



The geopolitics of whaling and Japanese colonialism in Korea

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ABSTRACT

Although Japanese colonialism in Korea lasted less than half a century (1910–45), Korea served as a critical foothold for Japanese expansion into Asia and the Pacific. The Japanese Empire once encompassed a fifth of the globe, and its reach was just as contingent upon dominating marine environments as it was on land-based conquest. Reading Japanese colonialism as a volumetric undertaking, we examine colonial archives, whaling statistics and legal documents to understand how geopolitical ambitions shaped, and were shaped by, colonial whaling projects to dominate marine spaces around colonial Korea. Japanese whalers employed volumetric techniques to control voluminal marine space and its constitutive elements – including whales – and to satisfy the political and economic needs of colonial and later wartime Japan. However, while Imperial Japan's extensive subordination of marine space has earned it the moniker of a 'pelagic empire', we find its territorialization was always partial and incomplete, impeded as it was by material realities. Our analysis of Japanese colonial whaling demonstrates how the ongoing process of (re)making marine territory is intertwined with, and reliant upon, terrestrial and aerial volumes.

KEYWORDS

colonialism; environmental geopolitics; territory; marine environments; volume; volumetric; Japan; Korea

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1. INTRODUCTION

Amid evidence of multi-species population collapse, the International Whaling Commission (IWC) (established in 1946) implemented a moratorium on all commercial whaling in 1986. Although the policy has intermittently encountered resistance, few anticipated Japan's announcement in 2019 that it was withdrawing entirely from the IWC after nearly 70 years of membership (Normile, 2019). Before its departure, the Japanese government vehemently maintained that its annual harvest of hundreds of whales during the moratorium was purely for 'scientific research' purposes. Such claims have long garnered suspicion but now merit further scrutiny. Indeed, the resumption of commercial whaling has been accompanied by US\$46 million in annual subsidies (Asahi Shimbun, 2021; Managi, 2019), suggesting that Japan's leadership aims to resuscitate what was once a central pillar of its economy.

Here, we interrogate the historical record to contextualize Japan's recent decision to leave the IWC within a broader frame of imperial expansion and control. Specifically, we locate the development of colonial industrial whaling in Korea as instrumental to the rapid growth in power, territory and wealth of the Japanese Empire. As Arch (2019) has demonstrated, the Japanese

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whaling industry in the early 20th century was bound up with an expansionist imperial policy. Japan's 'pelagic empire' was made possible by an assemblage of technological innovations including the adoption of European hunting techniques, expanded harvesting operations and colonization of third-party territory that enabled onshore infrastructure to be established and maintained (Arch, 2019; Tsutsui, 2013). Finding fish and whales became a major driver of oceanographic and fisheries survey research, which saw Japanese crews exploring the waters around the Japanese archipelago, Korean Peninsula and wider Pacific Ocean.

This study examines the Japanese colonial administration's fixation on maritime control in general and whaling in particular. Imperial Japan focused so heavily on maritime expansion that '[b]y the spring of 1942, barely five months in the Pacific War, Japan controlled a vast oceanic empire more than thirteen times the land area of its home islands' (Yonemoto, 1999, p. 170; Heé, 2020). Not only did Japan aggressively expand its territorial control in East Asia (Taiwan, Korea, China), but also it keenly sought to secure oceanic volumes around the Korean Peninsula and exploit abundant marine mammals therein. Japanese whaling in colonial Korea functioned largely to furnish essential food and energy supplies to metropolitan Japan until its defeat in 1945. Over 36 years, the Japanese colonial regime transformed human-whale relations and has left political, economic, societal and ecological imprints on post-1945 liberated Korea (Ii, 2013; Tatar, 2017, 2020, 2021).

Such historical developments deserve further investigation not merely in terms of the areal extent of Japanese expansion, but also Japan's command of various depths (Furuhata, 2021; Heé, 2020). Japan's naval and merchant forces swept over bays, seas and oceans, but they also plumbed marine environments to determine their bathymetry, extract riches, and chart navigational routes and submarine hazards. To add a new volumetric dimension to studies of Japanese colonialism, we examine how geopolitical ambitions shape and are shaped by colonial environmental projects to dominate marine volumes, and thereby contribute to the growing body of 'critical ocean studies' (DeLoughrey, 2019). Attention to marine environments is also instrumental for conceptualizing territory (Ong, 2020; Peters et al., 2018). If territory is indeed a 'process not an outcome', comprised of a 'bundle of political technologies' (Elden, 2013, p. 36), then, we ask; What processes and technologies produce territories in fluid environments? Through what practices is territory established and maintained in marine environments? How do the volumetric and material features of marine spaces shape, enable or subvert the formation of territory?

Here, we document how the development and implementation of whaling technologies, knowledge, infrastructure and legislation were crucial to the Japanese imperial project of territorializing land and seas. Japanese whaling companies competed against Russia and other countries in the seas around the Korean Peninsula, where the Japanese Empire eventually occupied the seas and monopolized the whales thereof starting in 1910. The Korean seas (East Sea/Sea of Japan, South Sea and Yellow Sea) served as testing sites for Japanese pelagic whaling fleets equipped with Norwegian technologies, which later expanded into the Antarctic Ocean in the mid-1930s (Watanabe, 2006/09). Moreover, the abundant whale populations in the Korean seas provided lucrative inputs for a range of valuable commodities, such as fuel, soap and meat (York, 2017). While Japanese geopolitical ambition was dismantled by virtue of its defeat in the Second World War, the colonial vestige of volumetric control has endured with respect to how to deal with whaling and whales in both Japan and Korea.

From this context, this paper aims to answer a set of questions geared toward resolving the geopolitics of Japanese colonial whaling in Korea, namely: (1) Why did Japan expand whaling into Korean seas? In what ways did Imperial Japan endeavour to secure whales and marine space against Korea and other imperial rivals? And (2) How did colonial Korean whaling figure into Japan's (marine) territorial ambitions? To what extent did marine volumes and materialities advance or undermine marine territorialization through whaling, and what volumetric practices were devised for coping with them? In the following sections, we first review different bodies of

literature examining past volumes and volumetric strategies. We then elaborate our research methods before analysing the questions raised above. We conclude by considering how the case of Japanese whaling in colonial Korea helps explain the role of marine environments and their volumes in shaping imperial expansion in East Asia.

2. JAPANESE COLONIALISM AND WHALING FROM A VOLUMETRIC PERSPECTIVE

Geographers have called for a reorientation away from two-dimensional understandings of territorial space (i.e., that emphasize surface and area) to acknowledge three-dimensionality, namely of various planetary volumes and the practices employed to apprehend a ‘multiplication of the territory’ (Weizman, 2002, p. 2; Elden, 2009, 2013). Recognizing the dynamic and variegated nature of voluminal space contributes to overcoming popular conceptions of space as flat, stationary and land (Billé, 2019). The so-called ‘volumetric turn’ (Billé, 2019) attends to diverse practices of ‘weighing, calculating, measuring, surveying, managing, controlling, and ordering’, which are crucial to states’ territorial control and ambition (Elden, 2013, p. 49). Bridge (2013, p. 56) likewise describes volumetric practices as ‘the exercise of power involv[ing]; technologies of calculation, visualization, and manipulation around volume’.

In addition to an early focus on atmospheric and subterranean volumes, a growing body of scholarship has been advancing volumetric analysis to understanding how seas are enlisted in geopolitical projects. While these projects necessarily entail securing marine volumes through volumetric practices, the distinct materialities of marine environments – fluidity, upwelling, depth, water pressure, darkness, dissolved minerals, among others – often impede our conceptual and physical command of the sea (Squire, 2020; Steinberg, 2013; Steinberg & Peters, 2015; Wang & Chien, 2020). For instance, saltwater corrodes instruments, water and darkness obscure submarine features, biofouling organisms increase drag on ship hulls, and changes in pressure damage biological specimens. Oceanic geopolitics are thus often concerned with developing grounded institutional settings and mobilizing volumetric technologies (e.g., sonar, radar, diesel engines) and ‘calculative infrastructures’ (Mennicken & Miller, 2012) to better control maritime regions.

Below, we begin by highlighting the work on colonized environments that informs our approach, including that which expands beyond traditional and more static two-dimensional analysis towards thinking in terms of ‘volumes, fluidity, and flows’ (Grundy-Warr et al., 2015; also see Bridge, 2013; Elden, 2013). Building on environmental history, human geography, resource geography and geopolitics, with their close attention to contingency, power, knowledge and technology, we employ volumetric perspectives to marine space in our examination of the historical dimensions of Japanese commercial whaling in colonial Korea. By doing so, we capture the ways Japan attempted to secure marine volumes and whale resources around and beyond its colonial territory against the intervention of other imperial powers. The three-dimensionality and materiality of marine spaces frequently posed challenges to Japanese whalers and the colonial government in their efforts to sustainably exploit whales, which corroborate Lehman’s (2013, p. 52) assertion that ‘[v]olumes are irreducible to and in excess of the apparatuses of their capture, whether big science or state power’. However, they also facilitated Japanese imperial expansion in important ways, particularly during the empire’s later years.

2.1. Colonialism and marine environments

Colonialism, in all its myriad forms, entails a violent rupture of human–environment relations. Colonialism has radically altered terrestrial, aquatic and subterranean environments while supplanting indigenous knowledge systems with western environmental knowledge and management approaches (Swami, 2003). Environmental historians have paid special attention to

interrogating (post)colonial relations to nature in former colonies (e.g., MacEachern, 1998; Roosa, 1999). While scholars have characterized important aspects of the foreign exploitation and governance of natural resources (e.g., Gadgil & Guha, 1993), some historians have critiqued it for being overly focused on terrestrial systems (Bolster, 2006, 2008; Furuhashi, 2021; Heé, 2019). They have called instead for more attention to documenting and understanding how humans' enduring relations with oceans and ocean resources have influenced trajectories of historical development (Bolster, 2006, 2008; Furuhashi, 2021; Heé, 2019).

Nevertheless, these historians' interventions were less attentive to marine volumes, including their constitutive materialities and entities, and instead focused on social concerns (i.e., management, policy) and tended to adopt two-dimensional approaches that only skimmed the sea surface (Bolster, 2006, 2008; Chiarappa & McKenzie, 2013; Jones, 2013). Some human geographers have challenged such scholarship for treating seas as merely 'a conceptual tool' without studying them *per se* and have called instead for moving beyond human agencies and accounting for more-than-human factors including 'a materiality which blends, merges and mixes with human life' (Peters, 2016, p. 178; Anderson & Peters, 2016; Lambert et al., 2006; Peters et al., 2018). Moreover, this work notes the importance of employing an integrative approach that explores marine volumes in conjunction with the land and atmospheric volumes that also comprise the planet (Bear, 2019; Peters et al., 2018; Steinberg & Peters, 2015).

Echoing these calls, emerging work on marine environmental history examines distinct features of seas, including currents, waves, upwelling and migrating animals, among others to unveil multiple ways that colonial expansions relied heavily on and sought to control marine environments (Arch, 2019; Rüegg, 2021). Although these studies do not directly engage with geopolitics scholarship on the volume-based and volumetric contexts of colonialism, recent historical surveys nevertheless shed more light on the ways (scientific) knowledge, technologies and infrastructure are pivotal in expanding and controlling three-dimensional territorial frontiers below the surface (Camprubí, 2020; Furuhashi, 2021). Accordingly, we also draw on a historical lens to better understand imperial expansion beyond its two-dimensional configurations toward a marine volume and its materialities.

2.2. Geopolitical animals and volumetric control

Within the field of geopolitics, animals have served significant roles in advancing, and sometimes subverting, geopolitical aims. Despite the long history of dialectical human–animal relations, animals have comparatively received 'a curious lack of interest in the political' (Srinivasan, 2016, p. 76; Hobson, 2007). Yet, recent scholarly interventions illustrate how human–animal relations are transformed as states (and other actors) strive to exert power and expand political influence over rivals through their control over animals and other forms of non-human nature (e.g., Barua, 2014; Johnson, 2015; Peters et al., 2018; Raento, 2016; Squire, 2016, 2020).

As indicated above, animals in this context do not already exist as resources but must 'become' so (Bridge, 2009; Huber, 2019) and in the process may shift away from their initially intended function or meaning, thereby fulfilling states' needs for capital accumulation (Singh & Van Houtum, 2002). In this regard, resource geographers' reflections on (post)colonial relations to natural resources help us grasp the contours of structural and capitalistic factors driving the transformation of animals into resources (Bridge, 2011; Simpson, 2019), which we apply to Imperial Japan's efforts to establish 'volumetric authority' over marine spaces and lifeforms (Mason & Khawlie, 2016). This work uncovers how a particular resource becomes valued or devalued at specific historical moments and with which states' interests and colonial settlers' ambitions are intertwined (Furlong & Norman, 2015; Huber, 2019, 2021).

Notable is the emerging attention to marine animals in Japanese colonial contexts. Focusing on Japan's 'Pelagic Empire' during colonial maritime expansion, historian William Tsutsui found that controlling oceans and capturing marine animals contributed to 'weaving together the

oceans, national identity, and imperial dreams' of Japan (Tsutsui, 2013, p. 30). Examining Imperial Japan's tuna industry expansion into open seas, Heé (2019, 2020) asserted that the capture of lucrative tuna – premised on knowledge, technologies and infrastructures of tuna fishing – sustained the imperial economy and its resuscitation after the colonial regime collapsed. Similarly, Rüegg (2021) examined volumetric means to harness more distant and deeper seas, for the sake of sustaining Japan's pelagic empire. In a different context, Squire (2020) explored the ways the US Navy employed dolphins as valuable aides for expanding undersea territory during the Cold War. Together, these studies demonstrate how marine animals have been enrolled in geopolitical projects 'as a significant actor in territory complexes' (Squire, 2020, p. 4).

Despite emerging work on the geopolitical and volumetric dimensions of human–animal relations, a recent study indicates that much remains to be known about the geopolitical salience of marine animals relative to terrestrial ones, in part due to limited knowledge of seas and oceans themselves (Wang & Chien, 2020). Geopolitical concerns regarding marine life are also more ambiguous and complicated than those of land-based animals due to the logistical challenges of monitoring other countries' presence on and under ocean spaces and the use of resources therein. Specifically, as marine animals often travel beyond a single state's territorial waters, they have often been subjected to legal and economic conflicts between interested parties, triggering interference from intergovernmental organizations (Bear & Eden, 2008; Dodds, 2000; Gray et al., 2020; Greenberg, 2013; Havice, 2021). Accordingly, harnessing resources in one volume may also interfere with the typical functioning of another, as demonstrated by the finding that marine mammals' acoustic environments have been hampered by wind power development in Taiwan (Wang & Chien, 2020). Marine volumes and their various properties are thus inseparable from terrestrial and aerial volumes – a dynamic underscored as well by the global reduction in ocean pH precipitated by the (subterranean) extraction and (atmospheric) combustion of fossil fuels (Dalby, 2014).

3. RESEARCHING VOLUMES AND VOLUMETRIC STRATEGIES: METHODS AND SOURCES

In order to analyse the linked questions above in section 1, we draw on archival analysis along with secondary literature review (Rüegg, 2021; Squire, 2017; Squire & Dodds, 2020). Various archival sources provide records of marine volumes with which the Japanese Empire, whalers and other actors mobilized their powers to occupy and manage the sea and whale resources. Simultaneously, the same sources reveal how unanticipated circumstances around the sea and whales hampered imperial mobilization. Through an examination of archives, we unveil how Korean seas and their material volumes were enmeshed with geopolitical projects of Imperial Japan (see also Squire, 2020; Squire & Dodds, 2020).

First, we use archives of Japanese and Korean newspapers, government documents, and policy papers concerned with historical and present-day whaling-related records. We compiled newspapers collected from the Naver News Library, which maintains original and digitized copies of newspapers between 1920 and 1999. Here, we gathered records regarding Japanese colonial whaling (1920–45) and postcolonial whaling (1945–99). Digital archives hosted by the Hoover Institution at Stanford University provided data regarding the geopolitical context of Japanese whaling in these two historical periods. Korean newspapers published after 1999 were retrieved from the BigKinds website run by the Korea Press Foundation. Through BigKinds, we collected articles from local and major news media outlets to understand the impacts of Japanese colonialism on human–whale relationships in Korea. Historical records of government documents and policy papers published before/during the colonial period and some old newspapers issued before 1920 were retrieved from the Korean History Database and Original Document Search Service managed by the National Institute of Korean History and Kyujanggak Institute for Korean

Studies, respectively. These documents were written in Korean and Japanese and translated by the lead author (HJ).

We also complemented data collection with a review of relevant secondary literatures. Among them, we especially relied on Gu-Byung Park's *Hanbando Yeonbae Pogyeongsa* (1995) (Whaling History in the Seas Around the Korean Peninsula) because the sources and statistics it references are no longer available in hard copy or online. These include documents published before/during the colonial period by the then Korean government (the Joseon dynasty), Residency-General of Korea, Government-General of Korea and Japanese whaling companies, among others. To understand the overall scale of whale capture over the colonial and subsequent independent periods, we employed the whaling statistics of the Japanese Government-General of Korea (retrieved from the Korean Statistical Information Service, KOSIS) and combined them with published data on the trade of whale products between colonial Korea and metropolitan Japan (e.g., Kim, 2008; Kim, 2013; Park, 1995).

4. THE GEOPOLITICS OF WHALING AND JAPANESE COLONIALISM IN KOREA

Building on the studies above, we detail the volumes and flows that shaped Imperial Japan's maritime expansion to address the questions: Why did Japan expand whaling into Korean seas? How did Imperial Japan endeavour to secure whales and marine space against Korea and other imperial rivals? To what extent did colonial Korean whaling fit into Japan's (marine) territorial aspiration, and what volumetric whaling techniques were devised to deal with marine volumes and materialities? Here, we will detail how the Japanese Empire occupied and dominated adjacent Korean territories and seas, while securing and exploiting marine resources within a few short decades. Imperial competition, whaling administration, and the transfer of knowledge, technology and infrastructure emerge as the main elements in the evolution of the colonial regime's marine volumetric control in East Asia. We approach these factors as neither exhaustive nor discrete, but as key constituents of a dialectical process of making territory (Camprubí, 2020; Dodds, 2019). This analysis, uniquely attuned to East Asia's marine volumes and materiality, will establish that Korean seas and whale resources therein were crucial to fulfilling Japan's colonial territorial demands and expansion into pelagic whaling.

4.1. Imperial competitions over Korea: Japanese colonialism and whaling

Geopolitical tensions around whaling grew significantly in the 1890s when the Russian Empire asserted power in the Korean Peninsula. Russian whalers backed by the empire initiated whaling and constructed whaling stations on Korean coasts, which in turn raised Japan's suspicions about Russia's imperial expansion to the south (Arch, 2019; Kim, 2008). The Korean government experienced political chaos during the 1890s because of keen competition over whaling among regional foreign powers (Russia and Japan).¹ After Japan defeated China in the Sino-Japanese War (1894–95), China lost its diplomatic leverage in Korea (Greve & Levy, 2018). Concerned with Japan's expansion of influence, Korea's royal family took refuge at the Russian legation in Seoul (1896), leading to the growth of Russia's leverage in the peninsula while containing Japan (McCune, 1945). Under this political upheaval, Imperial Russia and the Korean government concluded an exclusive whaling concession agreement in 1899, facilitating Russia to lease and develop three harbours on the eastern coast as strategic outposts (Burke-Gaffney, 2012; Park, 1995).

For Russia, whaling conferred not only economic advantages but political ones as well, for instance over its imperial contenders in East Asia. As one account has it, 'The [Russian] whaling company enjoyed a secret grant of 50,000 rouble annually from the Russian state, in return for sounding and charting Korean and Japanese waters, with a view to naval operations' (Tønnessen

& Johnsen, 1982, p. 134). With newly established coastal footholds, the Russian navy was able to accommodate their battleships and conduct hydrographic measurements around Korean seas to secure safe navigational routes and achieve strategic superiority against other imperial rivals, especially Japan (Rozwadowski, 2001; Watanabe, 2019). The process of Russia's expansion of geopolitical leverage in the name of whaling practices was premised on volumetric practices (e.g., measuring depth, undersea terrain and marine resources) (Peters, 2020). In this regard, these whaling stations and seaways may also have served a subsidiary role as strategic platforms for surveilling potential external threats and facilitating the command of colonial Korea's seas (Rhee, 2012). It follows, therefore, that land-based coastal whaling stations and marine routes were both crucial to Russia's ongoing ambitions to secure marine volumes (Peters et al., 2018; Steinberg & Peters, 2015). How did the Japanese Empire endeavour to dislodge Russian operations and thereby assert its own dominance over Korea and whaling?

While Japan occupied nearly one-fifth of the globe in the early 1940s, it had previously been a politically and economically isolated country until the mid-1850s.² The Japanese traditionally regarded marine space as another border protecting them from external enemies (Watanabe, 2019). When they encountered an unprecedented number of American battleships just off their shores, however, this natural border became 'a source of insecurity' (p. 144). After the US forced their door open in 1854, the Japanese adopted Western technologies, ideas and legal systems as part of a broader campaign to renovate the country during the Meiji Restoration (1868–89) (Beeson, 2009; Honess & Endo, 2006). Prominent among them was the development of oceanography, fisheries science and hydrology, which enabled Japan to characterize and navigate marine volumes and better access pelagic resources (Tsutsui, 2013; Winstanley-Chesters, 2020). Although Japan was a latecomer in terms of these nascent volumetric disciplines, its rapid adoption and application of such knowledge contributed to its ability to swiftly increase its leverage over colonial whaling (Heé, 2020; Tsutsui, 2013). The period was also marked by aggressive territorial expansion, first through the conquest and occupation of Hokkaido, Okinawa and Taiwan, and later the Korean Peninsula. Ironically, the Japan–Korea Treaty (1876) reproduced the same conditions the United States imposed on Japan just two decades earlier, including permission for Japanese forces to conduct volumetric measures (e.g., sounding, charting) of Korean coastal areas, as well as open ports to facilitate Japanese trade and settlement.

Russian–Japanese tensions eventually came to a head with the Russo–Japanese War (1905), which marked a watershed moment in expanding Japanese whaling control (Mageli, 2006; Watanabe, 2006/09). After defeating Imperial Russia's navy, the Japanese fleet quickly confiscated Russian whaling ships and received a permit from the Korean government placing Russian whaling facilities and infrastructure under the disposal of a Japanese company (Burke-Gaffney, 2012; Kim, 2013; Watanabe, 2006/09). These trophies of war facilitated Japan's whaling expansion to Korean seas, and the outcome was nothing less than 40 years of Japan's exclusive right over whaling around the Korean Peninsula (Watanabe, 2006/09).

4.2. Legal, administrative and economic dimensions

While the Joseon dynasty officially collapsed with the Korea–Japan Annexation Treaty (1910) and became a Japanese colony, Japan had already intervened in Korea's political and economic affairs since the mid-1800s after expelling Russia's presence. With the foundation of the Japanese Residency-General of Korea (1906), the government of Tokyo expanded its power in earnest to the Korean Peninsula by controlling Korea's police and military forces. From this point, the Japanese Empire had de facto rule over Korea until 1945. As an indication of whaling's importance to the new colonial administration, the Japanese Residency-General swiftly enacted a whaling management decree in 1907, establishing the whaling season (from October to April) and regulating target species (Park, 1995). As Japanese whalers at this time relied heavily on the

East Sea (Sea of Japan), the decision of the whaling season was premised on the consideration of whales’ mobility (migration patterns) and abundance.

Japan began to establish a firm legislative basis for sustainable whale harvest around its colony soon after the Korean Peninsula was annexed to Japan in 1910. The establishment of legal and administrative procedures illustrates how Japan’s newly acquired marine territory was constituted of a suite of governmental practices (Elden, 2010), and how ‘a process of territory [beyond Terra] ... is (re)worked through elements other than earthly, solid matter’ (Peters et al., 2018, p. 3). First enacted was a fishing ordinance in 1911 by the Japanese Government-General of Korea. Compared with other types of fishing, whaling requires broader operation areas, accompanied by intensive capital investment into fishing gears, hunting, capture, storage, transport, and skilled crews (Heé, 2019). Accordingly, Imperial Japan considered restricting entry into the industry to curb the mushrooming number of whaling companies and maintain sustainable harvests. Exemplifying this objective, another whaling ordinance was enacted in 1917 to limit the number of whaling ships to 10 to prevent overhunting (Park, 1995). But ironically, the colonial government neither imposed a monthly or annual cap of harvest or regulated the minimum size of catchable whales (Park, 1995). These loopholes reveal that the series of whaling ordinances were more nominal than practical, which the data in Figures 1 and 2 also corroborate (Kim, 2013).

This legal and administrative foundation set the stage for the large-scale exploitation of whales and associated accumulation of wealth central to the empire’s success. Japanese whalers predictably locked their sights on populous species, particularly fin whales and gray whales (Figure 1). Although Korean waters only yielded up to one-fifth of Japan’s total whale harvest in any given year (Figure 2), they were virtually the only source of gray whales in the empire (Figure 3a) and a key source of fin whales as well (Figure 3b).³ In other words, the Japanese capture of valuable gray and fin whales from colonized Korean seas was central to Japan achieving its geopolitical and territorial reach. During the 1910s–20s nearly all the harvested and processed

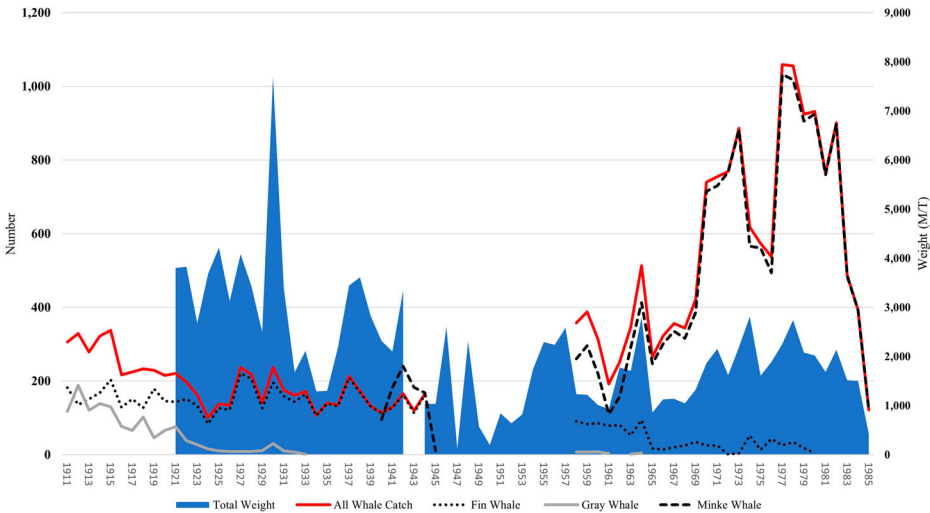


Figure 1. Whale harvest statistics from Korean territorial seas during the colonial (1910–45) and post-colonial periods. Gray and fin whales comprised nearly the entire catch during the colonial period. Note: The (post)colonial whaling statistics illustrated here rely on various sources. However there are some gaps, missing years and different records among various sources. Therefore they should be taken as indicative of colonial whaling trends rather than as exact numbers and weights. Source: Data from Park (1995, pp. 525–529).

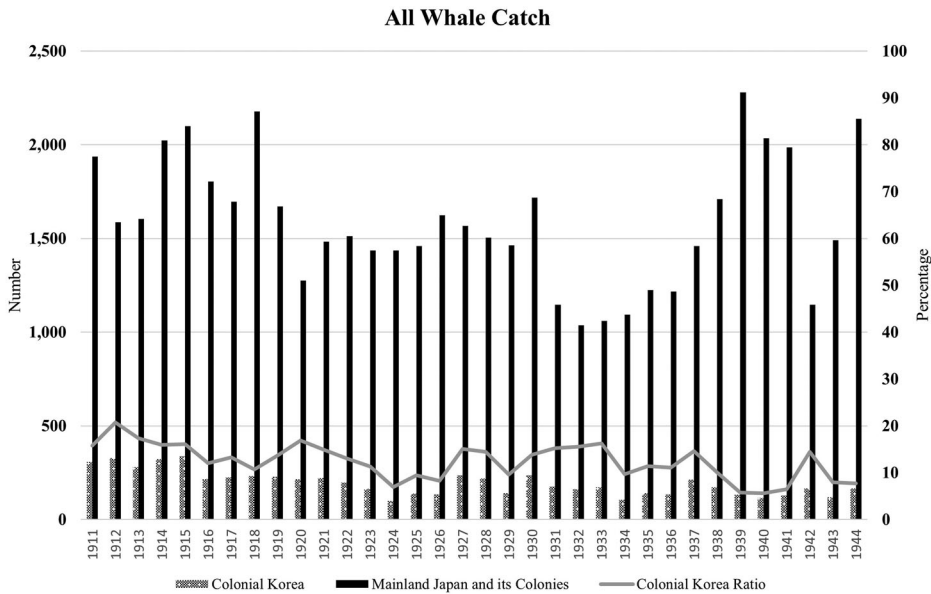


Figure 2. Statistics on the contribution of Korea relative to Japan and its other colonies indicate that colonial whaling in Korea consistently yielded 10–20% of the whales harvested in the Japanese Empire.

Source: Data from Park (1995, pp. 525–529).

whale products were transported to Japan (CS, KOSIS) and then exported to earn foreign currency, which in turn funded imports of raw materials for industrialization and militarization (Heé, 2019; Tsutsui, 2013). Given that fin and gray whales comprised the majority of captured whales, these species played a pivotal role in Japan's whaling enterprise.

Despite the slump in the 1920s–30s in both whale numbers and weight (Figure 1), the importance of whaling around the Korean Peninsula once again became critical to the Japanese Empire once the Second World War (1939) and the Pacific War (1941) broke out. As Japan sided with Nazi Germany, the Allied Nations imposed sanctions against Japan's Antarctic whaling, making Japan more reliant on Korean seas until its collapse in 1945. Losing its rich overseas whaling grounds, Japan could not help but refocus its operations on nearshore whaling around colonial Korea and mainland Japan.

The Japanese Empire eventually entered the 'Total War', which spanned the last stage of the colonial period (1941–45). During this time, imperial Japan underwent an acute shortage of supplies due to the Allied Nations' trade sanctions, which also affected colonial whaling (Selden, 2009). Facing a desperate situation, the colonial government eased and retracted former whaling legislation.⁴ Once the fisheries control ordinance went into effect in 1942 to fulfil the war demand, private whaling companies became integrated into government-owned enterprises (Watanabe, 2006/09). This measure led to sizable whaling ships (more than 100 tonnes) being conscripted for war efforts, most of which in turn were sunk by 1945 (Park, 1995; Tsutsui, 2013). Without enough ships, fuel and other resources, the Japanese Empire contrived to harvest whales with small whaling ships (less than 30 tonnes). Moreover, in 1944, the colonial government repealed the existing regulations and permitted the hunting of small-sized minke whales and dolphins living around coastal waters, resulting in massive exploitation until their populations collapsed (Park, 1995) (see Figure 1 for minke whales).

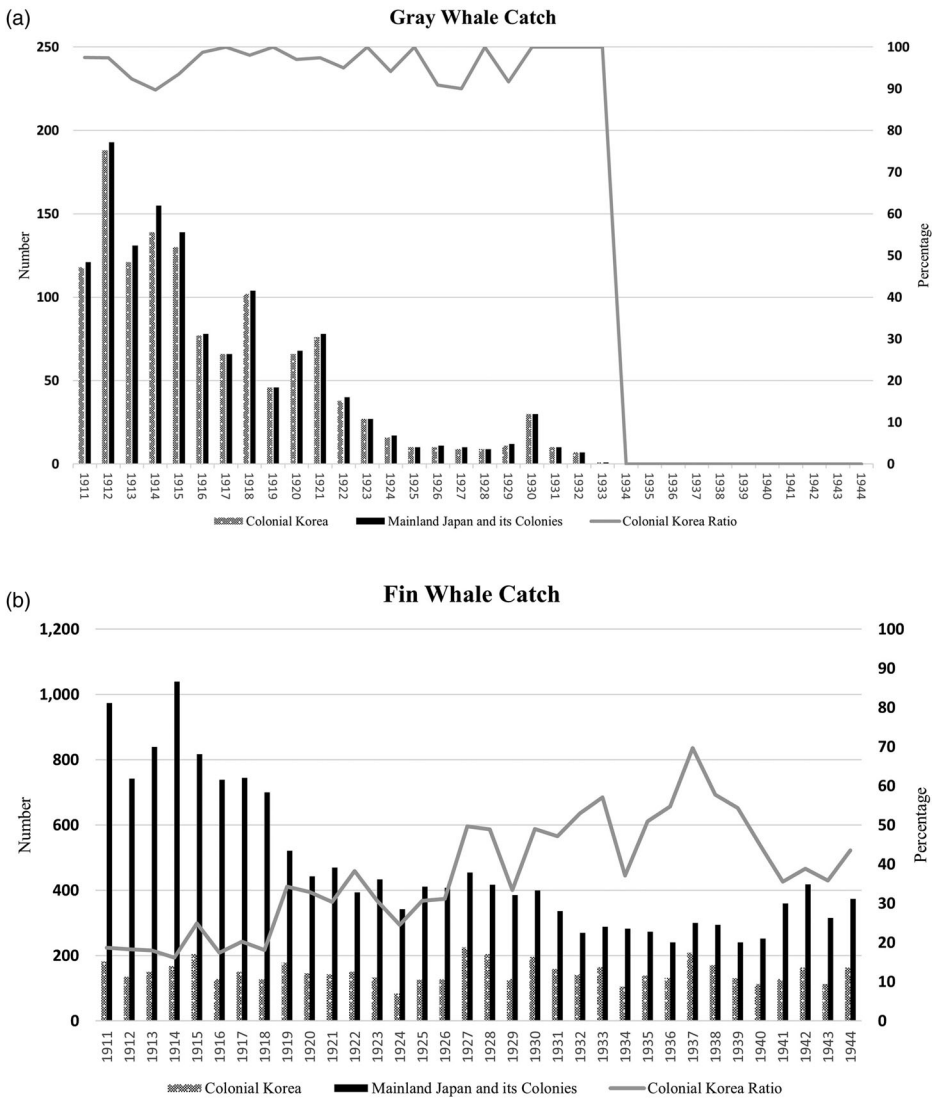


Figure 3. Relative contribution of Korea of gray (a) and fin (b) whales harvested by Korea versus the rest of the Japanese Empire during the colonial period (1910–45). Source: Data from Park (1995, pp. 525–529).

The statistics between 1939 and 1945 show more diversified ways of harnessing whales in the last periods of colonial whaling. With the onset of the Second World War in Europe (1939), Japan faced the interruption of whale oil exports that had relied on the European market (Nippu Jiji, 1939, p. 7). Despite seeking alternative export markets in allied states such as Germany (Mageli, 2006), Japan had to find ways to absorb the commodity surpluses internally. Accordingly, the colonial government ordered whaling companies to collect whale hide as a substitute for rare cow leather to be used for military equipment (Dong-a Ilbo, 1939). Japanese scientists also extracted fibres from whale fat and the air force employed whale oil as aviation lubricants to cope with a deficit of material inputs (Nippu Jiji, 1941, p. 8; Shin Sekai Asahi Shim-bun, 7 October 1941, p. 7). Here again, the linkages between marine and aerial volumes and their materialities become apparent, as whaling from the oceanic depths helped propel the Japanese air

force to new heights.⁵ Whales, of course, were also used to nurture life on land. According to the 1943 statistical yearbook, non-food whale items produced in colonial Korea were fertilizer, oil and crafts, and whale food items included canned and salted whale (DT, KOSIS). The delayed appearance of whale food products until 1939 (CS, KOSIS; Park, 1995, p. 322) suggests that the whale-related industry in later colonial Korea became diversified to address a shortage of supplies for sustaining the metropolitan economy (Heé, 2019).⁶

4.3. The transfer of whaling knowledge, technology and infrastructure

Meanwhile, Japan also sought to introduce modern whaling technology from the United States and Norway, which were significantly more efficient than Japanese traditional inshore net whaling (Arch, 2019; Watanabe, 2006/09). While American-style whaling relied predominantly on the sea surface and shallow depths to which a harpoon cannon can reach, the adoption of Norwegian whaling methods revealed Imperial whaling's increased attention to three-dimensionality by facilitating greater access to marine volumes and better addressing whales' biological materialities (e.g., sinking or floating after being killed, rates of decay) and behaviours (e.g., surfacing and diving, swimming speeds). In the meantime, marine volumes are not a static container or background but are constituted by ecological, cultural and political processes whose functions and effects are continually (re)worked over time (Grundy-Warr et al., 2015; Heé, 2020).

As fin whales are fast swimmers and tend to sink once dead, the American method of spearing whales (bomb-lance) was inadequate to keep whales afloat long enough to bring them ashore (Arch, 2019; York, 2017). On the other hand, the Norwegian-whaling method equipped with a harpoon cannon and air compressor enabled whalers to address whales' properties that were formerly unmanageable. These technologies enabled whalers to more accurately strike whales and better secure them before pumping the carcasses with gas to keep them afloat. Gray whales are easy targets for whalers because they slowly migrate along the coast (Chang et al., 2016) and float after death (Baird et al., 2002). After adopting Norwegian techniques, it took fewer than two decades for Japanese whalers to dramatically reduce fin and gray whale populations in Korean seas (Figures 1 and 3).

In addition to the introduction of the improved harvesting technology, large capital investments in coastal infrastructure also index the central importance of whales to imperial Japan. Japanese whaling companies subsidized by the Japanese government expanded the colonial whaling arena around the Korean Peninsula, which was facilitated in part by the construction of coastal whaling stations (for flensing and processing whales) at various seashore locations (Arch, 2019). The imperative for whaling stations was to reduce the time interval between capture, processing and transport, thereby outpacing the decomposition of killed whales (Winstanley-Chesters, 2020).⁷ The number of whaling stations increased from three in 1899 to seven by the end of the 1920s, representing the largest number among all Japanese colonies (Park, 1995).⁸ This infrastructural expansion enabled Japanese whaling companies to enlarge their whaling grounds from the East Sea (Sea of Japan) to the South Sea and the West Sea (Yellow Sea) by the end of the 1910s (Kim, 2008), thus establishing their 'volumetric authority' (Mason & Khawlie, 2016) over the region.

Operating under the colonial whaling monopoly, Japanese whaling companies organized and maintained a sizable whaling fleet in 1910, including 20 Norwegian steamships (average 100 tonnes), five harpoon-installed boats, 13 ships for dismembering and 12 ships for whale meat transport (between 300 and 500 tonnes) (Park, 1995, pp. 275–276).⁹ The fast-moving steamships made it more convenient for whalers to chase speedier whales, enabling volumetric control by enabling horizontal expansion and overcoming the materiality of marine volumes (Stafford, 2017). On land, while roads connecting central Ulsan and its whaling station (Jangsaengpo) were already constructed in the 1910s, refrigeration and freezing facilities were inadequate, and the lack of storage technologies led to a huge seasonal difference between summer and winter

prices (Park, 1995). This circumstance was improved in the 1920s with the installation of cold storage systems in transport ships.

Whaling performance, however, was not always proportional to developments in infrastructure and whale capture and processing technologies. While there was a lack of pertinent technologies (e.g., cold storage) in the 1910s, Korean whaling in the same period accounted for the highest during the colonial era (Figure 2). Figure 2 also reveals that the number of whales harvested generally decreased from 1911 to 1926. Although overall colonial Korean whaling was relatively smaller than that of mainland Japan, Korean whaling grounds were pivotal in catching fin whales and gray whales throughout the colonial period (Figure 3). Nevertheless, the whale catches in the 1920s were lower than in the preceding decade. Newspapers also corroborate the data illustrated in Figures 1 and 2. The number of harvested whales between winter 1923 and January 1924 (70) was less than the previous season (Dong-a Ilbo, 1924). Whalers speculated that despite the technological advancements, the poor record might be attributed to the whale population migrating to open seas beyond their inshore fishing grounds (Dong-a Ilbo, 1925a). In other words, the smaller harvest suggests a dialectical relationship between hunters and whales in which whales shifted their habitat, feeding patterns and mobility in response to localized hunting pressure (Hodgetts & Lorimer, 2020).

One notable record in the 1920s is Japan's experiment of introducing aviation infrastructure to better observe floating and migrating whales (Dong-a Ilbo, 1925b). Inspired by Westerners' use of aircraft for land-based agriculture (e.g., fertilizer, herbicide), Japanese colonizers sought to employ planes to better monitor whale resources. Although the result of the experiment was not documented (Dong-a Ilbo, 1925b), the aerial trial shows that the mobilization of infrastructure sought to reflect whales' inseparability with both marine and aerial volumes – periodic floating for breathing – that both facilitated and impeded Japan's attempts to establish greater volumetric control across its empire (Peters, 2014).

After the sluggish whale harvest of the 1920s–30s, the Japanese fleet embarked on Antarctic whaling in the mid-1930s. Whaling around the South Pole relied heavily on gigantic factory ships (more than 20,000 tons) that could remain in place during variable conditions (Terry, 1950), but colonial Korean whaling was more tied to land and seashores, as evidenced by the distribution of whaling stations (Figure 4). Ships frequently returned to ports to deliver whales and refurnish fuel, food, and labour, particularly during the later colonial times when large boats were conscripted for the Second World War. Small ships with limited whaling gear, facilities, fuel and crews therefore likely reduced whaling effort (Park, 1995; Watanabe, 2006/09).

More seriously, in 1943, the advent of US submarines during the Second World War within Korean seas precluded coastal whalers from chasing whales in any distant waters deep enough for submarines to operate (Park, 1995; Tsutsui, 2013). The absence of technologies capable of detecting and avoiding submarines (e.g., sonar, radar) reduced existing whaling grounds to shallow seas, while submarines themselves interfered with the acoustics of whale migration and communication (Hodgetts & Lorimer, 2020; Wang & Chien, 2020). The invisible undersea threat to whalers and interference with whale behaviour during the later time of Imperial Japan 'completely redefined [and complicated] geopolitical balances' of Korean seas that had been regarded as a secured volume for colonial exploitation (Camprubí, 2020, p. 429; Elden, 2013).

It has been well documented how Japanese imperial expansion entailed the domination and subjugation of people, places and environments across East Asia (e.g., Fedman, 2020; Muscolino, 2013). However, the foregoing analysis highlights the ways that marine volumes and their lively materiality compelled new advancements in and applications of scientific knowledge, legal administration, sailing and fishing technologies, and infrastructure. At the same time, it reveals that colonial command of marine space and life remained partial and fragmented in the face of diverse political, technological, and ecological contingencies (Steinberg & Peters, 2015).

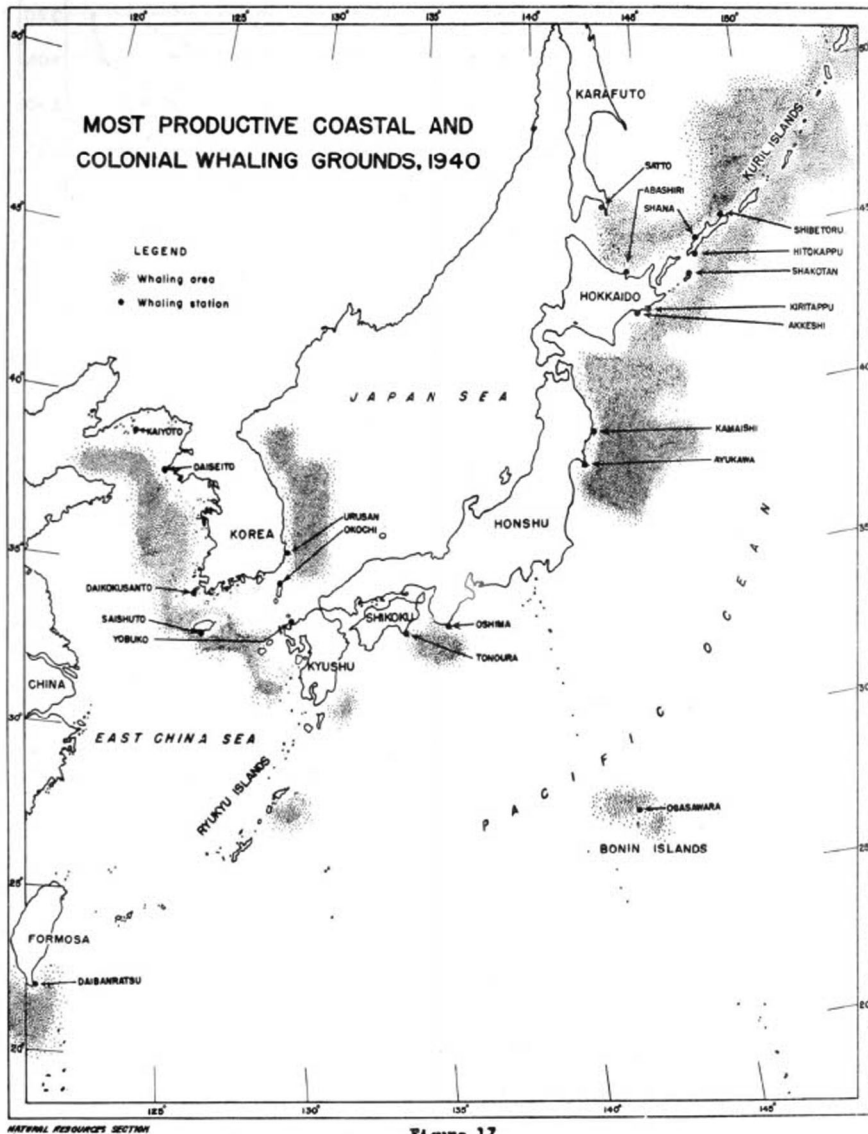


Figure 4. Japan erected numerous whaling stations (demarcated by arrows) around its coasts as well as those of Korea to facilitate the rapid processing of whales upon delivery. Source: Terry (1950, p. 29).

5. DISCUSSION

Japan's imperial expansion, projected on and exercised through whaling around colonial Korea, drove the intense exploitation of and dramatic drop in whale populations. These whaling impacts, however, cannot be reducible to numbers given the fact that whales and their materialities play a significant role in informing not only fluid environments but also peoples' entanglement with land and the atmosphere (Roman et al., 2014). Accordingly, Japanese colonial whaling was a geopolitical project that (re)shaped a territory encompassing complex marine ecosystems,

the climate and Earth itself (Dalby, 2017; Woon & Dodds, 2021). The present analysis engages with recent scholarship on territory to improve our understanding of imperial territorial expansion beyond terrestrial spaces and surfaces, as well as the roles of volumes and materiality in geopolitical contests over natural resources (Elden, 2021; Marston, 2019; Marston & Himley, 2021; Squire & Dodds, 2020; Woon & Dodds, 2021). Echoing Stuart Elden's provocative assertion that territory is a 'process not an outcome', comprised of a 'bundle of political technologies' (Elden, 2013, p. 36), here we discuss how analysing marine environments advances the theorization of territory and volumetric perspectives through two interlinked points.

First, as with terrestrial and aerial territories, marine territory is not an endpoint achieved but rather a dynamic and ongoing process of making territory that continually intersects with other volumes and is constituted by the feedback between human and non-human constituents. For instance, the volumetric measures necessary for states to establish vertical territory in the air and ground (e.g., radio waves and sounding technologies; Billé, 2019; Marston & Himley, 2021; Squire & Dodds, 2020) also apply to marine space. However, the materialities of oceans and seas present novel challenges to state control that compel territorializing practices distinct from those of land and air. For instance, oceans are literally fluid, and waves, currents and tides subvert state efforts to secure and contain territory. Oceans are also deep, heavy, salty, dark and uninhabited, properties that challenge state territorial monitoring and enforcement, and thus control. Here, we draw attention to marine mammals to expand our understanding of the repertoires by which states establish and assert territorial claims in marine spaces.

As we documented above, the processes and technologies of producing marine territory cannot be fully apprehended without considering the relationship between oceans and other volumes. Mediated by knowledge, technology and infrastructure, volumetric practices in marine environments are simultaneously tied to horizontal, vertical and oblique intersections between subterranean, marine and aerial volumes. Accordingly, beyond securing marine volumes themselves, 'blue territorialization' entails 'a process of technological and ecological manipulation of land-sea-sky interfaces' (Ong, 2020, p. 198; see also Wang & Chien, 2020). For instance, whalers and political leaders alike had to confront the challenges posed by ocean currents, waves, storms, coastal topography, animal behaviour and undersea submarine threats in the course of exercising volumetric practices and technologies of the imperial whaling that figured into Japan's marine territorial ambitions. Embracing marine environments as blue territory, therefore, propels us to better understand territory as being composed of networked volumes, which are temporally and spatially negotiated by human and non-human constituents (Bear, 2017; Peters et al., 2018; Squire, 2020). In other words, the formation of marine territory is a recursive process entangled with human, non-human and non-marine environments.

Second, attention to marine volumes underscores how marine territory is always partial and contingent and therefore never fully secured. Searching for and capturing resources are crucial ways of exercising territorial sovereignty three-dimensionally (Marston, 2019). Accordingly, states assert resource rights, claims and norms against other resource competitors as key mechanisms for establishing territory and sovereignty (Childs, 2016; Koch & Perreault, 2018). However, given the distinct features of marine spaces, attempts to secure mobile resources in marine spaces are more limited than those resources located above and below land. Hinging on a variety of technologies of governmental practices, established volumetric knowledge, technologies, and infrastructures enable states to better characterize and navigate marine volume and resources thereof. Despite these volumetric endeavours projected on marine spaces to shape territory, the limits of human agency often result in subverting or resisting the goal of managing marine territory sustainably.

As the case of Japanese colonial whaling indicates, marine spaces do not accommodate themselves well to the realization of complete three-dimensional territorial control. For instance, the inability to visualize below and above the sea surface makes it hard to observe and monitor marine

territory effectively. Marine mammals' liveliness and dynamic nature also prevented Japanese whalers from exerting full volumetric practices instrumental for maintaining territory. To some extent, their limited ability to harness marine resources was also informed by political and economic hardships that Japan faced during the war period. Namely, the Japanese military repurposed large whaling vessels for naval operations to protect the archipelago's marine, terrestrial and aerial volumes from enemy invasion and capture. However, not only did the Japanese lose these battles, but the wartime destruction of whaling vessels had subsequent impacts on the scope of post-war whaling activities and associated territorial, economic and industrial capacities. In other words, beyond unruly marine environments, historical and political contingencies associated with colonial whaling undermined imperial Japan's ambition of consolidating its maritime power. Such consideration impels us to reaffirm that marine territory is never fully secured.

As Marston and Himley (2021, p. 3) observed, 'territory can ... be understood as a spatial relation between humans and nonhumans (re)produced materially and symbolically through the daily practices of those who navigate between the world and its representations' (see also Choi, 2017). From this standpoint, there remain important questions as to how colonial whaling constitutes contemporary human–animal relations. For instance, how are competing representations of marine animals – as resources to be exploited or as lifeforms to be respected/protected – negotiated in different temporal and spatial contexts (Blok, 2011)? What are the discourses and practices producing and reproducing territorial narratives about marine volume and materialities? Examination of such questions will help illuminate the intersections of conflicting positions and practices around marine territory, geopolitics and governance.

6. CONCLUSIONS

Situating our attention to Imperial Japan's whaling around Korean seas, this paper examined the ways marine volumes and materialities posed challenges to, yet also facilitated, Japanese imperial territorial expansion. Our empirical findings demonstrate the usefulness of a volumetric framework for moving beyond land-based conceptualizations of territory and for better understanding the processes and technologies that underpin marine territorialization. Volumetric analysis revealed key dialectical processes by which the capture and control of whale resources and fluid spaces for political and economic gain compelled technological, infrastructural, and administrative innovation associated with other volumes.

Whaling competitions and maritime domination around colonial Korea reveal how imperial rivals exercised multiple volumetric strategies in different periods to claim marine environments. Imperial states projected their power on Korean seas and coastlines as they jockeyed for control over marine volumes, a grip that was always partial and tenuous given the tendency for 'nature [to be] a reluctant commodity' (Barnes & Christophers, 2018, p. 265). Once Japan subjugated the Korean Peninsula and surrounding marine spaces, whaling around Korean seas underpinned Imperial Japan, providing economically valuable whale products (military and civilian uses) until colonial Korea gained independence from Japan.

Whales yielded resources that required harvesting technologies and infrastructure (ships, ports, navigational equipment) that facilitated marine territorial claims by enabling the colonizers to access, observe/monitor, map/chart seas. Nevertheless, the three-dimensionality and fluidity of marine spaces frequently posed challenges to Japanese whalers and the colonial government in their efforts to sustainably catch whales. Although Japanese whaling companies had monopoly status for nearly four decades (1910–45) around the Korean Peninsula, they struggled with a stagnant harvest from the 1920s and shrunken operations during the wartime period. This research demonstrated that Japan's envisioning of geopolitical hegemony was not only contingent on continental territory but also on marine territorial expansion through apprehending the

biological features of whales and physical properties of the sea. Lastly, the context of colonial Korean whaling presented a range of militaristic maritime dimensions, entangled with terrestrial, subterranean, and aerial volumes (DeLoughrey, 2019).

Returning to the present, what perspectives might our study offer for understanding Japan's momentous decision to contravene the international whaling moratorium? On the one hand, it stands as a straightforward attempt to resuscitate what was once a central pillar of Japan's economy while arousing nostalgia for the pinnacle of Japan's marine dominance (Tsutsui, 2013). On the other hand, given Imperial Japan's historical immersion with marine territory and its exploitation around Korean seas, we might appreciate the recent resumption of whaling in which Japan again endeavours to secure seas and marine resources that have never been fully secured, armed as it is with established whaling knowledge, technology, and infrastructure. Historicizing marine environments and colonizers' volumetric endeavours through whaling, this study demonstrates that Japan's envisioning of geopolitical hegemony was not only contingent on continental expansion but also on maritime expansion. This study also provides greater depth to understanding marine volumetric space as an integral part of making and claiming territory.

DISCLOSURE STATEMENT

No potential conflict of interest was reported by the author(s).


NOTES

1. Britain and the United States also attempted to join this whaling competition. However, the English company Holme, Ringer & Co. was not able to conclude a whaling agreement with the Koreans. As the business was not profitable due to taxes and port levies, while competing with Russian and Japanese whalers, it pulled out of the whaling business in 1901 (Burke-Gaffney, 2012; Kim, 2013). On the other hand, American whalers did not participate in Korean grounds in the late 19th century. Although the US Consul General to Korea (Augustin Heard II) requested whaling approval around Korean seas (1893), the Korean government did not permit it (Kyujanggak Institute for Korean Studies, 2021).
2. However, Japan maintained diplomatic and economic relationships with some countries, such as Korea (the Joseon dynasty), China, the Netherlands, Kingdom of Ryukyu (now Okinawa) and Hokkaido.
3. Apart from these two species, the whaling record around colonial Korea shows other harvested species, including the blue whale, sperm whale, humpback whale, sei whale, right whale, minke whale and dolphin (Park, 1995). In terms of Japanese home waters, whale harvests 'consisted mainly of sei, sperm, and fin whales, with a small number of blue and humpback, and an occasional right or gray whale' (Terry, 1950, p. 26).
4. Such legal reforms are emblematic of blue territorialization as a state strategy of ocean governance (Ong, 2020).
5. Our thanks to Dr Mia Bennett for this observation.
6. The diversified utilization of whales was documented in statistical data between 1933 and 1943, such as fertilizers (1937–40), bone powder (1933–36, 1942), bone (1941–42), dolphin hide (1941–42), baleen (1938–42) and canned whale (1939–43) (CS0084001942, KOSIS, 2020; DT_999N_082043, KOSIS, 2020). However, we did not find information as to how much these products manufactured from whales sourced from Korean waters contributed to the whaling economy of mainland Japan.
7. The various records also illustrated how the facilities such as canneries and whale oil plants were located adjacent to colonial whaling stations (Seoul Shinmun, 1947).
8. According to Park (1995, p. 283), four stations were located on the east coast, one station on the south and two stations on the west: (1) East: Yujin (established in 1920), Shinpo (1913), Jangjeon (1926) and Ulsan (1926); (2) South: Jeju Island (1926); and (3) West: Heuksan island (1916) and Daecheong Island (1918). Among these seven stations, the three places (Shinpo, Jangjeon and Ulsan) were already leased and developed by the Russian predecessor.

9. This whaling fleet was not only for whaling in colonial Korean seas but also for whaling around mainland Japan and the Pacific Ocean.

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