,¹³⁸ and Coquille River's octagonal design and decorative lintels reflect the Italianate style of the late-nineteenth century.¹³⁹ The newest lighthouse at Cape Arago, constructed of reinforced concrete, reflects the prominence of that building material at the time of its construction in the 1930s.¹⁴⁰

Notably, three of Oregon's extant coastal lighthouses were designed by one architect, Carl Leick. Working from the Seattle-based Thirteenth Lighthouse District from 1887 until 1926, Leick drafted the designs for a total of 34 lighthouses in Washington, Oregon, and Alaska. In Oregon, Leick designed the second Cape Arago light, as well as those at Coquille River, Heceta Head, Umpqua River, Desdemona Sands, Willamette River, and Warrior Rock.¹⁴¹ Of these seven structures, three have been demolished. Those that remain on the coast are at Coquille River,

¹³⁷ Pinyerd, *Lighthouses*, 34.

¹³⁸ Donovan, "Light Stations."

¹³⁹ National Register of Historic Places, Coquille River Lighthouse, Bandon, Coos County, Oregon.

¹⁴⁰ NRHP, Cape Arago.

¹⁴¹ National Register of Historic Places, Grays Harbor Lighthouse, Westport, Grays Harbor County, Washington.

Umpqua River, and Heceta Head. Interestingly, Leick designed the Umpqua River and Heceta Head lights according to the same plan, and later reused the design for North Head light in Washington in 1898. Although Cape Blanco is remarkably similar to these lighthouses, it was built long before Leick's tenure with the lighthouse service. However, like other lighthouse architects, Leick drew heavily upon the design of extant lighthouses for his own, and it is possible that these beacons were based upon this earlier structure.¹⁴²

In fact, several of Oregon's lighthouses draw upon designs utilized throughout the United States. Yaquina Head is a slightly shorter variation of the Pigeon Point lighthouse in California, and features an identical lantern to that at Bodie Island in North Carolina; Umpqua River, Heceta Head, and the North Head lighthouse in Washington were all designed by Leick, and feature the same plan; and the extant lighthouse at Cape Arago is nearly identical to the Lime Kiln, Alki Point, and Point Robinson lighthouses in Washington.

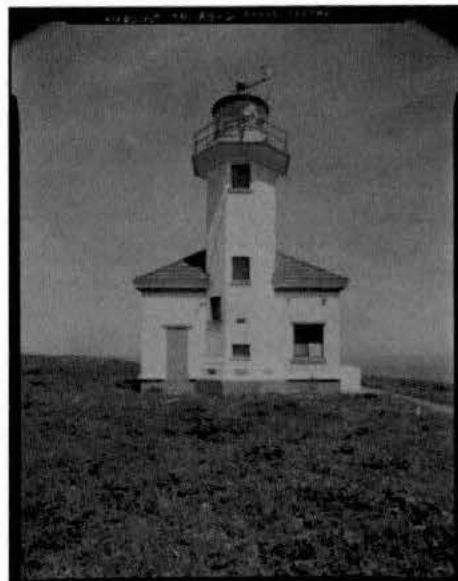


Figure 2-7: The extant lighthouse at Cape Arago is composed of reinforced concrete (From HABS, 2008)

¹⁴² NRHP, Grays Harbor.

Chapter 3: Interpretation: Definition and Principles

Within this work, the term “interpretation” refers to the practice of conveying relevant information to, and creating meaningful experiences for, visitors at historic or cultural sites. Interpretation as such can take place at a variety of locations, including natural areas, archaeological sites, historic buildings, museums, and virtually any other location where enhancing a visitor’s experience through education is a primary goal of the operating organization. Interpretation has been an active subject of scholarship in the United States since at least the 1960s, and professionals from a variety of backgrounds have produced works regarding the subject. Though interpretation has been defined as simply as “an attempt to create understanding,” the practice is much more complex than it may at first seem.¹⁴³

Freeman Tilden, in his seminal and highly influential work *Interpreting Our Heritage*, defines interpretation as “an educational activity which aims to reveal meanings and relationships . . . rather than simply to communicate factual information.”¹⁴⁴ Sam H. Ham, a leader in the field of interpretation studies, provides a more clinical definition. He defines the practice as “a mission-based approach to communication aimed at provoking in audiences the discovery of personal meaning and the forging of personal connections with things, places, people, and concepts.”¹⁴⁵ Though Tilden’s definition emphasizes education and Ham’s emphasizes communication, they each claim that the purpose of interpretation is much more than teaching facts to visitors. In this way, interpretation is not simply the attempt to convey

¹⁴³ William T. Alderson and Shirley Payne Low, *Interpretation of Historic Sites* (Nashville: American Association for State and Local History, 1976), 3.

¹⁴⁴ Freeman Tilden, *Interpreting Our Heritage*, ed. Bruce Craig (Chapel Hill: University of North Carolina Press, 2007), 33.

¹⁴⁵ Sam H. Ham, *Interpretation: Making a Difference on Purpose* (Golden: Fulcrum Publishing, 2013), 8.

information; it is also the process of *inspiring* visitors to learn, or care, about a place, object, or event during their visit.

With this definition in mind, it is important to establish what successful interpretation accomplishes, or at least attempts to accomplish. While the goals of an interpretive experience may be worded differently, and may emphasize certain elements of the experience over others, all interpreters share the common desire to impart some sort of knowledge, or sense of awareness, upon visitors.¹⁴⁶ For example, Marc Stern and his co-authors describe three outcomes that may be achieved through interpretation: an increase in a visitor's knowledge about a resource, their appreciation for that resource, or a change in their behavior towards that resource.¹⁴⁷ Within his well-received work *Interpretation: Making a Difference on Purpose*, Sam Ham proposes that the goal of interpretation is to communicate a theme, or key idea, that a visitor will remember once they leave the site.¹⁴⁸

Similarly, Suzanne Schnell perceives historic sites as “macro-artifacts,” which can “communicate something significant about the past” if interpretation functions as a “bridge between object and observer.”¹⁴⁹ More abstractly, Freeman Tilden claims that the primary objective of interpretation is to expose the “inspiration and spiritual meaning that lie behind what the visitor with his senses can perceive.”¹⁵⁰ Thus, the goal of interpretation, simply described, is that a visitor leaves a site having discovered something profound for his or herself. This

¹⁴⁶ James Farmer and Doug Knapp, “Interpretation Programs at a Historic Preservation Site,” *Journal of Mixed Methods Research* 2, no.4 (October 2008): 341.

¹⁴⁷ Marc J. Stern et al., “The Difference Between Good and Great: Bringing Interpretive Best Practices to Life,” *Journal of Interpretation Research* 18, no.2 (2013): 80.

¹⁴⁸ Ham, *Interpretation*, 20.

¹⁴⁹ Suzanne B. Schnell, “On Interpretation and Historic Sites,” *The Journal of Museum Education* 10, no.3 (1985): 7.

¹⁵⁰ Tilden, *Heritage*, 25.

discovery could be as simple as knowledge gained, or as significant as a new outlook on a controversial issue.

However, in accordance with the definitions of interpretation provided by Tilden, Ham, and others, the most effective interpretive strategies do not explicitly tell a visitor what his or her discovery should be. In fact, the most prominent theme in interpretation scholarship is that visitors learn best when they achieve a personal, or emotional, connection with a resource. Though this idea has been explored and expanded by many scholars in recent years, it stems from Tilden's highly influential *Principles of Interpretation*¹⁵¹:

- 1) "Any interpretation that does not somehow relate what is being displayed or described to something within the personality or experience of the visitor will be sterile."
- 2) "Information, as such, is not interpretation. Interpretation is revelation based upon information. But they are entirely different things. However, all interpretation includes information."
- 3) "Interpretation is an art, which combines many arts, whether the materials presented are scientific, historical, or architectural. Any art is in some degree teachable."
- 4) "The chief aim of interpretation is not instruction, but provocation."
- 5) "Interpretation should aim to present a whole rather than a part and must address itself to the whole man rather than any phase."

¹⁵¹ Tilden, *Heritage*, 34-35.

- 6) "Interpretation addressed to children...should not be a dilution of the presentations to adults, but should follow a fundamentally different approach. To be at is best it will require a separate program."

Of these six principles, three directly address the attempt to form a personal connection between visitor and resource. Principle No.1 states that "any interpretation that does not somehow relate what is being displayed or described to something within the personality or experience of the visitor will be sterile;" Principle No. 2 clarifies that "information, as such, is not interpretation. Interpretation is revelation based upon information;" and, most importantly, Principle No.4 declares that "the chief aim of interpretation is not instruction, but provocation."¹⁵² According to these foundational ideas, an interpretive effort is most effective when it presents information to visitors in a way that prompts them to make their own conclusions and connections. While this is the most important facet of interpretation, it is also the most challenging, for it requires an interpreter and interpretive materials to create a relevant experience for individuals of different ages, nationalities, ethnicities, and backgrounds.

Indeed, many studies have found that visitors are most profoundly affected by interpretive approaches that prompt them to make personal connections with the object at hand. Describing this process as an adaptation of Tilden's fourth principle, Sam Ham eloquently describes the interpretive strategy of "provocation," wherein interpretation consciously or subconsciously prompts a visitor to think further about an idea on their own. Within this context, Ham proposes three approaches, or "endgames" commonly used to facilitate interpretation; provocation, teaching, and entertainment. More so than the other two endgames, provocation prompts an internal connection within a visitor's mind, and allows them to discover something

¹⁵² Tilden, *Heritage*, 34-35.

about a resource that relates to their own life.¹⁵³ Ham claims that provocation is the most important of these strategies, because visitors usually retain information, and enjoy themselves in the process, when they are led to make internal connections at a site.¹⁵⁴ Similarly, Dr. Mark Morgan writes that “emotional attachments . . . are meaningful for participants to understand the character or essence of a given site.”¹⁵⁵ In a study of three historic sites, Gregory Benton found that visitors recalled and communicated the personal connection they felt with the past inhabitants of the site far more consistently than any other goal sought out by the interpreters.¹⁵⁶

If the formation of personal connections is the most effective practice in interpretation, then it is important to understand how these connections are created. To this end, numerous authors emphasize the importance of relevance. The concept of relevance in interpretation was first laid out in Tilden’s first principle, “Any interpretation that does not somehow relate what is being displayed or described to something within the personality or experience of the visitor will be sterile.”¹⁵⁷ Furthering this idea, Ham specifies that relevant information is that which is “both meaningful and personal.”¹⁵⁸ Interpreters can intentionally create a relatable, relevant experience by emphasizing the elements of a resource’s history that are similar to experiences that visitors have had themselves.¹⁵⁹ This is especially true when interpretation is centered around universal concepts (love, hate, life, death, mystery, etc.) to which virtually all human beings can relate.¹⁶⁰

¹⁵³ Ham, *Interpretation*, 56-58.

¹⁵⁴ *Ibid.*, 64.

¹⁵⁵ Dr. Mark Morgan, “Interpretation and Place Attachment: Implications for Cognitive Map Theory,” *Journal of Interpretation Research* 14, no.1 (2009): 47.

¹⁵⁶ Gregory M. Benton, “From Principle to Practice: Four Conceptions of Interpretation,” *Journal of Interpretation Research* 14, no.1 (2009): 18.

¹⁵⁷ Tilden, *Heritage*, 34.

¹⁵⁸ Ham, *Interpretation*, 31.

¹⁵⁹ Morgan, “Map Theory,” 47.

¹⁶⁰ David L. Larsen, ed., *Meaningful Interpretation: How to Connect Hearts and Minds to Places, Objects, and Other Resources* (Eastern National, 2011), 97.

Concepts that are presented in a relevant way are processed more easily because, from a psychological perspective, humans remember experiences and facts in different ways. Semantic memories (remembering unassociated facts) are much more difficult to recall than episodic memories (personal experiences and revelations).¹⁶¹ Consequently, interpretation that allows a visitor to *experience* a site is much more effective, and memorable, than interpretation that merely presents factual information.¹⁶² Indeed, a study by James Farmer and Doug Knapp shows that after a six month period, visitors consistently retained information which related to their own experiences in some way, while they largely forgot other data.¹⁶³ Similarly, a study by David Uzzell suggests that heritage sites can “[enhance] people’s sense of identity with place and the past” if interpretation adequately communicates how they, personally, relate to it.¹⁶⁴ In fact, Marc Stern and his co-authors claim that the ability to create this kind of experience is the difference between good and great interpretation.¹⁶⁵ Consequently, relevant interpretation increases the likelihood that a visitor will make a personal connection to the site or resource, and that they will internalize what they have learned.

Interpretation is much more than the recitation or presentation of isolated facts. Though it always seeks to convey information or ideas to visitors, interpretation also includes the process of inspiring the visitor to care about the site and the ideas associated with it. Similarly, the goal of interpretation is not for the visitor to leave with a plethora of new information, but rather with a significant, memorable discovery. Effective interpretation does not merely tell a visitor what this discovery should be at the outset, but instead leads them to make a personal, emotional, or

¹⁶¹ Farmer, “Interpretation,” 357.

¹⁶² Ham, *Interpretation*, 81.

¹⁶³ Farmer, “Interpretation,” 356.

¹⁶⁴ David L. Uzell, “Creating Place Identity Through Heritage Interpretation,” *Heritage Studies* 1, no. 4 (1996): 228.

¹⁶⁵ Stern, “Good and Great,” 82.

intellectual association of their own. Moreover, this connection is much more likely to occur if the interpretive information provided is relevant to the visitor's personal life or experience in some way. In the end, interpretation at historic sites should lead visitors to experience a site in a personal way; by inspiring visitors to make personal connections, interpreters can better ensure that a visitor will leave with a personal and meaningful thought, lesson, discovery, or question.

Interpretation and Historic Preservation

Interpretation is not often addressed within the field of historic preservation. In fact, Norman Tyler's leading textbook, *Historic Preservation: An Introduction to Its History, Principles, and Practice*, dedicates only a few pages to the subject.¹⁶⁶ Another popular textbook, authored by Michael A. Tomlan, mentions interpretation only in the context of archaeological sites and museums.¹⁶⁷ However, historic preservation and interpretation are more intimately connected than it may at first seem. In its definition of historic preservation, the National Park Service (NPS) claims that "historic preservation is an important way for us to transmit our understanding of the past to future generations."¹⁶⁸ Similarly, preservationists Max Page and Marla R. Miller describe a central idea of historic preservation in that "buildings are alive; they have souls, and can communicate with us."¹⁶⁹ In this sense, a primary goal of historic preservation is to utilize historic buildings, sites, and landscapes to both understand something about our heritage, and to communicate that understanding to current and future generations.

¹⁶⁶ Norman Tyler, Ted J. Ligibel, and Ilene R. Tyler, *Historic Preservation: An Introduction to Its History, Principles, and Practice* (New York: W.W. Norton & Company, 2009), 321-324.

¹⁶⁷ Michael A. Tomlan, *Historic Preservation: Caring for Our Expanding Legacy* (Switzerland: Springer International Programming, 2015).

¹⁶⁸ "What is Historic Preservation?," National Park Service, <https://www.nps.gov/subjects/historicpreservation/what-is-historic-preservation.htm>

¹⁶⁹ Max Page and Marla R. Miller, eds., *Bending the Future: 50 Ideas for the Next 50 Years of Historic Preservation in the United States* (Boston: University of Massachusetts Press, 2016), 15.

While preservationists must document, designate, and preserve historic resources in order to keep them standing and to remain in use, it is also vital that we explain to a community why these places deserve to be preserved at all. Quality interpretation facilitates this process and, in the end, strengthens the historic preservation movement altogether.

Numerous cultural resource professionals, namely historic preservationists, have indicated their desire to make interpretation a more prominent component of preservation. In fact, this is not a new trend within the field. As early as the 1970s, William Alderson and Shirley Payne Low asserted that the owners of historic buildings, whether individuals or agencies, are effectively the “trustees” of important resources. Though protection through designation on either the National or a local register is a common result of this trusteeship, there remains a responsibility to communicate to the public *why* the resource was preserved.¹⁷⁰ In fact, Alderson and Low claim that a visitor leaving a historic site “without understanding the historical value is to negate the entire purpose of the preservation effort.”¹⁷¹ According to these authors, physically preserving a resource is only one-half of the preservation process, and the effort to communicate its historic significance to the public is equally as important.

In 2016, Max Page and Marla R. Miller edited a work entitled *Bending the Future: 50 Ideas for the Next 50 Years of Preservation in the United States*, which compiled thoughts and principles from many leading preservation professionals. Significantly, two articles featured in this work discuss the importance of interpretation in preservation. In an article entitled “The Necessity of Interpretation,” Donna Graves posits that “a community’s most vital attachment is

¹⁷⁰ Alderson, *Historic Sites*, 6.

¹⁷¹ *Ibid.*, 20.

to its lived history – without that story being conveyed, a structure or site is an empty shell.”¹⁷² Concerned about inadequacies in preserving the resources of marginalized communities, Graves argues that interpretation may contribute to the preservation of important resources that do not exhibit great architectural integrity.¹⁷³ Similarly, preservationist Steven Lubar authored an excellent article entitled “Preservation Demands Interpretation.” Within this work, Lubar claims that interpretation should be more than an “afterthought” in historic preservation.¹⁷⁴ Rather, he suggests that preservation was originally intended as “a means to an interpretive end,” and provides several suggestions for interpreting designated resources to the passing public.¹⁷⁵

Not only are historic preservation and interpretation intimately connected, but effective interpretation can benefit preservation in multiple ways. For example, interpretation allows for deep, personal connections to be established between a community and its historic resources. In the words of interpreter David Larsen, historic sites may be used as “symbols, metaphors, platforms, or transporter beams that focus meaning and connect audiences.”¹⁷⁶ As discussed above, a primary goal of historic preservation is to both understand and communicate a community’s history through its historic fabric. However, without interpretation, this communication is generally limited to professionals, such as architectural historians and preservationists, who can “read” a building or site without guidance.¹⁷⁷ When interpretation complements preservation, historic resources become educational tools that can help a

¹⁷² Donna Graves, “The Necessity of Interpretation,” in *Bending the Future: 50 Ideas for the Next 50 Years of Historic Preservation in the United States*, ed. Max Page and Marla R. Miller (Boston: University of Massachusetts Press, 2016), 94.

¹⁷³ *Ibid.*, 93-94.

¹⁷⁴ Steven Lubar, “Preservation Demands Interpretation,” in *Bending the Future: 50 Ideas for the Next 50 Years of Historic Preservation in the United States*, ed. Max Page and Marla R. Miller (Boston: University of Massachusetts Press, 2016), 153.

¹⁷⁵ *Ibid.*, 155.

¹⁷⁶ Larsen, *Meaningful*, 13.

¹⁷⁷ Lubar, “Interpretation,” 53.

community to understand not only what happened and when, but also how historical events relate to them personally.¹⁷⁸

Additionally, historic preservation and interpretation are linked within the practice of heritage tourism. In recent years, international and other non-local visitors to heritage sites have developed “a sincere interest in understanding the culture of places rather than the superficiality inherent in the more traditional ‘sight-seeing’ tourism experiences of the past.”¹⁷⁹ Quality interpretation is the only way to provide this education at historic sites, and can thus instill feelings of value and stewardship upon a broad audience of visitors. Moreover, because preserved historic resources, coupled with interpretation, draw many tourists, significant economic gains can be achieved through heritage tourism.¹⁸⁰

Tangible and Intangible Connections

As described by Sam Ham, humans understand the world based upon two types of conceptions: tangible objects (tangibles), and intangible ideas (intangibles). Though a tangible (i.e. a building) can be used to communicate facts, and an intangible (i.e. a historic event) can be communicated without a physical representation, people make especially powerful connections to a place when these elements are combined.¹⁸¹ In this way, historic preservation presents a unique educational opportunity to teach visitors at historic sites about the intangible ideas, trends, and events that resulted in the tangible structures and landscapes which they are actively observing and experiencing. Without interpretation, this understanding is incredibly limited. In the words of interpretation scholar David Larsen, “Resources are made up of tangible objects . . .

¹⁷⁸ Graves, “Necessity,” 95.

¹⁷⁹ Tyler, *Preservation*, 322.

¹⁸⁰ Tomlan, *Preservation*, 164.

¹⁸¹ Ham, *Interpretation*, 177-178.

as well as the intangible objects to which each is linked. To neglect one is to squander the power of both.”¹⁸²

Interpretation and Stewardship

Perhaps more significantly, high-quality interpretation at a historic resource increases public support for its preservation.¹⁸³ If visitors to a historic site are provided with a memorable, meaningful experience, then they will most likely leave with an appreciation for that resource, and will be much more likely to support future preservation efforts.¹⁸⁴ In fact, Donna Graves believes that interpretation can introduce new individuals and communities to the historic preservation movement as a whole, in that “robust, dynamic, and inclusive interpretation affords tools for expanding the ranks of those who value the preservation of historic places.”¹⁸⁵ Perhaps the value of interpretation is best summed up within one of Freeman Tilden’s most celebrated quotations, “Through interpretation, understanding; through understanding, appreciation; through appreciation, protection.”¹⁸⁶ Interpretation not only contributes to the ultimate goals of historic preservation, but also introduces individuals to the movement and inspires them to support its efforts.

Although interpretation is not often perceived as a significant element in historic preservation, it should be a primary concern within the field. One of the central goals of preservation is to understand and convey a community’s history, and this is most effectively accomplished through high-quality interpretive programming. By combining tangible objects

¹⁸² Ham, *Interpretation*, 178.

¹⁸³ Stern, “Good and Great,” 97.

¹⁸⁴ Ham, *Interpretation*, 72.

¹⁸⁵ Graves, “Necessity,” 95.

¹⁸⁶ Tilden, *Heritage*, 65.

with intangible ideas, interpretation allows for unique educational experiences at historic sites. More importantly, interpretation benefits the cause of historic preservation. When visitors or local community members are personally impacted by an interpretive effort, they will be more likely to support the preservation of the resource, and perhaps others like it. In the end, preservation and interpretation beautifully complement one another. While preservation allows buildings and other objects to tangibly remind us of our past, interpretation helps to explain why that past is important. Perhaps more importantly, interpretation perpetually adjusts our understanding of history based upon new information, ideas, and events.

Chapter 4: Interpretation at Oregon's Historic Coastal Lighthouses: Three Case Studies

Introduction

This chapter presents the observations and evaluations of the author after visiting the lighthouses at Coquille River, Cape Meares, and Yaquina Head. These sites were chosen primarily because of the variety of interpretive strategies in place at each location. However, the operating, or managing, agency was also a prominent consideration. While both Coquille River and Cape Meares operate under the stewardship of OPRD, the Yaquina Head lighthouse is managed by the BLM. Because each of these agencies receives different levels of funding and is influenced by different organizational goals, their staffs manage and interpret historic resources in different ways. Moreover, it should be noted that two other public agencies in Oregon manage lighthouses. Douglas County manages the Umpqua River lighthouse, and Cape Arago is owned by the Confederated tribes of the Coos, Lower Umpqua, and Siuslaw Indians.

Other than OPRD's *Regional Interpretive Framework: A Statewide Approach to Interpretive Planning* (2005), no guiding documents or principles officially guide interpretation at lighthouses owned by Oregon's state parks. Moreover, the *Regional Interpretive Framework* identifies planning goals rather than specific interpretive strategies, and its references to Oregon's lighthouse sites will be addressed briefly in the following chapter. Similarly, no guiding document governs interpretation at BLM sites. However, to formulate their tour programs, the staff at the Yaquina Head Outstanding Natural Area utilize a guide course model issued by the National Association for Interpretation.

Each case study begins with a summary that provides the reader with some general information about the site, followed by a statement about the lighthouse's historical significance,

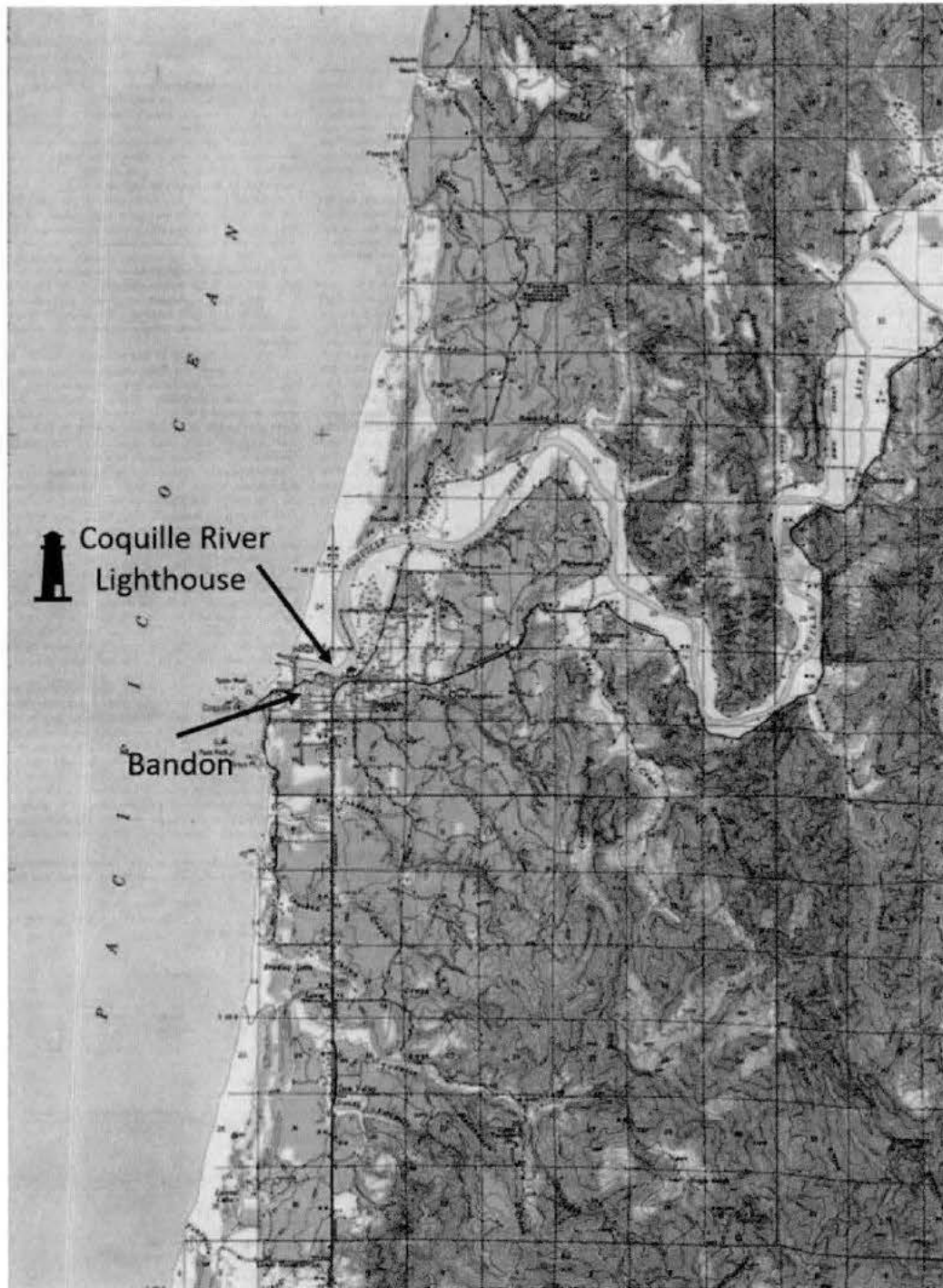
a site description, and an architectural description. The second half of each case study begins with a summary of the interpretive programming at the site, and ends with an analysis of the program.

To objectively and consistently evaluate the qualities of interpretation at these lighthouses, each “analysis” section will address a common set of criteria, developed by the author. The criteria listed below were used to assess and compare the interpretive content and strategies employed at each site.

- **Location-** Does the interpretive program explain why the location was chosen for the light station? Does it explain the relationship between the light station and nearby communities?
- **Function-** Does the interpretive program explain the purpose of the particular lighthouse (navigation, hazards, harbor, etc.)? Does it explain how the beacon operated?
- **Outbuildings/Function as a Light Station-** Does the interpretive program explain that the lighthouse was once part of a larger complex? Does it demonstrate the function and location of former buildings?
- **Depth of Tour/Access-** To what extent are visitors able to explore the restored structure? Have efforts been taken to accommodate disabled visitors?
- **Interpretation for Children-** Does the interpretive program strive to create relevant presentations when children are the prime audience? Can the lighthouse accommodate school groups?
- **Interpretation of the Environment-** Does the interpretive program present the lighthouse in the context of its natural environment? Do visitors receive programming related to both natural and human history?
- **Individuality-** Does the interpretive program explain how the lighthouse is different than others in the region? Does it highlight its individual history and development?

These criteria are intended to create a method of comparing the interpretive programs at each site. Suggestions for improving a program, based largely upon these criteria, are provided in the following chapter.

Case Study: Coquille River Lighthouse, Bandon, Oregon



Map 1: Coquille River Lighthouse on a 1944 United States Geological Survey (USGS) Map of Bandon, OR

Summary

The Coquille River lighthouse was constructed on the north bank of the Coquille River's mouth in 1896. Just across the river from Bandon, the structure is often, but unofficially, referred to as the Bandon Lighthouse. Primarily used as a harbor light, the lighthouse provided a reference by which sea captains could align themselves during the night to prepare for an early morning passage over the dangerous Coquille River bar.¹⁸⁷ However, its beam could be seen for about twelve miles out to sea, and thus the lighthouse also served as a coastal aid-to-navigation during its four decades of service.¹⁸⁸ Notably, the Coquille River lighthouse is one of only four coastal lighthouses in Oregon to ever feature a fog-signal. Of these lighthouses (Coquille River, Cape Arago, Tillamook Rock, and Point Adams) only three remain standing.

For reasons that remain unclear, the Coast Guard deemed the light unnecessary in 1939 and decommissioned the light station. The lighthouse was soon replaced by an unmanned beacon on the south jetty of the Coquille River, and its outbuildings were quickly demolished. The lighthouse was virtually abandoned until the 1970s, when it was nominated to the National Register of Historic Places (NRHP) and restored through the combined efforts of Oregon State Parks and the U.S. Army Corps of Engineers. Today, the Coquille River lighthouse is owned by the Coast Guard, but is managed and operated as a part of Bullards Beach State Park under the terms of a lease.

¹⁸⁷ Bullards Beach State Park, Coquille River Training Document.

¹⁸⁸ Chad Ehlers and Jim Gibbs, *Sentinels of Solitude: West Coast Lighthouses* (Portland: Graphic Arts Center Publishing Company, 1981), 77.

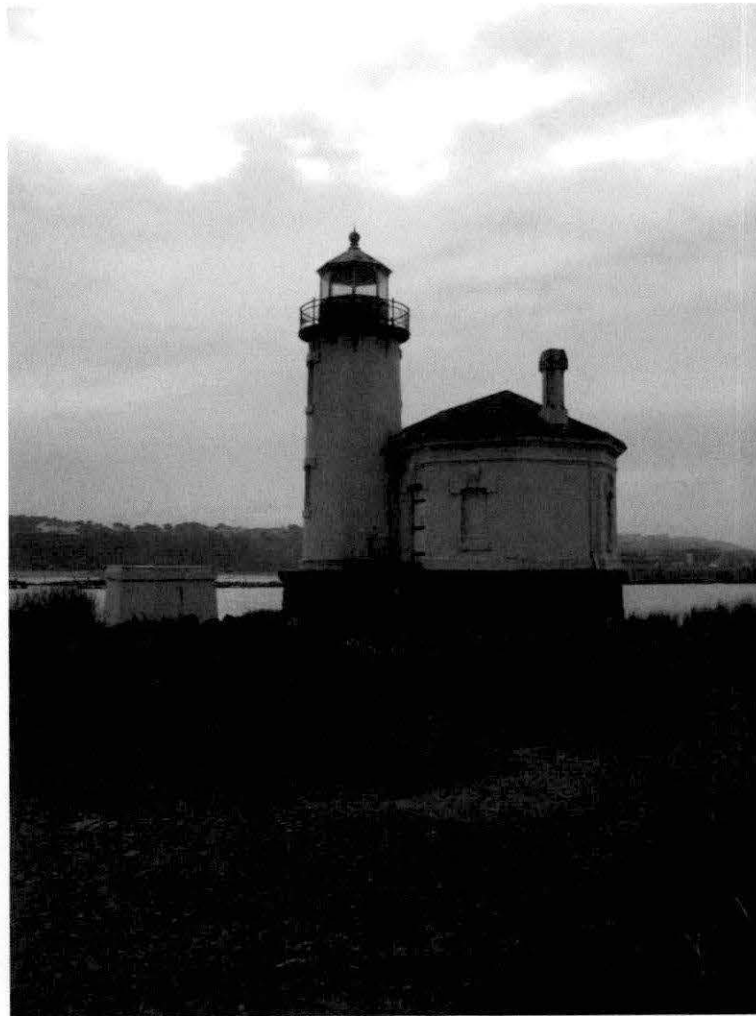


Figure 4-1: Coquille River Lighthouse (Photo by Author)

Statement of Significance

When the Coquille River Lighthouse was placed on the National Register in 1974, it was nominated for its significance in the areas of commerce, transportation, navigation, and architecture. According to the current National Register nomination criteria, this lighthouse would be considered significant to local history under Criterion A, for its association with Oregon's maritime history, as well as under Criterion C, for its representation of late-nineteenth-century architecture.

The Coquille River light primarily derives its significance from its role in Bandon's economic development during the late-nineteenth and early-twentieth centuries. The town of Bandon was established during the early 1850s due to its plentiful lumber and fishing resources, and because gold had been discovered nearby.¹⁸⁹ Eventually, Bandon could also boast of a woolen mill and a prosperous dairy industry. However, the bar at the mouth of the Coquille River was incredibly dangerous, and the river's shifting, sandy bottom was sometimes only three feet below the water's surface.¹⁹⁰ During the 1880s, the citizens of Bandon relentlessly petitioned Congress to provide funding for harbor improvements at the Coquille's mouth, and they shortly received funds to build both a jetty and a lighthouse.¹⁹¹ Constructed in 1896, the Coquille River Lighthouse served as the "nucleus for water transportation and commerce in the early history of Bandon."¹⁹²



Figure 4-2: -Historic Photo of Coquille River Lighthouse (From James Gibbs, *Lighthouses of the Pacific*)

¹⁸⁹ James A. Gibbs and Bert Webber, *Oregon's Seacoast Lighthouses* (Medford: Webb Research Group, 1992), 49.

¹⁹⁰ Sharlene and Ted Nelson, *Umbrella Guide to Oregon's Lighthouses* (Seattle: Umbrella Books, 1994), 9.

¹⁹¹ *Ibid.*, 11.

¹⁹² National Register of Historic Places, Coquille River Lighthouse, Bandon, Coos County, Oregon.

At the time of the lighthouse's construction, Oregon's maritime economy was booming. As mentioned previously, Sally Donovan describes the years between 1884 and 1913 as Oregon's "Progressive Era," when big business and international commerce were rapidly transforming the coastal economy.¹⁹³ Lighthouse historian Chad Ehlers refers to this time as the "golden age" of coastal shipping in Oregon,¹⁹⁴ as ever-increasing volumes of lumber, fruit, and completed ships left the state's coastal ports.¹⁹⁵ Reflecting this prosperity, Bandon thrived during the early years of the twentieth century as it exported products to both Portland and San Francisco. As in other coastal communities, both the lighthouse and the construction of jetties made such trade possible.¹⁹⁶ In this way, the surviving structure represents both Oregon's and Bandon's prosperous maritime economy at the turn of the twentieth-century.

The Coquille River lighthouse is also significant for its association with a major local event: the devastating Bandon fire of 1936. In September of that year, a raging wildfire swept across the town of Bandon, leaving only 16 of an original 500 buildings standing. The lighthouse was one of them.¹⁹⁷ Consequently, the Coquille River Light is one of only a handful of buildings that remain in Bandon from the nineteenth-century. Additionally, the light station played an important role during the disaster. As the fire raged in Bandon, several residents crossed the river in boats and took shelter at the lighthouse.¹⁹⁸ Fortunately, the lighthouse tender *Rose* was servicing the light station at the time of the fire, and its radio was used to summon rescue after Bandon's phone lines were destroyed.¹⁹⁹

¹⁹³ Sally Donovan, "Light Stations of Oregon," National Register of Historic Places Multiple Property Documentation Form, August 21, 1992.

¹⁹⁴ Ehlers, *Sentinels*, 77.

¹⁹⁵ Donovan, "Light Stations."

¹⁹⁶ Gibbs, *Seacoast*, 49.

¹⁹⁷ *Ibid.*, 49.

¹⁹⁸ Nelson, *Umbrella*, 13.

¹⁹⁹ Gibbs, *Seacoast*, 50.

The Coquille River lighthouse, as indicated in its National Register nomination, is significant in that it reflects the architectural style of the period in which it was built. Although the structure is relatively simple in its design, the large lintels above each window and the low, hipped roof of the fog signal building represent the Italianate style, which was popular on the west coast throughout the 1880s and 90s. Moreover, the octagonal floor plan of the fog-signal building is reflective of 1890s architecture.²⁰⁰ Although the lighthouse was in a state of decay for several decades during the twentieth century, it has undergone numerous cosmetic restoration efforts. Today, the lighthouse retains its integrity of materials, location, and setting, but the absence of the associated station buildings, walkway, lamp equipment, lens, and fog signal have severely reduced its integrity of design, feeling, and association.



Figure 4-3: Coquille River Lighthouse before restoration, 1974 (National Register of Historic Places Database)

²⁰⁰ NRHP, Coquille River Lighthouse

Site Description

The Coquille River lighthouse is located at the southernmost tip of Bullards Beach State Park. Access to the site is facilitated by a long, paved road that runs nearly parallel to Highway 101 for approximately 3 miles and terminates at a large parking lot. A short walk leads to the lighthouse, which sits atop a basalt outcrop protruding slightly into the river. This rocky islet, named Rackleff Rock, was once detached from the mainland, but is now onshore as a result of bar and channel improvements.

Although the lighthouse was originally built at the river's mouth, the construction of jetties greatly altered the surrounding landscape. Directly to the west of the tower, the north jetty extends toward the sea for over one-quarter of a mile; a public walkway allows for pedestrian traffic all the way down the jetty. Across the river, the shorter south jetty is clearly visible, as well as the modern automated beacon that replaced the lighthouse. On the south jetty, the hull of the *Oliver Olson*, which ran aground there in 1953, is still visible. The natural surroundings of the site consist of small, rolling hills, low-growing shrubs, and a rocky beach often covered with driftwood.



Map 3: Coquille River Lighthouse with Bullards Beach stretching to the north (1943 USGS Map)

Architectural/ Physical Description

The Coquille River lighthouse consists of two parts: a small, raised one-story fog-signal building, and a cylindrical tower. The structure features a very tall concrete foundation, parged in stucco and capped by a wide banding course. At the northeast corner of the lighthouse, a narrow granite staircase allows access into the fog-signal building. This simple, octagonal building originally housed the equipment necessary to operate a steam fog-signal, and the former location of the steam engines and water tanks are still visible on the concrete floor. On the west elevation

of the fog-signal building, four window openings face out to sea. Two paired windows with protruding arch-lintels are placed symmetrically in the center of this elevation, and a small circular scar can be seen between them where the fog-signal's trumpet once protruded from the wall. All of the lighthouse's windows are double-hung, wood-sash, two-over-two. Although they are not of historic fabric, the sashes have been replaced-in-kind with Port Orford cedar.²⁰¹ In total, the fog-signal building features seven windows. It is capped by a low, faceted hipped roof, and a stucco-parged chimney rises from the northernmost corner of the building.

The cylindrical lighthouse tower is attached to the fog-signal building near the center of its east elevation. At 40 feet, it is roughly twice the height of the building. Three small windows, two facing east and one west, allow light to enter the stairwell, in which an iron staircase winds upward toward the metal lantern room. The cast-iron lantern itself is composed of eight large panes, and is surrounded by a short, iron gallery. As in most lighthouses of the time-period, the tower is capped with a metal roof, complete with a vent ball and lightning rod (the vent-ball is not historic, and is non-functional).²⁰²

²⁰¹ Email conversation with Patrick Newhall, Interpretive Ranger at Bullards Beach State Park and Committee Member

²⁰² Conversation with Sue Licht, Preservation Architect and Terminal Project Committee Member.



Figure 4-4: Coquille Lighthouse and Octagonal Fog-Signal Building (Photo by Author)

Discussion of Interpretation

The historic narrative of the Coquille River lighthouse is conveyed through interpretive panels located in the fog-signal building, as well as presentations given by either the park's interpretive ranger or volunteer seasonal staff (hosts). The lighthouse is a very prominent attraction at Bullard's Beach, as evidenced by the 20,000 visitors which it attracted during its 2017 open season.²⁰³ Within the organizational structure of the park, the park manager ultimately makes decisions regarding both interpretive strategies and funding. An interpretive ranger has the responsibility of recruiting and training hosts, who usually live on campgrounds at or near the park during its busy season (late spring to early fall).

According to the interpretive ranger at Bullards Beach, interpretation at the Coquille River lighthouse is centered around a few key themes. Although hosts can choose the theme for

²⁰³ Data received from Patrick Newhall, Interpretive Ranger at Bullards Beach State Park and Committee Member.

their own presentations and programs, the most common topics are “the life of a keeper,” “the economic development of Bandon,” or, more generally, “this lighthouse represents a brief period in time.” While interpretation at most lighthouses discusses the technology and physical operation of the beacon, this is difficult at Coquille River because visitors are not able to ascend the tower, and the lens and other equipment are missing.

The primary element of interpretation at this site consists of six interpretive panels, located inside of the fog-signal building. These large panels are anchored directly into the walls of the structure, and each is evenly balanced between text, photographs, and graphics. Those that address features of the present or historic landscape are placed adjacent to a window facing their subject. The titles and subjects of these panels are:

- “A Hero’s Life of Valor and Isolation” – Describes the life of a keeper at Coquille River
- “The Lighthouse Lantern and Lens” – Describes the function of the lighthouse, its flash signature, and explains that Coquille’s lens is missing
- “The Coquille River Lighthouse” – Describes the need for a lighthouse in Bandon during the 1890s and the purpose of a fog-signal
- “Disasters at the Mouth of the River” – A map of Coquille River’s mouth demonstrating where major shipwrecks have occurred
- “Protecting the Bandon Harbor” – Explains why the jetties were constructed, and where the material came from to build them
- “Over a Century of Historic Events” – A timeline, with photos, marking major events in Bandon’s history

Additionally, a poster has been attached to the gift-shop counter, entitled “Coquille River Lighthouse: 1896 to 1939.” This display tells the story of Rackleff Rock (upon which the

lighthouse is built), provides a brief history of the light station, and features several useful graphics that explain how the fog-signal equipment was laid out and where the elevated walkway once stood.

Analysis of Interpretation

Location

Interpretation at the Coquille River lighthouse effectively conveys the importance of the light station to the nearby community of Bandon. Four of the six panels inside of the fog-signal building help to interpret this concept: “The Coquille River Lighthouse” panel describes the need for, and importance of, a lighthouse in this harbor; “Over a Century of Historic Events” provides a local context within which the lighthouse can be understood; and “A Hero’s Life of Valor and Isolation” describes the relationship between the lighthouse keepers and the town of Bandon.

Additionally, the existing interpretive program clearly communicates the significance of Rackleff Rock. By telling visitors about the flattened basaltic outcrop upon which the lighthouse was constructed, they may leave with an understanding of the dangers associated with this rock formation, and why it was a suitable place to construct the lighthouse.

Function

Interpreting the function of the Coquille River light is a difficult task, as its equipment is gone, and visitors cannot climb the stairs to take in the view from atop the tower. However, the panel entitled “The Lighthouse Lantern and Lens” adequately explains the station’s flash signature, the function of its fourth-order lens, and how ships would utilize the beacon. Detailed descriptions regarding the lighthouse’s function and operation are provided in Coquille River’s volunteer training handout so that hosts may be prepared answer specific questions if asked.

Function as a Light Station

The Coquille River light station consisted of the lighthouse tower, an oil house, a water tank, the keepers' duplex, a barn, and a water tower. At the lighthouse's construction in 1896, these buildings were located onshore, approximately one-tenth of a mile from the tower. A raised wooden walkway allowed access between the buildings, and terminated at the extant doorway of the lighthouse.

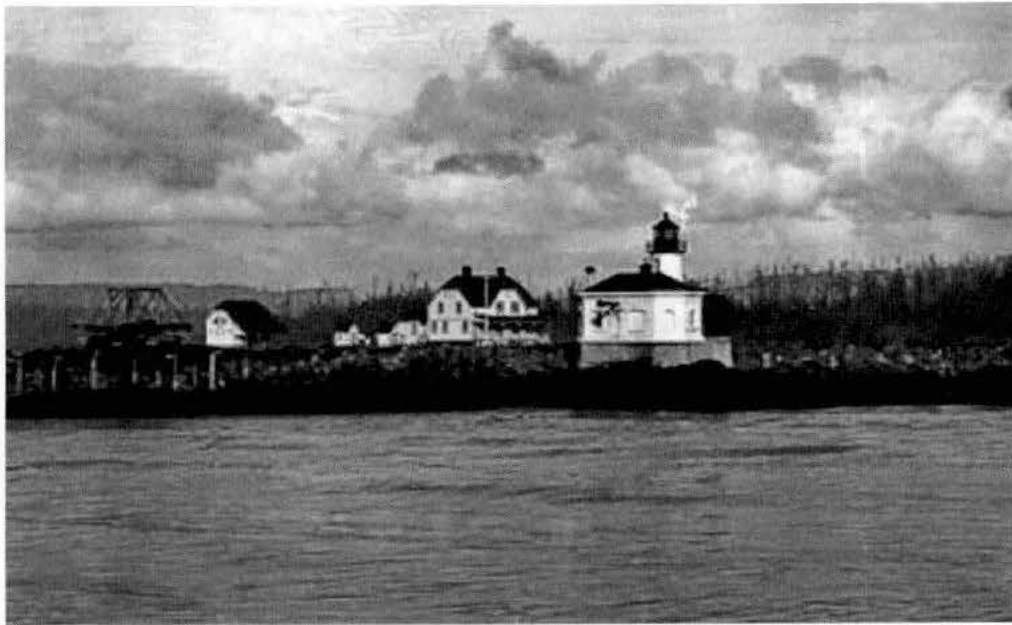


Figure 4-5: Coquille River Light Station, Year Unknown (LighthouseFriends.com)

Some interpretation at Coquille River addresses the former buildings of the light station. One panel features a photograph of the outbuildings, with the wooden walkway in the foreground, and explains that one would have seen these buildings when looking out the adjacent window in 1910.²⁰⁴ According to the interpretive ranger, hosts address this topic when they have the visual aids to demonstrate. Uniquely, the former location of these buildings is very easy to point out, as a large concrete foundation that once supported the station's water tower is easily

²⁰⁴ Interpretive Panel, "A Hero's Life of Valor and Isolation," Coquille River Lighthouse.

visible from the lighthouse; the keepers' quarters, barn, and other buildings were located near this tower. Similarly, the concrete foundation of the former oil house stands directly adjacent to the lighthouse (at its northeast corner) and the foundation of a water-tank is visible near the south elevation of the tower.

If a visitor carefully read all of the plaques inside of the lighthouse, they would likely leave with the knowledge that there were once more buildings at the site, and that they were connected by a wooden walkway. However, they may not understand the operation of the site as a light station, or otherwise not understand the necessity of these other structures. These details are clearly laid out within the volunteer training document, but little is said about this topic within the interpretive panels, and hosts do not always address the concept during their presentations.²⁰⁵

Depth of Tour/Access

Unfortunately, full tours of the Coquille River lighthouse are not possible due to the corroded condition of the tower's iron stairs. Unlike several of Oregon's other coastal lighthouses, visitors cannot climb the stairway and look into a Fresnel lens, nor can they see or hear the fog-signal that once sounded at this station. However, the interpretive media located inside of the lighthouse provides much information for those who are inclined to read all six panels, and hosts are always prepared to answer questions and give short presentations.

Notably, disabled individuals, especially those in wheelchairs, cannot access the interior of the lighthouse. In fact, many may not be able to travel the uneven, unpaved distance from the

²⁰⁵ Interview with Patrick Newhall, Interpretive Park Ranger at Bullards Beach State Park and project committee member.

parking lot to the structure. Although a rehabilitation project was once proposed to reconstruct the historic wooden walkway and utilize it as an entrance ramp, the project was not approved.²⁰⁶

As mentioned above, the lighthouse is closed October through May, and thus only welcomes visitors during the summer months. Because traffic into the park slows during the winter, this annual closure likely affects only a few visitors. However, these opening dates make it difficult to provide interpretation to school-groups and other tourists who take advantage of the “slow seasons.”



Figure 4-6: Image showing the steep stairway entrance into the Coquille River lighthouse (Photo by Author)

Interpretation for Children

At Coquille River, the interpretive ranger acknowledges that interpretive content should be adjusted when interpreting for children, and he designs interpretive programs accordingly. However, school-groups do not often visit this lighthouse due to the dates of its open season.

²⁰⁶ Telephone conversation with Sue Licht, Preservation Architect and Terminal Project Committee Member.

Because the lighthouse opens its doors to the public in late May, and closes them in September, it is inaccessible for most of the school year. Unlike some lighthouses, Coquille River has no electricity, and the heavy storm shutters that must be placed over the windows during the winter make the building very dark.

Interpretation of the Environment

Environmental interpretation takes place regularly at Bullards Beach State Park, especially regarding the local population of Snowy Plover birds, a threatened species. Unlike the northern coast, much Oregon's southern coast is composed of extensive, shifting sand dunes, and this natural landscape offers many opportunities for interpretation.

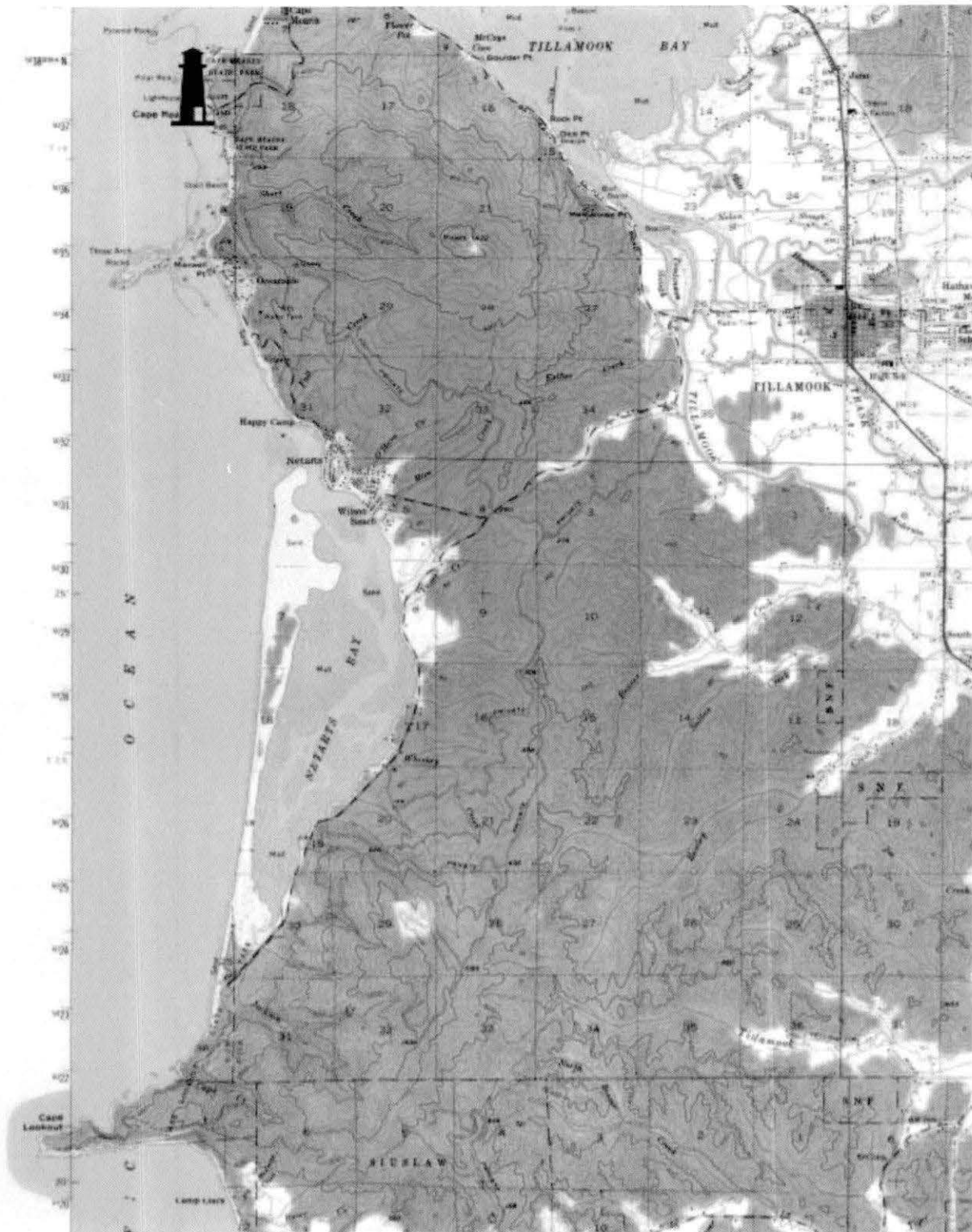
At Coquille River, the environment is interpreted alongside the lighthouse in minor ways. Chiefly, the panel entitled "Protecting the Bandon Harbor" discusses the presence of blue-schist in the region, and the destruction of Tupper Rock, a sacred Native American site, to build the jetties. These efforts could be increased, and future interpretive programming may also address how the surrounding shifting sands presented difficulties at the station, and how the construction of the jetties altered the river's current.

Interpreting Individuality

The current interpretive programming at this site highlights the lighthouse's unique features, especially as the panel "The Lighthouse Lantern and Lens" explains to visitors the differences between a harbor and a coastal light. As mentioned previously, Coquille River is the only publicly-accessible lighthouse in Oregon that once possessed a fog-signal, and is one of only four lighthouses on the coast that featured a lens smaller than a first-order (these are Coquille River, Cape Arago, Point Adams, and Desdemona Sands).

Uniquely, the flash signature at Coquille River was achieved via a shutter that sprung upward and eclipsed the lamp at intervals. Although the lens and lamp equipment are no longer present, this system was unlike any of Oregon's other extant lighthouses, and it contributes to the uniqueness of the lighthouse. Additionally, the wooden walkway that connected the distant keepers' quarters with the lighthouse tower was a unique feature of the station. These features are not prominently addressed within the lighthouse's current interpretive program.

Case Study: Cape Meares Lighthouse, Tillamook, Oregon



Map 4: Cape Meares and its Lighthouse with Cape Lookout to the South (1955 USGS Map)

Summary

The Cape Meares lighthouse was constructed in 1890 to illuminate a section of Oregon's northern coast between Newport and Tillamook Head. To reduce construction costs and alleviate the difficulties involved with transportation, the Lighthouse Board hired local Native Americans to extract and fire clay onsite to make the bricks for the lighthouse.²⁰⁷ The tower's iron cladding was manufactured by the Willamette Iron Works, and imported from Portland.²⁰⁸ Although Cape Lookout to the south was seriously considered for the lighthouse, the chosen location was deemed more ideal due to the height of the cliff, access to fresh water, and the ability to build a wagon road to the site.²⁰⁹ At 38 feet tall, Cape Meares light is the shortest lighthouse on the Oregon coast, and is also the only lighthouse in the state to be clad in iron.

Cape Meares was the third coastal lighthouse in Oregon to be decommissioned in the twentieth century. In 1963, the Coast Guard replaced the first-order Fresnel with an automated beacon on the hill behind the lighthouse, which was active until 2014. After the keepers departed, the outbuildings of the station rapidly deteriorated and were subsequently demolished. Although the Cape Meares lighthouse is located within the bounds of both Cape Meares State Scenic Viewpoint and Cape Meares National Wildlife Refuge, its remote location has made it the target of multiple instances of vandalism. Before their demolition, squatters periodically occupied the ancillary buildings of the station, which were also repeatedly vandalized.²¹⁰ Additionally, trespassers stole the bullseye panels from the lens during the 1960s (three of four were returned), and two men caused extensive damage when they shot multiple bullets into the

²⁰⁷ Fairfield, *Cape Meares*, 46.

²⁰⁸ Gibbs, *Seacoast*, 160.

²⁰⁹ Nelson, *Umbrella*, 57.

²¹⁰ Gibbs, *Seacoast*, 168.

lantern and lens in 2010.²¹¹ Demonstrating the frequency and severity of these incidents, the interpretive ranger at Cape Meares occasionally conducts a special presentation focusing on vandalism at the site.

Currently, OPRD maintains and operates the lighthouse under the terms of a lease from the Coast Guard. At the Cape Meares lighthouse, visitors are given the unique opportunity to enter the lantern room for a close-up look at its first-order Fresnel lens.

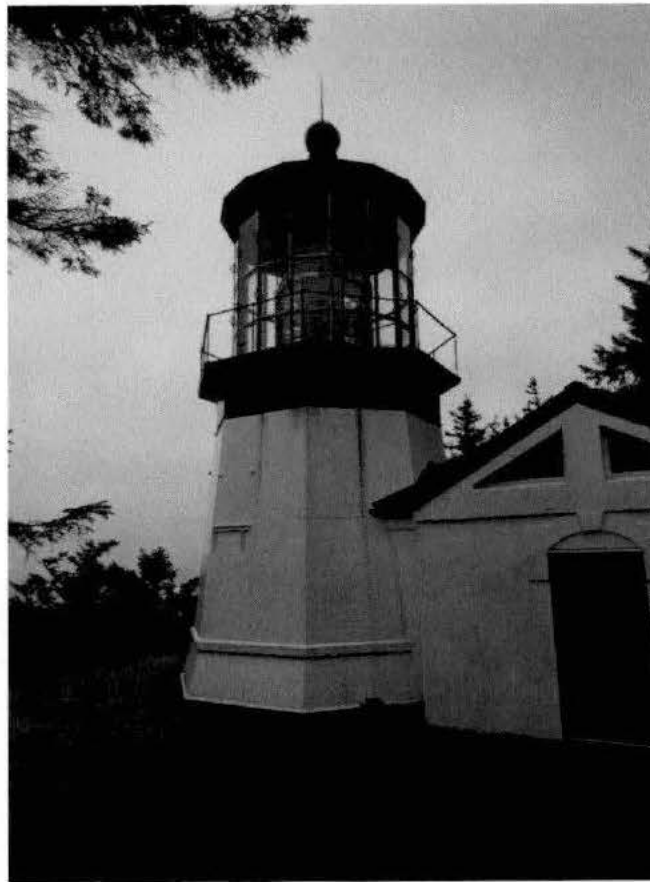


Figure 4-7: Cape Meares lighthouse and reconstructed workroom (Photo by Author)

²¹¹ Nelson, *Umbrella*, 61.

Statement of Significance

In 1993, the Cape Meares lighthouse was listed on the National Register of Historic Places under Criterion A, for its role in the maritime commerce of Oregon, as well as Criterion C, for its architecture. Indeed, Cape Meares played a valuable role in directing the sea-going traffic that once passed up and down Oregon's coast. In this regard, Cape Meares served two functions. Chiefly, it filled a large gap in the West Coast's lighthouse system. A major section of the coastline between Yaquina Head, near Newport, and Tillamook Rock, near Seaside, was unlit before 1890, and Cape Meares provided an additional beacon to aid sailors in this area.²¹² Like the Coquille River lighthouse, the beacon at Cape Meares was constructed during Oregon's "Progressive Era," as described by Sally Donovan, and thus reflects the rapid development of Oregon's maritime economy between 1884 and 1913.



Figure 4-8: Cape Meares Lighthouse c.1912 (From Clara M. Fairfield and M.Wayne, *Cape Meares and Its Sentinel*)

²¹² Nelson, *Umbrella*, 57.

However, Cape Meares also played a significant role in developing the local economy of Tillamook and Netarts Bay.²¹³ By the late nineteenth century, Tillamook had become a thriving agricultural community, exporting a wealth of lumber and dairy products.²¹⁴ Until the railroad arrived in the region around 1910, all commercial activity was facilitated through maritime shipping in and out of Tillamook Bay. f Approximately five miles south of the entrance to the bay, the Cape Meares lighthouse notified sailors of their proximity to bay's entrance.

Notably, the Cape Meares lighthouse was one of only a few Oregon light stations to appoint a female head keeper. After George Hunt, the head keeper, died of an illness in July 1903, his wife became head keeper. Augusta Hunt served in this position for almost one month before a new keeper was appointed.²¹⁵ Cape Blanco hired two women as assistant keepers during the early twentieth-century,²¹⁶ and Yaquina Head appointed a keeper's widow as an assistant keeper in 1888, but Hunt's status as head keeper was a rare in the context of Oregon's lighthouse history.²¹⁷

The Cape Meares lighthouse is also significant under National Register Criterion C, for both its construction materials and design. Of Oregon's nine extant coastal lighthouses, Cape Meares is the only masonry structure to be sheathed with iron plates. The remaining eight were constructed using brick (often parged in stucco), wood, or reinforced concrete. Additionally, only Cape Meares and the newest Cape Arago lighthouse feature an octagonal tower design. Because the cliff upon which it was built rises over 200 feet above the ocean, and there were few trees on the cape to eclipse its beam, the Cape Meares light was constructed at the unusually low height

²¹³ Dave Pinyerd, *Lighthouses and Life-Saving on the Oregon Coast* (San Francisco: Arcadia Publishing, 2007), 31.

²¹⁴ *Ibid.*, 31.

²¹⁵ Nelson, *Umbrella*, 60.

²¹⁶ Gibbs, *Seacoast*, 33.

²¹⁷ Wall, *Yaquina*, 110.

of 38 feet. At this height, it is the shortest lighthouse in the state, but its lantern is the second highest above the ocean (bested only by Cape Blanco).

Restored in the late 1970s, and again in the early 2000s, the lighthouse retains its integrity of materials and location. However, the setting of the lighthouse has been significantly altered by the reintroduction of trees on the cape and the construction of multiple paved pathways. Moreover, the absence of the station's ancillary buildings, as well the extant unmanned beacon structure, limit the lighthouse's integrity of design, feeling, and association.

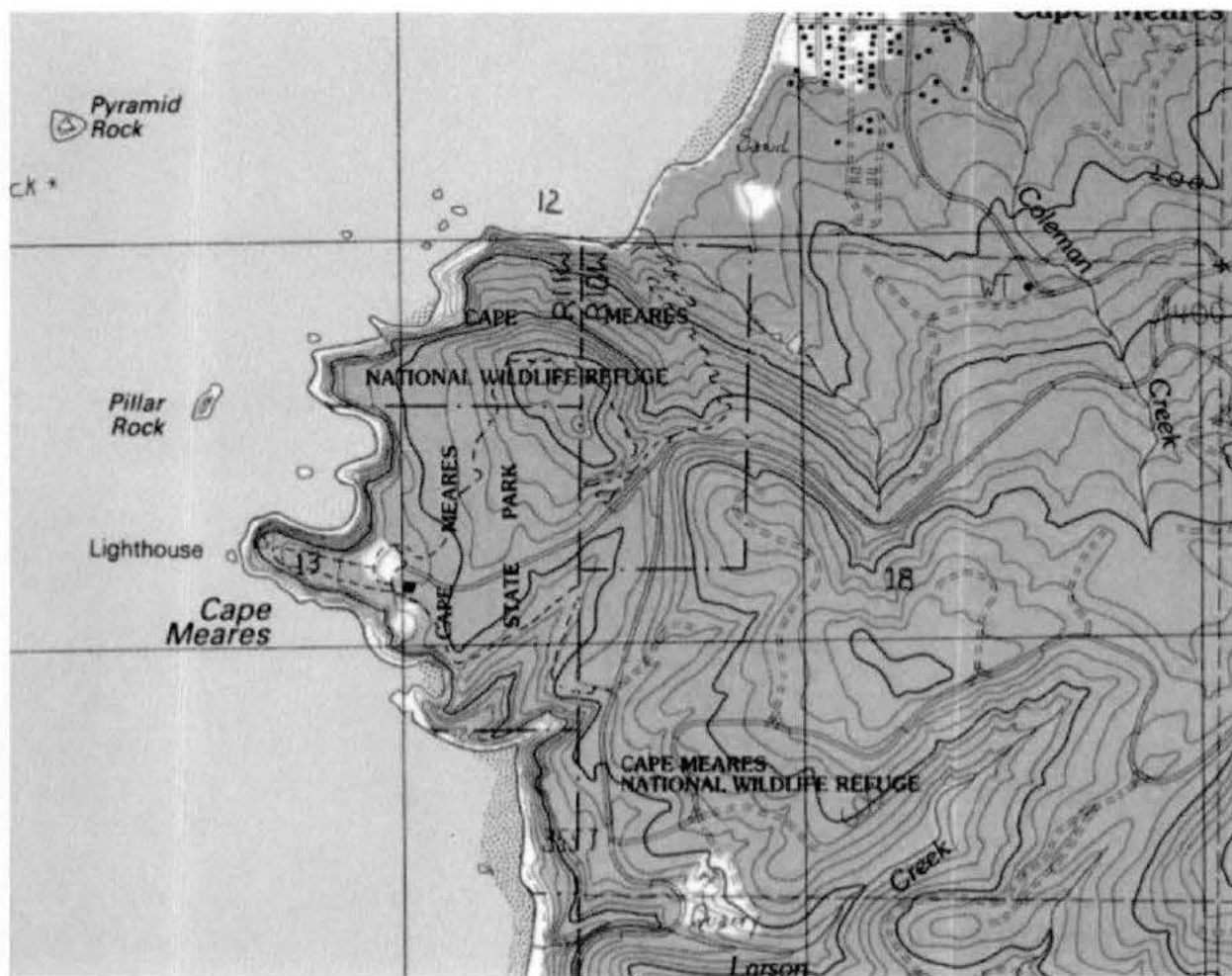
Site Description

Cape Meares is a large promontory approximately two miles north of Oceanside, Oregon. The cape is located at nearly the same longitude as the southern terminus of Tillamook Bay at Delta Island. Characterized by steep, nearly vertical cliffs, the promontory extends westward from the mainland for about 1000 feet. Driving north from Oceanside, the long, winding Cape Meares Loop road provides access to the lighthouse, and terminates in a large parking lot at the inland side of the promontory. From this parking lot, visitors can choose to visit a large interpretive kiosk at its western edge, hike a short trail to the famous Octopus Tree, or walk the one-tenth mile paved trail west towards the lighthouse.

Because the ancillary buildings of the Cape Meares light station were once located at the current site of the parking lot, visitors who choose to walk to the lighthouse are walking the same path that the keepers once traveled to perform their duties. However, the heavily wooded cape was bare of trees while the lighthouse was in service. At the end of this trail, the ground drops suddenly, and the lighthouse stands upon this lower ledge; due to this sudden drop in elevation, only the lantern is visible from the trail. Before descending the switchback path to the lighthouse and its attached workroom, several benches and a viewfinder provide a comfortable place to take

in the scenery. The automated beacon that replaced the lighthouse in 1963 is also on this upper cliff, although it has not been active since 2014.

Administratively, the lighthouse is a part of Cape Meares State Scenic Viewpoint. However, this state park is itself situated within the Cape Meares National Wildlife Refuge. Consequently, the federal government, OPRD, and the Coast Guard each possess sections of the park.



Map 5: Cape Meares National Wildlife Refuge and State Scenic Viewpoint (1986 USGS Map)

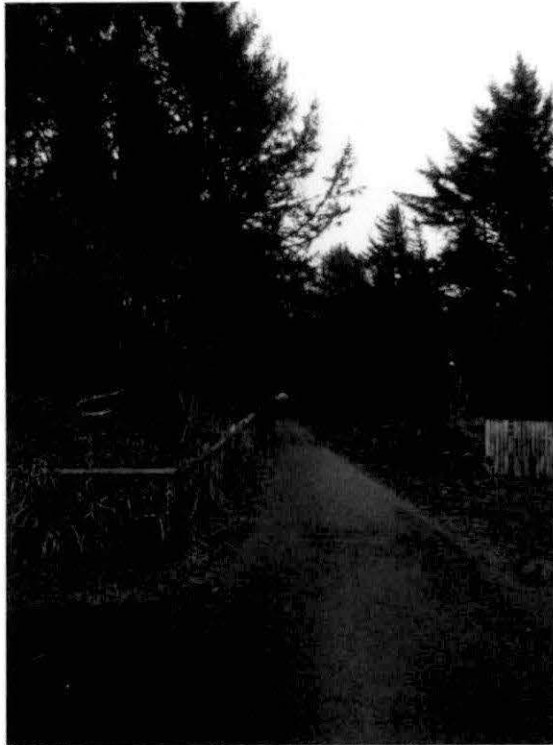


Figure 4-9: Road between Cape Meares lighthouse and parking lot (Photo by Author)

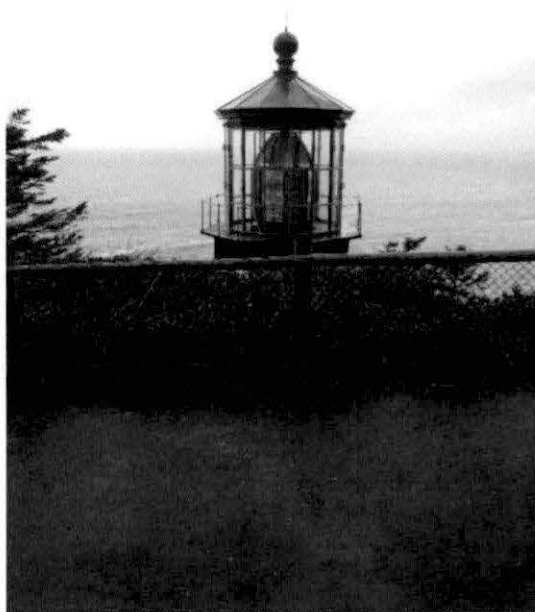


Figure 4-10: View of Cape Meares Lantern from road (Photo by Author)

Architectural/Physical Description

As mentioned in the above summary, the Cape Meares lighthouse is octagonal in form, constructed of locally fired brick, and sheathed in iron plates. On the east side of the tower, the reconstructed workroom houses a gift shop and functions as the entrance into the structure. This one-story, gabled structure was reconstructed in the 1970s to resemble the original workroom. Although original doorway was on the north elevation of the workroom, where it was subjected to less wind, it was placed on the south side of the reconstruction allow for easier visitor access.

On the east elevation of the tower, a large cast-iron doorway originally served as the exterior entrance to the lighthouse. While this opening has always been the only entrance to the tower, it was located inside of the workroom after the construction of that addition in 1895, and is now inside of the reconstructed workroom. A single ground-floor window adorns the west elevation of the lighthouse. Inside of the lighthouse tower, a short, iron spiral staircase leads directly to the lantern.

Inside of the lantern room, an iron walkway allows one to move around the original, first-order Fresnel lens. The large window panes of the metal lantern afford an excellent view of the ocean and the surrounding cape. Notably, small numbers have been etched into the lantern's bronze mullions, which originally helped laborers to assemble the lighthouse (in addition to the written instructions provided). The iron gallery that wraps around the outside of the lantern was once reached via an exterior ladder. Although the gallery is no longer accessible, visitors can easily observe the handholds placed around the exterior of the lantern that were once used when cleaning the window panes.



Figure 4-11: Cape Meares Lantern mullions individually numbered for assembly (Photo by Author)

Discussion of Interpretation

Interpretation at Cape Meares is facilitated through interpretive panels inside of the reconstructed workroom, tours or programs given by hosts and rangers, a video that plays on a loop within the tower, and a recently established living history program. The Cape Meares lighthouse welcomes thousands of visitors each year (over 55,000 people visited the tower in 2015, and again in 2016). Unlike other lighthouses in the state with hundreds of stairs and multiple landings, the tower at Cape Meares is so short that a full tour can be completed in five to seven minutes. However, while short tours allow for many guests to be admitted in one day, the intimacy of each tour is reduced. Within the organizational structure at Cape Meares, decisions about interpretation are usually suggested by the interpretive ranger and approved by the park manager. This interpretive ranger makes an attempt to plan in accordance with OPRD's

Regional Framework for Interpretation, but also communicates with interpreters at other lighthouses to gather ideas.²¹⁸

The interpretive program at Cape Meares does not officially address a particular theme. However, the hosts at this site tend to focus on lighthouse technology during their presentations, partly because this topic is easy to address during the five to seven minutes they are allotted for tours. The staff at Cape Meares has decided to focus largely (but not exclusively) upon the “Post-World War II” period of the light station, emphasizing the era of Coast Guard Management (1939 and onward). This decision was made in part because the park possesses a uniform from this era, but also because an abandoned radar station and the crash site of a B-17 bomber are nearby. By interpreting this time period, the park strives to interpret the place in its entirety, and to integrate the lighthouse into the historical context of the larger site.

The primary interpretive media at the lighthouse is a set of panels and photographs which are displayed inside of the reconstructed workroom. These panels are attached to a large, mobile display board, which is placed in the corner of the gift shop during open season. The titles and subjects of these panels are:

- “Filling a Need” – Explains how the lighthouse filled an unlighted section of the coast
- “Transportation and Supplies” – Describes the difficulties of getting supplies from Tillamook via wagon
- “Life at Cape Meares” – Briefly describes what life was like for the keepers
- “1963: Cape Meares Decommissioned” – Explains that the lighthouse was replaced with an automated beacon in 1963, and how the site became a park

²¹⁸ Interview with Travis Korbe, Interpretive Park Ranger, Cape Meares State Scenic Viewpoint.

- “The Light” – Describes the history of the lighthouse’s lamp and how it developed over time
- Other unlabeled panels discuss the coming of the railroad to Tillamook Bay, the construction of a plank road connecting the lighthouse to Tillamook, the role of a lighthouse tender ship, and some of the former buildings and their uses.

These panels are accompanied by a display case containing one of the lens’s bullseye prisms.

The interpretive ranger at Cape Meares lighthouse recently established a living history program at the site. While the program is still in development, it is largely based off of the previously mentioned, post-World War II uniform which the park has in its possession.

However, the Interpretive Ranger clarified that there is no distinct era set for the living history program. This presentation varies depending upon the audience, and can either be an organized performance or a “show and tell” session. The ranger who developed this program consults regularly with the staff at Cape Blanco State Park, where a living history program has already been established.²¹⁹

Analysis of Interpretation

Location

Interpretation at the Cape Meares lighthouse effectively conveys the significance of the structure’s location. This is most prominently achieved through the panel “Filling A Need,” which describes Cape Meares’ place within the coastal lighthouse system of the Pacific Northwest, and features a map that displays the visible radius of each beacon. However, no

²¹⁹ Interview with Travis Korbe, Interpretive Ranger, Cape Meares State Scenic Viewpoint.

signage explains the qualities of the cape that prompted the lighthouse board to choose it over Cape Lookout.

Additionally, the panel “Transportation and Supplies” explains the light station’s dependence upon Tillamook, and the interpretation of Cape Meares’ World War II era places the site within a regional historic context.

Function

Through both interpretive panels and host presentations, visitors likely leave Cape Meares with an understanding of the service this lighthouse provided, as well as how it functioned. The map adjacent to the “Filling a Need” panel most clearly conveys this message. Moreover, the opportunity to enter the lantern and stand next to the lens enhances a visitor’s sense of the beacon’s function. Standing next to the giant, first-order Fresnel, the explanation of catadioptric, dioptric, and bullseye panels is much easier to understand.

Notably, no interpretive display at Cape Meares addresses the flash signature of the light. This is an important feature of the lighthouse’s function, especially as this lens contains red panels that are unique among Oregon’s beacons. Additionally, no display demonstrates that the lens originally rotated via a clockwork mechanism. While these subjects may be discussed during hosts’ presentations, visitors who do not choose to participate in a tour may not receive this information.

Function as a Light Station

The Cape Meares light station once featured the lighthouse, its attached workroom, two oil houses, two keeper’s quarters, a barn, cisterns, a shop and store building, a chicken coop, water tank, and a garage. Similar to the Coquille River Light Station, these buildings (except for

the oil houses) were located about one-tenth of a mile from the lighthouse, and were connected via a board walkway.

The former station buildings of the site are minimally interpreted. If the tour begins in the parking lot, where the keepers' quarters once stood, the ranger will point out this fact to visitors. For more intimate tours, he will present photographs of the buildings, and will sometimes discuss the recurring vandalism that took place at the site in past decades. However, a visitor who does not participate in such a tour or does not read the interpretive panels carefully will likely leave the site without understanding the site as a complex or light station.

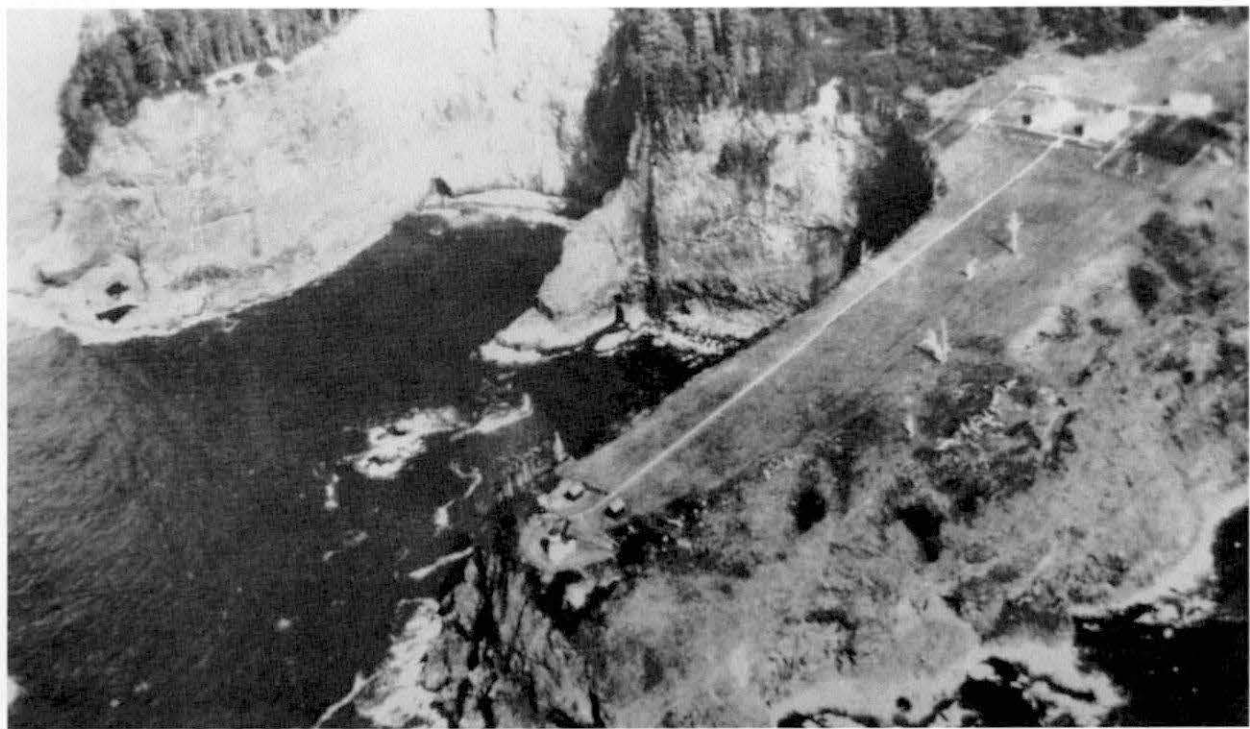


Figure 4-12: Cape Meares Light Station c.1930, showing road, station buildings, and treeless cape (From Fairfield, *Cape Meares and Its Sentinel*)



Figure 4-13: Cape Meares Light Station c.1910, keepers' residences (From Fairfield, *Cape Meares and Its Sentinel*)

Depth of Tour/Access

It is remarkably easy for the staff at Cape Meares to conduct full-tours, as the tower and workroom are so small in comparison to most of Oregon's other lighthouses. Cape Meares is one of only two locations in Oregon where visitors are permitted into the lantern room, the other being the Cape Blanco lighthouse. This experience provides unique opportunities for interpretation that are not as easily achieved at other lighthouse sites. As mentioned above, it is much easier to communicate the function of a Fresnel lens when one is standing adjacent to it. Moreover, this view point allows visitors to observe details of the lantern room more closely, such as the handles on the outside of the windows that were used during cleaning, or the pieces of the lantern that were individually numbered for assembly.

Although the lighthouse is officially closed from October to May, the staff is very willing to open up its doors for special tours, especially those involving school groups. However, the gift

shop does not operate during the closed season, and the tour video and other exhibits may not be available.

The switchback trail that leads down to the lighthouse at the end of the cape is much easier to travel than the steep staircase utilized by the keepers. However, disabled visitors may find it difficult to reach the lighthouse, and may not be able to climb up the tower and into the lantern.

Interpretation for Children

Cape Meares welcomes school-groups to the lighthouse year-round. When children are the primary audience, hosts are instructed to focus less upon lighthouse technology, and more upon what life was like at the station. To explain its importance to children, the interpretive ranger likes to emphasize why the lighthouse was placed at this particular spot. Reportedly, many teachers love to conduct field trips at Cape Meares because the site offers both natural and historic interpretation. Most of these trips take place in the spring, but the staff is willing to open the lighthouse to school-groups at any time of the year. In fact, winter visits can provide a unique interpretive opportunity. This author visited the lighthouse in January, and the harsh, windy weather that buffeted the cape during the visit provoked deeper thoughts about the difficult life and duties of the resident keepers.

Interpretation of the Environment

As both a natural and historic site, Cape Meares offers numerous opportunities to interpret human history alongside natural history. A prime example in regard is the change in vegetation on the promontory. Reportedly, visitors commonly ask how the lighthouse's beam could be seen with all of the trees surrounding the structure, especially to the north. Questions like this provide an opportunity to describe the once treeless landscape of Cape Meares, and the

ecological events that have changed its appearance over time. During certain seasons, whales can be seen off of the cape, and, as stated by the site's interpretive ranger, "if we're [in the lantern room] and we see whales, then we're talking whales!"

Interpretation at Cape Meares State Scenic Viewpoint undoubtedly centers upon nature. In fact, because the state park is located within the larger Cape Meares National Wildlife Refuge, all of the interpretive panels outside of the lighthouse address wildlife, vegetation, and the local ecosystem. While the panels in the interpretive kiosk adjacent to the parking lot primarily concern the natural environment, one panel explains that the cape was "an ideal location for a lighthouse." Another describes the operation of the Cape Meares light and its place within Oregon's coastal lighthouse system. By interpreting both nature and human history at this site, the Cape Meares lighthouse is adequately placed within the context of its natural environment.

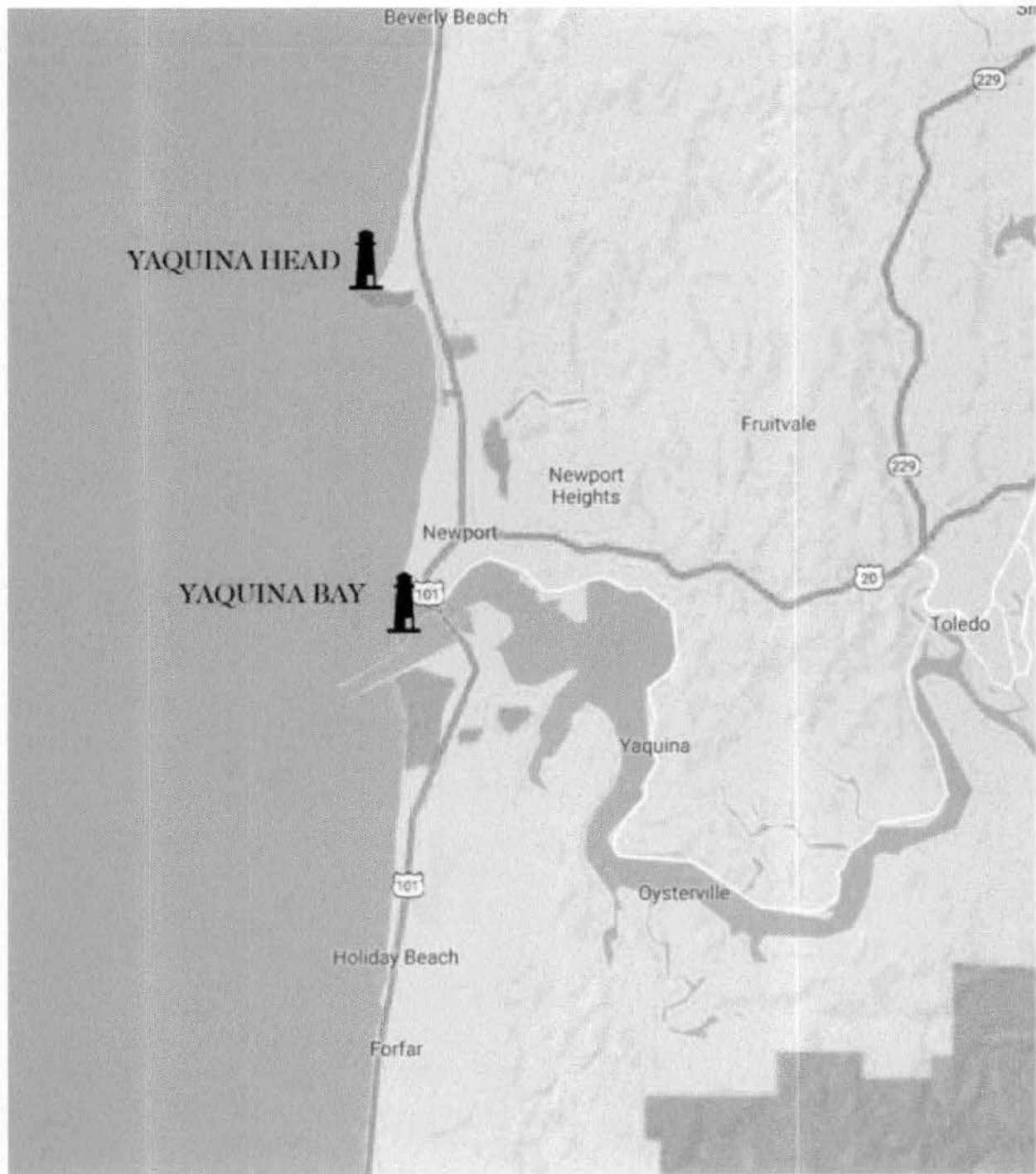
Interpretation of Individuality

The Cape Meares lighthouse is unique for several reasons. Most obviously, its iron sheathing and short stature set it apart from all other lighthouses in Oregon. Beyond this, the lighthouse is unique due to the alternating red panels of the lens, which added a red flash to its otherwise white beam once per minute. The fact that the trail from the parking lot is the same that was traveled by former keepers adds much interpretive value to the site, as does the opportunity to enter the lantern room and walk around the lens.

Cape Meares adequately reflects its individuality, but some aspects could be further emphasized. As discussed above, the lens and flash signature of this lighthouse are unique on a regional scale, and the existing interpretive program could emphasize this element more prominently. Additionally, almost no interpretative signage addresses the other buildings that were once a part of the station. Only the panel, "Life at Cape Meares" briefly discusses the

subject. Perhaps most importantly, the decision to interpret the post-World War II era of the lighthouse excludes the historic narrative of the majority of the lighthouse's time in service.

Case Study: Yaquina Head Lighthouse, Newport, Oregon



Map 6: Yaquina Head Lighthouses near Newport (Imposed on Google Maps)

Summary

At the time of its construction in 1873, the Yaquina Head lighthouse was the fifth built on Oregon's coast. Today, it is the third-oldest extant lighthouse in the state; the others are at Cape Blanco (1870) and Yaquina Bay (1871). Rising 93 feet from its base to its vent-ball, Yaquina Head is also the tallest of Oregon's lighthouses. Located north of the thriving harbor of Newport, the lighthouse served as both a marker for Yaquina Bay and as a coastal beacon, although the latter was its primary function. Automated in 1966, the Yaquina Head light still operates as an official aid-to-navigation. Currently, the Bureau of Land Management (BLM) manages and interprets the lighthouse, but the Coast Guard maintains and operates the lantern and lens. The Yaquina Head lighthouse was last restored in 2005.

Many secondary sources claim that the lighthouse was meant to be constructed at Cape Foulweather, ten miles to the north, and that its placement at Yaquina Head was a mistake. Some of these stories suggest that the contractors did not wish to build on the steeper cliffs of Cape Foulweather, and decided to ignore their orders.²²⁰ Others claim that the materials were mistakenly offloaded in the wrong place, and still others theorize that the names for these headlands were switched on early maps of the area.²²¹ However, several authors, as well as interpretive media at the site, reference primary sources proving that Yaquina Head was, in fact, built at the correct location.

Now located within the Yaquina Head Outstanding Natural Area (YHONA), the lighthouse is one attraction among many within this 100-acre site. Although a large section of the YHNOA was formerly a rock quarry, the entire site has been rehabilitated for public use. A large

²²⁰ Gibbs, *Seacoast*, 145.

²²¹ James A. Gibbs, *Lighthouses of the Pacific* (West Chester: Schiffler Publishing, 1986), 119.

interpretive center is located at the site of the former quarry, and provides information about both the lighthouse and the natural history of the area. Like the Cape Meares State Scenic Viewpoint, several governmental agencies oversee different sectors of YHONA; the Coast Guard owns and operates the lighthouse lantern, the Oregon Department of Fish and Wildlife Service monitors the wildlife of the area, and the Oregon Department of State Lands manages the intertidal lands of the site.²²²

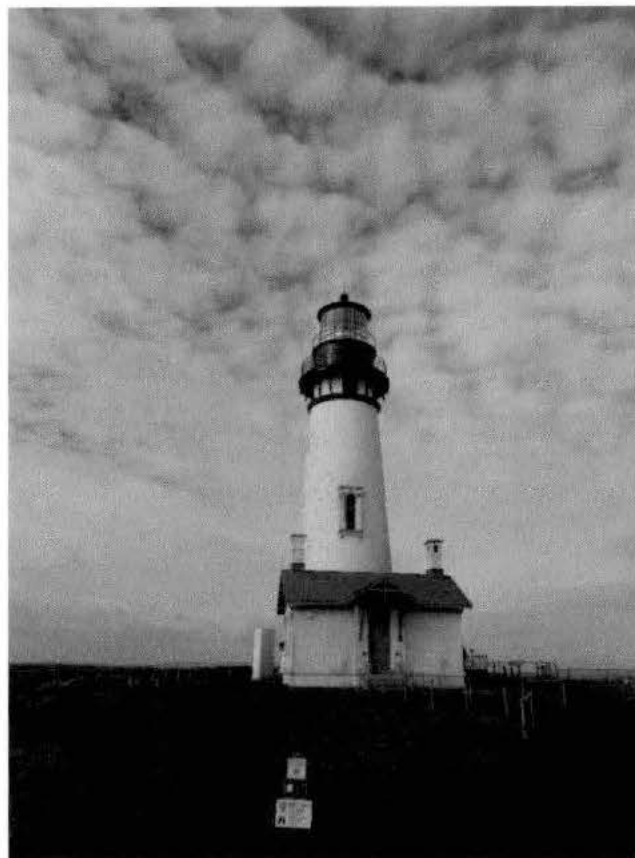


Figure 4-14: Yaquina Head Lighthouse and attached oil/workroom (Photo by Author)

Statement of Significance

Like all of Oregon's coastal lighthouses, the Yaquina Head lighthouse was nominated to the NRHP under Criterion A for its association with the development of Oregon's maritime

²²² Comment from Henry Kunowski, Terminal Project Chair.

commerce.²²³ Within this nomination, Sally Donovan describes that the lighthouse was constructed during the “Railroad and Industrial Growth Period” (1866-1883) when commercial developments were accompanied by “rapid growth and settlement.”²²⁴ Although the California Gold Rush greatly spurred the development of Oregon’s southern coast, and the Columbia River had long been utilized as a trading route, the central coast was essentially an “untapped resource” until the late 1860s.²²⁵ Beginning with the discovery of oysters in Yaquina Bay during the 1860s, the economy of the central coast continually developed, and by the late nineteenth century, Newport could boast of a bustling harbor.²²⁶ Lighted in 1873 to guide mariners along the coast, and to mark the northern entrance to Yaquina Bay, the Yaquina Head lighthouse symbolizes these regional developments.

This lighthouse is also significant under Criterion C, for architecture that embodies its period of construction. Both the lighthouse tower and the attached workroom have been restored to their historic appearance, and each is adorned with architectural details reflective of the 1870s. Chiefly, these details consist of the use of cast-iron on the lighthouse’s exterior, and the gothic gable-trim of the workroom.

In fact, the Yaquina Head lighthouse is extremely similar to two other United States lighthouses, each built in 1872. Yaquina Head features the same lantern as the Bodie Island lighthouse in North Carolina, and is nearly identical to California’s Pigeon Point lighthouse, which is 22 feet taller. All three beacons feature a workroom of the same design. These similarities demonstrate the building practices associated with lighthouse construction during the late-nineteenth century. Because it was expedient to reuse designs with minor changes rather

²²³ National Register of Historic Places, Yaquina Head Lighthouse, Newport, Lincoln County, Oregon.

²²⁴ Donovan, “Light Stations.”

²²⁵ NRHP, Yaquina Head Lighthouse.

²²⁶ Ibid.

than drawing plans from scratch, many lighthouses across the nation closely resemble one another.

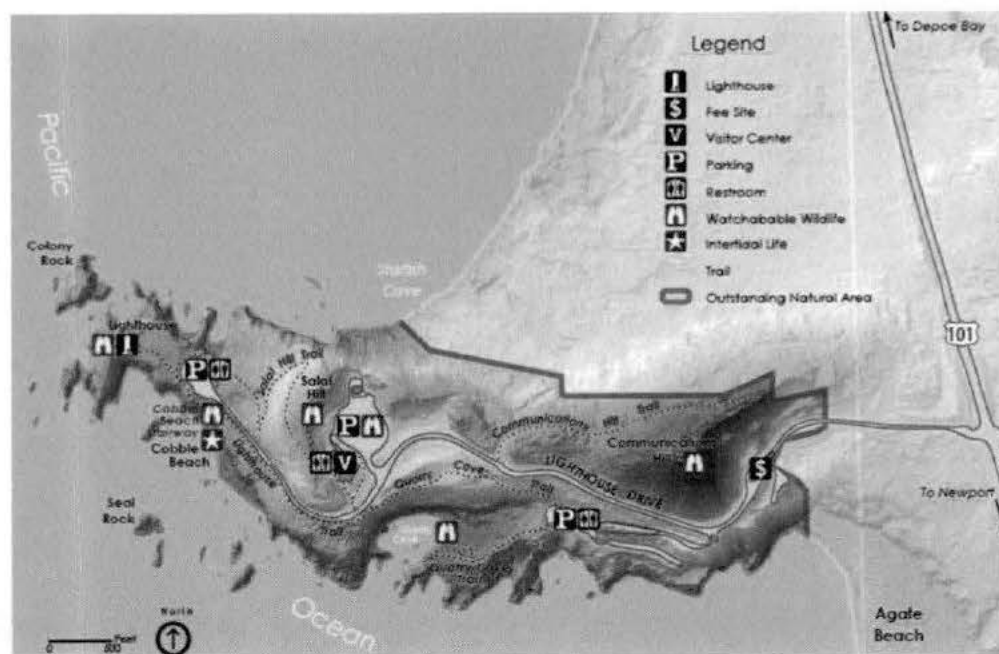
As mentioned previously, Yaquina Head is the tallest lighthouse in the state, as well as the third-oldest. Interestingly, the lighthouse is one of only two in Oregon that features both an upper and a lower gallery; the other is Tillamook Rock. As one of the earliest examples of lighthouse construction in Oregon, the extant structures at Yaquina Head represent a brief, but important era of the state's history, and reflect the architecture and operation of lighthouses during Oregon's "Industrial Growth Period" (1866-1883).

Site Description

The Yaquina Head lighthouse is located at the northeastern tip of YHONA. From Newport, a scenic drive north on Highway 101 takes visitors up a gradual incline, first passing a road that leads down to Quarry Cove, then a large interpretive center, and ultimately ending at the lighthouse parking lot. The surrounding cliffs were once quarried for their abundant resources of rock, and the Yaquina Head Interpretive Center is nestled within a depression left by a former quarry. This large building functions as the hub of the natural area. Inside, visitors can sign up for tours, peruse exhibits, speak to park rangers, and browse the gift shop. From the parking lot, they may either head south to Quarry Cove and its tidepools, or north towards the lighthouse and Cobble Beach.

At the lighthouse site, visitors first pass a historic water reservoir, located on a hill southeast of the lighthouse. Near this cistern, BLM has reconstructed a white fence around the former garden and livestock area of the light station. From the parking lot which serves the lighthouse, visitors can look northwest to the tower and workroom, or southwest to Salal Hill and the switchback trail that leads to its summit. A wide concrete path leads up to the lighthouse and

loops all the way around the structure. At the cliff's edge behind the tower, a large wooden platform provides a viewing area for visitors who wish to observe birds or whales. Colony Rock, a major seabird nesting site, is located just beyond this platform. Many interpretive panels and view-finders have been placed in this area.



Site Map of Yaquina Head Outstanding Natural Area (Courtesy of BLM)

On the west-side of the lighthouse tower, a large concrete monument is dedicated “TO THOSE LOST AT SEA WITH SPECIAL AFFECTION FOR THE FISHERMEN OF THE PACIFIC NORTHWEST.” South of the parking lot, a short trail leads down to Cobble Beach, which provides access to another tidepool, as well as a view of Seal Island.

Architectural/Physical Description

The Yaquina Head lighthouse consists of a 93-foot conical tower, constructed of brick, and a workroom of matching materials. Historically, the workroom doubled as an oil storage building, although detached structures were constructed to store the lamp’s fuel after the station converted to kerosene in the late 1880s. This one-story, gable-roofed structure is positioned

symmetrically against the east side of the lighthouse, and two double-hung, wood-sash, four-over-six windows adorn the north and south elevations. Three large, wood knee-braced brackets are located at the sides and peak of both gable-ends. The most prominent character defining feature of the workroom is undoubtedly the cross-braced gable-trim that decorates the entry hood in the gothic revival style. Similar details once graced the gables of the demolished keepers' quarters.

Sitting upon an octagonal foundation, the brick walls of the lighthouse are five feet thick at the base, although they taper to eighteen inches at the top of the tower. On the lighthouse's exterior, two windows face seaward, allowing light to enter the stairwell. An additional window is present on the east-side, just above the roof of the workroom. The most prominent feature of the lighthouse tower is its lower gallery. This iron platform is supported by a series of iron brackets, each of which features a hanging pendant at its outer-end. Four windows are located between these brackets, one facing each cardinal direction. This unique ornamentation distinctly sets the galleries and lantern apart from the rest of the tower, and is unique among all of Oregon's lighthouses. The lantern features an upper gallery, which was used for cleaning the exterior of the window panes. The roof of the lighthouse is capped with metal plating and an iron vent-ball and lightning rod typical of United States lighthouses.

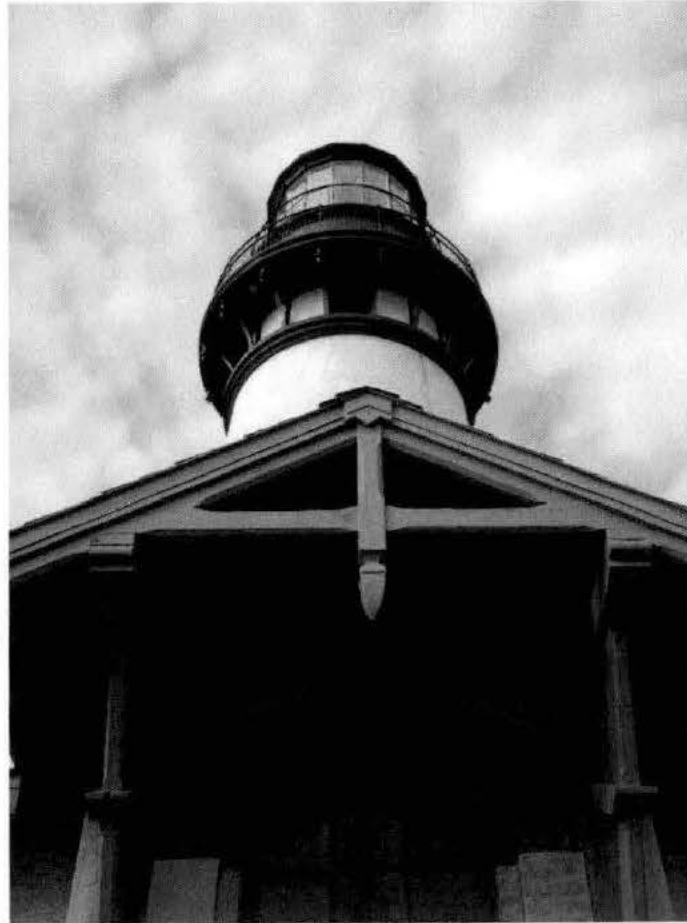


Figure 4-15: Architectural details of lighthouse and workroom-Gothic Revival gable end (Photo by Author)

Discussion of Interpretation

Of the nine permanent rangers at the YHONA, six deal directly with education. An interpretive plan for the site was incorporated as part of the YHONA business plan nearly twelve years ago, but no specific framework or guidelines govern interpretation at the lighthouse. According to one park ranger, the lighthouse was the most popular attraction at the park until several years ago. After BLM began to require visitors to sign-up for lighthouse tours in advance, the number of visitors interested in the lighthouse decreased, and nature became the prime attraction. Interestingly, the total number of visitors to the park has increased over time, but fewer of those visitors choose to tour the lighthouse. Although there is no particular

demographic that visits the park, YHONA is a popular destination for families, especially during the summer months. Seniors and international visitors tend to arrive during Autumn.

No official themes or key messages guide interpretation at the Yaquina Head lighthouse. However, most presentations focus upon the life and work of the keepers, and some interpreters choose to emphasize family life at the station. Living history presentations and the décor inside the workroom represent the lighthouse in 1885, as this year corresponds to a uniform that the park possesses and has reproduced for actors.

Interpretation at the Yaquina Head lighthouse is facilitated through a variety of mediums, including a museum exhibit, interpretive panels, and a living history tour. The first interpretive experience relating to the lighthouse usually occurs within the large interpretive center, located about a quarter of a mile southeast of the lighthouse parking lot. This center features a large exhibit addressing nature at the YHONA, and an equally large exhibit about the lighthouse. Here, visitors have the opportunity to read many panels, view artifacts, and watch a short video about the lighthouse.

This exhibit covers a number of topics related to the lighthouse, including:

- The technology and science of the lens
- The choosing of the site
- The construction of the lighthouse
- The pattern of Oregon's lighthouses
- The layout of the station buildings
- The life and duties of the keepers
- The development of lighthouse technology
- Yaquina Head during World War II

- The flash signature of the lighthouse
- The storage of oil

Uniquely, the staff at Yaquina Head have constructed a life size replica of the lantern room within the interpretive exhibit. While the front half of this display demonstrates what one sees from the exterior of the lighthouse, the back half is cut-away to reveal the inside of the lens and lamp. As the giant faux lens continually flashes the lighthouse's signature, the display demonstrates how a Fresnel lens directs and concentrates light into focused beams. Accompanied by a "virtual tour" video of the lighthouse tower, this display allows those who are physically unable to ascend the stairs to experience a part of the site.



**Figure 4-16: Replica lens and lantern in the Yaquina Head Outstanding Natural Area Interpretive Center
(Photo by Author)**

From the parking lot near the lighthouse, a path leads up to the structure, and then loops around and behind the tower. Four interpretive panels, recently installed, are located along this path. The first three panels are placed adjacent to one another near the beginning of the path.

They are titled:

- “Built To Last: Dedication to Quality” – Discusses the commitment of the Lighthouse Board to quality construction and materials, especially after the Minot’s Ledge light collapsed in 1851
- “The Changing Light Station Community: A Technology Story” – Describes the evolution of technology at the site, as well as the lighthouse’s extensive restoration in 2005
- “Lighthouse Life in the Western Wilderness” – Describes the life and duties of the station’s three keepers, and labels the station buildings in a historic photograph

A fourth panel near the lighthouse is located at a scenic viewpoint overlooking the south edge of the cliff. It is titled:

- “A String of Lights” – Explains Oregon’s lighthouse system and provides a graphic demonstrating the geographic range of each beacon

These exterior panels are well balanced between text and images, and present a cohesive narrative of the lighthouse and station for those who stop and read them.

The Yaquina Head lighthouse is widely known for its living history presentations, which staff have been conducting since 2000. In fact, many people visit the lighthouse specially for these tours. At the door to the workroom, visitors are greeted by a staff member dressed in an 1885 lighthouse keeper’s uniform. For the following forty-five minutes, this guide takes the

group through the workroom and up to the watch-room, remaining in character for the duration of the tour. The tour attended by this author addressed topics such as:

- The life and duties of the keepers
- The operation and maintenance of the lighthouse
- Fuel and its storage
- The construction of the lighthouse
- The flash signature of the lighthouse

These tours are interactive, and thus the experience and content may vary from group to group. Additionally, each tour guide is allowed to develop their own tour, and submits their individualized objectives and themes to park staff for approval. Proposed tours are modeled after the Certified Interpretive Guide Course model provided by the National Association for Interpretation. YHONA does not allow volunteers to conduct tours or provide interpretive programming to visitors. These activities are only performed by paid staff.



**Figure 4-17: Living History tour guide at Yaquina Head Lighthouse in 1880s keeper's uniform
(Photo by Author)**

Analysis of Interpretation

Location

The interpretive program in place at Yaquina Head provides much information related to the location of the lighthouse and the significance of that location. In the interpretive center, a prominent display explains the history of the Native American habitation of the headland. Another display provides an extensive history of the BLM and its relationship to Yaquina Head. Multiple panels within the interpretive center adequately contextualize the location of the lighthouse. For example, the panel entitled "Choosing the Right Headland" shows that the

lighthouse was built in the correct place, despite popular belief to the contrary. Similarly, a large display describes the obstacles that had to be overcome to build a lighthouse at the site.

Function

Interpretation at Yaquina Head excellently explains the function of the lighthouse, especially in regard to its lens. In the interpretive center, this was accomplished through the panels: “A First Order Light,” which explains the Fresnel lens and its various sizes; and “A Focused Beam of Light,” which provides a graphic and textual explanation of how a lens can “bend” light. These ideas are further reinforced through an interactive display that allows a visitor to reflect light through prisms by moving a lever. Moreover, the full-scale replica of the lantern and lens demonstrates how a light is channeled horizontally in a Fresnel lens. Near the end of the exhibit, a miniature model of the lighthouse flashes the station’s signature, and is accompanied by a plaque that challenges the reader to figure out the signature. This is a unique and engaging way to educate visitors about the operation of the lighthouse, and opens an interpretive dialogue regarding how mariners would have seen and used the beacon.

While the interpretive center explains the lighthouse’s operation factually, touring the lighthouse allows a visitor to learn the same information experientially. The highlight of the lighthouse tour at Yaquina Head occurs when a visitor reaches the watch-room below the lantern, and is allowed to climb up and look inside of the lens itself. Just before this moment, the tour guide asks the group to participate in an activity. Holding their hands in the air, visitors are asked to open and clench their fists in time with the flash signature (fourteen seconds on, 2 seconds off, etc.). An open hand signifies that the light is on, while a closed hand is off. After repeating this activity, the guests are asked to listen for the electric buzz of the lamp turning on

and off in accordance with this pattern. This interactive approach helps to convey an important aspect of the lighthouse's function in a memorable, relevant way.

Function as a Light Station

During the early years of its operation, the Yaquina Head light station was incredibly remote. Relying upon a lighthouse tender to deliver supplies every few months, the keepers and their families had to be largely self-sufficient.²²⁷ Consequently, the station featured many utilitarian buildings and multiple dwellings. By 1891, Yaquina Head could boast of a lighthouse tower, workroom, keepers' quarters, assistant's cottage, barn, stable, oil house, tramway, water tower, and cisterns.²²⁸ While the demolition dates for most of these early buildings are unknown, the original keepers' quarters were demolished in the 1930s, and new station buildings were subsequently erected. After the lighthouse was automated in 1966, these newer structures began to deteriorate, and they too were demolished in 1984.²²⁹

²²⁷ Interpretive Panel, "Keeping the Grounds," Yaquina Head Interpretive Center.

²²⁸ NRHP, Yaquina Head Lighthouse.

²²⁹ Gibbs, *Seacoast*, 152.



Figure 4-18: Yaquina Head Light Station, year unknown (LighthouseFriends.com)

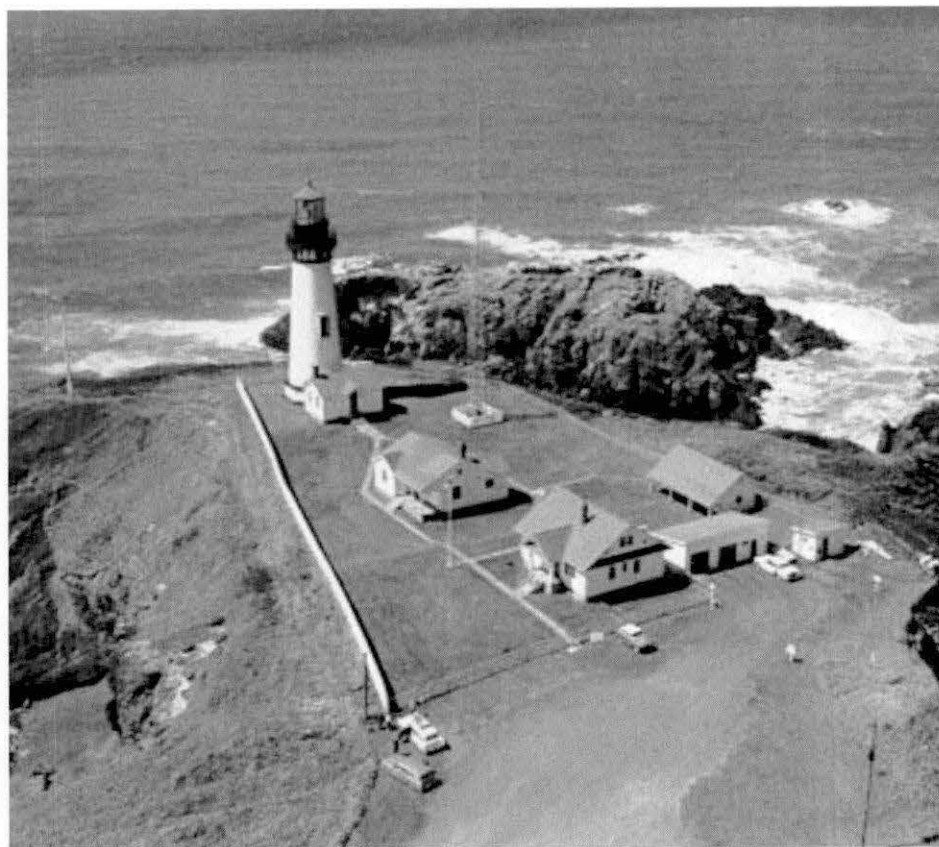


Figure 4-19: Yaquina Head Light Station with replacement keeper's quarters and radio tower, year unknown (U.S. Coast Guard Photo)



Figure 4-20: Original Head Keeper's Quarters at Yaquina Head Lighthouse (National Register of Historic Places Database)

The current programming at Yaquina Head adequately interprets these structures. Such interpretation occurs through a display inside of the interpretive center, a panel directly outside of the lighthouse, references during living history tours, and personal conversations. At the interpretive center, a model of the site shows where the keepers' quarters, second assistant keepers' quarters, and barn once stood in relation to the lighthouse. Adjacent to this display, a panel provides a definition of the term "light station," and encourages visitors to imagine the historic landscape when they visit the lighthouse.

Similarly, the panel near the lighthouse parking lot entitled "Lighthouse Life in the Western Wilderness," describes the "isolated community at Yaquina Head," and provides a historic photograph of the station with each building labeled. During the living history tour,

outbuildings are referenced in conversation as if they still exist, but little specific information is provided.

While such displays aim to make visitors aware of Yaquina Head's historic landscape, interested visitors must ask staff personally for additional information. In fact, an enlarged postcard featuring the original keepers' quarters is placed at the very start of the lighthouse's museum exhibit to "provoke questions" about the former dwelling. However, according to one park ranger, visitors do not typically ask about the former station buildings, and thus personal conversations about this topic rarely occur. The interpretive staff has considered conducting "ghost tours" at the sites of demolished buildings, but no such program has yet developed.

Although an attentive visitor would likely leave Yaquina Head with an understanding of the former light station, the park may benefit from increased efforts in this regard. Chiefly, the current interpretive program does not address the fenced garden area or the extant reservoir that are located at the base of Salal Hill. While the reservoir presents little interpretive value, the garden represents an important narrative for interpretation. Due to the remoteness of the station, this area was important for the survival of the keepers and their families.

Depth of Tour/Access

The Yaquina Head lighthouse is the most thoroughly interpreted site examined within this project, largely due to its exhibit in the interpretive center. As described above, visitors at Yaquina Head can browse through the displays at this exhibit, watch video presentations about the lighthouse, and even take part in a virtual tour beside a full-scale replica of the lantern. This last opportunity is of particular importance, as it helps to comply with the Americans with Disabilities Act, and allows physically disabled individuals to participate in the interpretive experience at the Yaquina Head lighthouse.

The living history tour at Yaquina Head is interactive, engaging, and informative. Although several of Oregon's other lighthouses allow visitors to climb the tower and look into the lens, the costumed tour guide and the props inside of the lighthouse and workroom provide an excellent context for the information provided. The Yaquina Head lighthouse is also more consistently accessible than many of Oregon's other lighthouses, as it conducts tours throughout the year. Tours are offered daily from July through September, and as staffing allows from November through June.

Interpretation for Children

The Yaquina Head lighthouse does not presently offer specialized tours for children or school-groups. In fact, according to a park ranger specializing in education, the park has experienced difficulties in attracting school-groups, as it is located too far from many communities to complete a field trip during school hours. Most of the groups who do visit the park choose to focus upon nature rather than the lighthouse, in part because school-groups are required to sign up for tours in the same way as individual visitors. This means that large classes must be split apart, and such groups may be combined with other visitors. The park does offer a Junior Ranger program, but has not successfully recruited many interested children. Notably, the questionnaire that must be filled out to become a junior ranger challenges kids to learn the flash signature of the lighthouse, the year it was built, and what order lens it possesses.

Additionally, YHONA participates in the Oregon Coast Quests program. Initiated by Oregon State University, "quests" are organized, clue-driven scavenger hunts hosted at natural, cultural, and historic sites. To complete a quest, one must read panels, solve riddles, and gather information about their surroundings. Once they have solved all of the clues, the location of a lock-box is revealed, which contains a log book and a special stamp to mark their Quest

handbook. The Quest at Yaquina Head requires participants to gather information about the natural history, human history, and lighthouse history of the headland.

Lastly, Yaquina Head has devoted a section of the interpretive center lobby to children's activities. This area features a coloring sheet about the lighthouse, and a dress-up center where kids can wear costumes which resemble the clothing of nineteenth-century keepers and their families. Overall, this site features numerous opportunities for children to engage in interpretation, but is limited in its ability to facilitate field trips and other formal educational outings.

Interpretation of the Environment

Because nature is the primary focus at YHONA, the staff easily interprets the lighthouse's history alongside the natural environment. When asked how the site integrates these topics, one park ranger responded, "We don't have to, the visitors do it for us!" Indeed, it would be difficult to visit the lighthouse without coming across information related to both subjects. This is especially true of lighthouse tours, wherein guides intentionally refer to the wildlife and natural surroundings of the area throughout the tour. However, the same cannot be said of the natural areas of the park; visitors who come only to visit Quarry Cove, Cobble Beach, or the tidepools may not encounter any interpretive materials related to the lighthouse.

Interpreting Individuality

Interpretation at the Yaquina Head light expresses the site's uniqueness in that it boasts of its status as Oregon's tallest, and third-oldest lighthouse. Displays in the interpretive center also inform visitors of the difficulties faced during the lighthouse's construction and the light station's role as a coastal-watch center during World War II. Perhaps most significantly, it places much emphasis upon the light's distinct flash-signature.

Chapter 5: Suggested Measures for Interpreting Historic

Lighthouses

Introduction

The following chapter discusses several interpretive strategies that may contribute to best-practice interpretation at Oregon's historic lighthouses. The suggestions provided were developed according to contemporary interpretive literature, as well as the author's observations at several of these sites. Although these strategies could be applied to lighthouses outside of this state, they have been tailored to the physical conditions and administrative structures of Oregon's lighthouses. Moreover, though the following ideas address these beacons collectively, they recognize that every historic site is unique, and that this individuality is a vital aspect of any interpretive program. For this reason, the applicability of these individual guidelines will vary from site to site.

As seen within the case studies above, management structures, agency policies, physical conditions, and the availability of funding all contribute to the depth and quality of an interpretive program. With such variables in mind, the following measures should be weighed against the policies, goals, and capabilities of the park or operating agency. Importantly, many of these suggestions would incur additional expenses. While an agency may not be able to afford changes or improvements to their interpretive program at this time, the author hopes that these suggestions will help to guide the planning and development of future interpretive programs at Oregon's historic lighthouses.

Effective Interpretation: Relevance, Theme, and the Visceral Experience

As discussed in the previous chapter about interpretation, an interpretive program should strive to facilitate meaningful, personal experiences for visitors. If information is presented in a relevant way, visitors are more likely to have a memorable experience at the site, and will better be able to recall what they have learned.²³⁰ More importantly, relevant interpretation increases the likelihood of visitors to experience an emotional, or meaningful connection with both a place and the historical characters with whom it is associated. Such an experience imparts both factual knowledge and a mindset of stewardship upon visitors. For this reason, the first suggestions provided deal with the creation of relevant and engaging interpretation at Oregon's historic coastal lighthouses.

The most important step towards the creation of effective interpretation is to avoid listing facts, statistics, or other data without attaching them to a meaningful or relevant context. To this end, David Larsen describes a common fear among visitors that "asking an interpreter a question is like drinking from a firehose."²³¹ Of course, this generalization does not apply to all, or even most, interpreters, but it demonstrates visitors' dislike of unassociated, or "dry" facts. Lighthouses face a particular challenge in this regard, as there is an abundant supply of facts regarding each structure. For example, an interpreter could spend much time explaining how many stairs are in a lighthouse tower, how many bricks make up its walls, the precise dimensions of its lens, the number of panes within the lens, the height of the tower, the timing of the

²³⁰ James Farmer and Doug Knapp, "Interpretation Programs at a Historic Preservation Site," *Journal of Mixed Methods Research* 2, no.4 (October 2008): 356.

²³¹ David L. Larsen, ed., *Meaningful Interpretation: How to Connect Hearts and Minds to Places, Objects, and Other Resources* (Eastern National, 2011), 37.

clockwork mechanism, and so on. While many of these facts can be of interpretive importance, they are likely not meaningful unless presented in a relevant or memorable way.

Consequently, it is important to understand the differences between the behavior of voluntary and involuntary audiences. Unlike students in a classroom, visitors to historic sites are not required to learn, and thus their attention is easily drawn away from the interpretive program.²³² In fact, not all visitors come to a site with the intention of learning.²³³ Some may be dragged along by a larger group, others may stumble across the site while doing another activity, and still others may come for the scenery. To engage voluntary audiences, Sam Ham has devised a framework wherein interpretive materials are organized, relevant, and enjoyable to process.²³⁴ By instilling these qualities within an interpretive program or presentation, interpreters can present facts, concepts, and ideas in ways that both capture the audience's attention, and provoke them to think more deeply about the object at hand.

At lighthouses, relevant, organized, and enjoyable interpretation might present information in terms that visitors can easily understand. For example, instead of stating the fact, "the lighthouse is 103 feet tall," one might add, "this lighthouse is as tall as four two-story houses stacked on top of one another." Or, after the statement, "the first-order Fresnel lens is six feet wide and nine feet tall," one might also say, "the lens is so large that you could stand inside of it, spread your arms out, and still have extra room." Moreover, after the interpreter has captured the visitor's attention with interesting information, they may then have the opportunity to further explain why the lighthouse is so tall (or short), or why the lens must be so large. Thus,

²³² Sam H. Ham, *Interpretation: Making a Difference on Purpose* (Golden: Fulcrum Publishing, 2013), 12.

²³³ Jan Packer and Roy Ballatyne, "Motivational Factors and the Visitor Experience: A Comparison of Three Sites," *Curator* 45, no.3 (2002): 184.

²³⁴ Ham, *Interpretation*, 15.

presenting facts in enjoyable and relevant ways will likely improve a visitor's comprehension of the information, and stands a better chance of capturing their attention.

Theme

More importantly, according to Sam Ham, David Larsen, and other interpretive professionals, information is best retained when it is organized around a coherent theme.²³⁵ Although almost all interpretive programs are centered around a topic, a theme is a “statement about a topic,” which provides a central, take-away message for the visitor.²³⁶ Similarly, Carolyn Ward and Allen Wilkinson claim that a theme is a “discernible message” that interpreters form based upon a site and its audience.²³⁷ Emphasizing the importance of an interpretive theme, they argue that this element is the “one defining characteristic that separates all other communication forms from that of interpretation.”²³⁸

Keeping in mind that the goal of interpretation is not merely to convey information but to facilitate “meaningful experiences,” a thought-provoking theme can connect the various parts of an interpretive program into a cohesive experience.²³⁹ This is especially true when a theme draws upon universal concepts, which are ideas (such as love, hate, danger, or death) to which all human beings can relate. For example, the topic, “the life of a lighthouse keeper,” can be developed into the theme, “lighthouse keeping was a demanding and dangerous profession.” In this way, interpretation that is centered upon a well-worded, relevant theme may provoke visitors to think more deeply about the object at hand, imagine their selves in the position of historical

²³⁵ Ham, *Interpretation*, 27.

²³⁶ *Ibid.*, 110:108.

²³⁷ Carolyn Widner Ward and Alan E. Wilkinson, *Conducting Meaningful Interpretation: A Field Guide for Success* (Golden: Fulcrum Publishing, 2006), 70.

²³⁸ Ward, *Conducting*, 70.

²³⁹ Larsen, *Meaningful*, 37.

characters, and ultimately develop feelings of care or stewardship for the site.²⁴⁰ Of course, an interpreter should tailor every presentation to the specific audience. Thus, it is important to remember that a historic site can adopt multiple themes or main ideas,²⁴¹ and that a visitor may leave the site with many acceptable messages besides that which the interpreter intended.²⁴²

No official themes currently guide the interpretive programs at the three case studies above. When asked about theme, respondents typically listed a series of topics, such as the life of the keeper, lighthouse technology, and architecture. To enhance the interpretive experience and provoke deeper thoughts among visitors at Oregon's historic lighthouses, operating agencies may consider developing one or more interpretive themes, or "take-away messages," as described above. Although hosts and tour guides are often allowed to choose the topic and theme of their presentations at these sites, they could be encouraged to select a theme that fits into a larger "discernible message" of the agency. This practice may help to unite the various parts of a lighthouse's interpretive program towards the creation of a singular, powerful, and memorable experience.

Interpretive themes at Oregon's lighthouses could address ideas that are either broad or narrow in scope. For example, a broad theme may consist of the statement, "this lighthouse helped to develop Oregon's maritime economy," or, "this lighthouse is one piece of a larger system that helped to guide ships up and down the west coast." A narrower theme may read, "this lighthouse played an integral part in the development of Coos Bay," or, "the residents of this light station were always at the mercy of nature." To maximize a theme's relevance, interpretation at lighthouses can draw upon a variety of universal concepts. In this way, an

²⁴⁰ Larsen, *Meaningful*, 39.

²⁴¹ Ham, *Interpretation*, 28.

²⁴² Larsen, *Meaningful*, 140.

interpreter can intertwine the site's unique setting and history with pervasive ideas such as danger, isolation, change, beauty, family, civil service, organization, and many other concepts to which all people can relate.

Enhancing the Visceral Experience

Because they are almost invariably placed within beautiful, natural environments, lighthouses present a unique opportunity to provide a visceral experience alongside the presentation of historical information. In this way, the sound of the waves, the rushing of the wind, or the stillness at a lighthouse can convey an important and alluring aspect of its nature. In fact, these elements may provoke deeper thoughts and stronger connections among some visitors than written or graphic interpretive materials can. To this end, simple signage may encourage visitors to pause, listen, and consider the scene at hand. Once they have taken this moment to collect themselves, they may be better prepared to engage with the remainder of the interpretive program.

Importantly, if the visceral experience becomes an interpretive objective, interpreters should consider the placement of signage. Panels that are placed directly adjacent to viewpoints, benches, or picnic tables, might obstruct a visitor's view of the resource while they rest there, or may otherwise turn their attention away from the structure itself. While interpretive materials should be placed in obvious, well-travelled areas, it may be beneficial to preserve several viewpoints which encourage visitors to gaze freely upon the site. Through such efforts, interpreters may enhance a part of the interpretive experience that David Larsen refers to as "res loquitor," or "the moment the object begins to speak for itself."²⁴³

²⁴³ Larsen, *Meaningful*, 141.

Interpretation of the Natural Environment

Freeman Tilden's fifth principle of interpretation states that "interpretation should aim to present a whole rather than a part."²⁴⁴ By this, he meant that interpretation should not focus too intently on the object at hand, but should demonstrate the larger purpose and context of that object. Later in his book, he uses the example of a desert ecosystem to demonstrate this principle. While an interpreter may choose to focus a presentation upon a single plant or animal, a more powerful and significant presentation shows that *all* of the plants and *all* of the animals in this environment are related in their ability to survive with minimal amounts of water.²⁴⁵ In this context, a lack of precipitation is the "whole" to which individual objects can be related.

There are multiple "wholes" which lighthouses may help to explain. For example, they inform the larger concepts of maritime navigation and commerce, economic development, aids-to-navigation systems, and technological development. Uniquely, Oregon's coastal lighthouses also contribute to the larger narrative of the natural, and cultural, environment. Placed upon remote, rocky cliffs, river mouths, and, in one case, upon an offshore bird and sea lion habitat, these light stations were effectively islands of civilization amid nature. Today, seven of Oregon's nine extant coastal lighthouses are located within protected natural areas, and serve as symbols of human influence upon the coastal environment. In order to place lighthouses within this larger context, agencies can highlight their place within the surrounding natural landscape.

One method that may help to integrate the interpretation of both the natural and cultural landscape is to interpret these subjects as layers rather than separate entities. As visitors arrive and approach a lighthouse, interpreters or signage can point out some of the natural features,

²⁴⁴ Tilden, *Heritage*, 34.

²⁴⁵ *Ibid.*, 69-70.

plants, and wildlife that characterize the site. As they reach the lighthouse, visitors may then better understand that the structure is only a minor feature when set against the backdrop of its natural surroundings. This concept is especially effective at sites where wildlife or significant natural features can be seen at, near, or within the lighthouse tower. Also, this approach offers the opportunity to present the highly relevant interpretive narrative that people once lived *here*, in the middle of the wilderness.

An important aspect of environmental interpretation at lighthouses regards how the natural features immediately surrounding them have changed over time. For example, Cape Meares was nearly treeless when the lighthouse was built there in 1890, but today it is covered in tall timbers. In this way, interpretation here can highlight the reasons why there were few trees on the cape, the desirability of a treeless environment for the construction of a lighthouse, and the motivations and mechanisms that reintroduced timber to the cape. This contrast is especially significant at sites where the natural environment was altered to construct the lighthouse. At locations like Heceta Head, where 1,000 barrels of powder were used to level the site,²⁴⁶ or Coquille River, where the famous Tupper Rock was blown apart to build a jetty,²⁴⁷ interpretation can show both how the landscape was intentionally changed, and how the environment has since adapted to those changes.

To interpret lighthouses within the larger context of the natural environment, interpreters may emphasize stories and examples regarding the perpetual battle between lighthouses and natural forces. Most obviously, stories involving fierce storms and other harsh weather conditions can easily, and relevantly, demonstrate this concept. A similar example may utilize stories of keepers' struggles with the shifting sands at Coquille River and Point Adams. By

²⁴⁶ Nelson, *Umbrella*, 33.

²⁴⁷ Interpretive Panel, "Protecting the Bandon Harbor," Bullards Beach State Park.

comparing the difficult task of removing sand from one's car or house to keepers' struggles in keeping sand out of a stations' buildings, an interpreter may incorporate a relevant lesson about the nature of sand dunes into a lighthouse presentation.

Interpreters may also choose to highlight the natural change of the coast line, as several of Oregon's lighthouses have continually been threatened by the erosion of cliffsides and sandbanks. Through a brief explanation of this natural trend, an interpretive program can demonstrate that the sea has always been chipping away at the coast line, and that the lighthouse was inserted into this process only a relatively short time ago. In fact, the natural process of erosion will eventually cause some lighthouses to fall into the sea.

Interpreting Uniqueness and Individuality

Oregon's historic coastal lighthouses share several physical features, as well as similar histories. All were administrated by the same federal agencies, most are located in similar environments, and several were designed and built by the same architects and contractors. However, all of these sites are characterized by unique physical features and distinctive histories which cannot be attributed to any other site. Although this project seeks to draw connections between the historical, physical, and interpretive characteristics of Oregon's coastal lighthouses, it is important that interpretation at these sites conveys the uniqueness and individuality inherent in each site. By emphasizing a lighthouse's distinctive physical characteristics and the historical events that have taken place there, interpreters can demonstrate the importance of each site individually, and create more memorable and relevant experiences for visitors. This practice was in place at each of the case studies visited, but the following suggestions will identify ways in which these measures may be enhanced.

Interpreting the Unique Physical Qualities of a Lighthouse

In her essay “Interpretation at Historic Sites,” Suzanne B. Schnell posits that a visitor’s first interpretive experience at a historic site occurs through their “sensory perceptions” of the physical resource.²⁴⁸ In this sense, historic buildings, landscapes, and archaeological sites have unique physical qualities which allow them to function as “artifacts.” By observing and exploring these artifacts, visitors can achieve a glimpse into the past of that specific place.²⁴⁹ This idea is also reflected in the National Park Service’s *Preservation Brief 17- Architectural Character*, which claims that the “tangible elements” of a building “embody [its] significance for associations with historic events or persons.”²⁵⁰ Consequently, interpretation can utilize the physical features of a resource or landscape to convey its history and meaning. Historic preservation treatments, especially restorations, are important to interpretation, as they help to preserve the material elements that convey the unique history of a built resource.²⁵¹

Interpreting the Location of a Lighthouse

In conjunction with interpretation of the natural environment as described above, it is important to identify the geographical and natural characteristics unique to a lighthouse site. The natural surroundings of each site are vastly different, and it is consequently valuable to highlight the qualities of the cape, headland, offshore island, or river-mouth upon which a lighthouse is situated. Because every beacon was thoughtfully and intentionally located, each possesses a unique story related to its location. While some of these beacons were positioned to guide ships

²⁴⁸ Suzanne B. Schnell, “On Interpretation and Historic Sites,” *The Journal of Museum Education* 10, no.3 (1985): 8.

²⁴⁹ *Ibid.*, 7.

²⁵⁰ Lee H. Nelson, *Preservation Brief 17: Architectural Character – Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving their Character*, National Parks Service, Technical Preservation Services.

²⁵¹ Alderson, *Historic Sites*, 3.

over dangerous river bars, others filled gaps in the regional lighthouse system, warned mariners away from specific hazards, marked the entrance to harbors and bays, or a combination of these roles. Whatever their intended function, the geographical position of a lighthouse allowed it to fulfill its purpose, and understanding this location may help one to comprehend and appreciate its unique history and identity.

This message can be effectively conveyed through the use of maps, or other graphics, that depict the immediate surroundings of the lighthouse. If this interpretive material shows the reader where the site is in relation to surrounding river bars, offshore hazards, or bay entrances, they may develop a more thorough understanding of the beacon's importance. Moreover, this effort may inspire them to look for these landscape features after they have left the site, and may thus allow for the interpretive experience to continue after their departure.

Interpreting the Architecture and Design of a Lighthouse

According to the *Historic Lighthouse Preservation Handbook*, "politics, need, cost, location, and geography of the site, as well as technology available at the time of construction influenced lighthouse designs."²⁵² Built between the 1870s and 1930s, these and other factors resulted in several distinct designs among Oregon's coastal lighthouses. By highlighting these differences, an interpretive program can explain the unique features that set a lighthouse apart from others, as well as the historic forces that resulted in its design. For example, at the Yaquina Head lighthouse, interpretation can draw visitors' attention to its conical form, unique cast-iron brackets, and attached oil house. After pointing out these key identifying features, an interpreter might then have the opportunity to explain *why* the lighthouse has them; in this case, because

²⁵² National Park Service, et.al, *Historic Lighthouse Preservation Handbook*: 1997, Part II, 3.

cast-iron detailing was architecturally prominent during the 1870s, oil was stored at the base of early towers, and the strong winds that wracked the lighthouse required a broad base for stability.

Similar explanations can be applied to each of Oregon's coastal lighthouses: Cape Blanco features an attached oil house reflective of early lighthouse construction; Cape Meares is Oregon's shortest lighthouse, and reflects late-nineteenth century building methods in its iron cladding; Cape Arago features an attached fog-signal building, and the use of reinforced concrete is reflective of early-twentieth century building technology and materials; Coquille River also features an attached fog-signal building, as well as decorative details reflecting the Italianate style of the 1890s; Yaquina Bay is the only lighthouse in Oregon with an integrated keeper's quarters, and is also the only remaining wood-frame lighthouse in the state; Heceta Head is Oregon's only lighthouse with multiple remaining station buildings, and shares the same design as the Umpqua River light; Tillamook Rock features a design unlike any other lighthouse in the state (a large, square complex with a central tower), and was built using stone masonry. These features, and others, are a part of the unique identity of each lighthouse. Moreover, they are reflective of both regional and national architectural and engineering practices. A simple graphic, model, or labeled photograph could point out the distinctive features of a lighthouse, and may bring visitors' attention to important physical features that they may not notice on their own.

Interpreting the Equipment and Function of a Lighthouse

Jim Gibbs once wrote, "while it is the tower that probably creates the deepest impression on the popular mind . . . it is the light that is the heartbeat of every lighthouse."²⁵³ Indeed, a lighthouse's lamp, lens, and other equipment are arguably the most important parts of the

²⁵³ James A. Gibbs, *West Coast Lighthouses: A Pictorial History of the Guiding Lights of the Sea* (Seattle: Superior Publishing Company, 1974), 9.

structure. Although most lighthouses utilized similar equipment, subtle variations frequently occurred, and these differences contribute to the unique identity of a lighthouse.

For example, every lighthouse in the United States once featured a distinctive flash signature, which was printed and distributed to mariners in an official Light List. Interpretation that explains the individuality and importance of this flash signature helps a visitor to understand the lighthouse as a unique entity. Oregon's lighthouses typically utilized rotating lenses with bullseye panels to create distinct flash signatures, although Yaquina Head and Yaquina Bay shone a fixed white light (Yaquina Head was converted to flash after it was electrified). At most lighthouses, rotation was achieved via a clockwork mechanism with weighted chains, which had to be rewound at intervals. However, the signature of the Coquille River light (and the Cape Blanco light for a time) was due to a shutter that would spring upwards and eclipse the lamp every.²⁵⁴ Uniquely, the lighthouses at Umpqua River and Cape Meares contain red panels that bestow a colored flash upon their signatures.

²⁵⁴ Bullards Beach State Park, "Coquille River Lighthouse History for Volunteer Docents."

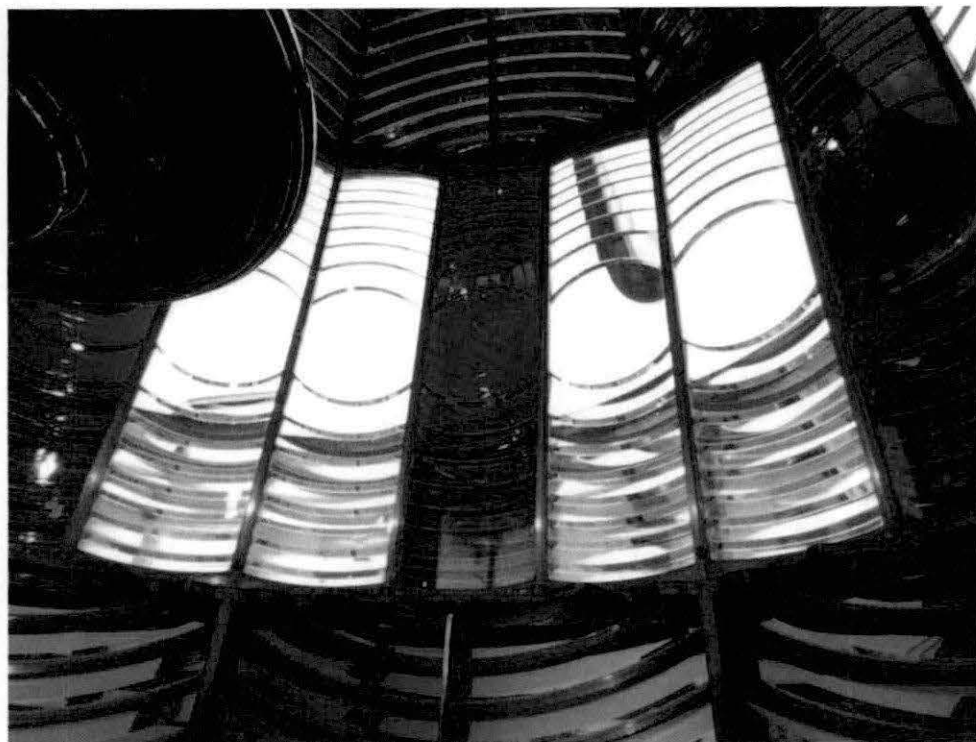


Figure 5-2: Unique red panels in first-order Fresnel lens at Umpqua River lighthouse (Photo by Author)

To interpret a lighthouse's flash signature, interpreters can utilize models, videos, or participatory activities. As mentioned in a case study above, the YHONA interpretive center educates visitors about the light's flash signature using a full-scale replica of the lantern, a small model that continually flashes the signal, and a group activity at the end of the lighthouse tour. An interpretive panel at Coquille River contains a verbal description of its signature. A model of a lighthouse may be considered if adequate room is available. Those sites that cannot accommodate a display might consider a wall-mounted panel, or flat-screen monitor, with a graphic of the flashing lantern. An interactive activity like that previously described in the Yaquina Head case study is also an effective approach. Because a flash signature lends itself so easily to visual perception, such displays and activities will likely be more engaging than a simple verbal or textual description.

Unfortunately, some lighthouses, such as Coquille River, are missing their original equipment. Moreover, none of Oregon's lighthouses retain the clockwork mechanisms that once rotated lenses or released shutters. In these cases, interpretive materials or models may be developed to demonstrate these aspects to visitors. Photographs, graphics, and videos may be useful in this regard. For example, a simple internet search yields multiple examples of videos demonstrating the operation of lighthouse clockwork mechanisms. Notably, the Piedras Blancas lighthouse interpretive center features an animation of its clockwork mechanism that was created by students at the California Polytechnic Institute.²⁵⁵ A similar video could be a very valuable interpretive resource at any of Oregon's coastal lighthouses, and interpreters may consider working with an interested student or guild group to design one.

Additionally, interpreters may consider installing replicas of the chains and weights that once powered the clockwork mechanism. Passing through the center of several (sometimes all) of the landings in a tower's stairwell, these chains could help to provide a memorable and tactile experience for visitors to learn about the function of a lighthouse. Additionally, these elements would not require visitors to ascend to the lantern in order to see them, and in some cases (such as at Cape Meares) they could be observed from the ground floor. Consequently, this effort could enhance the interpretive experience at sites where visitors are not permitted, or physically able, to ascend the tower. An example of these chains can be seen at the Kinnaird Head lighthouse in Scotland.

Lighthouses that were equipped with fog-signals present an additional interpretive opportunity. This is especially true among Oregon's coastal beacons, as only four were ever so equipped. Currently, the Coquille River light is the only interpreted lighthouse in the state that

²⁵⁵ Youtube, "Piedras Blancas Clockwork Mechanism Animation," <https://www.youtube.com/watch?v=BIPx06cYd9M>.

features a fog-signal building. Visitors learn about this steam-powered fog-signal through interpretive panels and historic photographs, and hosts will sometimes indicate the marks on the floor, still visible, where the signal's equipment once sat. To enhance the relevance of such programming, interpreters might consider installing an audio recording of the original, or a similar, fog signal. Moreover, a relatable interpretive narrative may describe the work required by the keepers to keep the signal operating.

Interpreting the Intangible History of a Lighthouse

Of course, the unique, intangible aspects of a historic site also help to establish its identity. To this end, David Canter defines places as “focused units of experiences” which “incorporate personal, social and cultural levels of person-place interaction.”²⁵⁶ This idea implies that a place is characterized by the events and experiences that have taken place there, and the meaning which one can attach to those events. For this reason, Freeman Tilden encourages interpreters to emphasize the historic activities and experiences associated with a physical resource; one should present “not just a house, a ruin, or a battlefield, but a house of living people, a prehistoric ruin of real folks, a battlefield where men were . . . in uniform.”²⁵⁷ If significant events and relatable personalities are highlighted within the interpretive program, visitors are more likely to make a personal connection to those stories and those people. Demonstrating this idea, a study by Uzzell found that visitors engaged more consistently with displays about the people who lived at a historic site than with displays about the built environment.²⁵⁸

²⁵⁶ David L. Uzzell, “Creating Place Identity Through Heritage Interpretation,” *Heritage Studies* 1, no. 4 (1996): 22.

²⁵⁷ Tilden, *Heritage*, 102.

²⁵⁸ Uzzell, “Place Identity,” 219.

The unique, intangible narratives at Oregon's coastal lighthouses tend to revolve around the lives of the keepers, which varied greatly from station to station. Although the daily activities were similar, each station was inhabited by people with unique stories, personalities, and life circumstances. In fact, great differences sometimes existed regarding the number of people who lived at each station. For example, two married keepers with families were kept on at the Yaquina Head station, along with one bachelor keeper.²⁵⁹ However, five men were stationed at Tillamook Rock, and others were rarely allowed onto the island due to the dangerous process of reaching it and debarking the ship. Surely life was very different at these two stations.

Additionally, as mentioned previously, the degree of isolation was different at various stations. While some keepers were close enough to other communities to make frequent trips, or even to send their children to school, others were scarcely able to receive mail regularly.²⁶⁰ Interpretation can also draw upon the universal concept of danger to describe the harrowing experiences and tragedies that occurred at a given lighthouse; several Oregon keepers died in the performance of their duties, and the shipwrecks that occurred at and near lighthouses are well documented. The life of keepers and their families is the most common interpretive theme among Oregon's lighthouses, and all three case studies featured interpretive materials related to this topic.

A valuable interpretive narrative may be utilized at those Oregon lighthouses which employed female keepers. This is the case at Cape Meares, Cape Blanco, and Yaquina Head. On July 10, 1903, the first assistant keeper at Cape Meares wrote in the characteristically blunt fashion of a keeper's log, "Commenced Haying. Keeper died at 6 p.m."²⁶¹ After George Hunt

²⁵⁹ Interpretive Panel, "Lighthouse Life in the Western Wilderness," Yaquina Head Lighthouse.

²⁶⁰ Waldport Ranger District, *Heceta House: A Historical and Architectural Survey*, 1980.

²⁶¹ Nelson, *Umbrella*, 59.

died of pneumonia, his wife, August, took over the duties of head keeper at Cape Meares from July 11 to August 14, 1903.²⁶² This event is even more notable considering that only 140 women ever served as head keeper of a lighthouse in the United States between 1776 and 1939.²⁶³

The Lighthouse Board often employed widows of lighthouse keepers, and another keeper's widow, Mabel Bretherton, was hired as an assistant keeper at Cape Blanco in the same year.²⁶⁴ Unlike August Hunt, Bretherton remained in the lighthouse service for several years, and was later transferred to the North Head light station in Washington as Second Assistant Keeper.²⁶⁵ Little has been published about another woman who served as an assistant keeper at Cape Blanco, by the name of Mrs. Alexander.²⁶⁶ Similarly, the Yaquina Head lighthouse is said to have employed a woman as an assistant keeper at some point in its history, but her name and biographical information were not found by this author.²⁶⁷

This significant and relevant narrative is not prominently displayed at either Cape Meares or Yaquina Head. The participation of women in the operation of lighthouses is a prominent theme within the historical literature of United States lighthouses, and any programming that conveys this history at these sites would provide a significant, highly relevant, and individualized interpretive theme. By conveying these histories in a relatable manner, visitors may come to understand that the people who once lived at the site were as unique and individual as their selves, and they may begin to think more deeply about what they have in common.

²⁶² Gibbs, *Seacoast*, 165.

²⁶³ Dolin, *Beacons*, 255.

²⁶⁴ *Ibid.*, 256.

²⁶⁵ Gibbs, *Seacoast*, 33.

²⁶⁶ *Ibid.*, 33.

²⁶⁷ Dorothy Wall and Bert Webber, *Yaquina Lighthouses on the Oregon Coast* (Medford: Webb Research Group), 110.

Another unique historic characteristic of Oregon's coastal lighthouses regards their treatment during wartime. Although these light stations were affected by the defense measures necessitated by World War Two in varying degrees, several were converted into Coast Guard submarine watch-stations.²⁶⁸ At lighthouses which were associated with these events, this narrative may help to provoke a sense of place identity and would help to place the site within the context of familiar historic events. As mentioned in the case studies above, the Yaquina Head interpretive center features a panel regarding this topic, and the staff at Cape Meares strives to interpret the lighthouse within the context of nearby resources associated with World War Two.



Figure 5-3: August 'Hunt' Boyington, Head Keeper at Cape Meares Lighthouse, July-August 1903 (From James A. Gibbs, *Oregon Seacoast Lighthouses*).

²⁶⁸ Jeremy D'Entremont, *The Lighthouse Handbook: West Coast* (Kennebunkport: Cider Mill Press, 2016), 131.

“Holistic” Interpretation of Lighthouses

While it is important for interpretation to highlight the individual features of a lighthouse, Oregon’s Regional Interpretive Framework, published by OPRD in 2005, refers to the state’s lighthouses as a single “regional interpretive story.”²⁶⁹ In this sense, while each lighthouse site possesses an individual, unique story, they are collectively united within the context of a larger narrative. Regarding interpretation, this connection between resources provides an opportunity to employ Tilden’s fifth principle, which states that “Interpretation should aim to present a whole rather than a part.”²⁷⁰ By interpreting the shared histories and characteristics of lighthouses, interpreters can utilize a historic lighthouse to communicate a larger, deeper, story.

The simplest way that this can be accomplished is to convey that Oregon’s coastal lighthouses were not solitary beacons, but rather operated within a coordinated system. Following the examples at Cape Meares and Yaquina Head, maps, panels, or brochures can place the site in question within the context of this larger, regional system. As previously discussed, this message is conveyed at the Cape Meares lighthouse through a map showing the placement of each coastal lighthouse in Oregon and the range of its beam. The Yaquina Head lighthouse also displays this map within its watch room, as well as an exterior panel that relevantly describes Oregon and Washington’s lighthouses as “signposts” on an “ocean highway” that allowed ships to travel during the night.

Additionally, interpretation may highlight important “connective” facts and themes. One such theme could address the overarching developmental history of Oregon’s light stations, as almost all of these stations were established as frontier outposts in the wilderness, and ended

²⁶⁹ OPRD, *Regional Interpretive Framework: A Statewide Approach to Interpretive Planning* (2005): 11.

²⁷⁰ Tilden, *Heritage*, 34.

their service as easily accessible, automated beacons. Moreover, interpreters may draw connections between sites through stories about West Coast lighthouse tenders, such as the *Shubrick* and *Manzanita*, that served multiple stations for decades. Further connections could be drawn between those light stations which were closely associated with lifesaving stations, as well as those which were affected by coastal defense measures during World War II.

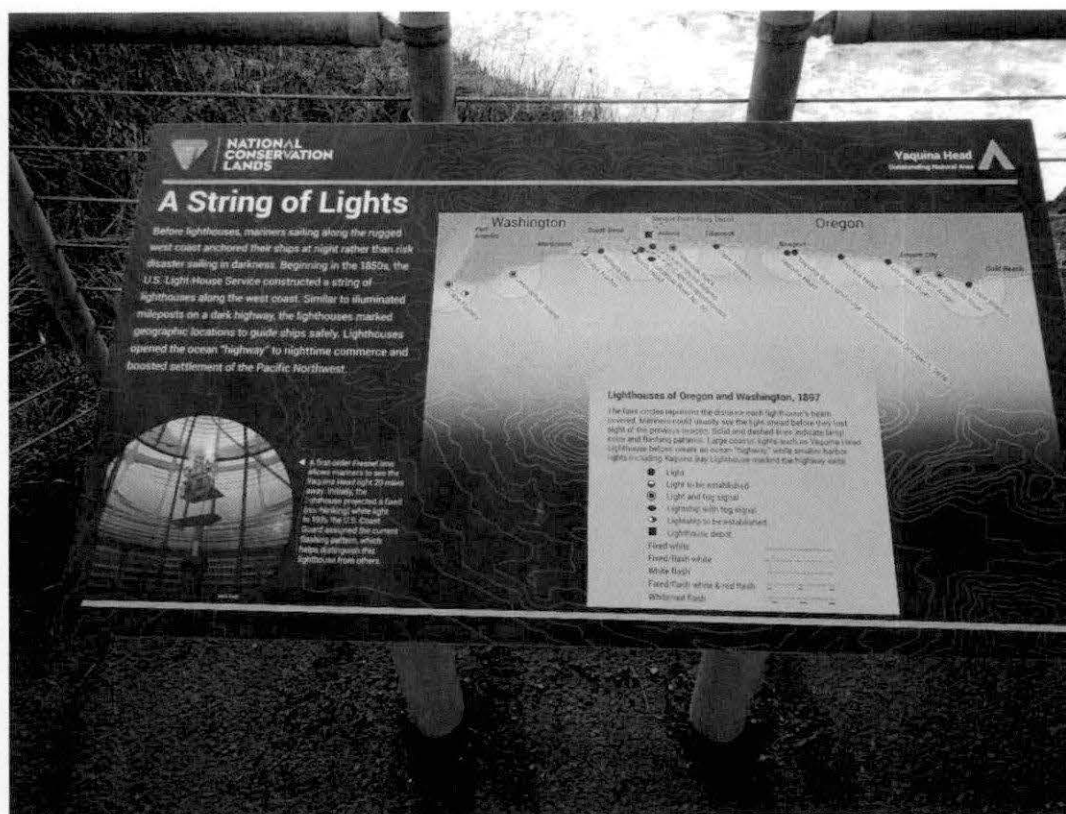


Figure 5-4: Exterior Interpretive Panel, Yaquina Head Lighthouse, "A String of Lights," (Photo by Author)



Figure 5-5: The Lighthouse Tender *Manzanita*, which served the Thirteenth Lighthouse District (Oregon/Washington) during the late-nineteenth and early twentieth centuries (Courtesy of Oregon Historical Society)

Importantly, interpreting this larger narrative may provide an opportunity to explain the uniqueness of an individual lighthouse in a relevant manner. As an example, “The Cape Meares lighthouse was only one element that operated within a system of many beacons. However, its short stature, iron plating, and red flash signature set it apart from all of Oregon’s other lighthouses.” Or, “Oregon’s lighthouse keepers and lifesaving station crews worked closely together to prevent shipwrecks and rescue victims, but the Yaquina Bay lighthouse is the only one in the country that was used as a lifesaving station.”

Oregon’s Regional Interpretive Framework also encourages wayfinding at Oregon’s state parks, which is the practice of encouraging visitors to explore other, similar sites nearby.²⁷¹ This

²⁷¹ OPRD, *Regional Interpretive Framework*, V.

can be accomplished at historic lighthouses by emphasizing both the similarities and differences between them. For example, an interpreter at Umpqua River might encourage a visitor to visit Heceta Head and compare the lighthouses, or a lighthouse that is missing its lens or other equipment may encourage a visitor to pay a visit to one that is intact. If an interpretive program highlights the fact that each lighthouse only presents one piece of a larger story, visitors might feel inspired to visit another site to learn more. Moreover, because Oregon's lighthouses are arranged in a linear pattern along (or near) the incredibly scenic Highway 101, they are easy to locate and access, and thus are ideal sites to engage in wayfinding.²⁷²

Interpreting Demolished Buildings

Very few ancillary buildings remain among Oregon's coastal light stations. Though nine lighthouse towers are still standing, most of the support buildings which accompanied them were demolished during the late twentieth century after the lamps were automated and keepers became unnecessary. As mentioned previously, the Heceta Head lighthouse retains one of two original keepers' quarters and two oil houses, Umpqua River features an array of buildings constructed by the Coast Guard in the 1930s, and Cape Blanco, Yaquina Head, Heceta Head, and Umpqua River still feature their attached workrooms. Additionally, five coastal lighthouses no longer stand. They are the first Umpqua River light, the first two Cape Arago lights, the Point Adams light, and the Desdemona Sands light.

Although the lighthouse was certainly the primary feature of any light station, it is important to understand the breadth of historic operations that once occurred at the site. Without interpretation, a visitor might never understand that keepers and their families lived in houses

²⁷² OPRD, *Regional Interpretive Framework*, 24.

near (or sometimes in) the tower, carried oil or fuel from storage houses and up the tower's stairs, cared for livestock in a nearby barn, and cultivated large gardens to ensure that they had enough to eat. While all three case studies addressed this topic to some degree, Oregon's coastal lighthouse sites might consider additional measures to interpret these important, demolished structures, and their relationship to the lives of the keepers and their families.

Several strategies may help to improve the interpretation of demolished buildings at Oregon's historic lighthouse sites. Most simply, photographs or maps of the former light station can be prominently displayed. Ideally, such a display would feature a "You Are Here" label, or else challenge the visitor to figure out where they are in relation to the graphic. Using Geographic Information Systems (GIS) technology, a digital map of the site could accurately demonstrate where former buildings once sat. Such materials would be especially valuable at sites, such as Coquille River and Cape Meares, where prominent, identifiable features (like the foundation of a water tower and the current parking lot) mark the former locations of outbuildings.

If both funding and display space are available, a three-dimensional model of the former light station could help to effectively engage visitors regarding this topic. For increased visitor interaction, especially for children, the model may utilize movable blocks or pieces. Visitors may then be encouraged to match the buildings to their corresponding places, or perhaps challenged to design a light station of their own. To alleviate issues of space, a bronze model could be installed outdoors. Engaging visitors in this way would provoke them to think about the importance, function, and placement of each building, and would provide a sensory, tactile experience if they are allowed to touch the model. As an example of this strategy, the Yaquina Head interpretive center has installed a three-dimensional model of the light station once located

there. Although only a few of the station's many buildings are depicted, the model demonstrates the topography of the headland, and shows the size of the buildings in relation to one another.

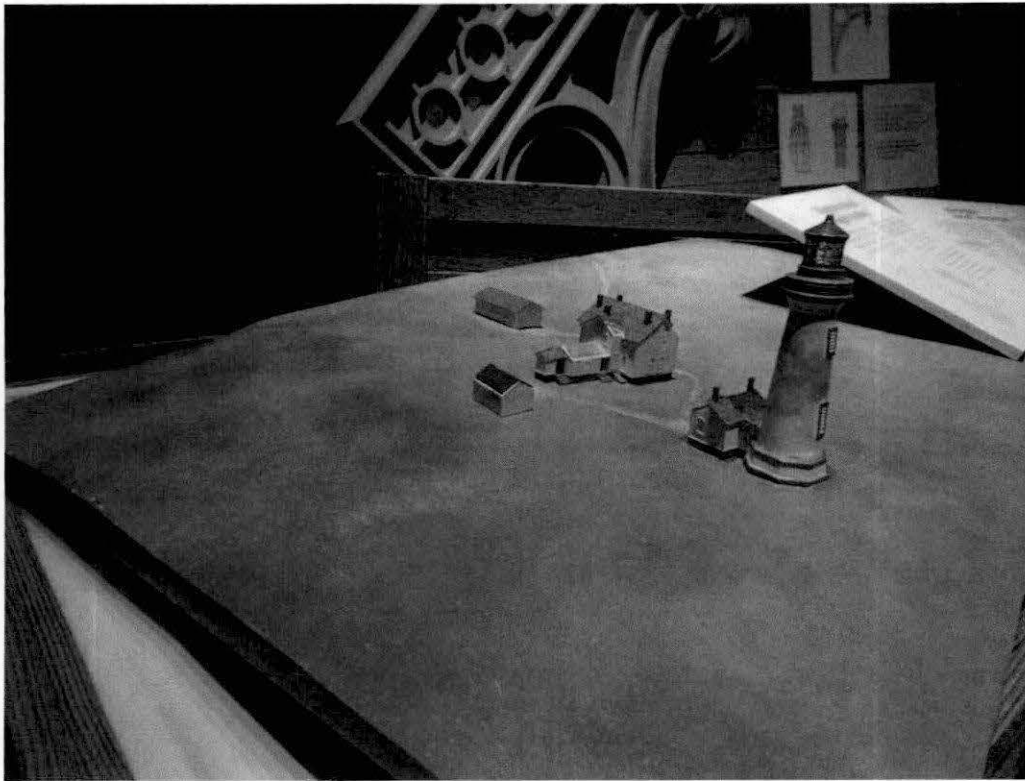


Figure 5-1: Three-Dimensional Model of light station at YHONA Interpretive Center (Photo by Author)

An additional strategy for interpreting demolished buildings would incorporate markers, panels, or outlines at the spot where they once stood. Signage at these locations would place them within the spatial context of the site for visitors, and would provide an adequate space to display interpretive materials regarding their function and appearance. However, this measure may not be possible at lighthouse sites that double as protected natural areas, as they would both disturb the ground and encourage foot-traffic beyond the bounds of current pathways.

Because light stations were well documented, there are sufficient architectural plans and photographs to understand these built landscapes in great detail. Using this data, interpreters could create a computer-aided-design (CAD) model of a former light station, which may be

developed into a virtual tour. This programming could be displayed on a screen or tablet as part of an interpretive program. Moreover, this effort would be a viable way to interpret demolished lighthouses, such as Desdemona Sand and Point Adams, or those which are not publicly accessible, like Cape Arago and Tillamook Rock.

Some of Oregon's coastal lighthouses have arranged the site in such a way that the approach to the lighthouse is the same path that the keepers once travelled between the tower and their quarters. This is the case at Heceta Head, Yaquina Head, and Cape Meares. Signage explaining this pathway might increase the relevance of the interpretive experience, and may help to provoke a memorable connection to the site.

The historic landscape that once surrounded a lighthouse may be made more apparent by reconstructing minor features of the light station. Many of Oregon's coastal light stations once featured white fences that enclosed their various sections. Reconstructing these fences in their former locations would be an effective and relatively inexpensive way to demonstrate the historic site plan and boundaries of the light station. A similar effect may also be achieved by recreating or clearly marking the paths that once connected buildings to one another. This last effort would be especially descriptive if the locations of outbuildings were clearly marked along this pathway.

Moreover, most of these sites incorporated a large garden to produce food for the keeper and his family in between visits from the lighthouse tender. As implemented at Yaquina Head, the placement of a fence around the former garden designates the area as a distinct and important space. A simple interpretive sign could be added to explain the significance of the garden. If funding and volunteer staffing is available, replanting seasonal crops in a historic garden would further enhance this interpretive effort. Local examples of reconstructed gardens can be observed

at Champoege State Park near St. Paul, Oregon, and Fort Vancouver National Historic Site in Vancouver, Washington.

Writing of the Desdemona Sands lighthouse, Jim Gibbs laments that this once beautiful structure “is now only found in books,” and muses, “How fast the memory of a lighthouse disappears once it passes from the scene.”²⁷³ Indeed, Oregon’s lost coastal beacons at Point Adams and Desdemona Sands serve as compelling examples of the importance of historic preservation. However, efforts could be taken to interpret these demolished structures. Although the former site of Desdemona Sands is inaccessible to the public (on a sandbank in the Columbia River) interpretive materials along the shoreline at Fort Stevens State Park could point out where the lighthouse once stood. Coupled with photographs and stories about the beacon, such as the fire that nearly consumed the structure in 1916, such public signage could make passers-by aware of this obscure historical feature.²⁷⁴

At the site of the Point Adams lighthouse, a marker or building outline could indicate where this largely forgotten beacon once stood. In fact, the data required for this project may be easily obtained, as the lighthouse was the subject of an archaeological excavation in the 1990s, sponsored by Oregon State University.²⁷⁵ Moreover, interpretive materials could highlight the unique appearance of this lighthouse (wood-frame in the Queen Anne style), and explain how the extension of the Columbia’s jetties eliminated the need for it. Although this interpretive experience would not be nearly as powerful or relevant as a visit to an extant lighthouse, such efforts would help to communicate an important story to the public that is currently only accessible within some lighthouse guides.

²⁷³ Gibbs, *Seacoast*, 221-222.

²⁷⁴ *Ibid.*, 218.

²⁷⁵ Comment by Henry Kunowski, Terminal Project Chair.

Interpretation for Diverse and International Audiences

In 2017, Travel Oregon estimated that 760 million people visit America's state parks annually (the population of the United States is only 325 million as of 2017).²⁷⁶ This statistic indicates that public recreation sites across the United States attract millions of international visitors every year. While lighthouses are found only in the coastal and Great Lakes regions of the United States, they are very prominent attractions, and are closely associated with trends in heritage tourism. Demonstrating this fact, in 2010, Cape Meares welcomed visitors from 142 different countries.²⁷⁷ To this end, it is important to consider the backgrounds, perspectives, and needs of such visitors at lighthouse sites, and to customize their interpretive experiences whenever possible. Moreover, regional demographics are constantly shifting, and interpreters should also consider the changing needs of local visitors.

To facilitate this process, it may be prudent to conduct a study, or to collect data, regarding the age, ethnicity, and nationality of visitors. Following this, visitor surveys and careful observations may be used to determine what may improve these groups' experience at the site. Such considerations may include:

- The number and location of public facilities, such as picnic areas, benches, and pathways
- Family-friendly restrooms or comfort stations
- The length and content of interpretive tours and other programming
- Accessibility of interpretive materials and brochures in multiple languages
- Opportunities to personally connect with an interpreter or host

²⁷⁶ Outdoor Industry Association, "The Outdoor Recreation Economy," Travel Oregon, published 2017, accessed May 5, 2018, http://industry.traveloregon.com/content/uploads/2017/08/Outdoor-Industry-Association_US-Outdoor-Recreation-Economy_2017_FINAL.pdf.

²⁷⁷ Data provided by Travis Korbe, Interpretive Ranger, Cape Meares State Scenic Viewpoint.

Of course, this list is by no means comprehensive, and approaches should be tailored to the unique demographics and visitor responses at every site. By facilitating the needs of prominent visiting groups, interpreters may both enhance these visitors' experiences, and attract more visitors in the future.

Depth of Tour/Access

A principal way in which Oregon's coastal lighthouses differ in their interpretive strategies regards the extent to which visitors are able to access the physical resource. For example, some lighthouses permit visitors to climb the tower stairs into the watch room below the lantern, others allow visitors to enter the lantern and access the catwalk around the lens, and several others lack the structural stability to conduct any tours of the lighthouse tower. While all of these sites are capable of facilitating high-quality interpretation for visitors, the tactile experiences provided through deeper access undoubtedly help to provoke thought and create meaningful memories within a visitor's mind.

Of course, it must be noted that those lighthouses which do not provide full access to visitors are usually prohibited from doing so; structurally unstable lighthouses cannot accommodate visitors in their towers due to issues of safety and liability, and visitors are sometimes prohibited from entering the lanterns of active aids-to-navigation. Moreover, the repairs required to make lighthouse towers safe for entry can be prohibitively expensive. For these reasons, an obvious suggestion, and one that is already practiced, is that visitors should be permitted to explore a lighthouse to the extent that it is safe for them to do so.

However, those sites that cannot permit visitors into their towers should enhance their interpretive experiences at the ground-level to the best of their ability. To provide further educational opportunities for visitors, a simple display showing the inaccessible stairway, watch-

room, and views from tower windows may be installed in the workroom or gift shop. 360 degree-perspective cameras are available for rental at very affordable rates, and a digital, full-rotation or panoramic view from the lantern could be the crowning feature of such a display. A variety of programs exist that enable one to compile a series of 360 degree photos into a virtual tour, which can be uploaded onto the internet, or displayed via a tablet or monitor. Such a tour would be an effective and engaging way to demonstrate the inaccessible areas of a lighthouse.

A major issue that most of Oregon's lighthouse sites face is their inability to serve visitors with disabilities related to mobility, sight, and hearing. The rugged surroundings, extensive pathways, and tall staircases associated with these resources do not easily accommodate those who experience difficulties with mobility. Unlike other, larger public buildings that can be rehabilitated to provide handicap access, lighthouses are limited in their ability to be adapted. One solution to this problem is to place interpretive materials within areas that are handicap accessible. As mentioned previously, an example of this can be seen at the YHONA interpretive center, where the BLM has installed a full-size replica of the Yaquina Head lighthouse lantern and a virtual tour video. However, only the Yaquina Head and Umpqua River lighthouse sites feature buildings large enough to accommodate large museum displays.

The installation of strategically-placed exterior signage offers a simpler solution to accessibility issues. By placing interpretive materials outside of the lighthouse tower, visitors who are not able to climb the stairs, or even to enter the workroom, can participate in the interpretive experience as site conditions allow. If the purpose of this signage is to accommodate disabled visitors, then the agency should be sure to include information and photographs related to the interior of the lighthouse, and to incorporate brail or audio recordings. These materials would also benefit anyone who happens to visit the lighthouse during its closed season.

Interpreters often have only one chance to engage someone with a resource, and exterior signage allows one-time visitors to learn about a lighthouse even when no staff or hosts are present. Current examples of exterior signage can be observed at Heceta Head, Yaquina Head, and Yaquina Bay.

In rare cases, reconstructing historic features can help to facilitate compliance with the Americans with Disabilities Act (although historic buildings often able to employ alternatives to conventional compliance standards). As mentioned previously, a project was proposed along these lines at the Coquille River lighthouse several years prior to this writing. By reconstructing the board-walk that once connected the outbuildings with the lighthouse and fog-signal building, preservationists hoped to incorporate a ramp that would allow handicapped visitors to enter the lighthouse.²⁷⁸ Similarly, reconstructing or adapting minor outbuildings, such as oil houses and barns, can provide a place for disabled visitors to participate in interpretive programming while also contributing to the historic landscape. A great example of such adaptive use can be found at the Heceta Head light, where one of the original oil houses contains interpretive materials, including a slideshow about the lighthouse's most recent restoration.

²⁷⁸ Telephone interview with Sue Licht, Preservation Architect and Terminal Project Committee Member.

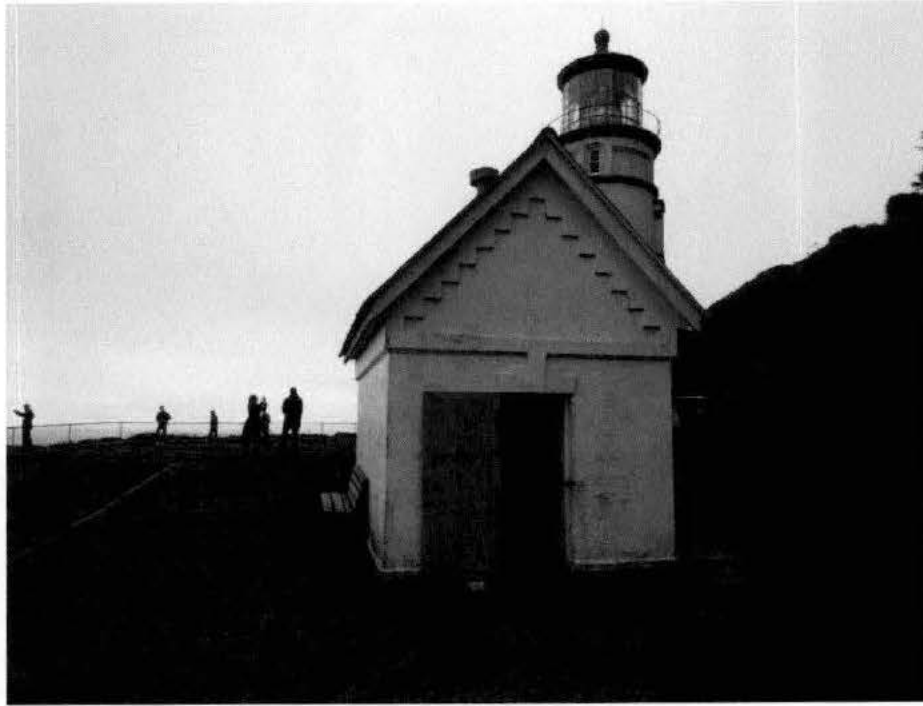


Figure 5-6: Oil house at Heceta Head lighthouse housing interpretive materials

Interpretation for Children

Most interpretive authors agree that specialized interpretation should be implemented for children. In fact, Freeman Tilden dedicates one of his six principles of interpretation to the subject: “Interpretation addressed to children . . . should not be a dilution of the presentation to adults, but should follow a fundamentally different approach.”²⁷⁹ Similarly, in their work *Interpretation for the 21st Century*, Larry Beck and Ted Cable contend that interpretation must be “thoughtfully designed” for children, as well as for teenagers and adults.²⁸⁰ Carolyn Widner Ward presents an interesting dilemma regarding this subject. Because children have often learned about a site or topic through TV or the internet before their visit, an interpreter often

²⁷⁹ Tilden, *Heritage*, 35.

²⁸⁰ Larry Beck and Ted T. Cable, *Interpretation for the 21st Century: Fifteen Guiding Principles for Interpreting Nature and Culture* (Champaign: Sagamore Publishing, 2002): 58.

provides children with their first “authentic exposure” to a natural or historical subject. Special strategies are necessary to ensure that this experience is well-received.²⁸¹

General Interpretive Practices for Children

To understand the needs of young visitors, one must first consider how they behave and learn differently than adults. In this regard, Freeman Tilden and another foundational interpreter, Enos Mills, taught that “children are capable of rapid learning, delight in the superlative, are generally lacking in inhibitions, desire personal examination of items through all of the senses, relish companionship, and thrive on a sense of adventure.”²⁸² With these characteristics in mind, the primary element of child-focused interpretation is participation. Though children may respond well to formal presentations and lessons in the classroom, they are sure to be easily excited, and therefore easily distracted, when they visit a new place. For this reason, interpretation for children requires a more interactive approach,²⁸³ as children learn best when they are allowed to be “personally involved” in a presentation or program.²⁸⁴

Beck and Cable suggest that action (participation), fantasy, and instruction combine to create the most effective interpretive experiences for children.²⁸⁵ They describe an interpretive model wherein children are encouraged to role-play historic events, after which they are provided with a relevant, memorable piece of information. Similarly, Ward recommends interactive activities like puppets, skits, and drawing activities to help young children process information.²⁸⁶ Multiple interpreters also emphasize the importance of asking questions. While a typical interpretive program provides information and then waits for visitors to ask questions,

²⁸¹ Ward, *Conducting*, 151.

²⁸² Beck, *21st Century*, 62.

²⁸³ Ward, *Conducting*, 152.

²⁸⁴ Alderson, *Historic Sites*), 96.

²⁸⁵ Beck, *21st Century*, 63.

²⁸⁶ Ward, *Conducting*, 156.

children respond well to being questioned throughout the program. This “guided discovery,”²⁸⁷ or “inductive reasoning,” allows children to participate in the program, while also provoking them to think critically about the information being presented.²⁸⁸

Effective interpretive programming for children requires careful planning. Importantly, one should never assume that all groups of children are the same, and it is important to consider the age, interests, and previous knowledge of the group.²⁸⁹ Moreover, an interpretive program should cater to the curriculum of visiting school groups.²⁹⁰ By customizing a presentation to students’ educational background and current curriculum, interpreters can provoke a connection to a resource more easily. This is especially true if preparatory materials are given to the group before their visit.²⁹¹

Oregon’s coastal lighthouses vary greatly in their efforts to accommodate children. However, staff at each of the lighthouses examined for this project expressed their intentions to provide specialized programming for children. Due to their distance from population centers and their seasons of operation, these sites often encounter difficulties in attracting and accommodating school-groups. As described previously, two of the case study sites for this project, Coquille River and YHONA, have experienced difficulties in facilitating field trips; the first must close and shutter the lighthouse from September to May for maintenance reasons, and the second draws many students to its natural sites, but few to the lighthouse. Solutions to this problem are beyond the scope of this project, but it may benefit all sites to become familiar with the regional curriculum, and consistently invite any classes or grade-levels that may be interested

²⁸⁷ Ward, *Conduction*, 156.

²⁸⁸ Alderson, *Historic Sites*, 98.

²⁸⁹ Ward, *Conducting*, 156-158.

²⁹⁰ Alderson, *Historic Sites*, 92.

²⁹¹ Beck, *21st Century*, 62.

in learning more about lighthouses. Moreover, an outreach group of staff members or dedicated volunteers could be formed to take lighthouse presentations to schools. Perhaps such a program may inspire teachers or other educators to take their future students to the lighthouse itself.

Pre and Post-Visit Materials

To best serve those school-groups that are able visit Oregon's coastal lighthouses, pre-and/or post-visit materials may be developed. These materials could address general lighthouse topics such as the parts of a lighthouse, the science behind a Fresnel lens, flash signatures, or the life and duties of keepers, as well as the history of Oregon's lighthouses and the system of which they were a part. Moreover, such materials could incorporate activities ranging from simple tasks like coloring books or connect-the-dot sheets, to trivia games, craft projects, and re-enactment exercises. Along these lines, the National Archives has assembled a coloring book featuring several famous United States lighthouses.²⁹² Though no Oregon lighthouses are featured in this book, an interested agency or friends-of group could easily produce a similar work highlighting the state's beacons.

Pre-visit materials could enhance children's interpretive experiences in several ways. Chiefly, they would allow children to grasp some of the most challenging ideas of lighthouse operations, such as the function of a lens, within the formal setting of a classroom. Additionally, pre-visit exercises can allow them to develop questions that they may ask onsite, and excite them about their upcoming fieldtrip. Post-visit materials, which may be similar to pre-visit materials, can provoke meaningful thoughts about what they have learned, and solidify the experience in their memory. If lighthouse history adequately corresponds to a regional curriculum, packets of

²⁹² "The National Archives of the United States Coloring Book of Lighthouses," United States National Archives, <https://www.archives.gov/files/campaigns/lighthousecoloringbookfinal.pdf>.

pre-visit materials could be printed and distributed by interested Educational Service Districts in Oregon.

Many excellent examples of lighthouse activities for children already exist. Interested agencies should look to the “Educational Materials” page within the United States Lighthouse Society (USLS) website. This page contains links to resources for teachers, downloadable PowerPoint presentations, and literature recommendations. Especially helpful are the links to pre-assembled educational materials from the Ponce De Leon Inlet Lighthouse Preservation Society, the Chesapeake Chapter of the USLS, and the National Park service. These resources offer many lesson plans, activities, and work sheets that can be easily applied to any lighthouse.²⁹³

Interpretive Strategies for Children Onsite

Other practices may help to improve children’s interpretive experiences while onsite. As discussed above, participation is essential for children’s interpretation. To introduce this element at Oregon’s coastal lighthouses, hands-on, tactile, or sensory experiences would be greatly beneficial.²⁹⁴ To this end, interactive displays could be installed to educate visitors about the function of a lighthouse. An example of this can be found at the Yaquina Head interpretive center, where one can move a lever to “bend” light through a prism as in a Fresnel lens. Similar programming could feature auditory and visual demonstrations to showcase the flash signature of a lighthouse, the sound of its fog-horn, or the roaring wind of a coastal storm.

²⁹³ “Educational Materials,” United States Lighthouse Society, <http://www.uslhs.org/education/educational-materials>.

²⁹⁴ Ward, *Conducting*, 154.

If adequate space is available, dress-up activities allow children to role-play historic events. According to Beck and Cable, role-playing satisfies a child's need to participate in the interpretive program, and "provide[s] a notion of how and why people responded [to historic scenarios] as they did."²⁹⁵ At YHONA, a costume and photo-station is located in the lobby for this purpose. While all children are welcome to play here, the station is intended to provide an interpretive experience for those children who are too small to climb the lighthouse stairs. Of course, role-playing can be encouraged without the use of costumes, but "dress-up" adds a tactile and memorable element to the experience. Lighthouse sites with adequate space might consider a similar approach.

Other onsite programming may include scavenger hunts or similar interactive activities. By designing an activity with clearly established rules and a desirable reward, learning can be transformed into a game. An existing example of such programming exists in the Oregon Quest program. Discussed in the Yaquina Head case study above, Quests are scavenger-hunts centered around natural and cultural sites. Designed individually for each site, a Quest requires a participant to solve riddles and puzzles by reading interpretive signage. Once a participant completes each clue, the location of a lock-box is revealed, which contains a log-book and a special stamp to mark their completion of the Quest.

This activity offers an entertaining way for children and their families to explore a natural or historic site and encourages visitors to both engage in interpretive materials and to think critically about the site. Oregon currently features twenty-four Quests, although Yaquina Head is the only lighthouse included. Quests can be written by student groups, agencies, or interested

²⁹⁵ Beck, *21st Century*, 63.

individuals, but must be approved by both the Quest program and the proposed site.²⁹⁶ Creating Quests for Oregon's lighthouses and the parks which surround them would be an excellent way to engage children, families, and others with historic lighthouses. Oregon State University occasionally hosts quest-building workshops to educate volunteers and other interested parties about the creation of Quests.

Lighthouses and Public Engagement

Other efforts may help to increase public awareness of Oregon's historic lighthouses and their importance. For example, the Governor of Oregon issued a proclamation in 1995 declaring the second week of August as Oregon Lighthouse Week. While this occasion has not been celebrated in many years, it falls at the same time as National Lighthouse Day (August 7th). These events may be utilized to excite and entice potential visitors, especially students and school-groups, and to engage local communities with a heritage resource. This is especially significant because the dedicated date occurs during the peak tourist season for these sites.

Several organizations across the U.S. host annual lighthouse festivals. At these celebrations, participants are given special tours, and craft shows, boat shows, markets, and other events take place near a lighthouse. Notably, a large lighthouse festival is held in Mukilteo, Washington, which features live music, an outdoor market, fun-run, and other events. Hosting a similar event at one or more of Oregon's lighthouses could be a fun and engaging way to educate the public about these historic resources, and to instill feelings of stewardship among the public. In fact, a festival could be an effective way to celebrate Oregon Lighthouse Week.

²⁹⁶ "Quests," Oregon State University Hatfield Marine Science Center, <https://hmsc.oregonstate.edu/visitor-center/education/marine-education/quests>.

Multiple East Coast states, such as Maryland, New York, and New Jersey, host annual lighthouse “challenges” which provide an entertaining and engaging way for people to visit these resources. During a challenge, participants must visit a certain number of lighthouses within a specified time frame, usually over a weekend. As a reward for completing the challenge, they are given souvenirs at each site, or at the end of the competition. As a further incentive to participate, some groups provide special tours of areas that are normally restricted, or issue special passports to be stamped at each location. Although Oregon’s lighthouses are too far from one another to visit each of them in a short time, such activities could be held regionally. A north, south, or central coast challenge could each incorporate three to four lighthouses, and would offer an entertaining, engaging way to facilitate interpretation among an enthusiastic audience. To broaden the interpretive narrative of such an event, extant lifesaving stations could be incorporated into the challenge.

“Friends Of” Groups

The author knows of “Friends Of” groups at the Cape Blanco, Umpqua River, Yaquina Bay, Yaquina Head, and Cape Meares lighthouses. These groups perform a great variety of roles, including volunteer recruitment, interpretive presentations, host relief, special event planning, historical research, and fundraising. While the size, availability, and effectiveness of such a group varies from site to site, those lighthouses which do not currently feature a “Friends Of” group or society may consider the benefits which it provides at others.

Conclusion

Lighthouses are one of the most commonly preserved structures in the United States. Unlike other built historic resources, they are relatively safe from intentional harmful actions, and today they face a far more significant threat in demolition by neglect than intentional destruction.²⁹⁷ However, these structures possess far more potential than merely their beautiful and unique appearance. Lighthouses symbolize and reflect an important era of history when mariners depended upon their guiding lights to travel safely in the darkness. Moreover, lighthouses embody a myriad of engineering developments that resulted in their continual improvement, and eventual elimination. Lastly, these structures, and the buildings that were once associated with them, are the last remnants of an organized service to which hundreds of men and women dedicated their lives. Using lighthouses as tangible reminders of this history, together, historic preservation and interpretation can present their stories to millions of visitors each year.

²⁹⁷ Cox and Bowker, “Endangered Species,” 52.

Although interpretation is sometimes seen as the simple conveyance of information, modern scholars of the subject present a vastly different perspective. While an interpretive program must involve elements of fact and story, the most effective interpretation weaves these facts and stories into a powerful, memorable experience. Drawing upon onsite observations and interpretive theory, this project has suggested measures that may help to create memorable experiences and deeper connections among lighthouse visitors. It also addressed issues of public accessibility that are frequently encountered at lighthouse sites.

This document does not claim to present definitive guidelines that must be followed to facilitate quality interpretation at a historic lighthouse. Rather, the author's intent is that it will serve as a planning document, which may help interpreters at Oregon's historic lighthouses to plan future programs and endeavors.

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Site Visits/Observations

Heceta Head, 10/22/17

Umpqua River, 10/22/17

Coquille River (1/12/2018)

Yaquina Head (1/22/18)

Cape Meares (1/23/18)

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Kirk Barham (Cape Meares State Scenic Viewpoint Park Manager)

Travis Korbe (Cape Meares State Scenic Viewpoint Interpretive Ranger)

Appendices

Appendix A: Interpretive Materials of Case Study Sites

Coquille River Lighthouse Interpretive Panels

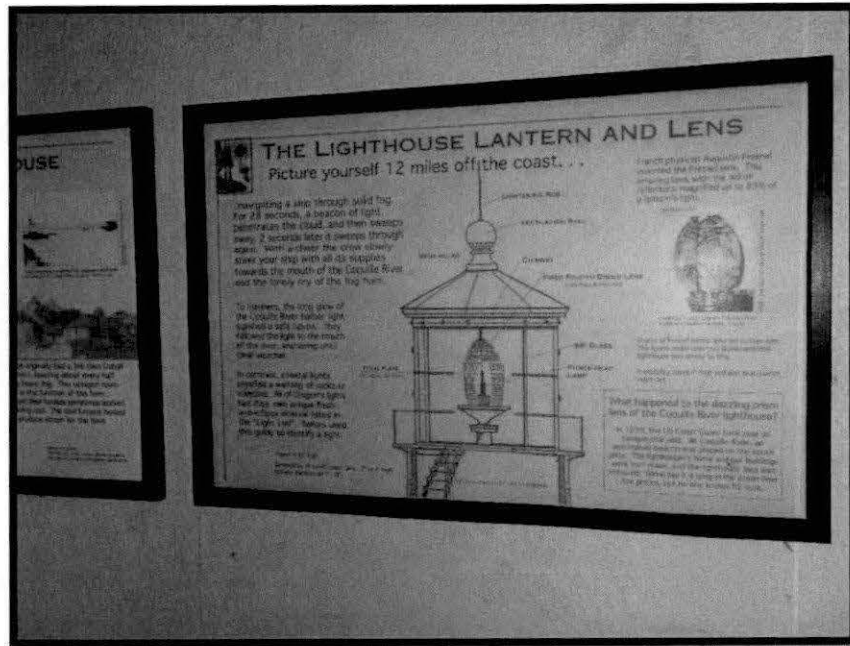


Figure A-1: Coquille River Lighthouse Interpretive Panel, “The Lighthouse Lantern and Lens.”



Figure A-2: Coquille River Lighthouse Interpretive Panel, “A Hero’s Life of Valor and Isolation.”

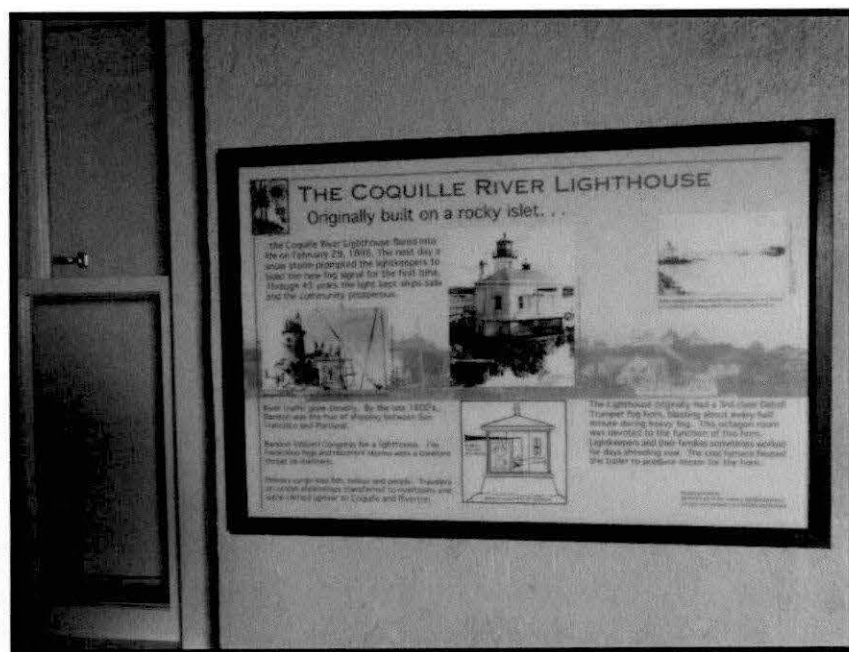


Figure A-3: Coquille River Lighthouse Interpretive Panel, "The Coquille River Lighthouse."

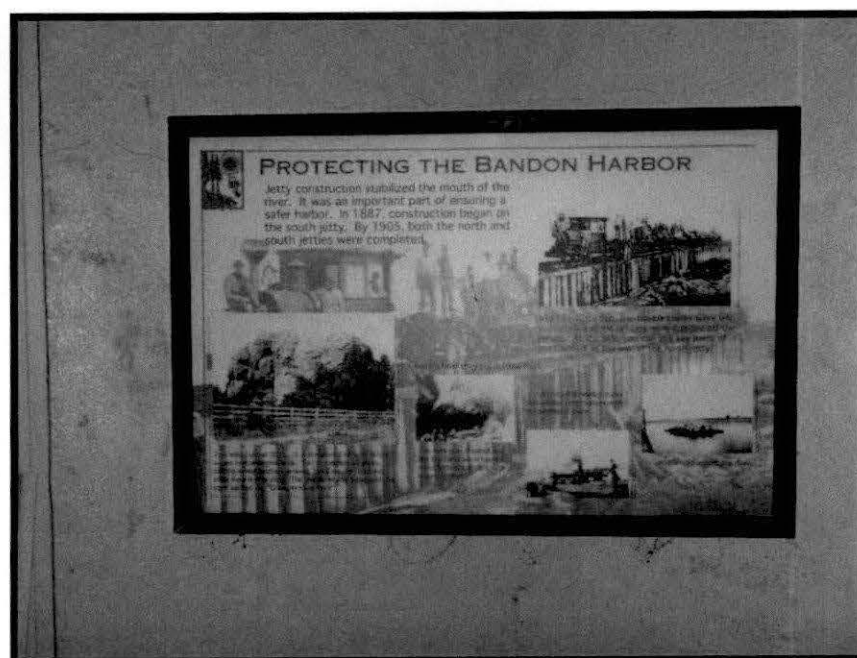


Figure A-4: Coquille River Lighthouse Interpretive Panel, "Protecting the Bandon Harbor."

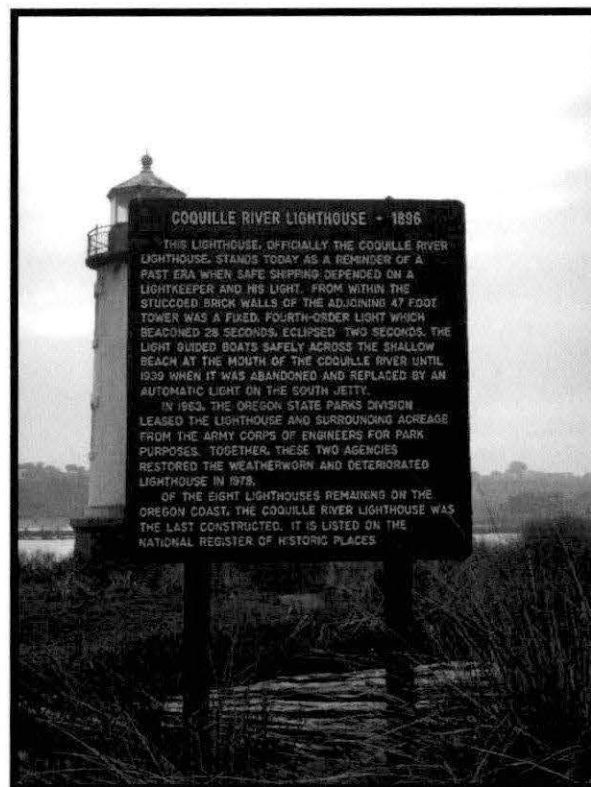


Figure A-8: Coquille River Lighthouse exterior sign, “Coquille River Lighthouse-1896”

Cape Meares Lighthouse Interpretive Panels

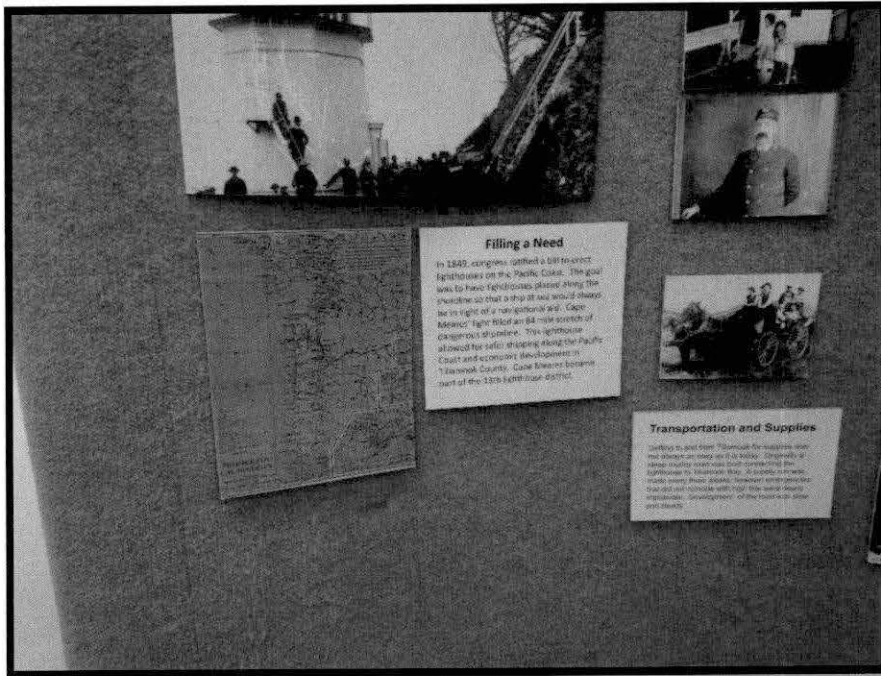


Figure A-9: Cape Meares Lighthouse Interpretive Panels, “Filling a Need,” and “Transportation and Supplies”

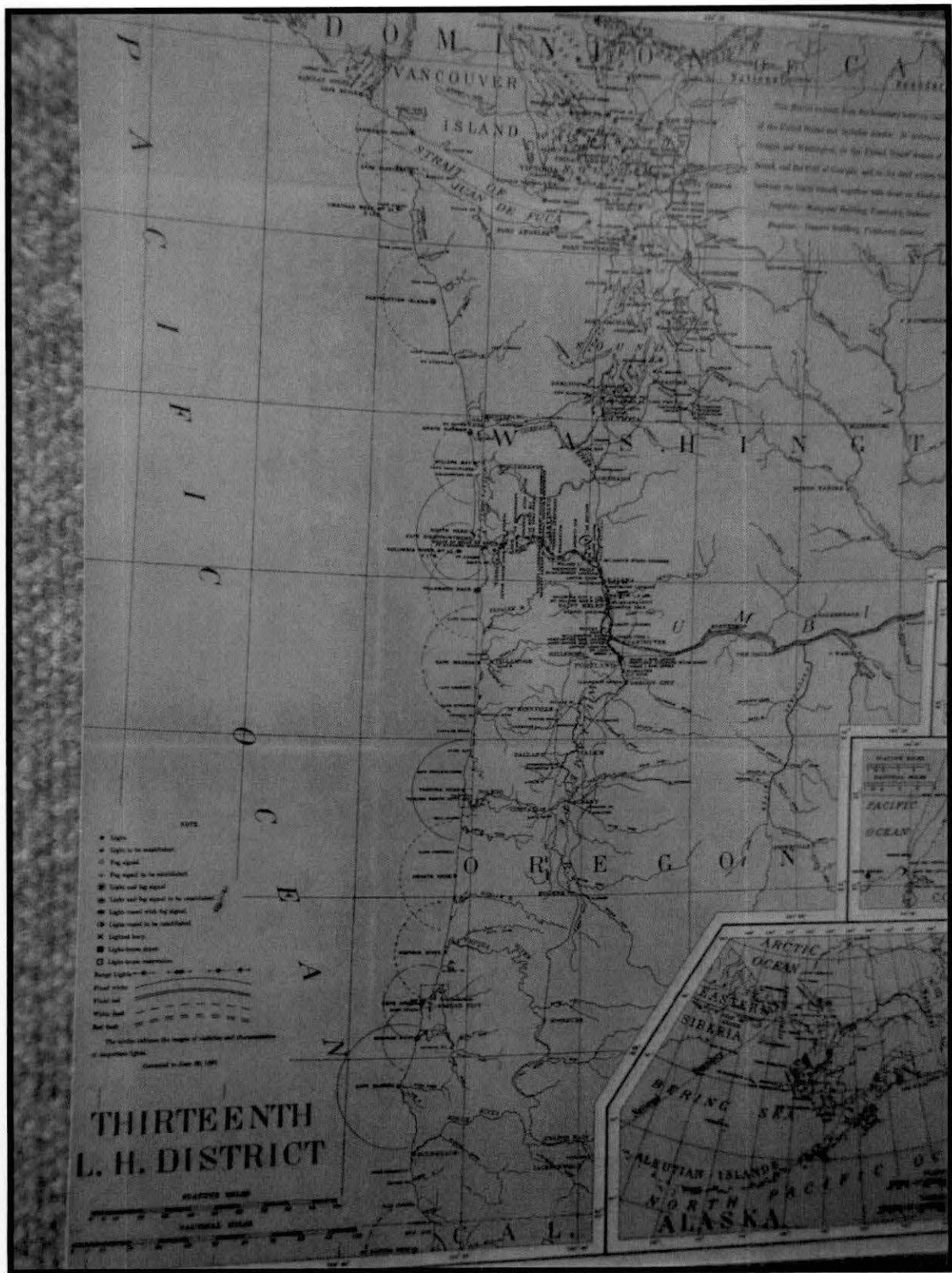


Figure A-10: Cape Meares Lighthouse Interpretive Panels, Map Showing “Dark” Spot between Yaquina Head and Tillamook Rock

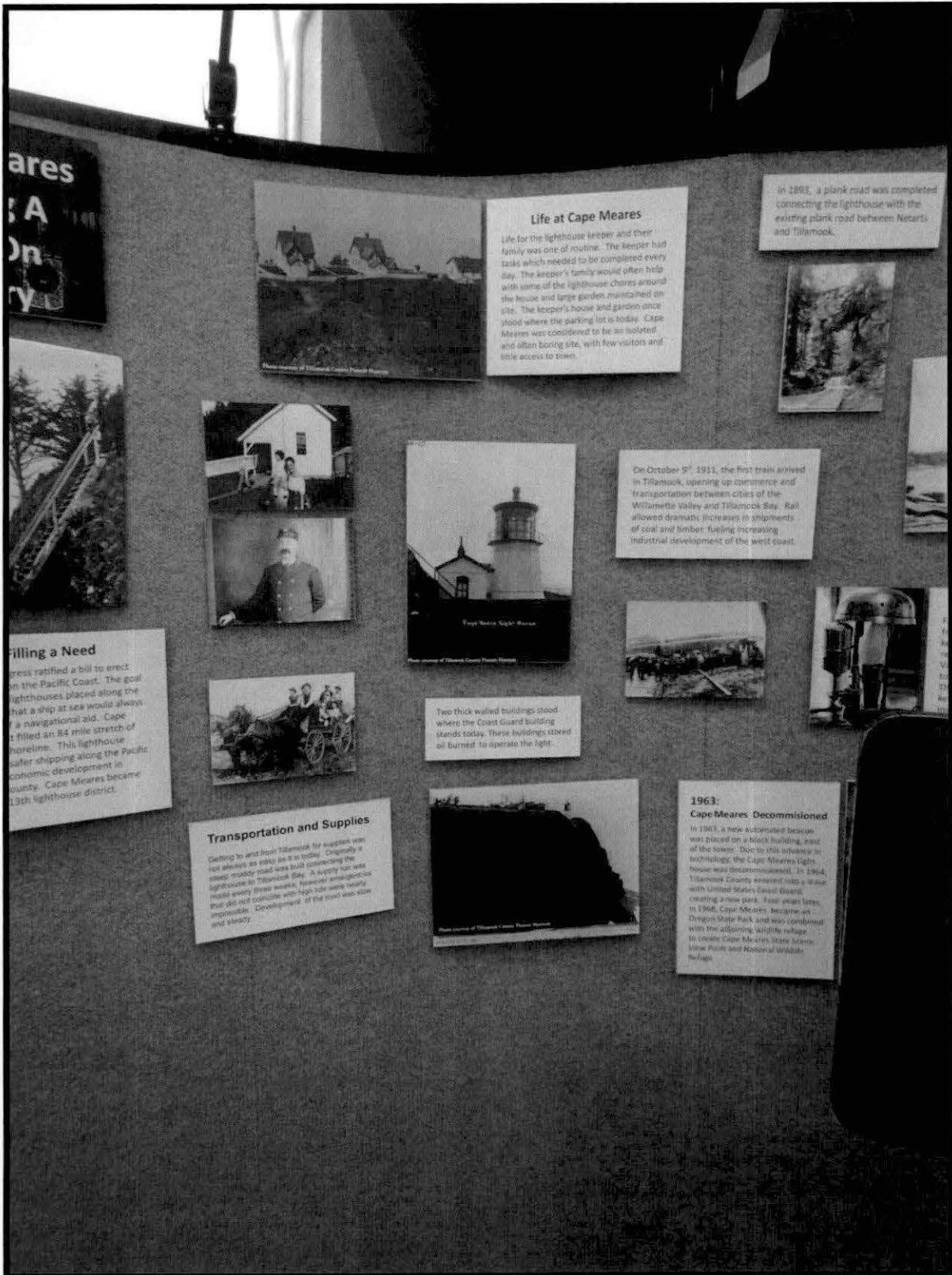


Figure A-11: Cape Meares Lighthouse Interpretive Panels, Assorted Panels; "Transportation and Supplies," "Life at Cape Meares," and "Cape Meares Decommissioned."

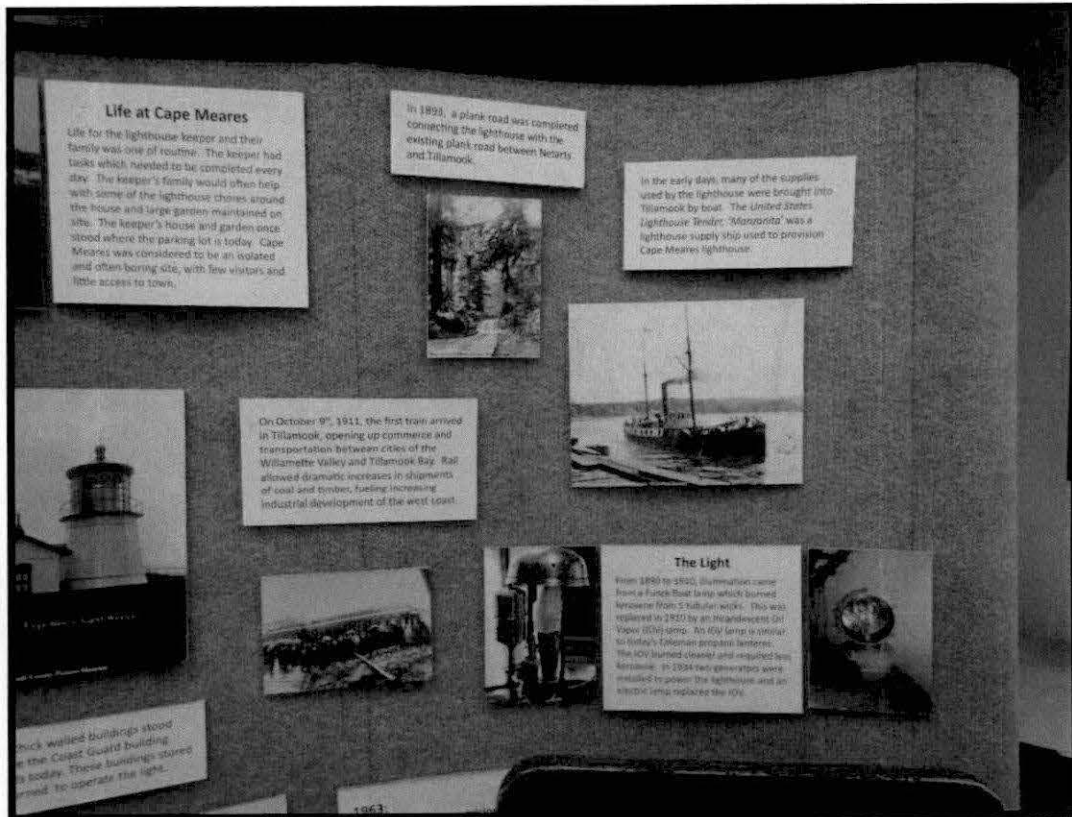


Figure A-12: Cape Meares Lighthouse Interpretive Panels, Assorted Panels, "The Light."

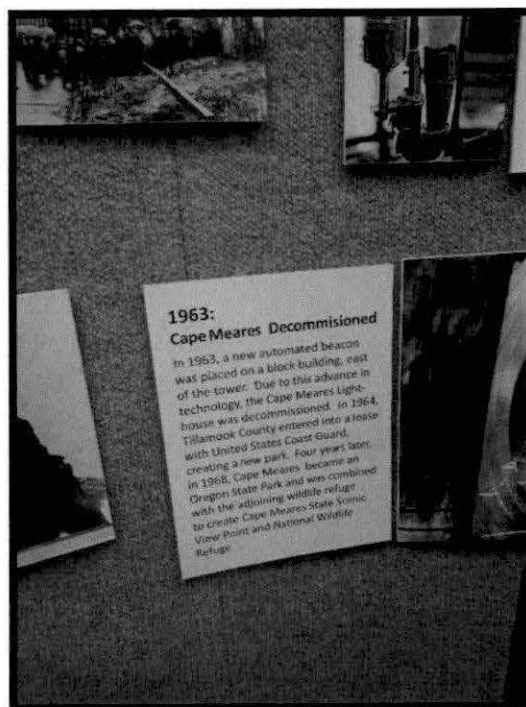


Figure A-13: Cape Meares Lighthouse Interpretive Panels, Close-up- "Cape Meares Decommissioned"

Sifting the sands of time

In the late 1980s, archaeologists working for the BLM mounted salvage excavations on Yaquina Head because erosion threatened to wash an ancient site into the sea. They discovered evidence that at least 4,000 years ago humans occupied a permanent village on the headland.

Because the beach was then 100 feet wide, the site was buried under a layer of sand. Archaeologists have unearthed thousands of artifacts, including stone tools, bone, and shell. The site is a permanent village site, not a seasonal camp.

Nearby, the BLM has excavated a large site, the remains of a permanent village site, not a seasonal camp.

Figure A-15: Yaquina Head Interpretive Center Lighthouse Interpretive Panels, "Sifting the Sands of Time."

Choosing the right headland

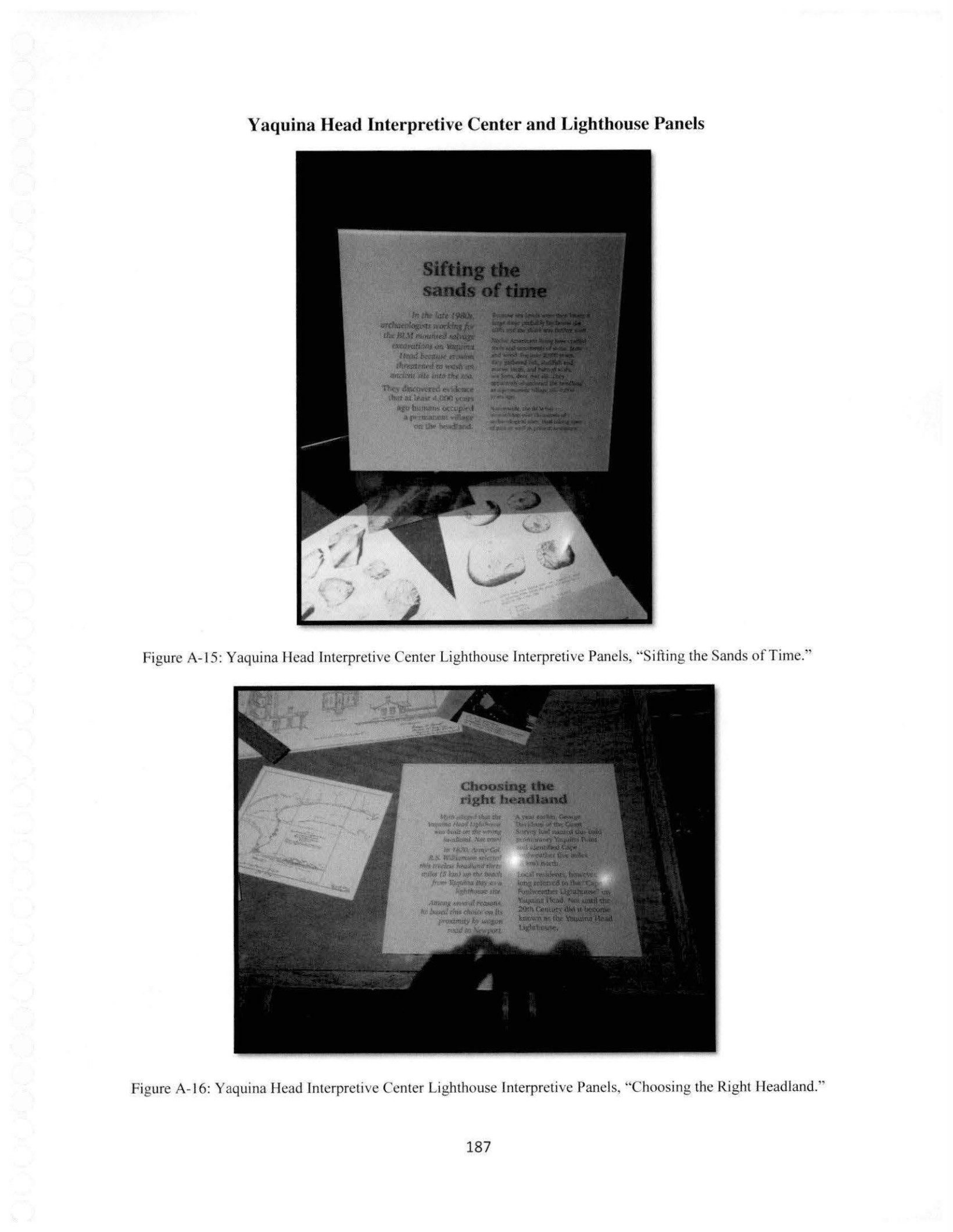
Myth alleged that the Yaquina Head lighthouse was built on the wrong headland. Not true! In 1870, Army Col. R.S. Williamson selected this rocky headland three miles (5 km) up the beach from Yaquina Bay as a lighthouse site.

Among several reasons, he based this choice on its proximity to wagon road to Newport.

A year earlier, George Davidson of the Coast Survey had named this Gold point as Yaquina Point and identified Cape Mendocino as five miles (8 km) north.

Local residents, however, long referred to the "Cap. Bonaventura Lighthouse" on Yaquina Head. Not until the 20th Century did it become known as the Yaquina Head Lighthouse.

Figure A-16: Yaquina Head Interpretive Center Lighthouse Interpretive Panels, "Choosing the Right Headland."



Sifting the sands of time

In the late 1980s, archaeologists working for the BLM mounted salvage excavations on Yaquina Head because erosion threatened to wash an ancient site into the sea. They discovered evidence that at least 4,000 years ago humans occupied a permanent village on the headland.

Because the beach was so close to the cliff, it is likely that the site was built by Native Americans living here centuries before the first settlers arrived. They gathered fish, shellfish and marine mammals, and hunted birds, deer, elk, and moose. They also grew crops such as corn, beans, and squash. They lived in houses made of tule and bark, and their burial mounds were visible from the beach.

Nearby, the BLM has established a series of archaeological sites that tell the story of life on the coast of Oregon.

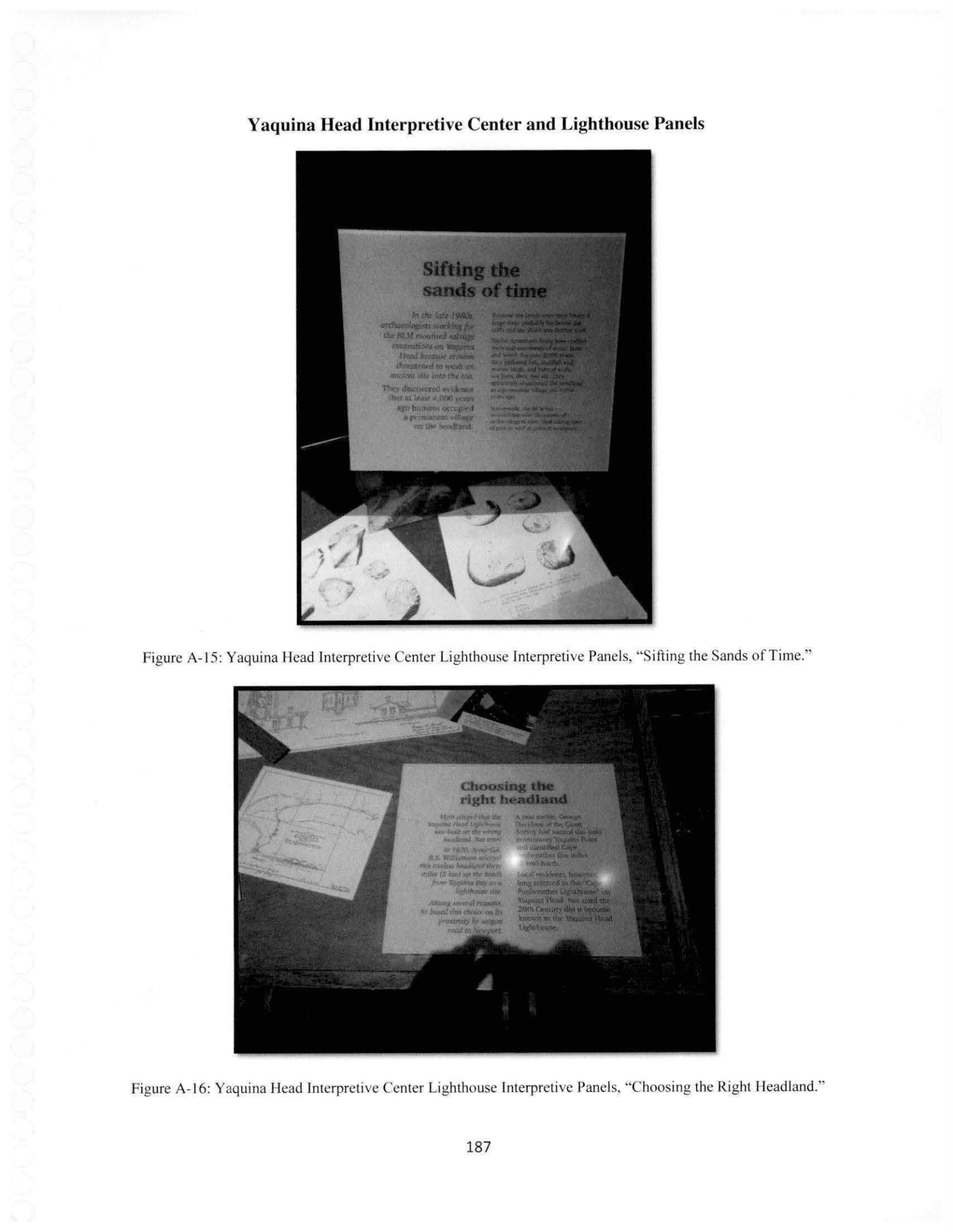
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Choosing the right headland

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Figure A-16: Yaquina Head Interpretive Center Lighthouse Interpretive Panels, "Choosing the Right Headland."



Sifting the sands of time

In the late 1980s, archaeologists working for the BLM mounted salvage excavations on Yaquina Head because erosion threatened to wash an ancient site into the sea. They discovered evidence that at least 4,000 years ago humans occupied a permanent village on the headland.

Because the beach was so close to the cliff, it is likely that the site was built by Native Americans living here centuries before the first settlers arrived. They gathered fish, shellfish and marine mammals, and hunted birds, deer, elk, and sheep. They also made tools and traded goods with other groups. That's why you can find so many artifacts on the beach today.

Nearby, the BLM has set up a trail leading to the archaeological site. That's where you can see some of the most interesting things you'll ever see.

The photograph shows an interpretive panel with two columns of text. To the left of the panel, several archaeological artifacts, including what appear to be stone tools or beads, are displayed on a surface.

Figure A-15: Yaquina Head Interpretive Center Lighthouse Interpretive Panels, “Sifting the Sands of Time.”

Choosing the right headland

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A year earlier, George Davidson of the Coast Survey had named this Gold point as Yaquina Point and identified Cape Mendocino five miles (8 km) north. Local residents, however, long referred to the "Cap. Bonaventura Lighthouse" on Yaquina Head. Not until the 20th Century did it become known as the Yaquina Head Lighthouse.

The photograph shows an interpretive panel with two columns of text. To the left of the panel, there is a map showing the coastline of Yaquina Bay and the location of the lighthouse.

Figure A-16: Yaquina Head Interpretive Center Lighthouse Interpretive Panels, “Choosing the Right Headland.”



Figure A-17: Yaquina Head Interpretive Center Lighthouse Interpretive Center, Replica Yaquina Head Lens.

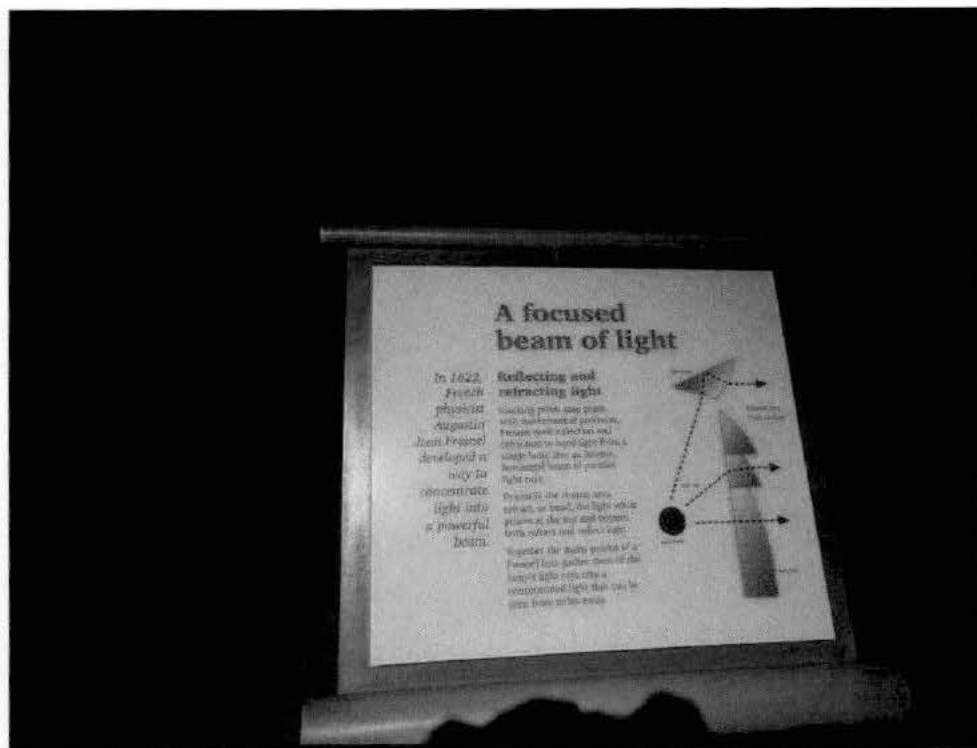


Figure A-18: Yaquina Head Interpretive Center Lighthouse Interpretive Panels, "A Focused Beam of Light."

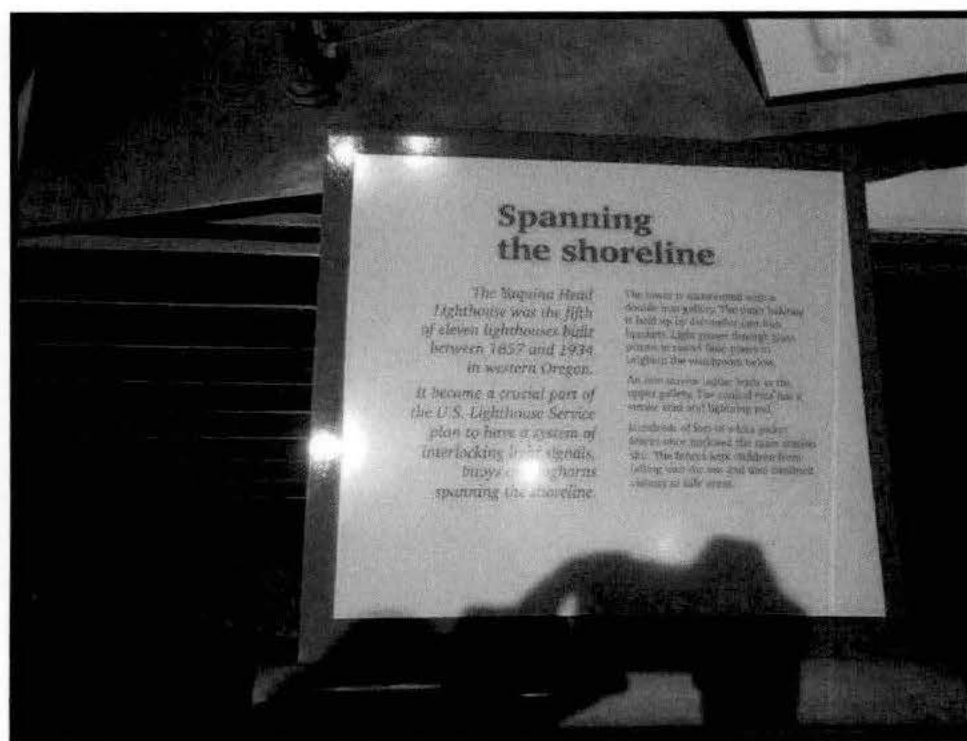


Figure A-19: Yaquina Head Interpretive Center Lighthouse Interpretive Panels, "Spanning the Shoreline."

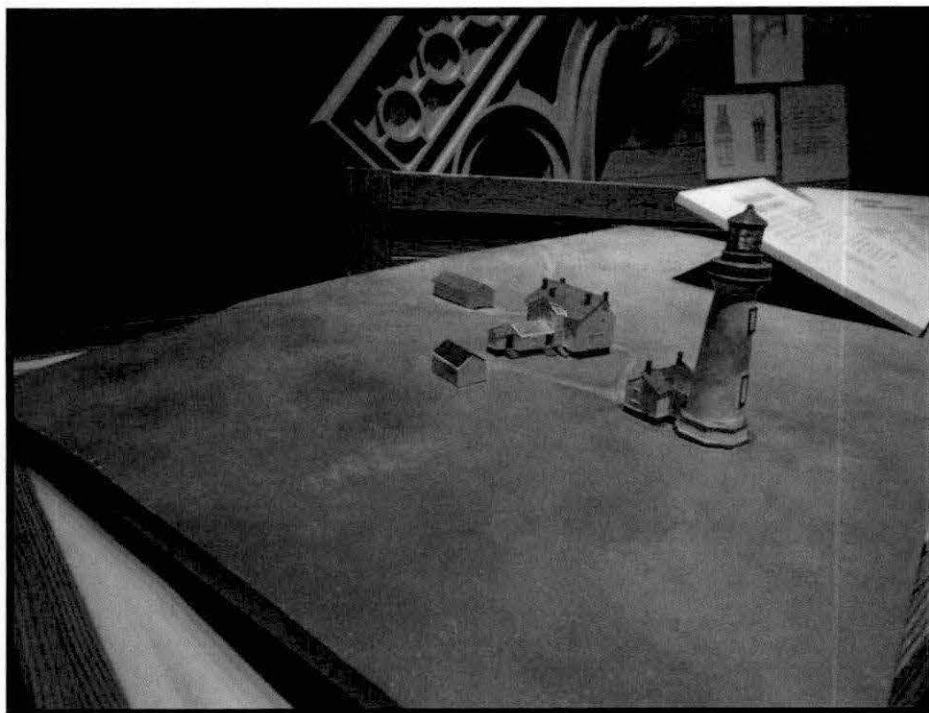


Figure A-20: Yaquina Head Interpretive Center Lighthouse Interpretive Panels, Three-Dimensional Light Station Model

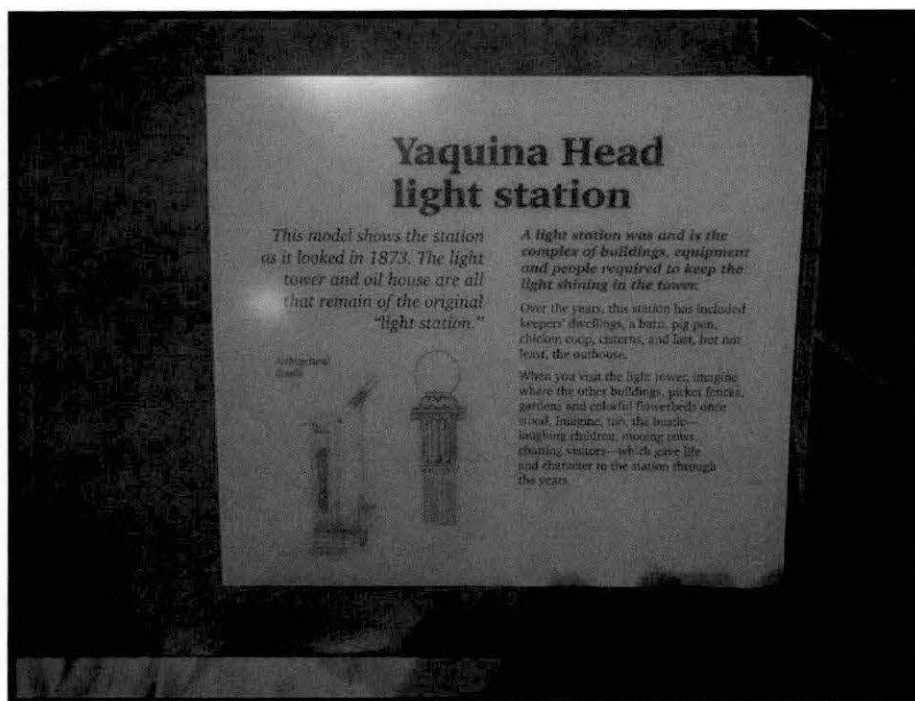


Figure A-21: Yaquina Head Interpretive Center Lighthouse Interpretive Panels, "Yaquina Head Light Station."

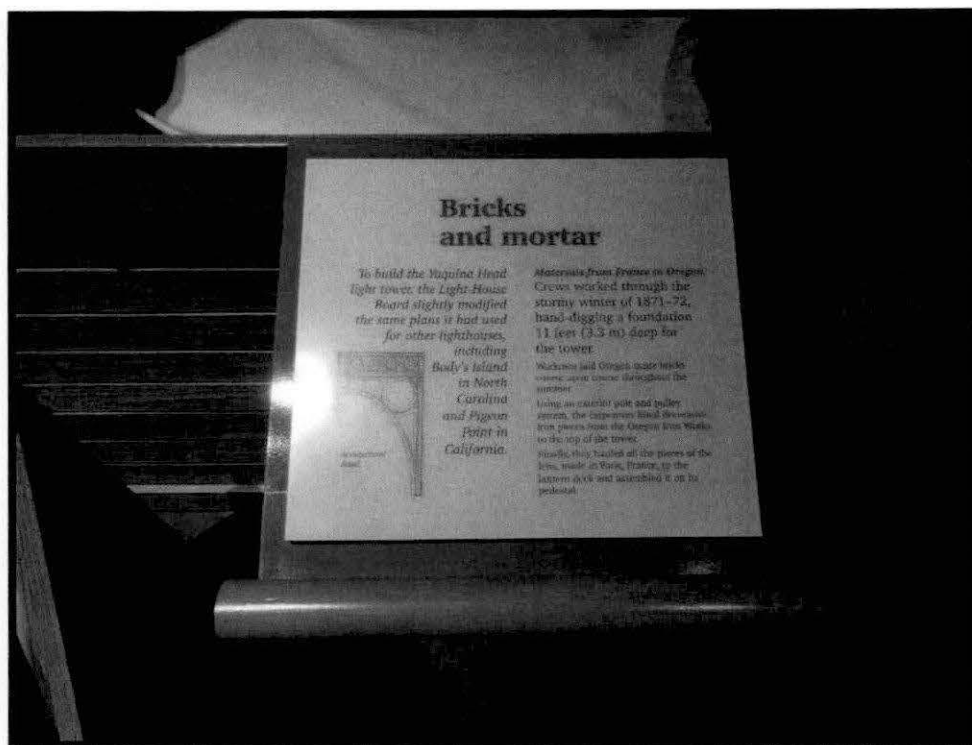


Figure A-22: Yaquina Head Interpretive Center Lighthouse Interpretive Panels, "Bricks and Mortar."

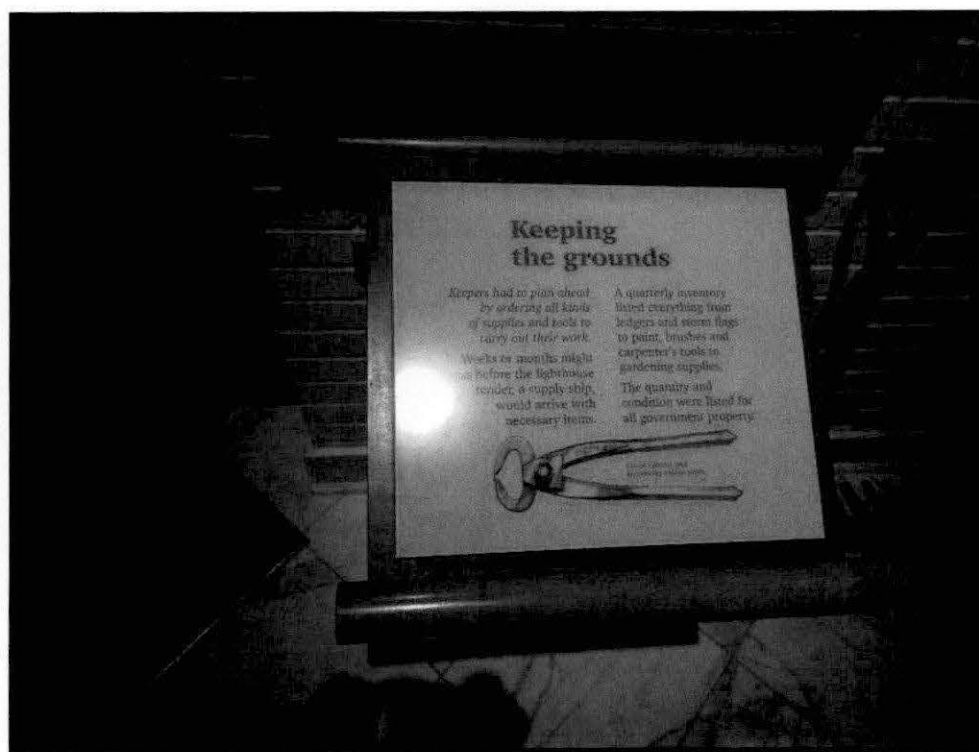


Figure A-23: Yaquina Head Interpretive Center Lighthouse Interpretive Panels, "Keeping the Grounds."



Figure A-24: Yaquina Head Interpretive Center Lighthouse Interpretive Panels, "Automated Service."

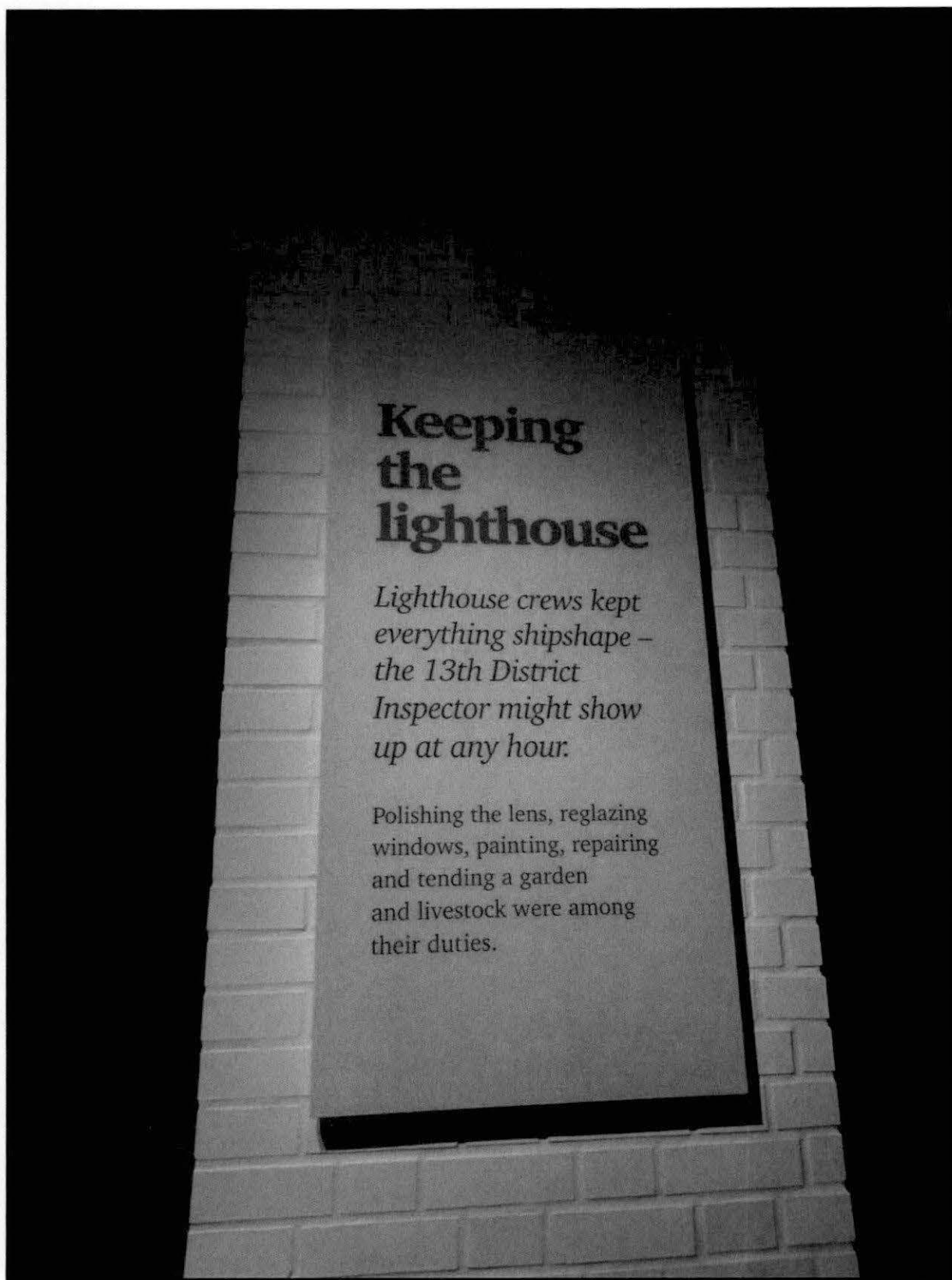


Figure A-25: Yaquina Head Interpretive Center Lighthouse Interpretive Panels, "Keeping the Lighthouse."



Figure A-26: Yaquina Head Interpretive Center Lighthouse Interpretive Panels, “Bending Light” Prism Activity Station



Figure A-27: Yaquina Head Interpretive Center Lighthouse Interpretive Panels, "Keepers' Duties."



Figure A-28: Yaquina Head Interpretive Center Lighthouse Interpretive Panels, "Lighthouse Keeping During Wartime."

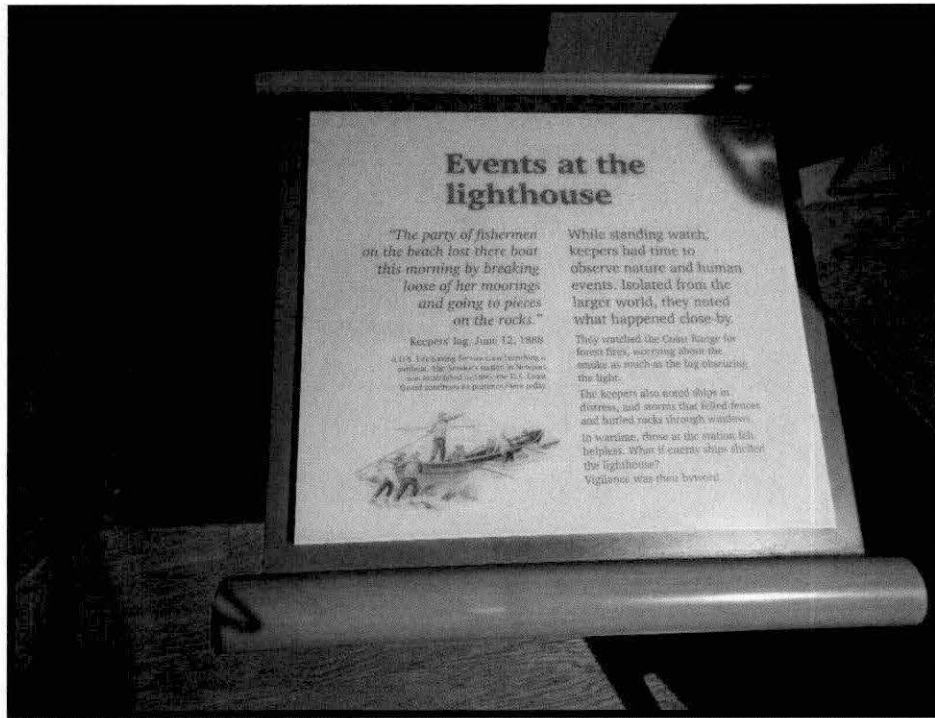


Figure A-29: Yaquina Head Interpretive Center Lighthouse Interpretive Panels, "Events at the Lighthouse."

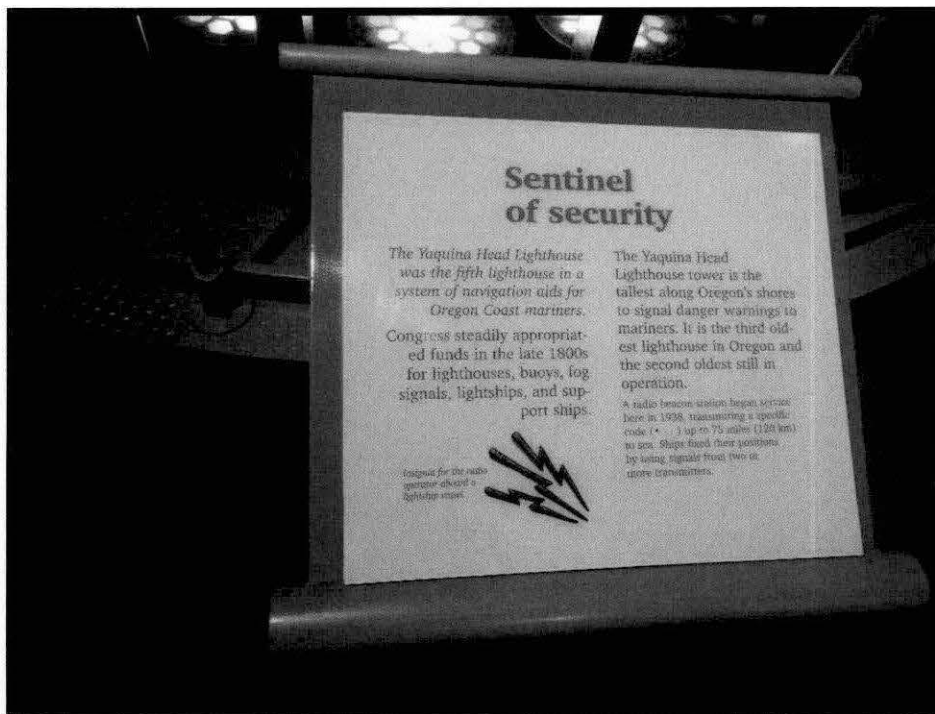


Figure A-30: Yaquina Head Interpretive Center Lighthouse Interpretive Panels, "Sentinel of Security."



Figure A-31: Yaquina Head Interpretive Center Lighthouse Interpretive Panels, Model Lighthouse Flashing the Station's Signature



Figure A-32: Yaquina Head Interpretive Center Lighthouse Interpretive Panels, “Dress-up” Station in Lobby

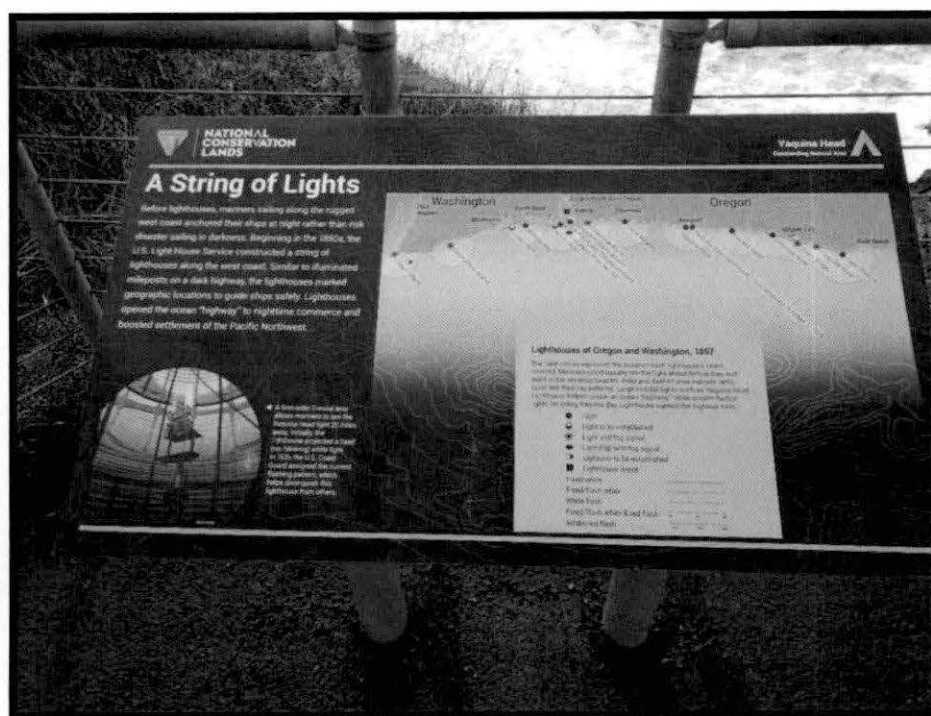


Figure A-33: Yaquina Head Lighthouse Interpretive Panels, “A String of Lights.”

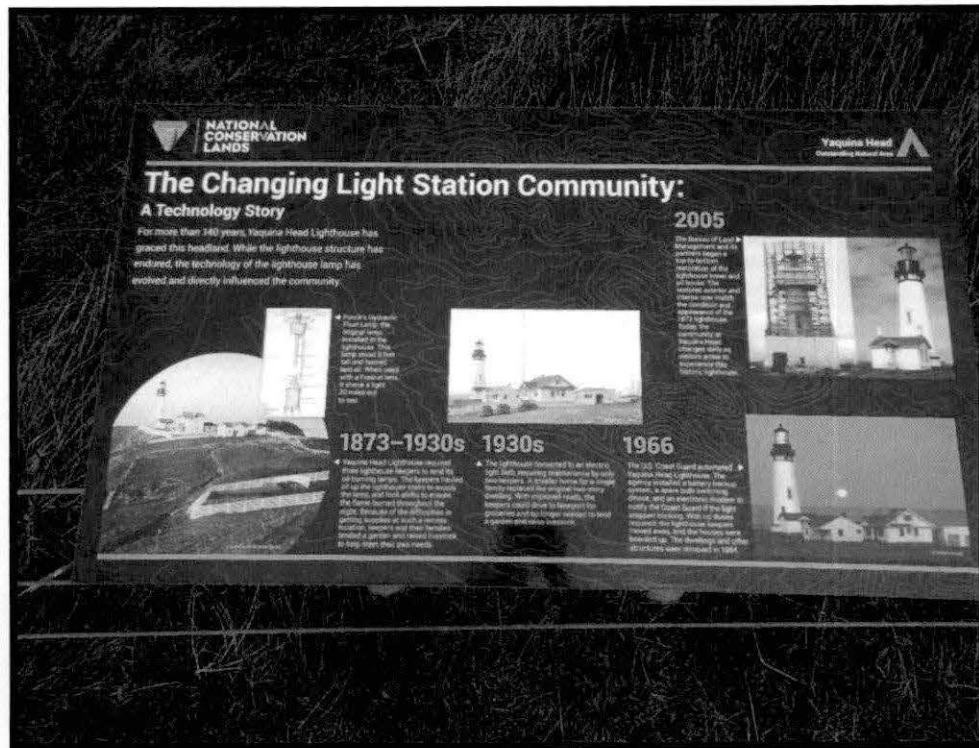


Figure A-34: Yaquina Head Lighthouse Interpretive Panels, "The Changing Light Station Community."

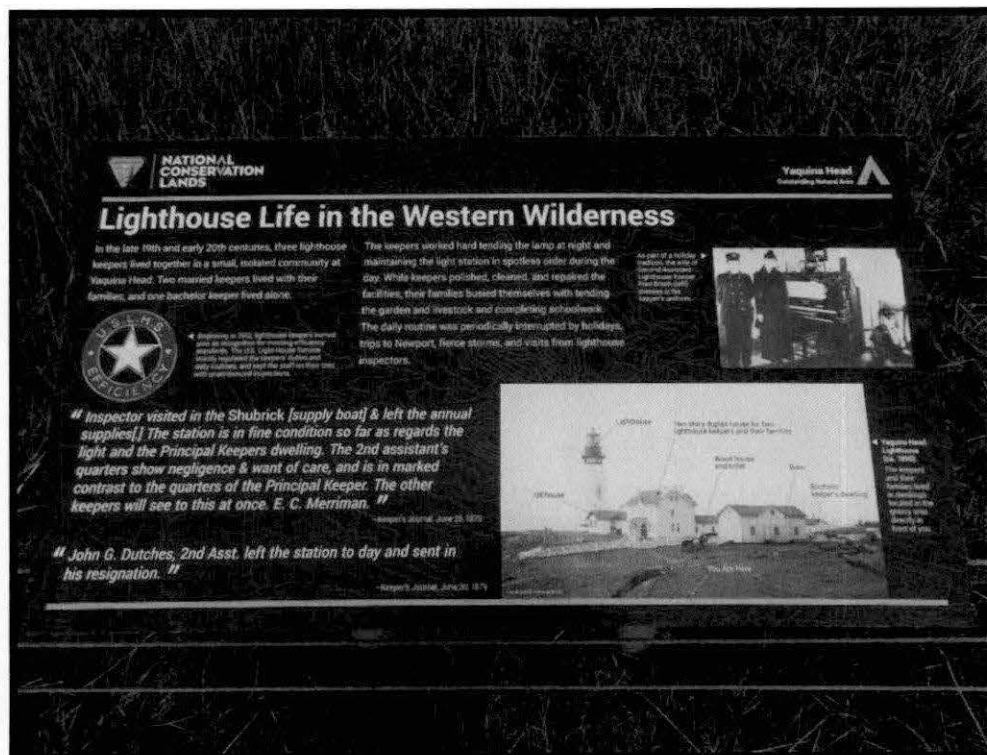


Figure A-35: Yaquina Head Lighthouse Interpretive Panels, "Lighthouse Life in the Western Wilderness."

Appendix B: Automation & Decommission Dates of Oregon's Lighthouses

Lighthouse	Year Built	Year Automated	Year Decommissioned	Reason for Decommissioning
Desdemona Sands	1902	1934	1964*	Replaced by lighted buoy
Point Adams	1875	N/A	1899**	Unnecessary as of 1890s
Tillamook Rock	1881	N/A	1957	Expensive to maintain and shipping lanes changed
Cape Meares	1890	N/A	1963	Replaced by automated beacon onsite
Yaquina Head	1873	1966	Still Active (USCG)	N/A
Yaquina Bay	1871	N/A	1874 (Private Aid-OPRD-Relit 1996)	Not needed after the construction of Yaquina Head (1873)
Heceta Head	1894	1963	Still Active (Private Aid-OPRD)	N/A
Umpqua River (Two Towers)	1857/1891	1960	2009 (Private Aid-Douglas County)	No longer necessary for navigation
Cape Arago (Three towers)	1866/1908/1934	1966	2005	No longer necessary for navigation
Coquille River	1896	N/A	1939	Replaced by automated beacon on south jetty
Cape Blanco	1871	1980	Still Active (USCG)	N/A
Columbia River Lightships	1892	N/A	1979	Replaced by navigation buoy

*Desdemona Sands was deactivated and reactivated intermittently between 1934 and 1964, and the structure was demolished in 1965²⁹⁸

**Point Adams lighthouse was demolished in 1912

²⁹⁸ Gibbs, *Seacoast*, 221.

Appendix C: Unique Features of Extant Oregon Lighthouses

Cape Blanco	
In Service	1870-Present
Economic Era	Railroad and Industrial Growth Period (1866-1883)
Height (Tower/Focal Height)	59 feet/256 feet
Primary Materials	Brick
Purpose/Function	Coastal light: Navigation and warned of off-shore hazards
Lens	1st order Fresnel -Replaced by 2nd order (1936)
Flash Signature	(1870-1911) Fixed White (1912-1936) 2s off, 3s on, 2s off, 13s on (1936-Present) White Flash every 20s
Flash Mechanism	(1870-1911)-Fixed (1912-1936) Hood eclipsed via clockwork, 2s off, 3s on, 2s off, 13s on (1936-Present)- Electric rotating
Fog Signal	None
Extant Station Buildings	Tower and attached workroom
Number of Keepers	Head, Assistant, and Second Assistant + Families

Coquille River	
In Service	1896-1939
Economic Era	Progressive Era (1884-1913)
Height (Tower/Focal Height)	40 feet/47 feet
Primary Materials	Brick (Stucco Parged)-Stone Foundation
Purpose/Function	Harbor/Coastal Light: Guided ships over the Coquille River Bar
Lens	4th Order Fresnel
Flash Signature	White-28s on, 2s off
Flash Mechanism	Hood eclipsed via clockwork
Fog Signal	Daboll Trumpet (Steam)
Extant Station Buildings	Tower and attached fog-signal building (water tower/oil house foundations)
Number of Keepers	Head and Assistant + Families

Cape Arago	
In Service	1866 (First Tower) 1908 (Second Tower) 1934-2005 (Extant Tower)
Economic Era	First Tower -Railroad and Industrial Growth Period (1866-1883) Second Tower - Progressive Era (1884-1913) Third Tower -Motor Age (1914-1941)
Height (Tower/Focal Height)	Third Tower -43 feet/100 feet
Primary Materials	First Tower -Iron Skeleton Frame Second Tower -Wood-frame Third Tower -Reinforced Concrete
Purpose/Function	Coastal Light: Navigation and warned of off-shore hazards
Lens	4th Order Fresnel-Replaced with Second Tower (1908)
Flash Signature	First Tower -White, flash every 2 minutes Second and Third Towers: 3 white flashes in 20s, 12s off
Flash Mechanism	Third Tower -Rotating-Electric
Fog Signal	Daboll Trumpet; replaced with compressed air siren (1908); Electric impulse signal (1960s)
Extant Station Buildings	Tower and attached fog-signal building
Number of Keepers	Head and Assistant + Families

Umpqua River	
In Service	First Tower -1857-1861 Second Tower -1894-Present
Economic Era	First Tower -(Not Defined) Second Tower -Progressive Era (1884-1913)
Height (Tower/Focal Height)	65 feet/165 feet
Primary Materials	Brick (Parged in Stucco)
Purpose/Function	Coast/River Light: Navigation and guided vessels into the Umpua River
Lens	1st Order Fresnel-Multiple red panels
Flash Signature	2 white flashes and one red flash in 15s intervals
Flash Mechanism	Clockwork rotating
Fog Signal	None
Extant Station Buildings	Tower, attached workroom, Coast Guard headquarters and garage buildings c.1939
Number of Keepers	Head, First Assistant, and Second Assistant + Families

Heceta Head	
In Service	1894-Present
Economic Era	Progressive Era (1884-1913)
Height (Tower/Focal Height)	56 feet/205 feet
Primary Materials	Brick (Parged in Stucco)
Purpose/Function	Coastal Light: Navigation and to fill an unlit "gap" between Umpqua River and Yaquina Head (Some say also to aid navigation of the Siuslaw River)
Lens	1st Order Fresnel (Made in England by the Chance Brothers)
Flash Signature	(1894-1933)-White flash once per minute (1934-Present)- White flash every 10s
Flash Mechanism	Clockwork Rotating
Fog Signal	None
Extant Station Buildings	Tower, Assistant Keeper's dwelling and 2 Oil Houses
Number of Keepers	Head, First Assistant, and Second Assistant + Families

Yaquina Bay	
In Service	1871-1874
Economic Era	Railroad and Industrial Growth Period (1866-1883)
Height (Tower/Focal Height)	51 feet/164 feet
Primary Materials	Wood-frame (Combined tower/dwelling)
Purpose/Function	Harbor light: Guided vessels into Yaquina Bay
Lens	5th Order Fresnel
Flash Signature	*
Flash Mechanism	*
Fog Signal	None
Extant Station Buildings	Lighthouse and Cistern
Number of Keepers	Head Keeper + Family

Yaquina Head	
In Service	1873-Present
Economic Era	Railroad and Industrial Growth Period (1866-1883)
Height (Tower/Focal Height)	93 feet/162 feet
Primary Materials	Brick
Purpose/Function	Coastal Light: Navigation and marked north entrance to Yaquina Bay
Lens	1st Order Fresnel
Flash Signature	(1873-1938): Fixed White (1939-Present): 2s on, 2s off, 2s on, 14s off.
Flash Mechanism	Electric flash (non-rotating)
Fog Signal	None
Extant Station Buildings	Tower, attached workroom and cistern
Number of Keepers	Head, First Assistant, and Second Assistant + Families

Cape Meares	
In Service	1890-1963
Economic Era	Progressive Era (1884-1913)
Height (Tower/Focal Height)	38 feet/217 feet
Primary Materials	Brick sheathed in iron plates
Purpose/Function	Coastal Light: Navigation and to fill unlit gap between Yaquina Head and Tillamook Rock; also marked entrances to Tillamook and Netarts bays
Lens	1st Order Fresnel- Multiple red panels
Flash Signature	Fixed white followed by red flash once per minute
Flash Mechanism	Clockwork Rotation
Fog Signal	None
Extant Station Buildings	Tower only (Reconstructed workroom)
Number of Keepers	Head, First Assistant, and Second Assistant + Families

Tillamook Rock	
In Service	1881-1957
Economic Era	Railroad and Industrial Growth Period (1866-1883)
Height (Tower/Focal Height)	62 feet/135 feet
Primary Materials	Dressed stone, brick, and reinforced concrete (replacement material)
Purpose/Function	Coastal Light: Navigation, warned of offshore hazard, and directed vessels towards the Columbia River
Lens	1st Order Fresnel (replaced with modern rotating beacon after destroyed in 1934 storm)
Flash Signature	White flash every 5s
Flash Mechanism	Clockwork Rotation
Fog Signal	Multiple steam diaphragm fog-signals
Extant Station Buildings	Lighthouse and storage building
Number of Keepers	Head, First, Second, Third, and Fourth Assistants; no families

Appendix D: Oregon Lighthouse Week Proclamation, 1995

OFFICE OF THE GOVERNOR STATE OF OREGON



PROCLAMATION

WHEREAS: The Pacific Northwest Coast of the United States was noted by early explorers as a strategic location for developing international trade and defense; and

WHEREAS: That maritime trade along the Oregon coast and inland waterways were seen as critical to the development of coastal shipping and commerce, several promontories and headlands were identified as prime locations for navigational aids, and later became the sites of many of Oregon's first lighthouses; and

WHEREAS: Oregon's lighthouses, stations, and Lightship have assumed significant roles in the growth and development of the state's critical maritime transportation network and are the most historically significant element of an extensive system of navigation aids along our coast today; and

WHEREAS: The Oregon Parks and Recreation Department, US Bureau of Land Management, US Coast Guard, US Forest Service, Douglas County Parks Department, Oregon Chapter of the United States Lighthouse Society, and lighthouse "Friends" are stewards of these significant historic resources, all of which are listed on the National Register of Historic Places.

WHEREAS: Many of Oregon's Lighthouses have provided over 100 years of extremely valuable service to the development of this state by warning mariners of specific hazards off shore as well as providing a key navigation tool into the state's rivers and harbors;

NOW,

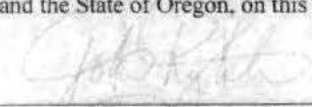
THEREFORE, I, John A. Kitzhaber, Governor of the State of Oregon, do hereby proclaim the second week of August as annual

OREGON LIGHTHOUSE WEEK

to honor over 100 years of history of this valuable historic resource in Oregon and to encourage all citizens to join me in this annual week-long celebration.



IN WITNESS WHEREOF, I hereunto set my hand and cause the great seal of the State of Oregon to be affixed. Done at the capitol in the City of Salem, and the State of Oregon, on this day, June 20, 1995.


John A. Kitzhaber, Governor


Phil Keisling, Secretary of State