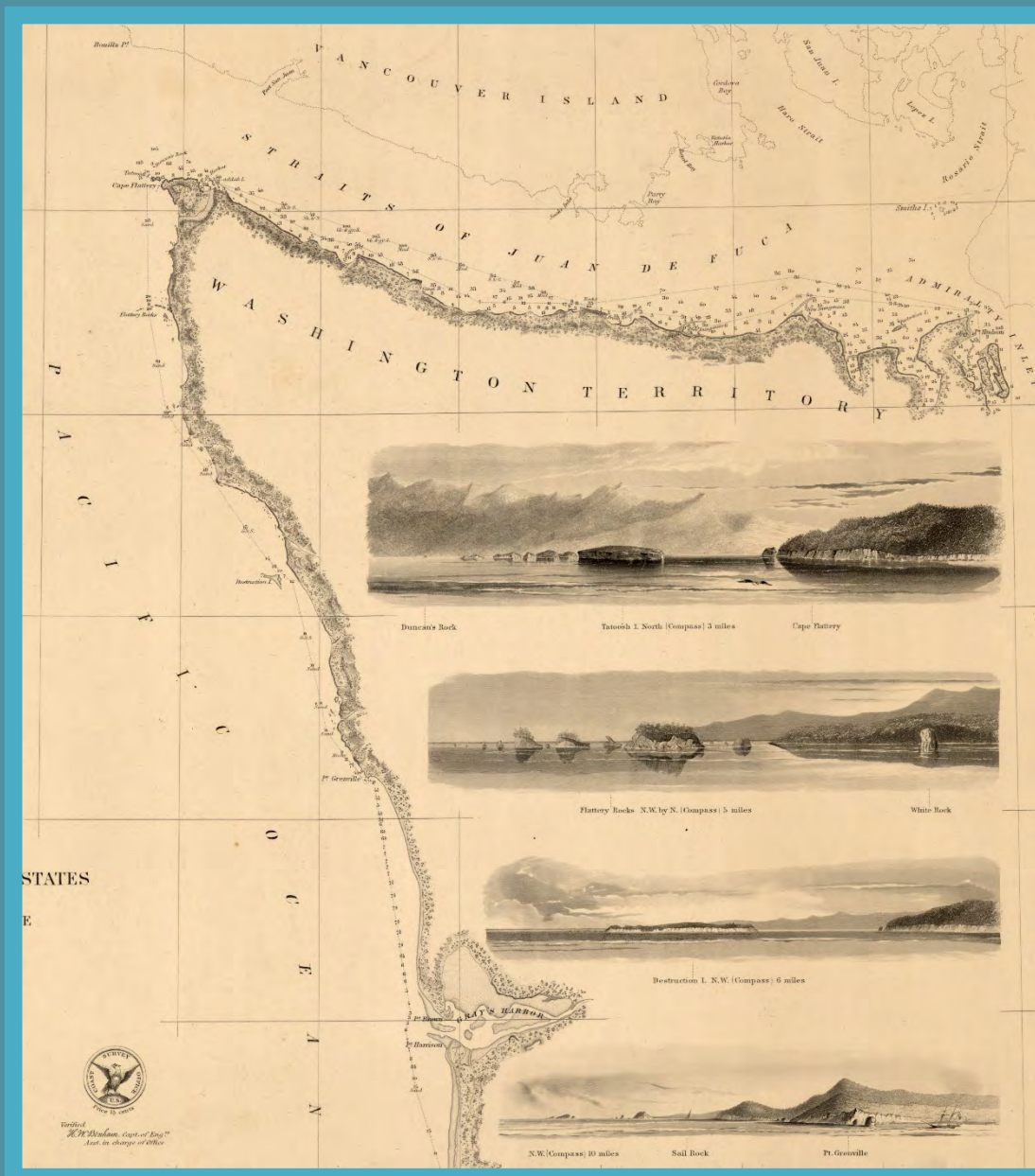


# Maritime Heritage Resources Management Guidance for Olympic Coast National Marine Sanctuary: Compliance to National Historic Preservation Act




April 2018

Cover Photo: Excerpt from the 1853 U.S. Coast Survey reconnaissance of the western coast of the United States from Gray's Harbor to the entrance of Admiralty Inlet. Downloaded from <https://historicalcharts.noaa.gov/historical/preview/image/AR51-00-1853> on December 29, 2016.

## Table of Contents

Introduction .....	5
Relationship to OCNMS Management Plan .....	5
Scope of Maritime Heritage Resource Management Guidance .....	5
Plans for Section 106 Programmatic Agreement .....	6
Background Research .....	8
Definitions.....	8
Historical Context .....	9
Treaties, Laws, Regulations, and Policies related to Maritime Heritage Resource Management.....	9
Olympic Coast National Marine Sanctuary Maritime Heritage Spatial Data .....	9
Western Olympic Peninsula Maritime Archaeological Surveys.....	9
Maritime Heritage Action Plan .....	11
Management Plan Review Process .....	11
Annual Planning & Implementation .....	12
Sanctuary Historic Property Inventory (Section 110 NHPA).....	13
OCNMS Historic Shipwreck Database.....	13
ONMS Survey and Identification of Submerged Potentially Historic Shipwrecks .....	14
ONMS Maritime Heritage Program Approach on Maritime Cultural Landscapes.....	14
National Register Properties .....	14
Nominations to the National Register.....	15
OCNMS Management Activities (Sec 106 NHPA) .....	17
Activities Reviewed in 2011 Management Plan .....	17
Multibeam Seafloor Mapping of Oceanographic Mooring Sites .....	18
OCNMS Permitting Program.....	19
Bibliography .....	22
Appendix A: Definitions.....	23
Appendix B: Historical Context.....	26
Appendix C: Treaties, Laws, Regulations, and Policies related to Maritime Heritage Resource Management .....	37
Appendix D: Olympic Coast National Marine Sanctuary Maritime Heritage Spatial Data.....	41
Appendix E: Western Olympic Peninsula Maritime Archaeological Surveys .....	46
A. Cape Flattery Remote Sensing Survey.....	48
B. Cape Flattery Archaeological Diver Reconnaissance Survey .....	54
C. Bark <i>Austria</i> /Cape Alava Survey .....	58
D. Remote Sensing Survey 2000, Destruction Island and Vicinity .....	61
E. Remote Sensing Survey 2001, Vicinity of La Push, Washington .....	68



Bibliography.....	77
-------------------	----

## Introduction

The sea and landscape of Washington's Pacific coast have witnessed and, in cases, affected thousands of years of humanity. The rainforests and adjacent ocean of the western Olympic Peninsula have sustained and hosted some of the earliest human populations in North America, some whose descendants remain on the coast today. The shorelines witnessed a parade of western traders and ships, some of whom either lost their lives or found rescue on its shores. In addition, the peninsula's lands sustained communities populated by people from Europe and the Eastern United States as the ancient lands were drawn into the burgeoning United States.

The physical and cultural landscapes that include the natural and human resources of the peninsula are managed by several governments and agencies, including Olympic Coast National Marine Sanctuary (OCNMS or sanctuary), Olympic National Park, state of Washington, the Makah, Hoh, and Quileute Tribes, and the Quinault Indian Nation (Washington Coast treaty tribes). All are stewards of the multifaceted heritage that composes the coastal maritime landscape. NOAA's Office of National Marine Sanctuaries (ONMS), by cooperative policies and by federal law, is bound to protect maritime heritage, including but not limited to archaeological resources, and to promote and interpret them through education and outreach.

The primary purpose of the Maritime Heritage Resources Management Guidance for Olympic Coast National Marine Sanctuary (MHRMG) is to ensure the sanctuary's compliance with the National Historic Preservation Act (NHPA). The MHRMG details how OCNMS complies with its federally mandated responsibilities regarding maritime heritage resource management by collaborating with partner agencies and tribes. Whereas the primary focus of the MHRMG is our responsibility under the NHPA, other aspects of OCNMS' maritime heritage are also discussed. In addition, OCNMS has a responsibility to enhance community and national understanding of the unique and rich cultures that give this area its special character.

## Relationship to OCNMS Management Plan

OCNMS' original management plan was written at the time of sanctuary designation in 1994 (NOAA 1993). A sanctuary management plan is a site-specific planning and management tool that describes the goals, objectives, and activities for a sanctuary, and guides future activities. NOAA's Office of National Marine Sanctuaries (ONMS) is required by the National Marine Sanctuaries Act (NMSA) to review and revise sanctuary management plans at periodic intervals. Between 2008 and 2011, ONMS worked closely with the OCNMS Advisory Council (AC), the Olympic Coast Intergovernmental Policy Council (IPC), and the public to review and revise the 1994 management plan. The MHRMG augments, but does not replace, the current sanctuary management plan, Olympic Coast National Marine Sanctuary Final Management Plan, and Environmental Assessment (FMP/EA) (NOAA 2011).

## Scope of Maritime Heritage Resource Management Guidance

National Oceanic and Atmospheric Administration (NOAA) is legally responsible for the management of maritime heritage resources within sanctuary boundaries. Congress directs NOAA, through the National Marine Sanctuaries Act (NMSA) to, "...designate and manage areas of the marine environment with special national significance due to their conservation, recreational, ecological, historical, scientific, cultural, archaeological, educational or esthetic qualities as National Marine Sanctuaries" (NMSA, 16 U.S.C. § 1431 et seq.). In addition to the NMSA, the law most relevant to sanctuary maritime heritage resource management is the National Historic Preservation Act (NHPA), which directs all federal agencies to develop programs to protect historical and archaeological resources. Section 106 of the NHPA requires

agencies to consider the potential impacts of their actions, which includes the review of permit applications for projects that may allow the disturbance of the seabed where archaeological remains may lie.<sup>1</sup> Section 110 requires agencies to actively search for archaeological resources and to assess them for their significance and eligibility for inclusion in the National Register of Historic Places.<sup>2</sup>

The primary purpose of this MHRMG is to help bring the sanctuary into compliance with sections 106 and 110 of the NHPA. While the NMSA also establishes a policy “to enhance public awareness, understanding, appreciation . . . of historical, cultural, and archeological resources,” educational programming related to maritime heritage and cultural resources is outside the scope of this plan. That said, the planning for important education and outreach programs would directly benefit from this document.

The ONMS Maritime Heritage Program (MHP) has adopted a “Maritime Cultural Landscape Approach” to the documentation, interpretation, and understanding of the regions of the national marine sanctuaries. This approach includes intangible factors and recognizes the importance of the broader view of understanding our heritage. The landscape approach is discussed in more detail later in the document. Using this approach, we analyze resources outside our jurisdiction (Figure 1). While this is critical in educating the public, documenting the importance of these resources should not be viewed as the sanctuary making any claims on the management of those resources. For the purpose of the scope of this MHRMG, it is important that we clearly state that the plan only applies to resources within the boundaries of the sanctuary.

### Scope

The primary scope of this MHRMG is OCNMS’ compliance under the NHPA and its application to resources that fall under its jurisdiction. The application of a Maritime Cultural Landscape Approach necessitates a broader consideration of maritime heritage resources, which may not fall under this MHRMG.

## Plans for Section 106 Programmatic Agreement

The need to create a MHRMG came out of discussions between the ONMS Maritime Heritage Program (MHP), OCNMS, and Washington State Department of Archeology and Historic Preservation (DAHP). In commenting on the draft sanctuary management plan, DAHP recommended that the FMP/EA “commit to a Programmatic Agreement (PA) to address Section 106 of the National Historic Preservation Act compliance” (DAHP 2011). In discussions on how to best proceed with this recommendation, the creation of a maritime heritage management plan was discussed. The concept was that the PA would be a simple document, which would refer to a more detailed management plan. The creation of the MHRMG is intended to facilitate this approach. A decision was made to refer to this document as a guidance document versus a management plan for two reasons: (1) to avoid confusion with the OCNMS FMP/EA, and (2) in recognition that the current annual planning for maritime heritage management activities takes place as part of the preexisting and ongoing general management planning process. It is the intent of the sanctuary to proceed with the negotiation of a Section 106 Programmatic Agreement, based on the guidance provided in this document.

<sup>1</sup> 54 U.S.C. § 306108.

<sup>2</sup> *Id.* at § 306102.

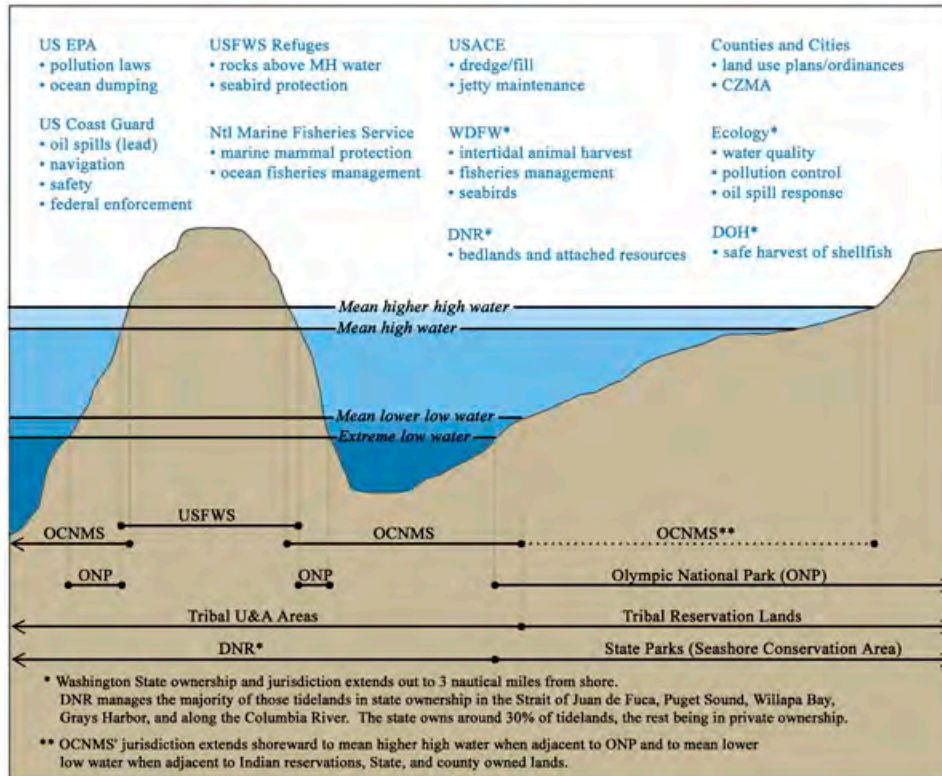


Figure 1: Jurisdictional boundaries of Olympic Coast National Marine Sanctuary

## Background Research

The MHRMG includes a number of appendices that provide background supporting the development of the plan, and documentation of work related to the management of maritime resources that has taken place since the sanctuary was designated in 1994.

### Definitions

In early discussions with partners on the drafting of this plan, there was often confusion related to certain terminology. For this reason, we feel it is important to have a discussion on how the document employs different terms. Early discussions referred to a “Cultural Resource Management Plan,” which some associated with resources primarily related to tribes. In an attempt to use more inclusive language, we moved to the term “Maritime Heritage Resources.” This term is in common usage in ONMS and is used to describe our MHP. While the term is in common usage, it is not defined by the NMSA or its implementing regulations. Some felt that this term referred primarily to historic shipwrecks.

Under the NMSA, section 302 defines a “sanctuary resource” as, “any living or nonliving resource of a national marine sanctuary that contributes to the conservation, recreational, ecological, historical, educational, cultural, archeological, scientific, or aesthetic value of the sanctuary.”<sup>3</sup>

For the purposes of this plan, sanctuary resources that contribute to historical, cultural, and archeological values are the most applicable. Two of these terms are further defined in sanctuary regulations at 15 C.F.R. § 922.3:

**“Cultural resources** means any historical or cultural feature, including archaeological sites, historic structures, shipwrecks, and artifacts.”

**“Historical resource** means any resource possessing historical, cultural, archaeological, or paleontological significance, including sites, contextual information, structures, districts, and objects significantly associated with or representative of earlier people, cultures, maritime heritage, and human activities and events. Historical resources include “submerged cultural resources,” and also include “historical properties,” as defined in the National Historic Preservation Act, as amended, and its implementing regulations, as amended.”

Three recent documents further refine important concepts related to these resources, and are discussed further in Appendix A. Based on a review of these sources and our goals for the MHRMG, for the purposes of the plan we have drafted the following definitions:

**Maritime heritage** on the Olympic Coast is the history and the connection to the ocean shared by Native American tribes, European explorers, settlers, residents, and visitors both in the past and as experienced in modern times. The term is inclusive of the relationship between the marine environs of the Olympic Coast and those that have a connection to this special place.

**Maritime heritage resources** include tangible resources such as historic shipwrecks and prehistoric archaeological sites, and archival documents; intangible resources such as oral histories and stories of indigenous cultures that have lived and used the oceans for thousands of years; and natural resources with cultural value.

### Maritime Heritage

For the purpose of this plan, maritime heritage is an inclusive term covering the history and connection that all cultures have with the Olympic Coast. Associated Maritime Heritage Resources include both tangible and intangible resources, inclusive of both historic and cultural resources.

<sup>3</sup> See also 15 C.F.R. § 922.3.

**Maritime Cultural Landscape Approach** is synonymous with the above definition of Cultural Landscape Approach, but more specifically applied to the marine environment.

## Historical Context

An important and necessary aspect of the management of maritime heritage resources within Olympic Coast National Marine Sanctuary is the understanding of the historical context of the area. The Office of National Marine Sanctuaries completed an initial survey of historic contexts in “Fathoming our Past: Historical Contexts of the National Marine Sanctuaries” (Terrell 1995, 2007). As part of the drafting of this document, the historic context of the area in and surrounding OCNMS was reviewed. The following are the major thematic areas that are included in an update of the OCNMS Historical Context (Appendix B):

- Native Peoples
- European Colonial Period
- American Period
- World War II Era
- The Cold War Era
- United States versus Washington
- Tribal Journeys
- Makah Whale Hunt
- Sanctuary Designation

## Treaties, Laws, Regulations, and Policies related to Maritime Heritage Resource Management

The MHRMG primarily deals with OCNMS’ responsibilities under the NHPA and NMSA; however, many other laws, regulations, treaties, and policies are also applicable and important in the management and protection of maritime heritage resources. Prior to and while the plan was being drafted, a number of important documents were reviewed. A summary of those reviewed, with discussion on their significance, is provided in Appendix C.

## Olympic Coast National Marine Sanctuary Maritime Heritage Spatial Data

NOAA began to research OCNMS shipwrecks shortly after designation in 1994. An initial list of 150 shipwrecks was the basis for the OCNMS Maritime Heritage Database. As of July 2015, the database contained 197 data records with summaries of research conducted, over many years, by Robert Schwemmer, ONMS West Coast Regional Maritime Heritage Coordinator. This data was reviewed and evaluated to improve OCNMS NHPA Section 106 compliance. A description of the research and related spatial data is presented in Appendix D.

## Western Olympic Peninsula Maritime Archaeological Surveys

Between 1995 and 2001, Olympic Coast National Marine Sanctuary undertook five surveys to document historical shipwrecks within the near-shore coastal zone. These surveys included acoustic and magnetic remote sensing, diver identification of target anomalies, and a visual survey in the intertidal zone. Those surveys included:

- A. July 1995 - Remote sensing of the coastal area at the mouth of the Strait of Juan de Fuca, Cape Flattery's Pacific coast, and the associated islands.
- B. August 1996 and August 1997 - Diver ground-truthing of Cape Flattery target anomalies.

- C. June 1997 - Archaeological reconnaissance of the remains of the bark *Austria* at Ozette Beach, Cape Alava.
- D. September 2000 - Remote sensing of Destruction Island near-shore and vicinity.
- E. September 2001 - Remote sensing in the vicinity of La Push.

Appendix E presents the findings of these surveys.

## Maritime Heritage Action Plan

As discussed in the introduction, between 2008 and 2011, OCNMS updated its management plan (NOAA 2011). The resulting FMP/EA contains 20 action plans, grouped under priority issues. The most relevant Action Plan to the MHRMG is the Maritime Heritage Action Plan. As previously mentioned, the MHRMG does not replace the Maritime Heritage Action Plan, but informs its ongoing implementation.

### Management Plan Review Process

The Management Plan Review (MPR) process is documented in chapter 4 of the FMP/EA (2011). Some of the key process steps that led to the drafting of the Maritime Heritage Action Plan are:

- Prior to beginning the MPR process, an OCNMS Condition Report was completed, providing status of sanctuary resources, including maritime heritage resources. This document was meant to inform the MPR process.
- Public Scoping – seven public scoping meetings were held and the public was engaged in identifying what topics should be considered in the drafting of a new management plan.
- Issues Analysis – input from scoping was analyzed, summarized and presented to the OCNMS Advisory Council (AC) and the Olympic Coast Intergovernmental Policy Council (IPC). The AC and IPC provided recommendations on the prioritization of issues and the creation of working groups and workshops. These working groups and workshops recommended strategies and activities, which were the basis of the resulting action plans.

A Maritime Heritage Workshop was held in Neah Bay on November 18, 2009. Invitations were sent to 42 people involved with maritime heritage programs in the region, and 13 people attended the meeting. Three major topics, grouped under the umbrella of maritime heritage by the AC, were discussed:

- Living Cultures
- Local & Customary Knowledge
- Cultural Resource Management

Participants were asked to identify the needs related to these sub-topics and characterize the outcomes that they would like to see achieved over the next 5 to 10 years. Based on these efforts, a Maritime Heritage Action Plan was drafted with the following desired outcomes:

- 1) Improved understanding of the cultural and historic resources in the sanctuary region; and
- 2) Improved communication between OCNMS, the Washington State Historic Preservation Office, the Makah Tribal Historic Preservation Office, and the Quileute, Hoh, and Quinault cultural resource management representatives.

The action plan includes three strategies, each with a number of suggested activities.

#### Strategy MH1: CULTURAL RESOURCE CONSERVATION

Work collaboratively to locate, inventory, assess, interpret, and protect cultural resources in the sanctuary, and develop further the cultural resource components of OCNMS' permitting and compliance program.

**Strategy MH2: LOCAL AND CUSTOMARY KNOWLEDGE**

Work with tribal and non-tribal partners to explore ways to gather, share, and apply (when appropriate) traditional ecological knowledge, local and customary knowledge, and information obtained from cultural resource analyses.

**Strategy MH3: PUBLIC UNDERSTANDING OF TREATY RIGHTS**

Work collaboratively with the Coastal Treaty Tribes to improve the public's understanding of treaty rights and how traditional lifeways form a vital connection between the past, the present, and the future, with a focus on marine areas.

## **Annual Planning & Implementation**

Each year since the 2011 FMP/EA was finalized, OCNMS has drafted two separate documents related to management plan implementation. One is focused on planning activities in the upcoming year and one reports on progress made in implementing the management plan in the previous year. These two reports are provided to the OCNMS Advisory Council (AC) and the Olympic Coast Intergovernmental Policy Council (IPC) to facilitate discussion and inform their advice and guidance on elements of the FMP/EA to be prioritized in coming year. Through this mechanism, the implementation of the Maritime Heritage Action Plan is planned and tracked.

The MHRMG is meant to augment, not replace the sanctuary's management plan. The focus of the MHRMG on OCNMS's responsibilities under the NHPA is discussed below, under the following themes:

- Sanctuary Historic Property Inventory
- OCNMS Management Activities

## Sanctuary Historic Property Inventory (Section 110 NHPA)<sup>4</sup>

The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation, prepared pursuant to 54 U.S.C. § 306101(b), (c), provide technical advice about archaeological and historic preservation activities and methods for federal agencies ([http://www.nps.gov/history/local-law/arch\\_stnds\\_0.htm](http://www.nps.gov/history/local-law/arch_stnds_0.htm)). Among the technical advice included in the standards and guidelines are:

- Establish a Planning Process – Including development of historical contexts to aid in developing goals and priorities for identification and treatment of historical properties.
- Identification of Historic Properties – Including conducting archival research to identify properties known through historical documents. Also includes survey and research to identify historic properties in the agency's management area.
- Evaluation – Including the determination of significance of historical properties under the criteria of the National Register of Historic Places.
- Registration – Including the formal listing of historical properties on the National Register.
- Reporting Results – Reporting the results of research and identification.

OCNMS' inventory of historic properties began shortly after the sanctuary's 1994 designation and largely concentrated on historic shipwrecks. The volunteer organization, Coastal Maritime Archaeology Resources (CMAR), was a partner in these early efforts. CMAR provided some initial research through a literature review on which historic ships were believed lost in the newly designated sanctuary. This information was the basis of the research design for initial survey efforts in the sanctuary. Between 1995 and 2001, OCNMS undertook five surveys to document historical shipwrecks within the near-shore coastal zone. These surveys included acoustic and magnetic remote sensing, diver identification of target anomalies, and a visual survey in the intertidal zone (Appendix B).

### OCNMS Historic Shipwreck Database

In addition to the survey efforts described above, in 1994, NOAA also began compiling a database of historic shipwrecks in the sanctuary. An initial list of 150 historically reported shipwrecks was the basis for the OCNMS Maritime Heritage Database. As of July 2015, the database contained 197 data records with summaries of research conducted over many years by Robert Schwemmer, OCNMS' West Coast Regional Maritime Heritage Coordinator.

In 2014, the West Coast Regional Maritime Heritage Coordinator reviewed and updated OCNMS Maritime Heritage Database records in accordance with the Secretary of Interior's Guidelines and Standards. These records are in a standard format and represent many years of research. Following this update, OCNMS staff reviewed the records, adding a location reliability code and a plotted latitude and longitude field. The four location reliability codes can generally be described as:

1. Confirmed Location – has been accurately identified and location confirmed
2. Specific Location – reported location is considered reliable
3. General Location – general location provided, usually in reference to a known landmark
4. Unreliable Location – unreliable or vague information

---

<sup>4</sup> NHPA Section 110 codified at 54 U.S.C. § 3061.

From this information we then created a spatial coverage that includes the data records with a locational reliability of 1, 2, or 3, an age of at least 50 years old (based on either the built or casualty date), and a location believed to be within or adjacent to the sanctuary. This spatial data layer includes 69 of the 197 records. Of these 69 potentially historic resources, OCNMS has identified the locations of nine shipwrecks. These are:

- Clipper Ship *Ellen Foster*, built in 1852, sunk in 1867 (need to confirm location reliability)
- Clipper Ship *Emily Farnum*, built in 1852, sunk in 1875
- Bark *Austria*, built in 1870, sunk 1887
- Steamship *Skagway*, built in 1908, sunk in 1929
- Steamship *Lamut*, built in 1919, sunk in 1943
- Steamship *Temple Bar*, built in 1928, sunk in 1939
- Submarine USS *Bugara*, built in 1944, sunk 1971
- Steamship *General M. C. Meigs*, built in 1944, sunk in 1972

In July 2014, OCNMS transmitted these data to the Washington State Department of Archeology and Historic Preservation (DAHP). This information has since been added by DAHP to the Washington Information System for Architectural and Archeological Records Database (WISAARD). In addition to spatial data for 69 vessels (see Appendix A), individual vessel data sheets were provided on each of the 197 records. These data sheets are in a standard format and represent years of research on these vessels. The information included within these data sheets can assist in determining a resource's eligibility as a historic property.

## **ONMS Survey and Identification of Submerged Potentially Historic Shipwrecks**

Between 1995 and 2001, NOAA's Office of National Marine Sanctuaries (ONMS) undertook the Western Olympic Peninsula Maritime Archaeological Survey initiative, which included historic research (Appendix B) and five surveys for historic shipwreck remains in OCNMS. Summary information from these surveys is provided in Appendix B.

## **ONMS Maritime Heritage Program Approach on Maritime Cultural Landscapes**

Since 2011, ONMS' Maritime Heritage Program, in consultation with the entire Office of National Marine Sanctuaries, established a "Maritime Cultural Landscape Approach" to the documentation, interpretation, and understanding of the regions of the national marine sanctuaries. This approach is consistent with the National Park Service's recognition of cultural landscapes (<http://www.nps.gov/tps/standards/four-treatments/landscape-guidelines/>). This allows consideration of not just archaeological resources, but such factors as a site's intangible cultural resources, which might include past uses, regional culture, and a sense of human "place." Thus, many traditional practices, such as fishing, traditional plant knowledge, historic navigation aids, lifesaving stations, and many other things, combine to give a community or region a unique character. While these factors are not tangible resources to be managed in a typical way, they are features that can be incorporated into outreach, allowing us to better engage local communities.

## **National Register Properties**

As part of our inventory efforts, we reviewed the National Register of Historic Places. While there are no properties within OCNMS' jurisdiction, there are three properties immediately adjacent to the sanctuary. They are:

- Ozette Indian Village Archeological Site
- Tatoosh Island
- Wedding Rocks Petroglyphs

While these listed properties are outside OCNMS boundaries and jurisdiction, they contribute to the larger cultural landscape of the sanctuary.

## Nominations to the National Register

As previously noted, under the standards and guidelines, the evaluation of potentially historic properties for listing on the National Register of Historic Places follows their identification. This section focuses on potential nominations for maritime heritage resources that physically reside within the sanctuary boundaries. OCNMS could support other designations that include maritime heritage resources outside the sanctuary, using the cultural landscape approach, but would not proceed with such a proposal unless it was a partnership with the appropriate landowner and/or jurisdiction.

The most likely scenario for an OCNMS-sponsored nomination would involve a historic shipwreck. There is a National Register Bulletin on “Nominating Historic Vessels and Shipwrecks to the National Register of Historic Places” (Delgado 1992). The following discussion borrows substantially from that document.

A shipwreck is any vessel that has foundered, stranded, or wrecked. This includes vessels that exist as intact or scattered components on or in the seabed or shoreline. The unique nature of shipwrecks has resulted in uneven and contradictory treatment of this class of resource by historians and archeologists. The National Register categorizes all submerged cultural resources as either sites or structures; shipwrecks may fit either of these categories. Vessels may appear as mostly intact hulls and would be considered historic structures. Vessels may also appear as broken or scattered sections of a structure with localized deposition of artifacts. In this instance, they compare most closely to archeological sites. Vessels may also appear as discrete elements of hull, machinery, artifacts, or other remains, widely separated with little or no continuity, or as a single representative item. In this instance, they compare most closely to objects or artifacts.

To qualify for the National Register, a shipwreck must retain integrity of location, design, setting, materials, workmanship, feeling, and association. Furthermore, historic properties must qualify for listing under any one of the following four criteria:

1. That are associated with events that have made a significant contribution to the broad patterns of our history; or
2. That are associated with the lives of significant persons in our past; or
3. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
4. That have yielded, or may be likely to yield, information important in history or prehistory.

In applying the above criteria to the significance of a shipwreck one could consider whether the vessel: 1) is the sole, best, or a good representative of a specific vessel type; 2) is associated with a significant designer or builder; or 3) was involved in important maritime trade, naval, recreational, government, or commercial activities. In the case of OCNMS, we will also consider if the shipwreck contributes to our understanding of any of the themes represented in the historical context section of this MHRMG.

The significance of a shipwreck will be determined through a systematic investigation of the vessel's qualities, associations, and characteristics. An investigation for a shipwreck nomination could include:

1. Identification of the specific type of vessel and documentation of her individual characteristics.
2. Identification of the historic context(s) associated with the vessel based on a documentation of her history.
3. Determination that the characteristics of the vessel make her either the best, or, a good representative of her type.
4. Evaluation of the significance of the vessel based on the National Register criteria.
5. Evaluation of the vessel's integrity and a listing of features that the vessel should retain to continue to possess integrity.

## OCNMS Management Activities (Sec 106 NHPA)<sup>5</sup>

Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on historic properties, and afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment. The historic preservation review process mandated by Section 106 is outlined in regulations issued by ACHP (36 C.F.R. Part 800) and summarized below.

### Activities Reviewed in 2011 Management Plan

During OCNMS' management plan review (2008-2011), the requirements of both the National Environmental Protection Act (NEPA) and NHPA Section 106 were met concurrently. See 75 FR 22047. Sanctuary actions were summarized in the 2011 OCNMS Final Management Plan and Environmental Assessment (Management Plan/EA; NOAA 2011). Sanctuary activities were discussed under three alternatives: no-action (alternative A), the proposed and preferred management plan revision (alternative B), and a modified version of the proposed plan (alternative C). Each was evaluated within the context of the historic and cultural sanctuary setting. All activities, as represented in one of 20 action plans, were reviewed and characterized under one of the following categories:

- Actions with Negligible Effect to the Historical/Cultural Setting
- Actions with Beneficial Effects to the Historical/Cultural Setting (this included maritime heritage activities, listed in the next section)
- Actions with Adverse Effects to the Historical/Cultural Setting

For the sake of brevity, those actions that were determined to have a negligible effect on historic and cultural resources are not included in Table 1, which is based on the more detailed Table 13 found in the Management Plan/EA (NOAA 2011). Actions not included in Table 1 are expected to have a negligible effect on the historical/cultural resources because they involve no direct or indirect interaction between people or equipment and those resources, are administrative in nature, occur within existing facilities, or include no construction or physical development.

Table 1 lists two general actions that could result in adverse effects to maritime heritage (historical/cultural) resources in the sanctuary:

- Sediment sampling (for habitat mapping and community characterization)
- Anchoring research buoys

Both actions have the potential for damaging historical/cultural resources on the seabed. These activities could cause adverse effects by physically damaging unknown historic/cultural resources resting on the seafloor. Because these operations typically impact only the upper few centimeters of seabed in a very limited area on the seafloor and the total area subject to these operations is small, these potential effects were determined to be less than significant.

---

<sup>5</sup> NHPA Section 106 is codified at 54 U.S.C. § 306108.

Table 1: Adapted from the 2011 Management Plan - Summary of analyzed actions [emphasis added].

<i>Action</i>	<i>Effect of Action</i>	<i>Resources Affected</i>
Routine education, outreach, and visitor activities	Less than Significant, <b>Beneficial</b> , Indirect, Short-term	Biological, Physical, <b>Historic and Cultural</b> , Socioeconomic
Routine maritime heritage activities	Less than Significant, <b>Beneficial</b> , Indirect, Short-term	<b>Historic and Cultural</b> , Socioeconomic
Routine resource protection and stewardship activities	Less than Significant, <b>Beneficial</b> , Indirect, Short-term	Biological, Physical, <b>Historic and Cultural</b> , Socioeconomic
Routine administrative activities (enforcement of regulations and permitting)	Less than Significant, <b>Beneficial</b> , Indirect, Short-term	Biological, Physical, <b>Historic and Cultural</b> , Socioeconomic
Operating sonar (for hydrographic surveying)	Less than Significant, <b>Beneficial</b> , Indirect, Long-term	<b>Historic and Cultural</b>
Sediment sampling (for habitat mapping and community characterization)	Less than Significant, <b>Adverse</b> , Direct, Short-term	Biological, Physical, <b>Historic and Cultural</b>
Anchoring research buoys	Less than Significant, <b>Adverse</b> , Direct, Short-term	Biological, Physical, <b>Historic and Cultural</b>

## Multibeam Seafloor Mapping of Oceanographic Mooring Sites

Immediately following the release of the Management Plan/EA, OCNMS further evaluated one of the two previously mentioned actions that could result in adverse effects, the anchoring of research buoys. In 2011, the sanctuary acquired a high resolution multibeam echosounder, which was mounted on the sanctuary's research vessel, the R/V *Tatoosh*. The *Tatoosh's* first multibeam project was to survey a ½ square km around each site where the 13 research moorings are deployed annually by OCNMS (Figure 2). Based upon these surveys, no historic properties were located within the mapped areas around the 13 mooring sites, and as such, it is expected that no properties would be impacted or adversely affected if the mooring locations shift within the ½ square km survey area. The majority of oceanographic moorings (seven out of 13) were located on the flat sandy sediments that predominate across the continental shelf. Six of the sites revealed complex rocky substrates and folded muddy geomorphology.

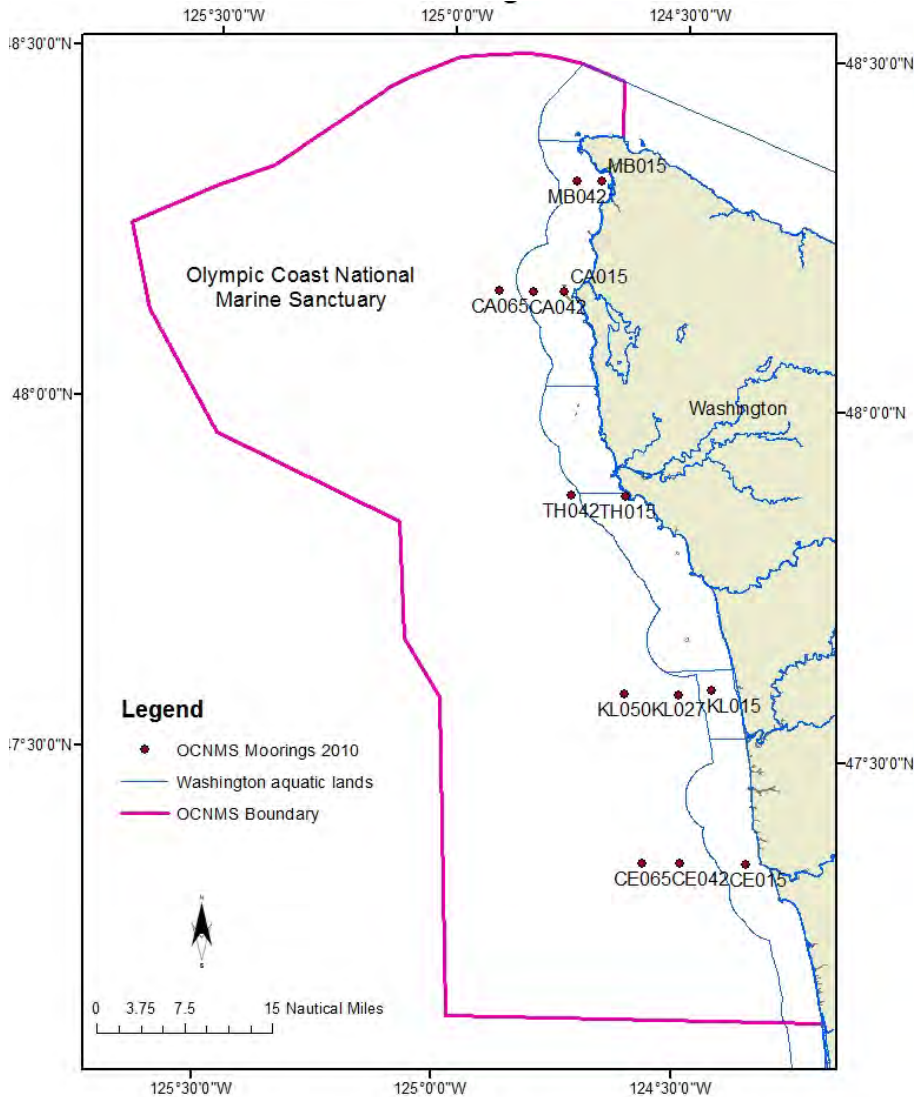


Figure 2: OCNMS Research Moorings.

## OCNMS Permitting Program

The previously discussed two actions (sediment sampling and anchoring of buoys) refer to OCNMS efforts only. On occasion, an outside party will apply for an OCNMS permit to conduct activities including sediment sampling, anchoring of research buoys, or conducting some other seafloor disturbance activity in the sanctuary. All permit applications are analyzed for potential impacts to historic and cultural resources. OCNMS might deny approval of a proposed activity or include specific restrictions in a permit to ensure protection of resources.

When OCNMS reviews a permit to conduct an activity that will disturb the seafloor, we will review our Maritime Heritage Resource (MHR) database (Appendix A) to determine if there are known resources near the proposed activity. For activities of a more extensive nature, e.g., the installation of submarine cables, we will consider the need for a targeted survey for historic/cultural resources prior to issuing the permit.

If a permit application is directly related to inventory, research, or recovery of maritime heritage resources, specific information may be required, such as:

- Project Summary
- Research Plan
- Project Significance
- Operational Plan
- Artifact Handling Plan
- Conservation Plan
- Curation and Display Plan

An issued permit would also specify reporting requirements, which may include some of the following elements:

- Survey summary
- Equipment used
- Survey data
- Work accomplished/remaining

### **Current Consultation Process**

Prior to issuing a permit, OCNMS must first consider whether NHPA Section 106 consultation is required. Once a permit application is deemed complete, OCNMS determines whether permit issuance constitutes an undertaking that could affect historic properties. A “historic property” is any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places. If OCNMS determines the undertaking is a type of activity that does not have the potential to affect a historic property, then a NHPA Section 106 consultation is not required and this determination and rationale is documented in an internal decision memo. Examples where OCNMS may make this determination are:

- Permitted overflights (not including sling-load operations near maritime heritage resources)
- Permitted discharges that will not interact with the shoreline or seafloor

If OCNMS determines that the undertaking has the potential to cause effects<sup>6</sup>, OCNMS will identify any historic properties in the area of those potential effects.<sup>7</sup> To make this determination, OCNMS consults with the State Historic Preservation Officer/Tribal Historic Preservation Officer (SHPO/THPO) and others including tribes without a designated THPO, seeks information from knowledgeable parties, and conducts additional research as necessary.

In cases where the nature of the undertaking has the potential to cause effects to historic resources and OCNMS finds that no historic properties are present or affected, they will provide documentation to the SHPO/THPO as appropriate and, barring any objection in 30 days, proceeds with its undertaking (i.e., issuance of the permit).

---

<sup>6</sup> NHPA 36 C.F.R. § 800.16 defines effect as “alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register.”

<sup>7</sup> Districts, sites, buildings, structures, and objects listed in the National Register are considered; unlisted properties are evaluated against the National Park Service’s published [criteria](#), in consultation with the SHPO/THPO and any tribe that may attach religious or cultural importance to them. The OCNMS’ inventory of historic properties is also considered.

If historic properties are present, OCNMS will consult with the SHPO/THPO to assess adverse effects on the identified historic properties based on criteria found in ACHP's regulations. Should OCNMS and the consulting parties agree that there would be no adverse effect; OCNMS will proceed with the undertaking and any agreed-upon conditions. Should the parties find that there is an adverse effect, or if the parties cannot agree and ACHP determines within 15 days that there is an adverse effect, OCNMS would begin consultation to seek ways to avoid, minimize, or mitigate adverse effects.

### **Permit Conditions for Seafloor Disturbance Permits**

Permits for large-scale projects, such as a cable installation, would require more involved NEPA analysis and NHPA Section 106 consultations. Maritime heritage surveys may be required during the project planning stages before issuance of an OCNMS permit or other approval under the NMSA and its implementing regulations. Historically, such projects are rare in OCNMS.

Far more common are smaller scale research projects, such as installation of research moorings requiring permits for anchors. As noted above, OCNMS will review the MHR database and other information sources, such as habitat mapping sonar data, to determine if any known or suspected potentially historic properties are in the project area. If so, alternative locations will be recommended to the applicant.

When information on historic/cultural resources is not available for a project area, OCNMS has begun including a permit condition requiring a preliminary site assessment immediately before the deployment of gear that will impact the seafloor. Permittees are required to investigate each deployment location with an echo sounder survey following a cloverleaf pattern 100 meters across and centered on the deployment location. This survey is designed to locate any bottom structure with significant relief. If a seafloor anomaly more than three meters in height and greater than ten meters in breadth is found, the deployment location is shifted 100 meters away and the echo sounder survey repeated until a suitable site is located.

### **Potential Changes to Consultation under a Section 106 Programmatic Agreement**

***NOTE: This section is intentionally left blank in this draft of the document, until a discussion can occur between the SHPO and NOAA on the finalization of this guidance and the process for drafting a programmatic agreement.***

## Bibliography

- Ball, D., R. Clayburn, R. Cordero, B. Edwards, V. Grussing, J. Ledford, R. McConnell, R. Monette, R. Steelquest, E. Thorsgard, and J. Townsend. 2015. A Guidance Document for Characterizing Tribal Cultural Landscapes. US Department of the Interior, Bureau of Ocean Energy Management, Pacific OCS Region, Camarillo, CA. OCS Case Study BOEM 2015-047. 32 p.
- MPA. Marine Protected Areas Center. Framework for the National System of Marine Protected Areas of the United States of America. March 2015.
- MPA FAC. Marine Protected Areas Federal Advisory Committee Recommendations for Integrated Management Using a Cultural Landscape Approach in the National MPA System. November 2011.
- NOAA. Olympic Coast National Marine Sanctuary: Final Environmental Impact Statement/management Plan. Washington, D.C.: U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration, Sanctuaries and Reserves Division, 1993. Print.
- NOAA. Olympic Coast National Marine Sanctuary Condition Report 2008. Silver Spring, MD: U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration, National Marine Sanctuaries, 2008. Print.
- NOAA. Olympic Coast National Marine Sanctuary: Final Management Plan and Environmental Assessment. Port Angeles, WA: Office of National Marine Sanctuaries, National Oceanic and Atmospheric Administration, Olympic Coast National Marine Sanctuary, 2011. Print.
- Parker PL and King TF. 1990. National Register Bulletin 38: Guidelines for Evaluating and Documenting Traditional Cultural Properties. U.S. Department of the Interior. National Park Service. National Register, History and Education, National Register of Historic Places: Washington, DC.
- Terrell, Bruce G. Fathoming Our Past: Historical Contexts of the National Marine Sanctuaries. Silver Spring, MD: NOAA National Marine Sanctuary Program, 2007. Print.
- United States. National Park Service. "Section 110--Federal Preservation Institute--National Park Service." National Parks Service. U.S. Department of the Interior, 30 Nov. 2012. Web. 08 Feb. 2017. <<http://www.nps.gov/fpi/Section110.html>>.
- United States. National Park Service. "National Register of Historic Places Official Website." National Parks Service. U.S. Department of the Interior, n.d. Web. 08 Feb. 2017. <<http://www.nps.gov/nr/about.htm>>.
- United States. National Park Service. "Secretary's Standards--Archeology and Historic Preservation." National Parks Service. U.S. Department of the Interior, n.d. Web. 08 Feb. 2017. <[http://www.nps.gov/history/local-law/arch\\_stnds\\_0.htm](http://www.nps.gov/history/local-law/arch_stnds_0.htm)>.
- "The National Historic Preservation Act, as Amended through December 19, 2014 and codified in Title 54 of the United States Code." (2016): n. pag. Web. <<http://www.achp.gov/docs/NHPA%20in%20Title%2054%20and%20Conversion%20Table.pdf>>.
- Whitlam, Robert G., Ph.D. "Re: Navigating the Future." Letter to George Galasso. 20 Jan. 2011. Department of Archaeology & Historic Preservation, Olympia, Washington. Providing comment on the Preliminary Draft of the National Marine Sanctuary Management Plan and Draft Environmental Assessment for the Olympic Coast National Marine Sanctuary.

## Appendix A: Definitions

In early discussions with partners on the drafting of this plan, there was often confusion related to certain terminology. For this reason, we feel it is important to have a discussion on how the document employs different terms. Early discussions referred to a “Cultural Resource Management Plan,” which some associated with resources primarily related to tribes. In an attempt to use more inclusive language, we moved to the term “Maritime Heritage Resources.” This term is in common usage in the ONMS and is used to describe our Maritime Heritage Program (MHP). While the term is in common usage it is not defined in the National Marine Sanctuary Act (NMSA) or its implementing regulations. Some felt that this term referred primarily to historic shipwrecks.

Under the National Marine Sanctuary Act (NMSA), section 302 states that a “sanctuary resource” means, “any living or nonliving resource of a national marine sanctuary that contributes to the conservation, recreational, ecological, historical, educational, cultural, archeological, scientific, or aesthetic value of the sanctuary.” See also 15 C.F.R. § 922.3.

For the purposes of this plan, sanctuary resources that contribute to historical, cultural, and archeological values are the most applicable. Two of these terms are further defined in sanctuary regulations at 15 C.F.R. § 922.3:

**“Cultural resources** means any historical or cultural feature, including archaeological sites, historic structures, shipwrecks, and artifacts.”

**“Historical resource** means any resource possessing historical, cultural, archaeological, or paleontological significance, including sites, contextual information, structures, districts, and objects significantly associated with or representative of earlier people, cultures, maritime heritage, and human activities and events. Historical resources include “submerged cultural resources,” and also include “historical properties,” as defined in the national Historic Preservation Act, as amended, and its implementing regulations, as amended.”

Three recent documents further refine important concepts related to these resources. One was the result of efforts by the Marine Protected Areas Federal Advisory Committee’s (MPA FAC) Cultural Heritage Resources Working Group (CHRWG). This group published “Recommendations for Integrated Management Using a Cultural Landscape Approach in the National MPA System” (MPA FAC 2011). A Guidance Document for “Characterizing Tribal Cultural Landscapes” (Ball et al. 2015) was supported by the Bureau of Ocean Energy Management and NOAA, and involved the Makah and Yurok Tribes, and the Confederated Tribes of Grande Ronde Community of Oregon. The third reviewed document was the “Framework for the National System of Marine Protected Areas of the United States of America (MPA 2015).” Our review found a number of important concepts defined in these documents:

**“Cultural Resources:** The broad array of stories, knowledge, people, places, structures, and objects, together with their associated environment, that contribute to the maintenance of cultural identity and/or reveal the historic and contemporary human interactions with an ecosystem. This can include both tangible and intangible cultural heritage. According to UNESCO, tangible heritage includes buildings and historic places, monuments, artifacts, etc., which are considered worthy of preservation for the future. These include objects significant to the archaeology, architecture, science or technology of a specific culture. Intangible heritage includes the practices, representations, expressions, knowledge, skills - as well as the instruments, objects, artifacts and cultural spaces associated therewith - that communities, groups and, in some cases, individuals recognize as part of their cultural heritage (Ball et al. 2015).”

**“Cultural Landscape:** A place where the intersection of culture and nature leave a distinct ecological or cultural imprint. (MPA FAC 2011)”<sup>8</sup>.

Additionally, the National Park Service defines a “Cultural Landscape” as “A geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person, or exhibiting other cultural or aesthetic values (NPS 2016).”

**“Cultural Landscape Approach:** A management approach that uses cultural landscapes as a framework to understand places and their associated resources. This approach is analogous and complementary to ecosystem-based management, and examines the relationships among living and non-living resources, and their environment. This approach enables a better understanding of the human connections to places, as well as the important human influences on ecosystems over time (MPA FAC 2011) (Ball et al. 2015).”

**“Tribal Cultural Landscape:** Any place in which a relationship, past or present, exists between a spatial area, resource, and an associated group of indigenous people whose cultural practices, beliefs, or identity connects them to that place. A tribal cultural landscape is determined by and known to a culturally related group of indigenous people with relationships to that place (Parker and King 1990).”

**“Traditional Cultural Property (TCP):** “A property type on the National Register of Historic Places (buildings, structures, sites, historic districts, objects, landscapes) may possess traditional cultural significance, derived from the role the property plays in a community’s historically rooted beliefs, customs, and practices. That property would be eligible for inclusion in the National Register because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community’s history, and (b) are important in maintaining the continuing cultural identity of the community. Because a TCP is a National Register property type, it must have a defined boundary. This can apply to non-indigenous traditional groups” (Ball et al. 2015).

Based on a review of these sources and our goals for the MHRMG, for the purposes of the plan we have drafted the following definitions:

**Maritime heritage** on the Olympic Coast is the history and the connection to the ocean shared by Native American tribes, European explorers, settlers, residents, and visitors both in the past and as experienced in modern times. The term is inclusive of the relationship between the marine environs of the Olympic Coast and those that have a connection to this special place.

**Maritime heritage resources** include tangible resources such as historic shipwrecks and prehistoric archaeological sites, and archival documents; intangible resources such as oral histories and stories of indigenous cultures that have lived and used the oceans for thousands of years; and natural resources with cultural value.

**Maritime cultural landscape approach** is synonymous with the above definition of Cultural Landscape Approach, but more specifically applied to the marine environment.

Additional definitions:

**Washington Coast Treaty Tribes** include the Hoh, Makah, or Quileute Indian Tribes and the Quinault Indian Nation.

---

<sup>8</sup> For the purposes of nomination to the National Register of Historic Places, one can nominate a cultural landscape under the definition of “site” or “district.”

**Government-to-government consultation** refers to an accountable process ensuring meaningful and timely input from officials of federally recognized Indian tribes on NOAA policies that have tribal implications.

**Major federal action** includes actions with effects that may be major and which are potentially subject to federal control and responsibility. 40 C.F.R. § 1508.18.

**“Policies that have tribal implications’** refers to regulations, legislative comments, or proposed legislation, and other policy statements or actions that have substantial direct effects on one or more Indian tribes, on the relationship between the Federal Government and Indian tribes, or on the distribution of power and responsibilities between the Federal Government and Indian Tribes (Executive Order 13175, 2000).”

**“Tribal consultation** means the process of seeking, discussing, and considering the views of the tribal government(s) at the earliest time in ONMS’ decision-making about the management of OCNMS...Tribal consultation means respectful, meaningful, and effective two-way communication that works towards the goal of consensus reflecting the concerns of the affected Coastal Treaty Tribe(s) before ONMS makes its decision or moves forward with its action (OCNMS 2011 Final Management Plan and Environmental Assessment).”

**“Programmatic Agreement** means a document that records the terms and conditions agreed upon to resolve the potential adverse effects of a Federal agency program, complex undertaking or other situations in accordance with the [36 C.F.R. § 800.14(b)].” 36 C.F.R. § 800.16(t).

## Appendix B: Historical Context

OCNMS is a 3,188 square mile area located along the outer coast of the Olympic Peninsula (Figure 2). The sanctuary's western boundaries extend 25 to 40 miles offshore and include most of the continental shelf. Two of three submarine canyons in the sanctuary were likely Pleistocene river systems and the third is a relic of the Strait of Juan de Fuca. The seaward portion of the shelf slopes gently toward the shelf break, while the near-shore is characterized by rocky shore-cliffs, islands, sea stacks, and submerged pinnacles resulting from headland erosion. The erosion is brought on primarily by severe winter storms that can create waves up to eight meters high near the shore.

### Native Peoples

Human migration across the Bering land bridge into the New World is believed to have occurred anywhere between 12,000 and 30,000 years ago. Some researchers suggest that an additional maritime-based culture hugged the land bridge shore and entered the Americas using watercraft during this period as well. Such populations would certainly have navigated along the Olympic Peninsula's shoreline and established camps onshore. Archaeological research along the terrestrial boundaries of the sanctuary is inconclusive about the earliest human habitation. The oldest known sites appear around 4,000 to 8,000 years ago.

Archaeologists speculate that ancient Native American archaeological sites off Washington's coast are likely associated with paleo-shorelines. The sea level history of the Olympic Coast is complicated with older paleo-shoreline likely occurring subtidally and more recent paleo-shoreline occurring above current levels. The sea level 20,000 years ago was about 120 meters lower than present. Glacial melt caused a rise in sea level to a point approximately 20 meters below present by 8,000 years ago and reached modern levels about 2,000 years ago. Researchers believe that between the period 8,000 and 2,000 years ago the regional sea levels may actually have been at least four meters above modern sea level. This is also supported by Indian oral tradition.

The distribution of historically known Native American tribes along the coastal Olympic Peninsula includes the Makah Tribe to the northwest and the Quileute, Hoh, and Quinault tribes in succession to the south.

For many indigenous communities, natural resources are cultural resources—inextricably connected to tribal heritage. These living resources, whether marine, riverine, or terrestrial, are the source of tribal origin stories, clan names, art and technology, religion, subsistence foodways, clothing, and trade. Although the NHPA and other governmental guiding documents consider cultural resources as primarily related to archaeology and historic properties, it is important to note that many tribal communities disagree with these strict definitions.

All of the Northwest tribes are renowned for their expert utilization of locally abundant wood for tools, shelter, and watercraft. They created elaborate decorative and culturally specific motifs. Much has been learned about Makah craftsmanship from archaeological remains of the Ozette village site at Cape Alava that dates to about 500 years before present (BP). The region's tribes were known for their ocean-going dugout canoes. The Makah, in particular, were able to voyage for days out of sight of land to hunt whales.

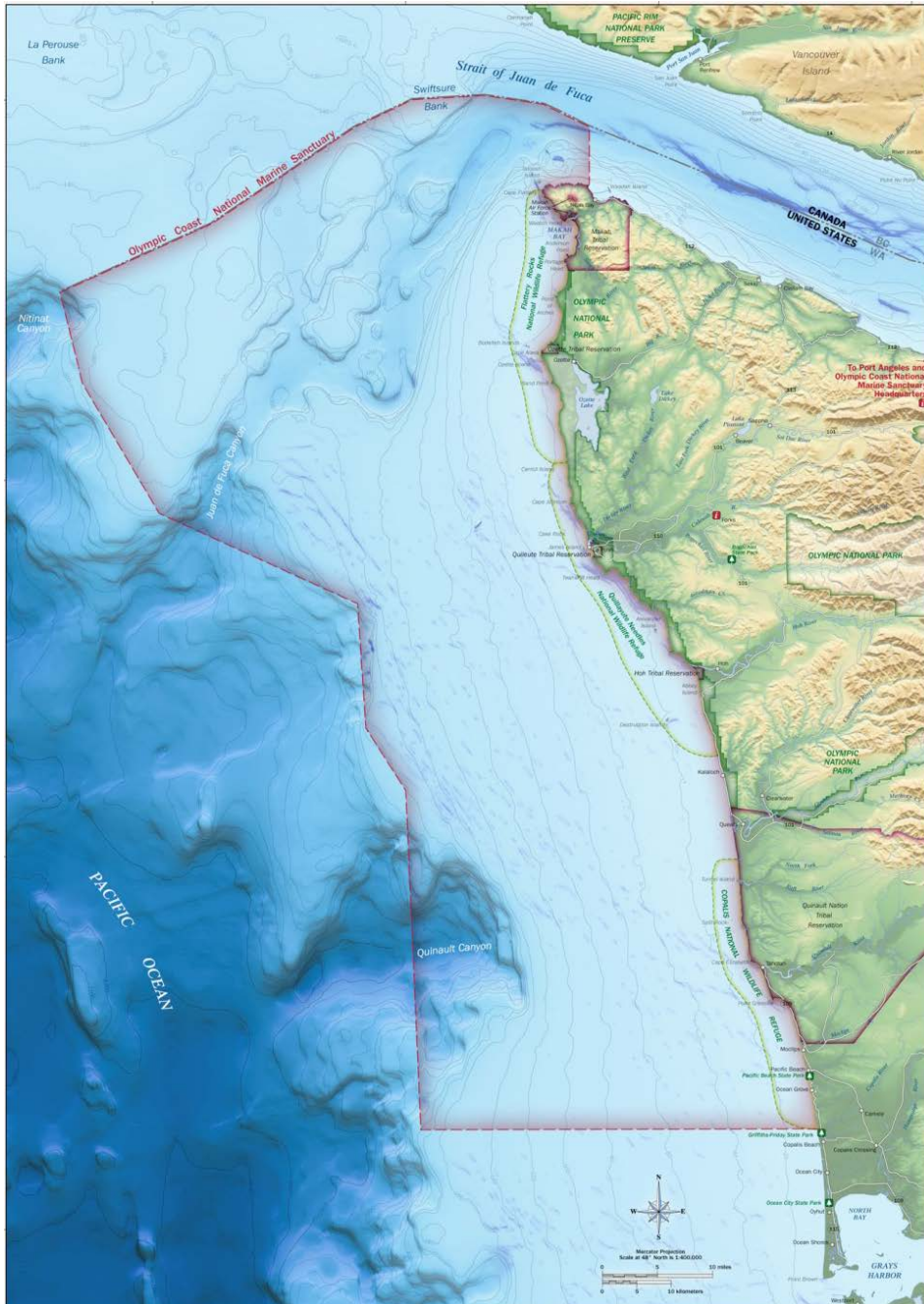


Figure 3: Map of Olympic Coast National Marine Sanctuary

### Makah

The Makah are a traditional maritime culture that derived most of their sustenance from whaling and sealing. They subsisted on seals, both marine and anadromous fish, and marine shellfish. They also hunted waterfowl and large land mammals. Berries, roots, and sprouts composed a small portion of their diets.

The Makah moved between permanent winter and summer villages. The principal Makah villages around Cape Flattery were Neah Bay (or De-ah), Waatch (or Wyaach) at the western end of Makah Bay, and Tsooes at Makah Bay. Neah Bay has only been the center of tribal government

since the nineteenth century. Summer fishing villages were also located at Tatoosh Island, Warmhouse on the strait, and Archawat on the Pacific side of the Cape.

Like most of the Northwest Coast Indians, the Makah were expert woodworkers. Their homes were large, multi-family, pitched-roof sheds, made from split shingle red cedar planks lashed to earth-fast posts. They were also adept at carving log canoes in which they traveled far out to sea to fish and hunt whales and seals. Tribal oral traditions indicate that, prior to European contact, they regularly crossed the strait to trade with their Nuu-chah-nulth relatives at Vancouver Island.

### **Ozette Excavation**

Around 1700 CE, a substantial section of the Ozette village (on the outer coast of the Olympic Peninsula, at Cape Alava) was buried in a spring mudslide. This disaster created an anaerobic environment that preserved wood, bone, and textiles—providing the most important freeze-frame look at pre-historic Makah life ever discovered. Though archaeological test pits were excavated at the Ozette site in 1966 and 1967 (by Washington State University archaeologist Richard Daugherty) it was not until 1970 that it became apparent what exactly was buried there. After a storm in February 1970, tidal erosion exposed hundreds of well-preserved wooden artifacts. The excavation of the Ozette site began shortly thereafter. University students worked alongside Makah Tribal members, under the direction of archaeologists, using pressurized water to remove mud from six buried long houses. During the eleven-year excavation that followed, the Ozette site (which has been called “a North American Pompeii”) yielded 55,000 artifacts, 12,000 structural remains, and about 1.5 million taxonomically identifiable faunal remains.

A vast amount of archaeological evidence, pertaining to the use and consumption of local fauna, has been obtained through this important excavation. Results of the Ozette archaeological project revealed that Makah hunters, fishers, and gatherers traditionally harvested 90 species of shellfish, at least 42 species of bird (most of which were sea birds), at least 18 species of fish, and no less than 27 species of mammal. Of the latter, 14 are land mammals and 13 represent marine mammals, including six whale species. Taken together, these results show that almost every moderate-to large sized (and many smaller) animal that commonly occurs in the vicinity of Ozette was used by the Makah.

More than 55,000 artifacts that were also recovered, spanning a period of occupation of approximately 2,000 years, and represent evidence of a variety of activities—from whale and seal hunting, to salmon and halibut fishing; from toys and games, to bows and arrows. Hundreds of knives were recovered, with blade materials ranging from mussel shell to sharpened beaver teeth and iron, presumed to have drifted from Asia on wrecked ships. The oral history of the Makah mentions a “great slide” which engulfed a portion of Ozette long ago.

The Makah Museum opened in 1979 and currently displays many of the objects recovered from Ozette, as well as replicas of cedar long houses, and whaling, fishing, and sealing canoes.

### **Quileute**

The Quileute peoples live immediately south of the Makah. They were the only Chimakum language speakers on the Olympic Coast. Their lands stretched southward from Cape Alava to the Hoh River and eastward to the sources of the Quillayute and Hoh rivers. The Hoh band of the Quileutes lived along the Hoh River to the south. Another band, the Chimakums, who migrated to the Port Townsend area, were wiped out in the 1860s by Chief Seattle's Suquamish tribe.

The primary Quileute town at the mouth of the Quillayute River became known to the Americans as La Push, a corruption of the French “la bouche” or the mouth. Traditionally, most of the Quileute lived inland and visited La Push seasonally to fish. The town is presently inhabited full time and is the center of tribal life. The Quileute and the Makah considered the other to be

enemies and raided each other for slaves. Regardless, the tribes also engaged in trade, intermarriage (of nobility), and potlatch ceremonies.

Towering over the entrance to the river is the 200 foot A-Ka-Lat Island (Top of the Rock), also called Alekistet. The island had both great cultural and strategic significance. It was the burial place of Quileute royalty. People were placed in canoe "coffins" and placed on top of the hill. The island was also a source of refuge during fights with the Makah. A store of large logs was kept that could be rolled down upon attackers.

Quileute society was organized around "house group" kinships, each house having a chief. Like the Makah, the Quileute were prodigious wood workers and built large cedar houses with substantial wooden posts and beams. They were also expert canoe builders.

Unlike the Makah, their subsistence did not rely as heavily upon whales. Although they were known to be fine whalers, the Quileute were also experts in hunting seals. They additionally subsisted on shellfish and the bounty of the forest including salmon, elk, bear, deer, wildcat, raccoon, ducks, and geese, in addition to berries and roots.

Like most Northwest Coast tribes, the Makah and Quileute practiced potlatch ceremonies. The potlatch was a feast to celebrate principal events in a tribal member's life during which lavish gifts were distributed to the guests. This served to notify other tribal members, and even other tribes, about the host's wealth, and therefore, status. The potlatch provided opportunities for exchanging information, retelling family stories and histories, and for forming alliances between family groups and villages.

## Hoh

The Hoh people call themselves [Chalá-at](#) (The People Who Live on the Hoh River). While the river gets its name from the Quinault word *Hox*", the Hoh River people themselves, who speak Quileute, call their river *Cha'lak'at'sit*, which means the "southern river." Their artful navigation of the fifty-mile river allowed them to reach village and fishing sites, hunting encampments, and places where they could harvest plants and other resources. The beaches to the north and south of the river mouth, and the ocean promontories and islands, also supplied the Hoh with subsistence resources.

The Hoh River is clearly the focal feature of Hoh tribal life and territory. In aboriginal times, there was nothing secluded about the Hoh Watershed, even its upper reaches. No less than seven permanent settlements were situated along the banks of the Hoh, most with a fishtrap. The river served not only as a riverine thoroughfare leading to their fishing sites and their hunting, trapping, and foraging grounds, it was also the nursery of the salmon and home of freshwater fishes that they harvested as part of their annual cycle.

The Hoh River watershed included the sites of the burials of their ancestors, the hidden locations of their empowering guardian spirits, and the family campgrounds and upstream summer villages near resource gathering areas that were heritable family property. Besides that, there were named landmarks, sites associated with ritual and mythic occurrences, and riverside trails. The "tAlaykila pots'Okw" (Old-time People) appear to have known the watershed well and exploited it extensively, traversing up and down the river in their shovel-nosed river canoes.

## Quinault

In 1855 the Quinault signed a treaty that ceded part of their territory to the United States government, while retaining the portion that constitutes their present day reservation. Shortly thereafter, a considerable number of people from neighboring tribes moved, or were transferred, to the Quinault reservation. Hence, today the Quinault Tribal membership includes seven distinct

groups—Quinault, Quileute, Queets, Hoh, Chehalis, Chinook, and Cowlitz, as well as many sub-bands that have been absorbed or lost individual identity.

The name Quinault stems from *kʷínayt*, the Quinault word for the largest village at the mouth of the Quinault River, now known as Taholah—the seat of the present day tribal government.

Famously, the Quinault constructed superior canoes, with high bows and sterns (many of which could carry fifty to sixty people), which they traded and sold in the Puget Sound and Columbia River regions. Quinault trade networks were extensive.

The Makah, rich in whale oil and dentalium shells, would trade for the famed Quinault “Blueback” sockeye salmon, sea otter skins, and dried elk meat, while the tribes to the south would trade dried razor clams and wild, edible bulbs such as camas, lacamass, or quamash (*Camassia quamash*) and wapato, or duck potatoes (*Sagittaria latifolia*).

### European Colonial Period

The Spanish first explored the Pacific coast in the 16th century. After his 1592 expedition to the region, Juan de Fuca’s name became associated with the strait that separates Canada and the U.S. However, it is unclear whether he ever saw the body of water himself. The Spanish did not attempt to exert influence over the area until the late 18th century. In fear of Russian and English fur traders’ incursions into their claimed territories, the Spanish belatedly sought to secure their own claims on western North America.

The first recorded European contact with the coastal Indians was between the Spanish explorers Bruno Heceta and Don Juan Francisco de la Bodega y Quadra in 1775. They were quickly followed by other Europeans, and later Americans, all hoping to capitalize on the sea otter and fur seal trade. Other ship-bound Europeans and Americans followed as westerners spread out along the western North American coastline to hunt seals, otters, and whales. American contact was disastrous for the Indians, resulting in the decimation of Indian populations from disease. By 1855 most of the tribes were consigned to reservations by the U.S. government.

During Captain James Cook’s 1778 expedition to the region, sailors traded cheap trinkets to the natives in exchange for otter pelts. Accounts of vast profits made selling the pelts to the Chinese at Canton (later in their voyage) tipped off European and American business interests that there was a potential value to exploiting that trade. Merchant ships from the east quickly converged on the Northwest Coast.

Spain negotiated to share the Northwest with Great Britain and attempted to set a boundary by placing a settlement at Neah Bay. The Spanish, however, did not have sufficient strength to maintain the region against mounting foreign incursions. The Spanish, after only six months, abandoned the Neah Bay settlement. American traders swarmed into the area to challenge Britain’s perceived hegemony and to trade with the tribes for otter pelts. As the English established a permanent presence on the north shore of the strait in British Columbia, the Americans claimed primacy south of the Strait of Juan de Fuca.

### Maritime Fur Trade

The official account of Captain James Cook’s expedition to the Pacific Northwest described the value of the potential fur trade. This attracted European entrepreneurs to waters of the Pacific Northwest. At the same time that British and American traders entered the trade, Russian hunting was expanding to the south. Between 1803 and 1846, 72 American ships were involved in the

### First Contact

Stories of first and early contact between European explorers, traders and eventual settlers, and the ancestors of the Olympic Coast tribes are some of the most interesting and significant.

The record is varied with accounts of curiosity, open hostility, and compassion.

otter hunt in California, harvesting an estimated 40,000 skins and tails, compared to only 13 ships of the Russian-American Company, which reported 5,696 otter skins taken between 1806 and 1846. In 1812, the Russians founded an agricultural settlement at what is now Fort Ross in northern California, as their southern headquarters. Eventually, sea otter populations became so depleted, commercial hunting was no longer viable. It had stopped in the Aleutian Islands, by 1808, as a conservation measure imposed by the Russian-American Company. Further restrictions were ordered by the company in 1834. When Russia sold Alaska to the United States in 1867, the Alaskan population had recovered to over 100,000, but Americans resumed hunting and quickly extirpated the sea otter again. Prices rose as the species became rare. During the 1880s, a pelt brought \$105 to \$165 in the London market, but by 1903, a pelt could be worth as much as \$1,125. In 1911, Russia, Japan, Great Britain (for Canada), and the United States signed the Treaty for the Preservation and Protection of Fur Seals, imposing a moratorium on the harvesting of sea otters. So few remained, perhaps only 1,000–2,000 individuals in the wild, that many believed the species would become extinct.

What started with Captain Cook trading sea otter pelts to China in 1778, came to an end in 1910 when the last recorded sea otter in Washington was killed. The following year Russia, Japan, England, and the United States signed the treaty banning the taking of sea otters and fur seals. By that time the otters had been extirpated from nearly their entire range. A few remnant populations survived in remote locations on the Kamchatka coast, in the Aleutian and Commander Islands, and in Prince William Sound. Under protection of the treaty, they began a comeback.

In 1969 and 1970, in an effort to mitigate the effects of U.S. military nuclear weapons testing, 59 otters were moved from Amchitka Island in Alaska to areas along the Washington coast near La Push. It is estimated that the current Washington coast sea otter populations are descended from as few as ten of these animals. A 2013 survey of the Washington coast counted 1272 sea otters.

### Competing Claims of European Powers

At the start of the 19th century, there were conflicting claims in the Pacific Northwest. First and foremost, it is important to remember that these were settled lands. While European powers maneuvered to exert claims and influence, indigenous people went about their own lives interacting with traders on their own terms. The primary players were initially the Russian Empire, the United Kingdom, and the Kingdom of Spain.

On October 20, 1818, in order to improve relations in the wake of the War of 1812, United Kingdom and the United States agree to peaceful coexistence in the Pacific Northwest by signing the Convention of 1818 (also known as the Treaty of Joint Occupation) in London. Under the treaty a large area, including the Olympic Coast, was considered to be free and open for a period of 10 years. The treaty restrained both nations from seeking unfair advantage through accelerated settlement of the area, which was then dominated by the Hudson Bay Company.

The following year, the Transcontinental Treaty of 1819 was signed by the United States and Spain, with Spain ceding Florida to the U.S. and defining the boundary between the U.S. and New Spain. It settled a standing border dispute between the two countries and was considered a triumph of American diplomacy. The treaty established the boundary of U.S. territory and claims through the Rocky Mountains and west to the Pacific

#### *Sv Nikolai*

The 1808 wreck of *Nikolai* (St. Nicholas) dashed Russian plans to establish a trading colony on the Olympic Coast. Had it been successful, it could have strengthened Russian claims to the area. Nonetheless, the shipwreck resulted in one of the earliest documented contacts between Europeans and the Quileute and Hoh tribes.

Ocean. This left the United States and the United Kingdom as the primary non-indigenous players in the region.

In 1838 the United States Navy assembled a fleet of ships for a voyage of exploration in the Pacific Ocean. The U.S. Exploration Expedition, or Ex. Ex., led by Lieutenant Wilkes, sailed in Washington waters in 1841. Their efforts supported the United States' claim to the area during future negotiations with the United Kingdom. The United States took a more aggressive posture after the Wilkes expedition of 1841. Rebellious American settlers in Oregon declared a provisional government in 1843, and some American politicians, using the slogan "Fifty-four Forty or Fight," argued that the American boundary should extend all the way to latitude 54-40, then the southern boundary of Russian Alaska. The British disagreed, and America chose not to fight. In the 1846 Treaty of Oregon, the two nations compromised by establishing the 49th parallel, already the U.S.-Canada border east of the Rockies, as the boundary in the mainland Pacific Northwest.

### **American Period**

The United States and Britain continued to quibble over the Northwest Oregon Territory through much of the early 19th century. Finally, the land that would become Oregon and Washington states became U.S. territory in 1846 with the 49th Parallel Compromise. The "Great Migration" along the Oregon Trail funneled many settlers to the Northwest. Settlements grew around Puget Sound as lumber became a moneymaking industry. The California Gold Rush of 1849 attracted thousands of miners to California and sparked demand for Puget Sound timber. After Washington became a state in 1853, the pressure from American settlers moving into the area led to the placement of the tribes onto reservations. As commerce intensified in and out of the Puget Sound, the government erected lighthouses at critical nearshore shoals to improve navigation. The light at Cape Flattery's Tatoosh Island was built in 1855 on Makah lands and was supplied from the Makah village at nearby Neah Bay.

### **Treaty of Neah Bay and Treaty of Olympia**

The encroachment of settlers had a profound impact on the native tribes' traditional way of life. The United States pressured the tribes to move to reservations in order to make way for American settlement. In 1855, the Treaty of Neah Bay set aside land at Cape Flattery as a reservation for the Makah tribe. Tatoosh Island was appropriated for the lighthouse and was not returned to the tribe until 1984. In 1855-1856, the ancestors of the Hoh Tribe, Quileute Tribe, and the Quinault Indian Nation signed the Treaty of Olympia with the U.S. government. The Hoh and Quileute reservations were subsequently established by Executive Order.

Through treaties with the United States, the Makah, Quileute, Hoh, and Quinault tribes reserved hunting, fishing, and gathering rights to access and utilize the plants, mammals, fish, and other resources of the Olympic Peninsula and its adjacent waters in their respective treaty areas, in perpetuity. The marine ecosystem and its associated natural resources form an essential foundation for the economies and cultures of the Coastal Treaty Tribes, and the Coastal Treaty Tribes view the continued ability to harvest and utilize water, plants, mammals, fish, and other resources of this region as being critical to the protection of their treaty rights and the continuity of their distinct societies.

The treaties of the Coastal Treaty Tribes are part of the "Stevens treaties." These treaties were negotiated in the mid-1850s throughout the lands that are now western Washington with governor of the Washington territory, Isaac Stevens. The 1855 Treaty of Neah Bay with the Makah Indian Tribe and the 1855 Treaty of Olympia with the Hoh Indian Tribe, Quileute Indian Tribe, and the Quinault Indian Nation govern the relationships between the federal government and the Coastal Treaty Tribes.

## Developing Economy

It is important to keep in mind that prior to contact with European explorers, there was a well-developed economy in the Pacific Northwest with trade occurring between various tribes. Much of the early contact between the European and indigenous cultures was associated with the early maritime fur trade. Over time, the focus on trade shifted to settlement with increasing vessels plying the outer coast and the inland waters of the Washington Territory.

In addition to the Territorial Governor securing land for settlers through negotiation with tribal governments, the young United States also worked to map the territory and develop maritime safety infrastructure. The early mapping efforts of Captain George Vancouver and Lieutenant Charles Wilkes were greatly improved by the methodical work of the U.S. Coast Survey from 1851-1853, a predecessor to NOAA. In addition to developing detailed nautical charts, locations for lighthouses were identified. Work continued with the construction of the Cape Flattery and Destruction Island Lighthouses in 1857 and 1892. These aids to navigation were later supported by lightships on Umatilla Reef and Swiftsure Bank in 1898 and 1909.

Despite these efforts to improve maritime safety in the developing Washington Territory, during the last half of the 19th century, increased shipping to and from Puget Sound resulted in increased incidents of shipwrecks along the Olympic Coast. The area is notorious for fog and rain, and winter storms are savage in their intensity. Ships having the misfortune to be caught near the shore risked destruction on the many uncharted submerged pinnacles. Many of the ships that wrecked along the Olympic Peninsula coast at this time were wooden sailing vessels. Ship-rigged “Down-easter” barks and multi-masted schooners entering and leaving the straits were frequently wrecked near the coast.

As the regional economy expanded at the turn of the century and communities evolved, other types of vessels appeared in the coastal waters. Steam powered ships brought trade from around the Pacific Rim countries. Iron-hulled ships were slow to enter use in this region due to the paucity of iron manufacturing on the Pacific coast. Timber was so plentiful and cheap that iron shipbuilding could not compete. Puget Sound shipyards, such as the Hall Brothers, built ships of local timber to carry the lumber trade to the rest of the Pacific Rim.

Smaller craft such as California coastal steamers and sail traders, as well as wooden fishing boats, plied the Northwest Coast waters. Many of these smaller craft based themselves at regional ports like those at Neah Bay and La Push, and were sometimes owned by Native Americans. These small wooden steamers soon became a standard in other regions as well, many serving the plantations in the Hawaiian Islands.

In 1888, three Gloucester schooners from Massachusetts were brought in to fish for halibut at the mouth of the Strait of Juan de Fuca, influencing local fishing boat designs. The introduction of gas engines gave rise to Northwest Coast purse seiners. Regional fishers, whalers, and sealers also made use of locally produced boats, seeking popular game fish like salmon and steelhead trout.

By the early 20th century, Norwegian immigrants and their fleets of wooden, diesel-powered purse seiners based in the Puget Sound dominated salmon and halibut fisheries. Sport fishing also became more prominent when private citizens from the cities were able to afford their own powered boats. Salmon and steelhead trout were popular game fish.

### Fur-Timber-Fish

An understanding of how the economy of the Olympic Coast, and its relationship to the exploitation of natural resources, from pre-contact, the early maritime fur trade, the settlement of the Washington Territory, and into contemporary times is central to the historic context of the sanctuary and surrounding area.

## World War II Era

### Japanese Submarines (I-Boats) on the Washington Coast

The West Coast of the U.S. became an active Japanese patrol zone from December of 1941 through 1942. Japanese military strategists wanted to keep the U.S. "off balance" following the attack on Pearl Harbor; they correctly deduced that a West Coast submarine threat would tie up a considerable number of U.S. patrol vessels and aircraft that were desperately needed elsewhere.

On June 7, 1942, SS *Coast Trader* was sailing from Port Angeles, Washington, to San Francisco, California. About 30 miles from the Strait of Juan de Fuca, it was attacked by a Japanese submarine (I-26). *Coast Trader* managed to launch one lifeboat and two rafts. A nearby fishing vessel, *Virginia I*, towed the lifeboat to Neah Bay 30 hours after the attack. Ten hours later the Canadian corvette *Edmundston* (K-106) picked up the rafts carrying nine officers, 28 men, and 19 armed guards, and landed them at Port Angeles. One man died from exposure before being rescued.

On June 20, 1942, another Japanese submarine (I-25) torpedoed and shelled the freighter SS *Fort Camosun* off Cape Flattery. The crew abandoned ship, but before it sank, it was towed to safety in Neah Bay. The freighter was certainly saved by the crews of the rescuing ships, but also by the fact that its cargo of plywood provided critical buoyancy. No lives were lost. The SS *Fort Camosun* reached safety in Neah Bay. It was subsequently towed to Esquimalt, British Columbia, then to Victoria, then to Seattle for repairs. It returned to help in the war effort and survived another torpedoing in the Gulf of Aden. U.S. destroyers sank the I-25 in 1943.

### WW II Era Shipwrecks

There are a number of WWII era maritime heritage resources in OCNMS. These include commercial vessels that sank during wartime, aircraft that crashed during training, and two U.S. Navy vessels that served in WWII and sank in the sanctuary at a later time.

## The Cold War Era

### 1966 Soviet Fishing Fleet

In 1966, a Soviet fishing fleet appeared off the Washington and Oregon coast. At that time, the U.S. territorial sea only extended to three nautical miles offshore. An account from Bob Hitz, a now-retired marine biologist, describes this remarkable sight during a research trip just off the coast of Washington in 1966:

"Everywhere else there were ships, a huge fleet of Russian ships and as the sun rose, the red hammer and sickle on the stacks seemed to glow from the reflection."

This event angered WWII veterans, Washington Democratic U.S. Senator Warren Magnuson and Alaska Republican Senator Ted Stevens. Cold War politics dominated the worldview of Magnuson, a naval veteran during World War II, who bristled at the sight of Soviet catcher-processors just off the picturesque coastline of Washington and Oregon. Thousands of foreign boats plundered haddock and other fish stocks off New England as well, and Japanese trawlers clustered year-round in Alaska waters. But it was the industrial-scale Soviet fleet off the Pacific Northwest that especially bothered Magnuson.

Magnuson and Stevens agreed it was time for the United States to establish a 200-mile exclusive fisheries zone off the coastlines, and in 1976 an ocean fishery management law, today known as the Magnuson-Stevens Fishery Conservation and Management Act, was passed.

### 1969 Amchitka Nuclear Testing

As mentioned above, the Aleutian island of Amchitka was selected by the U.S. Atomic Energy Commission to be the site for underground detonations of nuclear weapons. Three such tests were carried out: Long Shot, an 80-kiloton blast in 1965; Milrow, a 1-megaton blast in 1969; and

Cannikin in 1971 – at 5 megaton, the largest underground test ever conducted by the United States. These tests were highly controversial—environmental groups feared that the Cannikin explosion, in particular, would cause severe earthquakes and tsunamis. Amchitka is no longer used for nuclear testing, though it is still monitored for the leakage of radioactive materials. As part of mitigation from the nuclear tests, 359 sea otters were captured and translocated to multiple locations including the Olympic Coast.

### United States versus Washington

In the 1970s, American Indian tribes in the state of Washington sought to have greater access to their treaty resources and uphold their treaty rights in federal court. The outcome of this arduous legal path re-established these treaties as the supreme law of the land and culminated in the seminal case of *United States v. Washington*, written by Judge George Boldt and often referred to as the “Boldt decision”. In arriving at the decision upholding the treaty rights, Judge Boldt traced the history of the salmon fishing tribes of the state of Washington to treaty-time signing periods. Judge Boldt’s decision recounts:

*“From the earliest known times, up to and beyond the time of the Stevens’ treaties, the Indians comprising each of the treating tribes and bands were primarily a fishing, hunting, and gathering people dependent almost entirely upon the natural animal and vegetative resources of the region for their subsistence and culture. . . .*

*The treaty-secured rights to resort to the usual and accustomed places to fish were a part of larger rights possessed by the treating Indians, upon the exercise of which there was not a shadow of impediment, and which were not much less necessary to their existence than the atmosphere they breathed. The treaty was not a grant of rights to the treating Indians, but a grant of rights from them, and a reservation of those not granted.” U.S. v. Washington 384 F. Supp. 406-407.*

The treaty right to fish is constrained only by the requirement to ensure fishery resources are preserved and maintained. Additionally, Executive Order 13175 requires the sanctuary to consult with the tribes, in a timely manner, if a proposed regulation might adversely impact them.

### Tribal Journeys

Pacific Northwest tribes were renowned for their seamanship and skill in making canoes. These sea-worthy vessels, crafted from a single red cedar log, were a major part of their culture. Over time as tribal people adopted newer technologies, the building and use of the traditional canoes had almost disappeared. The 1989 “Paddle to Seattle” was the beginning of a revival of traditional tribal maritime heritage. Since that first tribal canoe journey, it has become an almost annual event involving tribes from the United States and Canada. Sometimes, indigenous people from further away will participate with their traditional craft. The first 1989 event started from La Push on the Quileute Reservation. The Washington Coastal Treaty Tribes have hosted four of the journeys, 1997 Paddle to La Push, 2002 Paddle to Quinault, 2010 Paddle to Makah, and 2013 Paddle to Quinault.

### Makah Whale Hunt

The Makah Tribe has always had a special connection to the ocean, and whaling plays a central part of their identity and culture. During treaty negotiations, Governor Isaac Stevens noted that, “the great father knows what whalers you are -- how you go far to sea to take whale.” As a result of the Treaty of Neah Bay, the Makah secured their continued right to whale. While this was a

### Living Cultures

U.S. versus Washington, Tribal Journeys, and the Makah Whale Hunt are important examples of how the past and present come together in the Living Cultures of the Olympic Coast Treaty Tribes.

recognized treaty right, commercial whaling decimated whale populations, leading the Makah to give up whaling in 1928. During the sanctuary designation process, the Makah made it clear to NOAA that when the gray whale was delisted from the endangered species list, that they would seek to resume exercising their treaty right. This was recognized in NOAA's 1993 OCNMS Final Environmental Impact Statement/Management Plan.

## Appendix C: Treaties, Laws, Regulations, and Policies related to Maritime Heritage Resource Management

The following are relevant references and summaries for treaties, key legislation, regulations, and policies that are relevant to the MHRMG.

**Treaty of Neah Bay** (Makah Tribe, 1855) cedes much of Makah traditional lands to the federal government, and restricts tribal lands to the Makah Reservation. It also preserved the Makah people's right to fish, and hunt whales and seals "at usual and accustomed grounds and stations."

**Treaty of Olympia** (Quileute Tribe, Hoh Tribe, and Quinault Indian Nation, 1856), provided signatory tribes with off-shore treaty rights that overlap with the present-day sanctuary boundaries. Preserved tribal right of fishing "in all usual and accustomed grounds and stations."

### ***United States versus Washington***

Reaffirmed the reserved treaty right of American Indian tribes in the state of Washington to act alongside the state as co-managers of salmon and other fish, and to continue harvesting them in accordance with the various treaties that the U.S. had signed with the tribes. This includes fishing at traditional locations off the designated reservations:

"Further, the Coastal Treaty Tribes' fishing rights are: '...not limited as to species of fish, the origin of fish, the purpose or use, or the time or manner of taking except to the extent necessary to achieve preservation of the resource and to allow non-Indians an opportunity to fish in common with treaty right fishermen outside the reservation boundaries.'" 384 F. Supp. 312,401 (W.D. Wash. 1974)."

### **National Marine Sanctuaries Act (16 U.S.C. §§ 1431 *et seq.*)**

- Section 301(a)(1) – Defines "historical, scientific, educational, cultural, archeological, or esthetic" qualities of environment as having special national significance worthy of protection.
- Authorizes the Secretary of Commerce to designate and protect areas of the marine environment, as well as the following tools for environmental protection:
  - Issue regulations for each sanctuary and for the whole ONMS
  - Prepare and periodically update management plans, guiding day-to-day activities at each sanctuary
  - Authority for NOAA to assess civil penalties for violations of the NMSA or its implementing regulations and to seek damages against people that injure sanctuary resources
  - Requires agencies, whose actions are likely to destroy, cause the loss of, or injure a sanctuary resource, to consult with the program before taking action
- Establishes a policy for the development of coordinated plans for protections and management of sanctuaries with Native American tribes/organizations and other public/private interests concerned with the marine areas.

## National Historic Preservation Act (54 U.S.C. §§ 100101 *et seq.*)

### Section 106<sup>9</sup>

Requires federal agencies to take into account the effects of their undertakings on historic properties and affords the Advisory Council on Historic Preservation a reasonable opportunity to comment. An undertaking includes federal approvals, permits, or licenses of non-federal activities. Thus, the permitting of disturbance on the seabed having the potential to impact submerged archaeological sites would require OCNMS to identify any historic properties within the area potentially impacted by the permit.

### Section 110<sup>10</sup>

Sets out historic preservation responsibilities of federal agencies including establishing a “program for the identification, evaluation, nomination to the National Register (of Historic Places), and protection of historic properties....”

### Section 304<sup>11</sup>

The National Register can withhold from public disclosure information about the character, location, or ownership of a property if, as determined by the agency and Secretary of the Interior, disclosure may:

- (1) *cause a significant invasion of privacy;*
- (2) *risk harm to the historic resource; or*
- (3) *impede the use of a traditional religious site by practitioners.*

## Applicable OCNMS Regulations Excerpts

NOAA promulgates regulations as part of the sanctuary designation process, with additional changes if needed. OCNMS regulations that are most applicable to the MHRMG are those that identify prohibited or otherwise regulated activities and those that permit prohibited activities in certain circumstances (15 C.F.R. §§ 922.152, .153). One prohibited activity specifically intended to provide protection to “historical resources,” 15 C.F.R. § 922.152(a)(4), prohibits “Moving, removing or injuring, or attempting to move, remove or injure, a Sanctuary historical resource. This prohibition does not apply to moving, removing or injury resulting incidentally from lawful fishing operations.” There are also prohibited activities that if permitted could, in theory, cause an unintended impact on a maritime heritage resource. These include prohibitions against seafloor disturbance, e.g., “drilling into, dredging, or otherwise altering the submerged lands of the sanctuary” (15 C.F.R. § 922.152(a)(5)).

### Data Sharing

To protect resources from potential damage from unauthorized disturbance, the Washington State Department of Archaeology and Historic Preservation (DAHP) adopted the policy to withhold the locations of archaeological resources from the public. At the request of the State Historic Preservation Officer, and to the extent consistent with federal law, OCNMS has adopted this policy. On a case-by-case basis, OCNMS may want to make the location of shipwrecks known to the public.

The sanctuary may issue permits, subject to certain terms and conditions, to conduct prohibited activities (15 C.F.R. § 922.153). In general, the following 3-part test must be met:

1. The activity will not substantially injure sanctuary resources and qualities

<sup>9</sup> On December 19, 2014, Public Law 13-287 recodified the NHPA from title 16 of the United States Code to title 54, with minimal and non-substantive changes to the text of the Act and a re-ordering of some of its provisions. NHPA Section 106 is now codified at 54 U.S.C. § 306108.

<sup>10</sup> NHPA Section 110 is codified throughout 54 U.S.C. § 3061.

<sup>11</sup> NHPA Section 304 is codified at 54 U.S.C. § 307103.

2. The activity will further one of the following:
  - a. research related to sanctuary resources and qualities;
  - b. the educational, natural, or historical resource value of the sanctuary;
  - c. salvage or recovery operations in or near the sanctuary in connection with a recent air or marine casualty;
  - d. assist in managing the sanctuary;
  - e. further salvage or recovery operations in connections with an abandoned shipwreck in the sanctuary title to which is held by the state of Washington; or
  - f. promote or enhance tribal self-determination, tribal government functions, the exercise of treaty rights, the economic development of the tribe, subsistence, ceremonial and spiritual activities, or the education or training of tribal members.
3. The applicant has the professional qualifications and financial ability to conduct the proposed activity.

In addition to the above, the sanctuary may also consider the impacts of the activity on adjacent American Indian tribes. (15 C.F.R. § 933.153(c)). Where the issuance or denial of a permit is requested by the governing body of an American Indian tribe, the sanctuary shall consider and protect the interests of the tribe to the fullest extent practicable in keeping with the purposes of the sanctuary and the government's fiduciary duties to the tribe. The tribes' interest in maritime heritage resources was a consideration during the original sanctuary designation and resulted in specific regulatory language that was requested by tribal governments.

During the original designation, tribal governments raised a concern related to NOAA's role in cultural and historical resources (or maritime heritage resources) management. Comments on proposed regulations addressing cultural resources asserted that the proposed regulations failed to preserve the tribes' ability to control access to, and removal of, their cultural heritage. In response to this concern, NOAA noted in a response to comments<sup>12</sup> that the NMSA gives OCNMS the authority to control access to cultural artifacts within the sanctuary thereby helping to ensure their preservation. Accordingly, anyone proposing to remove a cultural or historic resource must apply for and obtain a sanctuary permit from NOAA. NOAA also acknowledged the interest of the coastal tribes in preserving their cultural heritage and, in particular, those cultural artifacts of tribal significance found within the sanctuary. NOAA noted its belief that its objective of preserving the historical and cultural resources of the sanctuary to be compatible with the coastal tribes' desire to preserve their cultural heritage.

In response to these concerns, at the time of designation NOAA modified the proposed regulations adding two paragraphs. Paragraph 15 C.F.R. § 922.153(g) states that if the proposed activity involves or affects resources of cultural or historical significance to a tribe, the sanctuary must obtain the express written consent of the governing body of an Indian tribe prior to issuing a permit. Paragraph 15 CFR § 922.153(h) addresses permitting to allow removal of Indian cultural resources or artifacts and entry onto significant cultural sites designated by a tribal government. Such a permit would also require express written consent of the appropriate governing body of the tribe or tribes to which such cultural sites pertain.

---

<sup>12</sup> Olympic Coast National Marine Sanctuary Regulations; Notice of National Marine Sanctuary Designation; final rule; and summary of final Management Plan, 59 Fed. Reg. 24586 (May 11, 1994).

## **Executive Order 13175**

### **November 6, 2000, requiring federal agencies to consult with Indian Tribes when regulations have the potential to affect their rights**

Executive departments and agencies are charged with engaging in regular and meaningful consultation and collaboration with tribal officials in the development of federal policies that have tribal implications, and are responsible for strengthening the government-to-government relationship between the U.S. and Indian tribes. To implement this order, NOAA has developed Procedures for Government-to-Government Consultation With Federally Recognized Indian Tribes and Alaska Native Corporations.

## **Related Laws**

### **Abandoned Shipwreck Act (43 U.S.C. §§ 2101 – 2106)**

States are entitled to abandoned shipwrecks within a three nautical mile boundary of their shoreline. The law does not apply to military wrecks or wrecks that lie on Indian lands.

### **Sunken Military Craft Act (Pub. L. 108–375)**

Preserves sovereign status of sunken U.S. military vessels and aircraft by codifying both their protected sovereign status and permanent U.S. ownership, regardless of the passage of time.

### **Archaeological and Historical Preservation Act (54 U.S.C. § 3125)**

All federal agencies are authorized to fund archaeological investigations, reports, and other kinds of activities to mitigate the impacts of their projects on important archaeological sites.

Section 3: Secretary can assist other federal agencies/private organizations/individuals in meeting the historical and archeological preservation requirements under the statute if the project is expected to result in the loss/destruction of significant scientific, historical, or archeological data.

Section 4: Secretary can undertake necessary studies (independent or preferably in consultation) with the relevant federal agency if significant data may be irrevocably lost/destroyed.

### **Archaeological Resources Protection Act (16 U.S.C. §§ 470aa – 470mm)**

Describes requirements that must be met before federal agencies can issue permits to excavate/remove archeological resource on federal or Indian lands. Passed to provide more effective law enforcement to protect public archeological sites. Requires that federal land managers create programs to promote the protection archaeological resources via public education and outreach.

### **National Environmental Policy Act (42 U.S.C. §§ 4321 et seq.)**

Mandates agencies to prepare either an Environmental Impact Statement (EIS) or Environmental Assessments (EA) of any federal action that significantly affects the quality of the human environment.

## Appendix D: Olympic Coast National Marine Sanctuary Maritime Heritage Spatial Data

NOAA began to research OCNMS shipwrecks shortly after designation in 1994. An initial list of 150 shipwrecks was the basis for the OCNMS Maritime Heritage Database. As of July 2015, the database contained 197 data records with summaries of research conducted, over many years, by Robert Schwemmer, West Coast Regional Maritime Heritage Coordinator. This data was reviewed and evaluated to improve OCNMS NHPA Section 106 compliance. Location information was reviewed and each record was assigned a location reliability code:

1 = Confirmed through physical verification and has been accurately positioned (e.g., with GPS or on an accurate modern map), or is identified on the basis of accurately positioned remote-sensing survey. The location is considered to be very reliable such that a wreck would be easy to relocate using standard DGPS equipment.

2 = A specific location is provided by an informant, reported in the literature, or on a map. The location reliability is considered to be moderate to good. It is anticipated that these sites could be discovered, but discovery would require a moderate amount of field survey with remote sensing equipment and/or additional historical research.

3 = A general location is provided by an informant or in the literature. Included in this category are general positions provided in relation to a known landmark. The location reliability is considered to be fair to poor. Discovery of sites included in this category could be very difficult and would require a considerable amount of historical research and/or remote sensing survey.

4 = Unreliable or vague locational information is provided. Examples would include many early accounts of vessel losses with general indications of loss. Directed searches for these vessels are nearly impossible and their discovery will mainly be by chance.

From the original 197 records in the database, a shapefile of 69 historic vessels was created. The extraction criteria looked at vessels with a location reliability of 1-3, were built at least 50 years prior to 2015, and were believed to be either within OCNMS or within three nautical miles. This is the population of potentially historic wreck sites (See Figure 4 and Table 2) that are being used for management purposes. The current database is maintained by Robert Schwemmer, the West Coast Regional Maritime Heritage Coordinator. OCNMS has utilized that information to create a GIS layer for the purposes of Maritime Heritage Resources Management and in the future will coordinate with the West Coast Regional Maritime Heritage Coordinator to maintain it.

## OCNMS Maritime Heritage Resources July 16, 2014

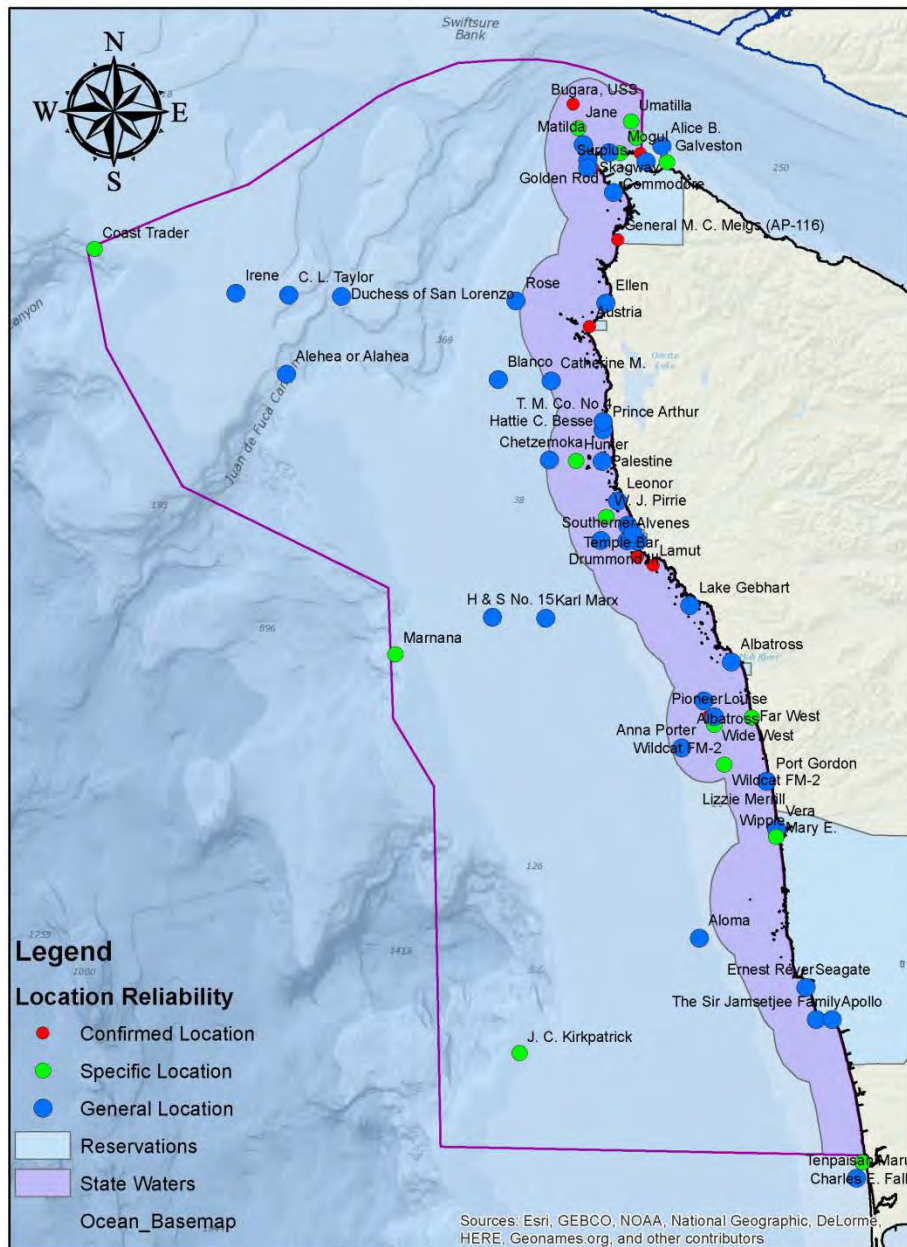


Figure 4: OCNMS Maritime Heritage spatial data, provided to DAHP in July 2016. Includes vessels with confirmed, specific, and general locations.

Table 2: Summary of OCNMS Potentially Historic Shipwrecks, data provided to DAHP on July 2016. Does not include vessels with unreliable or vague location information

<i><b>Vessel Name</b></i>	<i><b>Location Reliability</b></i>	<i><b>General Location</b></i>	<i><b>Year Built</b></i>	<i><b>Year Lost</b></i>
<i>Southerner</i>	3	La Push, Near James Island	1846	1854
<i>Ellen Foster</i>	1	Neah Bay, Koitlah Point	1852	1867
<i>Palestine</i>	3	Cape Flattery, 25 Miles South of	1854	1859
<i>Emily Farnum</i>	1	Destruction Island, South End of	1854	1875
<i>Pelicano</i>	3	Neah Bay, Western Point Rocks	1856	1875
<i>Commodore</i>	3	Cape Flattery, Tatoosh Island 2-4 miles south	1856	1877
<i>Matilda</i>	3	Tatoosh Island, Rocks at West End [then drifted]	1857	1897
<i>Irene</i>	3	Cape Flattery, 30 Miles West Southwest	1859	1887
<i>C. L. Taylor</i>	3	Cape Flattery, 25 Miles Southwest by West of	1861	1883
<i>Hattie C. Besse</i>	3	Cape Flattery, 20 Miles South of	1862	1871
<i>The Sir Jamsetjee Family</i>	3	Quinault River, Near (Cape Elizabeth)	1863	1886
<i>Prince Arthur</i>	3	Cape Johnson, Kayostla Beach	1869	1903
<i>Austria</i>	1	Cape Alava	1870	1887
<i>Leonor</i>	3	Quillayute River, 3 miles north of (Cape Johnson on Western shore)	1874	1893
<i>Cassandra Adams</i>	3	Destruction Island, North Reef of	1876	1888
<i>Wide West</i>	2	Destruction Island, Southeast of	1877	1889
<i>Ellen</i>	3	Ozette River, Mouth of	1880	1891
<i>Port Gordon</i>	3	Destruction Island, 7 Miles below on mainland	1882	1889
<i>W. J. Pirrie</i>	2	La Push, North Side of Cake Rock	1883	1920
<i>Hunter</i>	2	Cape Johnson, Near (off Carroll Island)	1883	1920
<i>Lizzie Merrill</i>	3	Queetz River, 5 Miles North	1885	1886
<i>Mogul</i>	2	Tatoosh Island, Beached 2 Miles East of	1886	1895
<i>Charles E. Falk</i>	2	Copalis Rocks- 2 Miles South on Beach	1889	1909
<i>Mary E.</i>	3	Queets River Bar	1891	1894
<i>Albatross</i>	3	Mouth of Hoh River	1897	1903
<i>Drummond III</i>	3	La Push Beach	1900	1901
<i>Ernest Reyer</i>	3	Quinault River, Mouth of	1900	1901
<i>Vera</i>	3	Queets River, Mouth of	1902	1906
<i>Catherine M.</i>	3	Foulweather Bluff, Umatilla Light - 4 Miles south	1902	1924

<i>Vessel Name</i>	<i>Location Reliability</i>	<i>General Location</i>	<i>Year Built</i>	<i>Year Lost</i>
<i>T. M. Co. No 4</i>	3	Ozette Island, 6 1/2 Miles South	1903	1925
<i>Apollo</i>	3	Point Grenville, About 4 miles North of Moclips Beach	1907	1910
<i>Rose</i>	3	Umatilla Lightship, Off	1907	1951
<i>Golden Rod</i>	3	Tatoosh Island, 1 Mile South	1907	1955
<i>Skagway</i>	1	Skagway Rocks	1908	1929
<i>Anna Porter</i>	3	Destruction Island, 3 Miles Southwest of	1909	1919
<i>Tenpaisan Maru</i>	3	Copalis Beach	1911	1927
<i>Garfield No. 6</i>	3	La Push, Rialto Beach	1911	1937
<i>Albatross</i>	3	Destruction Island	1912	1914
<i>Alice B.</i>	3	Neah Bay, 1 Mile West of Lifesaving Station	1912	1929
<i>H &amp; S No. 15</i>	3	Quillayute River, 12 miles southwest	1913	1931
<i>Karl Marx</i>	3	Neah Bay - Koitlah Point	1914	1925
<i>Liberty Bell</i>	2	Neah Bay, 3 miles Northwest From Lifesaving Station	1918	1931
<i>Lake Gebhart</i>	3	Toleak Point, Giants Graveyard (8 miles north of Destruction Island)	1919	1923
<i>Lamut</i>	1	Quillayute Needles, shoals off Teahwhit Head	1919	1943
<i>Wipple</i>	2	Queets Bar, South Spit	1920	1922
<i>Umatilla</i>	2	Tatoosh Island, 3 Miles East and 2 Miles off shore	1920	1934
<i>Coast Trader</i>	2	Cape Flattery, 37 Miles Southwest of Tatoosh Island	1920	1942
<i>Secure II</i>	3	Tatoosh Island, Off	1924	1930
<i>Galveston</i>	2	Neah Bay, Struck Rocks Baaddah Point, Sunk 800 yards from Neah Bay Light	1924	1954
<i>Blanco</i>	3	Umatilla Lightship, 6 Miles Southwesterly Of	1925	1936
<i>Alvenes</i>	3	Quillayute River, James Island	1927	1931
<i>Chetzemoka</i>	3	La Push, Nine Miles Northwest	1927	1977
<i>Temple Bar</i>	1	Quillayute Needles	1928	1939
<i>Jane</i>	2	Tatoosh Island, Duntze Rock Buoy 4 Miles Off	1930	1959
<i>Surplus</i>	3	Skagway Rocks	1943	1961
<i>Seagate</i>	3	Mouth of the Quinault River	1944	1956
<i>Bugara, USS</i>	1	Cape Flattery, Off	1944	1971

<i>Vessel Name</i>	<i>Location Reliability</i>	<i>General Location</i>	<i>Year Built</i>	<i>Year Lost</i>
<i>General M. C. Meigs (AP-116)</i>	1	Cape Flattery, 7 Nautical Miles South of Portage Head "Wreck Cove"	1944	1972
<i>Marnana</i>	2	La Push, Off	1954	1974
<i>Sv. Nikolai (St. Nicholas)</i>	3	Quillayute River, North of James Island	unknown	1808
<i>Duchess of San Lorenzo</i>	3	Cape Flattery, 25 Miles Southwest of	unknown	1854
<i>Alehea or Alahea</i>	3	Cape Flattery, 30 Miles Southwest	unknown	1873
<i>Far West</i>	2	Steamboat Creek	unknown	1903
<i>Aloma</i>	3	Destruction Island, 15 Miles South of	unknown	1924
<i>Pioneer</i>	3	Destruction Island	unknown	1927
<i>Louise</i>	3	Destruction Island	unknown	1927
<i>Wildcat FM-2</i>	2	Destruction Island, 3 1/2 Miles 165 Degrees True off	unknown	1944
<i>Wildcat FM-2</i>	2	Destruction Island, 3 1/2 Miles 165 Degrees True off	unknown	1944
<i>J. C. Kirkpatrick</i>	2	Point Grenville, 23 Nautical Miles Southwest of	unknown	unknown

## Appendix E: Western Olympic Peninsula Maritime Archaeological Surveys

### Introduction

Between 1995 and 2001, Olympic Coast National Marine Sanctuary undertook five surveys to document historical shipwrecks within the near-shore coastal zone. These surveys included acoustic and magnetic remote sensing, diver identification of target anomalies and a visual survey in the intertidal zone. Those surveys included:

- A. July 1995 - Remote sensing of the coastal area at the mouth of the Strait of Juan de Fuca, Cape Flattery's Pacific coast, and the associated islands.
- B. August 1996 and August 1997 - Diver ground-truthing of Cape Flattery target anomalies.
- C. June 1997 - Archaeological reconnaissance of the remains of the bark *Austria* at Ozette Beach, Cape Alava.
- D. September 2000 - Remote sensing of Destruction Island near-shore and vicinity.
- E. September 2001 - Remote sensing in the vicinity of La Push.

The overall research design for the project, developed in 1994, considered that there were close to 200 shipwrecks reported in the approximate sanctuary region<sup>13</sup>. Of that number, more than half were reported to have occurred in the near-shore areas. Most deep water losses did not have site locations. The sanctuary personnel and the program archaeologist, having only a small budget allotted for survey, determined that resources would be best spent on looking in the more accessible near-shore areas. The team also determined that the Cape Flattery peninsula and islands presented three unique environments that might create different conditions for shipwreck preservation.

- Pacific Coast - The westward-facing Pacific Coast absorbs yearly direct attacks of severe winter weather that include strong winds, rain, and massive waves. It was expected that wood and iron shipwrecks in this area would absorb much abuse and the preservation level would be poor.
- Island - Tatoosh Island and rocks off Cape Flattery and the various rocks, pinnacles, and island that extend southward to Destruction Island also take the brunt of storms but also have leeward sides that might offer some degree of protection to mariners, as well as shipwrecks that may have sunk here.
- Strait of Juan de Fuca - The Cape Flattery shore faces northward and is not as subject to direct assault by the environment. It was expected that this area might provide the best level of preservation of shipwreck remains.

The surveys were preceded by literary and historical research to determine the range of shipwrecks reported lost in the area of the OCNMS. A database was compiled by Robert Schwemmer while affiliated with the Coastal Maritime Archaeology Resources organization (CMAR) to assist in determining the range and distribution of historically reported shipwrecks. The research plan listed zones of high probability for shipwreck remains. Factors determining probability included historically high shipping traffic, near-shore navigational hazards, and historically reported losses. These areas were also selected for relative ease of access from nearby Neah Bay and La Push.

---

<sup>13</sup> The Olympic Coast National Marine Sanctuary's archaeological site database presently has 197 vessel loss reports.

## Previous Research

While there have been several authoritative historic studies of West Coast shipwrecks that include the Cape Flattery vicinity, there have been no known archaeological studies. In 1994, a database was marketed to scuba divers that gave a handful of regional shipwreck site locations developed from historical sources (Barnard 1994).

Most regional coastal archaeological studies have been terrestrial in nature and directed at the rich prehistoric Northwest native culture. The most prominent being the long term project directed at the Ozette site at Cape Alava in the 1970s. In 2003, OCNMS contracted for an assessment of offshore coastal areas to determine potential for the study of the submerged paleoshoreline. The study found that while no prehistoric archaeological sites were known within OCNMS, that they could be present. The study concluded that identifying favorable search areas would be constrained by both limited knowledge of sea level history and limited knowledge of the details of the bathymetry and sediment cover of the seabed in the sanctuary (Wesson 2003).

## Project Education and Outreach

Project outreach was coordinated by the OCNMS Education Coordinator Robert Steelquist. The sanctuary coordinated press releases and all press events. A component of the education and outreach was the development of the (town of) Forks Community Shipwrecks Project. The project, which was funded by Clallam County Historical Society, the Quillayute School District, and NOAA's OCNMS, was created as a model for community-based research. Community project participants interviewed other community members about knowledge and stories regarding shipwrecks along the Clallam County shoreline. The project wrote and distributed six issues of their *Wreckage* Newsletter. A grant from NOAA's Maritime Heritage Program provided for the preparation and distribution of a series of booklets on several of the well-known shipwrecks in the area.

## A. Cape Flattery Remote Sensing Survey

**Project Dates:** July 21, 1995 - July 25, 1995

### Survey Area

Remote sensing survey of the near-shore coastal zone at the mouth of the Strait of Juan de Fuca on Cape Flattery from Koitlah Point to Cape Flattery and south to Makah Bay at the Waatch River. Also included is the areas surrounding Tatoosh Island, Duncan, and Duntz Rocks.

### Summary

OCNMS contracted Battelle/Marine Sciences Laboratory (MSL) of Sequim, Washington to conduct marine remote sensing of three discrete areas of the Washington coast to assess the presence of historic shipwreck remains.

### Methodology

The Olympic Coast National Marine Sanctuary Historic Shipwreck Database was initially prepared for this project to determine the shipwrecks that would have a high probability of being located at Cape Flattery. The database suggested at least 19 potentially historic shipwrecks in the survey area. Research also included documentation of local diver reports. Local intelligence indicated shipwreck information in the following locations:

**Koitlah Point** - A debris field of shipwreck artifacts that include "Square spikes, pins, copper sheathing, 'ballast bricks,' and anchor chain. In this same area a sailmaker's kit (curved needles) was discovered. If you follow the anchor chain to shallower water, 'one' of the anchors is attached." Other artifacts that have been recovered in this area include a block, a hatch cover, a porthole glass pane (1" thick by 8" diameter), and its mounting base (personal conversation Mike Ramsdell to Robert Schwemmer, CMAR, August 19, 1997).

Further conversation with Ramsdell discloses that a salvage diver named Benjamin recovered a cannon from the site in 1929. He may have been there salvaging the FV *Alice B.* which sank the same year. Also recovered was a small port hole (email Robert Schwemmer to Patrick Smith, August 9, 1998).

**Chibahdehl Rocks** - Drift pins noted among the rocks at Chibahdehl by sanctuary diver George Galasso (personal conversation George Galasso to Bruce Terrell, July 1995).

**Fuca's Pillar.** - "Big metal wreck with a propeller just off Fuca's Pillar," thought to be the *Skagway* (personal comments, Roland Anderson to Robert Steelquist, OCNMS, December 8, 1995)."

**Slant Rock** - "Three very large anchor chains just west of Slant Rock" (personal comments, Roland Anderson to Robert Steelquist, OCNMS, December 8, 1995).

**Waatch Point** - Shipwreck remains on rocky beach at low tide. Includes at least three oak frames and wooden timber fragments with cupreous fasteners ("copper rivets") (personal comments, Robert Cole to Bruce Terrell, June 1995 and Jeff Hummel to Bruce Terrell, July 19, 1995).

## Remote Sensing Survey

### Equipment

Battelle/Marine Sciences Laboratory (MSL) of Sequim, Washington was the selected contractor for remote sensing. MSL used an Overhauser magnetometer and a GEM Systems GSM-19 marine side-scan sonar with a graphic plotter for the magnetometer data. Positioning was with a Magellan DGPS. OCNMS provided their research vessel R/V *Tatoosh* as the survey platform. The *Tatoosh* is a Washington-built 38' aluminum Munson Hammerhead Hull with twin Caterpillar 3126 400hp engines. At the time of the survey the vessel had propeller outdrives. *Tatoosh* also had WAAS enabled GPS chartreader, magnetic steering compass, fluxgate compass, Radar, depth sounder, Nobeltec visual navigation suite, and AIS transponder and display. The boat was captained by NOAA LT John Herring. The remote sensing technician for MSL was Paul Farley and deck personnel included Mark Norder, Patrick Smith, and Robert Schwemmer of Coastal Marine Archaeological Resources (CMAR). Bruce Terrell was chief archaeologist and principal investigator.

### Operations

The Cape Flattery coast is rife with submerged rocks, pinnacles, and rocky headlands. It also contains kelp beds in the near-shore area capable of ensnaring sensors. The boat driver was not familiar with the area of the survey and so a survey procedure was developed in which the initial lane, at the 10 fathom bathymetric line, was driven parallel to the shore and from the outside of the shoreline, and each subsequent lane was closer to shore than the previous. A maximum lane spacing of 50 meters was observed and there was greater overlap as the lanes closed on the shoreline.

The individual survey areas were as follows:

- 1A Hole in the Wall to lower Fuca Pillar
- 1B Rocks below Fuca Pillar to Waatch Point
- 2A Duntze Rocks East to Tatoosh South
- 2B Duntze Rocks West to Tatoosh South
- 2C Tatoosh Island to Hole in the Wall
- 3 Makah Bay
- 4 North Cape Flattery Near-shore to Chibahdehl Rocks

### Survey Results

Survey results were provided by MSL in analog form. Magnetometer data was provided in table form indicating field intensity in gammas against start and end time of each lane run. The survey technician discussed the difficulty of interpreting the magnetic data due to the fluctuations in the background electromagnetic field due to the volcanic actions in the past (personal comments Paul Farley to Bruce Terrell, July 24, 1995). The Earth's magnetic field in the survey area has a magnetic value that averages between 54,000 and 55,000 gammas except for some local regions that contained variations from the average. When the magnetometer passes over objects of ferrous nature or that have undergone high heat, such as bricks, they will reflect a variance to the background field. That variance is measured in gammas (Cantelas 2001:24). Although most magnetometer surveys for archaeological purposes creates contour maps for graphical representation of the magnetic variance, MSL did not have this capability and magnetic signatures were presented in chart form and with graphic maps. MSL also did not log the length of time of each anomaly.

MSL identified six magnetic anomalies of significant variance from the background magnetic field that could reflect human origin. MSL also identified five sonar targets that had the potential to be of human origin. MSL used an alpha notation (A-K) to identify the resulting 11 targets. These are noted in Table 3, Figure 5 and Figure 6.

Table 3: Sonar and magnetic anomalies identified in the 1995 Cape Flattery Survey

Location	Target Numbers	MSL Tag	Gamma (g) Variation	Analysis
Chibahdehl Rocks	Mag-1	MSL A	40	No associated sonar target.
Slant Rock	Mag-2	MSL B	40	No associated sonar target.
Slant Rock	Mag-3	MSL C	55	No associated sonar target.
Tatoosh Island	Mag-4	MSL E	70	No associated sonar target.
Between Hole in the Wall and Mushroom Rock	Mag-5	MSL F	50	No associated sonar target.
Tatoosh Island	Mag-6	MSL H	90	No associated sonar target.
Tatoosh Island	Son-1	MSL D	N/A	Shape did not contain straight lines, no associated magnetic anomaly, not believed to be human origin.
Tatoosh Island	Son-2	MSL G	Near Mag-6	Backscatter suggest a solid mass likely to be a geological feature. Only the presence of a magnetic anomaly flagged it as having potential human origin.
Makah Bay	Son-3	MSL I	N/A	At the time the sonar target was acquired the magnetometer was not recording, so there is no accompanying magnetic data. Box-like shape of the anomalies suggest human origin.
Makah Bay (Same location as Son-3)	Son-4	MSL J	N/A	Son-4 recorded in close proximity to Son-3, appear to be part of the same assemblage.
Portage Head	Son-5	MSL K	N/A	This target was acquired at the known site of the sinking of the Army transport <i>General M.C. Meigs</i> .

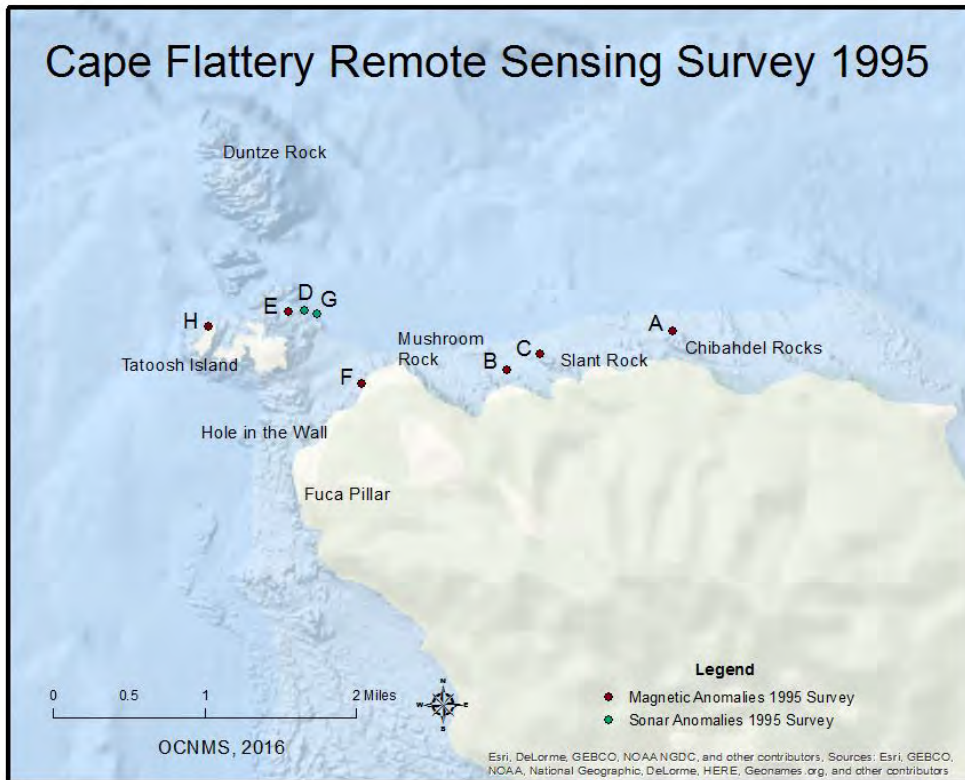


Figure 5: 1995 Cape Flattery Survey Location from Chibahdel Rocks to Waatch Point

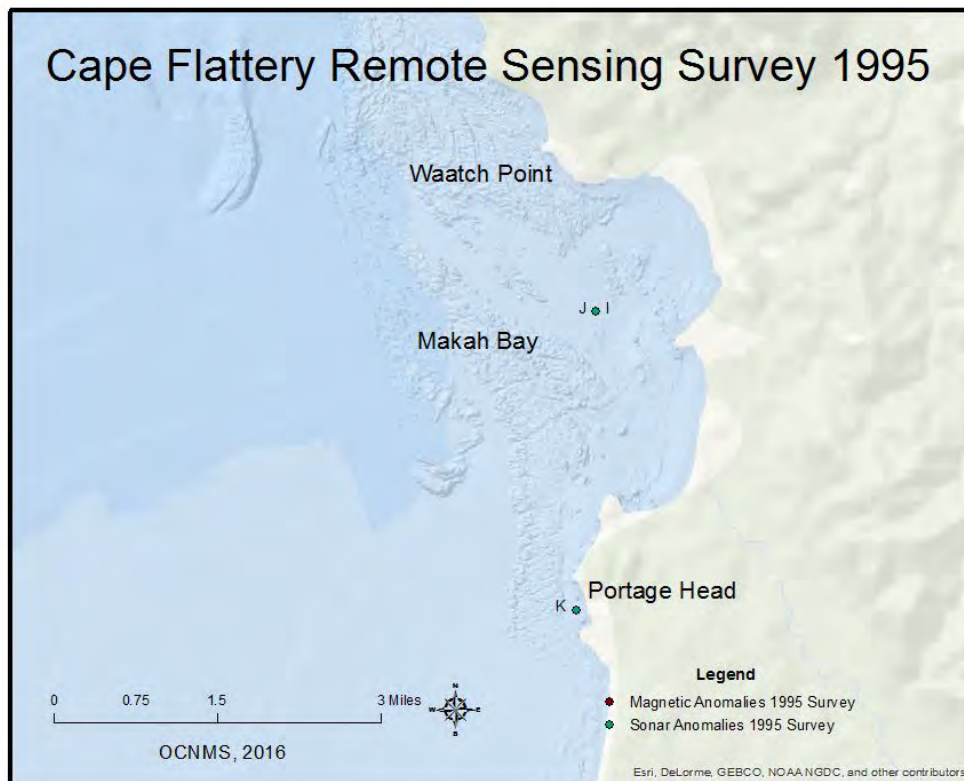


Figure 6: 1995 Cape Flattery Survey Location from Waatch Point to Portage Head

## Data Interpretation

### 1A Hole in the Wall to lower Fuca Pillar

There were no sonar anomalies recorded at this section of the coast. Two magnetic anomalies, #5 (50 gammas) and #6 (70 gammas), indicate the presence of some sort of ferrous metal in the vicinity of Fuca Pillar. Barely awash rocks and strong surging currents prevented the R/V *Tatoosh*'s captain from getting in as closely as the archaeologists would have wanted. The primary historic shipwreck in the area of Fuca Pillar was the steamer *Skagway*. Local diver intelligence reported the presence of a large metal propeller and three large anchor chains in this area which would suggest *Skagway* wreckage. It is presumed that the magnetic anomalies may be associated with the wreck of the *Skagway*.

### 1B Rocks below Fuca Pillar to Waatch Point

There were no magnetic or sonar targets located in this stretch of Cape Flattery. Historical records record no wrecks although there were several wrecks recorded as foundering "south of Tatoosh Island."

### 2A Duntze Rocks East to Tatoosh South, and 2B Duntze Rocks West to Tatoosh South, and 2C Tatoosh Island to Hole in the Wall

Historical records report at least three vessels wrecking on Tatoosh Island. Magnetic Anomaly #6 (MSL H) indicates a 90 gamma anomaly at the western end of Tatoosh Island in about 80' of water. Sonar Target #2 was also recorded to the northeast of Tatoosh Island, however it had no corresponding magnetic signature and may be of geological origin. Two of the wrecks in the historical narrative, the fishing boat *Suzy Lane* and the bark *Matilda*, were both reported as having gone up on the reef. The lighthouse crew were even able to remove the "crew's affects" from the *Matilda*. It is possible that these wrecks were up on the rocks and that subsequent storms scattered the wreckage far beyond the near-shore area.

### 3 Makah Bay

Although there are no historic accounts that record a shipwreck in Makah Bay, there are anecdotal accounts that report shipwreck remains on the rocks at Waatch Point at the northern boundary of the bay. These remains include wooden frames with cupreous fasteners still attached. This would suggest the remains of a 19th or early 20th century ship. These could be remains from one of several wrecks either on Tatoosh Island or which foundered just south of the island. Survey in close to Waatch point was not possible due to dangerous rocks and currents, however the team was able to survey parts of Makah Bay. Since the survey computer's hard drive was full, MSL was only able to survey with the side scan sonar. Sonar targets #3 and #4 (MSL I and MSL J) indicated scattered material that is likely of human origin. The images included solid rectangular and also box-like objects.

### 4 North Cape Flattery Near-shore to Chibahdehl Rocks

Only three small magnetic anomalies were detected in the North Cape Flattery Near-shore area. Magnetic anomalies #1 and #2 (MSL A and MSL B) were of small gamma variation and were in the Chibahdehl Rocks and Mushroom Rock areas. No sonar targets were detected in these areas.

### 5 Portage Head

The survey team determined to cruise south of Makah Bay and seek the known historical site of the wreckage of the *General M.C. Meigs*, a WWII troopship that was lost in tow in 1972. Although beaten down in the ensuing years, parts of the stern were visible. Although the

magnetometer was down (see 3 Makah Bay), MSL was able to acquire a sonar image (sonar target #5, MSL K). As the boat was forced to maintain a safe distance, imagery was still obtained.

### **Final Assessment**

The magnetic and sonar data from the Olympic Coast National Marine Sanctuary's Cape Flattery Near-shore Archaeological Survey was of a scattered and fragmentary nature, barring that of the *General M.C. Meigs*. Because of dangerous currents and submerged obstacles, 100 percent coverage of the survey area was not achieved. A second phase of the project was scheduled for the following year during which a team of archaeological divers would attempt to relocate the targets and provide identification.

### **Addendum**

In the spring of 2008, a video became available on the youtube.com site on the internet, which showed canoers paddling around the triple expansion engine of an early 20th century steamship. The narrator recognizes it as the *Skagway* from guidebooks that he has read. The site is deeper into the rocks than the survey crew had been able to go without risking their vessel. It is also further south from Fuca Pillar than they had been able to access.

## B. Cape Flattery Archaeological Diver Reconnaissance Survey

**Project Dates:** August 1996 and August 17, 1997 to August 21, 1997

### Survey Area

Diver reconnaissance of magnetometer and side scan sonar targets gathered in 1995.

### Project Narrative

In August 1996, divers from the Coastal Marine Archaeological Resources group (CMAR) returned briefly to dive on 1995's anomalies. No archaeologist was present and the team was not able to relocate any targets although the divers did gain familiarity with the diving environment of the Olympic Coast.

Between August 17 and August 21, 1997 CMAR's team, Robert Steelquist and Bruce Terrell returned to Neah Bay to conduct dives on the 1995 sonar and magnetometer targets. The team was also accompanied by OCNMS Science Coordinator, Edward Bowlby. The R/V *Tatoosh* was captained by Al Fletcher. The captain had final judgment on whether conditions were too dangerous for live-boating while the divers investigated targets. The results are listed below and in Table 4:

Table 4: Summary of 1995 Cape Flattery Dive Survey.

Location	Target Numbers	MSL Tag	Diver Survey Details
Tatoosh Island	Son-1	MSL D	Dive not attempted due to depth.
Tatoosh Island	Son-2	MSL G	Dive not attempted due to depth.
Makah Bay	Son-3	MSL I	Although the sonar image indicated box-like targets, divers found only parallel shale ridges that could have provided box like imagery.
Makah Bay (Same location as Son-3)	Son-4	MSL J	
Portage Head	Son-5	MSL K	Located General M.C. Meigs hull, foremast, ladder, crow's nest, pipes, valves & debris.
Chibahdehl Rocks	Mag-1	MSL A	No cultural material discovered.
Slant Rock	Mag-2	MSL B	Modern anchor found.
Slant Rock	Mag-3	MSL C	Strong currents prevented survey.
Tatoosh Island	Mag-4	MSL E	No cultural material discovered.
Between Hole in the Wall and Mushroom Rock	Mag-5	MSL F	No cultural material discovered.
Tatoosh Island	Mag-6	MSL H	Dangerous location; no survey conducted.

OCNMS Magnetic Anomaly #1 (MSL A) - Chibahdehl Rocks

Divers were not able to locate any cultural material at Chibahdehl Rocks.

OCNMS Magnetic Anomaly #2/#3 (MSL B and C) - Mushroom Rock

Magnetic Anomaly #2 was a modern anchor. Attempts to identify Magnetic Anomaly #3 were unsuccessful as the strong current swept the divers out into the strait.

OCNMS Magnetic Anomaly #4/#5 (MSL E and F) - Fuca Pillar

Divers sought Magnetic Anomaly #4 at Hole in the Wall near Fuca Pillar but were unable to locate any cultural material.

OCNMS Magnetic Anomaly #6 (MSL H) and Sonar Targets #1/ #2 (MSL D and G) - Tatoosh Island

Tatoosh Magnetic Anomaly #6 was considered to be close to a steep slope to the west of the island. The heavy swell prevented the boat from maintaining a safe distance from the island. Since the magnetic signature was of a small gamma strength, it was determined that the dive be scrubbed for safety reasons. Sonar Target #2, also, was determined too unsafe to dive as the depth was at 150'.

OCNMS Sonar Target #3/#4 (MSL I and J) - Makah Bay

Targets are possibly of geological origin. Although the sonar image indicated box-like targets, divers found only parallel shale ridges that could have provided box like imagery. In the absence of magnetometer data (see above), it is assumed that these were the targets located by side scan sonar.

OCNMS Sonar Target #5 (MSL K) - Portage Head

At Portage Head, the divers made a reconnaissance dive at the site of the *General M. C. Meigs*, a decommissioned U.S. Army troopship lost while in tow in 1972. Contemporary aerial photographs show that the *Meigs* went down with its bow pointing to the south and that the ship was split in half when thrown against an offshore pinnacle. At the time of the survey, some wreckage was seen above the sea surface.

The dive team (Pat Smith, Robert Schwemmer, and Mark Norder) explored to the south of the pinnacle and were most likely in the forward half of the ship. Much of the hull has been worn down due to intense winter storms and scraps are wedged among the many submerged boulders on the bottom. The team located the foremast with its ladder and crow's nest attached. This is one of the objects that still protrudes above the water.

The team moved north of the sea stack and located the aft section of the ship and found much debris associated with the shipwreck between 4.57 meters and 9.75 meters depth. Objects here included a field of pipes and valves, a large fuel bunker, and what was identified as a De Laval double reduction gear machinery.

A second dive further north identified more debris that included ship firefighting objects and much steel plating. To the west (seaward) the team located one of the ship's propellers and propeller shaft. Although some elements of ship structure are in evidence, it is apparent that the *Meigs* has become quite reduced by the environment in the 36 years since its demise (CMAR 1997a).

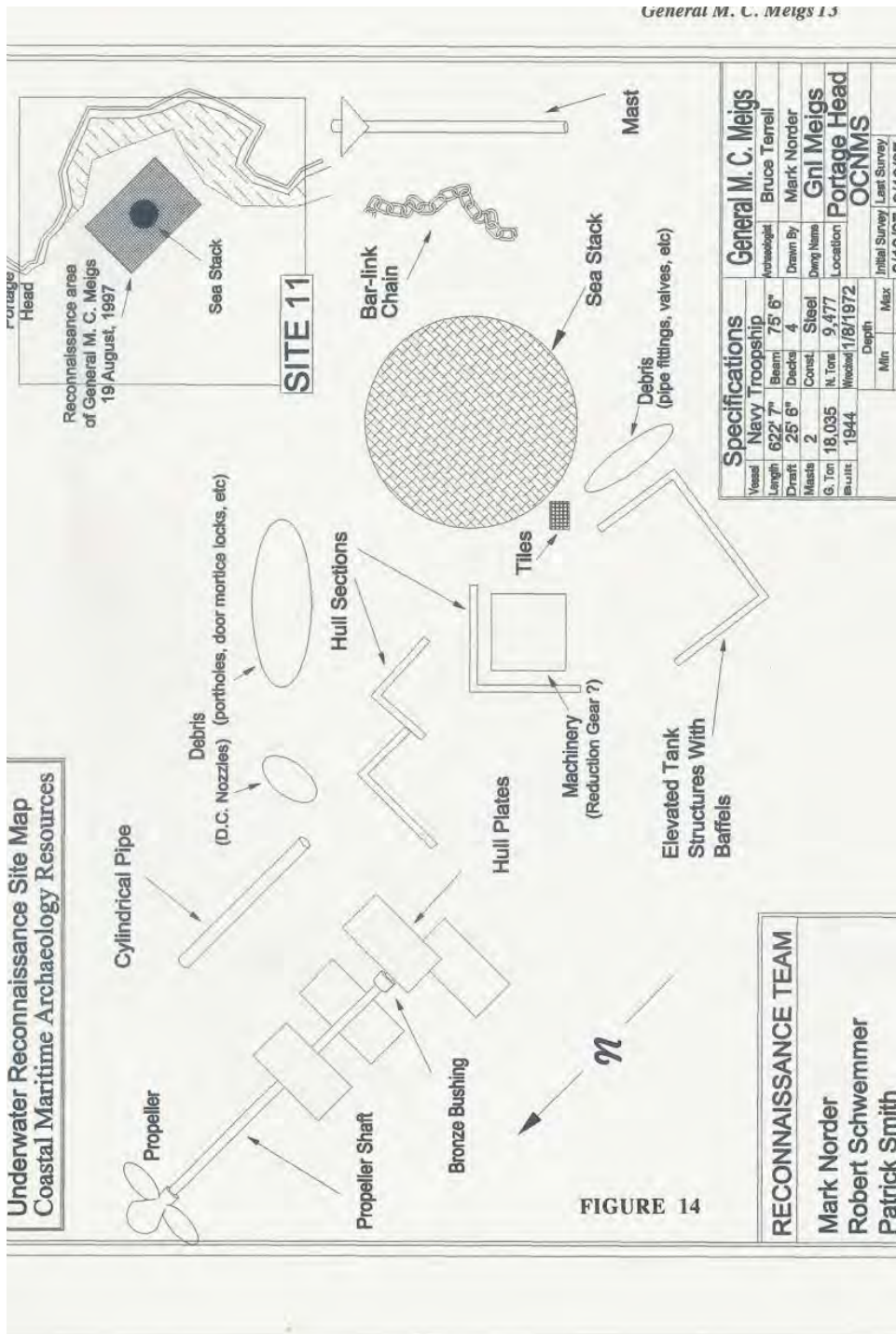


Figure 7: General M. C. Meigs Site Map

### Additional Dives at Koitlah Point

Local intelligence gathered from the northwest Washington coast diving community suggested that at least one or more shipwrecking events took place at Koitlah point at the western-most edge of Neah Bay. In the 19th century there was no breakwater and vessels would enter the bay between Koitlah and Waadah Island. Koitlah Point consists of a rock shelf that runs

approximately 150 meters from the northwest to the southeast at the mouth of the bay. The shelf drops abruptly to about 18.3 meters in depth.

During a single day's reconnaissance, 19 person-dives were conducted. In the absence of remote sensing, the teams conducted systematic searches to attempt to locate and document historic shipwreck material from the three reported wrecks on the Point.

During the dives, debris and artifacts consistent with a 19th-century ship were found including copper bottom sheathing, brass sheeting nails, bricks, shards of white glazed ceramics, and a bronze and iron piece that may have come from a pump mechanism (CMAR 1997b).

Two 19th-century ships are believed to have wrecked at this point. The *Ellen Foster*, a medium clipper built in 1852 wrecked here in 1867. A bronze cannon thought to belong to it was raised in 1929. Likewise, a Canadian-built and Chilean-flagged ship, the *Pelicano* wrecked at this place in 1875. Additionally, two early 20th-century fishing boats wrecked in the same area.

More recent conversations with local divers suggest that there is more to be found. It has been recommended that the sanctuary conduct a site specific remote sensing survey in the area and more fully document the remains. This would help clarify if the area has several shipwrecks intruding upon each other or if they are actually distributed on the bottom in different locations.

## C. Bark *Austria*/Cape Alava Survey

Project Dates: June 4, 1997 - June 6, 1997

### Survey Area: Cape Alava

#### Introduction

The wrecksite of the Bark *Austria* are located at Cape Alava at approximately 124 45' W, 48 10' N. The cape is about 17 miles south of Cape Flattery. The wreck remains on a shallow reef that is an eroded headland which extends westward and comprises a series of islands known as the Bodeltah Islands. The seaward reefs are known as Umatilla Reef. This shelf and the sandspit and islands to the north provided protection from the sea to the Makah village of Ozette that existed immediately shoreward of the *Austria*'s wrecksite (Terrell 2000). Today the site is at the boundary between the Makah reservation and Olympic National Park.

On June 3, 1997, in advance of the Bark *Austria* Survey, Robert Steelquist, Pete Steelquist, David Bear, and Bruce Terrell were taken to Waatch Point by Robert Coles who showed the team a scatter of 19th century shipwreck artifacts. Artifacts included a 9 foot long wrought iron strap that was pierced with bolt holes. Also found were iron spikes, nails, and drift pins, all indicative of 19th century shipbuilding and consistent with Cole's reports to sanctuary personnel.

#### Methodology

Research - The large Porter patent anchor and anchor chain piles in the near-shore zone have been reported anecdotally for many years. Historic photographs taken soon after the ship wrecked here in 1887 show wooden wreckage that includes deck and hull framing, lying on the beach before the village. During the Ozette village excavation in the 1970s, anecdotal information indicates that the anchor was used as a base for a chute line to get supplies up to the archaeological team on the shoreward hill. It was related that at one time the weight on the line pulled the anchor over from its original resting place (personal comment, Paul Gleeson to Robert Steelquist 1997).

Historic records indicate that the bark-rigged *Austria* was bound for Tacoma from San Francisco when it was caught in a gale off the Washington coast. With torn sails and in distress, the captain guided the ship through the rocks in search of a flat shoal on which to ground. Rocks pierced the hull and the ship filled with water and settled in an upright position; the water being fairly shallow. Following the storm, the crew salvaged the ship's stores. Since it was mostly in ballast, there was little cargo aboard. The captain walked 20 miles to Neah Bay and returned with the revenue cutter *Alexander Wolcott*. Subsequent storms eventually dispersed the ship's wooden structure as shown by contemporary photographs (Terrell 2000).

Field Survey - The project's goal was to take advantage of the low spring tide that occurred during the full moon between June 4 and 7, 1997. The lower than average tides allowed the team to go (by foot) farther west on the shelf than is usually possible. It was anticipated that a reconnaissance-level survey of the remains of the *Austria* would provide an opportunity to develop a baseline site map to aide in the interpretation of the site. Distance between features was measured with flexible reel tapes in tenths of feet and compass bearings were shot with a KVH Datascope. Since the site was on a wilderness beach on the Makah Indian Reservation, the team hiked 3.5 miles to a beach campsite in Olympic National Park, just adjacent to the site on the reservation.

## Results

Artifacts were located in three areas. Unsalvaged artifacts were located in the normally submerged intertidal areas of the shelf in the vicinity of the *Austria's* wreck-place. Groups of artifacts were also found in the near-shore, beach areas and collected, beach-combed items were found on a board underneath the seasonal park ranger station. The located artifacts are listed below:

### A. Artifacts within the Intertidal Zone

- A-1 Iron boat davit
- A-2 12.88' Iron Porter patent anchor
- A-3 Wood frame and plank assemblage
- A-4 Iron hawse hole
- A-5 Iron hawse hole
- A-6 Iron bowsprit gammoning collar
- A-7 Anchor chain pile (4 piles) (studded .95' links)
- A-8 Anchor chain pile
- A-9 6.2' Rogers patent anchor
- A-10 Riveted iron plate assemblage

### B. Artifacts on beach

- B-1 Beach salvage pile at posts below ranger station
- B-2 Ozette Indian village midden with iron drift pins
- B-3 null
- B-4 2 sets of iron bollards and chain section with small links

Numerous other artifacts littered the beach including many iron drift pins, iron chain plate straps, some with deadeyes still in place and twisted steel cable used as standing rigging on ships. The artifacts found underneath the ranger station included iron rigging pieces, an iron hook, part of an iron stove, and other unidentified iron objects.

## Analysis

The distribution of objects commonly found on the bow of sailing ships made it possible to deduce the likely last position of the *Austria*. The two hawse holes, bow sprit gammoning collar, and the large Porter bower anchor lay in a position that would have had the ship pointing bow-first towards shore, as was noted in the wreck report and other primary documentation. The second bower anchor was not located and was presumed either lost or salvaged. The piles of anchor chain on the beach were presumed to have been gathered there either by the Makah, or by the salvors in anticipation of later salvage that never occurred.

The wooden planking was found in the intertidal area in the vicinity of the hawseholes and was most likely from the *Austria*. Wood analysis indicated that the plank pieces were yellow pine and the cross members, thought to be frame or knee remains, were white oak. This is consistent with ship-building materials contemporary with *Austria's* time.

Most of the beached artifacts and the small Rogers anchor are likely to have been carried to the beach with wreckage as the ship began to break up during later storms. An 1887 photograph taken of the village less than a year after the wreck show winch, barrels, and frames in front of the village. A second photograph taken in 1890 by Thomas Prosch (University of Washington) shows a sheered-off deck section that is inverted with at least two assemblages of stanchion knees that would have helped support the decking. The presence of heavy items like the bollards and

anchor chain might be explained by their rafting up to the high tide line in a storm rather than carried by salvors or tribes-people.

An event like this would not go unobserved by the people living at Ozette. The arrival of the ship might be likened to the parking of a hardware store at their doorstep. Midden deposits showed the presence of iron drift pins among whale bones and other food residue. The caps of three of the four bollards were knocked off and not located in the survey. There is a possibility that they were somehow removed by the Makah and could have been used in some fashion, possibly as bowls. There is room for further study of the previous Ozette excavation records as well as new midden studies to look for evidence of the villagers' adaptive reuse of western maritime material culture.

In addition to the recommendation for such studies, the Office of National Marine Sanctuaries also sees an opportunity for Olympic National Park to incorporate the beach artifacts and the intertidal objects into a static interpretive display that might explain the *Austria's* story as well as present a message on preservation and leaving the objects for all visitors to enjoy.

## **D. Remote Sensing Survey 2000, Destruction Island and Vicinity**

**Project Dates: September 11 - 25, 2000**

### **Survey Area**

The survey area consisted of a nine square mile area in the near-shore waters around Destruction Island.

### **Summary**

OCNMS contracted East Carolina University's Program in Maritime Studies to conduct a marine remote sensing investigation of the waters in the vicinity of Destruction Island to assess the presence of historic shipwreck remains. The full survey report (Cantelas 2001) is available to qualified researchers by contacting NOAA.

### **Methodology**

The OCNMS Historic Shipwreck Database indicated that at least eight potentially historic shipwrecks were known to have occurred either on Destruction Island or in its vicinity. Survey researchers were unable to locate any local fishermen or divers who had experience or anecdotal information regarding historic shipwreck remains.

### **Remote Sensing Survey**

The OCNMS Destruction Island survey requirements called for a magnetometer and side-scan sonar of the prospective area. East Carolina University's Maritime Studies Program was the selected contractor for remote sensing by virtue of their excellent record of success in survey and interpretation of submerged historic and archaeological resources.

Equipment included Coastal Oceanographic's Hypack Max Hydrographic Survey Software. A notebook computer PC operated a Microsoft Windows 98 platform, powered Hypack. A Garmin GPSMAP 225D differential global positioning system integrated navigation data into both remote sensing instruments. The magnetometer was a Geometrics G-881 cesium magnetometer. The cesium magnetometer was selected over a proton-precession magnetometer because of its tendency to be more stable, sensitive and accurate and not record as much background noise. A Marine Sonics 600kHz side scan sonar was selected as the acoustic sensing tool. The sensing array was towed at a speed of 3.5 knots. Survey lane spacing was 61 meters (200 feet) apart which gave an overlap of approximately 44.5 meters (146 feet) ensuring that targets would be encountered from the same features from both channels of the sonar. The tow vessel was the previously utilized sanctuary research boat R/V *Tatoosh*, now featuring two Hamilton 291 jet drives that replaced the earlier propeller drives. The driver for this survey was Andy Palmer (Cantelas 2001:15 - 22)

### **Operations:**

The survey team selected the town of La Push on the Quillayute River as the base of survey operations. After a cruise of about one hour to Destruction Island, the team worked approximately 12 hour shifts. Seas were heavy during transit but were moderate in the work area. The weather was generally overcast and foggy.

### **Survey Results:**

Final results indicated 18 significant magnetic anomalies and 11 sonar targets that archaeologists recommended for further investigation either by close order remote sensing or diver ground truthing (Table 5) and figure (Figure 8).

**Magnetic Data** - In the post-processing phase, the researchers ran the magnetic data through Hypack Max's Single Beam Editor to edit out poor quality data. While Hypack rarely records bad data or false anomalies, all data was carefully reviewed. As a backup, the researchers set high DGPS and magnetometer sample rates to ensure that enough data was recorded so that coverage could be maintained in case bad data had to be eliminated.

**Sonar Data** – Eighty-one sonar features were initially determined to be of interest for further examination by the researchers. Features of interest were assigned distinctive numbers and approximate physical dimensions were determined. They were then placed in an ArcView and matched to magnetic anomalies for possible correlation. Matching sonar and magnetic signatures signals potential historic shipwreck remains. Typically, features that are usually noticed are straight lines, large protruding objects, regular geometric shapes, light patches that could indicate scour areas, and isolated features in an otherwise smooth seabed. These are objects frequently signify human manufacture. Geological features typically appear to be rounded with defined edges that reflect a hard surface and have no corresponding magnetic signature. Objects that did not appear to be geological but which had no corresponding magnetic signature were listed as Unknown. Objects that had the attributes of cultural origin and which had corresponding magnetic signatures were labeled Debris. Of the 81 sonar features, 11 were annotated as likely debris, 26 as geological features, and 44 as unknown.

The following table (Table 5) and figure (Figure 8) summarize the 18 magnetic anomalies, and associated sonar targets, that were recommended for further investigation. There is one sonar target, not associated with a magnetic anomaly, that was also flagged for further investigation.

Table 5: Summary of magnetometer anomalies and sonar targets listed by descending priority for future investigation. (Cantelas 2001)

Magnetic Anomaly Number	Depth (fa)	Characteristics	Relative Magnetic Intensity (□)	Magnetic Deviation Between Poles (□)	Related Sonar Targets	Description of Anomaly
14	3	Multicomponent	22,830 to 69,330	46,500	EST-12, EST-13, EST-15, EST-20, EST-21	Possibly the remains of a vessel with a large ferrous component.
16	10	Multicomponent	21,710 to 64,960	43,250		Exhibits man-made characteristics.
17	11	Multicomponent	54,480 to 54,490	10		Probably geologic in origin.
7	4	Multicomponent	54,600 to 54,740	140	EST-18, EST-77, EST-78	Widely dispersed anomalies with rocky shallows and depth changes.
4	3	Multicomponent	54,710 to 54,750	40		Broadly dispersed anomalies may be debris field, but rocky shallows and depth changes may affect the magnetic field.
5	4	Dipolar	54,680 to 54,770	90		Could be a continuation of dispersed area from anomaly #4
13	9	Multicomponent	38,510 to 56,080	17,570		Exhibits man-made characteristics.

Magnetic Anomaly Number	Depth (fa)	Characteristics	Relative Magnetic Intensity (□)	Magnetic Deviation Between Poles (□)	Related Sonar Targets	Description of Anomaly
12	10	Monopole	51,800 (2,910□ negative)	N/A		Strong magnetic signature in small area indicates the source is probably not geologic.
18	10	Monopole	54,654 (56□ negative)	N/A	EST-72	Probably geologic in origin.
15	12	Dipolar	54,760 to 54,790	30	EST-15	Probably geologic in origin.
8	3	Multicomponent	54,630 to 54,770	140		Magnetic signature is probably not geologic.
9	3	Multicomponent	54,660 to 54,820	160		Magnetic signature is probably not geologic.
10	3	Multicomponent	54,570 to 54,890	320		Magnetic signature is probably not geologic. Anomalies 8, 9, 10 require a close order survey to determine origin.
6	4	Monopole	54,920 (210□ positive)	N/A		Magnetic signature is probably not geologic. Close order survey is required to determine source.
1	12	Multicomponent	54,900 to 54,920	20		Probably geologic in origin; magnetic striping or diurnal magnetic variation.
2	12	Dipolar	54,710 to 54,780	70		Possibly small ferrous debris, or geologic in origin
3	12	Monopole	54,630 (80□ negative)	N/A		Probably man-made, but requires close order survey to verify
11	6	Multicomponent	54,670 to 54,740	70		Probably geologic in origin.
NA		NA	NA	NA	EST-32	This is the only sonar target designated as potential debris that is not associated with a magnetic anomaly.

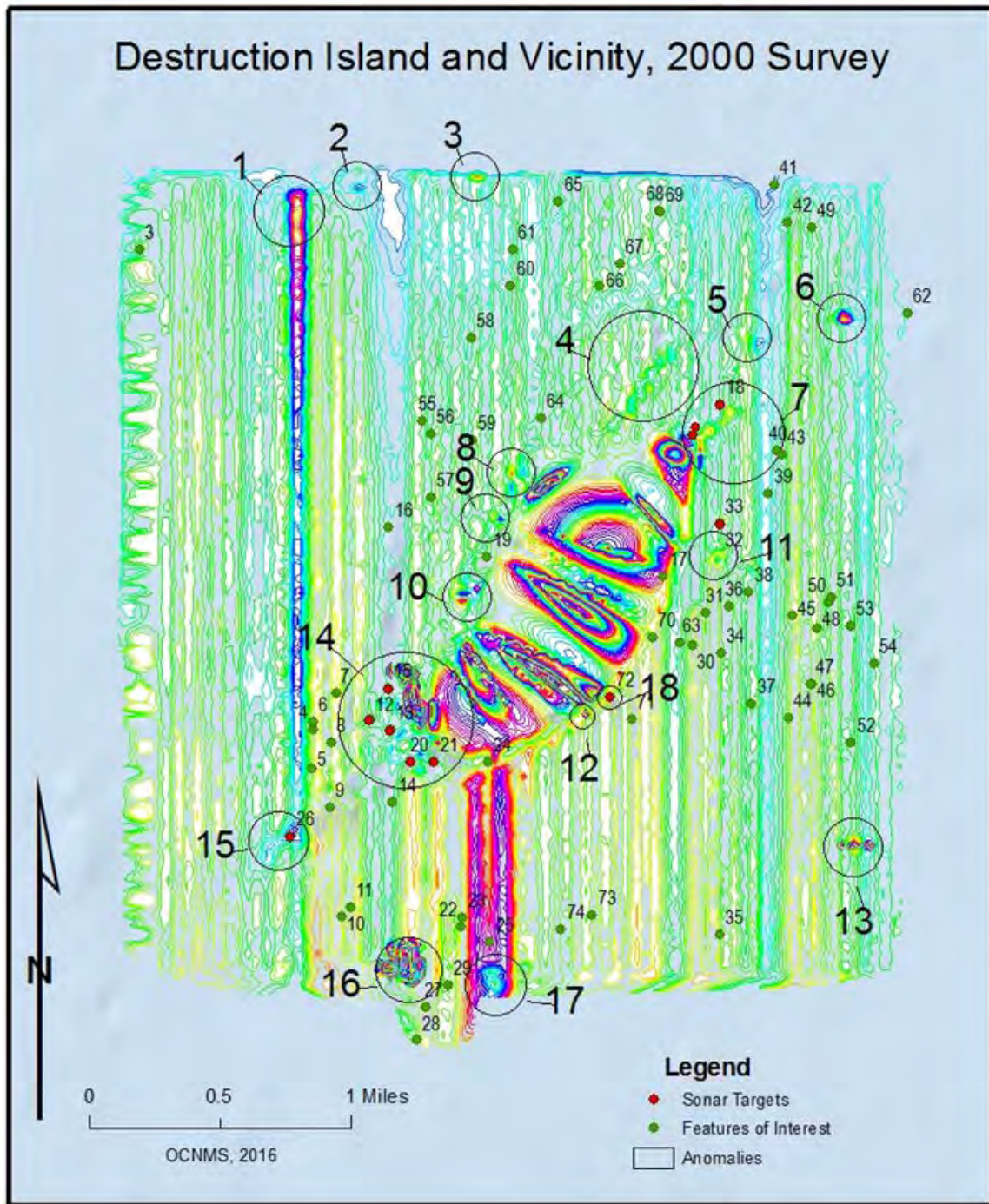


Figure 8: Magnetic contour map with 81 sonar features of interest. Those preliminarily interpreted as debris are red, those interpreted as geological or unknown are green (Cantelas 2001: 38).

### Data Interpretation

Out of a total of 18 magnetic anomalies and 81 sonar detected features, several targets were identified that combined noted sonar "debris" profiles with magnetic signatures. The following is a discussion of some of the more promising targets.

Sonar targets EST18, EST77, and EST78 were all associated with magnetic anomaly #7 (Figure 9) and were grouped around the northeastern side of Destruction Island. This reef was reported to be the location of the bark *Cassandra Adams'* grounding. A wooden-hulled vessel such as this would not be expected to produce large, concentrated magnetic signatures. The historic description of the *Adam's* wrecking indicates that it broke up rapidly. The distribution of the magnetic anomalies is consistent with a wooden wreck whose features were quickly dispersed by the environment (Cantelas 2001:46)

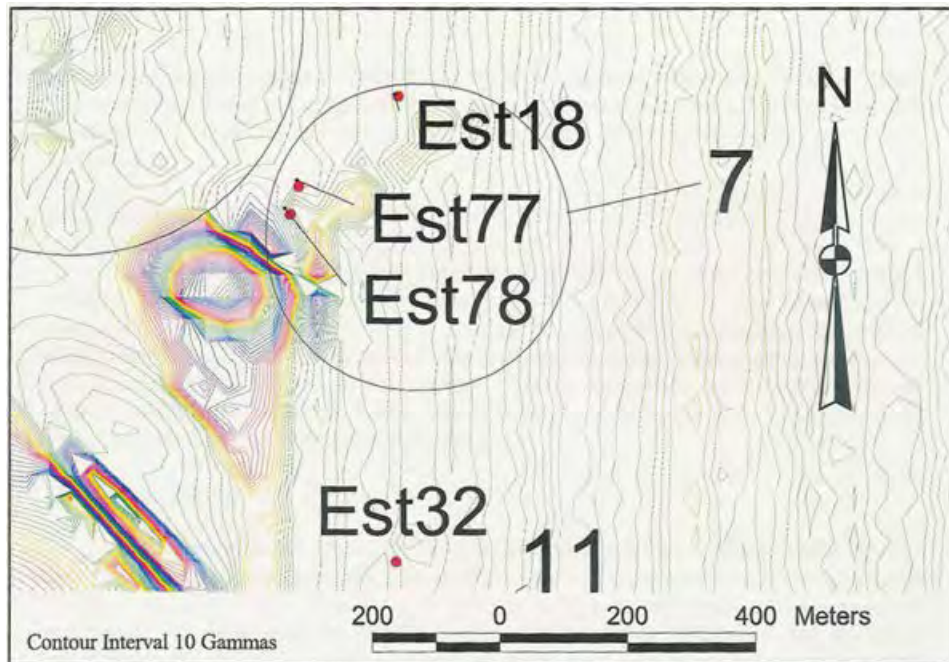


Figure 9: Sonar targets EST18, EST77, and EST78 with magnetic anomaly #7 (Cantelas 2001:47)

Sonar targets EST12, EST13, EST15, EST20, and EST21 were all associated with magnetic anomaly #14 (Figure 10). The magnetic signature was noted as having "quite strong" polarities suggestive of a large ferrous metal component. This would be consistent with the large cargo of railroad track carried by the *Emily Farnum* when she wrecked on Destruction Island's southern shore in 1875. Additionally, this might explain the long objects imaged in EST20. The magnetic signature is spread across a wide area which may suggest the presence of wreckage from one or two other wrecks. Both the *Albatross* and the *Wide West* were reported wrecked in this vicinity as well (Cantelas 2001:46).



Figure 10: Sonar targets EST12, EST13, EST15, EST20, and EST21 with magnetic anomaly #14 (Cantelas 2001:46)

Magnetic anomaly #15 is associated with on sonar target, EST26. There is not a historically reported shipwreck at this location and it is thought that this could be debris also related to the *Emily Farnum*. (See above magnetic contour map)

Anomalies #13, #16, and #17 have strong magnetic signatures and are complex enough to signal something more than debris. They may also represent one of the three wrecks in this area.

### Final Assessments

Anomaly #14 has the highest probability for positive identification. It is likely linked to the wreck of the bark *Emily Farnum*. The contractor recommended “close order survey” which would utilize a magnetometer as the primary tool and side scan-sonar as a secondary tool. Both sensors should be towed at a closer line spacing and slower speeds than the first survey. A small, shallow draft and highly maneuverable boat and extremely calm waters would be required to adequately address this target.

Anomalies #16 and #17 were also given a high priority due to their strong multi-component signatures and distinction from the surrounding seabed. It was felt that they may represent one of the known wrecks or a previously undocumented wreck.

Anomalies #7, #4, and #5 may represent wreckage associated with the *Cassandra Adams* and are also recommended for a close order survey.

Anomalies #12, #13, and #18 are also recommended for close order survey. Anomaly #13 has a unique concentrated signature and anomalies #12 and #18 may be related to each other. Other recommended anomalies include #6, #8, #9, and #10. All other anomalies were given low priority because they were either of minor intensity or were not associated with an area of historically-reported incidence.

Archaeological diver ground-truthing is usually the primary method for positive identification of remote sensing anomalies and targets. The waters around Destruction Island include strong currents, depths of up to 30.48 meters (100 feet), kelp forests, cold water temperature, and rugged rocks. Before targets can be recommended for diver investigation, all recommended targets should have close order surveys to provide the most information possible. Hand held magnetometers would be required and probing of bottom sediments would assist in understanding the full extent of the remains (Cantelas 2001:51).

## E. Remote Sensing Survey 2001, Vicinity of La Push, Washington

**Project Dates: September 18 - 24, 2001**

### Summary

The Western Olympic Peninsula Maritime Archaeological Survey identified four areas of priority survey for identifying potentially historic shipwrecks. The final survey area in the vicinity of La Push, Washington was not designed as a zone survey. There were several prominent shipwrecks in the region and the design called for target surveys rather than the previous zone surveys. The targets that were sought were the shipwrecks remains of three vessels, the *W. J. Pirrie* (the locally-known Chilean Wreck), the *Temple Bar*, and the *Lamut*. These targets were sought for their significance to local maritime heritage. Based on their expertise in archaeological remote sensing and past performance working in the sanctuary, OCNMS, contracted with East Carolina University to conduct the remote sensing survey. The full survey report (Cantelas 2002) is available to qualified researchers by contacting NOAA.

### Survey Area (in order of survey)

*Temple Bar* - The British-flagged steel hulled freighter *Temple Bar* ran aground inside the Quillayute Needles.

*W. J. Pirrie* - The wreck report and court of inquiry for the survivors of the *W. J. Pirrie* reported the ship as breaking up after losing its tow off Cake Rock, north of La Push.

Steamer *Lamut* - The steamer *Lamut* became wedged in between a tall pinnacle and the headland at Teahwhit Head south of the La Push area. The survey area is subject to strong currents and is close to dangerous rocks.

### Methodology

Research - The survey team, utilized Robert Schwemmer's Olympic Coast National Marine Sanctuary Historic Shipwreck Database as a starting point to begin searching for the three historic wrecks for the survey. The location of the *Lamut* was relatively easy since there were contemporary aerial photographs that identified clear landmarks at Teahwhit Head. Similarly, the *Temple Bar's* demise was well documented by photographs as well and its location in the Quillayute Needles was relatively easy to pinpoint.

The researchers reviewed the wreck report of the *W. J. Pirrie* as well as inquest interviews researched by Robert Schwemmer to attempt to deduce the likely site of its wrecking. At the time of the survey, the information that the researchers had, made only vague references to Cake Rock as the wrecking site. The team designed a survey to encompass the seabed around the rock.

The researchers also had reason to believe that part of the ship drifted onto Cake Rock. The captain of the R/V *Tatoosh*, Andy Palmer, provided the researchers with images of a deadeye and part of its chain plate from the ship's standing rigging that was found on the island. The chain plate was of the type that would have been used on a late-19th century wooden sailing vessel (email, Andy Palmer to Bruce Terrell 2 October 2000).

### Remote Sensing Survey

Equipment - Once again employing the R/V *Tatoosh*, the boat was, this time, equipped with a 2,000-pound hydraulic winch and A-frame, as well as a pivoting davit to aide with deployment and recovery of the sensors. A second vessel, a 22 foot rigid-hull inflatable boat (RHIB) with

twin outboard engines, was used to access areas that the *Tatoosh* could not safely navigate. The ECU team also employed the Geometrics G-881 Cesium Magnetometer and the Marine Sonics Sea Scan PC digital sonar system as it did in the 2000 survey of Destruction Island (see above).

### Operations

La Push harbor, proved to be the most convenient base of operations for the survey team. Previous surveys involved zone surveys looking for multiple shipwreck resources. The 2001 survey sought three discreet targets.

For the *Temple Bar* survey, the archaeologists used historical records and contemporary salvage photographs of the wreck event in 1939. The distinct pinnacles and rocks created landmarks which have not significantly changed over time and the archaeologists were able to triangulate a probability zone for further survey. The area contained numerous navigational hazards from kelp, submerged rocks, and shallow depths. They conducted a preliminary survey run to understand the bottom characteristics before running two survey lines with both magnetometer and side scan sonar. To compensate for the potential navigation hazards, they towed the sensors close to the vessel. Following these runs, they ran one final imaging survey of the wreck site. This data not only provided archaeological information but also gave the sanctuary a better understanding of the hazards to navigation in this part of the sanctuary (Cantelas 2002:21 - 22).

The second survey attempted to locate remains of the sailing barge, *W. J. Pirrie*, the locally-known "Chilean Wreck." The ubiquitous kelp, rocks, and currents influenced the survey methodology by restricting some access to some areas. Because of somewhat vague historical information, the surveyors began in the highest probability area north of Cake Rock and the associated reef area above it and proceed to work discreet boxes to the south and west. The surveyors were able to gain 100 percent coverage of their survey-designed zones (Cantelas 2002:46).

The archaeologists were relatively confident about the location of the *Lamut*, wedged between the high rocks at Teahwhit Head. Additionally, the sanctuary had received anecdotal information that Coast Guardsmen from the La Push station had dived on the wreck during their spare time (personal comment, Robert Steelquist to Bruce Terrell, c. 2000). Since the site is in a very treacherous spot, the team was precluded from using sonar. Employing a small Rigid Hull Inflatable Boat (RHIB) they were able to make two passes through Teahwhit Head towing the magnetometer before fog set in and closed-down the survey.

### **Survey Results**

Criteria for assessment of magnetic and sonar anomalies followed the same guidelines as the Destruction Island Survey (see above). Anomalies of the highest order indicated the presence of both strong magnetic signatures and acoustic features that reflected characteristics associated with human manufacture.

### SS Temple Bar

*Temple Bar* anomalies were assigned "TB" protocols. "TBM" prefixes were assigned to magnetic anomalies and "TBS" prefixes were assigned to sonar acoustically derived images.

*Initial Temple Bar Survey Assessment* - The 2001 survey encompassed 0.3536 square km (0.136 square mi.) within an area between Crying Lady Rock to the north, Teahwhit Head to the south, Quillayute Needles to the west, and Second Beach to the east. Within that area three large magnetic anomalies were detected in conjunction with 18 sonar images suggestive of shipwreck remains and/or human manufacture (images included in 2002 survey report). The images suggest

the reduced hull of a ship facing on a west/east trajectory and other concentrations of iron that could represent either the *Temple Bar's* scrap iron cargo or salvage piles accumulated by the salvors (Cantelas 2002:39 - 40).

Table 6: Summary of *Temple Bar* survey sonar targets (Cantelas 2002).

Sonar Target Number	Length (m)	Width (m)	Height (m)	Possible Source	Description of Anomaly
TBS-1	4.5	4.39	6.84	Debris	A protruding feature with a significant magnetic response.
TBS-2	32.85	15.82	NA	Hull	Large parallel lines indicate structural frames of hull.
TBS-3	41.02	15.62	NA	Hull	Large parallel lines indicate structural frames of hull.
TBS-4	16.89	7.42	NA	Debris	Scrap iron cargo or miscellaneous debris.
TBS-5	71.61	18.64	NA	Hull	Main wreck site runs perpendicular to longitudinal axis of ship.
TBS-6	71.1	13.28	4	Hull	Structural frames are visible as parallel lines in image.
TBS-7	37.53	12.46	NA	Hull	Image of main wreck site running perpendicular to longitudinal axis of ship.
TBS-8	76.22	15.47	1.5	Hull or Debris	Structural frames are visible as parallel lines in sonar image.
TBS-9	28.99	20.9	2.34	Hull	Image of main wreck site.
TBS-10	23.23	3.85	NA	Debris	Scrap iron cargo or miscellaneous debris.
TBS-11	6.91	3.77	NA	Hull or Debris	Disarticulated portions of the ship's hull exhibiting structural framing.
TBS-12	7.64	4.53	NA	Hull	View of structural framing from ship's hull.
TBS-13	8.49	4.91	2.5	Debris	Scrap iron cargo or miscellaneous debris.
TBS-14	9.35	3.25	2.4	Debris	Scrap iron cargo or miscellaneous debris.
TBS-15	3.81	2.83	5.47	Debris	Scrap iron cargo or miscellaneous debris.
TBS-16	8.83	4.84	NA	Hull	Image of ship runs parallel to longitudinal axis.
TBS-17	91.53	13.48	NA	Hull	Image of ship runs parallel to longitudinal axis.
TBS-18	80.39	13.68	NA	Hull or Debris	Image of ship runs parallel to longitudinal axis.

*Temple Bar Multibeam Survey* – In 2010, using a newly acquired multibeam mapping system OCNMS reacquired and confirmed the location of the SS *Temple Bar*. The original sonar contacts have been overlaid onto the multibeam image in Figure 11.

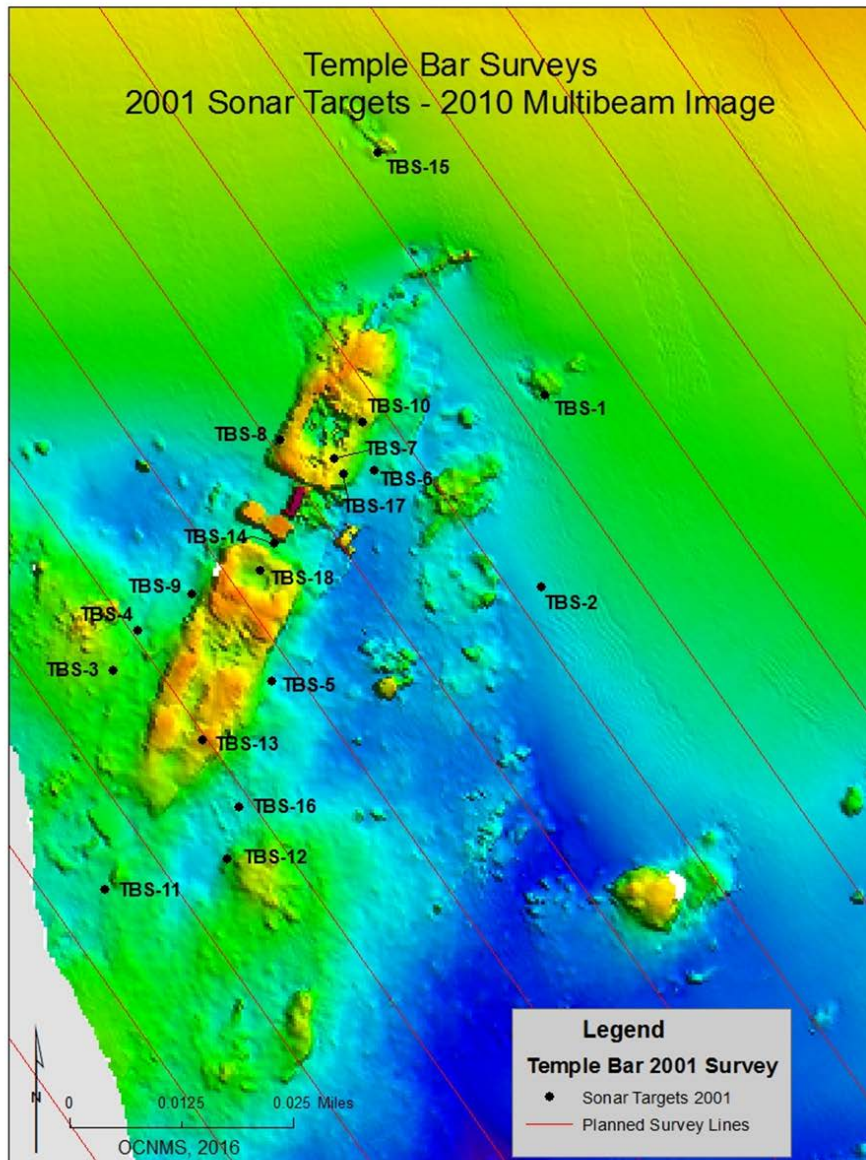


Figure 11: 2010 Temple Bar sonar targets overlaid on 2010 multibeam image.

W. J. Pirrie

Research provided by NOAA suggested that the *W. J. Pirrie* sank in the vicinity of Cake Rock. Archaeologists conducted seven surveys surrounding Cake Rock. Magnetic anomalies were labeled "PM" and sonar images were labeled "PS." The archaeologists conducted seven surveys in the vicinity of Cake Rock and the rocks to the north dubbed Cake Rock Reef. In the course of the survey, six magnetic anomalies and 15 acoustic anomalies were recorded (see Table 7 and Table 8).

Table 7: Summary of Pirrie survey magnetic anomalies (Cantelas 2002).

Magnetic Anomaly Number	Characteristics	Magnetic Intensity and Background	Magnetic Deviation	Survey Location	Related to Sonar Anomaly	Anomaly Description
PM-1	multi-component	54,625g and 54,860	235	South side of Cake Rock	Near PS-11	Could be scatter of small ferrous objects, but not likely part of W.J. Pirrie in this location.
PM-2	multi-component	54,655g and 54,770	115	West side of Cake Rock	None	None
PM-3	monopole	54,820	N/A	Northeast corner of Pirrie	Near PS-13	None
PM-4	multi-component	55,460g and 55,080	380	Southern cluser of Pirrie North	PS-5, PS-8, PS-10	Confluence of PS-8, PS-10 and PM-4 may suggest a cluster of cultural debris.
PM-5	multi-component	54,690 and 54,730	40	Isolated anomaly in Pirrie North	None	None
PM-6	multi-component	51,715 to 62,000	10,285	Pirrie North between Check Surveys	PS-15	PM-6 has highest magnetic intensity and proximity to acoustic anomaly (PS-15) for Pirrie cultural debris source.

Table 8: Summary of Pirrie survey sonar targets (Cantelas 2002)

Sonar Target Number	Length (m)	Width (m)	Possible Source	Related to Magnetic Anomaly	Anomaly Description
PS-1	3.52	3.72	Unknown	No	Angular shaped feature.
PS-2	1.76	2.55	Unknown	No	Isolated anomaly dissimilar to its environment.
PS-3	6.06	5.94	Unknown	No	Angular feature with a hard edge but possibly geologic.
PS-4	8.24	3.25	Geologic	No	An irregular shaped scour, geologic in origin.
PS-5	7.04	5.66	Geologic	PM-4	A circular anomaly, probably geologic in origin.
PS-6	37.65	25.68	Geologic	No	A globular feature with a hard acoustic return, similar to its environment.
PS-7	7.18	4.9	Geologic	No	An irregular shaped feature similar to its environment, probably geologic.

Sonar Target Number	Length (m)	Width (m)	Possible Source	Related to Magnetic Anomaly	Anomaly Description
PS-8	1.76	2.73	Unknown	PM-4	An isolated round anomaly dissimilar to its environment.
PS-9	23.44	9.57	Geologic	No	An irregular shaped feature with hard acoustic return, similar to its environment.
PS-10	22.27	14.07	Geologic / Unknown	PM-4	A group of irregular shaped scours of geologic or unknown origin.
PS-11	5.06	0.49	Unknown	Near PM-1	A long, straight isolated anomaly of unknown origin.
PS-12	6.37	1.8	Geologic / Unknown	No	A rectangular shaped feature similar to its environment, probably geologic.
PS-13	4.5	1.84	Geologic / Unknown	Near PM-4	An isolated anomaly that is rectangular, origin geologic or unknown
PS-14	14.05	5.45	Geologic	No	Rectangular feature with irregular edges, geologic in origin.
PS-15	7.13	7.71	Geologic / Unknown	Near PM-6	Circular feature from Pirrie North Survey used to validate high magnetometer variation.

Magnetic anomaly PM-1, at the south end of Cake Rock, was thought to potentially represent a cultural origin but it was too close to the base of Cake Rock to be further tested. Magnetic anomaly PM-6 did not have associated sonar imagery but was of the greatest intensity of all of the magnetic anomalies (Figure 12).

Assessment - ECU researchers suggest that the lone magnetic anomaly PM-1 might represent a separate wrecking episode from the *Pirrie*. Historic sources cite the collision of the coastal passenger steamer *J. F. Alexander* with Cake Rock in 1919. During this episode, the *Alexander* tore a hole in its hull but was pulled off and able to continue on to Seattle (Tacoma News Tribune, 10 April 1939:5).

No magnetic or acoustic information consistent with the wrecking of the *W. J. Pirrie* were detected during the course of this survey. Research conducted after the *Pirrie* survey revealed that the barge likely collided with the rocks north of Cake Rock on the reef. While unable to locate the main body of wreckage from the *W. J. Pirrie*, the surveys eliminated a large portion of the area in which the *Pirrie* could have sunk. The surveys did reveal several acoustic and magnetic anomalies that warrant further investigation. PM-1 warrants close order survey as close to the south side of Cake Rock as possible. The close order survey should better identify the exact location of the magnetic anomaly. Diver ground-truthing should follow to ascertain if cultural material is present.

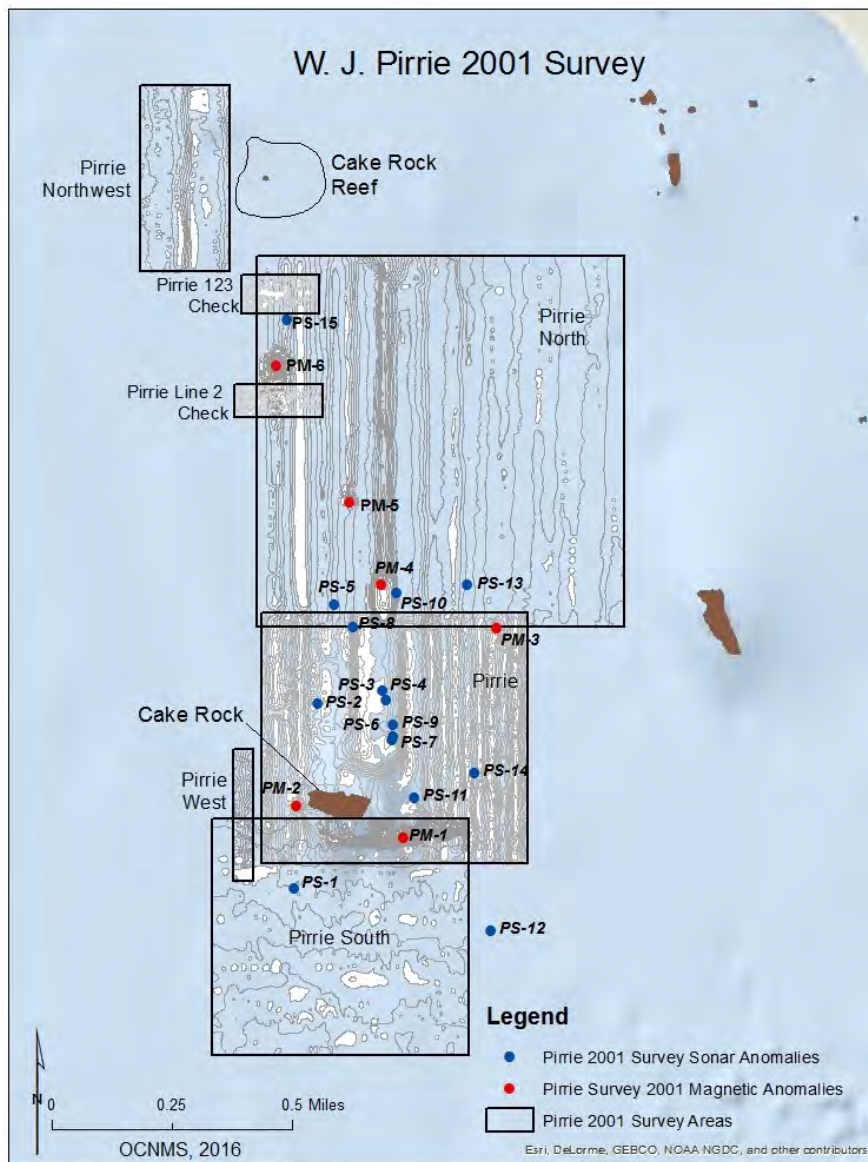


Figure 12: W. J. Pirrie Survey Area with sonar and magnetic anomalies.

### SS *Lamut*

As previously noted, the researchers were only able to make two passes in the narrow channel next to Teahwhit head with a magnetometer to locate the remains of the *Lamut*. Both runs indicated intense magnetic signatures within the channel at Teahwhit Head (Table 9). The researchers also detected smaller magnetic shifts at the north side of the channel which is the seaward side of the head which may indicate that debris from the *Lamut* have begun to scatter away from the main wreckage. The archaeologists observed a dynamic hydraulic action through the channel which they believed may cause a relatively rapid degradation of the *Lamut's* structure (Cantelas 2002:71).

Table 9: Summary of Lamut survey magnetic anomalies (Cantelas 2002).

Magnetic Anomaly Number	Characteristic	Magnetic Intensity	Magnetic Deviation
1	Dipolar	53,249 and 56,956	3,707

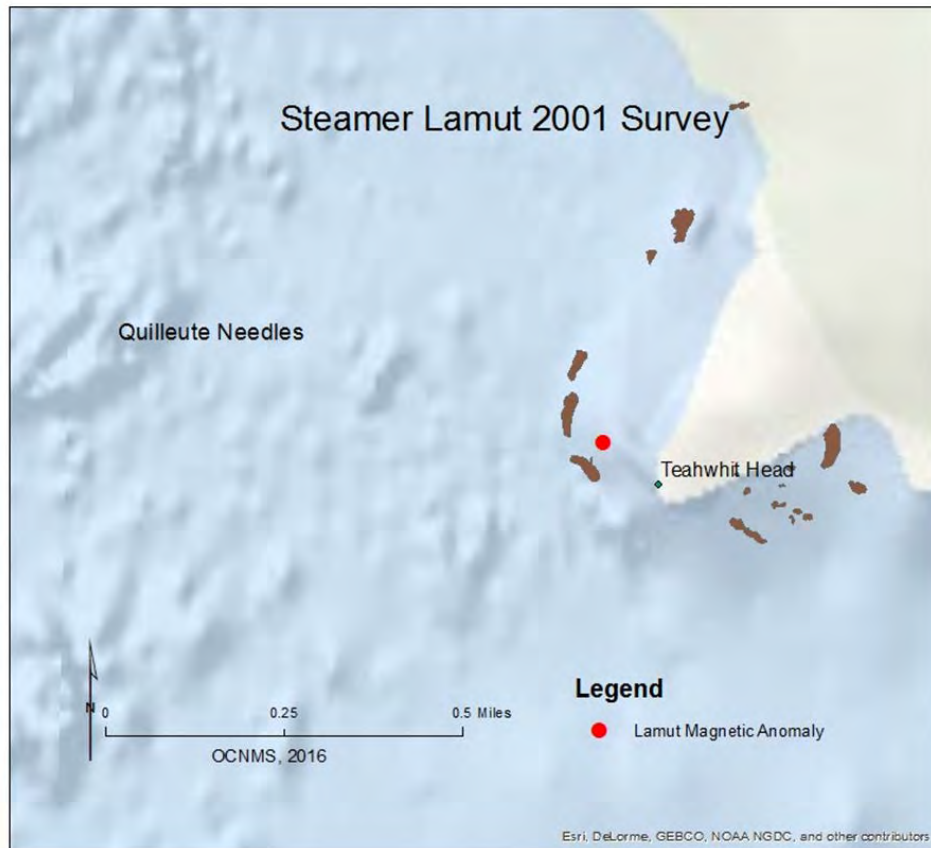


Figure 13: Lamut Survey Area.

### Final Assessment

**SS *Temple Bar*** - It is recommended that the *Temple Bar* site be further surveyed using close order remote sensing survey with side scan sonar operating between 900 to 1,200 kHz to develop high-resolution imagery for better target identification. Relatively shallow waters make this site also eligible for archaeological diver ground truthing, mapping, photography, and non-intrusive archaeological procedures (Cantelas 2002:40).

**W. J. Pirrie** - The survey did not positively identify significant remains that reflected the wrecking of the *Pirrie*. It was recommended that further survey be conducted to the north of the Cake Rock Reef. Further close order survey of PM-1 at the south end of Cake Rock was recommended with a diver survey to follow if conditions allow. The combined anomalies at PM-4 with the associated sonar anomalies of PS-8 and PS-10 were also recommended as having possible cultural origin were candidates for close order survey. Finally, PM-6 north of Cake Rock near the reef, while having no associated sonar anomalies, exhibited the greatest magnetic signature of the survey. It was recommended that further survey be conducted in the area above

the reef as suggested by research into the inquest reports found after the 2001 survey was completed (Cantelas 2002: 64).

SS *Lamut* - The magnetometer data from Teahwhit Head is consistent with the historical documentation of the wreck of the *Lamut*. It was recommended that further close order survey with side scan sonar be undertaken at this site followed by diver survey when conditions permit (Cantelas 2002:71).

## Bibliography

Avery, Mary W.

1965 *Washington: A History of the Evergreen State*. Seattle: University of Washington Press.

Barnard, Kent

1994 Argonaut Shipwreck Database. Mukilteo: Argonaut Resources Inc.

Bauer, K. Jack

1988 *A Maritime History of the United States: The Role of America's Seas and Waterways*.

Columbia: University of South Carolina Press.

Brooks, C.W.

1875 Report of Japanese Vessels wrecked in the North Pacific Ocean: from the earliest records to the present time. In: *Proceedings of the California Academy of Science*, 6:50-66. Reprinted in Fairfield: Ye Galleon Press.

Busch, Briton Cooper

1985 *The War Against the Seals: A history of the North American Seal Fishery*. Kingston:

McGill – Queens University Press.

Cantelas, Frank, et. al.

2002 Draft Report, Remote Sensing Survey 2001, Olympic Coast National Marine Sanctuary. Prepared for NOAA Marine Sanctuaries Division, Silver Spring, Maryland.

2001 Draft Report, Remote Sensing Survey 2000, Destruction Island and Vicinity, Olympic Coast National Marine Sanctuary. Prepared for NOAA Marine Sanctuary Division, Silver Spring, Maryland.

Chasen, Daniel Jack

1981 *The Water Link: A History of Puget Sound as a Resource*. Seattle: Puget Sound Books.

Cook, Warren L.

1973 *Flood Tide of Empire: Spain and the Pacific Northwest, 1543 – 1819*. New Haven: Yale University Press.

Coastal Marine Archaeological Resources (CMAR)

1997a Underwater Reconnaissance of the Troopship *General M. C. Meigs* AP-116. Report prepared for Olympic Coast National Marine Sanctuary.

1997b Underwater Reconnaissance of the Koitlah Point Site. Report prepared for Olympic Coast National Marine Sanctuary.

Cross, Francis E.

1981 *Sea Venture: Captain Gray's Voyages of Discovery, 1787 – 1793*. St. Petersburg: Valkyrie Publishing House, Inc.

*Daily Evening Bulletin*

1875 San Francisco, CA. Issue 107, Co. F. February 11, 1875.

*Daily Intelligencer*

1877 Seattle. January 27, 1877, p. 3 "Coast Wreckers"

Davidson, George

1858 Directory for the Pacific Coast of the United States Reported to the Superintendent for the United States Coast Survey, August 29, 1879

DeArmond, R.N.

1986 Seal Hunters of Washington. In *The Sea Chest: Journal of Puget Sound Maritime Historical Society*. 20(2), Dec 1986.

Department of Commerce

1921 "Investigation of the Loss of the Barge "W.J.Pierre" Off the Washington Coast Near the Mouth of the Quillayute River on November 26, 1920." Department of Commerce, Steamboat Inspection Service. January 11, 1921.

Department of the Interior

1966 The Secretary of Interior's Standards and Guidelines for Archeology and Historic Preservation.

Forks Community Shipwreck Project

1995 Meeting Minutes, 15 February 1995. On files OCNMS.

1997 Olympic Coast National Marine Sanctuary Education Program Interim Draft Evaluation of Westend Community Shipwreck Project FY 95, 96, 97 by Robert Steelquist, Education Coordinator, OCNMS.

Gibbs, James A. Jr.

1968 *Shipwrecks Off Juan de Fuca*. Portland: Binford & Mort.

1955 *Sentinels of the North Pacific: The Story of Pacific Coast Lighthouses and Lightships*. Portland: Binford & Mort.

Hanable, William S.

2005 Lightships on Washington's Outer Coast. Essay# 7189. Washington State Department of Archaeology and Historic Preservation.

[http://www.historylink.org/essays/output.cfm?file\\_id=7189](http://www.historylink.org/essays/output.cfm?file_id=7189)

Hillend, Jeanette

1999 Letter to ed. In *Wreckage: A Publication of the Westend Shipwreck Project*. Forks, WA. Fall.

Hooper, David

1993 Exploring Washington's Wild Olympic Coast. Seattle: The Mountaineers.

Jefferson County Historical Society Photograph Collection

n.d. Photo Album 28.217. "The Captain Hanks Place at The mouth of the Hoh, Oil City"

Jervis, Russell ed.

1971 *Jimmy Come Lately: History of Clallam County*. Port Angeles. Clallam County Historical Society.

Lilly, D. K.

1983 *Linear theory of internal gravity waves and mountain waves*. Mesoscale Meteorology, D. Reidel Publishers.

Lloyd's Register of Shipping

1850/51 Report by Master G. Stuart

McClary, Daryl C.

2005 Jefferson County - Thumbnail History. Essay #7472. Washington State Department of Archaeology and Historic Preservation.

[http://www.historylink.org/essays/output.cfm?file\\_id=7472](http://www.historylink.org/essays/output.cfm?file_id=7472)

McDonald, Lucille

1993 The Wreck of the St. Nicholas. *The Sea Chest: Journal of Puget Sound Maritime Historical Society* 26(3) March.

1979 First Lighthouse Keepers on Tatoosh Island. In *The Sea Chest: Journal of Puget Sound Maritime Historical Society* 13(1) September.

1975 The First Neah Bay Lifesaving Station. In *The Sea Chest: Journal of Puget Sound Maritime Historical Society*. 9(2) December.

Marr, Carolyn

1987 *Portrait in Time: Photographs of the Makah by Samuel G. Morse, 1896 – 1903*. Makah Culture and Research Center and the Washington State Historical Society.

MMS

1990 California, Oregon, and Washington Archaeological Resource Study, Vol. I – IV. Gearhart, Robert L. II, ed. U.S. Department of the Interior, Minerals Management Service, Pacific OCS Region.

*Morning Oregonian*

1897 Portland Oregon. August 28, 1897, Issue 11, 828, pg. 2, col B.

Newell, Gordon ed.

1977 *The H. W. McCurdy Marine History of the Pacific Northwest, 1966 - 1976*. Seattle: Superior Publishing.

1966 *The H.W. McCurdy Marine History of the Pacific Northwest*. Seattle: Superior Publishing Co.

NOAA

2001 Olympic Coast National Marine Sanctuary website, NOAA, 2001.

<http://www.ocnms.nos.noaa.gov/welcome.html>.

1993 Research Draft Management Plan and Final Environmental Impact Statement. Olympic Coast National Marine Sanctuary. Final environmental impact statement/management plan. Vol. I, Sec. III: Research.

1991 United State Coast Pilot 7, Pacific Coast, California, Oregon, Washington and Hawaii.

Oldham, Kit

2005 Clallam County - Thumbnail History. Essay #7576. Washington State Department of Archaeology and Historic Preservation.

[http://www.historylink.org/essays/output.cfm?file\\_id=7576](http://www.historylink.org/essays/output.cfm?file_id=7576)

2003 Swan, James G. (1818 - 1900). Essay #5029. Washington State Department of Archaeology and Historic Preservation.

[http://www.historylink.org/essays/output.cfm?file\\_id=5029](http://www.historylink.org/essays/output.cfm?file_id=5029)

Olympic Coast National Marine Sanctuary (OCNMS)

n.d. Sanctuary Fact Sheet.

Olympic Peninsula Community Museum

n.d. Homesteaders and Pioneers on the Olympic Peninsula.

<http://content.lib.washington.edu/cmpweb/exhibits/homesteading/index.html>

Online Encyclopedia of Washington State History.

n.d. Washington State Department of Archaeology and Historic Preservation.

<http://www.historylink.org>.

Oregon Historical Society Photograph Collection

n.d. #1098-Q; Neg No 35411; "Sunk in storm (Nov. 1904); Surf Duck (54-foot-long sailboat of Cpt. J.F. Hanks, at mouth of Queets River"

*Port Townsend Leader*

1890 Port Townsend, Washington. January 8, 1890.

Quileute Natural Resources

n.d. <http://www.quileutetribe.org/7.html>.

Rau, Weldon W.

1980 Bulletin No. 72, Washington Coastal Geology Between the Hoh and Quillayute Rivers. Washington State Department of Natural Resources.

Renker, Ann m., et. al.

1989 Makah Traditional Cultural Property Study. Office of Archaeology and Historic Preservation. The State of Washington Department of Community Development.

Ruby, Robert H. and John A. Brown

1986 *A Guide to the Indian Tribes for the Pacific Northwest*. Norman: University of Oklahoma Press.

*Salt Lake Semi-Weekly Tribune*

1897 Salt Lake City, August 20, 1897, Issue 49, col D.

Schwemmer, Robert

2008 Olympic Coast National Marine Sanctuary Historic Shipwreck Database. National Oceanic and Atmospheric Administration. Mss. Santa Barbara: Channel Islands National Marine Sanctuary.

Shields, Ed

1977 Cape Flattery Lighthouse in *The Sea Chest* II(1), September 1977.

Smith, William (et. al.)

1981 Puget Sound: A Progress Report from the Center For Marine Archaeology in *Underwater Archaeology: The Challenge Before Us* ed. Gordon Watts. San Marine: Fathom Eight.

Snively, P.D.J., Niem, A.R. and MacLeod, N.S.,

1989 Geology of the coastal area between Cape Flattery and Cape Alava, Northwest Washington, for U.S. Geological Survey, 89 - 141.

Steury, Tim

2008 The Home of My Family: Ozette, the Makahs, and Doc Daugherty. *Washington State Magazine*, Spring 2008.

Tacoma News Tribune

1939 April 10, 1939, p.5

Terrell, Bruce G.

2000 Austria/Cape Alava Survey: Cultural Resource Survey Report, Olympic Coast National Marine Sanctuary. NOAA, Silver Spring, MD.

U.S. Department of Commerce

1993 Olympic Coast National Marine Sanctuary: Final Environmental Impact Statement/Management Plan Vol. 1. Washington, D.C.: Sanctuaries and Reserves Division.

Webber, Bert

1978 *Beachcombing and camping along the Northwest coast*. Fairfield: Ye Galleon Press.

*Weekly Pacific Tribune*

1877 Seattle. February 9, 1877, p. 3, col.4

Wesson, Gary C. Ph.D.

2003 An Assessment and Plan for a Program of Studies Addressing Prehistoric Archaeological Sites Associated with Paleoshore Lines on the Olympic Coast of Washington. Neah Bay: Makah Cultural and Research Center.

Wilma, David

2006 Russian ship Saint Nicolas wrecks near mouth of Quillayute River on November 1, 1808. Essay #7745. Washington State Department of Archaeology and Historic Preservation.

[http://www.historylink.org/essays/output.cfm?file\\_id=7745](http://www.historylink.org/essays/output.cfm?file_id=7745)

2005 Japanese submarine torpedoes and shells the freighter *Fort Camosun* off Cape Flattery on June 20, 1942. Essay #7218. Washington State Department of Archaeology and Historic Preservation.

Wreck Reports, Dept. of Treasury, U.S. Government

1927 *Dagny* (#38)

1923 *Lake Gebhart* (#126)

1904 *Surf Duck* (#363)

1901 *Drummond III*

1897 *Matilda* (#131)

1888 *Cassandra Adams* (#22)

1878 *Free Trade* (#221)

1877 *Commodore* (#?)

Wright, E. W, ed.

1967 *Lewis & Dryden's Marine History of the Pacific Northwest*. Seattle: Superior Publishing Co.