



A Forgotten Maritime Highway: Maritime Cultural Heritage of the Emperor Seamounts with Implications for High Seas Conservation

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Abstract

This article seeks to complement efforts to summarize information on the exceptional natural significance of the Emperor Seamounts. The human history of the Emperor Seamounts is culturally diverse and spans thousands of years. This ranges from indigenous cultures to the period of European colonial exploration and expansion to the rise of the modern global economy and its impact on the area through the hunting of marine mammals, fishing, and the transportation of commodities across these remote waters on ships. Some of these vessels were wrecked or disappeared, and may rest on the seabed of the Emperor Seamounts. Understanding this human history is critical in approaching the assessment, ongoing study, public outreach and management of this remote region, which has been highlighted as one of the most important areas beyond national jurisdiction to protect globally.

Keywords Maritime cultural heritage · High seas · Emperor Seamounts · Conservation · Areas beyond national jurisdiction · North Pacific

Introduction

The Emperor Seamounts (53°–30° N, 164°–177° E) are submerged volcanic guyots with summit depths ranging between about 250–1000 m (m) that lie in an approximately 3000 km (km) arced progression that trends northwest by north from the Northwestern

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Hawaiian Islands to an area just offshore of the Aleutian Islands and the Kamchatka Peninsula, south of the Aleutian Trench (Fig. 1). This region of the North Pacific Basin rests in areas beyond national jurisdiction that has been the focus of detailed mapping and assessment during the past century. Several global studies have highlighted the high natural significance and conservation value of the Emperor Seamounts, and this region was recognized as an ecologically or biologically significant area (EBSA) by the Conference of the Parties to the Convention of Biological Diversity. There are no emergent land features in the seamount chain; the closest emergent feature at the southern end is Kure Atoll in the Northwest Hawaiian Islands, which lies 890 km southeast of Kammu Seamount. The closest emergent features in the north are the Russian ports of Petropavlosk, 420 km roughly east, Nikolskoye, 263 km north-northwest in the Komandorski Islands, and Attu, lying roughly east at 502 km from the Meiji Seamount in the Aleutians.

The ocean in this area is a flat, featureless, and transient surface upon which people have acted but have left little trace. Instead, human actions on the surface of maritime landscapes are offset vertically and imprinted on the seabed below (Delgado et al. 2018a, b). Such areas of maritime impacts can be lines drawn on charts, place names, isolated shipwreck sites, or expansive yet connected landscapes, such as sea battles and convoy routes of World War II, which left thousands of shipwrecks and aircraft wrecked on the seabed beneath the battlefields upon which they fought. The Emperor Seamounts lie adjacent to a largely unknown maritime highway in the North Pacific that dates back millennia. That highway included indigenous craft close to shore, Asiatic seafarers, and later vessels of

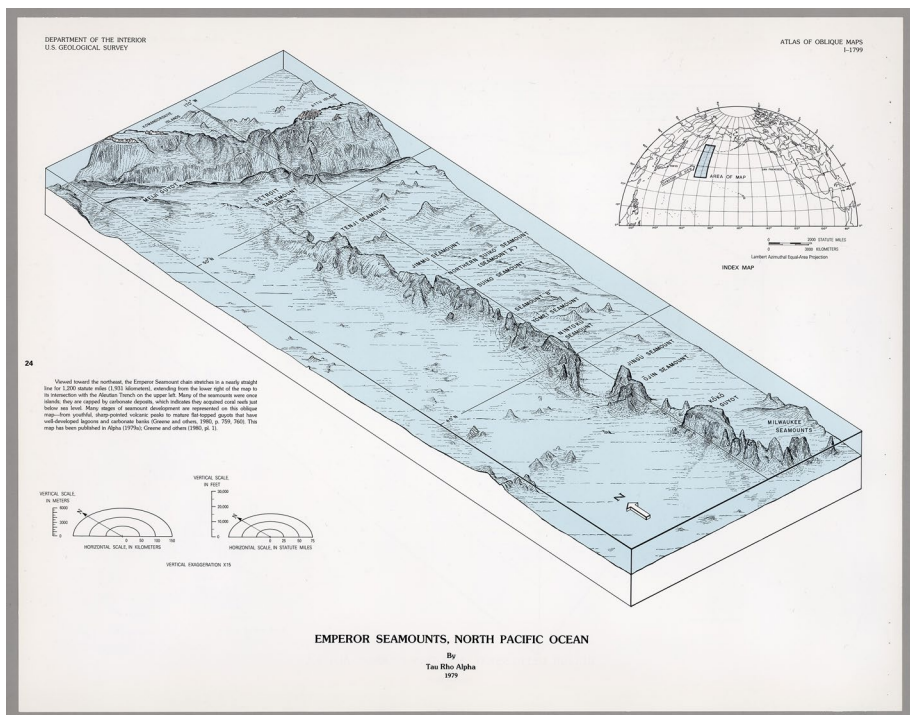


Fig. 1 US Geological Survey map of the Emperor Seamounts, 1979. (David Rumsey Collection, 6353.000)

colonial explorers, companies, and in time, the naval and merchant ships of modern nations and empires of the nineteenth and twentieth centuries. These contexts represent a broad spectrum of how this ocean region was utilized by humans for a multitude of actions, the material evidence for some which now lies below on the seafloor.

This article seeks to complement efforts to summarize information on the exceptional natural significance of the Emperor Seamounts (CBD 2016) by assessing the known and suspected maritime cultural resources of the region. The approach taken in this assessment employs the maritime cultural landscape theoretical perspective (MCL) and follows similar studies focused on various areas in the United States (Barr 2013), a larger area off Hawai'i (Van Tilburg and Delgado 2017), the Salas y Gomez and Nazca ridges (Delgado et al. 2022), and the various studies that led to the creation of Papahānaumokuākea Marine National Monument in the Northeastern Hawaiian Islands, which connects to the Emperor Seamounts west of Kure Atoll.

The MCL, initially envisioned by Christer Westerdahl as an archaeological concept spanning land and sea (Westerdahl 1992), has expanded into a useful tool for describing distinct geographical areas of associated natural and cultural features. The utility of this approach for management has seen its adoption by the Marine Protected Area Center of the United States National Oceanic and Atmospheric Administration (NOAA) in 2011, as a means for looking at ways in which cultural and environmental processes overlap and influence one another. The intellectual concept of cultural landscapes has been established for nearly a century, and in recent years, its application to the management of marine resources has grown. Cultural landscapes identify combinations of human activity and natural areas and resources that have left identifiable cultural and ecological patterns (MPAFAC 2011).

Employing this perspective, the very nature and natural resources of the study area also have cultural contexts as defined by human activity, even when those activities were as transitory as an ocean voyage. While seemingly “uncharted”, that does not mean this is an unknown area devoid of human interaction and understanding. The Emperor Seamounts have been an active highway for an extended period. That navigation began long before European “discovery” and possibly as early as voyages of Ice Age mariners and then later peoples. The use of these waters continued throughout the period of European exploration and colonialization, and expanded in the post-colonial era as the emerging global economy led to voyages in which this section of ocean was a highway for the transportation of various commodities. These voyages led to a variety of names, bestowed by different cultures and in different languages, to the ocean features, as well as an emerging understanding of the currents and winds of this portion of the planet. These voyages were first associated with regional trade networks, and in time were in response to the rise of regional and international trade networks by European powers, the extension of sovereignty, and the deployment of naval forces in conflict.

Indigenous Unangax Cultural Properties and Context

As this paper assesses, the human “presence” and activities along the Emperor Seamounts is reflected in the nature of the various other resources found throughout the Anthropocene epoch. (Flett and Haberle 2008). The marine life then and marine life now have cultural meaning and significance to indigenous communities (Fig. 2). Scholars need to be cognizant that much of the dialogue to date has been bounded by non-indigenous,

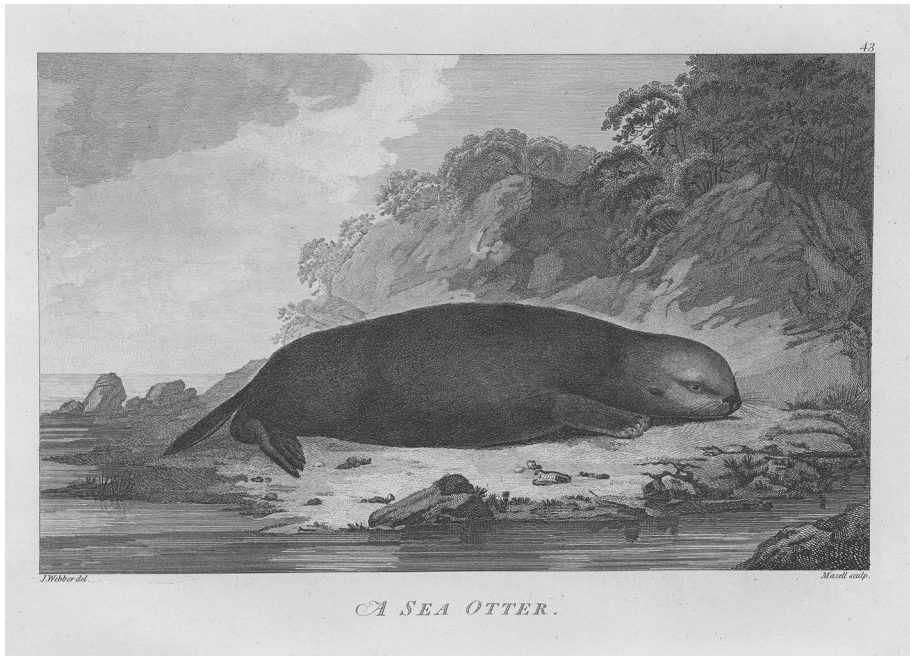


Fig. 2 The North Pacific Sea Otter (*enhydra lutris kenyoni*), drawn by John Webber during James Cook's final voyage (1776–1780), is a native of the northern coast well known to the indigenous peoples of the region and extensively hunted in the colonial period starting in the eighteenth century. (David Rumsey Collection, 3405.000)

western-oriented approaches, which likely had no relevance for the peoples who conducted these voyages thousands of years ago, nor many of their descendants.

Since the Emperor Seamounts lie in international waters, with the closest national boundaries being those with Russia, and the US states of Hawaii and Alaska, its marine resources are not regulated by national jurisdictions. The ocean itself in this area can be viewed as a Traditional Cultural Property (TCP), which is defined as “meeting specific criteria used for ceremonies or other cultural activities that may leave no material traces, and may have on-going use important to the maintenance of cultural practices” (Van Tilburg and Delgado 2017, Parker and King 1998). We therefore suggest that management and conservation activities in this region should incorporate an ethos of consultation and cooperation with the Aleut/Unangax community.

Marine Migration and Human Settlement of the Americas

The collision of the *Oyashio* and *Kuroshio* ocean currents off the northern coast of Japan influence the North Pacific's tropical gyre, and the resultant transport of water sweeps east, past the Emperor Seamounts. The best known of these currents, the warm-water Kuroshio sweeps east roughly centered between the 30th and 40th parallels, but the current influences water movement up toward the 50th parallel as it variably moves waters toward the

polar region and east toward the coast of North America (Jayne et al. 2009). This current has been in existence since circa (c) 600,000–700,000 Before Present (BP) (Koba 1992). The Pacific trajectory of the Kuroshio remained constant during the last glacial maximum sea levels and lower sea levels, a period in which human migration from Asia to North America took place (Ujiié and Ujiié 1999).

The science and archaeology of ancient human migration to the Americas remains an evolving area of study, but DNA studies suggest a human migration c. 25,000 years BP and a second wave c. 15,000–10,000 BP (Schurr 2015; also see Bisso-Machado and Fagundes 2019). While previous studies focused on a land-based movement during the last Great Ice Age across Beringia, more recent scholarship has proposed a theory of coastal migration in which people utilized watercraft and harvested marine resources while following the Aleutian chain, then the southern region of Beringia (West et al. 2010) continuing through the ice-free Pacific coast of the Americas to settle the continent (Graf et al. 2014; Erlandson 2015; Erlandson and Braje 2011) (Fig. 3). There is an extensive bibliography on the subject which is beyond the scope of this overview. Incisive overviews can be found in Dixon (1999), Dixon and Monteleone (2014) and Rothman (2016).

Where these theoretical constructs literally and figuratively intersect the Emperor Seamounts is due to maritime-based migration that utilized open-ocean voyaging as the means for human settlement. This includes the possibility of Jōmon seafaring c. 16,000–2700 BP, who did reach the Kuriles to the Siberian Peninsula, as well as later migrations utilizing out-rigger assisted craft; these theories are speculative, but should be included as possibilities (see Jett 2017, for example). More recently, careful analysis and comparative work with other Asian craft represented in the archaeological record by Jun Kimura suggests that rafts, whether wooden or bamboo, could have also played a significant role (Kimura 2016). What is clear is that Japan's archaeological record demonstrates that the ocean was never a cultural barrier during the prehistoric period, with indirect evidence of ocean-going watercraft as early as 32,000 years before the present and ample evidence for the movement of people, goods and information after that (Habu 2010).



Fig. 3 Beringia. (US National Park Service, <https://www.nps.gov/bela/learn/historyculture/the-bering-land-bridge-theory.htm>)

This early seafaring capacity linked the Japanese Archipelago with the Kuriles, Sakhalin and Kamchatka, with portions of that archipelago serving as a land bridge during the last glacial maximum (Habu 2010; Kuzmin 2016, and Ponkratova et al. 2021). During the ten millennia span of Jōmon cultural development, large ocean-going canoes with trade goods have been archaeologically documented (Habu 2010). With the rise of rice agriculture in the Japanese islands and the resultant Yayoi culture c. 2700 BP, semi-composite boats capable of ocean navigation, linking Japan with the Asian mainland, appear in the archaeological record, including model depictions with ceramic funerary models of large ships with oars, masts and sails (Habu 2010).

Migration east, beginning in the second half of the Late Pleistocene, appears to have followed the maritime lowlands of the Pacific Arctic coast, with “no unambiguous evidence of human on the Kamchatka and Chukchi peninsulas”, and “more reliable evidence of the human presence in Western Beringia” in the last glacial maximum and the beginning of the Holocene (Kotlyakov et al. 2017, 242). From this point, human migration utilized the exposed landmass of Beringia’s central areas, but closer land access in Western Beringia, and extending close to Attu also made it possible for maritime-supported coastal migration utilizing watercraft. Lower sea levels and the relative shallowness of the continental shelf off Kamchatka place paleo shorelines much closer to the Meiji Seamount than they are in modern times (Dixon and Monteleone 2014).

A key point made by Dixon and Monteleone (2014) is that both the “land bridge” and coastal migration models for human settlement of the Americas “are not mutually exclusive and archaeological research suggests that people were living along the coast and inland at this time” (Dixon and Monteleone 2014, 97). What is also clear is that the migration saw people stopping along the way to settle, and in this the ancestors of the modern Unangax/Aleut people inhabited the islands and shores close to the northern edge of the Emperor Seamounts.

The Unangax/Aleut peoples of the islands and the Kamchatka peninsula suffered population loss, exploitation and, in the Aleutians, physical removal from their traditional lands and waters in the eighteenth-twentieth centuries. This massive disruptive event is also reflected in the archaeological record, especially in the Aleutians, where research has been “disjunctive at best... neither comprehensive nor synthetic across the Aleutian chain” (West et al. 2010, 482). What West and colleagues (2010) postulate with the available data is that Aleut populations migrated from Siberian Chukchi, and that the DNA of that group and DNA closest to Yupik Eskimo populations define the Aleut population along with linguistic affinities. It was not continuous; the hypothesis of several “waves” of the eastern Beringia colonization is supported by the data on the earlier sites in America and data of genetic reconstruction (Kotlyakov et al. 2017).

Davis and Knecht (2010) note an overall cultural continuity with notable incursions and excursions out of the eastern Aleutians closer to the Alaskan mainland (Davis and Knecht 2010). Archaeological evidence dating back at least nine thousand years defines the known material cultural data, with caveats, that nonetheless “provide a model system for studying human adaptations and interactions, including critical information about the peopling of the New World, and key information about the reciprocal effects of humans and their environments through deep time (West et al. 2010). This aspect of the human experience is particularly relevant in assessing the evolution of the Emperor Seamounts (Fig. 4).



Fig. 4 A Unangax/Aleut hunter and his *baidarka*, photographed in the 1930s. (Naval History and Heritage Command, UA 437.04.012)

Asian Seafarers

In the wake of ancient Asian seafarers, China, Korea, Japan and the Kingdom of Ryūkyū (Okinawa) developed merchant fleets that conducted inter island and continental Asian trade, including extensive trade voyages to Southeast Asia, the Philippines, and Indonesia (Frank 1998; Oba Oka 2018) (Fig. 5). The maritime Jade Road between Taiwan and Philippines, as well as the maritime Silk Road, from China south and heading west, was part of millennia of Asian seafaring at this edge of the Pacific and its surrounding seas. As Europeans seeking spices and riches in the wake of Magellan's voyage entered those seas in the late sixteenth century, they regularly encountered Japanese vessels, some of them armed and carrying samurai. With the decline of Chinese sea power at the end of the Yuan Dynasty and the start of the Ming, Japanese pirates regularly raided the Chinese mainland and interdicted Chinese trade until the Ming reintroduced naval forces and European colonial powers encroached on Japan's trade (Shapinsky 2009).

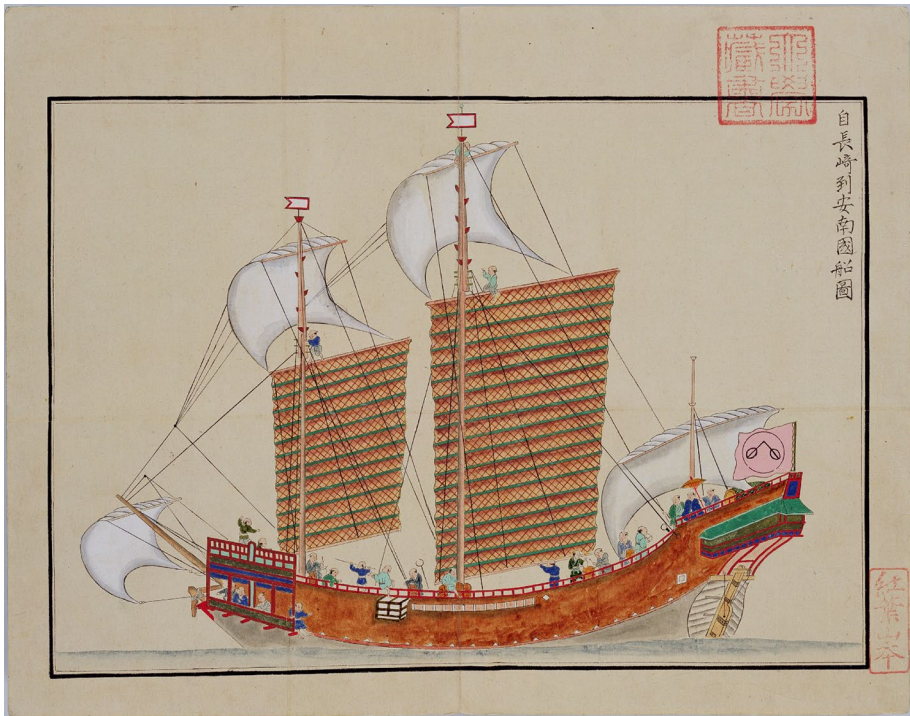


Fig. 5 A late eighteenth/early nineteenth century view of a Japanese trade ship from the *Gaiban Shokan*, a book on the authorized maritime trade prepared for the Tokugawa Shogunate in 1818. The original is in the National Archives of Japan. (Wikimedia Commons)

That trade never ended, and Japanese merchants were able to maintain a viable trade and challenge, increasing European interest up until the official closure of Japan to foreigners during the Tokugawa Shogunate. Edicts issued between 1633 and 1639 progressively closed Japan to foreign trade and forbade Japanese to leave with death as the penalty. For the next two centuries Japan was a *sakoku* or “closed country”. Beginning with the edict closing Japan to foreign trade and banning overseas travel, Japanese vessels were redesigned for coastal travel, not extended voyages (Laver 2011). Kimura (2016) summarizes these small coastal trading ships, known as *bezaisen*, which date from the mid-17th to the late nineteenth century, as craft whose “overall design and structure... became standardized”, with a flat hull with “transverse strength... secured by several thwart beams distributed along the length of the hull. Propulsion was highly dependent on one large square sail,” initially made of bamboo fibers and by the nineteenth century with cotton, and with a “large suspended rudder,” with an “open poop deck, allowing the axial rudder to be suspended and hoisted” (Kimura 2016, 42). These craft were not fragile, but their steering and propulsion were deliberately imposed to ensure that no vessel could sail far offshore or deliberately navigate to another country (Fig. 6).

Storms, winter winds and the Japan Current (known as the *Kuroshio*, or Black Current to the Japanese) swept an estimated one thousand vessels out to sea, including *bezaisen* (known to Westerners as “junks”). There is a considerable nineteenth and twentieth century body of literature on the subject (the major references are Brooks 1876, Webber 1984,



Fig. 6 Japanese *bezaisen*, with their crews, were frequent victims of the Kuroshio. This view of a “freight junk” was completed during Perry’s voyage to Japan in 1852–1854 by William Speiden. (Library of Congress, William Speiden Journals, MSS 83045: Box 1)

and Plummer 1991). There is also a range of iron artifacts of Asian origin in coastal First Nations archaeological sites, and an oral tradition of pre-European contact with Japanese vessels washing ashore, usually with dead crews, with increased reporting in the nineteenth century as scholars who began to compile statistics (Davis 1872; Brooks 1876; Wickersham 1894) and then by modern scholars (Rickard 1939; Webber 1984; Quimby 1985; Plummer 1991; Callaghan 2003; Van Tilburg 2007, 183–184) (Table 1).

As previously noted, much of the interest in the Japanese vessels cast adrift was focused on ancient contacts that had contributed to the migration and settlement of the New World, especially the question of “Japanese blood” among some of the Northwest tribes. In its own time, however, the story of these vessels is a profound one; it was an immeasurable human tragedy of long duration, caused by government edict, and it also was the impetus for regular contact with a “closed” Japan through the survivors of the drift voyages, nearly all of whom could never return home.

For the purposes of this paper, what we focus on is the question not of vessels that made it across the Pacific to the American coast or those encountered on the open seas with living or dead crews mid-ocean, but those vessels which foundered along the way, and whose wrecks may lie on or near the Emperor Seamounts. While there is no means by which an estimate can be made, what we suggest is that there is a possibility and that a number of

Table 1 Selected Japanese Edo/Meiji Period Drift Wrecks. *Source* Davis 1872, Brooks 1876, Webber 1984

1815: 32° N 166° W
1839: 30° N 174° E
1847 35° N 156° E
1848: 40° N 170° W
1850: 45° N 155° E
1855: 42° N 170° W
1858 43° N 171° E
1859: 28° N 178° W
1862 33° N 161° W
1870: 37° N 158° W
1875: 38° N 164° W

these unplanned, uncontrolled voyages passed directly through the waters of the Emperor Seamounts. One of these, the *bezaisen Choja Maru*, was sighted in a sinking condition by the American whaler *James Roper* at the approximate position of Jenkins Seamount on 6 June 1839; the *bezaisen* had been adrift for six months after sailing from Toyama. *James Roper's* captain hove to and rescued seven survivors and set fire to the junk to sink it (Webber 1984, 56). Another drift *bezaisen* rescue took place in May 1858, when the British ship *Caribbean* rescued twelve survivors approximately fifty kilometers east of Showa Guyot in the Emperor Seamounts (Webber 1984, 73).

Accounts from nineteenth century mariners mention specific wrecks, often unnamed, at Kamchatka and in the Aleutians, but also on the high seas; an 1849 account noted in addition to “several Japanese junks were, last year [1848] picked up by whaling ships cruising in the Japan Sea” (New York *Daily Herald*, April 1, 1849, 1). Wickersham, writing in 1894, noted the “great wheel current in the North Pacific Ocean, upon the outer circumference of which are scattered the wrecks of eastern Asia and western America...Seven castaway Japanese vessels have been thrown upon the Aleutian Islands since the beginning of the seventeenth century,” (Wickersham 1894, 329–330). He specifically noted that “in 1782 a Japanese junk was wrecked upon the Aleutian Islands, from which the survivors were taken in one of the Russian-American company’s vessels to Kamschatka and thence returned to their native island.” He also noted that “in July, 1871, the old chief at Atter [Attu] Island, aged 70 years, reported that three Japanese junks had been lost upon the surrounding islets during his recollection, besides one stranded not far from the harbor of that island in 1862” (Wickersham 1894, 330).

However, the greater number of Japanese drift wrecks was not in the northerly area; after being dismasted or unable to steer after losing the rudder, junks “are first carried clear...in latitude 50 before the northerly returning branch of the current would throw them on the islands (Aleutian and Kodiak). Then they are as likely to be carried south as north by the southerly arm of the current” (Dall 1877, 97) Because of those factors, “many more are known to have been cast on the continent than have ever been known to reach the islands” (Quimby 1985, 9).

Of that larger number, accounts from passing vessels that sighted drifting wrecks, some of which held survivors, as well as cast-away remains of Japanese vessels on reefs and atolls are also numerous and speak to quantity as well as patterns of distribution of those ships; there are also brief mentions of what had to be voyages of great suffering and

despair. One account of an 1859 voyage of the bark *Gambia* in the Northwestern Hawaiian Islands noted “on these and many other islands and rocks visited were found wrecks of Japanese junks,” and at Midway, “on the east side are the remains of two Japanese junks, their lower masts stranded on the beach, with the “remains of a junk on Ocean Island,” with other accounts mentioning junks found adrift north of the Northwestern Hawaiian Islands and the Aleutians (Davis 1872, 67–77). A few positions, as plotted, are illustrative:

Various estimates of the number of vessels caught in the Kuroshio and subsequently lost at sea varies; it has been suggested that approximately a thousand vessels were lost in this fashion. Quimby (1985) estimated 14–15 drift *bezaisen* per century, and Callaghan (2003), using simulation models for the potential number of Japanese drift *bezaisen* wrecking on the Canadian shores of North America, drawing from Brooks (1876) and a variety of factors, including point of departure from Japan and intended destination, time of year and seasonal weather, crew strategy (to drift or try to jury-rig a sail), vessel performance (calculated to be average size), and duration assessed 1,500 possible drift voyages from five points of departure to determine that 3.1 percent of them – fifty-five wrecks could have reached the coastal islands of British Columbia (Callaghan 2003) (Table 1).

Finally, Jett (2017) notes that accounts documenting “187 wrecks during the period AD 500 to 1750,” and “the consistency of the prevailing winds and currents is such that it seems inevitable that accidental drift voyages” likely numbered not only in those of the Edo/Meiji period of a “few ones but hundreds, even thousands over the millennia” (Jett 2017, 56). This suggests the potential for archaeologically surviving wrecks of Japanese drift *bezaisen* on the seabed of the Emperor Seamounts.

Russian, French and British Exploration, Charting and Place Names

Scientific exploration, past, present and future, is a cultural imprint on a seemingly “track-less” ocean. Starting with the voyages of Magellan, Europeans encountered the North Pacific through the process of exploration and from there expanding into colonial expansion, conflict and exploitation as well as scientific learning (McDougall 1993). The process and heritage of exploration, charting, naming, cultural encounters and conflicts, and the exploitation of people and resources were human actions that reflect the ongoing shaping of humanity’s social construction of and conception of “ocean.” In this fashion, humans have defined political and economic values to the oceans for governance and control of ocean spaces (Steinberg 2001).

Initial European maritime incursions into the North Pacific were Russian, and they were the first known non-Asians to make contact with the indigenous peoples of the coast and islands. These voyages began with the maritime exploration of the eastern coast of Siberia, and then in the Pacific, resulting in the “discovery” of the Aleutians and the Bering Strait. Working for the Russians, Danish mariner Vitus Bering led a series of expeditions in 1727–1741. Reaching Kamchatka, which had been first encountered by Russians in the late seventeenth century and because of its wealth in fur-bearing animals, Russian fur traders began to move into the territory and, as is often the case, the flag follows commerce. The most valuable commodity sought by European and, in time, American traders was fur, whether gathered from land or marine-based animals (Iglar 2013; Anichtchenko 2015 and Crowell 2015). Kamchatka was subjugated over the next few decades, culminating just prior to Bering’s voyage.



Fig. 7 *General'naia karta, predstavliaiushchaia udobnye sposoby k umnozheniiu Rossiiskoi torgovli i moreplavaniuu po Tikhomu i Iuzhnomu okeanu.*, a 1787 chart “presenting the convenient methods of increasing Russian trade and navigation in the Pacific and Southern Oceans, and showing Kamchatka and the Aleutians. (Library of Congress, <https://lcn.loc.gov/2018694074>)

At that point Kamchatka and its port Petropavlovsk became the launching point for ongoing Russian exploration in the North Pacific (Golder 1915; Sokol 1952) (Fig. 7). Dispatched by Tsar Peter the Great, Bering discerned that Asia and North America were physically separated by ocean. He reached the Alaskan mainland, and ultimately died on his final expedition after being shipwrecked on Kayak, one of the Komandorski (Commander) islands and wintering there in difficult conditions (Golder 1922, Kushnarev 1990, Steller 1988, Urness 1986, Anichtchenko 2015). While official expeditions were few, private enterprise, attracted to the fur-bearing marine mammals, followed, steadily advancing along the Aleutian chain through 1761, when they reached the Alaskan coast (Sokol 1952, 93; Grinëv 2018). Because exploration and charting were State secrets, not much information about the region and the waters around it, as gathered from Russian sources, made it to the rest of the world, although some charts by the mid-eighteenth century did share some details based on Bering’s discoveries and charting. Another Russian expedition, led by Petr Krenitsyn and Mikhail Levashov, probed the Aleutians in 1768, but its results were not widely known outside of Russia and not published until 1852 (Anichtchenko 2015, 73).

In contrast to the more secretive Russian voyages, the Pacific-spanning and widely published explorations of Britain’s James Cook brought him to North Pacific on his third and final voyage in 1778. Cook’s push north was the result of the British Admiralty’s interest in finding the fabled Northwest Passage, which was thought to exit into the Pacific somewhere in those as yet largely unexplored latitudes at the top of North

America. Cook's orders were to sail as far north at the 65th parallel (Williams 2015, 30). In August 1778, having followed the northwest coast of North America, and with that, of the Alaskan shore, and thence the Aleutians. Cook sailed through Bering's strait and headed north, only to be stopped by ice at 70° 41" North (Williams 2015, 40).

Cook's mission being accomplished, he did not chart the Aleutians or other areas, and headed south where he met his death in the Hawaiian Islands. Following Cook's death, his ships, *Resolution* and *Discovery*, headed north again, visited Petropavlovsk in 1779 to re-provision with pragmatic support from their highly suspicious but gracious Russian hosts (Lieven 1934; Anichtchenko 2015). Publication of the charts of Cook's voyage provided the first "modern" or more accurate view of the North Pacific (Robson 2015, 212, 227). This did more than benefit British interests in the ongoing economic exploitation of the region. Cook's charts were especially useful for the Russians, who used them to extend their economic interests and colonization to the Alaska mainland, known to the Russians as Chukotka.

However, the publication of Cook's journals and charts meant that "the Bering Sea and North Pacific ceased to be Russia's internal affair" and the region opened up to an expanded maritime fur trade (Anichtchenko 2015, 83). This attracted the interest of other explorers, like France's Jean-François Galoup, the Comte de la Pérouse, who visited Petropavlovsk in 1787 in the ships *Boussole* and *Astrolabe*, during the northernmost portion of his global voyage of exploration and specifically to assess the question of a Northwest or Northeast Passage. The next explorers were a progression of Russians who came as part of an increased interest by Russia to stake a strong claim and control the region and its resources. In the aftermath of Cook's voyage, however, foreign interest notwithstanding, the Russians intensified their exploration and exploitation of the North Pacific and the Western Arctic.

Russia formally claimed the Aleutians, Alaska and the Kuriles at the end of 1786, on the eve of La Pérouse's visit to Kamchatka, an act followed by another survey and charting of the Aleutians by Gavril Andreivich Sarychev in 1791 as the islands continued to serve as the focus of extensive hunting and fur collecting (Sarychev 1802). Russian voyages to the region included specific expeditions to the near-shore waters to continue charting, and in particular to better define the Alaskan coast, an area that had already attracted the attention of Cook and La Pérouse. The importance of the region also led Russian officials to include it in their plans for larger voyages of exploration, beginning with Russia's first circumnavigation of the globe by Adam Johann von Krusenstern and Yuri Lisianski from 1803 to 1806 in the ships *Nedezhda* and *Neva*. *Nedezhda* made three visits to Kamchatka; the first, in July–August 1804, was done in advance of a visit to Japan and a Russian attempt to open trade and to return Japanese survivors of a drift voyage that had ended in shipwreck in the Aleutians. Following an unsuccessful mission, *Nedezhda* returned to Petropavlovsk in June 1805, and from there sailed to continue more exploration, including Sakhalin Island, before a third return to Petropavlovsk in August in preparations for setting sail south on the voyage that returned home to Kronstadt in August 1806 (Von Krusenstern 1813, Lisianski 1814).

Neva, meanwhile, worked off the Alaska coast, and then sailed east toward China. While on that crossing, *Neva* struck a shoal on the evening of 15 October 1805 and remained stuck as the crew worked to free the ship by throwing overboard heavy items. Before working themselves free and reloading all they had thrown overboard, Lisianski ordered the crew to set "a high pole on the ground" with a bottle buried next to it "containing a description of our discovery of this island" (Lisianski 1814, 253). They were within 900 km of the Emperor Seamounts, stranded on a shoal next to a small island in the Northwestern

Hawaiian Islands, known to Hawai'ians as Papa 'āpoho, that subsequently would bear the name of the navigator and his ship as Lisianski Island and *Neva Shoal*.

The next Russian explorer to sail through the Northern Pacific to visit Kamchatka was Otto von Kotzebue, who had been one of Krustenstern's officers. Kotzebue's visit came in the summer of 1817 during a round the world voyage that had crossed the Atlantic, sailed up the Pacific, and was bound for as far north as their ship, *Rurik*, could reach in hope of finding a Northeast Passage across the top of the world. As they sailed through the waters of the Emperor Seamounts, they encountered "intense cold, that lumps of ice fell down upon deck from the rigging," and were "constantly surrounded by fogs before reaching Kamchatka, where they stayed for a short time before heading for Bering Strait and to try for a Northeast Passage through the Arctic back to Russia (Von Kotzebue 1821, 35).

Kotzebue's Alaskan and Arctic surveys were significant, but are beyond the scope of this study; it is important to note, however, that this explorer and his two expeditions traversed the waters of the Emperor Seamounts. Von Kotzebue returned five years later on a second voyage on the ship *Predpriyate* on a voyage that spanned 1823–1826. As *Predpriyate* sailed north, "we began daily to experience increasing difficulties from the Northern climate. The sky, hitherto so serene, became gloomy and covered with storm-clouds... we were, besides, enveloped in almost perpetual mists... whales and storm-birds showed themselves in great numbers" (Von Kotzebue 1821, 4–5). Arriving at Kamchatka, Kotzebue and his crew visited Petropavlovsk, then fifty or so "mere huts, irregularly scattered up the side of a mountain" but facing the harbor which was its link to the rest of the world through the "entire water-carriage of various goods and necessities of life" (Von Kotzebue 1821, 18–19).

The North Pacific was increasingly a focus for foreign visits as the waters opened to foreign ships, especially whalers, and Russia responded by building up Petropavlovsk, adding fortifications of earth and wood to ring the harbor and protect the port; in 1849, the Russians decided to place a naval base, constructed its first lighthouse, and began a program of waterfront construction to enhance the port, which in time was surpassed by newly established Vladivostok after 1860 (see Dmytryshyn et al. 1985). American interest, spurred by the increased importance of the North Pacific whaling grounds and the opening of Japan, brought the US Navy's North Pacific Exploring Expedition of 1853–1856 to Kamchatka and thence into the Arctic in the summer of 1855 in the ships *Vincennes*, *John Hancock*, *J. Fenimore Cooper*, and *John P. Kennedy*.

Approaching the coast and the Bering Strait, the ships made soundings with "deep sea twine whenever the ordinary line failed to get bottom, and thus kept up the 'line of soundings' with great success; only once did we fail, and then twelve hundred fathoms were run out with no sign of bottom," but otherwise the crew "brought up specimens of the ocean's bed" (Habersham 1857, 319). They included specimens "of mud and sand, dead shells, and small stones, the former often containing a singular worm, incrustated in a brittle shell resembling in form the Fig. 8, and which, upon being broken out of said shell, twisted about the deck in a most lively manner. They retained life in the atmosphere several minutes after being thus exposed – longer than one would have imagined, when it is recollected that they had previously existed under several hundred fathoms of water" (Habersham 1857, 320).

As Russian influence waned, especially after Crimean War and the sale of Alaska and the Aleutians to the United States in 1867, other explorers who came were engaged in spying on the Russians. The British Royal Navy's visit of HMS *Egeria* under Commander A.L. Douglas sailed into the waters and visited Petropavlovsk in 1877–1878 to gather intelligence after the Crimean War at a time of increased tensions with Russia (Stone 1994).



Fig. 8 Thomas Jeffrey's chart of the North Pacific detailed the coast of California, modern Oregon, Washington and Alaska, the Aleutians and Kamchatka, noting the courses of exploration ships and "Russian discoveries to the North," when it was published in 1776. (David Rumsey Collection, 0346.00)

Similarly, scientists and surveyors of the US Coast Survey, notably William H. Dall, charted and studied the Aleutians from 1872–1874. Deep-sea oceanographic survey commenced in 1873–1874 with the voyages of the Civil War veteran wooden steam frigate USS *Tuscarora*, which sounded the northern "Great Circle Route" then being introduced to regular transpacific steamship service, as well as the deep waters off Japan, Kamchatka, and the Aleutians (Fig. 9).

Under the command of George Belknap, US Navy, *Tuscarora*, using a piano-wire equipped Thomson Sounding machine making a substantial contribution to deep-sea

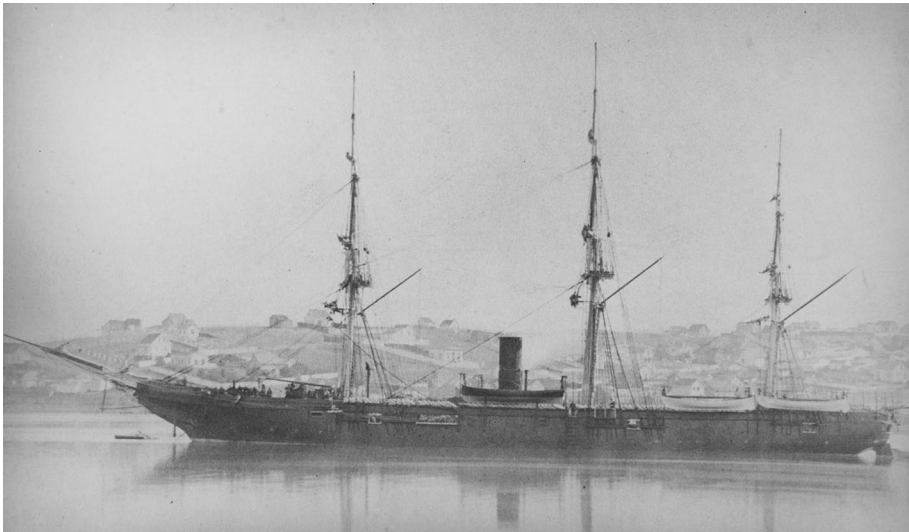


Fig. 9 USS *Tuscarora*, a steam sloop, conducted the first deep sea survey of the North Pacific for a submarine cable in 1874. (US Naval History and Heritage Command, NHH 93243)

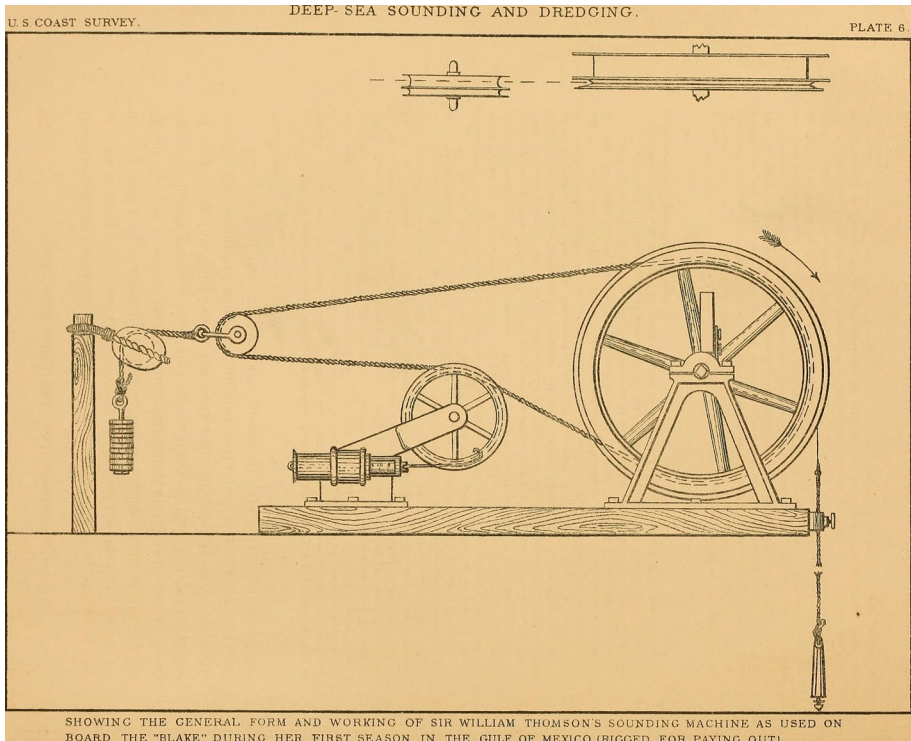


Fig. 10 A nineteenth century illustration of the Thomson Sounding Machine. (NOAA Central Library)

mapping to assist in planning for a transpacific deep-sea cable (Fig. 10). On these voyages, the ship's crew also first sounded the depths of the Kuril/Kamchatka, Aleutian and Japan trenches. While less-known than the more famous 1875 voyage of the survey ship *Challenger*, which sounded the Marianas Trench in 1875, *Tuscarora*'s voyage was the beginning of scientific mapping of the Pacific Ocean seafloor aided by "a revolution in sounding technology" (Theberge 2014, 27). Based on these expeditions, the formerly unseen world of the North Pacific, and its seabed, began to emerge in the scientific and public eye with the publication of the first bathymetric map of the Pacific by Augustus Petermann in 1877 (Theberge 2014, 31; Tate 1986, 185–186) (Fig. 11).

The region had shifted from a little-known ocean and its nearby coast and islands that Europeans were eager to explore and colonize, to one in which increased global competition for commercial opportunities were paramount. This shift, which had begun just after Cook's voyage in regard to harvesting near-shore fur-bearing marine mammals, expanded offshore and into the waters of the Emperor Seamounts after the first quarter of the nineteenth century; the region also was shifting as the Pacific continued to develop, into a key part of the transpacific ocean highways that linked the ports of the Pacific Rim. This can be seen in an 1879 description of Petropavlovsk, where the commercial activities of the port and its fortification had overtaken exploration.

It is the capital and principal military station of the district of the same name, formerly province of Kamtchatka. The harbor, in Avatcha bay, is good, has a lighthouse, and is defended by two forts. The town contains large stores of the Russo-American

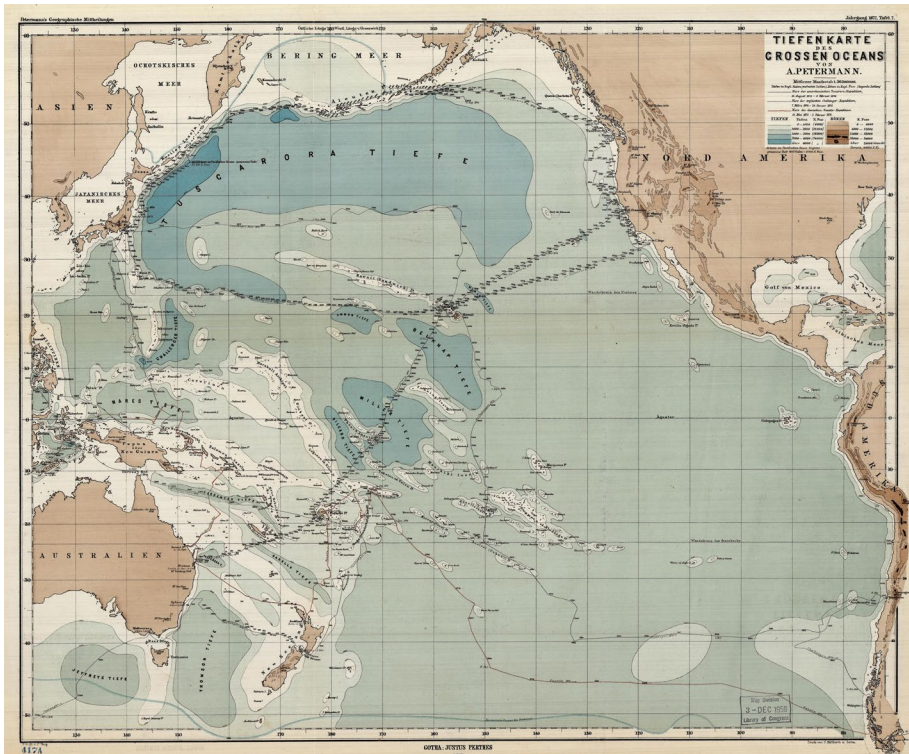


Fig. 11 Petermann's chart of the depths of the Pacific Ocean, 1877. (Library of Congress)

commercial society. Large quantities of dried fish are exported (Ripley and Dana 1879, 374).

The shift was dramatically underscored by the last major Russian government-sponsored expedition to the region, the 1889 visit by the Russian naval clipper ship *Razboinik* under the command of Captain P.N. Woolf. During a four-year circumnavigation (1886–1890), *Razboinik* visited Petropavlovsk, and the fortified harbor port of Nikol'skoe on the nearby Bering Island of the Komandorski group, all part of showing the flag in response to growing Russian concerns about American whalers who had penetrated the area and were clearing out the whale population.

The Cultural Significance of Names

The discovery of the deeply submerged volcanic cones that make up the Emperor Seamounts led to their naming in modern times. “The literature of the Emperor seamounts essentially began with the classic paper of Dietz (1954) on Japanese Bathymetric Chart 6901, in which he described twelve of the seamounts and named nine” (Clague et al. 1980, 845). The naming of geographic features is one of the oldest human activities, regardless of differences in time and culture. Since 1954, several discrepancies in

the names of certain features in the Emperor Seamount chain have appeared in the literature. These resulted primarily from the misspellings, from the use of different systems of transliteration, from the appearance, disappearance and relocation of seamounts as new bathymetry became available, and from the use of new names, not formally approved, in the literature (Clague et al. 1980, 845–846).

In 1980, Clague and colleagues noted they had taken the latest data and used it “to rectify these discrepancies and to present a consistent set of formally approved names for the Emperor Seamounts. In doing so, we have worked closely with the Advisory Committee on Undersea Features (ACUF) of the United States Board on Geographic Names (USBGN)” (Clague et al. 1980, 846).

Previously described by Japanese hydrographer Risaburo Tayama in 1952 with the tentative name of the “Northwest Pacific Ridge,” the Emperor Seamounts were named two years later for ancient and historical rulers of Japan. Not all were emperors; Jingu was an empress, and Daikakiji was a royal family name; Jimmu is particularly significant as he was the legendary first emperor. Japanese belief includes the formation of the Japanese archipelago by the ancestral gods who gave the earth solid form out of a primordial sea as depicted in the origin myths of Japan. As is often the case, the naming of features can be not only cultural and religious, but also political and colonial. Visual features in landscapes often have varying names ranging from indigenous designations to names bestowed by later foreign explorers and colonists.

Other names in the seamount chain reflect bathymetric and hydrographic work by the United States and the Soviet Union; some have been formally withdrawn as older names gave way to the modern “Emperor” designations. US ship names are reflected in Detroit Tablemount, named for the cruiser USS *Detroit* (CL-8) on the 1952 chart, was also known as Papanin Seamount from 1969–1979, named for Soviet scientist and polar explorer Ivan Papanin (1894–1986) (Clague 1980, 847), but the American name prevailed. The name “*Detroit*” first appears in US charts in 1952 and was officially designated in 1964 (Clague et al. 1980, 847). The light cruiser *Detroit*, which had a career that spanned 1922–1946. Initially based with Pacific fleet in 1931, *Detroit* shifted with the fleet to Pearl Harbor in 1941, and was present for the attack on December 7. *Detroit* served as flagship for Task Group 8.6., which patrolled the Aleutians from Adak to Attu, including the retaking of Kiska and Attu, in May 1943, and then in 1944 was again flagship as the US Navy moved against Japan’s northern islands, the Kuriles. *Detroit*’s service in these far northern Pacific waters is the likely reason US officials chose the cruiser’s name for the seamount.

Other US warship names in the seamounts include Milwaukee Bank, first charted and named by and for the cruiser USS *Milwaukee* (1922–1949). After commissioning in 1929, *Milwaukee* steamed into the Pacific on a shakedown voyage to Sydney, Australia; at an early stage in the voyage, *Milwaukee* tested its newly installed hydrographic equipment and located the charted seamount which now holds its name in May 1929. Today the area is known to be the site of the three seamounts now named Yuryaku, Daikakujii and Kammu (Clague et al. 1980). *Milwaukee* served with distinction in World War II, including service as a Soviet warship after being loaned to the USSR in 1944, and afterwards conducting security patrols for convoys out of Murmansk before it was returned to the US for scrapping in 1949.

Other postwar named seamounts in the chain carry the names of US Coast Guard vessels that served with tedious valor for weather operations before, during and after World War II. They include the veteran cutters *Minnetonka* (WHEC-67), commissioned in 1945 and dispatched to the region as an ocean station vessel until 1974, and *Winnebago*

(WHEC-40), which also served on ocean station patrols from 1944–1973. More about these vessels and their role is discussed below. Not only Russian names dropped over time; the Beck Seamount, now known as Koko, was named for the second officer of the container ship *SeaLand Exchange*, which passed over the seamount and detected it with its sounding gear in 1975; the name was dropped in 1979 in favor of its Japanese name (Clague et al. 1980).

Exploitation of Marine Resources

The exploitation of marine resources, in particular, drove Russian exploration and colonial expansion in the North Pacific. For two centuries that was focused near-shore, utilizing forced indigenous labor from the Unangax/Aleuts. This included resettlement, forcible relocation of peoples to various islands, all in the face of a population decline among the indigenous peoples who had inhabited the region for thousands of years. It was also ecologically disastrous (Jones 2011). Archaeological evidence suggests a more intensive harvest of fattier species like the Steller sea lion for subsistence as opposed to harbor seals and sea otters (Dunne et al. 2016; Corbett et al. 2008; Erlandson and Rick 2008; Yesner 1988).

As explorers reached Kamchatka, the Komandorski Islands, and the Aleutians, they noted the richness of marine life and described species unknown to them. For instance, naturalist Georg Steller, who was part of Vitus Bering's 1741–1742 voyage, described the sea lion that bears his name. These explorations were quickly followed by private commercial expeditions by fur traders from Siberia known as *promoyshlenniki*, who particularly sought sea otters that were highly prized in China for their fur. The primary resources harvested, no longer for subsistence or for regional trade, were fur-bearing marine mammals, as well as fur-bearing animals on land. Utilizing indigenous Unangax/Aleuts and Kamchadals, the *promoyshlenniki* proceeded to harvest the Komandarskis at unsustainable rates that nearly wiped out the population of sea otters by 1758 and led to the expansion of the hunt into the Aleutian chain (Jones 2011, 590–591). What followed there was a pattern like that in the Komandorski Islands, “initial years of modest overhunting ... followed by a blitzkrieg of companies descending on the sea otters and then an almost immediate withdrawal” (Jones 2011, 592).

The indigenous hunters utilized their own craft, known as *baidarkas* to the Russians, to do their hunting (Fig. 12). Archaeological research in the Pribilof Islands is informative on what was likely the “model” for Russian-led commercial exploitation, as work there demonstrates the hunting locations established by the Russians were in areas where previously there had been no human settlement, with “relatively narrow period[s] of occupation,” and with the occupants “exclusively or nearly exclusively male” (Veltre and McCartney 2002, 8). This is also true of the Komandorskis, where the Russians also forcible transplanted Aleuts to settle and hunt. By 1780, just after Cook's voyage, the hunt and its consequences had shifted west to Kodiak Island, and then to the Pribilofs and the Alaskan mainland; by that time, the hunters had also caused the virtual extinction of the Steller sea lion in the Aleutians (Jones 2011, 593). There, ongoing exploitation continued through a new, centralized, state-sponsored joint stock organization, the Russian American Company, established in 1799 and lasting to the end of the Russian era in 1867. With an Imperial Ukase, the Russian American Company was granted a monopoly on all trade in Russian America, the ability to build forts and a fleet, and it also pushed farther south to compete with Spanish, British and American interests.

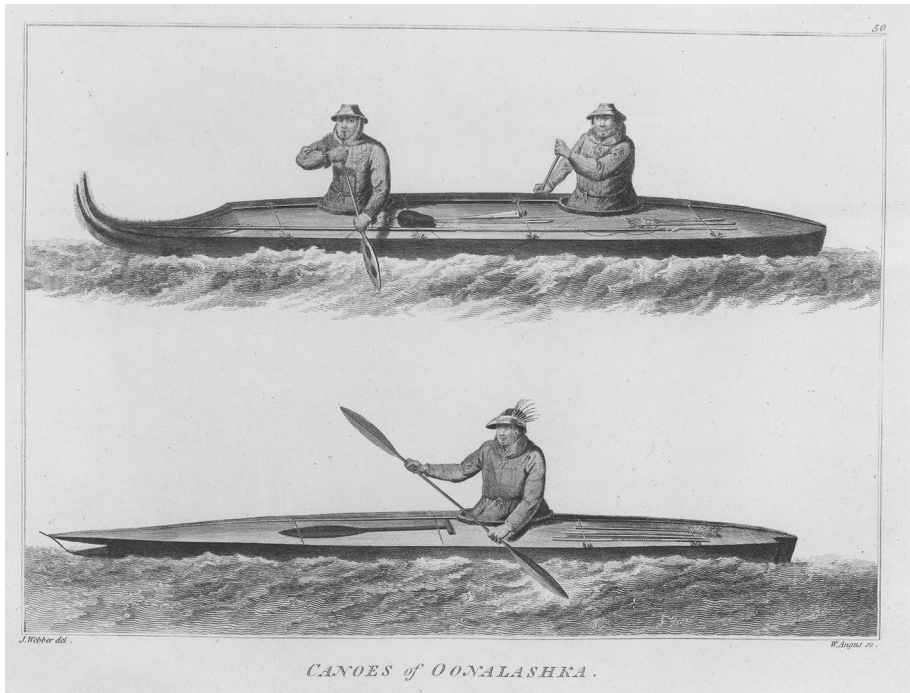


Fig. 12 Indigenous hunters in their *baidarkas* at Unalaska, as drawn by John Webber during Cook's final voyage. (David Rumsey Collection 3,405,063)

Utilizing Aleut labor, the Russian American Company exported hunters and their families through forced relocation to harvest sea otters and seals off the coast of California following the establishment of an agricultural and hunting outpost there on the Sonoma County Coast at Kolonie (Fort) Ross. This did not mean an end to sea and sea otter hunting in Alaskan and Aleutian waters, which increased in the latter nineteenth century with the rebound of populations. The pelagic sea trade also wrought incredible devastation, international disputes between Great Britain, Canada, the United States and Japan, which ended in a 1911 international convention, the North Pacific Fur Seal Convention, which returned the harvest to solely indigenous hunters using hand-held weapons (Bailey 1935).

Whaling

Whaling, conducted first by British and then by American ships, spread from the southeastern Pacific throughout the rest of the ocean starting in 1788 and ultimately into the western Arctic by the mid-nineteenth century. As each whaling ground was fished out, new grounds were opened as whalers received reports from merchant vessels engaged in other trades who had spotted whales as they sailed from port to port. The rise of Honolulu as a Pacific port followed the various voyages of explorers who had touched on its shores since Cook and the commencement of transpacific trade, especially American merchant ventures to China. The first major voyage by a merchant ship from the newly independent United States was the 1784 passage of the ship *Empress of China* from New York to

Canton; what followed was an ever-expanding number of voyages that came to be defined simply as “the China Trade.” It made American fortunes, spawned the American merchant marine, introduced American mariners to the Pacific in search of commodities to sell to China in exchange for Chinese goods – such as sea otter furs, sandalwood, *beché de mer* and other commodities – and introduced Americans to the concept of a nation that would one day touch the shores of the Pacific.

The Anglo-American Pacific that emerged in the nineteenth century after the War of 1812 brought increased maritime traffic, much of it bound for Asia as part of a triangular trade that had British and American ships, in competition with the Russians, trading with indigenous peoples on the Northwest Coast for furs and pelts. They would exchange the furs and pelts in China for tea, porcelain and Chinese goods; they would sell some of the Chinese goods in Mexican California for hides, tallow, silver coin and bullion, and then carry their profits and some of the goods back to Britain or the eastern seaboard of the United States (Delgado 2009). That trade linked Hawai’i into its emerging Pacific Rim economy and the China trade as sandalwood and other commodities in Hawai’i were traded by American and British ships to the Chinese.

Hawai’i, and specifically Honolulu, also became a valuable mid-ocean stopping point for transpacific voyagers, as fresh water, food and firewood for re-provisioning ships assumed a major economic role as the crossroads of the Pacific (Beechert 1991; Gibson and Whitehead 1993; Delgado 2009). This facilitated the shift of America’s whaling fleet from the south to the mid and north Pacific and enhanced American desires for a Pacific port on the mainland that would culminate in the conquest of California and the development of San Francisco as America’s major mainland port on the Pacific. It also saw the establishment of the United States Navy’s Pacific Squadron and the commencement of an active campaign to make the Pacific an “American Mediterranean” linked to global commerce (Jones et al. 1993, 76–, 94–95; Iglar 2004, 694; Delgado 2009, 40; Dudden 1992, 17; Gibson and Whitehead 1993, 155–162; Johnson 1963). This historic commercial development makes Honolulu an important nexus for activities to the Emperor Seamounts just as the Aleutians and the port of Petropavlovsk were in regard to the maritime fur trade.

The first whalers reached Honolulu in 1819; they were both British and American ships. The first two American ships were *Balaena* and *Equator*, both from Nantucket (Starbuck 1878, 225). Alexander Starbuck, in his overview of American whaling (1878) that drew on the memories of still-living whalers, noted that Captain Joseph Allen, commander of the whaler *Maro*, “having received word from Captain Winship, of Brighton, Mass...that on a recent voyage from China to the Sandwich islands he had seen large number of sperm whales on that coast” off Japan, sailed there in the fall of 1819, and returned home “in March, 1822, with 2,425 barrels of sperm-oil” (Starbuck 1878, 96). The British whaler *Syren*, arriving “off the coast of Japan” in April 1820, “fell in with immense numbers of sperm whale, which her crew gave chase to with excellent success,” and after a two year, eight month voyage, returned to England with 346 tons of oil (Beale 1839, 150).

The pace picked up as word spread of the new grounds. “After the return of the ‘*Syren*’ the Japan fishery was speedily established, and remains to this day the principal one; and although it has been so much resorted to by ships of different nations ever since, which have carried off immense quantities of sperm oil, yet such is the boundless space of ocean throughout which it exists, that the whales scarcely appear to be reduced in number” (Beale 1839, 151). “In 1821 six or seven ships were cruising in this vicinity, and the following year, more than thirty visited that field” (Starbuck 1878, 96). The whaler *Spermo*, on the grounds in 1820–1822, returned to Nantucket in March 1823 with 1,920 barrels oil

(Starbuck 1878, 232–233). It was a vast area of ocean, reported by one whaler in 1839 as the “off-shore ground of Japan, from the latitude of 28° to 40°” (Beale 1839, 191).

From there, whalers spread out and to the north, and “in 1843, the first bow-head whales taken in the North Pacific were captured off the coast of Kamchatka by the ships *Hercules*, Captain Ricketson, and *Janus*, Captain Turner, both of New Bedford...In 1848, Captain Royce [Thomas Welcome Roys], in the bark *Superior*, of Sag Harbor, passed through Behring’s Straits, and performed a good season’s work” (Starbuck 1878, 98). Whaling persisted in the region for the next few decades; a chart of “the number of United States vessels in the North Pacific whaling fleet” from 1841 to 1867 documents a growth from an 1840s lull that came with the opening of the whale fishery north of the Bering Strait and in time into the Arctic, but tapering off with the Civil War (Fig. 13).

The previously mentioned United States Navy’s North Pacific Exploring Expedition of 1853–1855 had as one of its goals, which was met, the “construction of charts the want of which had been severely felt by whalers the last few years” (Habersham 1857, 501). As the expedition left the Bering Sea, they navigated through the waters of the Emperor Seamounts as they transited the Bering Strait and headed east; “during this first day in the Pacific, we were passed by several deeply-loaded whalers starting for the Sandwich Islands” (Habersham 1857, 497).

As with any maritime trade, wrecks of whalers in the Japan Grounds did occur. They include some which were lost outside but adjacent to the waters of the Emperor Seamounts in the Papahānaumokuākea Marine National Monument, such as the whalers *Pearl*, *Hermes* and *Two Brothers*, (1822), *Gledstanes* (1837), *Parker* (1842) *Holder*



Fig. 13 The whaler *Charles W. Morgan* in the nineteenth century, possibly in the Pacific (San Francisco Maritime National Historical Park)

Borden (1844), *Konohasset* (1846), *Huntress* (1852), *South Seaman* (1859) and *Daniel Wood* (1867). For the purposes of this overview, a comprehensive assessment of sources to determine the scope and potential location of whaling losses in the Japan Grounds, and specifically in or around the waters of the Emperor Seamounts, the possibility of a whaling wreck in those waters, particularly if it was a loss with all hands, and left no crew alive account of its loss, should be considered.

A final note is that the most famous fictional whaler in literature, *Pequod*, was lost on the Japan Grounds. In *Moby Dick*, Melville spells out the dangers of the grounds; in a chapel in New Bedford, he describes as Ishmael and Queequeg sit there a memorial plaque to Captain Ezekiel Hardy, killed “in the bows of his boat” by a “Sperm Whale on the coast of Japan” (Melville 1988, 36). Ahab’s leg was taken while whaling off Japan when “Moby Dick...reaped away Ahab’s leg, as a mower a blade of grass in the field,” or as more simply explained to Ishmael by another crewmember, Ahab “was dismasted off Japan.” *Pequod* sails “further and further into the heart of the Japanese cruising grounds” for the final encounter on a sea filled with “planks, bits of wreck, oars, whale-boats, canoes, blown-off Japanese junks, and what not” (Melville 1988, 184, 231, 491). It is there that *Pequod*, Ahab and his crew encounter the whale, not directly off the coast of Japan at the end of a long search, but on the broader grounds northeast of Japan. And it is there, on those grounds, that *Pequod* sinks, swallowed whole, “and the great shroud of the sea rolled on as it rolled five thousand years ago by the sea, which rolled on as it had five thousand years ago.”

Maritime Commerce, Traffic and Naval Activities

Transpacific Passengers and Freight, 1867–1960s

Other than whaling, which had tapered off by the last quarter of the nineteenth century, the rise of new Pacific ports brought ships into the North Pacific as it became part of the greater ocean highway that linked international trade. The rise of San Francisco, Portland, Seattle, and Vancouver, were major factors. So too was the opening of Japan and the development of Yokohama as a major international port after the Meiji Restoration of 1868, the integration of Honolulu and other Hawaiian ports into global trade and their acquisition by the United States in 1898. The Spanish-American War of 1898 and the seizure of the Philippines and Guam, joining mid-nineteenth century acquisition of isolated islands bearing guano also spurred additional American maritime focus in the region. The rise of Vladivostok after 1860 also joined in the introduction of a wide range of merchant shipping carrying both goods, bulk cargoes and passengers through the North Pacific.

While commercial sail, in wooden, iron and steel ships played a role, the North Pacific and the amount of trade brought the rapid introduction of steamships to the region. Ocean steamers had played an important role in regular high commodity freight and passenger trade between Panamá, San Francisco, and Oregon since the Gold Rush of 1849, and from those beginnings, coastal trade that ranged up into British Columbia and Alaska, and to Hawai’i. Following the American Civil War, however, American desires for regular steamship traffic to the Far East, connecting San Francisco to China via Japan, led to the expansion of the preexisting Pacific Mail Steamship Company with government subsidized wooden sidewheel steamers following a Congressional act that provided the Pacific Mail with a half-million dollar subsidy per year for ten years to operate a steamship service to

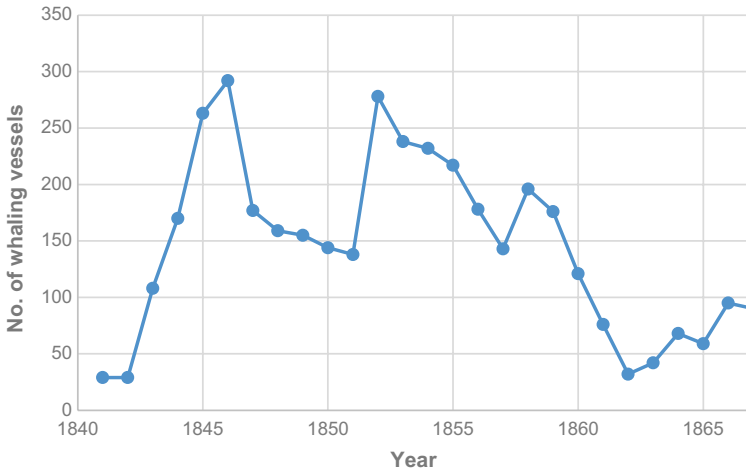


Fig. 14 North Pacific Ocean American Whaling Fleet Statistics. Source: The Fisheries Industry of the United States, 1887, Sect. 5, Vol. 2, pp. 84–85

and from the Far East (Kemble 1950, 13; Chandler and Potash 2007, 34). The “Great Circle Route” arced up from those North American West Coast ports, past the Aleutians and Kamchatka to Yokohama and back; the other route was a more direct run to Yokohama from San Francisco along the 35th parallel (Fig. 14).

The first Pacific Mail steamer to make the crossing was the 340-foot long wooden-hulled SS *Colorado*, which steamed out of the Golden Gate on 1 January 1867. It arrived in Yokohama three weeks later, inaugurating regular ocean steamship service. It was followed by the largest wooden steamships built in the United States, SS *America*, SS *China*, SS *Japan*, and SS *Great Republic* (Kemble 1950; Niven 1987). Starting with *Great Republic*’s voyage that left San Francisco on 3 September 1867, Pacific Mail commenced a six-week cycle of round-trip voyages across the Pacific (Tate 1986, 27). The passage was, as one captain of a PMSSC steamer wrote, “a long, long way over this ocean,” and any non-dangerous change in routine was welcome; “the highlight of any voyage became the mid-ocean meeting between the outbound and inbound steamers. For the captains, it was a point of honor” (Chandler and Potash 2007, 34–35). There were other encounters; on 23 May 1871 “the steamship *China* rescued five men” from a drifting Japanese junk at 34° 54’ N 141° 31’ E as it approached the Japanese coast (Davis 1872, 19) (Fig. 15).

British competitors, the China Transpacific Company, entered the route in 1873. The Occidental & Oriental Steamship Company, created by the Central Pacific Railway, which had a few years earlier spanned North America with its new transcontinental railroad in 1869, also formed to compete with the Pacific Mail (Tate 1986, 29–20; Kemble 1950, 17–18). In response, the Pacific Mail introduced new iron and then steel-hulled steamers, as did their competitors, aided by Congress increasing the line item subsidy to a million dollars a year in 1872, and by 1883, the two competitors advertised regular departures and arrivals linking San Francisco, Yokohama and Hong Kong that ran throughout the year with seven steamers (Tate 1986, 30; Niven 1987, 32, 35). The steamers on the route, “with heavy patronage by immigrants from the orient and cargoes of rice, silk and tea eastbound and flour and treasure westbound” proved prosperous, leading to larger, more modern vessels that carried more and required less hull, so that a fleet that stood at “forty ships in



Fig. 15 The Pacific Mail Steamship Company's wooden steamer *SS China*, c. 1877. (San Francisco Maritime National Historical Park)

1875, contained twenty-three in 1880, and remained at about that size for the rest of the century” (Kemble 1950, 15; Chandler and Potash 2007, 38). By 1915, the company's fleet stood at fifteen vessels, all of them “much larger than those prior to 1880, and in tonnage the fleet showed an increase” (Kemble 1950, 19).

In addition to serving in merchant service, several of the transpacific steamers were chartered by the US government and served as troop transports during the Spanish American War, ferrying troops and supplies to Manila (Fig. 16). Japanese steamship interests joined the route at the end of the nineteenth century with the establishment of the Toyo Kisen Kaisha (TKK) Line in 1899 and the introduction of the British-built steamers *Nippon Maru*, *America Maru*, and *Hong Kong Maru* (Tate 1986, 35, 62; Kemble 1950, 19–20). Pacific Mail, adding new steamers in 1902, the more modern *SS Korea* and *SS Siberia*, and continued in service until 1915, when it was reorganized and many of the older steamers were sold, but a newly formed and reorganized company emerged in 1916 with larger new steamers in 1916 (Niven 1987, 42–43). The reorganized Pacific Mail folded in 1924 under pressure from competition, their place taken by Japanese liners and the steamers of the Dollar Steamship Company, which would dominate US Pacific shipping in the decades to come through 1938 (Tate 1986, 38–41, 75–80; Chandler and Potash 2007, 40–44; Niven 1987, 48–58, 73–75).



Fig. 16 The Pacific Mail Steamship Company's SS *City of Rio de Janeiro* ferrying US troops to Manila via the North Pacific, 1898. (San Francisco Maritime National Historical Park)

The TKK Line, allied with the Nippon Yusen Kaisha (NYK) Line, added more transpacific steamers to also connect to the west coast of South America in the 1920s (Tate 1986). Also entering service in the 1920s was the Chinese-American, San Francisco-chartered China Mail Steamship Company, which ran until 1923. In 1938, the Dollar Line steamers, which operated globally, gave way to the American President Line (APL) in 1938; because Dollar also carried cargo (starting with lumber) a service which had started with a small transpacific steamer, SS *Arab*, in 1903 (Tate 1986). Other west coast ports entered into transpacific trade in the 1880s and 1890s; in Vancouver, the Canadian Pacific Railroad (CPR), which had recently spanned Canada with its transcontinental rail service in 1886, inaugurated steamship service to the Orient with chartered steamers, *Parthia*, *Abyssinia*, and *Batavia*, and then introduced their Empress line of sleek steel steamers, *Empress of Japan*, *Empress of China*, and *Empress of India* (Lamb 1991). The key advantage was that “the shortest steamship route across the Pacific is that from Vancouver to Yokohama...useful ...for carrying mails, passengers, and commerce” (Parkin 1899, 96) (Fig. 17).

SS *Empress of India* was the first of the CPR's purpose-built steamers to arrive in the Pacific, going through the Suez Canal and thence to Hong Kong, Shanghai, Nagasaki and Kobe before reaching Vancouver on 28 April 1891 with 486 passengers, 1810 tons of tea, silk, rice and opium (Delgado 2010). The CPR's “Empress” fleet continued in service, operating after 1921 as the Canadian Pacific Steamships Ltd. through the start of World War II in 1939, and resumed operations after the war, as passenger and freight transpacific service resumed until air travel along with bulk and container ships took over the market in the 1960s.

The Great Northern Steamship Company, with massive steel steamships, entered service in 1900, but the greatest number of steamers came from Japanese companies. Service to and from Japanese ports and west coast American and Canadian ports by TKK, NYK and the 1906-founded Osaka Shosen Kaisha (OSK) also carried on a brisk business up to the end of 1941 and the beginning of the Second World War (see Chida

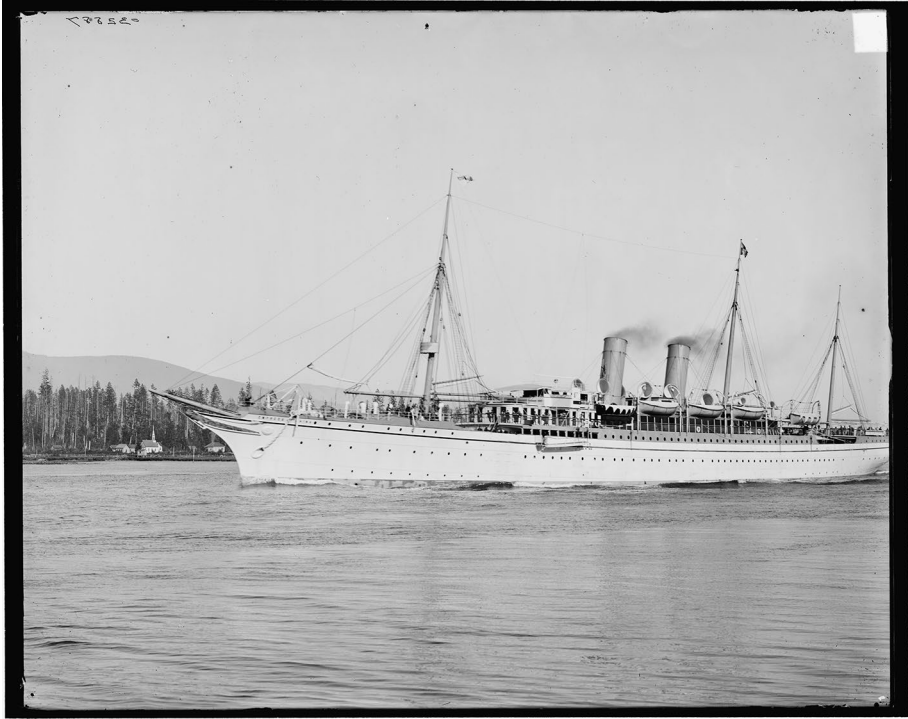


Fig. 17 The Canadian Pacific Railroad's *SS Empress of China* departing Vancouver, British Columbia. (Library of Congress, <https://www.loc.gov/pictures/item/2016807455/>)

and Davies 2012). In this fashion, the North Pacific Ocean and the waters surrounding the Emperor Seamounts became a regular route on the oceanic highways of global trade. It also became the principal highway for Asian immigration to the United States and Canada.

The North Pacific Ocean: A Naval Overview

Separate from government-sponsored expeditions conducted by naval forces, the region has also been the setting for naval engagement in several larger wars; the Crimean War, the American Civil War, the Russo-Japanese War, World War II, and the Korean Conflict. While the Crimean War of 1853–1856 was centered on the Black Sea conflict between Russia, the Ottoman Empire and its allies, primarily Britain and France, it did have global implications when a joint Franco-British fleet besieged and attacked Petropavlovsk in September 1854 (Stone and Crampton 1985). An allied fleet of six warships, British and French frigates rendezvoused in Honolulu and then sailed northwest, looking for Russian ships, which brought them into the waters of the Emperor Seamounts.

After finding no enemy ships to attack, they headed for the Kamchatka Peninsula and blockaded Petropavlovsk. The Russians had heavily fortified the shore, and despite heavy bombardment from the Franco-British fleet, the defenses held and the Russians pushed back allied landings; one historian rightly terms it an allied “fiasco” (Stephan 1969). A second allied expedition against Petropavlovsk in late May 1855 with a larger force arrived to

find the Russians had abandoned the town, stripped of their defenses, leaving the “victors” frustrated (Stephan 1969, 267). The British ships sailed east to Vancouver Island “after a fruitless sweep of Russia’s Alaskan settlements” (Stephan 1969, 271). While Petropavlovsk would be re-inhabited, rebuilt and refortified, as noted earlier, Russia also took the opportunity to establish a strong port and naval base at Vladivostok a few years later.

During the American Civil War of 1861–1865, one of the most successful strategies of the Confederate States of America was the construction and outfitting of armed cruisers that engaged in a high seas campaign to interdict and destroy ships from the United States. The final act of that campaign was the extended cruise of the auxiliary steamer CSS *Shenandoah*, under the command of James Waddell from October 1864 through November 1865. Venturing into the Indian Ocean by way of Cape Hope and sinking one American ship before heading into the Pacific, Waddell’s destination was the North Pacific whaling grounds. Sailing through the waters of the Emperor Seamounts, he found his first prizes just south of the Bering Strait in June 1865, and proceeded to capture and destroy twenty American whalers in the last military actions of the Civil War, a war that had ended months earlier (Waddell 1960).

While the pressures of the war off the US Atlantic and Gulf coasts, and postwar layoffs of the US Navy forestalled a more aggressive American naval return to the North Pacific, prescient officers saw in the North Pacific an opportunity for expansion and control; as Van Tilburg (2010) notes, “Pacific expansion wore an easy cloak of manifest destiny, of predestined cultural uplift” (Van Tilburg 2010, 14). Van Tilburg also notes that Captain, later Rear Admiral Robert Wilson Shufeldt of the US Navy who was lauded as the “Opener of Korea,” argued in 1870 that “the Pacific Ocean, with its long swell and gentle breezes lies waiting for the American flag... A recent cruise of three years in China and Japan—has imparted to me the full conviction—that we in accord with the laws of progress—are destined to civilize and control those nations... it is here... upon this [Pacific] sea... the ocean bride of America, that the East and West will join hands and the great circle of civilization will be complete” (Van Tilburg 2010, 14). Shufeldt’s remarks underscore the growing American interest in the Pacific that in several decades’ time would lead to the great Pacific War between the United States and Japan (Fig. 18).

The most extensive military and naval operation that brought ships into the waters of the Emperor Seamounts was the Japanese invasion and occupation of Attu and Kiska during World War II. The Unangax living on Attu were forcibly relocated to Japan and imprisoned, and also captured were two American civilians living with them, a husband and wife; the Japanese killed the husband and sent his wife to Japan as a civilian prisoner of war. On Kiska, the personnel of the US Navy Weather Station were killed or captured, and the US, in response, also forcibly evacuated all Unangax/Aleut peoples from the Aleutians, effectively ending millennia of an indigenous presence on the islands. (Naval Historical Center 1993, 17–20).

Japanese forces, meanwhile, fortified Attu and Kiska, building bases on each island. The Imperial Japanese Navy focused its presence on Kiska and also escorted convoys between the islands to build up the Japanese presence on the islands. US forces responded with air raids from Adak Island, and a steady patrol of US submarines that attacked Japanese shipping while surface warships shelled the islands. This brought the largest group of ships into the northernmost waters of the Emperor Seamounts as both navies transited to and from the occupied islands for over a year (Garfield 1995; Perras 2003; Hays 2004) (Fig. 19).

The major naval action was a surface battle off the Komandorski Islands on the morning of 27 March 1943 when a US fleet intercepted a Japanese supply convoy and, even though outgunned, engaged them some 289 km west of Attu, a 160 km south of the Komandorskis,



Fig. 18 The minesweeper USS *Gannet* (AM-41) during US Navy survey operations in the North Pacific, 1931, at Chichagof Harbor, Attu Island. (Naval History and Heritage Command US 437.04.002)

and 280 km off the closest Emperor Seamount. The heavy cruiser USS *Salt Lake City* (CA-25) the light cruiser USS *Richmond* (CL-9) and the destroyers *Bailey* (DD-492), *Coghlan* (DD-606), *Dale* (DD-353), and *Monaghan* (DD-354) fought the Japanese heavy cruisers *Maya* and *Nachi*, the light cruisers *Abukuma* and *Tama*, and the destroyers *Hatsushimo*, *Ikazuchi*, *Inazuma*, and *Wakaba*. The battle ended in a draw, with damage inflicted on both sides, and with ammunition and fuel running low on both sides (Morison 1951; Lorelli 1984). While a seeming “stalemate” (leading to the postwar naming of the shallows near the battle site as Stalemate Shoal), the strategic effect was greater as Japan withdrew surface convoys from the Aleutians and began supplying their garrisons at Attu and Kiska by submarine.

Working with Canadian forces, The US landed on 11 May and retook Attu in a fierce land battle that only ended after a last-ditch suicide charge by the surviving Japanese troops; only twenty-eight Japanese were captured alive. Allied casualties were also high, not only from combat but from weather and disease. The Japanese forces ultimately withdrew from Kiska in a covert evacuation at the end of July (Garfield 1995; Perras 2003; Hays 2004; Coyle 2014). The brief occupation and hard-fought removal of Japanese troops from the Aleutians brought an increased focus by the United States to the strategic importance of the Aleutians and the Northern Pacific.

The same was true for the Union of Soviet Socialist Republics, which “expanded more rapidly” after World War II “than any other branch of the Russian armed forces” (Baldwin 1955, 587). Kamchatka and Petropavlovsk presented an obvious advantage for force



Fig. 19 Unidentified US Navy ship depth charging a suspected Japanese submarine off Attu in May 1943. (Naval History and Heritage Command, 80-G-65977)

projection into the Pacific, as noted in a 1955 strategic review. Petropavlovsk, with “its great bay and important airfield, is the only Russian naval base that gives squarely upon the open ocean. Soviet planes and ships based in Petropavlovsk and the Kurile Islands can reach great circle air and shipping routes across the North Pacific in a very brief period” (Baldwin 1955, 597). The development of Soviet submarine forces at that base moved beyond World War II-type projection to interdict shipping with the introduction of nuclear-powered submarines, the November-class, in the late 1950s, a few years after the US introduced USS *Nautilus*, the world’s first nuclear-powered submarine.

The Soviet Union’s Pacific Fleet maintained a base for its nuclear submarine Kamchatka Flotilla (*Kamchatskaya flotiliya*) for its nuclear submarine fleet on the peninsula at Bechevinka at a base known as Petropavlovsk-Kamchaty-54 or “Petro” to NATO forces. The first nuclear submarines based there were attack boats, armed with torpedoes, with nuclear-armed torpedoes joining the Soviet arsenal with the T-15 and in 1959, nuclear-armed cruise missiles launched from the deck, as was done by the US Navy with its first-generation cruise missiles (Polmar and O’Connell 2020, 110–116). Armed with these missiles, the Soviets now had the capacity to strike at fleets, and not just individual vessels, as well as land targets by 1959–1960. In less than a decade, they had introduced ballistic nuclear missile submarines capable of underwater launches, as had the US.

Within this context, the North Pacific, including the waters of the Emperor Seamounts, became part of a global undersea battlefield of the Cold War, patrolled and surveilled by both major powers and their allies (McLaren 2015). This included submarines that

patrolled on long-range and long-duration missions from the US naval base at Yokosuka, Japan, Pearl Harbor or Bangor in Washington State. K-129 On these patrols, a US submarine – or their Soviet adversaries – would “play cat and mouse,” gathering intelligence and gaining experience in close encounters and potential undersea battles. As one Cold War veteran captain later noted, stationed on this occasion likely within the Emperor Seamounts, “in international waters east of Petropavlovsk,” “in wait of promising prey,” his submarine was.

One with the vast cold sea in which she concealed herself, virtually undetectable. All sensors, visual, acoustic, and electronic, were alert for the slightest indication of a Soviet submarine. When her quarry presents itself...The fire-control party is on station and all sonars fully manned. “Striking range” is reached, and without revealing her presence, as much acoustic intelligence as possible is collected...if detected and about to come under attack, she will strike first with a fully ready self-defensed “snap-shot” torpedo. This is a scenario that will be played out over and over again during the six old war missions under my command (McLaren 2021, 35).

While US submarines were doing this, so too were Soviet submarines, which sortied from Kamchatka and headed to surveille off Yokosuka, Pearl Harbor, or the US West Coast. The Soviet Golf II-class submarine K-129, which would become the focus of the CIA’s audacious recovery mission in 1974, was based at Petropavlovsk and sortied from the base on its final, fatal mission off Hawai’i, passing through the Emperor Seamounts on its way there in 1968, where it suffered on onboard accident and sank (Polmar and White 2010).

The other aspect of these Cold War missions was daring, long-classified US Navy missions to penetrate the Arctic via the Bering Strait to map and assess the Soviet continental shelf or conduct other operations. One such mission, undertaken in 1970 by USS *Queenfish* (SSN-651) under the command of Captain Alfred S. McLaren, deployed from Bangor, crossed the North Pacific, navigated past the Emperor Seamounts, and entered the Bering Sea through Unimak Pass in the Aleutians to commence a white-knuckle twenty-day mission to map a shallow seabed covered by ice (McLaren 2008) (Fig. 20).

With the end of World War II in 1945 and the soon-to-follow Cold War, the base at Adak was retained and used to conduct ongoing surveillance of Soviet naval activities and as an antisubmarine warfare base in the region until 1997. Shemya Island, with its proximity to the Kamchatka Peninsula, the site of an US Army Air Force base and weather station since 1943, was selected for a highly-classified base with sophisticated reconnaissance and surveillance missions utilizing aircraft with surveillance radar (Cobra Ball and Cobra Eye) and AN/FPS-17 tracking radar of the 1950s later replaced in the 1970s with AN/FPS-100 “Cobra Dane” tracking radar as well as “Cobra Judy” ship-mounted tracking radar equipment that assessed Soviet missile firing exercises conducted at Kamchatka, which had also become a strategic focal point for the Soviet Union as well as serving as an early warning system for ballistic missile launches against the United States after the 1957 launch of Sputnik by the USSR and the beginning of the age of the intercontinental nuclear ballistic missile (Butler 2014).

Ocean Station Ships

Another aspect of naval work in the North Pacific, with ships crossing through the waters of the Emperor Seamounts, were ships on Ocean Station, which started in World War II

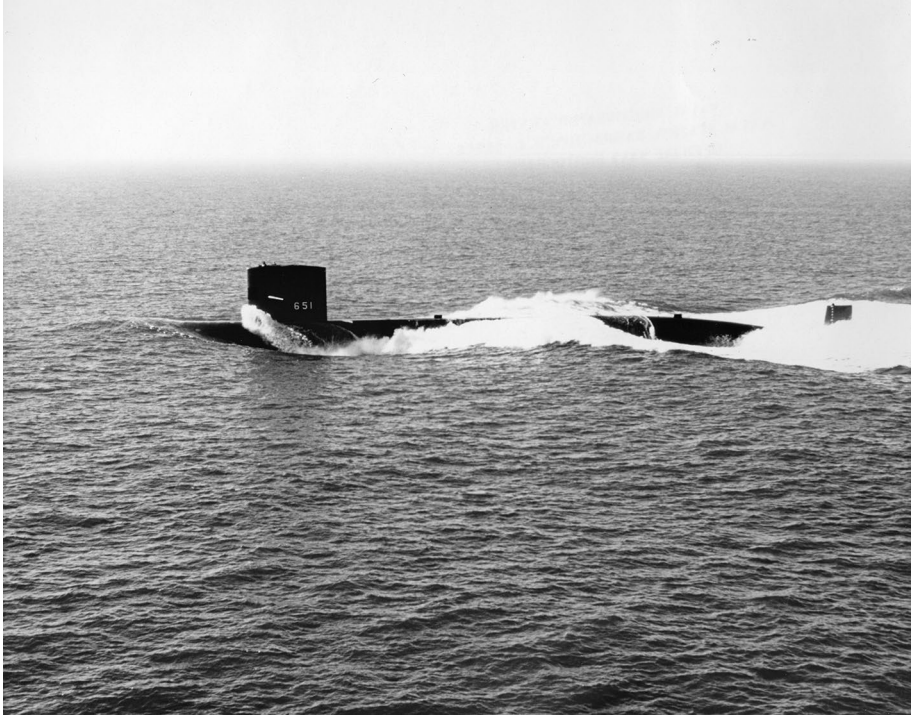


Fig. 20 Undated photograph of USS *Queenfish* (SSN-651) at sea. (Naval History and Heritage Command, 80-G-K)

and continued until 1977. The convoy systems in use during World War II in both the Atlantic and Pacific required localized weather data based on direct observation, and that came from stationing ships along the routes. Pioneered in the Atlantic in January 1940, the program extended into the Pacific as troops and supplies began to make their way to Hawai'i and beyond in 1942. The first two weather ships deployed on "ocean station" were ordered to the Gulf of Alaska and north of the Hawaiian Islands; their duties soon also included serving as floating radio beacons as aircraft began to make their way across the Pacific to the Aleutians and then to the Marianas as bombing raids commenced against Japan. By war's end, 22 Atlantic and 24 Pacific stations had been operated with vessels going on and off of patrol (Dinsmore 1996, 9; Price 2020, 4).

The system continued after the war, undertaken both by US Navy and Coast Guard personnel, assisted on board by meteorologists from the US Weather Bureau (now NOAA's National Weather Service). By early 1946, the number of stations for weather and "plane guard" ships had dropped to sixteen, ten of them assigned to weather observations and reporting. The service further declined, but the outbreak of the Korean War (1950–1953) returned a number of ships to ocean stations after North Korea's invasion of the South in June 1950 and the intervention of the United Nations (Adams 2010). With the United States taking a major role, the convoy and aircraft routes were reestablished across the North Pacific to reach Yokosuka and then the Korean peninsula. US and Canadian ships assumed responsibility for alphabet-designated ocean stations (Extra, Victor, Quebec, Peter, and Sugar) in the Pacific:

A typical weather patrol was 21 days on-station. A “station” was a 210-mile grid of 10-mile squares, each with alphabetic designations. The center square, which the ship usually occupied, was “OS” (for “on-station”). A radio beacon transmitted the ship’s location. Overflying aircraft would check in with the ship and receive position, course and speed by radar tracking, and weather data. Surface weather observations were transmitted every three hours, and “upper airs”—from instrumented balloon data—every six hours. Using radiosonde transmitters and radar tracking, balloon observers obtained air temperature, humidity, pressure, and wind direction and speed to elevations of 50,000 feet (Dinsmore 1996, 9–10).

The Ocean Station ships assumed a support role for civilian aircraft under an international agreement established through the United Nations International Civil Aviation Organization (ICAO) to aid trans-oceanic aircraft. The station locations shifted in March 1952 to be directly in line with the air routes. The US and Canada shared responsibility for Station N (30° N 140° W), Canada had sole responsibility for Station P (50° N 145° W) and the US alone had responsibility for Station V (34° N 164° E), which was located approximately 670 km due west of the Kinmei Seamount. Also in proximity to the seamounts were Stations Q, S and V.

In addition to meteorological observations, the crews on the ocean station ships also conducted oceanographic research (Freeland 2007; Crawford et al. 2007; Peña and Varela 2007). The ships were withdrawn from the stations in 1977 when weather buoys took over their roles. While none of the stations were within the waters of the Emperor Seamounts, the convoys they served did pass through them, and they also represent a larger path of progress in scientific and observational understanding of the ocean in this part of the world.

Modern Activities: Fishing, Trawling and Cables

Fishing/Trawling

As with whaling, human exploitation in the waters of the Emperor Seamounts have imposed anthropogenic impacts on the environment. They have also resulted in shipwrecks that have left a trace of these activities on the seabed. Japanese fishing operations largely dominate the area of the Emperor Seamounts and range east into the Gulf of Alaska, with catches including king crab, salmon, Alaska pollock, armorhead, and tuna. These industries are large-scale commercial efforts for high unit value species (Shapiro 1965). Bottom fish, such as armorhead, pollock and crab, are primarily taken with trawls. Japanese fishing operations in the Gulf of Alaska and Bering Sea began in 1930 with the king crab industry, and continued with salmon in 1952. Trawling off Alaska was started by Japanese vessels in 1933 for pollock, perch, herring, and shrimp (Dickinson 1973). Trawling vessels in the area employ a variety of ships including side trawlers, pair trawlers, Danish seiners, and stern trawlers, which use trawl doors to keep the towed net open on the seabed (Dickinson 1973).

Such industrial fishing efforts in the northern latitudes are fraught with risk and have resulted in shipwrecks. For example, Japanese fishing vessel *Hokuto Maru No. 5* sank southwest of Saint Paul Island in the Bering Sea after colliding with a Japanese fish processor, *Tsuda Maru* on 5 July 1979. Three years later, *Akebono Maru No. 28*, a 549-ton Japanese trawler, capsized and sank north of Adak in the Bering Sea. Japanese salmon fishing vessel, *Junyo Maru No. 3* disappeared with all hands while fishing off

Kamchatka and southwestern Alaska in May 1956; debris from the vessel was found by other ships. *Nitto Maru No. 67* capsized and sank off the Kamchatka Peninsula on 21 April 1970. Japanese fishing vessel *Tomi Maru No. 52* collided with *Tomi Mari No. 51* and sank 100 miles west of Adak in the Aleutian Islands on 19 November 1980, which lies near the northern extent of the Emperor Seamount chain (Alaska Shipwrecks 2021). Bottom-trawling is still ongoing on the Emperor Seamounts, primarily on Koko, Yuryaku, Kammu, and Colahan Seamounts at depths ranging between 400 and 1500 m (Morgan & Baco 2019).

Cables

Subsea cables, initially proposed and deployed for telegraphic systems, also passed through – and still do – the Emperor Seamounts. By the end of the nineteenth century, submarine cables had linked much of the world, some of them for decades; the Atlantic cable was laid in 1858. The vastness of the Pacific had prevented nineteenth century efforts, even though discussions and plans had started in the last quarter of the century. The first transpacific cable, laid by British interests, spanned the 7,900 nautical mile distance over the seabed from British Columbia to New Zealand and then Australia in 1902. Known as the All Red Route, it was a major technological achievement. The next effort, by American interests, connected San Francisco to Honolulu in 1902. It then proceeded to Manila, a run of some 10,000 nautical miles (Tate 1986). This precluded the development of other historic era cables through the North Pacific, but in the twenty

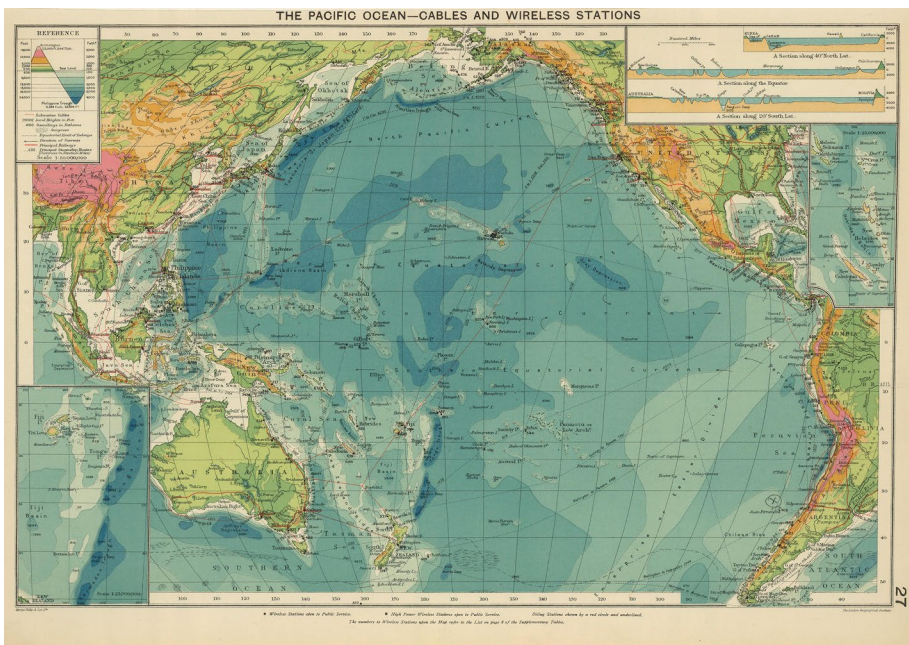


Fig. 21 C.S. Hammond & Co.'s map of cables and wireless stations in the Pacific from the *New Mercantile Marine Atlas*, 1922. (David Rumsey Collection, 5746.000)

first century, fourteen transpacific telecommunications cables cross the North Pacific such as the 14,000 km loop of Pacific Crossing-1 (PC-1) (Fig. 21).

Conclusions

While this overview has focused on what is generally asserted to be “intangible” cultural resources, what we hope has emerged is a sense of the broad connections this portion of the ocean has to broader patterns of human activity, ranging from thousands of years ago to the modern era. The basic pattern of the ocean itself – currents, wind patterns, species – played a large role in the complex series of human interactions that speak to how, in the pre-Anthropocene, the ocean shaped our human activities, and now how human activities in the Anthropocene epoch are still shaping the ocean itself. The most recent human interaction, calls for protecting the Emperor Seamounts, are in and by themselves an artifact of this inherent truth. “Modern” activities and infrastructure are part of a continuity of human interactions that connect us to the ocean.

The waters surrounding the Emperor Seamounts have a well-documented range of significant natural resources that merit protection. This brief overview is a reminder that there are also significant cultural resources in the region. A long history and tradition of human use, both by indigenous Unangax, and later by mariners engaged in various voyages of colonial exploration, colonization, and charting, have left a rich record of human encounters with this area of the North Pacific and its few land masses. That record includes documentation of the various endeavors to exploit the marine resources as well as those who lived on Kamchatka Peninsula, the Komandorskis and the Aleutian Islands.

As a matter of policy, entities engaged in suggesting, studying or undertaking the necessary steps to managing ocean areas should be aware of and understand this human history. Cultural and maritime heritage resources are key to having a full understanding of the various resource values of an area, be they as part of a cultural landscape such as this one with connections to indigenous and likely mainland communities of the past and present, to the people of Japan, but also, as this study demonstrates, in regard to more modern history. Maritime heritage culture extends to later periods, and even if there are no known shipwrecks or other human structures on the seabed, this does not mean that they are not present.

The interaction between people and the sea is a profound and common human experience that spans all eras and cultures. Whether physical remains of maritime activity exist in the form of shipwrecks or not, it is the human experience that, even now, through the power of these stories, that can assist in connecting a modern global audience to the importance of that which we seek to protect in the human-impacted and experienced precious part of the ocean. As work continues to better understand and characterize the values of the Emperor Seamounts, cultural history and resources need to be part of the discussions that follow on why this area deserves protection and study.

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Declarations

Competing interests The authors declare no competing interests.

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