# Through the Digital Looking Glass: Japanese Art and Material Culture in the Discourse of Classical Whaling.

A Case Study for the Digital Maritime Cultural Landscape Framework

Ayaka Minh Phuong Nguyen
Bachelor of Arts (Archaeology, English Studies)

Supervisor: Dr Martin Polkinghorne

Submitted in partial fulfilment of the requirements for the degree of
Master of Maritime Archaeology

College of Humanities, Arts and Social Sciences
Flinders University
09 June 2022

# Keywords

Amitori-hō; Classical Japanese Whaling; Digitalised Heritage; Digital Materiality; Emakimono; Japanese Script and Painting; Maritime Cultural Landscape; Maritime Heritage; Narrative Art; Net Method; Whaling Culture.

# Abstract

Japanese whaling culture and heritage are vast; however, when examining classical whaling practices or economies of Tokugawa Japan (1603-1867), few works of literature (in English) are dedicated solely to the discussion of *amitori-hō* or the "net method". The classical technique, born in the Edo period, involved driving slow-moving whale species into large nets in the open sea, as opposed to the earlier harpoon and shoreline operations. The author has proposed an extension of Christer Westerdahl's *Maritime Cultural Landscape* (MCL) framework to address the research gap. The proposed *Digital Maritime Cultural Landscape* (Digital MCL) extends on the existing architecture of the MCL to include the digital topography and its cultures. The author adopts ethnographic and archaeological methods to examine the relationship between Japanese art and material culture through an archaeological assessment of the digitalised *emakimono* (lit. picture scroll), Kishu Taiji-ura Great Whale Fishing Map (1862). The research reflects and examines the reliability and preservation of digitalised materiality as culture dives into new boundaries of digital and post-human environments.

Undoubtedly, when space denotes some form of anthropological narrative, a potential archaeological discourse presents itself.

# Table of Contents

# List of Tables

# List of Images



# List of Figures



# List of Appendices

# List of Abbreviations

| | |
|---|---|
| **Digital MCL** | Digital Maritime Cultural Landscape |
| **KTGWFM** | Kishu Taiji-ura Great Whaling Fishing Map |

# Statement of Original Authorship

The work contained in this thesis has not been previously submitted to meet the requirements for an award at this or any other higher education institution. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made.

Signature: 

Date: 09 June 2022

# Acknowledgements

I would like to express my warmest gratitude to my supervisor, Dr Martin Polkinghorne, whose guidance and advice carried me through all the stages of my writing. I am deeply indebted to his kindness in allowing me the freedom and a safe (mental health) environment to complete this journey.

I am also grateful for my dogs: Melon, Eirawen and Penelope, and my Murray-short necked turtle, Bartholomew Blue, for being the best companion during my writing and late nights fuelled by coffee.

And finally, a special thank you to my husband, Martin Paetz, for always providing the best vegan lasagne and coffee in time of need.

# Chapter 1: Introduction

This chapter outlines the background (section 1.1), context (section 1.2) of the research, and its purposes (section 1.3). Section 1.4 describes the significance and scope of this research and provides definitions of the terms used. Finally, section 1.5 provides a snapshot of the case studies, and section 1.6 includes an outline of the remaining chapters of the thesis.

## 1.1. BACKGROUND

The ethics and sustainability of contemporary whaling, referring to the passive or active hunting of cetaceans (whales, dolphins, and porpoises) in Japan, have been contested in the last decades. The discussion of the Japanese whaling industry and heritage has thus been exhausted with literature concerning itself with the International Whaling Commission and the International Convention for the Regulation of Whaling (Recently: Wakamatsu et al. 2022 and Usuda 2021). Literature on Japanese whaling, in English, isolating such a political agenda is scarce. When discussing classical whaling practices from Tokugawa Japan (1603-1867), even fewer works of literature are dedicated to discussing operations of *amitori-h*ō (net method), a classical method developed in the Edo period; executed by driving slow-moving whale species such as the Right whales (Balaena glacialis) into large hemp woven nets in the open sea (Itoh 2018:12).

To put this into perspective, one of the earlier works, *Japanese Whaling Culture: Continuities and Diversities,* published in 1989 by Junichi Takahashi, Arne Kalland, Brian Moeran and Theodore C. Bestor, outlined the historical background of pre-modern and modern whaling (further elaborated in section 2.2.3). The literature offered a detailed sequential view of *amitori-hō* operations and terminologies (**Table 1**); however, only an unreferenced painting of sperm whale flensing, a butchering method used during "Whale Processing" of the operation was noted with no further description or primary sources used to support the claims. In addition, the use of the Japanese logographic writing system is absent, making it difficult for their readers to investigate the topic further. The same trend can be witnessed in the subsequent works of literature cited in this section.

*Table 1. Amitori-hō Terminology from Takahashi et al. 1989*

| Terminology | Translation |
|---|---|
| Amitori-hō | Net method |
| Maesaku | New Season |
| Nayaba | Land station |
| Ami-daiku | Male experts |
| Funa-daiku | Boat builders |
| Hazashi | Expert harpooner |
| Seko-bune or oi-bune | Swift hunting boats |
| Oyaji | Chief harpooner |
| Sōkaisen | Net-boats |
| Amitsuke-bune | Assistant boat |
| Mito-oyaji | Commander-in-chief |
| Mossō-bune | Floats |
| Naya | Working shed |
| Rokuro | Hand powered winch |
| Uo-kiri | Main flensing, li. Fish cutting |
| Naka-kiri | Middle cutting |

Arne Kalland and Brian Moeran (1992) published *Whaling in Japan: End of an Era,* the "first comprehensive account in English of the history of Japanese whaling," emphasising a social anthropological account of whaling in Japan and whaling culture. Tomoya Akimichi et al. (1988) first defined whaling culture as "shared knowledge and beliefs transmitted to succeeding generations through a traditional socialisation process" in addition to the "shared understanding of the relationship existing between humans, whales and the environment" (Akimichi et al. 1988:4-5). "Shared knowledge" encompassed:

> "…not only skills in operating technologies to catch whales, but also an understanding of the ecosystem of which both humans and whales are part; religious belief and practices connecting humans with whales, with nature and with fellow humans; whale product distributional systems, by which people are integrated within whaling villages as well as connected to the outside world; and local food preferences which give each whaling community a distinct character…" (Akimichi et al. 1988:7).

Kalland and Moeran employed Akimichi's definition of whaling culture to discuss whaling in local and national economies. The role of the whales in establishing and maintaining the local identity was illustrated as the authors reflected on the consequences of whaling culture being threatened. In parallel, they argued with the position that "whaling at the time of discussion in international meetings and various media is to a large extent a moral issue rather than that of an ecological one" (Kalland and Moeran 1992:2). In chapter four, *The History of Japanese Whaling*, a descriptive narrative was provided on *amitori-hō*. The description presented key locations, including Taiji, Kayoi and the Nagato Coast (Kalland and Moeran 1992:47), and essential terminology (**Table 2**); however, no primary materials were referenced to expand on the definitions.

*Table 2. Amitori-hō Terminology from Kalland and Moeran 1999:47-48*

| Terminology | Translation |
|---|---|
| Amitori-hō | Net method |
| Tachikiri-ami | Net |
| Tenraku-ami | Large nets |
| Maesaku | New Season |
| Nayaba | Shore stations |
| Ami-daiku | Male experts |
| Funadaiku | Boat builders |
| Seko-bune/Oi-bune | Hunting boats |
| Hazashi | Expert harpooner |
| Oyaji | Chief harpooner |
| Sokaisen | Net boats |
| Amitsuke-bune | Assistant boats |
| Mito-oyaji | Commander-in-chief |
| Mosso-bune | Floats |
| Rokuro | Winches |
| Uo-kiri | Flensing |
| Naka-kiri | Middle cutting |

While Kalland and Moeran referenced several secondary Japanese sources (**Table 3**), a lack of primary sources was present to contextualise and support the claims made regarding the operations of *amitori-hō*.

*Table 3. Secondary Japanese sources cited in Kalland and Moeran 1999:47-48*

| Japanese Source | Discussion | Reference/Page |
|---|---|---|
| Tokumi Kōzō (1971) Chōshū hogei-ko. Shimonoseki: Nagata Chihō shiryō Kenkyūjo | the locality of the development and invention of the net | 47 |
| Fujimoto Takashi et al. (1984) "Arikawa ujira-gumi shiki hōtei", I and II. Fukuoka Daigaku shōgaku ronsō | the regulations and payment to whalers and villagers affected by whaling operations (Kallanad and Moeran 1992:47). There is, however, a lack of primary reference to contextualise and support the claims made regarding the operations of amitori-hō. | 47 |
| Fujimoto Takashi (1967) "Geiyu, no ryūtsu to Chihō, shijō no Keisei", Kyūshū bunkashi kenkyūjo kiyō | the use and demand of blubber as an insecticide | 48 |

In 2017, Mayumi Itoh published *The Japanese Culture of Mourning Whales: Whale Graves and Memorial*. The book offers an in-depth study of Japanese whaling culture and examines how the deaths of whales were mourned. The author provides insight into contemporary issues, such as conservation and sustainable use of natural resources. In chapter two, *Historical Background*, koshiki hogei (classical whaling) was defined as limited operations of kinkai hogei (coastal whaling) using rowboats and rudimentary tools such as manual harpoons and hand-knit fishing nets (Itoh 2017:11). *Amitori-hō* was described as an operation where "a number of chaser boats surrounded a whale on three sides and chas[ing] it toward a large net" (Itoh 2017:12-13). In chapter six, *Whale Shrines and Temples in Wakayama Prefecture*, Itoh provided terminologies relating to the whaling occupation (**Table 4**) (Itoh 2017:94-96) and offered an extensive background on Taiji Whale Museum and its intangible heritage, such as folklore and mourning traditions (Itoh 2017: 102-106). The Kujirabune emaki (Picture Scroll of Whaleboats), a classical painting depicting features of whaleboats, was mentioned in reference to the Japanese research project "Kujira-bune: Wazuka na shiryō kara hakkutsu", where different types of whaleboats in Taiji, including chaser boats, towboats, and net boats, were reproduced based on the preserved artwork

(Itoh 2017: 102). Despite the comprehensive discourse, *amitori-hō* remained a minor topic of discussion.

*Table 4. Amitori-hō Terminology from Itoh 2017:94-96*

| Terminology | Translation |
|---|---|
| Hazashi | Blade thrusters |
| Funa-daiku | Boat-carpenter |
| Karō | House elder; advisor to the province lord |
| Kakō | Crewmen |
| Yagō | House name |
| Bunrei-kanjo | Division and propagation of the "Souls of the Gods"<br>Wada founded a new Asuka Shrine in Taiji through Bunrei-kanjo |
| Tsukitori-hō | Harpoon method |
| Semi-kujira | *Lit.* whale with a beautiful back or North pacific right whale |

One of the most recent and comprehensive works on classical whaling with the inclusion of primary materials is *Bringing Whales Ashore: Oceans and the Environment of Early Modern Japan* (Arch 2018). The literature drew on diverse sources to address techniques and impacts of whaling, in parallel, reflected on the economic expansion of the Tokugawa state. Classical whaling is briefly discussed in chapter two, *Bringing Whales Ashore, Whalers offshore: Coastal Networks and the History of Whaling* (**Table 5**). Arch stressed that the term *koshiki hogeigyō* used in Japanese histories refers to whaling practices in the Tokugawa period. However, the term does not elaborate on which "tradition" or the extent of history it stretches (Arch 2017:50).

*Table 5. Amitori-hō Terminology from Arch 2017:50*

| Terminology | Translation |
|---|---|
| Koshiki hogeigyō | Old-style or traditional whaling |
| Hazahi | Harpooner |

In chapter four, *Seeding Stories: Whales as Cultural and Scholarly Inspiration*, Arch summarised how diverse primary illustrations and writing expressions echo interactions between people and marine life. Tokugawa Japan was a time of peace, allowing many leisure arts, new ideas, and representations to be reshaped. Much of it owed to trade, albeit limited, with the Portuguese and the Dutch. The importation of Dutch medical text shifted how the

Japanese understood internal medicine and the body. Human and whale anatomical diagrams became tools for scholars. As whale products became more accessible to communities outside the high-ranking court, information dispersal became wider in local and international spheres (Arch 2017:111-113).

Arch mentioned Noro Genjō and Natsui Matsugen's records from 1721; the envoys travelled to Taiji by order of the government of the Kii domain (Arch 2017:110) and reflected on how people utilised whales in the natural world's inquiries. The envoys had also acquired an illustration by a whaling leader depicting a whale hunt, which natural history scholar Niwa Shiōhaku annotated (Arch 2017:120). The painting and written records made known among the shogunal government did not survive (Arch 2017:125).

In addition, Arch provided a summary of two famous works about whales from the 19th century:

1. Geishikō (Manuscript on Whale History) (1808)

Confucian scholar Ōtsuki Heisen wrote the manuscript on whale history, as whaling promised economic, military, and political advantages to the shogunal government and is a good illustration of how networking between scholars with diverse training brought curiosity about whales and whalers. The manuscript encompassed book research and interviews with members of the Ikitsuki-Shima whaling group, offering insight into the early nineteenth-century whaling industry (Arch 2017:125-8).

2. Isanatori ekotoba (Illustration of Whaling) (1832)

In 1829, Masutomi Matazaemon, the head of the wealthiest whaling group in early modern Japan, commissioned Kokugaku (National Learning) scholar Oyamada Tomokiyo to produce a manuscript on their whaling operations in Kyushu at the peak of the Masutomi group's success (Arch 2017:128). The Masutomi group's whaling operations were depicted with 41 woodblock print illustrations. The manuscript was published in 1832 with vivid details on the pre-season preparation of nets and boats, the processes and tools used during the hunt, the dance performed by harpooners, descriptions of whale species, onshore processing, and an account of whale-derived products (Arch 2017:129). Given the piece's audience being

other daimyo and shogunate, much emphasis was made on the Masutomi group's whale oil operations and sales (Arch 2017:129), reflecting their political and economic power.

When looking into English literature citing Geishikō (1808) and Isanatori ekotoba (1832), few can be identified (**Table 6**). Little work focuses on the digital landscape's relationship between art and material culture. Themes of typical interest include the Tokugawa government and its industries, coastal and agricultural developments, food heritage, intangible heritage (religious and cultural), scientific discoveries and artistic inventions.

*Table 6. Past literature referencing Geishikō (1808) and Isanatori ekotoba (1832)*

| Title | Year | Author |
|---|---|---|
| Geishikō (1808) | | |
| Bringing Whales Ashore: Oceans and the Environment of Early modern Japan | 2018 | Jakobina Arch |
| Living with the Gods of the Sea: Anti-Whaling Movement in Northeast Japan, 1600-1912 | 2020 | Fynn Holm |
| Currents and Oceanic Geographies of Japan's Unending Frontier | 2021 | Jonas Rüegg |
| The Tokugawa World | 2021 | Gary P. Leupp and De-min Tao |
| Isanatori ekotoba (1832) | | |
| Whale Meat Foodways in Contemporary Japan: From Fish Sausages in the 1960s to Whale Tongue Dishes in the 1990s | 2013 | Jun Akamine |
| The Biology of Marine Mammals | 2012 | Aldemaro Romero |
| Kuniyoshi and the prosperity of seven shores: a garland of Japanese woodblock prints of whales and whaling, with a short history of whaling in Japan | 2002 | Stuart M Frank |

| | | |
|---|---|---|
| Intangible Food Heritage: Dynamics of whale meat foodways in an Age of Whale Meat Rarity | 2013 | Jun Akamine |
| Small cetaceans of Japan: Exploitation and Biology | 2017 | Toshio Kasuya |
| Bring Whales Ashore: Oceans and the Environment of Early modern Japan | 2018 | Jakobina Arch |
| The Japanese Culture of Mourning Whales: Whale Graves and Memorial Monuments in Japan | 2018 | Mayumi Itoh |
| Tastes for blubber: diversity and locality of whale meat foodways in Japan | 2020 | Jun Akamine |

I aim to contribute to the discussion of whaling in Japan with an archaeological investigation of classical whaling in Japanese art and material culture. With much emphasis on Japanese narrative art composed in the Tokugawa period (1603-1867). I hope to comment on the quality of cultural preservation and the reliability of digitalised illustrative manuscripts. Wang and Trede (2021) highlighted that "once artefacts are removed from their original locality, they not only acquire a new significance within their different material, social and cultural contexts but are also subjected to distinct practices" (Wang and Trede 2021:18).

- **Preservation**, thus, refers to the cultural integrity preserved within the digitalised environment, reflecting how viewership is part of the digitalised narrative of a new tradition. Opposed to heritage preservation through digitalising material culture, and not to be confused with the preservation of digital culture.
- **Reliability** is defined by the extent to which the viewer can interpret and consume the digitalised materials, keeping the material and its new traditions intact against factors that may alter them.

The research will rely on freely accessible materials from digital archives, and online museum resources opened to the public. The significance of this study is to understand the relationship between artistic representations and material culture, parallel to digitalising heritage.

- **Art** refers to “the expression or application of human creative skill and imagination, typically in a visual form such as painting or sculpture, producing works to be appreciated primarily for their beauty or emotion power” (Oxford Languages 2022).
- **Material culture** is defined as the “segment of humankind’s physical world that has been purposely made or modified, consciously or unconsciously, by people according to culturally dictated plans” (Schlereth 2001:3827). Therefore, it includes the practice, consumption, invention, and trade of objects and the behaviour, customs, and rituals that the objects construct or part take.

According to this definition, the viewership (or consumption) of digitalised narrative art denotes the material culture, and the object of narrative art itself is the visual expressions (or art).

Past literature focused on whaling culture and its influence on the cultural landscape. Instead, this research will introduce the *Digital Maritime Cultural Landscape frameworks* (Digital MCL). In 1978 and 1980, Christer Westerdahl first introduced the concept of “maritime cultural landscape” as to have “comprised the whole network of sailing routes, old as well as new, with ports and harbours along the coast, and its related constructions and remains of human activity, underwater as well as terrestrial. [This way] mirrors the entire range of maritime economies, that is, mariculture” (Westerdahl 1992:6). I would argue that the documentation and dispersal of information on whaling practices are remnants of human activity relating to the sea; when the material is digitalised and consumed, the cultural landscape thus extends to the digital topography. Westerdahl underlined that the significance of maritime cultural landscape is in its “immaterial, cognitive or indicatory” nature (Westerdahl 1992:6). I have interpreted it as supporting the notion that the layers of maritime culture and its heritage are present on the land, underwater and digitally evident.

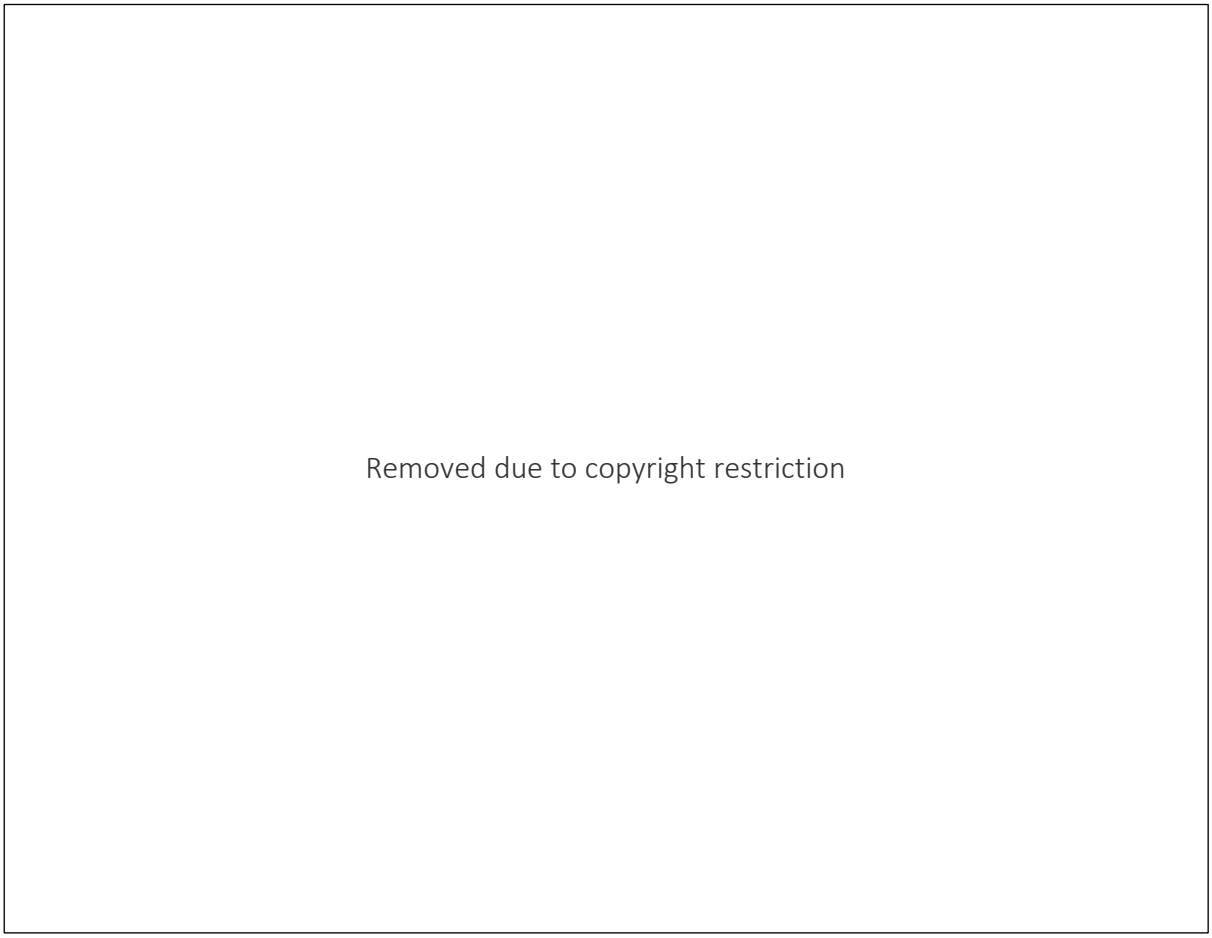


*Image 1. Map of Taiji. Extracted by authour from Google maps.*

The region of Wakayama prefecture, specifically the present-day town of Taiji, will be a constraint in this study. Historically, Taiji was a coastal village in Kishu Kumano-ura, a province on the Kii Peninsula on the central east coast of Japan. Kishu existed from the 17th century to the end of the Tokugawa Period (1603-1868) (Kato and Wearne 2011:208). Taiji gained international attention following the documentary film The Cove (2009), directed by Louie Psihoyos, which examined dolphin hunting practices in Japan. Taiji mirrors great heritage and geocultural significance belonging to the past, present and future. Stratigraphically reflects heritage on sea, land, and digital space. I have chosen to pay close attention to the genre of Japanese narrative art, *emakimono*, as it was consumable by the public and continues to be today. As such, are materials impregnated with questions of reliability and accessibility belonging to their respective context? I will closely investigate the *emakimono* titled "Kishu Taiji-ura Great Whale Fishing Map" (紀州太地浦鯨大漁, KTGWFM), painted in 1862. The

KTGWFM is part of the Taiji Whale Museum Collection (Digital Whale Museum 2017); however, this research will utilise material accessible at the Kujira Digital Museum.

The *emakimono* is a narrative presented with calligraphy and illustrations on a long horizontal handscroll made of paper or silk protected by a *honshi* (paper) or silk backing (Wang and Trede 2021:9). The stylistic approaches employed to express postures, clothing, action, and facial expressions are clues to cultural trends and historical narratives. The scroll is read from right to left, one scene at a time, by unfurling with the left hand and re-rolling with the right (Quattrini et al. 2014:331). A *jikugi* (軸木, dowel) is attached on the far-left end, and a braided cord accompanies to secure the scroll when rolled up. Emakimono remains a living heritage that is consumable in museums and digitally.

The KTGWFM is not only a window into whaling culture in Tokugawa, Japan, but also a mirror to understanding its spectators. Early Japan relied on oral teaching and dances of stories and poetry. It was not until the introduction of a centralised government and Chinese diplomacy in the 5th century CE that there was a need for a writing system (Stanley-Baker 2000:99). The Japanese court adopted Chinese characters, *kanji* (漢字, lit. Han characters), and the practice of official documentation along with Confucian classics and Buddhist sutras (Watanabe 2011:3). In the 6th century, Prince Shotoku (574-622) was influential in having written Chinese as the official language learned by the ruling class (Stanley-Baker 2000:99).

In ancient China, the use of paper and silk handscrolls for government documentation and religious manuscripts has been prevalent since the Eastern Han period (25-220 CE), with the Three Kingdoms period (220-280 CE) seeing handscrolls become a medium for painting narratives and continued well into the Tang dynasty (618-907 CE) (Delbanco 2008). The Asuka Period (593-710 CE) saw widespread Chinese culture and the adoption of Buddhism amongst feudal Japanese (Watanabe 2011:3) and observed a rise in paintings and mokuhanga (木版画, woodblock printing) (Delbanco 2008). Around the middle of the Heian period (749-1185 CE), *kanji* shifted into phonetic use and was written in a simplified form, leading to the development of *kana* (仮名) (Watanabe 2011:3). The *kana* writing system consists of *katakana* (カタカナ, fragmentary kana) and *hiragana* (ひらがな, lit. flowing kana) alphabets. When record-keeping, *kanji* were used by males, while *kana* was used by females (woman's hand) (Takayama 1995:474). In the later 9th century, *hiragana* was acknowledged

as the written language in Japan (Takayama 1995:474). *Hiragana* began to appear in native literature mainly by aristocratic women and, by the 11th century, completely took over literary work (Takayama 1995:474).

New stylistic art elements appeared in the late Heian period (794-1185 CE), and Japanese-style paintings became categorically termed *Yamato-e* (大和絵) (Soper 1942:350), with *emakimono* being the most idiosyncratic (Soper 1942:377). Despite adopting techniques from the Tang dynasty (618-907 CE), there is a clear distinction between Chinese and Japanese paintings, with the main difference being Japan's appreciation for simplicity (Munsterberg 2012:44). Human figures, trees, houses, rhythmic movement, and facial expressions were articulated with a single stroke (Munsterberg 2012:72). Painting styles can be categorised as either *onna-e* (women's pictures) or *otoko-e* (men's pictures); These classifications are not a reflection of an artist's gender; instead, it mirrors the contrasting views and ethos belonging to Japanese society at the time (Yang 2018:49).

At large, the subject of *yamato-e* illustrations were imageries depicted in 9th-11th-century poetry, giving rise to subject-centred picture narratives (Shimizu 1981:2). By the Kamakura period (1185-1333), the *emakimono* was recognised as a genre until its gradual decline in the 16th century (Soper 1942:365). Restricted trade with Chinese and Dutch merchants in Nagasaki introduced Ming literati culture into Japan's artistic circle and the development of Japanese porcelain. In parallel, much of Tokugawa Japan saw an uprising in the revival and refining of former traditions (The Metropolitan Museum of Art 2003).

The renaissance of the Heian culture is of much interest to the thesis. It was the late Heian period when *Yamato-e* was recognised, along with the distinctive development of the e*makimono*. At the end of the 17th century, new styles such as *Rinpa* (琳派) and *Ukiyo-e* (浮世絵) emerged, and by the 18th century, *bunjinga* (literati painting) made an appearance. The KTGWFM was composed in 1862, near the Tokugawa period's end. Throughout the 19th century, these various styles were distinctive but nonexclusive modes of expression (The Metropolitan Museum of Art 2003). Two examples of literature examining Japanese narrative art and classical whaling culture include *Folding Screen of Whaling at Kishu Kumano Bay* (2011) by Kumi Kato and Simon Wearne and *Kuiyoshi and the prosperity of seven shores: a*

*garland of Japanese woodblock prints of whales and whaling, with a short history of whaling* (2002) by Stuart Fran.

The *emakimono* is thus elastic rhetoric spanning across time and space, and this notion is further extended in the digital landscape.

## 1.2. CONTEXT

The central focus of this study is to investigate the reliability and preservation of digitalised Japanese narrative art concerning classical Japanese whaling by magnifying the relationship between art and material culture, to understand better where to position ourselves in the ongoing dialogue of whaling practices in contemporary Japan. The research hopes to contribute longstanding knowledge accessible to the public. The research, therefore, must meet a few criteria: (1) utilising online museum and archival material made available to the general public, and (2) refraining from contemporary sustainable and political dialogue. I will not isolate the fact that consumable materials are organically skewed to their context's sensibilities and didactic agendas. Consumers of any period are bound to political and ethical beliefs. Therefore, this research will be conducted without contemporary political observations despite recognising its entwining narrative. In parallel, acknowledge that the findings may stress political agendas belonging to Tokugawa Japan. Finally, (3) consciously reflect on the digital landscape of maritime heritage and its consumption.

The following constraints are placed to ensure an efficient and narrow research scope: (1) the narrative genre is *emakimono* produced in the Tokugawa period (1603-1867), and (2) discussion and motif exclusively on classical Japanese whaling with special attention made to *amitori-hō* and (3) narratives are restricted to the coastal town of Taiji.

## 1.3. PURPOSE

The primary motivation of the research is the ongoing discussion of Japanese whaling from an archaeological perspective. The study's objective is to analyse the *emakimono* composed in the Tokugawa period (1603-1867) and comment on the quality of cultural preservation and reliability of digitalised illustrative manuscripts. The researcher is the primary instrument parallel to the *Digital MCL (*further elaborated in section 2.3).

### 1.3.1. Aim 1: To contribute to the ongoing discussion of Japanese whaling, omitting contemporary political and sustainable agenda.

The aim is addressed first by contextualising Japanese whaling culture and identifying key discussions and archaeological research gaps.

### 1.3.2. Aim 2: To define and explore the potential of the *Digital Maritime Cultural Landscape frameworks*.

This aim entails defining the Digital Maritime Cultural Landscape framework against literature on the existing Maritime Cultural Landscapes concept.

- Q1. What are the qualifiers or criteria that make up the Maritime Cultural Landscape? What archaeology can be done in the defined scope?
- Q2. How does the Digital Maritime Cultural Landscape framework align and differ from the Maritime Cultural Landscape?

### 1.3.3. Aim 3: To examine the plausibility of archaeological fieldwork on a digital landscape.

- Q1. As material culture becomes digitalised, can it be argued that the maritime cultural landscape has too extended beyond land and sea? Therefore, to include the digital landscape.
- Q2. To what degree can digital viewership be translated into archaeological research methods? Moreover, what information do the gaps identified using said practices say about digitalising heritage?

### 1.3.4. Aim 4: To examine the relationship between artistic representation and material culture.

- Q1. What is the relationship between artistic representations and material culture? To what extent is digitalised narrative art reliable in expressing and documenting?
- Q2. Does the digitalisation of narrative change the reliability of the artistic representation of material culture?

## 1.4. SIGNIFICANCE, SCOPE, AND DEFINITIONS

The significance of the investigation is to understand the relationship between artistic representations and material culture. Much emphasis will be made on the classical whaling processes for *amitori-hō*. In parallel, it introduces archaeological inquiries concerning the maritime cultural landscape and its shift to a digital topography. The study will examine in detail the Kishu Taiji-ura Great Whale Fishing Map (紀州太地浦鯨大漁之, KTGWFM) (1862).

While many coastal communities in Japan claim to be the birthplace of whaling, Taiji has the most extended history in whaling occupations (Kato and Wearne 2011:208). Taiji is a seaside town and port set among the hills of the Kumano coast in the Higashimuro District in the Wakayama prefecture. Taiji was part of Kishu Kumano-ura, a province on the Kii Peninsula surrounding the current Wakayama prefecture and the southern region of Mie Prefecture. Kishu existed from the 17$^{th}$ century to the end of the Tokugawa Period (or Edo Period 1603-1868) (Kato and Wearne 2011:208). Taijura bay was home to Kishu Classical Whaling Base, one of the earliest whaling guilds (Itoh 2018:12). Taiji came to be celebrated as *Kujira to tomo ni ikiru mach*, a "town which lives with whales" (Kalland & Moeran 1992:21).

Present-day Taiji is home to significant heritage monuments such as the whalebone torii gates and the tomb of Wada Kakuemon, which can be found on the grounds of *Junshin-ji Temple* (Itoh 2018:12). In addition to various intangible cultural properties:

- The archery ritual is held annually in January at Asuka-jinja Shrine. The tradition encompasses a Shinto ritual prayer for safety at sea and a bountiful catch. Those who participate in the ritual compete for a lucky wooden charm made in the image of the right whale (Association for the Preservation of the Kumano Sea Whaling Culture 2017).
- The Taiji Isana Festival is a summer festival held annually in August at the Taiji Fishing Port. Isana is the old Japanese word for "whale" (Kimura and Ozawa 2002:684). The net-and-harpoon method is re-enacted with a model whale and decorated chase boats driving the whale into the net.
- The *Taijura Kujira-sai* (太地浦くじら祭, Taiji Kujira Festival) is an autumn festival held annually on the first Sunday of November. *Kujira* is Japanese for "whale". The festival sees young men carrying portable shrines with sake offerings barrels;

through the town, they would venture to thank the whales and pray for a generous catch.

- Revived since 1969 was the *Kujira Odori* (鯨踊, whale dance), a performance that incorporates the *Aya Odori* (綾踊り, Aya Dance), where *Ayabo* (あやぼう, decorative rods) are used to signify a harpoon), and the "Fish Dance" that expresses a whale catch (Kalland & Moeran 1992:23). The *Kujira Odori* is a traditional dance performed to celebrate a good catch. The whale dance has been designated an intangible Folk-cultural property by Wakayama prefecture (Kalland & Moeran 1992:23). Finally, the *Kujira Taiko* (鯨太鼓, whale drumming) performance portrays a battle between a giant whale and small whaling boats.

The KTGWFM mirrors such rich narratives and is perhaps influential in prolonging cultural practices and intangible heritage.

This research will consider archival and comparative studies of material culture and utilise personal observation when the digital dialogue is concerned. The researcher is the primary instrument for monitoring and data collection. Any gaps in the result chapter reflect a discussion point or valuable observation instead of a gap in research.

The research constraint will preserve the integrity of the overarching archaeological discussion: to comment on how digital culture is reshaping the maritime cultural landscape. The data obtained will echo the relationship between art and material culture. Finally, add value to the discussion of whaling in Japan by ensuring that the methods will examine (1) the intended use of the *emakimono* and (2) the reliability of viewership.

Japanese picture scrolls are designed to be read by unfurling one scene at a time. Following the right to the left reading system, the KTGWFM can be divided into six scenes: (1) *Kotobagaki* (詞書, foreword), (2) Whale Species, (3) Onshore Meat Processing, (4) Whale Hunt, (5) Onshore preparations and (6) Harpoons and Other Tools. While acknowledging that each scene deserves attention and perhaps individual research papers, this investigation will offer a more overarching perspective. Indeed, the research constraints implemented will be considered with fluidity in mind:

The *kotobagaki* is a text passage that accompanies the illustrations on an *emakimono* and can vary in poetic, didactic or descriptive functions. Therefore, a reliable documentation

source for calligraphic style, vocabulary trends, and early literature is an essential literary, social, and historical record and can be considered independent of the emakimono. A limitation of this study is that the author is not of Japanese descent and is not fluent in Japanese. While the *kotobagaki* will not be examined in detail, this limitation is not synonymous with a lack of research potential or a hindrance to the research. Instead, it reflects the dissonance of consuming *emakimono* displayed in museums, digital galleries, or private collections. Acknowledging today's diverse audience is an essential parameter of this research.

As Tokugawa Japan witnessed the documentation of whaling become widely dispersed, its audience expanded to include communities unfamiliar with the writing system to international spectators. Having many parallels to the current consumption of the *emakimono,* this is truer as digital museums allow for accessibility. When the *amitori-hō* was invented in 1675, the *Sakoku policy* (鎖国, Closed Country policy) had been implemented over 40 years earlier (Laver 2011:2). While the whaling industry flowered after the introduction of the *amitori-hō* the general population's access to the open sea remained impossible throughout the 18th century and much of the first half of the 19th century. Contact with these ocean giants and many other sea creatures was limited to the form of food or products. When depicted in art and oral tales, these sea creatures were envisioned beyond their practical use and appearance, and their curious presence became a commodity.

By capturing people's imagination, artisans were offered an opportunity for financial gain. Such momentum is also witnessed among other craft, notably the rise of *misemono* (見せ物, shows) spectacles. For over two hundred years, *misemono* were an unchallengeable narrative of the Japanese urban landscape (Markus 1985:499). While contrasting wildly to popular conservative entertainments, like the *kabuki* stage (歌舞伎), a classical form of Japanese drama-dance), *misemono* was a window to profitable novelties (Markus 1985:499). The *misemono* ultimately offers an insight into the layers of interest in any given era. Although whaling was well-established, *Kujira* (鯨, whale) came to denote any sea monster the Edo showman wished to manufacture (Markus 1985:527).

One of the earliest records of *misemono* on the Ryogoku Bridge in Edo described two beached whales of almost 10 metres in length on display in 1734 (Markus 1985:509). In 1851, a baby whale carcass was transported to Okuyama from Kamakura for exhibition (Markus 1985:527). While whale *misemono* likely occurred in cities closer to where the whale had been

found, it is unlikely that these exhibitions had occurred in and around whaling villages. The practice of *passive whaling* remained an essential component of the industry, and thus, beached whales would have been claimed by local whaling groups (Arch 2018:133). Likewise, the consumption of whaling narratives on *emakimono* was exposed to similar biases.

When viewership of the *emakimono* is digitalised, additional tools that can aid consumption can be introduced. While the modern audience has some (or access to) knowledge of whaling, cetology, or marine mammal science, much of the traditional processes of whale hunting and its accompanying customs are left much to the imagination. Few would witness intangible heritage and traditions such as the Taiji festivals. With today's digital possibilities, applications such as Google Translate allow immediate verifications. The nature of digital museums provides a platform for using "zoom in/out" or "screenshots" to trace characters or the use of handwriting functions to mimic characters for translation that is otherwise not possible in the museum context. Following the same thoughts, methods accessible with some immediacy by the typical audience will be utilised and examined. In addition, it acknowledges that when language is lost, the imageries depicted become the main focal point; "when the nature of a tale corresponds to the lateral movement of an unfurling emaki, the scroll can offer a descriptive and aesthetically satisfying narrative, readable even without text" (Wanatabe 2011: 33).

As highlighted in section 1.1, previous studies are limited in examining artistic representations and material culture, especially in classical whaling and applications of amitori-hō. This research aims to assess the digital landscape and how data collected can examine the relationship and reliability of classical whaling art represented in narrative art. The emakimono has an elastic "shelf life"; ergo, interpretability and viewership surpass the time and space it was composed. Reliability, however, can be challenging to measure.

### 1.4.1. Terminology

*Table 7. Terminology*

| Term | Definition/Concept |
|---|---|
| Amitori-hō | Net whaling method |
| Art | Expression or application of human creative skill and imagination, typically in a visual form such as painting or sculpture, producing works to be appreciated primarily for their beauty or emotional power |
| Digital Landscape | The literal space or dimension in which humans occupy digital space |
| Digital Maritime Cultural Landscape | The conceptual framework that reflects the layers of maritime culture and its heritage as to be present on the land, underwater and digitally |
| Digital Museums | A digital platform that publishes information about museum objects and events |
| *Emakimono* | lit. picture scroll |
| Koshiki hogeigyō | Classical or traditional whaling in Japan |
| Material culture | To include the practice, consumption, invention, and trade of objects and the behaviour, customs, and rituals that the objects construct, or part take |
| Preservation | The new cultural norm is associated with digitalising narrative art and ways to preserve them. |
| Reliability | The extent to which the viewer can interpret and consume the digitalised materials presented, keeping the material and their tradition intact against factors that may alter them |
| Tokugawa Period | The period between 1603 and 1867 |
| Whaling | The Passive or active hunting of whales, dolphins, and porpoises |
| Whaling Culture | shared knowledge and beliefs transmitted to succeeding generations through a traditional socialisation process |

## 1.5. CASE STUDY SUMMARISED

From Kujira Digital Museum by unknown, 2017, (https://kujira-digital-museum.com/en). Copyright 2017.

*Table 8. Summary of Case Study*

| | |
|---|---|
| SITE | Kujira Digital Museum or Taiji Whale Digital Whale Museum |
| OBJECT | The Kishu Taiji-ura Great Whale Fishing Map (KTGWFM) |
| TYPE | *Emakimono* (絵巻物, lit. picture scroll) |
| YEAR | 1862 |
| PAINTER | Unknown |
| DESCRIPTION | "Minute brushwork depicting a humpback whale caught in nets being harpooned by whalers, followed by scenes of warehouses located on Mukajima Island, across the bay from the flensing beach and the village shrine. Nets, harpoons, casks, boats and other gear were crafted, none of which were depicted in other Taiji scrolls. The scroll still holds vivid colo[u]r probably due to being copied relatively recently." (Kujira Digital Museum 2017) |

## 1.6. THESIS OUTLINE

The remainder of the thesis focuses on aligning the research objective. Chapter two will position the research project with in-depth historical background on the rise of whaling and its industry in Japan, including the five stages of whaling as prescribed by Kazou Fukumoto (1993). An emphasis will be placed on the Tokugawa government and the *amitori-hō* to situate the scenes depicted on the emakimono. In addition, it introduces the *Digital Maritime Cultural Landscape* conceptual framework and examines existing literature on (1) Maritime Cultural Landscape, (2) cultural preservation and (3) material culture. Chapter three will highlight the research design and methodologies employed in the research. The different stages, procedures, timelines, and limitations will be outlined. Chapter four will present the results. Chapter five will analyse the findings in chapter four, reflecting on the thesis objective defined in chapter one.

# Chapter 2: Literature Review

This chapter begins with a historical background (section 2.1) to position the complexities and elasticities of the Japanese whaling narrative, acknowledging that the vastness in the fabric of discourse cannot be covered entirely. The five stages of whaling, as theorised by Kazou Fukumoto (1993), are further elaborated (section 2.2), and much attention should be made to Stage Three (section 2.2.3). The proposed conceptual framework, the *Digital Maritime Cultural Landscape,* is elaborated on in section 2.3.

Section 2.4. reviews literature on the following topics: Maritime Cultural Landscape (section 2.4.1) as introduced by Christer Westerdahl (1978) and material culture and preservation (section 2.4.2); 2.4.3). Section 2.5 summarises the literature review and discusses the literature's implication parallel to the proposed conceptual framework.

## 2.1. HISTORICAL BACKGROUND

Whales are viewed as blessings from the sea gods; no part of the whale is wasted (Itoh 2018:14), having been in the narratives of Japan for hundreds of years. Cultural biographies dispersed throughout historical archives, such as whaling business records, illustrated scrolls, scientific and natural history writing, literature, monuments, artefacts, and religious texts. Many are ethnographic riddles offering only a glimpse into the beauty of whaling culture and heritage, at least in the English-speaking world. Much of Japanese identities are shaped by religious beliefs and rituals. So too, are their maritime practices (Kalland and Moeran 2010:144), giving life to cultural ethos and intricacies well worth exploring.

Much emphasis can be made on the cultural impacts within communities around Japan. Like the western whaling industry, whale oil was extracted from the blubber. In Japan, oil was produced with boiled ground bones. The oil was used as fuel for lanterns, lubricant for tools, and on walls and rice fields as insect-repellent (see *Whale Oil Pesticide: Natural History, Animal Resources, and Agriculture in Early Modern Japan* (2015) by Jakobina Arch). The ground bones were further worked and used as fertiliser (Itoh 2018:14). Its synchronicity with maritime culture is embedded in these depictions of Japanese daily life.

The significance of whale products thus travels beyond economic value for whalers. Baleen (or whalebone), for instance, is a non-perishable good that transformed much of the Japanese creative industry and philosophy. Baleen was used in producing various items, such as combs; signature seals; Shogi (所業, Japanese chess) tiles; details of string instruments; and notably *Karakuri ningyo* (からくり人形, automata puppet), which were manufactured between the 17th and 19th centuries (Kovacic 2018:577). The early sixteenth century cultivated an interest in karakuri by introducing European clockmaking technology (Yokota 2009:175). Artisans skilled in *karakuri* became clockmakers, and clockmaking techniques were applied to *karakuri* (Yokota 2009:177).

There are three main categories of *karakuri*: (1) *Butai Karakuri* (舞台からふり, theatre puppet) or *Shibai Karakuri* (芝居からくり, stage puppet). It was first popularised by clockmaker Takeda Omi (d. 1726), who staged the first *karakuri* show in 1662 in Osaka's Dotonbori district (Markowitz 2015:33). *Butai karakuri* were life-size puppets used in theatrical performances. As popularity grew, plays were explicitly written to satisfy the emerging genre. The movement and gestures of the puppets were influenced by *kabuki* and *Noh* (Markowitz 2015:33). The (2) *Dashi Karakuri* (Festive Float Puppet) was used during religious festivals and placed on multideck floats often depicting religious events (Markowitz 2015:32). The (3) *Zashiki Karakuri* (Tatami Room Doll) was home entertainment for feudal lords (Hornyak 2006:25). At the height of the *zashiki karakuri* was the *Chahakobi ningyo* (Tea-Serving Doll) (**Image 2**) and the *Yumihiki-doji* (Archer Doll) (**Image 3**).


*Image 2. Chahakobi Ningyo by Tamaya Shobei in the Heisei Era. Image from British Museum.*

The *chahakobi ningyo* could hold a teacup and move on its own towards a guest. Once the guest consumes the tea and returns the empty cup to the doll, it could turn around and return to the starting point (Yokota 2009:177). Clockmaking techniques and spring coils made from right whale baleen made the movement possible with a central propulsive cogwheel and long pins attached to the wheel carrying the feet, creating the "stepping" movement under the *hakama* (Hornyak 2006:23).

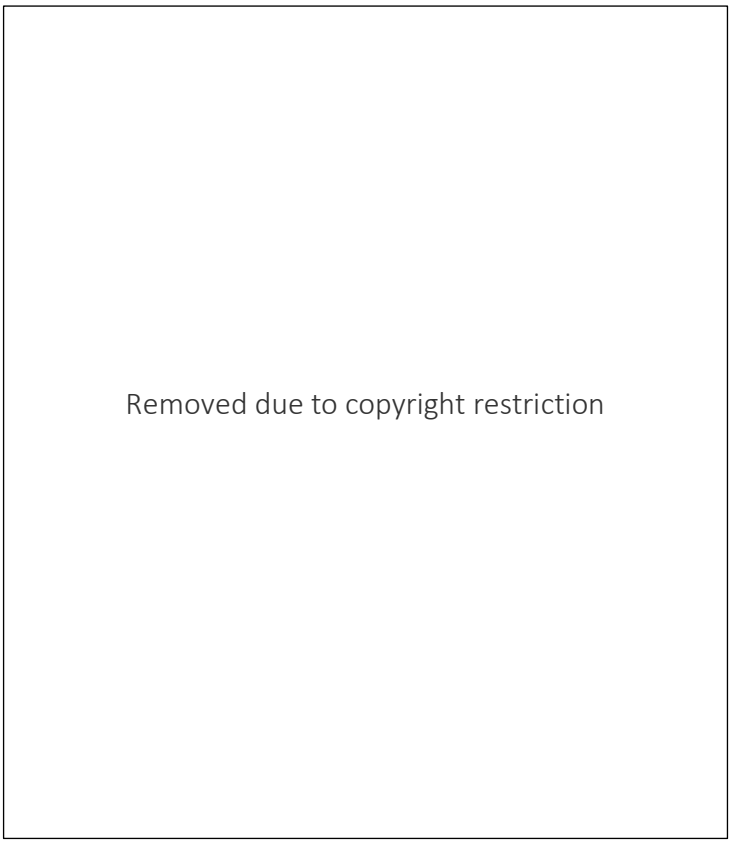


*Image 3. Yumihikidoji from the Pre-modern Japanese Science and Technology special exhibition "Toyota Collection" 2005. Image from Global Toyota.*

The *Yumihiki-doji* carried an arrow in its right hand and a bow in the left. The doll could draw an arrow, place it on the bowstring and turn to aim for the target in the distance before releasing the arrow. The Yumihiki-doji hits the bull's eye and repeats this process until all the arrows are used (Takeno 2012:7-8). The internal mechanism of the zashiki karakuri can be found in 18th-century publications, Kinmoukagamikusa (1730) by Tagaya Kanchusen and Karakuri-zui (1798) by Hanzo Yoriano Hosokawa

In parallel was the emergence of the *bunraku* (文楽, theatre puppet), founded in Osaka at the beginning of the 17$^{th}$ century. One-third of life-size puppets are movable in surprisingly

natural ways (Alland 1979:7). Much of it was owed to the use of baleen for springs in their head, allowing for movements in the eyes and mouths (**Image 4**) (Arch 2020:57-58). Three puppeteers operate *bunraku*, two are dressed in black robes with hoods, and the third is in a ceremonial dress and performs without a hood (Alland 1979:7). Baleen can also be decorative material on samurai armour, sword hilts, and more (Arch 2014:72, Itoh 2018:14).

The consumption of whale meat, too, has rich culinary and subsistence narratives. Japanese whaling culture, practices and legacies are vast.

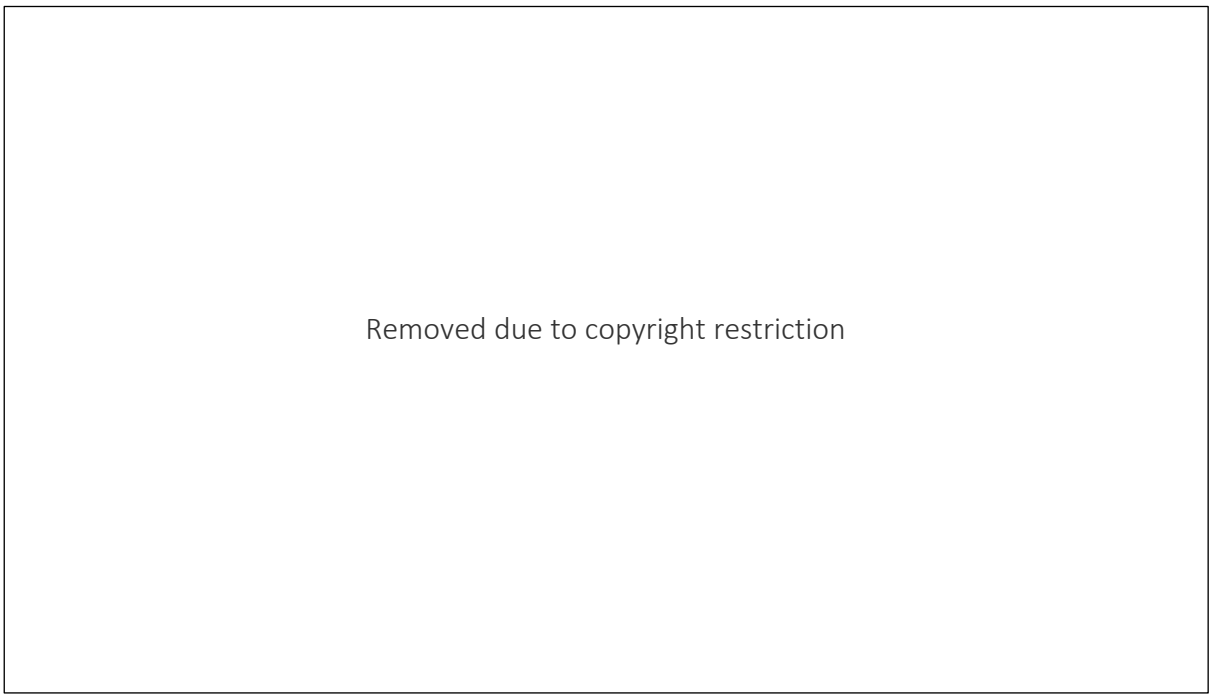


*Image 4. Wooden Bunraku puppet head (Left) for the character Bunshichi, with a movable mouth by Minosuke IV. Image from British Museum and Eizo and Matsu-o-maru-Bunraku (Right) 2nd edition by Sekino Junichiro in 1956. Japanese print depicting Master bunraku puppeteer Yoshida Eizo. Image from ukiyo-e.org.*

While this research magnifies a distinct region, period and medium of expression, it is acknowledged that Japanese whaling culture is intricate, interlacing, and diverse. When introducing the digital MCL discourse and its consumption, classical whaling culture and its heritage are a rippling and adaptive display. Therefore, investigating narrative art serves as a small example of the potential for future dialogue. To further understand the relationship between artistic representations and material culture, an introduction to Japan's whaling timeline is necessary:

## 2.2. Kazou Fukumoto (1993): The Five Stages of Whaling

In 1993, Fukumoto examined the history of whaling in Japan and divided the narrative into five distinct stages (Savelle and Kishigami 2013:23). The following section draws on the different stages and cultural developments that had shaped the prelude history leading to events depicted in the "Kishu Taiji-ura Great Whale Fishing Map". Finally, provide a brief description of modern whaling. While the section below demonstrates the vastness of the whaling heritage in Japan, it is not a comprehensive summary; the dialogue is far richer.

### 2.2.1. Passive (Stage 1)

The first stage, *passive whaling*, was the consumption of dying and beached cetaceans, sometimes called *stranding.* Occasionally technology such as bows, arrows, spears and, in some instances, nets was used. Passive whaling can be traced back as early as ancient Japan (Takahashi et al. 1989:107).

***Jomon People***

The Jomon period (ca. 14500- 300 BCE) is long and culturally diverse, constituting the non-agricultural Neolithic period in Japan. The Incipient Jomon period (ca. 14500-8000 BCE) marks the period's beginning, highlighting the transition between Palaeolithic and Neolithic cultures occupying the northern island of Hokkaido, southern Ryukyu and the east-central and eastern Honshu. After gradual climate warming and rising sea levels, the southern islands of Shikoku and Kyushu were separated from the main islands of Honshu (The Metropolitan Museum of Art 2002). Here, the Initial Jomon period (ca. 8000-5000 BCE) saw an increase in subsistence from the sea (shellfish gathering, fishing), hunting on land, gathering plants, fruits and seeds, and seeing the initial stages of stone tools, including knives, axes and grinding rocks (Naumann 2000:10). The presence of shell middens and dugout canoes signals the Early Jomon period (ca. 5000-2500 BCE), whereby a high percentage of daily subsistence relied on catch from the ocean (Naumann 2000:13). By the Middle Jomon (ca. 2500-1500 BCE), people were sedentary for extended periods and lived in larger communities, where fishing, hunting, and gathering nuts, berries, and mushrooms increased. The deceased was also buried in shell mounds, suggesting a rise in ritual practices (The Metropolitan Museum of Art 2002). Following are the Late Jomon (ca. 1500-1000 BCE) and Final Jomon (ca. 1000-300 BCE) periods.

*Mawaki Iseki*, modern-day Ishikawa, is one of the largest Jomon archaeological sites with over 4000 years of occupation (Naumann 2000:65). The Mawaki site is positioned behind a small cove on the Noto Peninsular overlooking Toyama Bay and bordered on three sides by mountains. The shell midden on the site had two hundred and forty-six individual dolphin skeletons in a single context, along with stone tools inferred to be arrowheads, knives, and scrapers. The archaeological material suggests small-scale spear hunting of pods that had strayed into the inlets or dolphins driven into bays with a net and spearing ashore (Cooke et al. 2016:734). The Pacific white-sided dolphin made up 60% of the remains, with an outstanding percentage from common and bottlenose dolphins (Cooke et al. 2016:734).

***Ainu People***

The Ainu are an ethnic indigenous group distinct from the Japanese. Ainu lived only in northern Japan, encompassing the Kurlie Islands, Sakhalin, and North-Eastern Honshu (modern-day Hokkaido). The sea was of great importance to the Ainu, and it presented opportunities for a harvest that was not available on land, including food sources from stranded whales to fishing and hunting marine mammals and opportunities for trading expeditions (Ashkenazi 2003:239).

Archaeological records, folktales, songs, and dances highlight the importance of *Humpe* (whales) and whaling to the Ainu people, much of which echoes narratives and evidence of passive whaling. *Atuy-kor Kamui* (or *Repun-kamuy*) is an Ainu folklore about the God of Sea (or the Killer Whale God) (Fitzhugh and Dubreuil 1999:47). *Kamuy* can be translated to "god" or "spirit" (Fitzhugh and Dubreuil 1999:272). The tale goes (as summarised from Ashkenazi 2003:238): the young *Repun Kamuy* harpooned a whale, and her young and generously hurled them ashore by a village before heading home. A sea wren came to *Repun Kamuy* with the gossip that people were cutting up the whale using sickles and axes – inferring that the people were not showing proper respect to the whale nor the god himself. The whale god laughed this off and proclaimed that the meat now belonged to the humans, and they could do as they wished. However, he soon discovered that the sea wren had lied. The humans were cutting up the meat with their sacred swords and adorned in their finest attires- showing their respect for the gift from the sea. A winged *Inau* appeared in front of the god, offering a metal goblet of wine sufficient to fill six barrels and the grateful prayers by the humans.

*Repun Kamuy* organised a feast and presented gifts to fellow deities, confirming his eminent status and assuring the humans that the sea's bounty would keep them from famine.

Another tale that suggests passive whaling is *Humpe Kamuy Ifunke* (a lullaby of the whale god), which recounts the story of the Whale God who desired to marry a human (Fitzhugh and Dubreuil 1999:237). The god took on the form of a human and promised villagers an amble delivery of whales to their shore if he were permitted marriage to a local woman. As he promised, following the marriage ceremony, the village was blessed with stranded and beached whales. In the 20th century, Ainu oral tales (or chants) by Chiri Yuki (1903-22) were transcribed by Japanese linguist Kindaichi Kyousuke (1882-1971) (Strong 2011:2). *Towa towa to* "The Fox Sings About Himself" was one of the tales. In this chant, traditions following the harvest of beached whales are recounted. From the *Ainu shin'yoshu (*アイヌ神謡集) (1978) by Chiri Yukie (64-82):

“Towa towa to
Shineanto ta armoisam un nunipeash kusu sapash.
Shumatumu chashchash, towa towa to
nitumu chashchash, towa towa to
sapash kor shietok un inkarash awa
armoisam ta hunpe yan wa
ainupitoutar ushiyakko turpa kane
isoetapkar iso erimse ichautar irurautar
utasatasa nishpautar isoeonkamip
emush ruikep armoisama kokunnatara,
chinukat chiki shino chieyaikopuntek.”

狐が自ら歌った謡「トワトワト」
トワトワト
ある日に海辺へ食物を拾いに
出かけました.
石の中ちゃらちゃら
木片の中ちゃらちゃら
行きながら自分の行手を見たところが
海辺に鯨が寄り上って
人間たちがみんな盛装して
海幸をば喜び舞い海幸をば喜び躍り肉を切る者運ぶ者が
行き交って重立った人たちは海幸をば謝し拝む者
刀をとぐ者など浜一ぱいに黒く見えます.

Following is an English translation by Sarah Strong, the chant based on the facsimile 1926 edition of the *Ainu shin'yoshu* "Collection of Ainu Chants of Spiritual Beings" (Strong 2011:193):

Lightly over stony ground, *towa towa to,*
lightly over woody ground, *towa towa to,*
I descended, and, looking, up ahead I saw
that on the beach a whale had come ashore
and all the humans, dressed in festive dark attire,
were dancing steps dances for joy at the sea's bounty, were dancing circle dances
for joy at the sea's bounty, while those cutting and those carrying meat
busily came and went, and with some elders offering prayers of thanksgiving to
the sea
and others sharpening blades, there were so many people that the shore looked
black."

The phrase *Isoeonkami* (は海幸) (line 9) refers to the sea's bounty, and *eonkami* denotes offering thanks (Strong 2011:206). Whales stranded on the shore are thus revered as spiritual beings or gifts from the sea. The Ainu chant shares a dance tradition where festival dresses were adorned, and in the direction of the open sea, prayers and thanks were offered.

The Stranded Whale Dance is performed during festive occasions and expresses magical thinking and thanks (Fitzhugh and Dubreuil 1999:222). The Ainu in the Shiraoi region dance is based on the folklore of a blind woman who had discovered a stranded whale on the beach. She ran to tell her village, and people would return with knives and baskets while singing songs and dancing to thank the god for the gift (Fitzhugh and Dubreuil 1999:222). The Ainu believed that the gods could hear their wishes to continue providing them with whales by performing respectful dances and rituals. The tradition continues today.

***Japanese People***

In ancient Japanese mythology, remnants of passive whaling or hunting stranded whales can also be found. In pre-seafaring Japan, subsistence living was limited to coastal waters. Hunting stranded and beached whales became an atypical and auspicious event. The rarity of a single whale can save a starving village by providing vast amounts of meat and bringing in

large schools of fish, and thus was considered a gift from the Gods. Whales came to be regarded as shintai (身体, embodied deities), and worship of Hyochakushin, "Drifting Ashore God" or Yorikami Shinkyo ", The Religion of the Visiting kami" appeared in coastal villages (Davisson 2013:6). Many indigenous gods as such became the foundation of Shintoism. The *kami (*神道, Shintō god), Ebisu (えびす), is one of the *Shichi-fuku-jin* (七福神, Seven Gods of Fortune), worshipped by fishermen and associated with whales that bring in an abundance of fish and protected fishers (Ashkenazi 2003:161).


*Image 5. Ebisu (17th-19th Century) woodblock print on paper. Image from Carnegie Museum of Art.*

Ebisu is depicted as a smiling fisherman often carrying a rod in one hand and the other a 鯛 *tai*, a Japanese sea bream – homonymous with *medetai* (めでたい, congratulations), thus, a symbol of good luck (**Image 5**) (Ashkenazi 2003:161). Ebisu is also referred to as the *marebito* (visiting deity) and *rusugami (*caretaker deity). The origin and worship of Ebisu vary depending on the region.

The Tokugawa period (1600-1868) saw the rise of sardine fisheries as one of the most important local industries in and around the port city of Hachinohe, Aomori Prefecture (Holm 2020:3). It was observed that whales followed schools of sardines to the coast in the early summers of this region. The belief was that the whales, which locals referred to as "Ebisu-sama", had intentionally driven the sardines to aid the humans. Hunting whales was, therefore, taboo, and only stranded whales were sought. It was understood that stranded whales had sacrificed their lives for humans (Holm 2020:3). The whales that had drifted due to weakness or separation from their

migration route were recorded as *Yori-Kujira* (stranded whales) (Matsuishi 2007). Hitomi Hitsudai, a botanist in the early Tokugawa Period (1603-1867), wrote:

> "Big whales, called *yori-kujira*, drifted ashore in the hundreds and died being dried by the sun, not able to return to the sea. It is reported that the villagers near the shore were delighted by this coming. People traded in whale meat [,] and officials of the provincial government became greatly rich. Sometimes, whales stranded after long rains and typhoons passed over the sea, carried by high waves to the shore. This means receiving gifts from heaven without exposing our lives to risk." From Matsuishi 2007.

*Kujira Haka* (whale graveyard) or *Kujira Ishibumi* (whale stone monuments) are commonly found where passive whaling is dominant, much of which is dispersed in varying parts of Japan (Itoh 2018). Other forms of memorials exist. For instance, in 1899 in Hiroshima Prefecture, local fishers who engaged in passive whaling donated a bronze statue to the shrine *Bon'onzan Jigen* Temple Taicho-in (Itoh 2018:140). The purpose of the figure was to pray for the souls of whales. Thus, it is known locally as *Kujira kan'non* (the Goddess of Mercy for whales) (Itoh 2018:140).

### 2.2.2. Active whaling (Stage 2)

The second stage, *active whaling*, saw the pursuit of healthy cetaceans (whales, dolphins, and porpoises) with more sophisticated hunting harpoons (Takahashi et al. 1989:107). The height of passive dolphin hunting spanned the later Early Jomon period (ca. 5000-2500 BCE) and Middle Jomon (ca. 2500-1500 BCE), around the present-day Noto Peninsula and Toyama Bay. *Higashikushiro* (Hokkaido) and *Tsugumenohauana* (Nagasaki) are archaeological sites that show evidence of hunting tuna and dolphins from boats in the open sea using harpoons (Cooke et al. 2016:734). By the Late Jomon (ca. 1500-1000 BCE), people migrated away from the mountains and closer to the coast as the climate began to cool (The Metropolitan Museum of Art 2002). There was a greater reliance on seafood, hence, the emergence of the toggle harpoon (**Image 6**), the earliest evidence of active whaling and deep-sea fishing techniques.

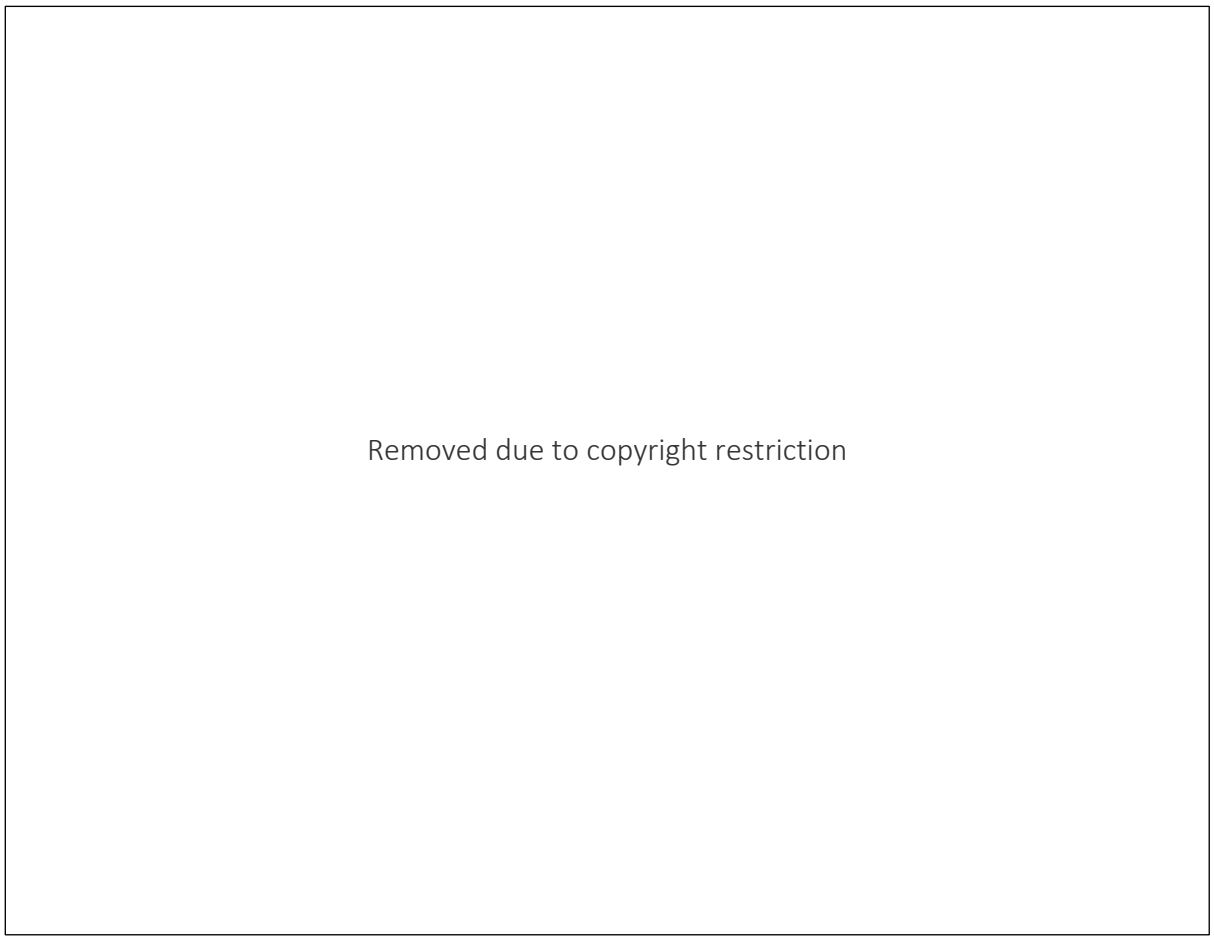


*Image 6. Toggle harpoon head from the Final Jōmon period. The instrument works by detaching from the shaft of the harpoon once it is stuck in an animal and remains attached to the shaft. Image from The Metropolitan Museum of Art.*

The first writing record of whales or whaling appeared in the 8th century. The oldest written record is in the *Kojiki* "Record of Ancient Things" (711-712). In *Emperor Jim-mu's* song "The Ukashi Brethern", as translated by Basil Hall Chamberlain:

> "The woodcock, for which I laid a wood-cock-snare and waiting in the high castle of Uda, strikes not against it, but a valiant whale strikes against it. If the elder wife asks for fish, slice off a little like the berries of the stand soba; if the younger wife asks [s] for fish, slice off a quantity like the berries of the vigorous *sasaki."*

"Ugh! Pfui! Dolt! This is saying thou rascal. Ah! Pfui! Dolt! This is laughing to scorn." (Chamberlain: (1912:148)

The use of "whale" follows the interpretation from Japanese scholar Tachibana Moribe (1781-1849), viewing *Isukukashi* as *makurakotoba* (pillow word) for whale (Chamberlain: (1912:148). Pillow words are a rhetorical device used in Japanese *waka* poetry; here, "whale" is rendered "valiant".

The Man'yoshu "Collection of Ten Thousand Leaves" (c.759) is one of the first Japanese poetic anthologies. From the collection, the *waka:* 'On Leaving his wife as he goes out from Iwami for the capital' mentions whales:

"isanatori umibe wo sashite
umibe o sashite
nikitazu no
ariso no ue ni
kaao naruo
tamamo oki tsu mo
asa hafuru
nami koso kiyore
nami no muta"

The literal translation for *isana* is "brave fish", referring to the whale, and tori is "to catch". Variations in the English translation of *isanatori*:

"Where I travel by the whale-haunted sea,
The wind blows in the morning,
And the waves wash at eve
The sleek sea-tangle and the ocean weed,
All limpid green." (trans. Nippon Gakujutsu Shinkokai 1940).

And

"…the wind, with morning wings,
And the waves, with evening wings,
Carryover those whale haunted seas,

To the desolate beach in Nikita harbour
Green, sleek seaweed…" (trans. Levy 1987)

Nippon Gakujutsu Shinkokai's translation of "whale-haunted" in the sense of the pillow word and Levy's translation is that of a more literal approach. Both suggest that some form of whaling appeared in the Nara Period (710-794) (Itoh 2017:2).

The method of hand harpooning in Japan is said to have originated in Morosaki in the Genki (era) (1570-1573). Villagers of Mikawa and Owari (present-day Aichi Prefecture) conducted hand harpooning in 7-8 vessel teams. In the Bunroku (era) (593-1596), Sukebei Mase, a skilled harpooner from Morosaki, migrated to Misaki, current Kanagawa prefecture, and began whaling. By the Keich era (1596-1615), the harpoon method was said to have extended to Katsuyama. The hand harpoon method continued to spread along the south coast of the Ise and Kumano districts and towards the western parts of Japan, including Shikoku and Kyushu (Omura 2012:58). Some of the earliest whaling guilds were organised in Owari, west of the current Aichi prefecture (1570-1573) and Ogawa Island, the current Saga prefecture (1594) (Itoh 2017:12).

With the coexistence of active and passive whaling, there was a rise in wounded whales and carcasses drifting at sea. Whales that had drifted ashore or were captured were often auctioned, with prices varied depending on size, species, and condition (Kalland 1995:182). The authorities saw two-thirds of the proceeding as tax while the remainder was distributed to the villagers where the whale was caught (Kalland 1995:183). However, the pursuit of whale carcases became problematic and sometimes led to fatalities (Itoh 2017:103).

At the end of the 16$^{th}$ century, active whaling of large whale species began and evolved into a large-scale industry. The movement saw the development of *kujiragumi* (鯨組, whaling groups) consisting of 400-1000 workers with complex structures. By the Tokugawa period (1603-1868), processing facilities blossom into large-scale whaling enterprises ushering in the era of *koshiki hogei* (古式 捕鯨, classical whaling) (Itoh 2017: 107). The three primary forms of cetaceans hunting included: (1) dolphin drive, (2) passive whaling and (3) active whaling. Fishers hunted dolphins and drifted whales within their village's territories.

Dolphins were regarded as common property and shared equally within the village. While drifted and beached whales were the property of the domain authorities (Kalland 1995:181). Active whaling was conducted by organisations that employed people from all over the country and would often move from one domain to another. Any method utilised was the intellectual property of their respective whaling group (Kalland 1995:181).

The Tokugawa period was over 200 years of spectacular breadth and character. The period encompasses unparalleled cultural prosperity, with which the average person also took part in leisure pursuits and had an active role in the establishment of new cultural forms (Matsunosuke 1997:8). The four major classes of the Tokugawa society were, *Shi-No-Ko-Sho,* representing the samurai, farmer, artisan, and merchants. The gap between the samurai class and the others was large. The land was significant in the fabric of Japanese society; however, it was the revenue from rice and not the direct ownership of land that determined power. A monetary economy was not established until the middle of the Tokugawa period. Consequently, farmers were placed second as they paid rice tax; however, they were not as respected (Kim 1961:128). In parallel to the transformation of coastal whaling were political possibilities for non-military competition within the global imperial context.

Tokugawa Japan was politically centralised, with the *Bakufu* (central government) holding complete power over the local government. The feudal society offered land to the *daimyo* "(feudal lord)*,* who then thus pledged loyalty to the *shogun.* Defiance was met with harsh punishment, often *seppuku*, or termination of the family (Kim 1961:127). The Tokugawa political doctrine was adopted to justify Tokugawa Ieyasu's legitimacy (Kim 961:130). The instrumental school of thought was Neo-Confucianism, upheld as orthodox throughout the Tokugawa period with minor alterations (Kim 1961:127).

In 1606, Yorimoto Wada, head of the then powerful clan, established five whaling guilds in Taiji (Omura 2012:58). With technical support from Denji, a harpooner from Morosaki and commercial support from Jiemon, a fisher from Sakai near Osaka, Yorimoto Wada commanded whaling operations in Taiji (Omura 2012:58). In 1618, Yokeiji, from Onoura, near Morosaki, a skilful harpooner, was employed and given the name *Hazashi* "Chief Harpooner" – a superior status to have achieved. Four major classical whaling bases were established: (1) Kishu Classical Whaling Base in Taiji, (2) Choshu Kitaura Classical Whaling Base in Kayoi on Omi

Island, Yamaguchi prefecture, (3) Tosa Classical Whaling Base in Muroto, Kochi prefecture and the (4) Saikai Classical Whaling Base in Kyushu (Itoh 2018:12).

As Japan evolved into an urban society, the class of wealthy farmers, artisans, and merchants arose (Crawcour 1874: 114, McNabb 2016:182). Economic developments reflected enormous agricultural and commerce growth (Ohno 2017:22). However, the gap between the samurai class and others remained large (Ohno 2017:24). In 1633, the *Sakoku policy* (鎖国, closed country) was established (Laver 2011:ix). The policy mirrored the traditional *Kaikin* (Maritime Prohibition) used in China's Ming and Qing empires (Laver 2011:1). The Sakoku policy was an effort for the Tokugawa government to choose, on their terms, with whom to trade based on Tokugawa's strategic political and economic goals (Laver 2011:2). As a result, the Tokugawa period cultivated preconditions for industrialisation and modernisation later witnessed in the Meiji era (1868-1912), including political unity and stability; agricultural development (cultivation and land productivity); development of transportation and emergence of nationally unified markets; the rise of commerce and wealthy merchant class; the surge of pre-modern manufacturing; the industrial promotion by local government and high level of education (Ohno 2017:23). Much of which parallel coastal industries and are reflected in the subsequent stages of whaling (see Kalland 1995: 307).

### 2.2.3. *Amitori-hō* (Stage 3)

In 1675, Wada Kakuemon, introduced *amitori-hō* (網取り法, net method), a more efficient netting method that involved driving slow-moving whale species, such as the Right whales (Balaena glacialis) and Humpback whales (Megaptera novaeangliae), into large nets in the open sea (Itoh 2018:12), marking the third stage of whaling in Japan. The method first utilised straw nets and was later replaced by hemp for sturdiness and efficiency (Omura 2012:58). Hemp was often sourced from great distances and in considerable quantities for preparation season (Takahashi et al. 1989:108).

A substantial amount of financial and human capital was required to run the operation successfully; as such, investments were provided by Osaka merchants, and skilled workers

often followed proprietors from one whaling ground to another (Takahashi et al. 1989:108). A system of sea tenure was developed whereby fishing communities had the exclusive right to exploit resources within allocated fishing territories (Takahashi et al. 1989:108). The establishment of the coastal whaling industry was thus an infringement of these rights, and the villages affected required compensation.

In 1992, Arne Kalland examined fishing villages in the Tokugawa period and divided the operation of *amitori-hō* into three stages:

***1. Preparation for the new season***

The *maesaku* (まえさく, New Season) typically begins in September with onshore preparations. The groundwork required sourcing artisans, labourers, and raw materials: (1) Funa daiku (boat-builders) replaced and built new boats, (2) women were recruited from neighbouring villages to make hemp ropes, and (3) approximately 30 *ami daiku* (網大工, male net-makers) and (4) smiths and coopers were recruited to make harpoons, knives, and repair work.

***2. The Hunt***

The official whale hunting season began once good weather and water conditions were observed. First, whales were scanned from lookout towers, often manned by five people. Once a whale had been spotted, a signal was sent to the land station. The signal included smoke signals, a colour flag, a stick semaphore and, on some occasions, the conch-shell trumpet blown. A black banner with a white stripe down the middle indicated a sighting of a female right whale and her calf – hunting these were strictly forbidden. In regions where lookout points were unavailable, search boats were used in their place.

Under the command of a *hazashi* (刃刺, expert harpooner), ten to twenty *seko bune* ( 勢子船, hunting boats) with a crew of twelve then pursue the whale. The *seko bune* was divided into three groups surrounding the whale. The oyaji (親父, chief harpooner) led each group and, by banging on the shafts of their oars with mallets, herded the whale into the desired direction. Simultaneously, skaisen (net boats) and *amistuke-bune* (assistant boats) lowered nets under the direction of the *mito-oyai* (commander-in-chief) (Takahashi 1989:109). The whale is driven into nets vertically in the water.

Once exhausted from being entangled, the whale was harpooned by the crew on the *seko bune* with *ken kiri* (剣きり, harpoons). A financial reward was given to the first harpooner to spear the whale. Subsequently, a harpooner climbed on the whale's back, cut a hole near the blowhole, and threaded a rope to secure the whale. Only after would a crew member dive under the whale with ropes to tie the whale to two beams laid between two boats serving as *mossō bune* (持双船, floats). The whale is finally killed with a sword and towed to shore by the mossō bune. In contrast, the seko bune prepares to chase other whales spotted in the area.

### *3. Whale Processing*

Whale processing was carried out on land stations: nayaba (納屋場, working sheds/barns), winches, living quarters and offices. The layout of the land stations may vary from one whaling ground to another. However, the stages of processing the whale were standardised. The whale was hauled from the sea onto the beach using a man-powered rokuro (winch) (Takahashi et al. 1989:110). Subsequently, the winch strips the blubber from the whale, starting the uo kiri (魚断, main flensing) process. Uo kiri (lit. fish cutting) involved rough hewing of the carcass and concurrently separating the blubber from the meat. Uo kiri was followed by naka kiri, (中断, middle cutting), whereby the meat and blubber were cut into pieces. Skilled flensers conducted the flensing process on the beach before transporting the meat, blubber, and entrails into working sheds to cut further. The net method thus demanded more human resources and fishing boats. The five whaling groups in Taiji consolidated into one led by Wada Kakuemon (Omura 2012:59).

Believing that the blessing of the sea is for all, Kakuemon shared his technique. As Japan progressed into times of peace, Confucius's philosophies and earlier warrior codes evolved. Loyalty no longer meant to die in service. Instead, the devotion of honest service to the lord was viewed almost as worthy (Kim 1961:135). Kakuemon's actions were atypical for the time as sharing specialised skills and techniques with outsiders was regarded as unlawful (Itoh 2018:94). Despite this, the net method swiftly dispersed throughout most of southwestern Japan. Mitsuda Tokugawa, the second lord of Kishu province, granted Kakuemon the surname 'Taiji' and the privilege to carry samurai swords (Itoh 2017:38). Wada Kakuemon came to be known as 'Taiji Kakuemon' and remained revered as the founder of

whaling till this day (Itoh 2017:95). Variations of the harpoon and net method dominated the Japanese whaling industry until its demise in the nineteenth century (reference, Itoh 2018:12). In Taiji, the net whaling method collapsed following the death of 111 whalers in 1878 (Takahashi et al. 1989:111).

### 2.2.4. American Method (Stage 4) and Modern Whaling (Stage 5)

It was not until the early 19th century that whaling boats from western powers began exploiting the rich whaling grounds of Japanese waters (Takahashi et al. 1989:110). The use of the net method became less effective with the rapid decline of whales, and thus to compete, Japan had to modernise their whaling techniques. Therefore, the fourth stage of whaling in Japan saw the introduction of American whaling methods that employed handheld guns and bomb lances.

In the late 1860s, Svend Foyn's invention and commercialisation of the whale harpoon cannon (Leiren and Sjåvik 2019:306) marks the beginning of modern whaling. It was not until 1890 that interest in the Norwegian Whaling method peaked, and it was first active in Arikawa in 1897; however, it failed. Two years later, Oka Juro travelled to Tonseberg, Norway, to study the method. By 1899 Toyo Hogei company was established (Takahashi et al. 1989:110) and involved employing Norwegian gunners and charting boats from Norway. During the Russo-Japanese War (1904-1905), new Russian charter boats were captured, permitting Toyo Hogei to start catching whales in the waters of Aykawa, Miyagi Prefecture, in 1906 (Takahashi et al. 1989:111). Much success led to the fifth stage of whaling in Japan and the beginning of modern Japanese large-type coastal whaling.

As illustrated in the Historical Background, Japanese whaling culture is intricate, interlacing, colourful and diverse. Japanese whaling and heritage continue to evolve. When digital humanities and cultural spaces are introduced into the existing narrative, it should be acknowledged its fabric is only minimally touched.

## 2.3. CONCEPTUAL FRAMEWORKS

The research proposes the *Digital Maritime Cultural Landscape* framework, where the *maritime cultural landscape* (Westerdahl 1992) (further elaborated in section 2.4.1) is

adapted to include the digital landscape—arguing that the digitalisation and consumption of information belonging to maritime practices and heritage, the use of digital aid (such as augmented maps) and the assistance from the digital world, regardless of nature, to support any range of maritime economies or mariculture is an extension of the maritime cultural landscape, albeit within the digital topography.

The term “digital landscape” has been used in various industries and has multiple definitions or assumed meanings. The digital landscape in this research does not refer to the digital mapping of archaeological sites or heritage as seen in geographic information systems. It is not to be confused with digital literacy in archaeology, or digital archaeology, where information and digital media applications such as photography, 3D reconstruction, and virtual reality aid archaeological investigations. Nor does the proposed *Digital MCL* refer to the archaeology of digital environments (i.e., software) (see Reinhard 2019).

Instead aligns itself with the literal space or dimension in which humans occupy “digital space”, referring to the contents displayed on the screen of a digital device inhabiting the “digital environment”, a place or context enabled by technology or digital devices that offers records and evidence of individual interactions, leaving a “digital footprint” as humans do in the sea or land.

Digitalisation has transformed the way humans work, think and live. The digital landscape is a dimension within the public sphere synonymous with the ever-changing “digital culture”. The forum to which comments on how the concept of technology and the internet have shaped how humans interact is ample. The digitalise materiality of interest in the research is Japanese narrative art. The research perceives the *Digital Maritime Cultural Landscape* as a physical space where ethnographic studies and archaeological applications can be adopted.

It configures methodologies to examine the relationship between material culture and preservation, exploring the consumption and customs constructed to preserve the interaction between heritage material and their new cultural context, ergo, the digital landscape. The traditions belonging to the digital context, such as translation applications and how this alteration influences the “art” or its interpretation compared to traditional viewership, are to be examined. In parallel to the reliability of materials by identifying what it means to keep the material culture and their new traditions intact within digital culture and the factors that may

alter them. Furthermore, question the extent to which consumption can be considered an active act of cultural preservation.

Finally, the framework allows for exploring archaeological methods that can be embraced in the digital space to define the Digital Maritime Cultural Landscape and its parameters.

## 2.4. REVIEW OF LITERATURE

### 2.4.1. Maritime Cultural Landscape

In 1978 and 1980, Christer Westerdahl first introduced the term *Maritime Cultural Landscape* as a need for a scientific term for the unity of remnants of maritime culture on land and underwater arose (Westerdahl 1992:5). Gradually, the analytical perspective was stretched to comprise physical aspects of landscape and seascape. Seascape denotes the construction of factors that allow an individual to perceive location, such as stars, currents, birds, clouds, winds etc. (Ford 2011: 4), which means analysing the culture of maritime peoples within a spatial context. As such, it encompasses ethnography and maritime history examined parallel to artefacts or past naval systems, including (but not limited to) shipwrecks, roadways, modified rivers, warehouses, regulations etc. (Ford 2011:19).

Between 1978 and 1982, Westerdahl recorded an inventory of maritime landscape in Northern Sweden, combining oral and written archives on the various genre of material remains, including sites that were systemised and registered on maps, such as shipwrecks installations at harbours, remains of campsites used during seasonal fishing. Westerdahl recorded place names as immaterial remains, collected through oral statements, highlighting the fragmented value of belief that contained a key to more profound understanding, proposing that maritime cultural landscapes are “landscapes of maritime culture and maritime communities” (Westerdahl 2011:291-2), ergo, to include intangible heritage such as the cognitive boat (boat to denote landscape), rock art, land animals on ships, oral traditions and place names, the ritual landscape at sea and requirements of oral society. A thought that too can be observed in the contemporary digital context. Arguably, digital culture offers access to immaterial remains embedded in the different ways different communities communicate, consume information and live. Rapid shifts in technological advancement and trends make it challenging to identify alterations in digital culture, and it is difficult to see

intangible culture materialises in time. Much discourse on digital culture and its influences are made in retrospect, not unlike the reconstruction of fragmented archaeological landscapes or shipwrecks. Perhaps like place names, digital museums and online library archives will, too, one day become intangible localities. If such a concept were to have some form of influence in mariculture, would it not be an extension of the maritime landscape?

Ben Ford (2011) elegantly surmised landscape to exist at the intersection of culture and space, neatly wedged between disciplines of history, geography, and archaeology (Ford 2011:1). Emphasising that "space is a medium for human activities and does not have cultural significance apart from that activity" (Ford 2011:1), a space that remains constant. Until humans make space a place, it does not exist anthropologically. Places are determined by cultures, while cultures are influenced by their space, all of which shift through time, forming culturally distinct and overlapping landscapes within a geographic region (Ford 2011:3). However, reconstructing the archaeological landscape is challenging, requiring collaborations between current communities, historical archives, and the archaeological record (Ford 2011:4). Concepts that are also apparent within the digital world, through online spaces and communities, such as digital maps, social media, forums etc., eventually get buried, erased, or replaced by new apps, innovations, and trends – otherwise known as culture. If a digital space acknowledged a role in the maritime economy or advancements, would it not be an extension of the maritime landscape?

"Regardless of whether the landscape is viewed as a document or a mirror, culture is alive in place and written on space. In ways large and small, the landscape stores and conveys culture" (Ford 2011:3). The digital space thus aligns with the literal space or dimension in which humans occupy "digital space". Refers to the contents displayed on the screen of a digital device inhabiting the "digital environment", a place or context enabled by technology or digital devices that offers records and evidence of individual interactions, leaving a "digital footprint" as humans do regardless of the sea, land, or even outer space.

### 2.5. SUMMARY AND IMPLICATIONS

Japanese whaling ethos and heritage are immense; however, few works of literature (in English) are dedicated solely to the discussion of *amitori-h*ō (net method) when examining classical whaling practices or economies from Tokugawa Japan (1603-1867). When *amitori-*

*hō* is discussed, and little to no primary works or material culture is cited, making it a worthwhile research theme or case study. Existing literature focussed primarily on whaling culture, the knowledge and beliefs transmitted to succeeding generations through a traditional socialisation process and the shared understanding of the relationship between humans, whales, and the environment" (Akimichi 1988:4-5). Japanese narrative art composed in the Tokugawa period (1603-1867) depicting classical whaling motifs is ample. However, the scope of discussion primarily resides within art history and, occasionally, scientific innovation. The *Digital Maritime Cultural Landscape* is proposed in this study. The framework extends Westerdahl's *Maritime Cultural Landscape* (1999) to include the digital landscape. The digitalised emakimono, Kishu Taiji-ura Great Whale Fishing Map (1862), will be examined in the archaeological discussion, addressing the relationship between art and material culture, cultural preservation, and reliability.

# Chapter 3: Research Design

Described in this chapter is the design adopted by this research to achieve the aims and objectives stated in section 1.3 of Chapter 1. To analyse the *emakimono*, Kishu Taiji-ura Great Whale Fishing Map (1864) and reflect on the quality of cultural preservation and reliability of digitalised illustrative manuscripts parallel to the *Digital MCL*. Section 3.1 discusses the methodology used in the study, the stages by which the methodology will be implemented, and the research design (section 3.2). Section 3.3 details the participants in the observation survey; Section 3.4 lists all the instruments used in the study and justifies their use; section 3.5 outlines the procedure and the timeline for completion of each research stage. Section 3.6 discusses how the data will be analysed; finally, section 3.7 discusses the ethical considerations of the research and its limitations.

## 3.1. METHODOLOGY AND RESEARCH DESIGN

### 3.1.1. Stage 1: Research Model Development

Stage 1 comprised the first stage of work to meet the research Aim 1 and entails identifying gaps in the literature on classical Japanese whaling. As specified in the earlier chapters, to explore the relationship between art and material culture, the central themes in the research will encompass the (1) amitori-hō technique in classical Japanese whaling from Tokugawa Japan, the (2) narrative literature device, emakimono and the (3) consumption of digital or digitalised cultural heritage. The core of stage 1 is to situate the research problem, historical background, themes, and gaps and define key concepts and frameworks to refine the research questions and methodologies.

Preliminary to a quality inquiry is archival research; it provides discourse to preceding literature and situates the contextual background. The existing literature examined in this research has offered much insight into the strengths and weaknesses of past studies, showing much elasticity in identifying gaps to develop the research questions. By acknowledging that the digital landscape is an extension of the human narrative, receiving the same treatment as where the human-land-sea relationship is concerned in archaeology, the research takes part in unlearning digital heritage. Any materials consulted or instruments utilised, such as digital

libraries and archives, in the Result Chapter are restricted to those that are freely accessible to the public. The databases consulted will not require any form of subscription (payment or university/organisation login); to imitate a general visitor of the Taiji Digital Museum, as would reflect audiences of any digital museum. To further comment on the quality of cultural preservation and reliability of illustrative manuscripts, particularly when the emakimono is removed from its context and reintroduced digitally.

Previous literature discussing Japanese whaling culture examined in this research offered a list of primary sources and terminology for further cross-examination. The observation acknowledges that while archival resources in the Japanese language are a limitation, the nature of the research project allows for the variable to be considered part of the research parameter. Where translation tools fail to deliver, further discussion and reflection are noted. Other limitations may include inaccuracies, fabrication, or the political agenda impregnated in the material. Archival and desktop research can also be time-consuming as information may not necessarily be relevant to the research.

### 3.1.2. Stage 2: Observation Model

Stage 2 comprises the 'digital fieldwork' to meet the objectives of Aims 2 and 3. Personal observation will be employed as an analytical tool, where the researcher will be the primary instrument, with results addressing (but not limited to) the following research questions:

- Q1. As material culture becomes digitalised, can it be argued that the maritime cultural landscape has too extended beyond land and sea? Therefore, to include the digital landscape.
- Q2. To what degree can digital viewership be translated into archaeological research methods? Moreover, what information do the gaps identified using said practices say about digitalising heritage?
- Q3. What is the relationship between artistic representations and material culture? To what extent is narrative art reliable in expressing and documentation?
- Q4. Does the digitalisation of narrative change the reliability of the artistic representation of material culture?

When visiting the Kujira Digital Museum, viewership of the KTGWFM will be recorded systematically, including a first impression of the scene viewed—conducting what can be characterised as a (digital) reconnaissance or pedestrian survey.

Indeed, the digital space is occupied by a magnitude of variables, as the digital environment is influenced by digital culture, ergo, consumption patterns. The factors may include the type of device, web browser, the number of tabs opened, social media distractions, notifications, etc. While acknowledging that the fabric of digital culture is dynamic, ergo, a controlled digital environment and space are needed for this research. The control variable for the digital space will include using a translation app on a mobile device instead of the browser. The Kujira Digital Museum will be the only tab opened on any device with the correct page displaying the KTGWFM.

When viewing an *emakimono* through a digital medium, the choice of the device cannot be ignored. Factors influencing perception can include monitor calibration, the ability to zoom in and out, screen dimension and resolution; each of these variables will be recorded. To better monitor the result, the viewing environment will be limited to (a) desktop or laptop and (b) mobile devices. The mobile device will be secondary with a scaled-down process. Only a selected scene will be examined on a mobile device.

Much comment can be made on the flexibility of viewing a digitalised *emakimono,* as in the ability to not adhere to the Japanese right-to-left reading system. The implications are perhaps too vast to be discussed in conjunction with this research. Therefore, adherence to the writing system is a controlled variable for the research. The *emakimono* is to be read one scene at a time by unfurling with the left hand and refurling with the right hand. The digital scroll will be pulled from right to left on the screen. Given that the device model and screen size are not controlled variables in the research, the website must be viewed on full screen to ensure reliable, valid results that reflect viewership. It must also be acknowledged that the Japanese reading and writing system may not be common knowledge.

The data assemblage will comprise qualitative and quantitative observations, allowing for implicit aspects to be shaped and explicit characteristics to be (re)interpreted and examined. The quantitative data are expected to be categorical variables in nature, and they may include nominal and/or dichotomous variables of a “yes or no” conclusion regarding available translations in correlation to applications used. Observations will be recorded

immediately to avoid memory biases that may lead to conforming to digital cultural expectations.

Personal observations, however, introduce ethical issues. Therefore, limits are established. While the research acknowledges the *Digital MCL* to be participatory by the public, the process of viewership using the personal observation method is driven by a researcher's perspective. It does not encounter observation where participants may exclusively overlook literary items with the sole acknowledgement of pictorial narrative. While this can be assumed, it cannot be added to the research result or discussion, and such enquiry would require a different research design, which is not the desire of this research. The research recognises that not employing a non-participatory method to observe other visitors and viewership is a limitation. The lack of multivocal participation means that various observation accounts, such as adequacy, resonance, innovation, integration, and efficacy, cannot be observed. To ensure that the digital landscape studied is not negatively affected by the information collected and written, the researcher does not claim that the research method and procedure are void of gaps. Instead, it is a parameter to ignite further conversations.

Translation apps will forward the research as a descriptive qualitative method; the collated results will observe Japanese whaling represented in narrative art and offer a quantitative visualisation of accessibility in the *digital maritime cultural landscape.* Translational apps reflect the relationship between language and audience in the digital scope, reminding the audience of the vital role of literary devices and culture in narrative art. Such language aspects become arguably elastic when the *emakimono* is removed from its original context. While the research may not necessarily pay close attention to the *Kotobagaki* (詞書, foreword), the collected results will offer insight into the potential viability of future research. An obvious constraint of using translation apps is that the writing system on the *emakimono* is old, and the calligraphic style may obstruct the app's ability to recognise and translate texts. However, the *Digital Maritime Cultural Landscape* means having access to tools that will aid immediate curiosities.

Two different translation apps will be used to limit bias. The criteria that they must be accessible on at least two of the three top (popular) operating systems:

Microsoft Windows, Apple macOS and Google Chrome OS. The research recognises that not being inclusive of all operating systems can be a limitation; however, having controlled variables are crucial to an efficient procedure that does not remove from the overarching discourse of classical Japanese whaling in art and material culture. It should also be highlighted that the research aims not to conjecture which application is superior but to ensure diversity of digital environment and space, as it would reflect the diversity of viewership. Likewise, the applications must be accessible and, thus, do not require any form of subscription, including student or organisational logins.

1. Google Translate

Google Translate can be used on a web browser or as an app on a mobile device (available on Android and Apple). The Japanese language is pivotal in the research; **table 9** summarises the available features on Google Translate for the language. The features of use in the research include Type, Write, Snap, Chrome, and See (highlighted).

*Table 9. Google Translate features for the Japanese language*

| Google Translate | |
|---|---|
| Feature | Description |
| Chrome | Automatic, instant web page translation |
| Listen | Hear how to pronounce the translation on a phone or computer |
| Offline | Get text translations without a data connection |
| See | Use your phone's camera to see instant translations |
| Snap | Translate images of text in a different language |
| Speak | Say a word or phrase and see the translation |
| Talk | Have a bilingual conversation |
| Type | Use of keyboard |
| Write | Draw letters or characters using finger |

Noteworthy feature: Photo translator works fast and can offer instant translation.

1. Naver Papago

Papago is a translation app developed by Naver, a Korean search engine. It was developed considering the complexities of East Asian languages (Korean, Chinese and Japanese). The translation app is currently available for Android and Apple iOS smartphones. **Table 10**

summarises the available features of Papago for the Japanese language. The features of use in the research include Dictionary, Handwriting Translation, Image Translation, Text Translation and Website Translation (highlighted).

*Table 10. Papago features for the Japanese Language*

| Naver Papago | |
|---|---|
| Feature | Description |
| Conversation translation | Simultaneously speak in each other's language |
| Dictionary | Check additional meanings other than the initial translation results |
| Edu | Creates notes of passes and words |
| Handwriting Translation | Finds the correct word and translate it when writing words using a finger on the device |
| Image Translation | Automatic recognition and translation of text in the image by taking a picture and pressing the button |
| Offline Translation | Can translate even offline |
| Text Translation | Real-time text translation for phrases and words |
| Voice Translation | Real-time voice translation to both text and audio |
| Website Translation | Automatic translation for all content when including the URL of a foreign website |

Noteworthy features: A photo translator can be used when the phone is oriented vertically or horizontally. There is an option to manually highlight the word(s) of interest and allow zooming into pictures.

The accumulated results will be used in the second phase of the research, where past literature will be consulted and cross-examined to further comment on the relationship between art and material culture is further investigated.

### 3.1.3. Stage 3: Comparative Model

This stage addresses Aim 2 and 3 using a comparative study on a model case study addressing *amitori-hō.* The investigation aims to compare findings from past literature against observation from stage 2. Using the quantitative output of the available translated annotation and qualitative interpretation to reflect the relationship between material culture and preservation:

- Q1. How is emakimono traditionally viewed? Moreover, how does digitalising the material culture alter this experience?
- Q2. What qualities of traditional viewership can be preserved? And what are the reasons to (or not to) do so?
- Q3. Did digitalised materiality take away from the archaeological interpretation or add new insight?
- Q4. Which archaeological methods can be adopted within the *Digital Maritime Cultural landscape* framework? For the case study and otherwise.

The objective of the case study is to introduce the question of the viability of the *Digital Maritime Cultural Landscape* archaeological framework. Adopting:

- **Encompassing Comparison**; placing different instances at various localities within the same system to explain their character as a function of varying relationships to the system (Pickvance 2001:16).

By using an encompassing comparative model, draw out gaps and future queries and maintain a dialogue in the discussion of Japanese whaling.

### 3.1.4. Stage 4: Reliability Rubric Matrix

Stage 4 entails developing and using the evaluation tool, rubric matrix, to address Aim 2 and Aim 4. To examine the quality of cultural preservation and reliability of digitalised illustrative manuscripts. Utilising data obtained from stages 1 to 3 contextualised the relationship between material culture and art. By scoring the reliability: the extent to which the viewer can interpret and consume the digitalised materials presented, keeping the material and their tradition intact against factors that may alter them. And the extent of preservation: the new cultural norm associated with digitalisation of narrative art and ways in which to preserve them.

### 3.1.5. Stage 5: Analysis

The objective of stage 5 is to address all the aims and questions outlined in chapter 1. Throughout stages 1 to 4, qualitative data is generated through past literature, archival documents, and observational notes, with some inferences from quantitative observations.

Qualitative data, while unstructured, offers more depth than quantitative data, thus, supporting in formulating queries and building understanding. Incorporating:

- **Grounded theory**: where the research case study and topic are approached by formulating an interpretation and framework with a single case study. The discussion of *amitori-hō* depicted on the emakimono, KTGWFM (1864).
- **Content Analysis**: Patterns (in this case, terminologies) are identified in past literature and observation of the emakimono by grouping terms, concepts, and themes to quantify the relationship of data. That is present in Japanese art and material culture.

Qualitative data analysis follows:

(1) gathering and collecting data (stages 1-2)

(2) organising and connecting data (stage 3)

(3) presenting data categorially and data analysis for insight (stages 3-4)

(4) reporting of the insights (stage 5)

### 3.2. RESEARCH DESIGN

The research is facilitated by a mixed-method design to build a qualitative and quantitative discourse for an immersive understanding of the research topics and their inquiries. The study adopts the maritime cultural landscape concept and adapts (or extends) the framework to that of a *Digital Maritime Cultural Landscape.* Acknowledging that Japanese whaling culture is elastic, the progression to the digital cultural landscape will remain uninterrupted, and so is the accompanying cultural narrative. By borrowing a framework from ethnography, collect data through Personal Observation.

By immersing into viewership, pay close observation to understand the context portrayed in narrative art. The intention is not to generalise; instead, as a researcher part of the digital community, collect as much data as possible. When describing and interpreting beliefs, social dynamics, and conventions of consuming the digitalised narrative art, the fabric of Japanese whaling and narrative art is not paused but instead stretched to the digital sphere.

The quantitative criteria were determined in advance, including collecting descriptive characteristics (translations) with some controlled variables to maximise data collection. The

controlled digital environment is synonymous with the proposed *Digital Maritime Cultural Landscape* to execute the field observation. Therefore, only items accessible (translated) will be further investigated to comment on the reliability of the emakimono.

### 3.3. PARTICIPANTS

The principal analytical tool will be personal observation, and the researcher (author of this paper) will be the primary instrument and participant.

### 3.4. INSTRUMENTS

The researcher is the primary instrument for data collection. The researcher first conducts archival research to situate existing frameworks. Once established, a (digital) reconnaissance or pedestrian survey will be conducted during the first viewing of the emakimono. The survey aims to locate and identify significant depictions in a defined area: the emakimono. First impressions of the scenes will be recorded, and numbering depictions (hereafter items or labelled items). Personal observation utilising translation apps follows; the translated annotation will be documented in a table. The step is repeated three times using two different translation apps and one time with viewership on a mobile device. Once all the possible data is collected, the comparative methods begin, including the use of collated glossary from existing literature against collected data.

Further, identify and define items only using information freely accessible online. The preservation, meaning cultural conservation of the digitalised object and its viewing process, is measured parallel to the reliability using a matrix scoring system. Reliability refers to how the viewer interprets and consumes the digitalised emakimono, keeping its material and tradition intact. The viewership (or consumption) of digitalised narrative art denotes material culture. Therefore, the extent to which consumption can be considered an active act of cultural preservation needs to be addressed.

### 3.5. PROCEDURE AND TIMELINE

The research is conducted over six months for a master's research project. The viewership of the emakimono on the Kujira Digital Museum is repeated three times, including using various translation applications to ensure a diverse digital landscape and experience. The controls were designed for alterations and to adapt future digital maritime cultural

landscapes and their enquiries, not limited to viewing narrative art in virtual reality museums, AI displays, gaming etc.

The reliability of the research is measured through (1) test-retesting, where the controlled Digital Maritime Cultural Landscape is observed a week apart to ensure consistency across time and limit translation bias. While there are controlled variables, the procedure should not be affected by the change of device or translation app used. This research aims to assess the digital landscape and potential ways to investigate a digital landscape archaeologically. The varied use of translation apps and the elastic digital environment facilitates (2) internal consistency. The results from each viewership should have a strong correlation. The high reliability indicates that the data collected are valid.

The procedure is divided into five stages:

### 3.5.1. Stage 1: Research Model Development

The procedure for stage 1 consists of preliminary archival and desktop research to situate existing frameworks and past literature. The results accumulated are influential in developing the research questions and procedures. The timeline of this stage is one month, and archival research will continue throughout the investigation.

### 3.5.2. Stage 2: Observation Model

Stage 2 of the study implements the conceptual frameworks of the Digital Maritime Cultural Landscape. Where the narrative material used to record human activity relating to the sea in Tokugawa, Japan, now digitalised, is recognised as part of the vast digital cultural landscape. The digital maritime landscape is the literal space or dimension humans occupy.

The process below sets up a controlled digital environment to examine the KTGWFM. The timeline for the second stage is approximately one month, dependent on the gaps for each observational break to avoid bias.

***Setting up the environment for desktop or laptop***

1. Open “Illustrations of Taiji Whaling and Whales” or 紀州太地浦鯨大漁之図鯨全體之図[1] on a browser of choice. The browser engine and language setting are not controlled variables to reflect the diversity and flexibility of the digital environment.

[1] https://kujira-digital-museum.com/en/categories/13/articles/24

1. Ensured that the Kujira Digital Museum was the only tab opened in full screen. The device type, model or brand, screen dimension, brightness, and/or other details that may alter the viewing experience should be noted. Therefore, identifying the digital space and environment and keeping records of factors influencing digital footprint.
2. Identify and divide scenes into relevant discussion topics: (1) whale species, (2) whale processing, (3) whale hunt, and (4) maesaku (preparations). Each scene will be ordered and read following the Japanese right to the left system, and only one scene at a time. As aforementioned, the *Kotobagaki* will not be examined.

***(Digital) reconnaissance or pedestrian survey***

3. Starting from the right of the emakimono and moving to the left, each scene is screen-captured and initial impressions are recorded. Significant features or items are labelled with a number, like reconnaissance or pedestrian survey. It is acknowledged that secondary items such as trees, buildings, and geological features are crucial in the narrative; however, they are not of focus in this research.

***Observational Surveying***

4. Ensure that translation apps are downloaded onto a mobile device that will be used for the viewing duration. Using only one of the translation apps, follow along and record the translation (where possible) corresponding to the item number in step four. Record data in a table format.
5. Repeat step five with the second translation app. Ensuring an appropriate gap (minimum of one week) between the observations to limit translation bias.

***Setting up the environment for mobile devices and tablet***

6. Open "Illustrations of Taiji Whaling and Whales" or 紀州太地浦鯨大漁之図鯨全體之図[2] on a browser of choice. The browser engine and language setting are not controlled variables to reflect the diversity and flexibility of the digital environment.

[2] https://kujira-digital-museum.com/en/categories/13/articles/24

7. Ensure that the Kujira Digital Museum is the only tab opened. Note the device type, model or brand, screen dimension, brightness, and other details that may alter the viewing experience.
8. Take a screen capture of a randomly selected scene depicted on the device in full-screen mode. Note if the emakimono is viewed vertically or horizontally on the device.
9. Repeat steps 3-4.

### 3.5.3. Stage 3: Comparative Model

Stage 3 is interested in the operations of the *Amitor-ho* techniques by comparing data collected from stage 2 to existing literature examined earlier in the research. This stage is to be completed sequent or in conjunction with stage 2 as an immediate reflection of the archaeological process.

### 3.5.4. Stage 4: Reliability Rubric Matrix

***Reliability Rubric***

Scoring the extent to which the viewer can interpret and consume the digitalised emakimono presented, keeping true to the material and their tradition. Four main qualities identified belonging to the traditional viewership of the emakimono are:

1. The expression of narrative in the Japanese language
2. Revealing only one scene at a time by furling and unfurling the *emakimono*
3. Adherence to the east Asian right-to-left reading and writing system
4. Interpretation of narrative using pictorials only as the cinematic quality of the emakimono

*Table 11. Reliability Rubric Matrix*

| VIEWING QUALITIES | HIGH | MEDIUM | LOW |
|---|---|---|---|
| Language | The script or annotation on the scroll is read in the original language and alphabet | The script or annotation on the scroll is read partially in a different language and alphabet than the original. Or partial avoidance of the script. | The script or annotation on the scroll is read in a completely different language and alphabet to the original. Or complete avoidance of the script. |
| Right-to-left reading system | Apparent adherence to the east Asian right-to-left reading and writing system | Some modification or confusion regarding when the scroll starts and ends; however, enough is presented to adhere to the east Asian right-to-left reading and writing system | Complete modification of viewership, meaning the scroll can be read or accessed from any point without context |
| Reading one scene at a time | Adherence to some form of viewership that mirrors viewing the emakimono only one scene at a time | Scenes are divided /obvious; however, more than one scene is shown at a time | Differentiation of scenes is not apparent, and more than one scene is viewed at one time, including viewing the entirety of the scroll at full screen |
| Interpretation of cinematic pictorial depictions | All scenes depicted can be interpreted and fully understood based on illustration only | Some scenes depicted can be interpreted and partially understood based on illustration only | No scenes depicted can be interpreted and fully understood based on illustration only |

***Preservation Rubric***

Scoring the cultural norm associated with the digitalisation of narrative art, meaning the potential of modern aid to preserve some function of traditional viewership. Addressing ways to ensure these new customs, traditions, or viewership remains intact. Identified for preservation relative to this research are:

1. Language
2. Reading/viewing scenes refer to the extent to which the emakimono is manipulated in the digital space to interpret the meaning of pictorial depictions or annotated scripts in Japanese.

*Table 12. Preservation Rubric Matrix*

| VIEWING QUALITIES | Effective | Somewhat effective | Ineffective |
|---|---|---|---|
| Language | Accompanied by professional translation in various languages without annotation, explanation or interpretation from the translator | Accompanied by professional translation in various languages with some annotation from the translator or use of a specialised application to aid manual translation | Use of everyday applications to aid and manually translate |
| Reading or viewing of scenes | No alteration to the emakimono displayed is made using digital tools to view and interpret scenes | Some alterations to the emakimono displayed are made using digital tools (such as zooming into items or taking photos to translate annotations) to view and interpret scenes | Alteration to the emakimono displayed is made using digital tools (such as zooming into items or taking photos to translate annotations) to view and interpret all scenes |

### 3.5.5. Stage 5: Analysis

Stage 5 will be conducted near the end of the research and addresses all the aims and questions outlined in chapter 1. Discuss the relationship between classical Japanese whaling and narrative art and how the digital landscape reshapes such narrative. Additionally, discuss further the viability and future of the *Digital Maritime Cultural Landscape* framework and what this could mean for the debate on Japanese whaling.

## 3.6. ANALYSIS

The data obtained from stage 1 (desktop and archival research) is weaved throughout the research paper reflecting patterns in available data, ergo, identifying gaps and potential archaeological enquires. Adopting grounded theory, where the research is formulated around the interpretation of *Amitori-hō* and the framework, *Digital MCL,* using a single case study:

Kishu Taiji-ura Great Whale Fishing Map (1864). Terminologies identified in existing literature and observations (stage 2) set the parameters for concepts and themes when analysing the relationship between Japanese art and material culture. Qualitative data from the digital reconnaissance survey and observation (stage 2) will be subjected to comparative studies (stage 3). The comparative model aligns (or partially adopts) the concept of Encompassing Comparison, where the first locality is established in viewership of emakimono (and related data) as belonging to the maritime cultural landscape. The second locality is the digital space, as outlined in the *Digital Maritime Cultural Landscape* framework. Stage 4 analysis uses a rubric matrix that entails clear criteria and standards for assessing the different variables of reliability and preservation of digitalised material culture to address the proposed framework.

## 3.7. ETHICS AND LIMITATIONS

While presenting itself as a constraint, the researcher's limited knowledge of Japanese reflects the reality of some viewership of the digitalised narrative art. The customs of consumption, ergo, cultural preservation, are thus opened for interpretation and assessment. As such, the parameters of the language barrier support the research design.

The second limitation of the research includes the lack of non-participatory and multivocal participation. The observational account is limited to a precise observation of the researcher. There are no various criteria to be used in the evaluation; however, as mentioned above, other controls are put in place to ensure non-bias of observation.

All materials used in the research are strictly open access and free of subscription.

# Chapter 4: Results

Chapter 4 will detail all the research results for Stage 2 to Stage 4. Stage 2 (section 4.1.) encompasses the digital reconnaissance and observation of the Kishu Taiji-ura Great Whale Fishing Map (1864) at the Kujira Digital Museum. The emakimono is divided into five scenes: (1) whale species, (2) whale processing, (3) whale hunt and (40 Maesaku (preparations). Partial results are indicated with a red question mark (?), unclear in blue and a white box if only one application detected translation. The instruments used in this stage can be found in **Appendix 1**. Stage 3 (section 4.3) entails the comparative model between past literature and observation from stage 2 to interpret the operation of *Amitori-hō.* Finally, Stage 4 (section 4.4) uses the reliability matrix to examine digitalised material culture's perseverance and reliability within the *Digital Maritime Cultural Landscape* framework.

*Table 13. Summary of Kishu Taiji-ura Great Whale Fishing Map (1862)*

| | |
|---|---|
| SITE | Kujira Digital Museum or Taiji Whale Digital Whale Museum |
| OBJECT | The Kishu Taiji-ura Great Whale Fishing Map (KTGWFM) |
| TYPE | *Emakimono* (絵巻物, lit. picture scroll) |
| YEAR | 1862 |
| PAINTER | Unknown |
| DESCRIPTION | "Minute brushwork depicting a humpback whale caught in nets being harpooned by whalers, followed by scenes of warehouses located on Mukajima Island, across the bay from the flensing beach and the village shrine. Nets, harpoons, casks, boats and other gear were crafted, none of which were depicted in other Taiji scrolls. The scroll still holds vivid colo[u]r probably due to being copied relatively recently." (Kujira Digital Museum 2017) |

All figures in the Result Chapter are accessed from Kujira Digital Museum 2017 History: Traditional Whaling in Taiji: Digital Archive of scrolls: List of scrolls: Illustrations of Taiji Whaling and Whales. Retrieved July 2021 – June 2022 from < https://kujira-digital-museum.com/en//categories/13/articles/24?zoom=24&x=0.29990215264187864&y=0.010692050768203072 >

## 4.1. STAGE 2: OBSERVATION MODEL (DESKTOP)

### 4.1.1. Whale Species (Scene One)


*Figure 1. Scene 1: Whale Species*

4.1.1.1. Whale Species

*Impressions:* Eleven cetacean species are depicted with intricate details and ample labels highlighting key features such as the eyes, blowhole, fins, tail etc. It appears to be to scale.

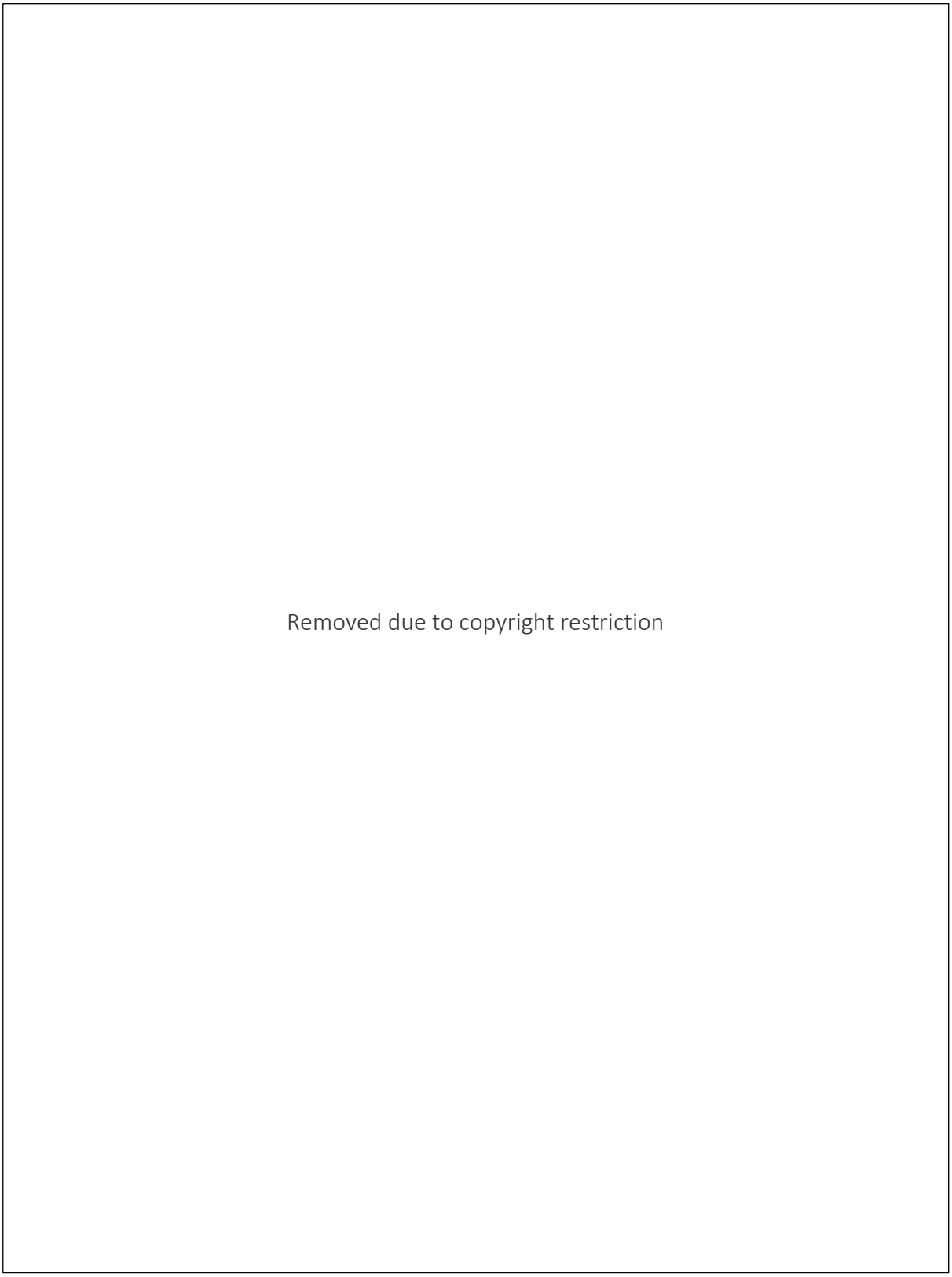


*Figure 2. Whale species with labelled items*

*Table 14. Observation results for Scene 1 (whale species)*

| Item | Google Translate | Naver Papago |
|---|---|---|
| 1 | 尾羽毛 (*oba ke*, tail feathers) | 尾羽毛 (*ohake*, tail feathers) |
| 7 | 眼 (*me*, eye) | 眼 (*me*, eye) |
| 9 | 潮吹 (*shiofuki*, squirting) | 潮吹 (*shiofuki*, water spray) |
| 23 | | ? 之鯨兒 (*kore Kujira)* |

### 4.1.2. Whale Processing


*Figure 3. Scene 2: Whale Processing*

#### 4.1.2.1. Butchering and Products

The scene depicts cross-sections of the whale and various by-products in different stages of butchering. There appears to be the skin, flesh, bone, fins, and others displayed in large piles. The slaughter area is fenced off where spectators stand aside to watch (30), and it appears that there are buildings where (potentially) government officials or those of higher ranks are on looking. There appears to be a torii gate or large gate (12), and several buildings are labelled (4,8, 23,21 and 29).

There appear to be several workers with assigned roles, such as hauling (26). There also seems to be some conflict (28) where two men beat one man on the sand.


*Figure 4. Butchering and products scene with labelled items*

*Table 15. Observation results for Scene 2 (butchering and products)*

| Item | Google Tran slate | Naver Papago |
|---|---|---|
| 2 | 骨下地 (*hone shitaji*, bone base) | 骨下地 (*kotsushitaji*, *B*ase of bone) |
| 6 | | 寺皮 (*terakawa*, Temple skin*)* |
| 9 | 皮 (*kawa*, *L*eather) | 皮 (*kawa*, Skin) |
| 12 | 神氏 (kami-Shi, Mr. God) | 神氏 (*jin'shi*, God) |
| 14 | 百? (*hyaku*, One hundred) | 百? (*hyaku*, One hundred) |
| 15 | 阿腹 (*kuma hara*, Belly) | 阿腹 (*ahara*, belly) |
| 23 | 肝 (*Kimo*, Liver) | 肝 (*Kimo*, Heart) |

#### 4.1.2.2. Winching Whales Onshore

*Impression:* Two whale carcasses are winched onto the shore with a man-powered device. Each carcass has around seven workers harvesting whale meat with a long tool. Some men are on a small vessel (36), others on the back of the whale (38) or in the water holding long tools. On the beach, more workers with the same tool can be seen waiting for instructions from what appears to be a supervisor (33). Workers can be seen dragging butchered meat toward existing hauls (32). A crowd on the far left can be seen, viewing the spectacle in a fenced area. Few spectators are scattered along the beach on the opposite side, and a small village or settlement can be seen in the background.

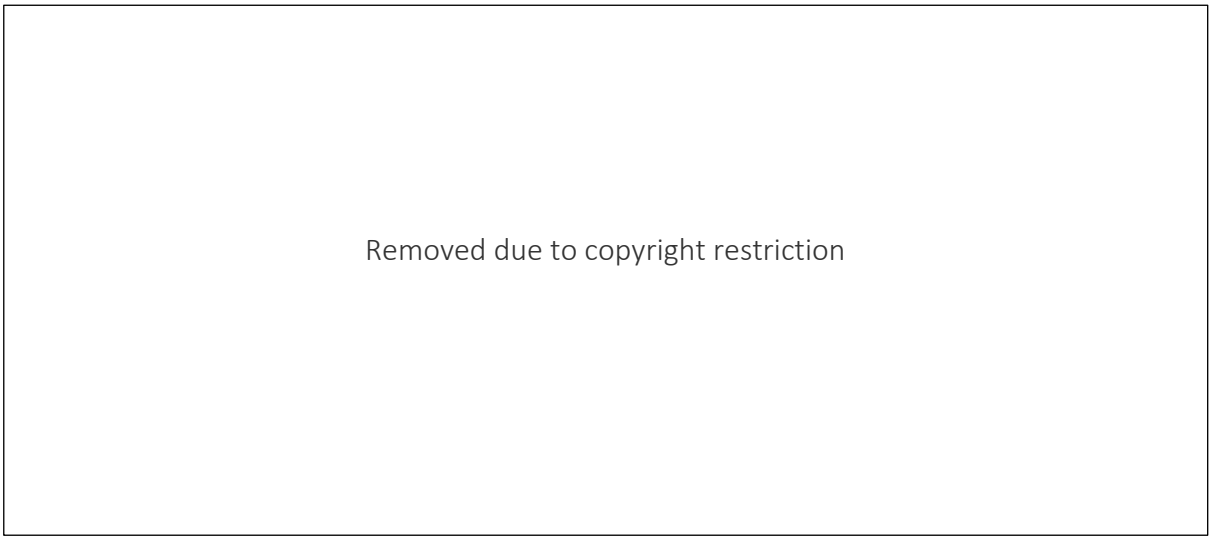


*Figure 5. Winching whale onto shore scene with labelled items*

*Table 16. Observation results for Scene 2 (Winching whale onshore)*

| Item | Google Translate | Naver Papago |
|---|---|---|
| 34 | 脊美鯨頭 (Right whale head) | 脊美鯨頭 (*semikujiraatama*, whaling head) |
| 35 | 演之地子奇 (Nobuyuki katsube) | 演之地子奇 (*Nobuyuki jishiki)* |
| 36 | 通舟 (*Tsū fune*, passing a boat) | 通舟 (*Tōrifune*, passing through a ship) |
| 38 | 神脊美鯨(Right whale) | 脊美鯨 (*semikujira*, white whale) |

#### 4.1.2.3. Torii gate and boat

*Impression:* Just off to the left of the crew harvesting whale meat is a vessel with a crew of ten; they seem to be adorning different 'uniforms' to the crew, butchering and winching the whale. The purpose of the crew is unclear. In the background is a rock formation with a torii gate (39) at the foundation, and visitors can be seen praying (40).


*Figure 6. Torii gate and boat scene with labelled items*

*Table 17. Observation results for Scene 2 (Torii gate and boat)*

| Item | Google Translate | Naver Papago |
|---|---|---|
| 41 | 意美浪山 | |
| 42 | 注進舟 (*chūshin fune*, note boat) | 注進舟 (*chūshin' fune*, a boat used for transportation |
| 46 | 中濱 (*Nakahama*) 中濱[In, shore/beach] | |

#### 4.1.2.4. Towing Whale Ashore

*Impression:* A whale is towed towards the beach by four boat crew, and two additional boats are on each side of the whale, holding it afloat; the right boat is apparent in the depiction. One crew member sits on the whale near the head (32), and the other on the tail. Large houses can be seen in the background.


*Figure 7. Towing of whale ashore scene with labelled item*

*Table 18. Observation results for Scene 2 (Towing whale ashore)*

| Item | Google Translate | Naver Papago |
|---|---|---|
| 47 | 鯨濤へ | |
| 51 | 石門此一則ヨソ 燈明崎近十五丁 (*ishimon koichi Yoso Tomeizaki 15-chome)* | 石門此一則ヨソ 燈明崎近十五丁 (*sekimon' kono ichiyoso akari akezaki kin' jūgochō*, Ishimon, this is the 15th street near Yosotoko Meizaki) |
| 53 | 鯨持/た右舟 (*Kujira tokuta migi fune*, whale special right boat) | 鯨特 た右舟 (*kujiratoku ta migifune*, a whale-shaped right-hand boat) |

### 4.1.3. Whale Hunt (Scene Three)


*Figure 8. Scene 3: Whale hunt*

#### 4.1.3.1. Lookout Tower

*Impression:* Three men can be seen with binoculars in what appears to be a lookout post (59). A man can be seen waving a white flag on a cliff in front of the lookout post (63); adjacent to the left are two men also waving a white flag (57). Three boats can be seen pointing white flags to the same general area. There are two boats in the northwest (71) and one in the southeast (55) with no flags. The boats surround natural features, accompanied by annotations (66, 70, 72 and 73). A torii gate (58) can be seen in the far back.

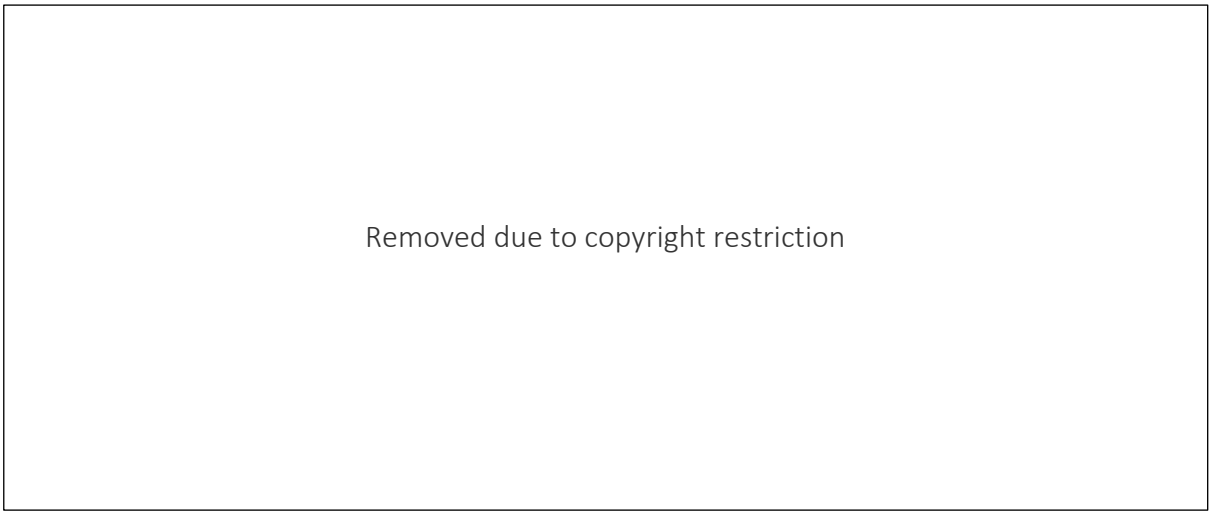


*Figure 9. Lookout tower scene with labelled items*

*Table 19. Observation results for scene 3 (Lookout tower)*

| Item | Google Translate | Naver Papago |
|---|---|---|
| 55 | | 道具舟 (*dōgufune,* tool boat)<br>棟納舟ト号 (*mune osame funetogō,* winged ship no.) |
| 61 | 石門此一則ヨソ燈明崎近十五丁 (*ishimon koichi Yoso Tomeizaki 15-chome*) | |
| 66 | 大明神真 (*daimyōjin shin,*Daimeijin Makoto) | 大明神真 (*daimyōjin'shin',* the Great Myojin (Goddess of Mercy) |
| 69 | | 所蓄見達崎取棍 (*tokoro chikuken' tatsuzakitori kon',* Tokomi Tatsuzaki Tori-kin (The Imperial Court of Japan)) |

#### 4.1.3.1. Amitori-hō technique

A whale is trapped in a net surrounded by 22 boats, and there appear to be two different types of vessels—a crew member on the head of the whale who seems to be stabbing its nose or blowhole.

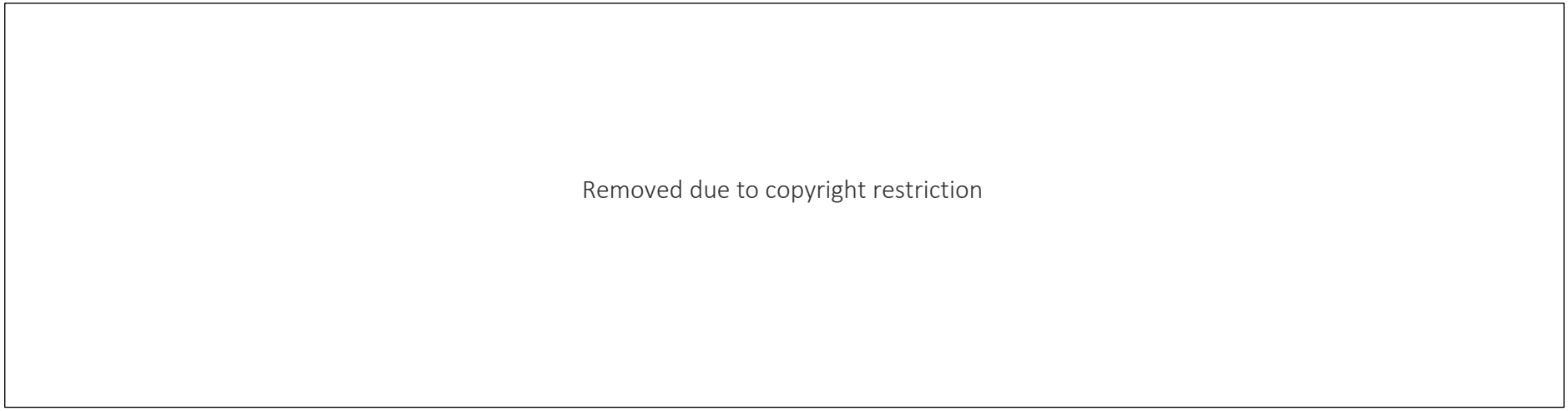


*Figure 10. Amitori-hō scene with labelled items*

*Table 20. Observation results for Scene 3 (Amitori-hō technique)*

| Item | Google Translate | Naver Papago |
|---|---|---|
| 75 | 網舟人數十ニ人 (Ten people in the net boat) | 網舟人數十ニ人 (*amifunabitosū jūninin',* ten men in a net boat) |

#### 4.1.3.2. Harpooning technique

*Impression:* A whale appears to be hunted with the harpoon technique; no net is visible. Seven boat surrounds the whale, and simultaneous harpooning is depicted.


*Figure 11. Harpooning technique scene with labelled items*

*Table 21. Observation results for Scene 3 (Harpooning)*

| Item | Google Translate | Naver Papago |
|---|---|---|
| 84 | | 圖之取突鯨美脊 |
| 87 | 崎木三 (Saki ki san) | 崎木三(Sakiki san') |

### 4.1.4. Maesaku (Scene Four)


*Figure 12. Scene 4: Maesaku preparations*

#### 4.1.4.1. Net Warehouse

*Impressions:* Near the compound's gates is a small building with three men who appear to be of high rank (88), and a man seems to be kneeling in front of the building. Beside the building appears to be a warehouse holding hay (90) and nets (92). There are men mending rope and nets (89 and 93).


*Figure 13. Net Warehouse scene with labelled items*

*Table 22. Observation results for Scene 4 (Net warehouse)*

| Item | Google Translate | Naver Papago |
|---|---|---|
| 88 | 所審改別人 (reformer) | 所審改別人(*tokoroshin' aratame,* umpire) |
| 90 | | ?? 藏 (*kura*, storehouse) |
| 92 | 網納屋 (*ami naya*, ami barn) | 網納屋 (*aminaya*, a net barn) |
| 93 | 網納屋 (*ami naya*, ami barn) | 網納屋 (*aminaya*, a net barn) |

#### 4.1.4.2. Whaling boat decorating

*Impressions:* Various crafts being depicted: poles likely for harpooning (96), barrels markers (99), blacksmiths making harpoon heads (97), harpoon assemblage (94) etc.


*Figure 14. Craftsmen scene with labelled items*

*Table 23. Observation results for Scene 4 (Craftsmen)*

| Item | Google Translate | Naver Papago |
|---|---|---|
| 94 | 納屋 (*? Naya,* Shed) | 擼納屋(? Barn) |
| 95 | | カマヒ舟 (*kamahifune*, Camahi boat) |
| 97 | | 鈉鍛沾 (? Forging) |
| 98 | 方屋納大本 (*hō-ya osame ōmoto*, Hoyano Daihon) | 方屋納大本 (*hō yanō ōmoto,* a large book of houses) |
| 99 | 桶納屋 (tub barn) | 桶納屋 (*okenaya,* barn in a barn) |

#### 4.1.4.3. Whaling boat decoration

*Impression*: The scene depicts men painting three boats with vivid colours and patterns (102). Finished boats are stored in the shed in the background (103).

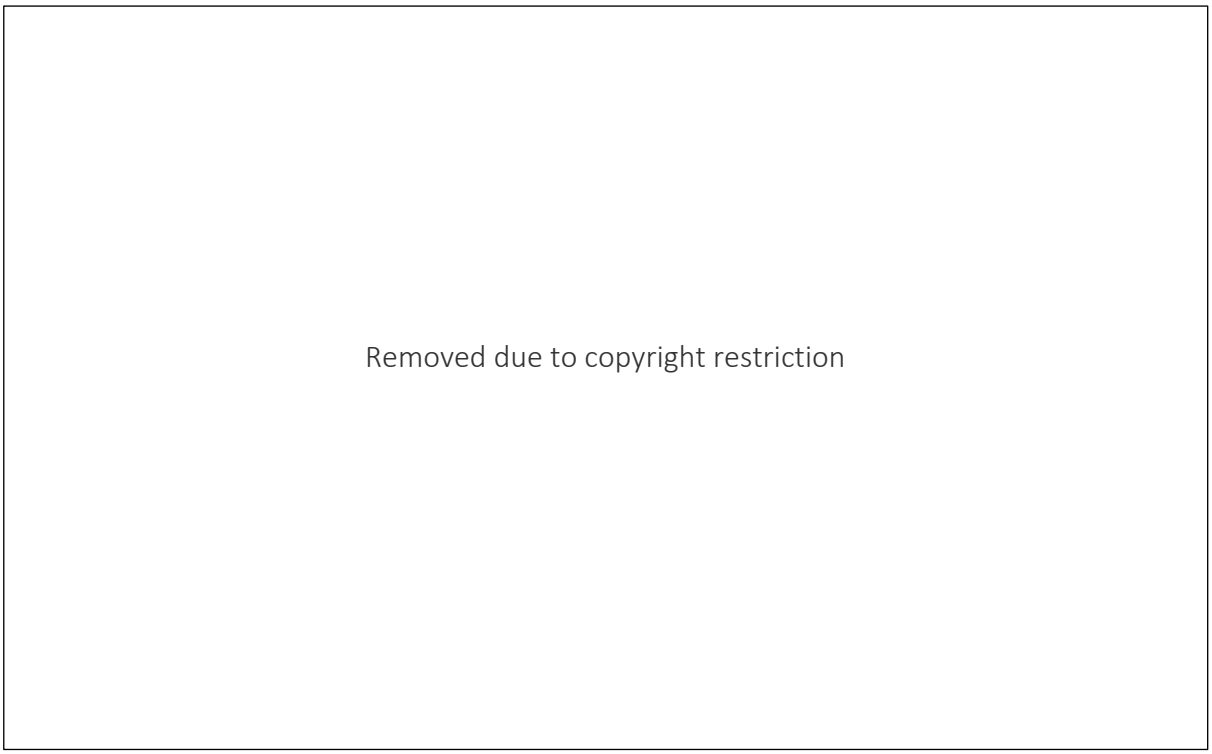


*Figure 15. Whaling boat scene decorating with labelled items*

*Table 24. Observation result for Scene 4 (Boat decoration)*

| Item | Google Translate | Naver Papago |
|---|---|---|
| 102 | 塗師方 (*nurishi hō)* | 塗師方 (*nushihō*, painter) |
| 103 | 用意舟 (*yōi fune*, Prepared boats) | 用意舟 (*yōifune)* |

#### 4.1.4.4. Whaleboat construction

*Impression:* The scene depicts sheds where boats are constructed. Three boats can be seen on the far left. The colours of the boats are not as vibrant as the earlier ones; however, they are similar to those employed in the hunting scenes.

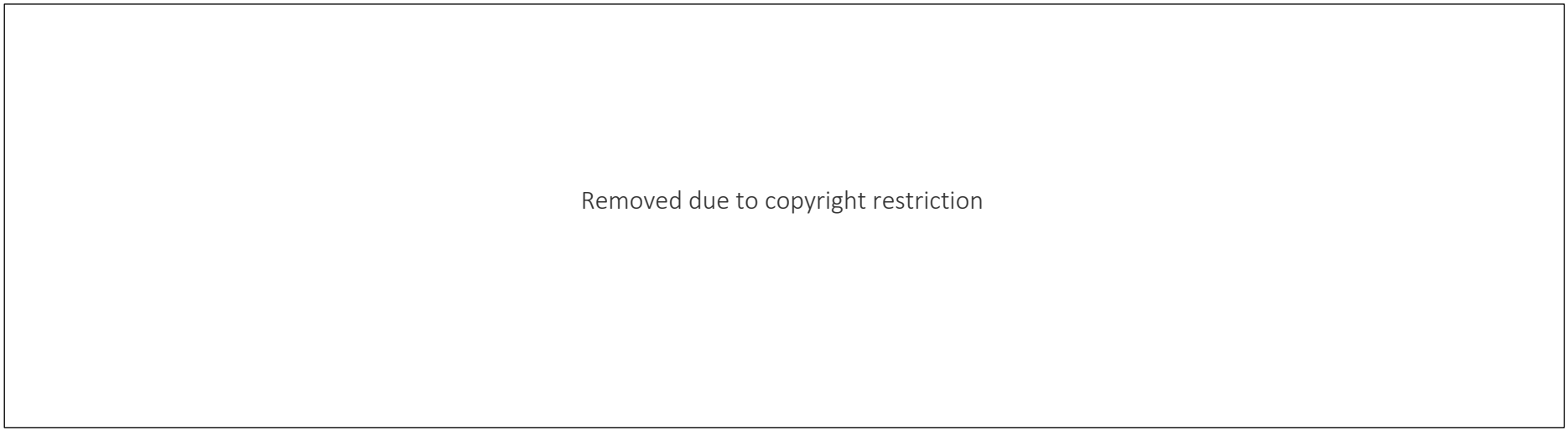


*Figure 16. Whaleboat construction scene with labelled items*

*Table 25. Observation results for Scene 4 (Boat construction)*

| Item | Google Translate | Naver Papago |
|---|---|---|
| 109 | 造新舟 ?? (*zō shin fune,* construction new boat) | 造新舟子勢 (*tsukuri shin'shūshizē,* new shipbuilding force) |

### 4.1.5. Tools of whalers (Scene Five)

The scene depicts tools used for whaling operations, including harpoons of various weights and lengths, metal arrowheads and large knives on long poles. The ropes attached to the harpoons are contained in bundles, and there is also what appears to be an anchor depicted (25).

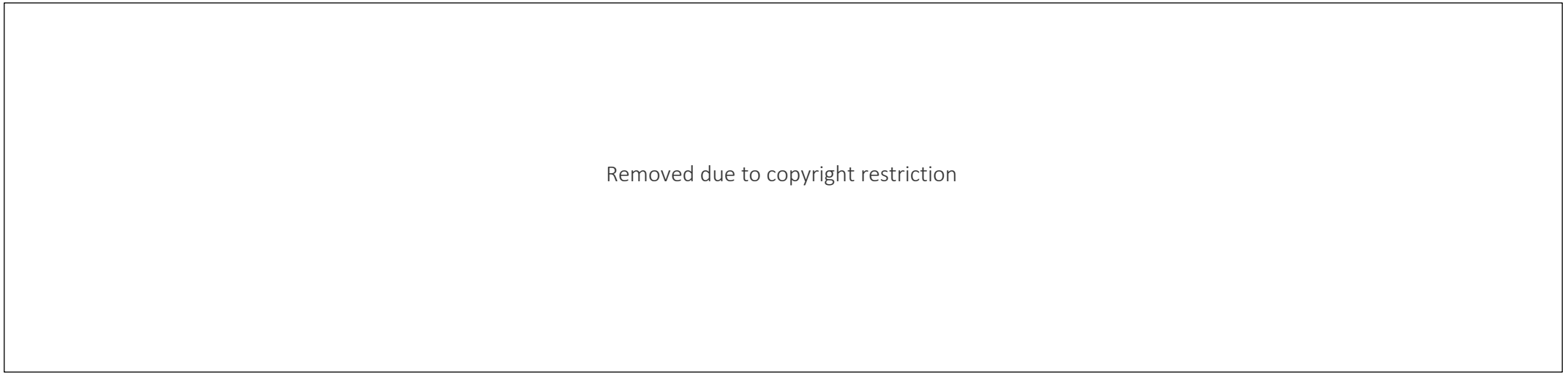


*Figure 17. Scene 5: Whale tools with labelled items*

*Table 26. Observation results for Scene 5 (Tools of the whalers)*

| Item | Google Translate | Naver Papago |
|---|---|---|
| 1 | 木尾 (*kio)* | 網舟人數十ニ人 (*amifunabitosū jūninin'*, ten men in a net boat) |
| 2 | | 桿同 (*kan' dō*, stick) |
| 10 | 矢 縄 (*ya nawa*, arrow rope) | 矢 縄 (*ya nawa*, arrow rope) |

## 4.2. STAGE 2: OBSERVATION MODEL (MOBILE)

### 4.2.1. The Hunt (Scene 3), *amitori-hō* technique

*Impression*: A whale appears to be spraying water from its blowhole and is trapped in a net surrounded by two different types of boats. A crew member can be seen on the head of the whale stabbing its nose or blowhole.

Scripts or annotations are illegible.

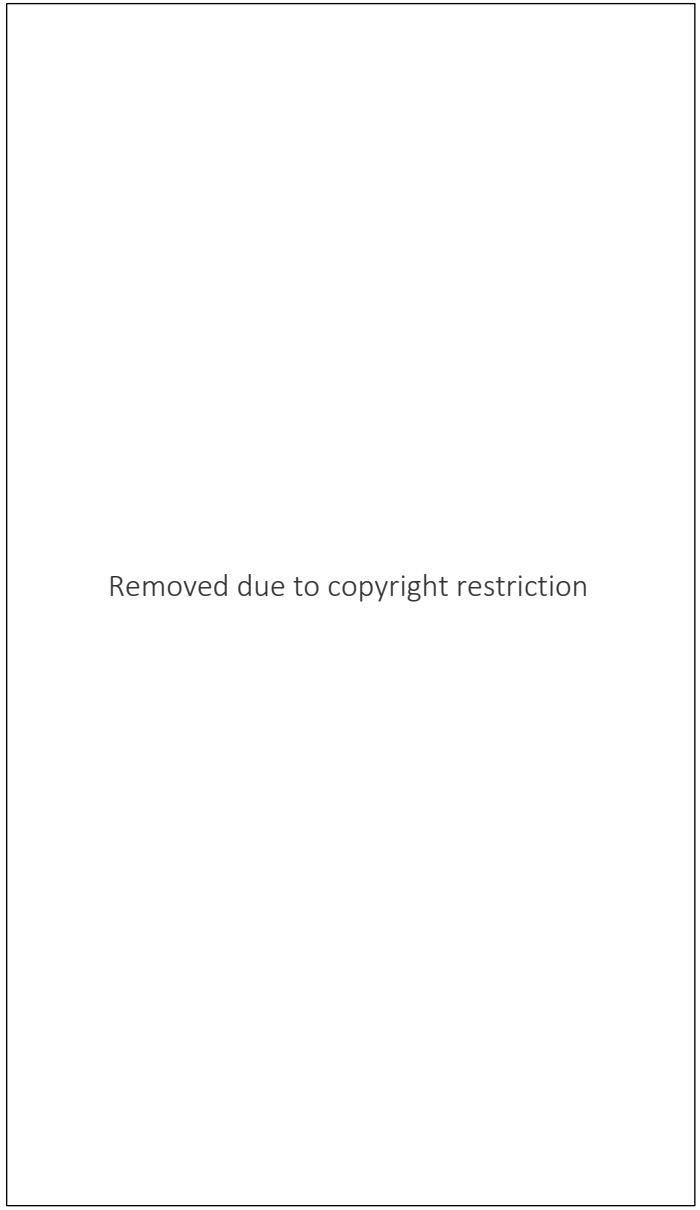


*Figure 18. Amitori-hō with labelled items at full screen on mobile*

## 4.3. STAGE 3: COMPARATIVE MODEL

The operation of *amitori-hō* is divided into three stages:

### 4.3.1. Preparation for the new season

*Table 27. Preparation for the new season terminology (Scene 4) from stage 2*

| Japanese | Terminology | Translation |
|---|---|---|
| 納屋 | Naya | Barn or shed |
| カマヒ舟 | Kamahifune | Kamahi boat |
| 桶納屋 | Okenaya | Tub barn |
| 所審改別人 | Tokoroshin' aratame | Reformer |
| 網納屋 | Ami naya | Net barn |
| 塗師方 | Nushihō | Painter |
| 用意舟 | Yōi fune | Prepared boats |

From the terminology, only Naya (working shed or barn) match with terms mentioned in past literature.

*Table 28. Comparison of past literature and observation*

| Summary from past literature | Summary from observation |
|---|---|
| The groundwork required artisans, labourers, and raw materials. Funa daiku (boat-builders) were hired to replace and build new boats. Women were recruited from neighbouring villages to make hemp ropes, ami daiku were male net-makers, and blacksmiths and barrel makers were recruited to make harpoons, knives, and repair work. | On the land station, there is sixteen naya (barn), each serving a different purpose, including okenaya (tub barn), ami naya (net barn) and some used to store fune (boats). Craftsmen, artisans, and labourers occupied specific areas of the land station, including (and not limited to): Nushihō (painters), blacksmiths making harpoon heads, shipbuilders and men mending nets. |

### 4.3.2. The Hunt

*Table 29. Whale hunt terminology (Scene 3) from stage 2*

| Japanese | Terminology | Translation |
|---|---|---|
| 道具舟 | Dōgu fune | Tool boat |
| 大明神真 | Daimyōjin'shin' | The Great Myojin (Goddess of Mercy) |
| 網舟人數十ニ人 | Amifunabitosū jūninin' | Ten men in a net boat |

No terminology appeared in previously examined literature.

*Table 30. Comparison of past literature and observation on a classical whale hunt*

| Summary from past literature | Summary from observation |
|---|---|
| Five men often manned and scanned for whales from lookout towers. Once spotted, a signal (smoke, colour flag, and stick semaphore) is sent out. In regions where lookout points were unavailable, search boats were used in their place.<br><br>Under the command of a *hazashi* (expert harpooner), ten to twenty *seko bune* (hunting boats) with twelve crew chases the whale. The *seko bune* was divided into three groups that surrounded the whale. The oyaji (chief harpooner) led each group and, banging on their oars' shafts with mallets, herded the whale into the desired direction. At the same time, skaisen (net-boat net boats*istuke-bune* (assistant boats) lowered nets vertically under the instruction of the *mito-oyai* (commander-in-chief). The whale is driven into nets.<br><br>Once the whale was exhausted from being entangled, the crew on the *seko bune* would *ken kiri* (剣きり, Harpoon) the whale. A harpooner would climb on the whale's back, cut a hole near the blowhole, and thread a rope to secure the whale; only after that would a crew member dive under the whale with ropes to tie the whale to two beams laid between two boats serving as *moss*ō *bune* (floats). The whale is finally killed with a sword and towed to shore by the mossō bune. | Three men can be seen with binoculars (or telescopes) scanning for whales in a lookout post. Two other men adjacent to the lookout post wave white flags to signal that a whale has been spotted. Three boats with a crew of about twelve men per boat point white flags in the same general direction.<br><br>A whale is trapped in a net surrounded by twenty-two boats with Amifunabitosū jūninin' (ten men in [each] net boat). There appear to be two types of vessels. On the scene, there are also harpooners and a crew member on the head of the whale who seems to be stabbing its nose or blowhole. |

### 4.3.3. Whale processing

| Japanese | Terminology | Translation |
|---|---|---|
| 骨下地 | kotsushitaji | Bone base |
| 皮 | Kawa | Skin |
| 阿腹 | Ahara | Belly |
| 肝 | Kimo | Liver |
| 脊美鯨頭 | semikujiraatama | Right Whale head |
| 通舟 | Tōrifune | Passing through a ship |
| 神脊美鯨 | Semikujira | Right Whale |
| 注進舟 | chūshin fune | Boat used for transport |

From the terminology, only Semi-kujira (*Lit*. whale with a beautiful back or North pacific right whale) match with terms mentioned in past literature.

*Table 31. Comparison of past literature and observation on whale processing*

| Summary from past literature | Summary from observation |
|---|---|
| The whale was hauled from the sea onto the beach using a man-powered rokuro (winch). The winch was also used to strip the blubber from the whale. This process was the uo kiri (main flensing) process. Uo kiri involved rough hewing of the carcass and concurrently separating the blubber from the meat. Uo kiri was followed by naka kiri (middle cutting), where the meat and blubber were cut into pieces. Skilled flensers conducted the flensing process on the beach before transporting the meat, blubber, and entrails into working sheds to cut further. | Four boat crew towed a whale towards the beach, and two additional boats were on each side of the whale, holding it afloat. One crew member sits on the whale near the head, and the other on the tail. Large houses can be seen in the background. Closer to shore is a chūshin fune (transport boat), assumingly for tools or crew, which sits close to the winching and butchering semi kujira (Right whale) towards the shore. Each carcass has around seven workers harvesting whale meat with a long tool. Some men are on a small vessel, others on the back of the whale or in the water.<br><br>On the beach, more workers with the same tool can be seen waiting for instructions from what appears to be a supervisor. Workers can be seen dragging butchered meat toward existing hauls. A crowd on the far left can be seen, viewing the spectacle in a fenced area. A cross-section of a whale and various by-products in different stages of butchering sits on the beach. The skin, flesh, bone, fins, and others appear to be displayed in large piles. The slaughter area is fenced off where spectators stand aside to watch, and it seems that there are buildings where (potentially) government officials or those of higher ranks are on looking. There appears to be a torii gate or large gate, and several buildings are labelled. |

### 4.3.4. Old versus new viewership

*Table 32. Differences between traditional and digital viewership*

| | Traditional | Digital |
|---|---|---|
| Language | Require a Japanese native or professional to read the annotation | The utilisation of translation of application to decipher some annotation |
| Reading | Reading one scene at a time by unfurling with one and closing the emakimono with the other simultaneously | Full screen on desktop requires scrolling with mouse or touch screen. Full screen on a mobile phone is extremely difficult with the smaller screen ratio and requires zooming in to see finer details. |

## 4.4. STAGE 4: RELIABILITY MATRIX

Reliability Rubric for scoring the extent to which the viewer can interpret and consume the digitalised emakimono presented, keeping true to the material and their tradition.

*Table 33. Reliability scoring rubric for Kishu Taiji-ura Great Whale Fishing Map (1864) on the Kujira Digital Museum*

| VIEWING QUALITIES | HIGH | MEDIUM | LOW |
|---|---|---|---|
| Language | The script or annotation on the scroll is read in the original language and alphabet | The script or annotation on the scroll is read partially in a different language and alphabet than the original. Or partial avoidance of the script. | The script or annotation on the scroll is read in a completely different language and alphabet to the original. Or complete avoidance of the script. |
| Right-to-left reading system | Apparent adherence to the east Asian right-to-left reading and writing system | Some modification or confusion regarding when the scroll starts and ends; however, enough is presented to adhere to the east Asian right-to-left reading and writing system | Complete modification of viewership, meaning the scroll can be read or accessed from any point without context |

| | | | |
|---|---|---|---|
| Reading one scene at a time | Adherence to some form of viewership that mirrors viewing the emakimono only one scene at a time | Scenes are divided /obvious; however, more than one scene is shown at a time | Differentiation of scenes is not apparent, and more than one scene is viewed at one time, including viewing the entirety of the scroll at full screen |
| Interpretation of cinematic pictorial depictions | All scenes depicted can be interpreted and fully understood based on illustration only | Some scenes depicted can be interpreted and partially understood based on illustration only | No scenes depicted can be interpreted and fully understood based on illustration only |

*Table 34. Preservation scoring rubric for Kishu Taiji-ura Great Whale Fishing Map (1864) on the Kujira Digital Museum*

| VIEWING QUALITIES | Effective | Somewhat effective | Ineffective |
|---|---|---|---|
| Language | Accompanied by professional translation in various languages without annotation, explanation or interpretation from the translator | Accompanied by professional translation in various languages with some annotation from the translator or use of a specialised application to aid manual translation | Use of everyday applications to aid and manually translate |
| Reading or viewing of scenes | No alteration to the emakimono displayed is made using digital tools to view and interpret scenes | Some alterations to the emakimono displayed are made using digital tools (such as zooming into items or taking photos to translate annotations) to view and interpret scenes | Alteration to the emakimono displayed is made using digital tools (such as zooming into items or taking photos to translate annotations) to view and interpret all scenes |

# Chapter 5: Analysis

This chapter will discuss the interpretation and assessment of the results concerning the literature. The chapter is divided to address all the aims and queries outlined in chapter 1, streamlining into two discussion topics (1) Digital Maritime Cultural Landscape Framework (section 5.1) and the (2) the Relationship Between Art and Material Culture (section 5.2).

As highlighted in earlier chapters, Japanese whaling culture and heritage are vast; however, few works of literature (in English) dedicated solely to the discussion of *amitori-hō* (net method) when examining classical whaling practices or economies from Tokugawa Japan (1603-1867). When *amitori-hō* is discussed, little to no primary works or material culture is cited, making it a viable motif for research. Existing literature focussed primarily on whaling culture. The framework is defined by the knowledge and beliefs transmitted to succeeding generations through a traditional socialisation process and the shared understanding of the relationship existing humans, whales, and the environment" (Akimichi 1988:4-5).

This research paper has worked to incorporate the framework of the *Digital MCL.* An adaptation of Westerdahl's *Maritime Cultural Landscape* framework to include the digital landscape—arguing that the digitalisation and consumption of information belonging to maritime practices and heritage, the use of digital aid (such as digital maps) and the assistance from the digital world, regardless of nature, to support any range of maritime economies or mariculture is an extension of the maritime cultural landscape. Maritime archaeology thus not only incorporates archaeological queries belonging to mariculture on land and in the sea but also shares responsibility for the digital space.

The emakimono case study, Kishu Taijura Great Whale Fishing Map (1862), is primary to the research. Japanese narrative art composed in the Tokugawa period (1603-1867) depicting classical whaling motifs is ample. However, the scope of discussion primarily resides within art history and, occasionally, scientific innovation: *Whale oil pesticide: Natural history, animal resources, and agriculture in early modern Japan* (2015) by Jakobina Arch, and *Past*

*biodiversity: Historical Japanese illustrations document the distribution of whales and their epibiotic barnacles* (2014) by Ryota Hayashi are notable examples.

When examining the viability of the *Digital Maritime Cultural Landscape* in the archaeological discussion, the quality of cultural preservation and reliability of digitalised illustrative manuscripts is brought to attention. The digitalised emakimono now exists for consumption in the digital space, and the relationship between art and material culture is somewhat redefined. The assessment relied on freely accessible materials from digital archives and observational surveys to measure reliability and the extent to which the viewer can interpret and consume the digitalised emakimono presented, keeping true to the material and their tradition. While cultural preservation was scored with the consideration of cultural norms associated with the digitalisation of narrative art, the potential of modern aid is to preserve some function of traditional viewership. Addressing ways to ensure these new customs, traditions, or viewership remains intact.

## 5.1. THE RELATIONSHIP BETWEEN ART AND MATERIAL CULTURE

### 5.1.1. Reliability

The reliability score is medium, suggesting that while traditional viewership of the emakimono cannot be replicated in the digital space, it does not diverge entirely from the source. I would argue that viewing the emakimono in a digital space is more reminiscent of traditional practice than viewing a completely unfurled emakimono encased in a museum. By acknowledging the digital space, the customs of viewing narrative art are extended instead of being frozen in time.

### 5.1.2. Preservation

Preservation, however, is challenging to discuss. Places are determined by cultures, while cultures are influenced by their space, all of which shift through time, forming culturally distinct and overlapping landscapes within a geographic region (Ford 2011:3). Indeed, when examining the operations of *amitori-hō*, language, artistic and narrative sequences are crucial to interpreting the work accurately. Nevertheless, many details are lost even with assistance such as translation tools and the flexibility to zoom into important features that are otherwise impossible to do in physical exhibits. As such, the consumption of the narrative is not only subjected to new traditions and viewership but also gaps in understanding. While this holds

more integrity to “true” viewership than in a contemporary space (for example, museums), there is a concern about when the practice of viewing digitalised heritage will be halted and what consequence it may have on future interpretations, particularly if physical materiality is absent.

## 5.2. DIGITAL MARITIME CULTURAL LANDSCAPE FRAMEWORK

### 5.2.1. Archaeological methods used and more

Various ethnographic methodologies were slightly modified for the research, including Personal Observation, Comparative Studies (Encompassing Comparison Analysis), Rubric Matrix Analysis, Grounded Theory, and Content Analysis. On the other hand, only two archaeological methods were implemented in the research, including (1) desktop and archival research and (2) a digital reconnaissance survey. While it is evident that the methods adopted produced results with gaps, it highlights the challenge of reconstructing the digital archaeological landscape, which is not too dissimilar to maritime environments or the sea. The potential to examine other archaeological instruments and interdisciplinary thoughts to strengthen the frameworks is thus present.

The methods employed attempted to mirror a terrestrial fieldwork survey to stress the digital landscape. In retrospect, perhaps other methods, such as those from art history, could have yielded more interpretations for the case study and supported the *Digital Maritime Cultural Landscape Framework.* That said, although the mobile method (section 4.2) did not offer much insight into *amitori-hō,* it reflected the viewing experience that contributed to the lower scoring for reliability and preservation—adding volume to the discussion of digitalised heritage and the occupying of digital landscapes.

### 5.2.2. Criteria of the Digital Maritime Cultural Landscape

While it is hard to offer set criteria for the digital MCL, as technology and digital culture continue to evolve, there are a few thoughts on what the digital MCL should encompass, mainly the digital space and its occupancy by a community. In addition, the usage of digital support (such as augmented reality) and assistance from the digital world, regardless of nature, to support any range of maritime economies or mariculture is an extension of the maritime cultural landscape, albeit within the digital topography.

# Chapter 6: Conclusions

The *Digital Maritime Cultural Landscape,* like the fabric of Japanese whaling culture, is vast and entwining. More immediacy can be obtained by allowing the interpretation of Japanese heritage to parallel said framework, even without political agenda. As technology evolves, so do digital communities, trends, and culture, at times, at rapid paces with layers of immaterial remains. The archaeology of digital landscapes will eventually be required – like the framework of the maritime cultural landscape and those that come before. It is a framework that can be expanded to include other digital spaces such as virtual reality, augmented maps, etc. While humans mainly occupied these spaces as tools or instruments to forward their needs, as seen in digital archaeology or frameworks such as the archaeology of digital environments. It is an acknowledgement of space denoting some form of anthropological nature, emphasising an archaeological potential.

# Bibliography


Akimichi, T., B. Harumi, S. Braund, H. Hardacre, Ar. Kalland, B. Moeran, P. Asquith, T. Bestor, M. Freeman, M. Iwasaki, L. Manderson and J. Takahashi 1988 Small-type coastal whaling in Japan: Report of an International Workshop. *Occasional Publication* 27:1-116.

Arch, J. 2014 Bringing Whales Ashore: Oceans and the Environment of Early Modern Japan, 1600-1900. PhD Thesis, History and East Asian Languages, Harvard University, Cambridge, Massachusetts.

Arch, J. 2015 Whale Oil Pesticide: Natural History, Animal Resources, and Agriculture in Early Modern Japan. In D. Phillips and S. Kingsland (eds) New Perspectives on the History of Life Sciences and Agriculture, *Springer,* pp. 93-111.

Arch, J 2020. Heroic Whalers Hunting Whale-Mothers: Gender in the Early-Modern Japanese Whaling Industry. *Coriolis* 10(1):48-69.

Ashkenazi, M. 2003 *Handbook of Japanese Mythology.* Santa Barbara: ABC-Clio.

Brown, S. 2016 *Posthumanism in Japanese Visual Culture.* Palgrave Macmillan.

Chamberlain, B.H 1919 *A Translation of the "Ko-Ji-Ki", or "Records of Ancient Matters".* Tuttle Publishing.

Cooke, R.G, T. Wake, M. Martinez-Polanco, M. Jimenez-Acosta, F. Bustamante, I. Host, A. Lara-Kraudy, J.G. Martin and S. Redwood 2016 Exploitation of dolphins (Cetacea: Delphinidae) at a 6000 yrs. Old Preceramic site in the Pearl Island archipelago, Panama. *Journal of Archaeological Scient: Reports* 6:733-756.

Crawcour, Sydney 1974 The Tokugawa Period and Japan's Preparation for Modern Economic Growth. *The Journal of Japanese Studies* 1(1):113-125.

Davisson, Z. (2013, May 10). Bakekujira and Japan's Whale Cults. *Hyakumonogatari Kaidankai: The relevance of Whaling in Japanese Culture and economy.* *https://static1.squarespace.com/static/5a1f6a5b8dd04196f96c076d/t/5c11671a6d2a73c7414c9d91/1544644382557/whaling_in_japan.pdf*

Delbanco, D. (2008, April). Chinese Handscrolls. Retrieved 02 July 2021 from < https://www.metmuseum.org/toah/hd/chhs/hd_chhs.htm >

Fitzhugh, W.W. and C.O. Dubreuil (eds) 1999 *Ainu: spirit of a northern people.* Arctic Studies Centre, National Museum of Natural History, Smithsonian Institution and Smithsonian National Museum.

Ford, B. (ed) 2011 *The archaeology of maritime landscapes.* Germany: Springer Science & Media.

Halldórsdóttir, B.Y. 2019 Reflections of the Japanese society through illustrated Handscrolls: Examining societal views in Japan through painting techniques and story contexts within

illustrated handscrolls. PhD thesis, Department of Japanese Language and Culture, School of Humanities, University of Iceland, Reykjavik.

*Heilbrunn Timeline of Art History. New York: The Metropolitan Museum of Art.* https://www.metmuseum.org/toah/hd/chhs/hd_chhs.htm.

Holm, F. 2020 The Polluted past of the Whaling Town Hachinohe. *Arcadia* 16:1-6.

Hornyak, T. 2006 *Loving the machine.* Kodansha International.

Itoh, M. 2017 *The Japanese Culture of Mourning Whales: Whale Graves and Memorial Monuments in Japan.* Springer.

Kalland, A. 1979 The Construction of Reality and Unreality in Japanese Theatre. *The MIT Press* 23(2):3-10.

Kalland, A., and B. Moeran 1992 *Japanese Whaling?: End of an Era.* Routledge.

Kalland, A 1995 *Fishing Villages in Tokugawa, Japan.* University of Hawaii Press.

Kasuya, T. 2017 Whaling, Japanese. In B. Wursig, J.G.M Thewissen and K.M. Kovacs (eds) *Encyclopedia of Marine Mammals*, Elsevier Inc, pp.1066-1070.

Kato, K. and S. Wearne 2011 About the Cover. *Environmental Philosophy* 8(2):207-211.

Kim, Y. 1961 On Political Thought in Tokugawa Japan. *The Journal of Politics* 23(1):127-145.

Kimura, T. and T. Ozawa 2002 Anew cetothere (Cetacea: Mysticeti) from the Early Miocene of Japan. *Journal of Vertebrate Paleontology* 22(3):684-702).

Kovacic, M. 2018 The making of national robot history in Japan: *Monozukuri,* enculturation and cultural lineage of robots. *Critical Asian Studies* 50(4): 572-590.

Kujira Digital Museum 2017 History: Traditional Whaling in Taiji: Digital Archive of scrolls: List of scrolls: Illustrations of Taiji Whaling and Whales. Retrieved 02 July 2021 from < https://kujira-digital-museum.com/en//categories/13/articles/24?zoom=24&x=0.29990215264187864&y=0.010692050768203072 >

Laver, M. 2011 *The Sakoku Edicts and the Politics of Tokugawa Hegemony.* Cambria Press.

Leiren and Sjåvik 2019 *Historical Dictionary of Norway.* Rowman & Littlefield Publishers.

Levy, I. H. 1987 *The Ten Thousand Leaves: A Translation of the Man'yoshu, Japan's Premier Anthology of Classical Poetry, Volume One.* Princeton University Press.

Markowitz, J.A (eds) 2015 *Robots that Talk and Listen.* Berlin: De Gruyter.

Markus, A.L. 1985 The Carnival of Edo: *Misemono* Spectacles from Contemporary Accounts. *Harvard Journal of Asiatic Studies* 45(2):499-541.

Matsuishi, T. 2007 Whale Strandings in Hokkaido. *Isana* issue 34. Archived at https://web.archive.org/web/20091010070712/http:/whaling.jp/english/isana/no34_01.html

Matsunosuke, N. 1997 *Edo Culture: Daily Life and Diversions in Urban Japan, 1600-1868.* University of Hawai'i Press.

McNabb, D.E. 2016 *A Comparative History of Commerce and Industry.* Macmillan.

Munsterberg, H. 2012 *Arts of Japan: An Illustrated History.* Tuttle Publishing.

Naumann, N. 2000 *Japanese Prehistory: The Material and Spiritual Culture of the Jomon Period.* Leipzig:Otto Harrassowitz Verlag.

Nippon Gakujutsu Shinkokai (Japanese Classics Translation Committee) 1940 *The Manyoshu: The Nippon Gakujutsu Shinkokai Translation of ONE THOUSAND POEMS with the Texts in Romaji.* New York: Columbia University Press.

Ohno, K. 2017 *The History of Japanese Economic Development: Origins of Private Dynamism and Policy Competence.* Routledge.

Omura, H. 2012 History of Gray Whales in Japan. In M.L. Jones, S. Leatherwood and S.L. Swartz (eds), *The Gray Whale: Eschrichtius Robustus,* pp. 57-76. Elsevier Science.

Pickvance, C. 2001 Four varieties of comparative analysis. *Journal of Housing and the Built Environment* 16(1):7-28.

Quattrini, MV, M. Ioele, A. Sodo, GF Priori and D. Radeglia 2014 A seventeenth-century Japanese painting: Scientific identification of materials and techniques. *Studies in Conservation* 59(5):328-340.

Reinhard, A.D. 2019 Archaeology of Digital Environments: Tools, Methods, and Approaches. PHD thesis, Department of Archaeology, University of York, The King's Manor, York.

Schlereth, T 2001 Domestic Life and Material Culture. *International Encyclopedia of the Social Behavioral Science* 3826-3830.

Shimizu, Y. 1891 Seasons and Places in Yamato Landscape and Poetry. *Ars Orientalis* 12:1-14.

Soper, A.C. 1942 The Rise of Yamato-E. *The Art Bulletin* 24(4):351-379.

Stanley-Baker, J 2000 *Japanese Art.* Thames & Hudson.

Strong, SM 2011 *Ainu Spirits Singing. The Living World of Chiri Yukie's Ainu Shin'yoshu.* University of Hawai'i Press.

Takahashi, J., A. Kalland, B. Moeran and T.Bestor 1989 Japanese Whaling Culture. *Maritime Anthropology* (2):105-133.

Takayama, K.P 1995 Adaptation and Resistance to Chinese Literary Hegemony: Korea and Japan. *International Journal of Politics, Culture, and Society* 8(3):46:7-488.

Takeno, J, 2012 *Creation of a Conscious Robot: Mirror Image Cognition and Self-Awareness.* Pan Stanford Publishing.

The Metropolitan Museum of Art 2002 Essay: Heilbrunn Timeline of Art History: Jomon Culture (ca. 10500-ca. 300 BC). Retrieved August 4 2021, from https://www.metmuseum.org/toah/hd/jomo/hd_jomo.htm.

The Metropolitan Museum of Art 2020 Collection: Toggle Harpoon Head. Retrieved August 4 2021 from https://www.metmuseum.org/art/collection/search/62314.

Usuda, N. 2021 The Enigma of Japanese Whaling Policy: How the whaling culture was constructed and construed. *Senri Ethnological Studies* 104:263-284.

Wakamatsu, M., H. Nakamura and S. Managi 2022 The value of whaling and its spatial heterogeneity in Japan. *Marine Policy* 135:1-10.

Watanabe, M. 2011 *Storytelling in Japanese Art.* New York: Metropolitan Museum of Art.

Westerdahl, C. 1992 The Maritime Cultural Landscape. *The International Journal of Nautical Archaeology* 21(1):5-14. Springer Science & Media.

Westerdahl, C. 2011 The binary relationship of sea and land. In Ford, B. (ed), The Archaeology of Maritime Landscapes, pp.291-310

Yang, Y. 2018 Yamato-e: Illuminating a Concept through Historiographical Analysis 3:39-56.

Yokota, Y. 2009 A historical overview of Japanese clocks and Karakuri. In H.S Yan and M.C Ceccarelli (eds), *International Symposium on History of Machines and Mechanisms,* pp.175-188. Kluwer Academic Publishers.

# Appendices

*Appendix 1. Tools and applications used*

| Tools/application | Description | Justification |
|---|---|---|
| MacBook Pro 13” | 13.3-inch (diagonal) LED-backlit display | Readily available |
| iPhone X | 5.8-inch display size Touch screen | Readily available |
| Google Translate (app) | A multilingual neural machine translation service developed by Google that can translate text, documents, images, and voice Used on iOS 11.0 | See Methods and Research Design chapter |
| Naver Papago (app) | A multilingual machine translation cloud service provided by Naver Corporation Used on iOS 11.0 | See Methods and Research Design chapter |
| Safari | A graphical web browser developed by Apple | Readily available |
| Google Chrome | Cross-platform web browser developed by google | Readily available |
| Adobe Illustrator | Vector graphic editor | Readily available Used to label items on the emakimono |