

UNIVERSITY OF NEW ENGLAND
ARMIDALE, AUSTRALIA

**Foreign Fishers and Contested Waters: Japanese
Pearling in the Northern Territory and the
Archaeology of the *Sanyo Maru* Shipwreck**

A Dissertation submitted by
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Abstract

This thesis examines Japanese pearling in the Northern Territory of Australia during the late 1930s within the context of an expanding Japanese industrial empire, Australian territorialism, and contact with Aboriginal peoples. It places Japanese pearling in a sequence of visitation by Asian fishers to north Australian waters. The research also serves as a case study in understanding a maritime extractive industry through archaeology and other approaches, including organisational theory, forager studies and modern fleet dynamics.

The study primarily draws on the archaeology of the *Sanyo Maru* shipwreck, a Japanese supply ship that sank in 1937 off the coast of Arnhem Land. Australian observers at the time were alarmed by the scale of the Japanese pearling fleets working with impunity off its northern coast. Japanese pearling has mostly been ignored in favour of histories on Australian pearling, and this study provides a critical and exhaustive history to fill this gap.

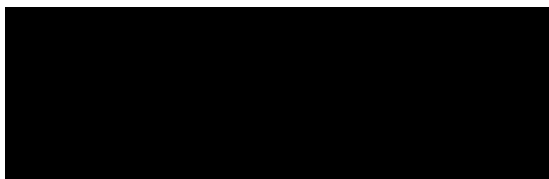
This research illustrates how Japanese pearling was part of an ‘informal empire’ of Japanese commercial and industrial expansion. It explains how the archaeology of the *Sanyo Maru* and its artefact assemblage illustrate aspects of this empire, and of class and identity. The ship stores provide a complex material culture-centred appraisal of this imperial project, showing a reliance on imported materials from the United States.

This examination shows that Japanese pearling threatened Australia’s maritime territorialism. Territorial waters only extended 3 nautical miles (5.5km) from the coast, and with the rich shell beds just outside, the boundary no longer captured what Australia considered its sovereign wealth. Compounding this grievance was that these foreign fleets dominated the industry, and that court proceedings challenged the validity of territorial waters and the competency of those charged to enforce it. In defiance of local ordinances, these visiting pearlers, local indentured crews and Aboriginal peoples met at sea and on land. An informal economy emerged. This further heightened Australia’s unease, with official borders ignored in favour of more established cultural boundaries.

This study also challenges past approaches in the archaeology of maritime contact in northern Australia. The shipwreck assemblage is used as a reference to re-examine coastal finds held in local collections, revealing that Japanese ceramics had been wrongly identified by past researchers as Macassan or colonial in origin.

Certification of Dissertation

I certify that the ideas, experimental work, results, analyses, software and conclusions reported in this dissertation are entirely my own effort, except where otherwise acknowledged. I certify that the work is original and has not been previously submitted for any other award, except where otherwise acknowledged.

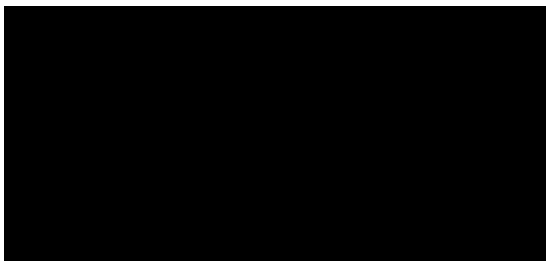


27 February 2022

Signature of Candidate

Date

ENDORSEMENT



27 February 2022

Signature of Supervisor

Date

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Terms

Australian Colonialism

In this dissertation colonialism is the lens used to consider aspects of how the Australian government and local administration governed the Northern Territory. As a study set in the 1930s, this differs from a narrower definition, for example one based around an end date of 1901, marking the federation of the colonies. In contrast in this study colonialism is framed as continuing into the 20th century, as a process that had no clear end date, and which is even argued by some to continue today (Maninigrida Arts & Culture Annual Report, 2019-2020 p.6).

Fleet or fleets

The Japanese pearling fleets are referred to as fleets plural. This is despite that Japanese pearling operations had become increasingly centralised and coordinated, and that many Australians of that time viewed the Japanese boats and crews as belonging to a single fleet. Chapter 5 explains the complicated organisational structure of the Japanese fleets; in which overarching companies had some coordinating control, but boats remained owned by individuals or small groups. Recognising the complicated nature of this organisational structure, the boats and crews are discussed as belonging to fleets opposed to a single fleet.

Japanese pearlery

This dissertation focuses primarily on Japanese pearlery attached to Japanese fishing fleets that came down from Japanese held territories to Australia's north. A secondary focus is the indentured Japanese pearlery working aboard Australian owned boats which were registered in the Australian ports of Darwin, Broome and Thursday Island. Where the term 'Japanese pearlery' is used, it is accompanied by a clarification of which group is being discussed. Nevertheless, it is useful to clarify at the beginning where the emphasis of this study sits.

Open Seas / Extra-Territorial Waters

A focus of this study is the idea of ‘Territorial Waters’, which prior to 1952/3, constituted waters only up to three nautical miles (5.6 km) from the Australian coast. Beyond 5.6 kilometres was the Open Seas; international waters where Australia had no jurisdiction. All fishing vessels, whether Australian or foreign, operated freely, unregulated, in the Open Seas.

Bach, who has written extensively on the subject, refers to the Open Seas as Extra-Territorial Waters (1955). This term is not used here. Bach wrote in the post-War period, when Australia was expanding its marine territory, and ‘Extra-Territorial’ reflected a particular political construct from that time, that did not exist in the 1930s. Open Seas is a term used consistently by historians.

Yolngu, Tiwi and Central Coast Arnhem Land peoples

This research examines pearling activities across three large areas along the Northern Territory coast: the Tiwi Islands, the central Arnhem Land coast and the north-east Arnhem Land coast. These areas constitute the traditional countries, lands and waters, of many different Aboriginal peoples. This study therefore differs from some others, which may focus on one small coastal area, community, or within the country of a specific traditional owner. While this in itself is not problematic, the nature of the historical sources for cultural contact in this study mean it is impossible to identify Aboriginal people individually, their language group, or specific country, with any degree of certainty. The sources are mostly generalised observations, almost exclusively from the perspective of white officials and Japanese visitors. This resulted in a dilemma with naming conventions.

In response to these limitations, and specifically for the purpose of this study, the Aboriginal peoples that Japanese pearl-ers had contact with on the Tiwi Islands are referred to as ‘Tiwi’. The peoples that the Japanese made contact with in east Arnhem Land, including Yirrkala on the mainland, and the Milingimbi, Elcho and Marchinbar islands, are referred to as ‘Yolngu’. There is no accepted single term for peoples of the traditional lands of the central Arnhem Land coast, which, for the purpose of this research includes the King, Liverpool and Blyth rivers. These peoples are therefore, and perhaps somewhat clumsily by the author, referred to as ‘Central Coast Arnhem Land peoples’. Where more precise names can be used with confidence

this is done. For example, Larrakia people are specifically identified in a discussion about Darwin.

To Prime Minister of Australia

Sir, In this morning's 'Herald' it states that a large fleet of luggers from that slave country, Japan, will arrive shortly and take from Australian waters thousands of pounds worth of pearls [sic] shells every year. The Canadians have warned Japan that if they come poaching in their waters for salmon the fishermen will deal with them.

Since the Australian shell fishers will not try to keep them away why not send to Canada for men who have guts.

Your sincerely

(SGD) Fredrick Joyner

11th May 1938

Served in (volunteer)Mr Matabele War
Mashmaland War
Opened up central Africa for British
Served in Boer War

(NAA: A1,1937/4309, Joyner 11/05/1938)

Chapter 1: Introduction

The waters off northern Australia have been visited by Asian fishers for centuries. Visitors included Macassans from Sulawesi, who collected trepang (sea cucumber) in the shallows and processed their harvest on the beaches (Macknight 1969a, 1976). Other visitors were the Bajo from eastern Indonesia who fished shoals and reefs further north; traditional fishing grounds that Australia would eventually claim as its own (B. Campbell, 1995; Stacey, 2007). This study focuses on the Japanese pearling fleets of the late 1930s that travelled 2,000 kilometres from their homeport in Koror, Palau (now Micronesia), to dive and harvest pearl shell off the Northern Territory coast of Australia. These fleets dominated the local Australian pearling industry, whose boats were crewed by mostly indentured foreign workers, predominately Japanese themselves. One source estimated that at one time there were 170 visiting Japanese pearling boats with 1,300 crew living and working off the Northern Territory coast (Argus supplement, 6/8/1938, p1-2).

On 1 July 1937 the largest ship of the Japanese pearling fleets, the *Sanyo Maru*, sank in a storm off Arnhem Land in the Northern Territory. This research constitutes an historical archaeological study of the Japanese pearling industry through the survey and excavation of the *Sanyo Maru*, and an examination of isolated coastal finds held in local collections. The wreck remains the only located Japanese pearling shipwreck in Australia, and the results of this research form the first archaeological study of 20th century Japanese ceramics in Australia. Wreck assemblages remain the primary data-set in historical maritime archaeology, and ships are connected to societies in complex ways, potentially providing opportunities for rich analysis and meaningful interpretations (Adams, 2013, pp. 22, 23; Gibbons & Adams, 2001, pp. 280, 281; McGhee, 1997).

A variety of sources outside of archaeological evidence are also critically examined. This includes historical sources such as Australian and Japanese written records, charts, photographs and film. The thesis also draws on ethnographic research that details more recent Indonesian fishing in Australian waters, Aboriginal maritime tenure and Aboriginal taxonomies of shellfish. To provide a comprehensive historical study of a maritime extractive industry, analogies are drawn from organisational theory, forager studies and modern fleet dynamics. Experts in the Japanese pearling industry, Japanese shipbuilding, and the Japanese merchant marine were also consulted in the research.

A strength of this work is that it comes from a cross-disciplinary approach, using underwater shipwreck archaeology methods, concepts and tools of analysis, while also drawing on the far wider pool of multidisciplinary sources and explanatory frameworks. Through its results and conclusions this study demonstrates how the archaeology of a single shipwreck can make a significant contribution to big picture themes about our past to wider discourse on the archaeology of capitalism and colonialism (Croucher & Weiss, 2011; Leone & Knauf, 2015; Mayne, 2008; Orser, 1996).

1.1 Pearl shell and the Northern Territory of Australia

Before the motivation for this research is discussed, and the structure of this dissertation explained it is useful to provide a background of the geographic area, the period, and the pearl shell itself.

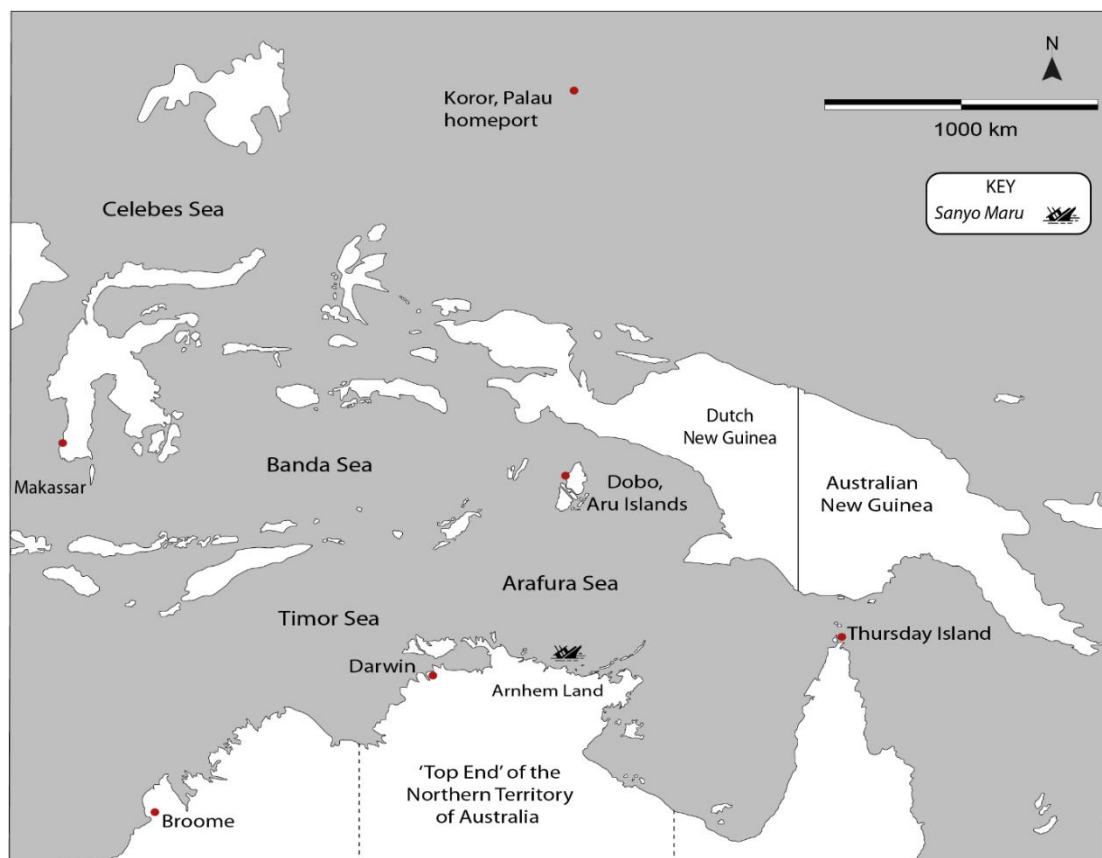


Figure 1. Map, northern Australia circa 1937, showing *Sanyo Maru*, major pearling bases, and the fleets home port of Koror Palau.

The Northern Territory of Australia forms part of Australia's northern coastline, and also constitutes the southern coastline of the Arafura Sea. To its immediate west is the Timor Sea. It shares these waters with the islands of eastern Indonesia, East Timor, West Papua and Papua New Guinea. In circa 1937, the focus of this study, the Indonesian archipelago and part of New Guinea was still a colony of Holland. After World War 1 German colonial possessions had been divided, and what is now Micronesia was given to Japan, and part of New Guinea to Australia. The Japanese fleet was based in Koror, a port town on the island of Palau, part of the Japanese Mandated Territory. It is for this reason that Palau, not Japan, is featured on the map above. Darwin was the homeport for a local Australian pearling fleet, different to the visiting Japanese pearling fleet, and was the administrative centre for the Northern Territory. For context the map shows the Australian pearling centres of Broome and Thursday Island, and the Aru Islands to the north, which are all briefly discussed, but outside the scope of this study.

Although the industry was commonly referred to as pearling, it primarily involved the wild harvest of mother-of-pearl or pearl shell. *Nacre*, the smooth iridescent layer found inside the shell of certain oyster species, was used in the manufacture of buttons, and as a decorative inlay on objects such as boxes, handles and combs. The occasional pearl found in the oyster was only extra revenue, a point confirmed by Idriess: 'The shell won was and always has been the basis of the industry; the pearls were the occasional plums' (Idriess, 1968:123).

The United States was a major market for these north Australian shells. A 1937 advertisement for clothes in an American newspaper advertised 'The perfect suit blouse, so beautifully, simply and smartly tailored with bow tie neck, [and] mother-of-pearl buttons down front... [for] \$5.95' (The Evening Star, Washington, 5/3/1937, p.B-7). In 1938 an American newspaper advertised gifts for men including pocket knives with 'good looking mother-of-pearl handles' for \$4, alongside cedar wood cigarette boxes (The Evening Star, Washington, 28/11/1938, p.B-7).

Mullins confirms that of the oyster species found around the world, none could compete with the large, flat and lustrous *Pinctada maxima* (*P. maxima*) (Mullins, 2005:216). Its thick nacre, and large flat surface area proved ideal for manufacturing. The shell is roughly the size of a dinner plate.



Figure 2. Pearl shell and unnamed sorter, Thursday Island,
 (shows *P. maxima* species)
 Frank Hurley
 National Library of Australia, PIC FH/8853



Figure 3. Examples of button stamped out of pearl and trochus shells from northern Australia
 Japanese pearling museum, Sea Breeze Rest Area, Shionomisake, Kushimoto, Wakayama Prefecture
 Photographed by author in 2020

Mullins confirms that *P. maxima* was historically extracted from four regions: Mergui Archipelago (Myanmar), Sulu Archipelago located between the islands of Borneo and Mindanao, south-east Indonesia and northern Australia (Mullins, 2005, p. 216) Hart provides

a modern distribution map of the species based on biological surveys, confirming a distribution that includes the east coast of India, Taiwan, Philippines, parts of Southeast Asia and northern Australia (Hart et al., 2016, p. 40). Mullins states that the most valued variety or sub-species was the silver lip variety, sometimes also called ‘golden lip’, which was confined to northern Australia and the Aru Islands, the latter located immediately north of Arnhem Land.

1.2 Motivation for this study

In 2000, the author and Peter Danaja, a Martay Burarra elder and historian, collected stories about shipwrecks in central Arnhem Land, interviewing Aboriginal elders from the Liverpool and Blyth Rivers, and conducting archival research (Danaja & Steinberg, 2001). The project resulted in the discovery of a location for the *Sanyo Maru*. This led to remote surveys of the shipwreck by the Royal Australian Navy, a diver inspection in 2001 in which the author participated, and field expeditions in 2012 and 2016 respectively, which the author led as both project manager and principal archaeologist (D. Steinberg, 2016). Whilst the discovery of the shipwreck constituted a major archaeological find, there were considerable gaps in our understanding. This shipwreck constitutes the first Japanese pearling wreck located in Australia (perhaps the world), and so there are no comparative evidence or studies. Furthermore, there was little written about Japanese pearlery in northern Australia.

Australian pearling operations feature widely in both academic works and popular books, but there remains a considerable gap in regard to the visiting Japanese fleets to which the *Sanyo Maru* belonged. Seminal works on Northern Territory maritime history either make no reference to Japanese visiting pearling fleets altogether, or the references are cursory (Macknight, 1969b; Powell, 1982, 2010; Reynolds, 2003). This omission may in part be because little detail was chronicled in Australian records. These were foreign-owned vessels operating just outside Australian territorial waters. Therefore, despite the scale of the industry and the fact that they operated only a few miles off the coast, they were outside the bureaucratic processes that produced Australian records such as boat registration and fishing licenses, and not subject to other regulatory frameworks as well as immigration and employment laws. Similarly, Japanese historians have not written about Japanese pearling, particularly prewar pearling, in any substantial detail, beyond a few general mentions.

The omission of Japanese pearling by historians writing on the Northern Territory may also reflect an attitude that the story of this industry is somehow separate to local history. Arguably, it is a part of local history simply due to its proximity to the coast, but further, because as careful empirical study provided in this dissertation shows, there is a hidden history of contact and connection between these foreign pearlers, Aboriginal peoples and indentured labour in Australia. Turning to non-academic publications on the Northern Territory, whilst some offer fascinating firsthand accounts, they avoid discussing foreign fleets in favour of local pearling, or focus on pearling before the arrival of the Japanese fleets in 1935 (Searcy, 1909; Sunter, 1997).

This thesis focuses on Japanese pearling over its short peak period between 1937-1938, which predominately took place in the waters off the Northern Territory. This makes the scope of this research carefully defined in terms of who is studied, the time frame of the research and the geographic study area. Consequently, many of the existing works on pearling in Australia are not relevant, as they focus on other localities, earlier phases when technology and labour differed, or describe only the local Australian industry. Some works are simple chronological studies of pearling but cover other periods, and others are thematic, exploring issues of immigration or indentured labour. Although all contribute to the much larger picture of pearling in Australia, they remain largely immaterial to this study (Bailey, 2002; Dickson, 2002; Ellis, 2010; Lance, 2004; Martinez, 2005; Martinez & Vickers, 2015; Mullins, 1995, 2001, 2005; Sissons, 1979, 2013).

While no study has examined Japanese foreign pearling fleets to the same detail as in this dissertation, or used archaeological evidence, Lamb (2015, 2019) provides the most significant contribution, and there is some crossover with this research. Lamb presents a predominately social biographical historical study. In contrast this research sets out to provide a detailed analytical study of the industrial process, and from that, the broader cultural dimensions. Furthermore, this thesis sets out to frame Japanese pearling and frontier contact within broad political and economic themes, and against analytical models such as the *maritime industrial frontier*. Also, whereas this study focuses exclusively, and exhaustively, on a peak two-year period of foreign Japanese pearling in the Northern Territory, Lamb focuses predominately on indentured Japanese labour in Australia, and is wider in geography and chronology, covering northern Australia, 19th century pearling and post-war activities. While Lamb provides personal biographical detail about some individuals who worked on Japanese pearling boats, much of his work is irrelevant to the focus and scope of this dissertation.

Darwin journalist, writer and local historian Douglas Lockwood briefly wrote about the foreign Japanese pearling fleets, noting their contact with local Aboriginal peoples. In his humorous frank style, he said:

The aborigines (sic), though warned not to fraternize, regarded their contact with the Japanese as profitable fun. To them, the strum of samisen, the prohibited sake, and the languor of the lugger parties were welcome relief from mission tea and segregation of the sexes (Lockwood, 1974, p. 129).

References like Lockwood's suggest that Japanese pearling did not operate in isolation, but involved culture contact and the emergence of relationships, which was as Lockwood suggests, all in defiance of instructions issued by authorities.

Oliver provides an important study of the Australian response to the Japanese both as indentured Australian labourers and visiting foreign fishers (Oliver, 2006). She appreciates that the Japanese maintained relationships with Aboriginal peoples, like the Macassans before them, that there was both hysteria and political motivation behind unsubstantiated accounts of Japanese activities, and that many accusations conflated the actions of indentured labourers, who were under Australian oversight, with foreign crews. Oliver's work is significant, but draws exclusively from Australian written sources, and covers other themes in preference to a deeper analysis of the industrial process, and the foreign Japanese fleets in particular.

Turning to other authors, Edeson provides a legal analysis of Australian laws and regulations controlling pearling that is relevant, but narrow in scope, and Bach provides an essentially demographic and economic analysis of competing local and foreign fleets (Bach, 1955, 1961; Edeson, 1976). The work of Martinez and Vickers (2015) on indentured pearling labour is important, although not the subject of this thesis, it nonetheless establishes the conceptual idea of a maritime frontier zone, emphasising connections and relationships between northern Australia and its northern neighbours.

In providing new knowledge and understanding this thesis also critiques flawed perspectives of visitation and contact. Trudgen, in contrast to Oliver, paints a picture of Japanese pearlery as a foreign invading force in Arnhem Land, similar in his mind to white pastoralists who 'stole, raped and killed' (2000, p. 28). They were, to Trudgen, the opposite of Macassans, who respected local ownership, traditions and traded peacefully. Arguably Trudgen's work is more political polemic than researched critical history, and he fails to reconcile any of the historical evidence of peaceful relations between Japanese and Aboriginal peoples examined in this

dissertation. Captain Charles Haultain's account of his time as a patrol officer, policing territorial waters against Japanese pearlers, is germane to the topic, but when assessed critically proves problematic for its bias (1971). Others accounts interpret Japanese pearling solely in the context of the war that followed, misidentifying commercial operations for military spying (J Harris, 2017).

The *Sanyo Maru* itself was the subject of a concise historical report, commissioned as an addendum to earlier archaeological fieldwork (Wilcox, 2006), and although commendable considering the limits of the available historical sources, conclusions were compromised by substantial inaccuracies. For example, it is argued that the *Sanyo Maru* was almost a sister-ship in design to the *Asahi Maru*, the latter described widely (Wilcox 2006, p 23). However, Wilcox references the technical details for a different *Asahi Maru*, not the one that functioned as a pearling mothership. Further still, even if he had referenced the right *Asahi Maru*, it was a markedly different vessel to the *Sanyo Maru*.

In regard to previous archaeological research, no archaeology has been done on these Japanese pearling fleets in Australia. Further there have been few investigations of pearling sites generally in Australia, and those that do exist focus specifically on land sites such as camps and ports (Anderson, 2016; McPhee, 2004; Paterson, 2018; Stanbury, 1994). Since the Japanese system involved harvest, processing and resupply at sea, there is no associated terrestrial infrastructure such as abandoned wharves, dilapidated jetties, historic port infrastructure or remains of semi-permanent seasonal camps. This study is therefore innovative both as an archaeological appraisal of the Japanese industry, and as a focus on the submerged physical evidence for pearling.

The lack of past archaeological work on the fleets, and a more narrow and limited focus by those few historians that had considered the subject, confirm there exists a considerable gap in both empirical knowledge and deeper analysis. This meant that although a major shipwreck was discovered, and preliminary historical research confirmed that the fleets were extensive, operated a short distance from the coast, and foreign crews were making contact with local groups, there was limited knowledge to draw from.

1.3 Purpose and scope of the study

The purpose of this study is to use a historical archaeological approach to reveal and examine the role of this ship, and situate it within the Northern Territory's maritime past. This aim raises questions about the ship's role in the fleet, about life aboard, and about how the industry operated both as an extractive process, and as a fleet isolated and distant from its homeport. It examines the factors that shaped this operation, which included political and economic changes at home, technical and organisational advances, as well as the local circumstances of the Northern Territory. Furthermore, these fleets did not work in isolation. There was contact and barter with indentured pearling crews, and Aboriginal peoples, and also conflict with missionaries and the Australian Patrol Service. Fragmentary evidence of pearlers paying tribute to Yolngu peoples to secretly land boats is critically examined.

These lines of enquiry are studied within a conceptual framework that uses a contextual archaeology approach (Hodder, 1986, 1992) and which interprets this history through the lens of capitalism and colonialism. These high-level concepts are reached by drawing on theory and discourse about smaller scale concepts that are related to colonialism and capitalism, such as territorialism and economic imperialism, and which are closer to the empirical evidence.

These research goals are distilled down into the following research question:

How did the Japanese pearling industry of the late 1930s operate off the Northern Territory coast and what does it reveal about Japanese imperialism and Australian maritime territorialism?

This can be subsequently broken down into a series of sub-questions:

1. What economic and political factors shaped the Japanese pearling system?
2. What does the archaeology of the *Sanyo Maru*, reveal about the industry and the larger forces that shaped it?
3. What contact did these visitors have with locals, and what is the evidence?
4. How did Japanese pearling challenge Australia's idea of its maritime territory?

While the initial inspiration for this study was the discovery of a single shipwreck, the study evolved and a number of broader concepts were examined. Territorialism and imperialism, and

other themes used in this study including maritime frontier, all provide a powerful explanatory framework for this study. However, these lenses must be carefully examined. This means an understanding of them conceptually, as well as their historical and geographical relevance to this specific set of circumstances. If our understanding of an historic shipwreck as an artefact is not framed and informed by the nuanced and multilayered historical context, then our understanding of its significance can be limited, and our conclusions ultimately unsatisfying. Therefore, this study builds layers of historical context, drawing in different perspectives and analysis, in order to provide an explanatory framework of authority and accuracy.

This dissertation has nine (9) chapters and appendices of supporting data. **Chapter 1** outlines the aim and scope of this research, critically examines work in the history and archaeology of pearling and highlights the empirical gaps. **Chapter 2** provides a critical analysis of relevant theory both more generally and as it relates to the specific historical context. **Chapter 3** outlines the methods used in this research project; a multi-disciplinary approach including historical and archaeological research, material culture studies, expert consultation, and contemporary analogies. This chapter identifies the opportunities that arose during the research, the constraints that had to be managed, and reaffirms the scope of the study.

Chapter 4 analyses local conditions and the circumstances that shaped how the Japanese industry operated. It assesses the impacts of natural conditions, the extent of the Australian industry in comparison, the absence of secondary ports, administrative boundaries such as Aboriginal reserves and Aboriginal marine tenure. In short, it explains the maritime frontier that the Japanese pearlers entered. This is original work drawing predominately on primary sources.

Chapter 5 is a historical study of the Japanese pearling industry. It provides a history of its evolution from a small industry to a larger one managed by broader corporate interests and of the boom period of 1937-38, the focus of this study. It examines the web of companies that controlled industries in this region and proposes the influence of ideological and political drivers.

Chapter 6 is a companion chapter to Chapter 5. It describes how the Japanese fleet operated in Northern Territory waters, and analyses the industry ships and how they interacted. It introduces contemporary fishing studies, network theory and foraging studies to provide a dynamic discussion on fleet operations and also refers to organisational theory.

Chapter 7 is an archaeological investigation of the *Sanyo Maru* shipwreck and its assemblage. It recognises the sinking event and salvage as site formation processes relevant to archaeological analysis. Physical evidence deepens our understanding of the ship's class and role, and of life on board. Qualitative analysis of the assemblage includes a discussion on the symbolic aspects of food consumption, class and hierarchy and examines ship stores as evidence of local manufacturing versus imported items.

Chapter 8 is a historical and archaeological study of clandestine contact between foreign pearlers, local indentured pearlery and Aboriginal peoples. It includes an examination of isolated coastal finds associated with Japanese landings, which had been incorrectly provenanced as Macassan by past researchers or unidentified. The implications for Japanese and Macassan archaeology in the Northern Territory are considered.

Chapter 9 is a discussion and conclusion. It argues the relevance of findings in answering the research question, in particular in framing Japanese pearling off the Northern Territory as part of an 'informal empire'. The chapter also suggests directions for future work.

Chapter 2: Theoretical approaches, historical context and a framework for this study

2.1 Introduction

Barrett explains that ‘Theory can operate in two ways: it can facilitate the formulation of ideas about certain conditions, where those ideas then demand some kind of empirical investigation, or it can orientate our ways of looking at and interpreting certain conditions’ (Barrett 2001, p. 142; McKinnon 2010, p.11). This research project uses theory in the latter sense. There was a pre-existing familiarity with Northern Territory history and involvement in the discovery of the *Sanyo Maru* shipwreck at the onset of this research project, which then raised broader questions of a historical, archaeological and conceptual nature. Barrett also clarifies that the goal is not necessarily to reconstruct the past, but to build an understanding of it by applying frames of reference. This research certainly draws on historical and archaeological sources to be historically accurate and make an empirical contribution, but there is, as Barrett suggests, also an opportunity to build a deeper understanding through specific frames of reference.

The diagram below provides a flowchart of the theory used in this research. Japanese pearling off the Northern Territory coast is considered through the lens of capitalism and colonialism. These two concepts form the broader overarching framework of this study and they are evoked again and again. These higher concepts are reached by drawing on theory and discourse about smaller scale concepts that are related to colonialism and capitalism, such as territorialism and economic imperialism. This conceptual framework provides for a deeper historical understanding of both this history and its material remains.

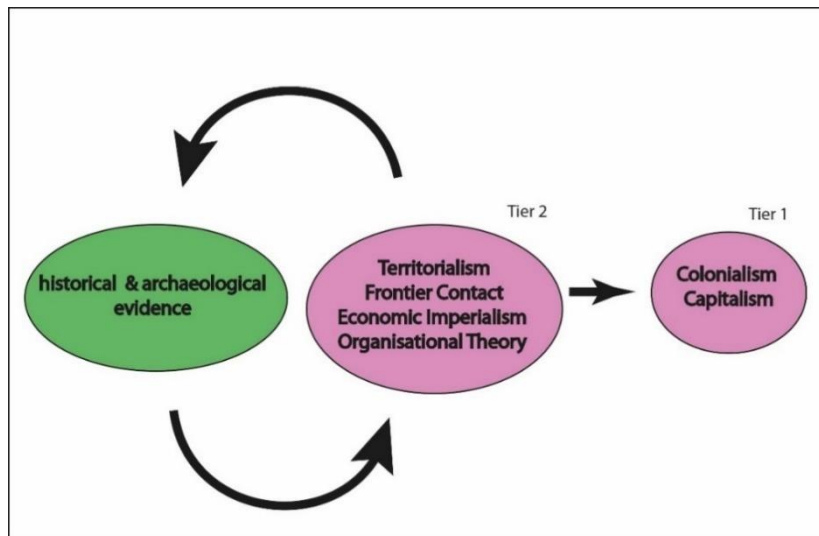


Figure 4. Themes and theories depicted as part of a hermeneutic process

The hermeneutic circle as an analytical process, connecting evidence with interpretation and theory, is discussed later in the chapter. At this stage it is sufficient to appreciate it as an effective process that connects evidence with interpretation. As described above, concepts or themes relegated as Tier 2 provide a conceptual bridge to higher theory. These are lower concepts, still significant, but closer to the empirical evidence.

In this study these themes work both independently, providing insight to specific circumstances, but also may be seen as connected; as part of the same phenomena, or conversely come into conflict and therefore reveal a tension or contradiction. For example, Australian colonialism is examined through discourse on Australian maritime territorial border control (territorialism). The ability of the Australian patrol officers to effectively police its maritime border was impacted in part by distance and isolation from Darwin, and the recognition by foreign visitors of Aboriginal tenure over Australian authority (frontier and frontier contact). Here the lens of territorialism and the frontier intersect, or collide. Therefore, these themes can provide a deeper understanding of the past both when considered alone, and also in relation to each other.

This chapter provides a conceptual/theoretical framework with a strong emphasis on historical context. Historical archaeologists are privileged to have access to the historical record, as it can provide further evidence for understanding the particular circumstances of a place and events in some detail, giving depth, accuracy and validity to associations made with theory. There is the risk of talking too broadly, leaping to concepts such as economic imperialism, without a strong foundation in the particular historical circumstances, and a line of sight between those

circumstances and the associations one can potentially make. If objects are entangled in the world around them (see N. Thomas, 1991), then the historical archaeologist must strive to understand that world in all its complexity.

This research began as the investigation of a single shipwreck, and therefore at that early stage could be described as a particularistic study (Bass, 1983; Gibbins & Adams, 2001; Staniforth, 2003b). Archaeological studies focusing on a single shipwreck are at risk of being too particularistic, too narrow in scope (Richards, 2006; Staniforth, 2003b; Veth, 2006). This risk was avoided. The study expanded beyond a narrow framework, to consider the operational history of the fleet to which this ship belonged, other maritime activities where the ship operated, administrative controls by local authorities, and culture contact. A wider picture of an industrial maritime frontier took shape. Archaeologically the study developed further, examining evidence of artefact deposition along the coast not directly associated with the single shipwreck. Furthermore, the shipwreck assemblage was considered as evidence of larger national goals, beyond being evidence of that crew, that last voyage, or of pearling.

Nevertheless, the initial direction of the research meant the project was better suited for some theoretical approaches than others. It is therefore, for example, not a goal of this study to apply or critique models about cultural contact or maritime frontiers. Models on these topics can certainly be valuable, identifying common mechanisms, but better suit landscape studies, inter-site studies or a focus on processes (see Anderson, 2016; Beck, 2009; Birmingham & Jeans, 1983; H. R. Clark, 2009; Gibbs, 2010; Hardesty, 1985; Korsgaard & Gibbs, 2015; Parker, 2006; Paterson, 2011; Rockman, 2003). In this research, these concepts are conceived as topics, frames of reference to interpret broader meaning.

2.2 Relevant approaches in archaeology

2.2.1 Material culture analysis and contextual archaeology

This research draws on four approaches to the analysis of archaeological material. The first three involve inductive reasoning (Salmon, 1976). The first of the three was the identification of a shipwreck (*Sanyo Maru*) by matching known historical descriptions of its construction and sinking with physical evidence in the field. This process proved to be more complex than first conceived. The dissertation shows that while the wreck was quickly identified correctly as the

Sanyo Maru, there were discrepancies between how it appeared in the field, to how it was described in some primary and secondary sources.

The second approach relates to artefact classification and the recording and analysis of the visible attributes of material, form and decoration (Brooks, 2005; Crook et al., 2002; Lawrence, 1998). Excavated ceramics from the wreck and artefacts in museum and private collections can all be drawn into a single study. Here analysis considers the historical contexts of manufacture and distribution. The language marked on bottles and labels may reflect manufacture for a specifically foreign market or foreign client. Imperfections in type may reflect a choice in manufacture for efficiency over quality, and result in a particular market value, affordability and consumer class (Brooks, 2010; Crook, 2011). Studies show that in some ceramic industries imperfect examples were ranked and priced accordingly, servicing a thriving Seconds market (Crook, 2011). Artefact catalogues of excavated artefacts from one or multiple studies can become important references for researchers, and consequently an outlier discovery, initially classified as unknown or foreign, can be finally provenanced. New research may add to these collaborative studies, bring in new sources, and in doing so, call for a rethink of past analysis. In this regard this dissertation constitutes the first comprehensive study of 20th Japanese ceramics in Australian archaeology.

The third approach draws on what has been described as the ethnographic approach to material culture, focusing on the *use* of objects (Lawrence, 1998; Staniforth, 2003b). This term makes an association with ethnographic fieldwork in sociology, anthropology, synchronic perspectives, and the observation of events and practices (S. Howell, 2018; N. Thomas, 1991; Vannini, 2009). Here objects are ‘things in a certain situation’ (Appadurai, 1986, p. 13) where research programs may use functional classifications to reconstruct past events (Banning, 2002; Brooks, 2005). In shipwreck archaeology it supports the study of the wreck as a closed community (Muckelroy, 1978; Staniforth, 2006). The ethnographic approach to material culture study is a worthy goal for the archaeologist, but it will always remain in part unrealised. Where anthropologists study a richly contextualised world where the living are observed going about their day, archaeologists study fragments of a world long gone (Barrett, 2001).

The fourth approach, which is not a simple inductive one, is the study of the codes of cultural meaning, embedded in artefacts; meanings which may have no visible connection to their utilitarian function (Hodder, 1992, p. 11). With this approach objects are meaningfully

constituted (Hodder, 1992, p. 12), and, as is widely appreciated amongst researchers, they are not passive reflections of culture, but active agents, reinforcing culture, norms and behaviours (Hodder, 1992, p. 15; Orser, 1996; N. Thomas, 1991, p. 115). Artefacts are things from the 'homeland', objects that reflect and reinforce shared culture, doing so at the conscious and unconscious levels (Lawrence, 1998). Importantly this is not reserved for the obviously symbolic object, say a national flag flying on a ship's mast, but includes the seemingly mundane, everyday item (Guarinello, 2005, p. 22). Here material culture is a symbolic system in practice (Guarinello, 2005; Shanks & Tilley, 1987, p. 116). But caution is needed, as these codes are particular to periods and cultures, and so reading them is open to misinterpretation (Hodder, 1992, p. 11; Lowenthal, 1985).

Related are the *unintended meanings* of material culture; namely how others may interpret the actions of a person using goods or tools or the reaction of observers to a machine, ship or structure, although causing that reaction was not intended by those using it (Hodder, 1992, p. 13). Here Hodder explores the complexity of coded messages, appreciating that objects and structures can have different meanings to different people of the past. There is no one true meaning, and scholars are best served seeking to identify these varied responses. Ships can feature largely in such discourse; for example, examining what a colonial or commercial ship meant to Aboriginal people on shore watching its arrival.

The examples of archaeological analysis above seek to reconstruct the past, be it actions, or how people of the past understood the things around them. But what of concepts such as colonialism, economic imperialism and territorialism; contemporary frames of reference that were not used by those in the past to explain their own circumstances? These are ideas that connect to coded messages and structures of the past, but is terminology constructed for, and meaningful to, contemporary understanding. The goal here may not be to reconstruct the original meaning of objects as understood by the user (Shanks & Tilley, 1987, pp. 117, 211). Rather, it appreciates that archaeology is a mediation between what happened and what that now represents (Funari et al., 2005; Hodder, 1986; Shanks & Tilley, 1987, pp. 133-135).

The methodology is the hermeneutic circle of contextual analysis. It originates from textual criticism, and suits qualitative inquiry and interpretation in archaeology (Hodder, 1986, 1992; Johnson & Olsen, 1992; Kinsella, 2006). Shifting from the specific to the context and back, an ongoing dialectical process of refinement, the parts inform the whole and the whole provide

new interpretation of the parts (Johnson & Olsen, 1992, p. 421). Here small scales of reference are compared with wider more abstract concepts; a multi-scale approach that lends itself particularly well to the historical archaeology of colonialism (Mayne, 2008, pp. 105,107).

Critics of the application of hermeneutics in archaeology, argue that the process can be flawed and interpretation shaped by subjective opinions, producing unreliable narratives (Johnson & Olsen, 1992, p. 430; Knapp, 1996; Renfrew, 2001, pp. 15-18). But rigor can be applied, through the use of logic, reason, evidence, critical thinking, comparative studies and peer criticism. Hodder confirmed that contexts and interpretations must be tested, with some kept, some refined and others discarded (Hodder, 1992, pp. 15,162,167). Hodder and others also confirmed the process starts with what is known, which is constrained by the immediate physical contexts (Andren, 1998; Hodder, 1992, p. 156). This is repeated in advice on studying colonialism in archaeology; that analysis begins with the artefact itself (Leone & Knauf, 2015, p. 16; Orser, 1996, pp. 110,117).

2.2.2 Unpacking ‘shipwreck’ theory

In 1978, over 40 years ago, Keith Muckelroy concisely encapsulated shipwreck archaeology by describing a hypothetical wrecking event as a site formation process.

A ship undertaking a voyage leaves absolutely no imprint on the archaeological record, and, if all goes well, the evidence will be effectively dispersed at the end of the voyage, when the cargo is sold, the crew go to their homes, and the ship is taken on for a new enterprise or broken up. It is only if disaster strikes during the voyage, and the whole unit - ship, cargo, and shipboard community – is deposited on the seabed, that there is any chance of a permanent material record which is archaeologically recoverable (Muckelroy, 1978, p. 7).

Whilst capturing much of the distinctiveness of the shipwreck as archaeological site, this is separate to theory building. This thesis details the survey and excavation of a shipwreck, constituting a prominent part of the source material for this study, and draws on decades of professional experience in the study of this type of data-set. There are logistical hurdles in conducting archaeology underwater and there are conceptual aspects and analytical tools particular to this data-set, and this is considered in the following chapter.

However, this research does not draw on any theory ascribed particularly to shipwreck archaeology but draws from the far wider interdisciplinary pool of explanatory frameworks

from historical archaeology, history, sociology and anthropology. The ongoing paucity of high-level shipwreck specific theory is because the proven path forward is to continue to engage in the discourse of our colleagues outside of shipwreck (and maritime) research, using an inclusive approach to theory building and its application (Flatman, 2003; Gibbins & Adams, 2001; Gould, 1983, 2000; Staniforth, 2003b; Veth, 2006). This does not diminish the explanatory potential of shipwrecks, which are complex expressions of the society that created and used them and of specific historical circumstances, (see Adams, 2010, p. 303), but suggests only how best to realise this potential.

Problem-orientated research design has led to a rich diversity of studies that approach shipwreck archaeology from different directions. Some studies focus on specific parts of the wreck, such as the cargo from the *Sydney Cove*, wrecked in Victoria (Staniforth, 2003b), whilst other studies focus on the ship in its entirety considering its construction, or its sinking, salvage or abandonment (Adams, 2010; Richards & Seeb, 2013). The ‘closed community’ analogy, of life-aboard, is commonly discussed in shipwreck discourse and is related to the anthropological/ethnographic approach (Muckelroy, 1978, p. 221; Staniforth, 2006). One focus in this thesis is the culturally informed practices associated with a Japanese merchant ship, identified in the architecture of the ship and the artefact assemblage. There are certainly well documented dangers for a scholar researching a culture other than their own, including fetishism of the ‘other’ (Said, 1979; Tuiwai-Smith, 1999). In response the following chapter outlines the input of Japanese scholars.

Also considered in this study is a ship’s symbolic attributes. Here symbolism is not a reference to ritualised construction or symbolic design, but means the political, cultural and ideological contexts associated with that ship, that fleet and that voyage. Ships are linked to societies in complex ways, as floating ideology, as cultural and political entities expressing ideas and aspirations (Adams, 2013, pp. 22, 23; McGhee, 1997). They worked towards goals far larger than just safely reaching the next port. One aspect explored in this dissertation is thinking of the motherships and supply ships as an *aide memoire* for the fleet, reminding the dispersed crews of their common culture, national identity, and shared goals. Particularly relevant to this research are efforts to use shipwreck archaeology as a means to critically engage with colonialism and imperialism, and avoid the potential lifeless historicity of what amounts to technical studies, as seen in some examples investigating ship construction (Flatman, 2003; McGhee, 1997).

A strategy for approaching symbolising in shipwreck archaeology is the testing and refining process of the hermeneutic cycle. An example of ongoing refinement is the study of the *Xantho* shipwreck, located in Western Australia. An early seminal work in iron and steam shipwreck archaeology, the long life of the project allowed an evolution in understanding (McCarthy, 2002). An initial interpretation of the wreck identified it as a symbol of frontier colonial capitalism. Interpretation may have stopped there. But the excavation of the engine identified an engineering modification error by the owner that made failure inevitable. Interpretation became more nuanced, enhanced by archaeological data and its analysis, and the wreck's symbolic meaning evolved. The wreck came to symbolise an ineptitude in frontier entrepreneurship. By analogy any ship of the Japanese fleet could be contextualised as a symbol of Japanese economic imperialism. But in returning to sources and material analysis, interpretation may be further refined, and the singular wreck better understood.

2.3 Approaches in history

The renowned historian Fernand Braudel, of the *Annales School*, established his famous three scales of historical study: the long term, the medium term and the event (Braudel, 1981). These are not necessarily exclusive but may work collaboratively. Braudel poetically describes the study of the event and individual people as 'a history of brief, rapid nervous fluctuations...of momentary outbursts, surface manifestations' (Braudel, 1981, p. 21). These are manifestations of deeper forces, *medium term* phenomena, such as for the purpose of this research, capitalism, Japanese imperialism and Australian colonialism. This is an historical study of the relationship of two scales, the event and the medium term.

Staniforth refers to Braudel's three scales of time in a shipwreck study, correctly arguing that the archaeology of a shipwreck is the 'archaeology of an event' (Braudel, 1981; Staniforth, 2003a) In this study Staniforth's interpretation is used, with the assemblage constituting the remnants of that final fatal voyage. Here is a connection with the ethnographic approach to material culture analysis discussed above. But the 'event' occupying other aspects of this study is not just the moment or day it sank, but a two-year period, 1937-1938, a peak period in the longer history of pearling. Braudel himself wrestled with the advantages of extending the notion of the event or the moment, and accepted that it truly means a short time span, proportional to individuals, meetings and daily life (Braudel, 1980, p. 28). While the above

describes theoretical approaches, the methods used in conducting historical research are discussed in the following chapter.

2.4 The lens of capitalism and colonialism

In 1977, Deetz wrote that ‘Historical archaeology studies the cultural remains of literate societies that were capable of recording their own history’, thereby unwittingly discounting other peoples that were contemporaneous (1977, p. 5). Deetz later returned to this theme, acknowledging the contribution archaeologists could make to understanding the impacts of colonialism, although at the time this was only an emerging subject for archaeologists (Deetz, 1989, p. 434). Similarly, in 1988, providing a history of Australian historical archaeology, Connah identified that the archaeology of contact remained unrealised (p. 155). Croucher and Weiss recognise that the discipline has now progressed (2011, p. 3). Through contact and frontier studies, and more nuanced colonial studies, the stories of those impacted by colonisation have come more fully into focus. Capitalism and colonialism, central concepts in this thesis, are now widely recognised as two foundational concepts in the discipline of historical archaeology (Croucher & Weiss, 2011; Leone & Knauf, 2015; Mayne, 2008; Orser, 1996).

The terms capitalism and colonialism are so broad in scope and ideologically loaded that no single definition or approach works. They must be unpacked, and specific expressions or aspects made relevant to the particular context and specific empirical data (Leone & Knauf, 2015, pp. 7-8). These relate back to the Tier 2 concepts identified at the beginning of this chapter. The result however can risk a narrow particularism, in which we are left with dislocated case studies and no comparative analysis (Gibbs, 2005). Hence research must articulate both specific circumstances and wider relevance.

Before capitalism, imperialism and colonialism are examined in detail, a brief explanation of how these big picture concepts frame this particular work is helpful. Japanese pearling was a commercial endeavour, with boats and companies competing to bring in a harvest, and so at a first glance, this was simply a capitalist enterprise, based on extracting a resource. But Japanese pearling rapidly changed over a few key years, from a small cottage industry to a highly capitalised one, characterised by the introduction of parent companies, corporations and conglomerates. Furthermore, the relationship between capitalism and imperialism is explored

through a form of Japanese imperialism based on extracting resources, and operating industries far from home, but without formal colonisation. Colonialism is the lens used to consider aspects of how the Australian government and local administration governed the Northern Territory. A particular aspect of colonialism that is explored in detail is the creation and management of sovereign territorial waters, the hardening of its borders, the policing of those borders, excluding some, and not others, and controlling who may interact once inside. In this way this research explores the intersection between a foreign capitalist project and a local colonial structure.

With capitalism and imperial economic expansion critical to this research they must be examined closely. Smalbach provides a concise and sufficient definition of capitalism thus:

Capitalism can be defined as an economic system that features private ownership of the means of production (such as factories, offices and shipping enterprises) and in which market forces determine the way in which goods are produced and the means by which income and profit are distributed... The capitalist is the individual – or group of individuals – who invests money in an enterprise in exchange for potential profits in the future (2014, pp. 25,27).

Smalbach also makes some particularly relevant observations. He marks the emergence of Industrial Capitalism in the world by the mechanisation and industrialisation of production and increase in scale and capital accumulation (Smalbach, 2014, pp. 41-44). Further he appreciates that different nations struck their own balance between government oversight and industry, and Japan had strong state involvement in order to stimulate and support industrialists (2014, p. 61), a notion further discussed in Chapter 5. Particularly relevant to Japanese pearling in 1937-38 is his explanation of a boom, created when a new opportunity arises and capital rushes in to invest (2014, p. 187). Over-investment and unreasonable expansion can be a consequence, resulting in too many workers, too much machinery (e.g. boats), excessive inventories, and too much debt (Smalbach, 2014, p. 97) (see Chapter 5,6).

Early seminal economic theory considered the entanglement of capitalism with colonialism. Though these sources are some decades old, many of the fundamental debates over capitalism are not new, nor any closer to resolution (Smalbach, 2014, p. 19). Two questions that continue to resonate are: how does capitalism work and who does it serve? (Smalbach, 2014, p. 22) Lenin's 'Imperialism the highest stage of capitalism' is an urgent polemic (1939). The 1920

edition was written only 15 years before Japanese pearlers moved into the waters off the Northern Territory. The abusive world system, as understood by Lenin, is near contemporaneous with this expansion, and Lenin identifies Japan as an emerging imperialist power in the Asian sphere (1939, p. 97).

Lenin argued that under imperialism the world was divided up between powerful States, and the driving force behind that process was capitalism. He argued that capitalism had evolved beyond its ethos of free market competition in the 1880s, to contradict it, supporting the development of monopolies and cartels. Powerful nations expanded to find new raw materials and new markets, feeding the mechanics of capitalism, and the less developed world was divided into colonial possessions to serve this process. Lenin drew heavily on the work of the economist Hobson who focused on the British Empire (Hobson, 1905).

The relevance of Lenin's work is that capitalism was a primary driver of imperial expansion and that imperial nations practised forms of monopoly capitalism. Japan was such a nation, creating monopolies within industries and controlling capitalist expansion overseas. Roberts explains Japan's case in detail, and further confirms that Japanese intellectuals were familiar with Lenin's publication (J. Roberts, 1973, p. 246).

An innovative idea that influenced theory building in this dissertation is the *informal empire*, which proposed that there were numerous informal types of imperialism that either precede formal colonies, work alongside the colonies or made formal colonisation unnecessary (Mommsen, 1980 p. 86). Early proponents Gallagher and Robinson, explained that imperialism was the political aspect of the process of integrating new regions into a dominant economy or the orbit of an expanding empire's economy (1953). The focus moved from studying the formal colonies, into its wider sphere of economic influence. This is comparable to Wallerstein's world system theory which affirms the connection of nation-states and capitalism, and distinguishes core nations that held capital, from others identified as sources of resources, but all part of the same global economic system (Wallerstein, 1974).

Through the informal empire seemingly unconnected events can be seen as part of the widening imperial sphere of influence. Importantly these peripheries can change in nature over time (Mommsen, 1980 p. 89), such as a few individual ambitious fishermen evolving into fleets of fishing boats. Some scholars argued that informal economy lacks focus as a frame of reference,

there being no clear boundary distinguishing imperial influence and just competition (Mommsen, 1980 pp. 89-93). This debate is irrelevant to this study, as companies and corporations that owned Japanese pearling operations in the later 1930s were clearly entangled with imperial ideology.

2.5 An historical and theoretical understanding of Japan's industrial imperialism

Japan was a latecomer as a colonial power in the Asian region and much has been written about the origin of its colonial aspirations with historians citing combinations of economic, strategic and socio-ideological drives (Gann, 1984; Peattie, 1984, 1992). In 1937-38, the historical focus of this thesis, Japan had a formal colonial empire that included Taiwan (1895), Karafuto (1907), Korea (1910) and Micronesia (1914), with a military invasion underway in Manchuria (northeast China). Micronesia is particularly important to this research, as it was the base for the pearling fleet that worked the Arafura Sea.

Industries in the colony of Micronesia, included sugar, phosphate mining for fertilizer, and fisheries, particularly bonito and tuna (Peattie, 1992, pp. 123-138). The most dramatic surge in Japanese marine exploitation in Micronesia in the 1930s was founded on the discovery that cultured pearls matured faster in the tropical waters of the colony than in Japan (Peattie, 1992, p. 140). With cultured pearl farming operating in the Micronesian colony, Japanese divers also reported excellent shell in the Arafura Sea and waters off northern Australia. The eventual confluence of a pearl aquaculture industry in the Palau colony with the wild harvest of pearl shell from northern Australia stands as an excellent example of a colonial enterprise operating both within its boundary and beyond. As Peattie explains '...Japan eventually used its overseas possessions as stepping stones to ill-considered expansion beyond the boundaries of the formal empire' (Peattie, 1984, pp. 49-60,100).

Over the inter-war years Japanese economic expansion into Southeast Asia took various forms including: shipping services; off-shore fisheries with bases in Manila, Batavia and Singapore; tin, manganese and bauxite mines and rubber plantations in British Malaya; oil exploration in the Dutch East Indies; farming in Papua and German New Guinea and a merchant class selling Japanese goods including textiles and ceramics (ACIPR, 1934; Chen, 2008; Dick, 1989; Duus, 1996; Iwamoto, 1999; Peattie, 1996; J. Roberts, 1973; Shimizu, 1997; V. Thompson, 1941). Whether these individual enterprises failed or not is irrelevant to a critique of the driving

impulse to push south into the region. The myriad of economic, strategic and socio-ideological explanations provided by scholars' focus on the interpretation of two concepts *nanshin* (southern development) and *nanyo* (South Seas) (Peattie, 1992).

Nanshin was an ideological doctrine that was debated amongst Japanese scholars and evolved overtime. It was vague in application but based on a historical and prophetic national destiny to expand southward (Peattie, 1996). Associated only with Micronesia at first, it promised both economic prosperity, but also national glory, the latter a perceived correlation between power, prestige and holding territories (Peattie, 1992, p. 2). But nanshin's geographic scope expanded further southward and overtime, language become more militant. Nanyo, which once meant just Micronesia expanded to include an Outer Nanyo, penetrating south into the Philippines, Dutch East Indies, and beyond (Iwamoto, 1999; Peattie, 1984, p. 200).

As an archaeological study this research sets out to identify and examine the physical debris (evidence) of a marine industry governed under this informal empire. It is argued that the *Sanyo Maru* shipwreck is an example, and this includes the ship itself and its assemblage, particularly the remnants of ship stores. Ship stores represent the supplies required for a ship to operate, and was therefore tied directly to other manufacturing industries. This raises a third important Japanese ideological doctrine, the national campaign of *kokusanka*, namely prioritising local manufacture over imported goods (Samuels, 1996, p. 41). The study examines excavated ship stores to assess how closely *kokusanka* was followed.

Whilst all nations aim for a balance of trade that favours their own products, *kokusanka* was particularly important to Japan at this time, because Japan had recently reshaped its economy, with a heavy investment in industrialisation, scientific engineering and manufacturing (Crawcour, 1998, pp. 385-444; Moore, 2006, pp. 3,10,21). Manufactured goods had two markets, Japanese consumers and international consumers. Japan was successfully expanding its export market. For example by 1935 British Malaya imported more cotton goods from Japan than Britain, and by 1936 the Japanese sold more tinned sardines in British Malaya than the US, which was a major source of protein for workers (Shimizu & Hirakawa, 1999, pp. 80,81). The other side of the balance of trade was to reduce the import of foreign manufactured goods. *Kokusanka* promoted local goods and self-reliance.

The dilemma for Japan was that it held no colonies in Southeast Asia. Nanshin was therefore realised through industry and capitalism, a process assisted by the weakening of the old European colonial regimes in Southeast Asia (Duus, 1996) This was the face of Japanese

imperialism, expanding capitalist enterprises but with an underlying socio-ideological rationale particular to the South Seas. This expansion was sometimes sold as a benefit to locals. The professed Greater East Asia Co-Prosperity Sphere would see the emergence of a new trading block that excluded the old foreign colonial powers (Duus, 1996).

The economic system and ideological drives described above may suggest that Japan's expansion was steady and untroubled. This was not the case, and Japan experienced great political, social and economic turmoil in the early 20th century manifested in political instability and assassination, social unrest and protest, the Great Depression, the devastating Tokyo earthquake of 1923, banking crises and the war in Manchuria, the latter which brought some economic benefits but militarised the economy (J. Roberts, 1973). *Nanshin*, *nanyo* and *kokusanka* are important concepts for historians, as is appreciating they rose to prominence at a time of great change and unrest.

2.6 Framing an industrial empire and putting the war in context

The use of informal empire to view Japanese pearling in the Arafura Sea in the years 1937-1938, emphasising industry, profit and capitalism as their own goals, provides a new way of framing Japanese activities off northern Australia. It stands as an alternative to contextualising Japanese pearling as some prelude to the outbreak of war between Japan and Australia, which followed a few years later. The focus of this study is 1937-1938, a time when war was far from inevitable. However, it is a historical reality that war followed, with Darwin evacuated of women and children in December 1941, and the coast under Japanese air attack from February the following year (Powell, 1982, p. 197). Nevertheless, there is a deceptive gravity to conflict studies, in which events that occurred prior to a war, and were unrelated, may in hindsight be interpreted as connected (Levy & Thompson, 2011). Japanese military intelligence may have used Japanese pearlers as a source of knowledge in later years, but this does not then mean that the pearling operations of earlier years were themselves just a ruse.

Some historians conflate commercial and military activities, and misinterpret the historical observations of pearlers. An example is John Harris's framing of the Coastwatch program (2017). Coastwatch was a network of information-gathering that used volunteer civilians in remote locations to report on unusual foreign activity, and by September 1939 seven hundred

Coastwatchers had been appointed by Australia (Winter, 1995). Northern Territory coastal missionaries were inducted as Coastwatchers, and Harris frames Japanese pearlers as some form of enemy combatant under observation from their arrival (J Harris, 2017). But this does not fit with the history of the program. The Northern Territory was inducted into the Coastwatch program in 1927, including coastal missions, and so involving coastal missionaries was not a response to the arrival of Japanese pearlers who came years later (NAA,F1,1939/59). Furthermore, missionaries were eventually instructed to stop reporting on Japanese pearlers, unless their activities were unusual (J Harris, 2017). Harris, using hindsight, saw this as a failure by Australian military forces to appreciate the threat, a threat according to this thinking eventually proved by the onset of war (J Harris, 2017). The conflation of 1937 commercial pearling with military plans remains unsubstantiated.

A history of Japanese policies and campaigns that led to the Pacific War is far beyond the scope of this dissertation, but has been covered elsewhere (Coox, 1998, pp. 315-340; Ikuhiko, 1998, p. 309). These authoritative historical studies conclude that conflict between Australia and Japan was not thought of as inevitable in 1937-1938, the peak years of pearling and the focus of this study. Rather, the period 1940-1941 is understood to have been the important turning point in the road to war. Only by 1940 did Japanese plans for a military campaign into Southeast Asia take hold among key leaders, whilst 1940 marked the signing of the Tripartite Pact between Japan, Italy and Germany (Ikuhiko, 1998, pp. 309-310). Sanctions against Japan were progressively introduced, but negotiations continued through most of 1941, with some citing the inevitability of conflict only after the last round of United States demands were delivered to Japan in late November 1941 (Ikuhiko, 1998, p. 310). Turning to Palau, the home base for the fleet, Peattie notes that construction work to adapt this industrial centre to support a military force truly began at a significant scale in 1940 (Peattie, 1992, pp. 252-256). Works prior to this were part of general plans for regional defence but not related to imminent threats.

Further putting the War in context, in 1937-38 Australian military intelligence was not framing Japanese pearling as part of a larger military threat. This is reflected in a confidential report prepared for and by the Australian military (NAA: B6121, 311F, 'Japanese encroachment in Australian waters'). Held as late as December 1938, it identified the matters of priority as sovereign rights over waters, the failure of local industry and economic issues, with defence a consideration, but of lesser concern. This qualification by Australian experts at the time validates the focus on commercial interests taken in this dissertation.

The return of Japanese pearlers in the immediate post-War era further validates framing prewar Japanese pearling as a commercial/capitalist venture, primarily driven by profit seeking, than a ruse to gather military information. Whilst post-War pearling is outside the scope of this study, it is a fact that by 1953 Japanese owned and operated pearling fleets returned to the same waters off the NT coast they harvested in the late 1930s (Bach, 1961, p. 116). They returned after the War, because it had always been a profitable industry.

Historic public discourse shows that the more prevalent issue between Australia and Japan in 1937 was trade negotiations, not the potential for military conflict. Australian and Japan were major trading partners at this time (Shepherd, 1939). In the early 1930s Japanese textile exports to Australia was so great it threatened British manufacturing, and Japanese imports of Australian wool and wheat made Japan Australia's second largest customer (Shepherd, 1939, p. 76). Nonetheless, in 1936 Australia sided with English manufacturers, and placed tariffs and quotas on Japanese goods. The issue for Australia and Japan in 1937 was the economic fallout of this decision and the continuation of trade. From a local perspective, relations in Darwin in these years were congenial. Japanese indentured labour sustained local pearling, Japanese businessmen were thriving in Darwin, and visiting Japanese merchant training ships made diplomatic visits (Powell, 1992, pp. 11-12).

2.7 Organisational theory: metaphors of machine, organism and culture

Specific approaches in organisation system theory help shape a conceptual framework to understand the Japanese pearling system and its operation in Northern Territory waters. On the one hand foreign fishermen were operating in an unknown environment, a new frontier that had to be understood in order to succeed. In this context frontier adaptation comes into focus. But from another perspective Japanese pearling was an organised industry, and so understanding it as an organisation is an important direction of enquiry. To this end Morgan's analysis of organisation through metaphors is an imaginative and useful approach (2006). Morgan did not intend to use metaphors to distinguish one type of organisation from another, although his work does in part do this. Rather he used metaphors, such as the organisation as *machine*, as a conceptual tool to explore the nature, limits and internal contradictions of

organisations. Of particular relevance to this study are the metaphors of *machine*, *organism* and *culture*.

Classic organisational theory conceived an organisation as an engineered machine, focusing on improving efficiencies through internal design (Burns & Stalker, 1961; Dessler, 1980; Morgan, 2006). Also associated with this school of thinking is Fredrick Taylor's seminal principles of scientific management, which focuses on the skills and tasks of workers (1911). Theorists later classified this as a closed system of management that suits stable conditions and limited interactions with the outside environment (natural and cultural). This is the classic factory production line.

The closed system best describes how the Japanese pearling system was designed to operate based on the circumstances. A fishing fleet operating in foreign waters thousands of kilometres from its base, and without friendly ports or permission to land, is designed as a closed system or machine; very much self-reliant. In such a system a well-coordinated supply chain would be a priority. The closed system/ machine metaphor also reframes the role of various components, such as the mothership, drawing possible parallels with the monopoly of the company store in remote mining operations (Fishback, 1986).

A potential weakness in a closed system is an inability to adapt (Morgan, 2006, p. 50). The *organism* metaphor is used to describe what he understood as an open system, namely one that appreciates the environment in which it exists including interactions with outside parties (Morgan, 2006, pp. 33, 38-39). A crew choosing to enter prohibited waters alone, or negotiate for access to fresh water with coastal Aboriginal groups, shows the breaking of the machine model prescribed to them, and of the closed system to which they are a part. Thus, it would appear that out of necessity Japanese workers met others.

Morgan's metaphor of organisation as culture provides an opportunity to consider nanshin at the worker level. Morgan, uses the example of post-War Japan to highlight the importance of culture in companies, but it is problematic to assume that post-war analysis seamlessly equates with early 20th century Japanese industry. Some understanding can be found in contemporaneous writings. Sumi Kaneda a school teacher from the Wakayama prefecture, where many divers originated, wrote a song in the 1930s dedicated to Japanese pearl divers working in the Arafura Sea. An excerpt describes:

Our military frontier on land is north China,
While our sea defence is Aru [pearling islands north of Darwin]...

The destination is Aru
About 15,705 kilometres from here,
However the local men are going bravely,
Away on a small ship to gather pearls,
Go forth to Aru Islands battling the high waves
Congratulations to ten brave divers from Shionomisake,
Who are leaving for the Arafura Sea
(Hayward & Konishi, 2001, p. 55)

Musicologists Hayward and Konishi explain the above passage as follows: ‘The opening verse sketches the political background of the conflict between Japan and China that began in 1931 as a result of Japanese expansionist intrusion in the country, and associated this with the mercantile frontier of Aru and the Arafura Sea’ (2001, p. 56). Kaneda’s song is an example of the rise of nationalism in music during the inter-war years, but may also provide insight into the culture of the workers (Pacun, 2012). Workers can be bonded by common purpose, or by deeper shared drives, such as nationalism through successful industry (Morgan, 2006, p. 119). Crucial here is that Japanese boats were crewed exclusively by Japanese, unlike Australian pearling boats which were crewed by a mix of Japanese, Aboriginal peoples and others.

2.8 Territorialism

Territorialism is fundamentally an expression of sovereignty (whether legitimate or assumed) by a colonial power or nation state, controlling space and confirming political authority (Delaney, 2005, p. 9). Through its physical expression, land and sea are annexed into a dominion, and in doing so converts space into (crown) property. Power resides in this managed landscape, and borders repeatedly remind people who is in charge (Rajaram & Grundy-Warr, 2007, p. xxvi). In the disciplines of history and archaeology formalised demarcations of land and sea loom large. The creation of reserves, missions and pastoral leases shape history telling, creating dominant historical narratives, and in so hide other more complex versions of the past (Gill, Paterson & Kennedy 2001).

Frontiers can be conceived as meeting places porous at their edges and containing within them overlapping boundaries (Lightfoot & Martinez, 1995; Parker, 2006; Rice, 1998). Parker provides types of boundaries political, cultural, social, and geographic, appreciating his list is not exhaustive (Parker, 2006). Two boundaries relevant here are two formal administrative

borders; the border that demarcated territorial waters from the high seas, and the border that defined both Arnhem Land as an Aboriginal reserve and its adjacent waters. Here border is a type of boundary that is a fixed linear demarcation of administrative units (Parker, 2006, p. 79), but may have significant social, cultural and political consequences.

Territorial waters were those controlled by the local authorities. As a border, it permitted access to some groups and not others, creating 'differential access' (Sack, 1983, p. 56), and as a managed space behaviours and activities inside it could be controlled. As protected reserves Arnhem Land and Bathurst Island were relevant to the administration of territorial waters, because specific penalties were imposed on those found in the territorial waters off an Aboriginal reserve.

Territorialism also has a profound ability to redefine people and their relations to each other (Delaney, 2005, p. 11). This study considers the labels of 'intruder' and 'poacher', as assigned to foreign fishers, and how borders were used to restrict contact between people. Although beyond the scope of this study, any discussion of territorialism within a colonial context must acknowledge that in a myriad of ways territorial borders were used to control the lives of Aboriginal peoples, whilst simultaneously repudiating any sense of their sovereignty, traditional estate and cultural boundaries (Wells, 2003). In this study administrative borders are spatial boundaries steeped in meaning and ultimately expressions of colonial power. However, in localities or circumstances of the periphery, such as in a frontier, borders may prove ill-formed and difficult to enforce.

2.8.1 Territorial waters as governable space

In the 1930s it was generally accepted that the territorial waters of Australia, those waters that Australia and its states controlled, stopped at three nautical miles (3nm) from land. Beyond 3nm was deemed international waters, or the High Seas. This would later change, but in the early 20th century the accepted jurisdictional line, based on long standing imperial advice and obeyed by many other countries, was set at 3 nm (Bach, 1961; Bower, 1927; Edeson, 1976; Kayne, 2009). The research will show that the Dutch as a colonial power used this convention to control Japanese pearlers in the East Indies (Indonesia) and the United States used it to control Japanese salmon fishers in Alaska.

The 3nm convention, considered antiquated even in the 1930s, was reputedly based on the distance covered by a cannon shot from a ship, and so was conceived as a military buffer to protect settlements on land, rather than an effort to protect sovereign claim over coastal resources (Bower, 1927). But it was certainly used for the latter. As Nemeth explains the 3nm rule was the first attempt to privatise oceans resources (Nemeth et al., 2014, p. 714). In 1906 the Macassan trepang fishery, which had operated in the intertidal waters of the Northern Territory coast for hundreds of years, was halted by the simple decision to not issue fishing permits within territorial waters (Macknight, 1976; Powell, 2010, p. 162).

In an examination of territorial waters, the study also flags the reality of Aboriginal maritime tenure and traditional ownership of Northern Territory waters and seas (see Chapter 4). In this context, this research confirms that the concept of Australian territorial waters was simply an invention, which was superimposed or implanted over an existing cultural seascape. This study shows how the authority and effectiveness of this territorial border was tested, both on the water and in the court room.

2.8.2 Beyond territorial waters: the common pool resource and the emergence of exclusive economic zones

The great irony of the Australian government's struggle to enforce territorial rule over the narrow band of its coastline, was that the industry proved that all the good pearl beds were located in accessible water but outside territorial limits (Bach, 1961, p. 111). Similar to local Alaskan fishers who in 1937 watched powerless as a Japanese mothership and its fleet harvested huge amounts of salmon only 28 nautical miles from their coast (Coen, 2013), Australia watched Japanese pearl divers reap the riches from the seafloor. The bureaucratic manoeuvre of not issuing fishing permits over claimed territory, which worked against the Macassan visitors less than thirty years earlier would not work now, as the mother-of-pearl molluscs simply aggregated in deeper water.

Although Australia made no formal claim to the fisheries beyond 3nm in the 1930s, a sense of sovereign rights over the seas off Australia was part of the national conversation, with some describing the Japanese foreign crews as 'poachers' even when operating outside sovereign territory (TAW 22/4/1936, p18; NS 7/2/1936, p5.). One Western Australian minister, accepting there was no actual transgression of territorial rights, demanded action anyway against what

could only be described as a breach of ‘international decency’ (TDN 17/9/1935, p1). The situation created an uneasy relationship between the Japanese visitors and the territory administration, in which authorities remained both watchful and impotent.

The unregulated Open Seas of the world have been described by scholars and commentators as an example of a common pool resource, a circumstance in which a resource such as fisheries or forests are freely accessed by all without controls, but where the resource is subtractable. The risk of the common pool is that the resources can be spoiled or overexploited, understood as the ‘tragedy of the commons’ (Hardin, 1968; Wijkman, 1982). As opposed to land, the deep open sea had for much of human history been conceived as free of boundaries, an endless reservoir, and the common property of mankind (Heidbrink, 2008). However, global population growth, advances in maritime technology, and capital brought large scale foreign commercial fishers to distant local waters outcompeting smaller scale local fishers (Heidbrink, 2008, p. 660). Historically, the ‘tragedy of the commons’ induced three responses: state (external) control; privatisation; or a cooperative strategy developed by the users themselves (Ostrom 2013).

Claiming parts of the high seas as territory and challenging foreign fishers was critical to some coastal nations’ economies (Heidbrink, 2008). The appropriation of the ocean commons as sovereign property is most evident in the post-War era and the emergence of economic exclusive zones (EEZs) which saw expansions from 3 nautical miles to 200 nautical miles (UNCLOS 1982). The impetus for Australia itself to expand its control was the return of Japanese pearlers to its northern waters (NAA: A251/1/503, MT1131/1, Warwick Smith 27/6/1955). Burnt from its prewar experience, the very subject of this thesis, Australia greatly expanded its ocean territory, a direct response to Japanese fisheries, but with far wider consequences (see Appendix I). Japanese pearlers returned to the same waters, but now under Australian control; paying licenses, working allocated grounds and abiding by catch limits.

EEZs now cover close to 35% of the total area of the seas and around 90% of the world’s fish stocks (Campling & Colás, 2018, p. 780). These can be seen as particularly capitalist endeavours as they deal with wealth creation, ownership and exclusion, and the commodification of ocean space. Even amongst its supporters the EEZ is seen as form of privatization (Nemeth et al., 2014, p. 712). Further as Campling and Colas explain, this is a particular form of *industrial capitalism*, in which the sea is mined as a resource, not occupied by settlers (2018, p. 780). Although the emergence of EEZs is beyond the timeframe of this

research it gives important context to earlier conflicts between coastal nations and foreign fishers over resources.

Heidbrink argues that the expansion of territorial waters can be understood as form of decolonisation, with coastal communities affirming a right over local waters over foreign fishers from distant powerful nations (2008, p. 669). Perhaps true in other cases, this is arguably not the case in northern Australia, as history shows Australia has acted for much of its history as the colonial power. As Australia carried out maritime territorial expansions in the 1970s, it encroached on traditional fishing grounds turning Indonesian sailors on the Open Seas into trespassers and poachers (B. Campbell, 1995, p. 142; Stacey, 2007, pp. 1,171). As rightly shown by Stacey and Campbell the Arafura Sea was not empty when Australia claimed large swathes of it, but populated by Indonesian fishers working traditional fishing grounds, and Australia's territorial expansion marginalised and criminalised their industries. This research will show that in the 1930s the Japanese dominated the pearling industry in coastal waters overexploiting the resource, while Australia was ineffective and humbled in the face of it. But as mentioned, Australia's approach to maritime territory more generally has been as the colonial power; its expansion of maritime territory with the return of Japanese pearlers after the War just one example.

2.8.3 Territorialism and Aboriginal reserves

Aboriginal reserves feature as politically and culturally significant administrative spaces in this research, and it is important to distinguish a reserve from what can be described as traditional Aboriginal ownership of land and sea, as discussed in Chapter 4. This research frames Aboriginal reserves as a form of territorialism. John Bleakley, Queensland's Chief Protector of Aboriginals from 1914-1939, was commissioned to assess the Northern Territory, and he recommended that reserves be established by the government to protect Aboriginal peoples from outside destructive influences (Bleakley, 1928, p. 24). He recommended the reserves be located where there was game and fresh water, and advocated, for example, for the declaration of Arnhem Land (Bleakley, 1928, pp. 33,34). He also strongly endorsed the mission system, including its operation within reserves (Bleakley, 1928, pp. 33,34). Arnhem Land was declared a reserve in 1931, and based on advice the government resisted outside commercial interests for some years (NAA A1, 1937/4639, Carraodus, p. 48). Rowley attributes this to the opinion that the land was worthless for industry, although this changed (1970).

In 1963, the Federal Government excised a portion of land from the Arnhem Land reserve for Nabalco's bauxite mine without consulting the traditional owners of Yirrkala and against their protests (Committee 1962-1963). The findings of a Select Committee considering these grievances determined that the reserve never constituted tenure, and if payable minerals were located, the land could be excised by the government (Committee 1962-1963). In this way reserves were a form of administrative unit that could be declared, reduced, or eliminated by the government of the day. In contrast recognition of sovereignty over Sea Country for example is a separate process, and remains ongoing, with recent rulings recognising rights to intertidal waters overlying Aboriginal land and the gazette of select Closed Seas (NLC).

2.9 The maritime industrial frontier

Frontiers were defined earlier, establishing that frontiers are conceived as meeting places porous at their edges and containing within them overlapping boundaries (Lightfoot & Martinez, 1995; Parker, 2006; Rice, 1998). Frontier studies are well trodden theoretical ground with cross-disciplinary contributions from archaeology, history, sociology and anthropology. As Lightfoot and Martinez argue 'How frontiers and borders are conceptualised in archaeology critically influences the kinds of approaches we use in culture contact research' (1995, p. 471).

While predictive models about colonisation, maritime industrial frontiers and contact can identify universal mechanisms and ultimately provide powerful insights (Anderson, 2016; Beck, 2009; Birmingham & Jeans, 1983; H. R. Clark, 2009; Parker, 2006; Rockman, 2003), as discussed earlier, this study does not aim to apply or adapt predicative models. In this study the maritime industrial frontier is a descriptive theme, a subject, that accurately encapsulates the meaningful context of the stories about the past being studied. Here the emphasis is on empirical detail, and the particular geographical, historical and political contexts within the situation. Therefore models may be briefly discussed, but a core aim of the research is not to apply a model of behaviour or archaeological site formation.

Reynolds invokes the frontier in his seminal work *The Other Side of the Frontier*, but McGrath makes a valid criticism about his dichotomous frontier model, in which the frontier is a moving wall penetrating into the Aboriginal world (McGrath, 1988; Reynolds, 1981). McGrath qualifies those frontiers are spaces in themselves, and there is value in studying them. Reynolds historical approach here is not dissimilar to early frontier archaeological studies that sought

discrete spatial patterning in the material culture in line with what was thought of as non-porous boundaries between peoples (Lightfoot & Martinez, 1995, p. 478; Rice, 1998, p. 50). Reynolds would explore the frontier space and sustained interactions in his later work (Reynolds, 1990).

Frontiers are meeting places on the periphery, and in the context of colonial studies, periphery generally means the fringes of colonial expansion. One fair criticism of this approach is that in some studies the core-periphery paradigm sets up the periphery as passive, and somehow outside the main event (Lightfoot & Martinez, 1995; Rice, 1998). Mindful of this criticism this research sees the periphery not as distant from something more important, but a dynamic space in which colonial control was imperfect allowing new opportunities to emerge.

This is the study of an *industrial* frontier, centred on the short-term visitation of foreign fishers to the NT. This is opposed to colonial settler expansion into new areas. Industrial frontiers are specialised (extracting a particular resource) and move over time, as workers find new patches of a resource to mine or fish, or cut down (Hardesty, 1985, p. 215; Rice, 1998, p. 57). Industrial frontiers can also be characterised as cosmopolitan frontiers, connected to outside wider influences and markets, rather than be an insulated domain (Steffen, 1980). Further, they are fundamentally oriented towards profit making, be it for the homeland or the company.

As an examination of visiting fishers, their industry and their contact with others, this is a study of a maritime industrial frontier, and so is open to comparisons with other archaeological studies in maritime industrial frontiers (Anderson, 2016; Carter, 2019; Gibbs, 1996, 2010; Macknight, 1976). Pearlers, like other fishers working along a coastline, did not operate in a vacuum, but experienced culture contact, developed relationships, and instigated or endured conflicts (Anderson, 2016; Gibbs, 2010; Macknight, 1969a, 1976; Paterson, 2011).

Reynolds proposes that fishers, like pearlers, whalers and sealers, were less disruptive to Aboriginal life, only because their industries did not require the seizure of great tracts of lands as was the case with pastoralism and mining (Reynolds, 1981, p. 143). A focus on the varying permanency of coastal camps may be of value in this context, noting pelagic whaling constituted brief shore visits for supplies like firewood, and shore-based whaling constituted more formal seasonal stations (Gibbs, 1996). Reynolds qualifies his generalisation appreciating stories of kidnapping and violence in maritime industries such as sealing on the southern coast (Reynolds, 1981, p. 145), which are confirmed elsewhere (Anderson, 2016, p. 49).

Knowledge sharing has been discussed previously in the context of companies but the immediate focus on industrial frontiers, raises a question over what kinds of knowledge were

important to fishers working these unfamiliar waters. Rockman provides three categories of knowing the environment, and two relevant here are *locational knowledge*, identifying where the good pearl beds were; and *limitational knowledge*, pertaining to limits of the resource and environment, relevant here are operational issues including depth, visibility, tides and seasons (2003).

In a study of adaptation in a mining frontier, Hardesty notes the importance of miners bringing prior knowledge into a new environment (2003). Japanese lugger crews understood boat and dive operations, and some had extensive pearling experience. What they did not have was local knowledge of dangerous reefs, shoals, winds, sea conditions and safe anchorages; particularly as the fleets moved across the coast seeking new areas to work. How did they respond? Here Hardesty acknowledges both prior knowledge and learning (Hardesty, 2003). Overtime did fishers require less knowledge from locals as their own knowledge of a frontier landscape developed, a transition identified in pastoral stations in central Australia (Paterson, 2003, p. 58)?

2.10 Contact, exchange, agency and impact

This thesis makes use of colonialism but deals with events that took place later than what is understood by some as colonial and first contact history in Australia. The particular circumstances of the Northern Territory, its vast distances not settled by white Australia, as well as the semi-isolation of some Aboriginal peoples, make it a valid approach. Not all Aboriginal people were incorporated into some form of the settler economy. The availability of modern sources, such as film, and the wider circumstances of the 1930s offer an opportunity to consider this dynamic under different circumstances.

This approach is validated by seminal works in contact history, anthropology and archaeology. Rowley states that: ‘In the Northern Territory the old frontier situations that were being reproduced continued into quite recent times’, where there remained substantial numbers of Aboriginal people with less disrupted lives (Rowley, 1970, p. 242). Rowley continues ‘Contact history was being repeated in the far north in the early twentieth century’ (1970, p. 242). Reynolds explains there is no neat end date for contact in Australian history, and that in particular areas of the Northern Territory it was largely a 20th century phenomenon (1981, pp. 1-2). Thomson’s anthropological fieldwork conducted between 1935-1937 in east Arnhem

Land records people living on country, traditional subsistence, traditional cultural ceremonies and traditional stone tool manufacture (NAA: A52, 994 THO, Thomson p38). At the Djulirri rock shelter in Arnhem Land artwork depicts 20th century contact through images of luggers, planes and bicycles (Chaloupka, 1993; Paterson, 2011, p. 229; Wesley et al., 2012). Also relevant is the argument that colonisation is ongoing, exemplified in the recent Maningrida Arts and Culture Centre Annual Report, which states that its current leaders still contend with colonisation (Maningrida Arts & Culture Annual Report, 2019-2020, p. 6).

The frontier analogy is further cemented by appreciating how difficult it was for authorities to administer Arnhem Land. As Rowley confirms through the 1930s inland expeditions by police was done not by car but on horseback (Rowley, 1970, p. 268). Similarly, the author refers to a failed police mission to Arnhem Land aboard a contracted boat (as they did not have their own), whose engine was so unreliable the expedition became a public joke (D. Steinberg, 2014). Echoing this inadequacy, the response to the Japanese pearling menace was a single patrol boat for the entire Northern Territory coast, a coastline so poorly mapped that charts were still based, in part, on early cartography predating the settlement of Darwin. The inadequacy of a single boat to patrol such an extensive coastline was well recognised (NAA F1, 1937/600, Cook 27/10/1937).

This study is therefore applicable to other contact studies, although the latter may focus on earlier periods. Finding common concepts across different work makes one study relevant to others and enriches the discourse more generally. Paterson's conceptual framework for understanding key attributes and implications of forms of cultural contact is drawn on in the analysis of encounters (Paterson, 2011, pp. 42-49). One direction of analysis when studying historical encounters is agency. Agency is a term used broadly across disciplines including archaeology and sociology (Dobres & Robb, 2000; Giddens, 1979; J. Thompson, 1984), and the contradictory ways that agency has been used requires each scholar to define their meaning (Dornan, 2002; Paterson, 2003). Here agency and power are seen as decision-making, and the capacity to form or influence the social realities in which these decisions are made (Dornan, 2002, p. 304). Further it recognises that some power resides in all social interactions (Shanks & Tilley, 1987, p. 73).

Examining early contact between settlers of Port Darwin and the Larrakia people, Wells discusses barter as a mechanism that facilitated interaction and the formation of *negotiated relationships* (2003, pp. 84-87). Also relevant here is Thomas's argument that '...exchange is

always, in the first instance, a political process, one in which wider relationships are expressed and negotiated in a personal encounter' (N. Thomas, 1991, p. 7). Wells recognised that Aboriginal individuals could be discerning traders. The value of items was critically appraised, the fairness of an exchange considered, and at times one elected not to engage if the terms were unfavourable. Similarly, Mitchell appreciates that Aboriginal peoples would trade with Macassans over Europeans, if that was their preference in the circumstances (Mitchell 1994:113).

The acknowledgement that particular circumstances determined trade, resonates with what has been described as the 'individual circumstances model' to explain peaceful and violent contact between Aboriginal groups and Macassans (Macknight, 1972 p. 289; Mitchell, 1994, pp. 94,110). This study proposes that Japanese fishers and Aboriginal peoples either traded peacefully or had conflict in different instances, because of the particular circumstances of those encounters. This challenges simplistic paradigms of contact, like presented by Trudgen, cited in Chapter 1, who characterised all Japanese contact as abusive, and all Macassan contact peaceful. It is however a complicated picture when discussing items of trade, with traded Japanese goods like rice and tobacco echoing rationed items (e.g. flour) issued by colonial powers (Rowse, 1998).

2.11 Conclusion

This chapter provides the theory and concepts that frame this research. It necessarily provides considerable historical background and context, such as the analysis of Japanese imperialism, bringing to the foreground specific historical circumstances, providing context and relevance to the theoretical discussion. This study approaches these concepts from two different scales. The first deals with understanding the *Sanyo Maru* as the remnant of a Japanese industrial capitalist project, that intersected with colonial structures existing in the Northern Territory of the 1930s. The second smaller scale perspective deals with human interactions within a maritime industrial frontier, demonstrating some of the complexity, contradictions and limits of capitalism and colonialism.

Chapter 3: Methods and sources

This chapter describes the methods and sources used in this research project to address the questions posed in Chapter 1. Broadly, the method was an archaeological and historical research approach, the latter being the search for and critical analysis of historical evidence. Other complementary methods and sources were also brought into the project, such as analysing artefacts held in local collections, and drawing on the results of cross-disciplinary studies such as the ethnography of contemporary fisheries. There was also a high priority given to consulting experts. The following provides a brief overview of this work to the reader and demonstrates the diversity of methods and sources used.

The archaeology involved a survey and excavation program of a Japanese shipwreck which ran over two short trips to the site, planned and supervised by the author prior to enrolment. The excavated material constitutes to date the only archaeological assemblage from a pearling shipwreck or Japanese shipwreck in Australia. This study also represents the first archaeological analysis of 20th century Japanese ceramics in Australian archaeology. The assemblage was analysed and compared to the results of other published international archaeological studies. Travelling to Japan the author consulted museum curators, and visited second-hand markets and traditional ceramic manufacturing centres to better understand the excavated assemblage. The author developed a solid familiarity with many 20th century Japanese ceramic forms, and investigated various collections held in the Northern Territory. Many finds lacked provenance or were misidentified, and the author was able to confirm them as Japanese, over previously assumed colonial and Macassan origins.

The search for and analysis of historical evidence involved primary research in Japan and Australia. Sources included primary and secondary written documents, and also historic film, photographs and charts. Sources also included previously recorded oral histories and historic anthropological research. The work also encompassed consultation with different kinds of experts. Some of those consulted were academic experts, such as Japanese museum curators, while others were highly experienced in the industries being studied: the Japanese merchant navy, Japanese ship building, pearling and historic diving.

The methods evolved as the project progressed. It became clear that the research program required extensive background reading on a range of historical subjects. These included Japanese political and industrial 20th century history and Australian policies, laws and

ordinances pertaining to maritime issues, but also the missions, reserves and Aboriginal peoples in Arnhem Land and the Tiwi Islands. The project also required a solid understanding of economic issues in the Northern Territory during the inter-war years, the extent of development along the coast and of local maritime industries. Relevant also was more recent ethnoarchaeological and anthropological research detailing Aboriginal maritime tenure, the harvesting of molluscs, and Indonesian seafaring in Australian waters. Environmental scientific publications were referenced to explain the local natural conditions that shaped past pearling operations. The research program was also adapted in response to limits in the source material. The fragmentary nature of the archaeological and historical records meant some questions remained unanswered. Where possible alternative sources were used, and where not possible these limits were acknowledged and the research redirected.

3.1 Research approach – a response to the research question

The research motivation and research question declared in the introduction of this thesis confirmed that there is a considerable gap in our empirical understanding of Japanese pearling off the Northern Territory coast during the 1930s. One clear aim of the research was to address this knowledge gap. The research first sought to collect basic information on the boats and ships of the fleet, their roles, and how the system of harvest, transshipment and supply operated. As the research progressed it became clear that Japanese pearling had associations with other Japanese industries both in the region and beyond, and so the scope of empirical enquiry expanded. It expanded further again when it became evident that to understand Japanese pearling operations, one had to understand the corporate changes the industry underwent and the results of the increased availability of capital.

The contribution to new knowledge expanded again, noting Japanese pearlery did not operate in isolation, but worked in waters that were occupied by Aboriginal peoples, missionaries, anthropologists, other fishers and entrepreneurs. There were observations from a distance, contact, collaboration and conflict and this history was studied through a range of Australian archival records including recorded oral histories, mission reports, local pearling company records, and anthropological writings of the time. Japanese pearling was also being observed by Australian authorities and customs officers, with Japanese boats arrested for trespass, so

Australian government correspondence and court proceedings were identified as valuable sources.

An approach considered, but finally decided against, was collecting oral histories of Aboriginal informants. The period of study was over 80 years ago and so beyond living memory. Preliminary discussions with elders in Maningrida (through Maningrida Arts and Culture) confirmed that there are family stories passed down about trade and work in colonial maritime industries. But unlike written records these recollections are neither temporally precise, nor detailed. Nor did these stories distinguish between indentured Japanese crews and crews from foreign Japanese fleets, which is understandably only an academic distinction to many, but crucial to this study. These stories can make significant contributions, extending family stories into important public histories, but they did not match the specific focus of this research.

The reliance on predominately written records has meant the loss of any authoritative Aboriginal voice. This reliance on what has been described by some as the colonial archive is fraught with difficulties for the historian, and is a consequence of the fragmentary and biased nature of the written record (Fowler, 2019; Reynolds, 1981, pp. 2-4; Wells, 2003, p. 31). The one exception identified in this study is the autobiography of Lazarus Lamilami from the Goulburn islands (Lamilami, 1974, pp. 204-206). A brief but important passage confirms Lamilami worked aboard the patrol boat *Larrakia* when it seized a Japanese fishing vessel and arrested some of the crew. He provides no opinion on Japanese pearlers, other than having empathy for one Japanese engineer separated from his countrymen, and who could not speak English.

The interactions between Japanese and local peoples recorded by outside observers provide no names of those people meeting. They are for the purpose of the observation just Japanese pearlers, or locals on the coast. This is the nature of these sources, but the significance of the meetings is still considerable. Other sources provide a fresh perspective. A 1937 film was sourced in Japan by the author that depicts diving operations off north-central Arnhem Land, and barter with Aboriginal men. Although this does not provide names it is both authoritative and informative. The author visited Maningrida in November 2020, as part of a government project, and showed the footage to a group of community elders, hosted by the Maningrida Arts Centre. A copy of the film was provided to the community museum.

The above research goals attempted to build a picture of pearling operations, of life aboard a ship, and contact with local peoples, as comprehensively as the fragmentary sources allowed.

This is what can be described as the reconstruction of what people did. But this research went further than just a reconstruction of events: it attempted to identify and reveal underlying ideological and political drivers, and possibly underlying prejudices and fears. Australian written sources were one kind of evidence that was able to reveal underlying prejudices and fears, as authors, journalists and governments alike, did not just describe what was happening, but commented on its possible implications.

3.2 Historic research methods

3.2.1 Source criticism

Historical research was done on many subjects. As discussed earlier there was extensive reading across a number of topics to build an informed and wide historical background to Japanese pearling in the Northern Territory. In all areas the historical research method followed the established approach in source criticism (M. Howell & Prevenier, 2001). Established principles include identifying types of historical sources, their original purpose, and their accuracy and authority on a subject. Furthermore, sources are written within the context of a time, situation and mentality (M. Howell & Prevenier, 2001, p. 19), and so for example, the threat of military conflict, or other social policy concerns, or underlying prejudices may influence the work.

3.2.2 Sources, gaps and responses

A challenge in this research was the paucity of authoritative records about how the Japanese industry operated. The limits of Australian records on the subject were understood from the beginning; as these were foreign fleets working outside Australia's maritime jurisdiction there are no Australian company records, migrant worker records, or boat and fishing registration records. For a time, Japanese boats were allowed to refuel and rewater in Darwin, but port records detailing these visits are lost. Some details about port arrivals can be found in navy records of WWII merchant ship movements, but these are both limited in detail and incomplete. A popular source on ships for maritime researchers is Lloyds Register, which lists the results of merchant ship inspections for the benefit of insurers and others. While Lloyds Register does

have listings for the *Sanyo Maru* and some of the other larger ships of the fleets, it does not list the hundreds of luggers that made up the vast bulk of the fleets.

Australian records do include observational reports by patrol officers and other government employees like health officers, journalists, missionaries, anthropologists and the military. Other observational sources include Australian colonial reports about Japanese poaching the territorial waters of Australian Territory New Guinea, and reports by British subjects residing in the Dutch port of Dobo, Aru Islands. Correspondence with the National Archives of Holland confirmed there are no historic images of the Japanese fleets in Dobo or the Dutch East Indies more generally in their collection. These sources were critiqued for possible bias and prejudices by the observer, the technical competency of the observer to understand what they were witnessing, and to assess whether they observed only a part of the whole then filled the gaps with conjecture. It became evident that the correspondence of the Australian Commonwealth government at the time, while concerned about maritime borders had little real empirical information about Japanese pearling fleet operations. The most detailed Australian sources are Northern Territory Supreme Court testimonies, relating to the arrest of Japanese boats, which included firsthand accounts by lugger skippers and fleet supervisors.

It also became evident that it is not valid to use descriptions of the Australian industry to understand the Japanese system. Japanese luggers were larger, had more divers per boat, and unlike most Darwin boats were supplied by support vessels out at sea. These foreign fleets gathered at intervals to be resupplied and share information. The machinery, the knowledge, the scale of the fleets, the presence of supply ships and the means of resupply were all different.

A challenge with the Japanese sources was that they are mostly held in Japan and written in Japanese. This is further complicated with the formal written form used in the 1930s differing from the common written form used today (Jacobsen, 2015, p. 228). In response Japanese evidence was sourced and assessed firsthand in collaboration with my Japanese supervisor Dr Jun Kimura. This collaboration included searching for sources, translation and assessing the purpose and authority of the source. The search was wide-ranging as the documentary evidence is not collated under one subject in one institution, but dispersed across institutions.

The author formally corresponded with or visited personally a number of Japanese institutions. Those contacted that did not result in significant results included: National Institute for Defence Studies; Japanese Society of Naval Architects and Ocean Engineers (JASNAOE); Osaka Museum of History; Osaka Prefectural Archives; Wakayama Prefectural Archives; Tokyo

National Museum; NYK [Nippon Yusen Kaisha] Maritime Museum; and the Edo-Tokyo Museum. Outside Japan the author contacted the Belau National Museum, Palau. A visit to the location where the *Sanyo Maru* was built proved that the shipyard was destroyed during the war. Japanese institutions that produced research results included: Diplomatic Archives Tokyo; Taiji Whaling Museum; Tokyo Transport Branch Office; Diet [National] Library, Tokyo; Japanese Maritime Center (sic), Tokyo; Japanese National Film Archives, Tokyo; Sea Breeze Rest Area, Shionomisake, Kushimoto, Wakayama; and the Yokohama Port Museum. Some Japanese records used were also held in private hands.

As the research progressed it became clearer that Japanese records of the prewar pearling companies, that once held information on the ships, crews and fleet logistics are gone, either destroyed in the War or discarded. Some information can be extracted from written records on the Japanese administration of Palau, the fleet's home port. There is a small number of Japanese biographies on pearling masters, providing some relevant details, as do a very few academic papers on historic Japanese fisheries in Southeast Asia, written in Japanese. These are cited and where possible their references were also sourced. The fragmentary nature of the Japanese sources was confirmed after exhaustive consultation and visiting national and regional Japanese repositories.

The response to the fragmentary and lost records of the prewar Japanese pearling industry was fivefold. The first was to search widely for authoritative historic sources, such as historic footage, ship construction details and expert historic testimony. The second was to use other, weaker sources where appropriate, but assess them critically and caveat their use. The third was to draw from descriptions of other contemporaneous Japanese maritime industries where relevant. The fourth was to consider post-War Japanese records, such as the records compiled by Satoru Obana a local researcher in Wakayama. The fifth response was to draw from sociological research into modern fisheries, fleet dynamics and diver behaviour (e.g. Putten et al., 2012)

3.3 Justification for archaeological fieldwork undertaken

Archaeological fieldwork focused on the survey and excavation of the *Sanyo Maru* shipwreck. Unlike some other maritime industries like trepang, pearling involved extraction and processing at sea without workers making landfall. In the case of Japanese pearling in northern

Australia, coastal camps were not permitted, and if they were established, were hidden, temporary and rudimentary. The implication is that wrecked ships from the fleet form the greatest potential for archaeological research.

The *Sanyo Maru* is of particular significance in terms of this potential. It was the largest of the fleet, constructed of steel not wood, and sank in open ocean in a storm, and not from a collision with rocks, or fire or explosion. There was therefore a high probability of a degree of intactness. Preliminary inspections showed it was considerably intact and sat upright on the sea floor.

A conceptual limitation in the archaeological study was that the *Sanyo Maru* constitutes one type of ship from the fleet. There is a historic record of another shipwreck from the fleet in NT waters, the lugger *Dai Nippon Maru No.1* which sank in August 1937 (Herald, 7/9/1937, p 10). This wreck has not yet been located. It remains a future project, although its research potential is limited as it was wooden, and so less robust, and had burnt down to the waterline.

3.4 Archaeology fieldwork method

The author's 2012 and 2016 fieldwork were conducted as government research projects by the Northern Territory Government's Heritage Branch, the state agency responsible for the management of the Northern Territory's Underwater Cultural Heritage. The rationale for the fieldwork was that it met the agency's commitment to historic shipwreck recording, assessment and management, that this was a site of rare intactness, that it was of significant Shared Heritage and that there were risks to its preservation. Specific research aims for the 2016 season are detailed in the research design prepared by the author prior to the fieldwork (Appendix M), and are summarised below. Field reports were produced by the author (Appendix M). Formal permission to excavate was provided by the Northern Territory Delegate for the *Historic Shipwrecks Act* 1976 and by the Commonwealth Department of Agriculture, Water and the Environment, who shares responsibility for the administration of the Act.

The fieldwork was based on both established scientific diving procedures and established archaeology and shipwreck archaeology methods (Bowens, 2011; Burke & Smith, 2004; Connah, 1983; Gould, 2000; Green, 1990 ; NOAA, 2001). Planning also drew on the decades of personal maritime and terrestrial archaeology fieldwork experience of the author. The 2012 fieldwork was a non-disturbance survey, but the 2016 fieldwork included excavation. Both were planned and managed by the author and predated enrolment.

The 2016 survey and excavation were managed in accordance with the 2001 UNESCO *Convention on the Protection of the Underwater Cultural Heritage*, and the 2013 UNESCO *Manual for Activities Directed at Underwater Cultural Heritage* (UNESCO, 2013). Project planning documentation included a research design, project plan, budget, dive plan, risk assessment and conservation plan (see Appendix M). The fieldwork methods matched the research goals, responded to operational constraints, and resulted in minimal impact on the site. Risk hazards included: depth; remoteness; hull penetration (eliminating direct access to the surface) and turbidity, which impacts diver visibility. A short tidal window provided only 3-4 diving days, creating a considerable time pressure. One response to hazards and time pressure was for the 2012 and 2016 teams to be made up of experienced archaeologists and divers, maximising productivity, safety and maintaining archaeological standards.

Given the rise of 3D recording and interpretation in shipwreck archaeology (see McCarthy et.al. 2019), it is worth noting that this research project relied on more traditional 2D representations of the site. This is in part a product of timing. The archaeological survey of the wreck, using diver based manual techniques, was conducted in 2012 with the method committed to at least one year earlier, when the use of 3D technology in this industry was still emerging (McCarthy et.al. 2019). The author acknowledges that the uptake has been rapid, and if the survey were to be conducted in 2022, the approach would be different. In the Northern Territory remote 3D wreck recording, such as using high resolution multibeam (MBES), still relies on partnerships with technical specialists who operate research vessels. It is also the case that by 2016 the research priority was the interpretation of material remains and risk to the site, rather than producing a more detailed technical representation. The issue is further discussed in chapter 9.

3.4.1 2012 season aims and methods

The aim of the 2012 fieldwork, planned and managed by the author, was an inspection and survey of the wreck and an assessment of the site's heritage significance, importantly including its archaeological research value (Marquis-Kyle & Walker, 2004; D. Steinberg, 2013). Side-scan surveys (SSS) provided imagery of the wreck from multiple perspectives. Diving archaeologists established a baseline along the deck from bow to stern. Features were tied in by right angle off-sets and trilateration. Features were sketched, photographed and a series of video transects across the deck were completed. Dive teams descended to the seafloor to record

the ship profile, record the rudder and propeller, and search for material deposited in close proximity. The increase in depth from the deck to the seafloor reduced how long a diver could stay on site. Remote imagery and diver inspections proved that the seafloor in the immediate vicinity of the wreck was flat, non-descript, had little bearing on site formation and there was little visible significant cultural material. In addition to side-scan sonar imagery, multibeam imagery collected in 2016 also depicts the surrounding seafloor (see Appendix L & Steinberg 2017).

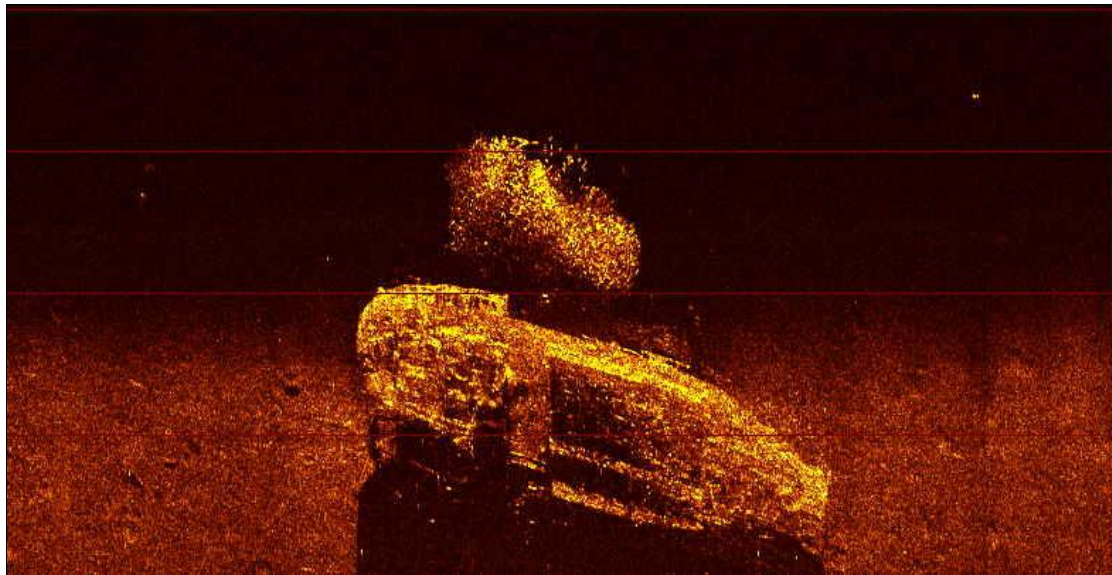


Figure 5. An image captured using the Imagenex redfin side-scan sonar. Despite some image distortion, it shows the degree of wreck intactness, the surrounding seafloor and features such as the cargo hold and raised stern deck. A school of fish swim above the wreck.

A wood sample taken from a wooden floor on the poop deck (identified as the captain's cabin in 2016) was scientifically identified as Spruce (*Picea sp.*) or Douglas-Fir (*Pseudotsuga sp.*), neither being native to Australia. The latter is confined to Japan, northern Asia and the west coast of North America.

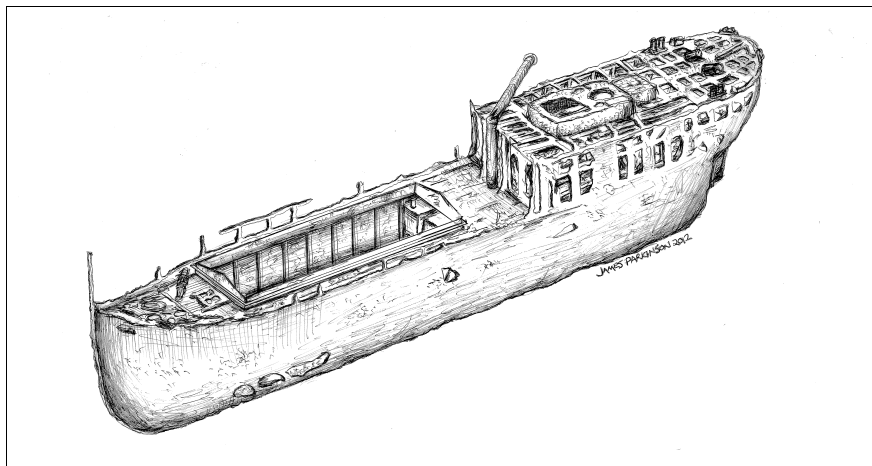
3.4.2 2016 season aims, methods, limitations

The 2016 fieldwork was guided by multiple planning documents including a research design and excavation plan that articulated the research goals, fieldwork objectives and methods to accomplish them (see Appendix M). The research goals included what the wreck could

demonstrate about life aboard and what it can show about the design and layout of this class of ship. Fieldwork objectives included:

- a) Survey the enclosed aft (poop) cabin and identify delineated architectural features and compartments;
- b) Identify signs of historic salvage;
- c) Excavate and recover a sample of artefacts that address the research goals;
- d) Reinspect the wreck and identify major changes since 2012.

The cabin of interest was the ship's aft (poop) cabin. It sits on the same level as the main deck and located in the back of the ship, and directly below the raised aft (poop) deck. It is an enclosed space that measures 11 metres by seven metres, taking up 1/3 of the length of the wreck. Below the cabin is the hold where the engine is located, the entrance to which is blocked. The cabin could be entered from either a starboard or port watertight doorway off the main deck. Each doorway led to a passageway running the length of the cabin. These passages ended at the rear of the cabin opening up into a wider space. The middle of the cabin was taken up by the engine compartment coming up from the hold below. The outer sides of the passages led to rooms. The internal wooden walls of the spaces are gone, however metal stanchions, coamings and floor features are interpretative clues to the original spaces (see figure 47).



**Figure 6. Sketch of the wreck by James Parkinson on the 2012 fieldwork
2016 fieldwork predominately focused inside the aft (poop) cabin**



**Figure 7. The port side doorway leading into the passage and the cabin more generally, photographed from the main deck.
The raised floor coaming delineates the passageway from rooms.
Note the absence of some cabin roof beams (also forming the poop deck) and the loss of hull sheeting**

The survey method used the surviving structure to serve as a basis for a survey framework, where the compartmentalization provides a kind of pre-established grid (Gould, 2000, p. 54). The use of compartments as a survey framework made it logical to designate each compartment as a separate archaeological unit. The cabin had an intact steel floor and the wreck sat upright. In light of the degree of physical integrity it was analogous to the survey and targeted excavation of an enclosed and intact room.



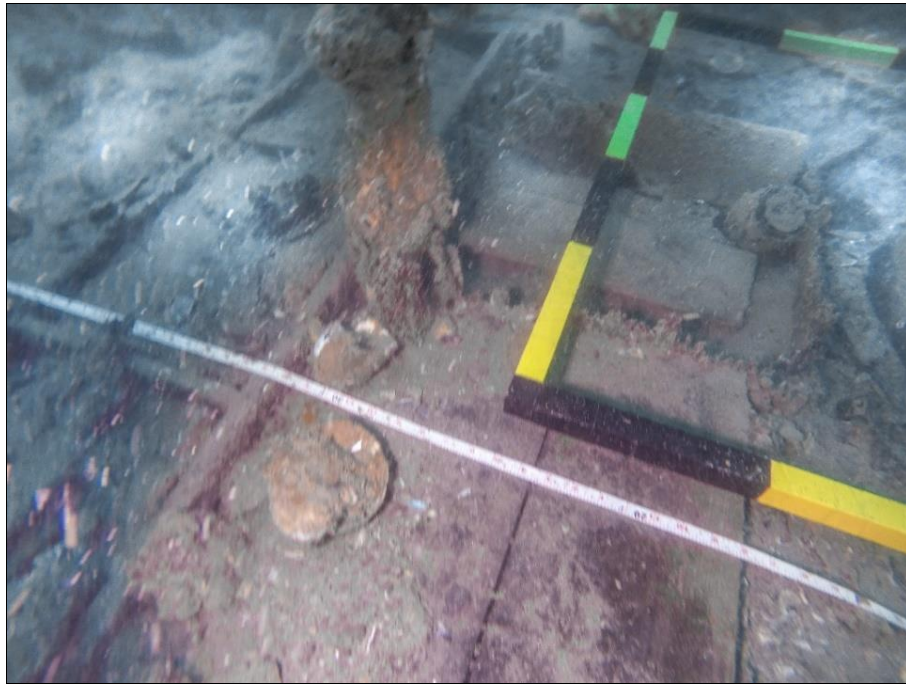
Figure 8. Looking across the rear of the cabin to the port side. Note the partly camouflaged amorphous features along the floor.

The survey and excavation aimed to draw meaningful conclusions about horizontal spatial relationships. There is no cultural stratigraphy (layers of occupation) as this is the archaeology of a single phase of occupation (historic salvage excluded). There are also no vertical units to unpack, as with a collapsed wreck where decks had fallen to a level below. In short, the intact steel floor experienced by divers was the working floor of the cabin as used by officers and crew. This floor was a relatively non-descript amorphous floor, unlike the floor of a splayed wooden shipwreck with complex details of ship design to record. Certainly, there are floor coamings and machinery fixed to the floor, and these are areas of specific interest.

Two baselines were laid from the doorways down the length of the passageways to the stern wall of the cabin. Architectural spaces were recorded using a one metre scale, checked by being surveyed back to a baseline with right-angle offsets and trilateration. Retractable tape measures were used to measure detail and heights.

The area selected for a limited excavation was chosen because it appeared to be a storage area. Artefacts visible above the sediment also suggested it would be a productive area to investigate. Excavation was conducted using a water dredge with a flexible transparent hose attached to the dredge head to provide the excavator greater finesse and control (Bowens, 2011, Plate 15.2). A one metre planning grid was used to confine the excavation, focus tool use and serve as a positional aid for horizontal recording of artefact distributions (Gould, 2000, p. 61). Excavated material was tagged and bagged, placed in containers, then crated and raised by winch to the

surface (see Appendix K, L). A small selection of items outside of the excavation area was also recovered for their research value and as a management precaution against future looting. Divers had full voice communication with the surface team and the primary diver of each team had a mounted helmet camera that sent a live feed to a screen on the surface. This provided tight control of the survey and excavation with work observed in real time.



**Figure 9. Starboard baseline (white fibreglass tape).
The 1 metre square provided further horizontal accuracy and control**

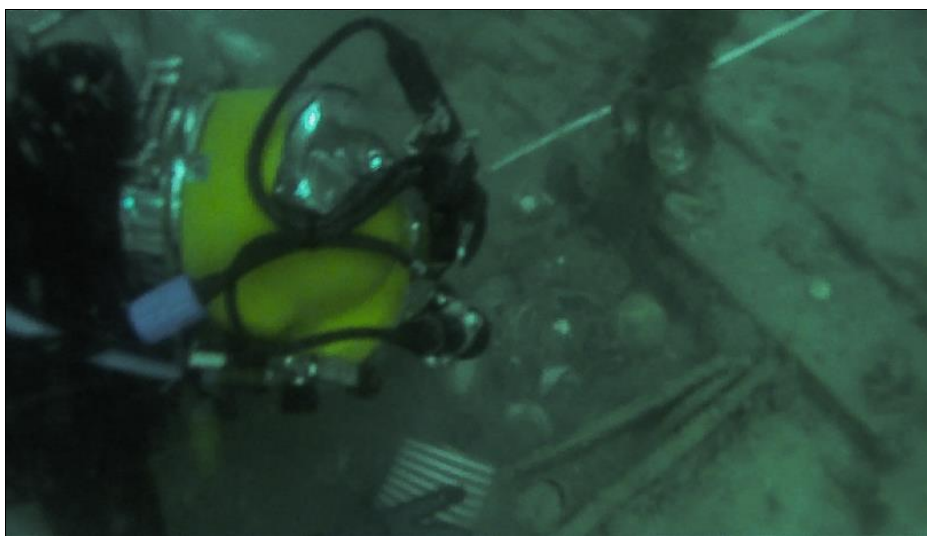


Figure 10. Diver excavating with dredge. Flexible dredge head supported greater control. Diver head camera streamed live video to surface and two-way communication allowed deck team to observe and direct in real time

The site was recorded using recording sheets, scientific photography and video. On the surface a site registrar recorded excavated material and a field conservator removed biological material from artefacts and securely wet stored them for transport to the conservation laboratory at the Western Australian Museum (see Appendix L). The excavation left a small cavity in the deposit, so an *in-situ* preservation strategy as directed by the conservator was implemented. This involved divers installing a number of materials including sterile sand, geotextile and sand bags (see Appendix K).

3.5 Fieldwork analysis – the shipwreck

3.5.1 Site formation

Shipwreck site formation is well established in archaeology literature (Babits & Tilburg, 1998; Duncan & Gibbs, 2015; Gibbs, 2006; Gould, 2000; Muckelroy, 1978; Richards & Seeb, 2013; D. Steinberg, 2005, 2008). Substantial work has also come from the consultancy sector (Cosmos Archaeology, 2017; Wessex Archaeology, 2007). This was all influenced by foundational work in archaeological site formation processes more generally (D. Clarke, 1973; Schiffer, 1987).

Understanding site formation is critical in shipwreck archaeology. The distorted and disorganised way the shipwreck presents itself must be understood to form valid archaeological enquiry about the ship that once was. An understanding of site formation determines the integrity of physical contexts, and provides authority to archaeological observations and analysis, ultimately assisting the researcher to argue that processes had changed the assemblage in some ways, but not others.

Muckelroy (1978) used the terms *extractive filters* and *scrambling devices* to methodically approach the study of depositional and post-depositional processes on submerged shipwrecks. These terms do not describe processes themselves but categorise their effects. Extraction means loss or removal from the archaeological context and scrambling refers to material remaining within the archaeological context but being disturbed and moved. These terms remain useful, when appreciating that the processes behind these can be complex, situationally specific and

feed of each other. Two other categories become evident in this study: transformation and concealment.

Site formation factors specific to the *Sanyo Maru* are listed more comprehensively in Chapter 7, but three of these factors shaped how the inside of the cabin space was recorded and understood. The first was that some iron and steel features were covered (or fouled) in biological growth (concealment), or a layer of concretion (concealment/transformation) making identification and recording problematic (Carpenter, 1990). These were recorded with photography and then disregarded. The second was extensive wood loss from a possible combination of physical abrasion, chemical breakdown and biological attack (borers) destroying both compartment partitions and furnishings (Bjordal & Nilsson, 2008).

The third factor was high levels of sedimentation in parts of the cabin. Gaps in the hull facilitated the deposition of sediment from the outside water column. Some areas of the cabin had a shallow bed of coarse sand and broken shell, whilst other parts had a deeper fine silty sediment layer. The latter obscured parts of the floor burying structure and artefacts (concealment). These spaces could have been dredged, but this would have caused extensive site disturbance.

3.5.2 Ship design, architecture and use of spaces

Understanding the architecture of the wreck involved three directions in historical research. The first was to locate all sources concerning the construction of the *Sanyo Maru* and any modifications, the shipyard and any sister-ships of the same or similar design. The second involved Japanese secondary sources on fishing fleets to identify supply ships by function. The third was to source accurate ship plans of similar sized and designed Japanese merchant ships. The latter provided schematics of aft (poop) cabin spaces, the placement of officer and crew quarters, the galley and toilet. This proved essential to identifying cabin spaces in the wreck.

The research took a major turn when it was concluded that the *Sanyo Maru* was not a pearling ‘mothership’; a term that implied both a design and purpose. It was in fact built as a small cargo ship for general shipping and used by the industry as a transport ship. This came from a critical assessment of historic sources and the archaeology, and led to new research directions.

A problem was that the primary records of the Mihara shipyard were lost. Once located in a maritime industrial precinct of Osaka, the shipyard was destroyed in allied bombing raids of Japan. Other sources identified sister-ships, and these names were cross referenced with image catalogues in Japanese libraries locating historic photographs. The government ship registration office in Tokyo retained an historic entry for the *Sanyo Maru* detailing technical descriptions, modifications and changes in ownership. There is an entry for the wreck in Lloyds Register providing authoritative but limited details, and the ship is listed by the US military as part of a survey of merchant shipping.

3.5.3 Functional groupings of material

Chapter 2 outlined approaches to artefact analysis used in this study, and one included functional groupings. These groupings were not based on a predetermined system but born out of the investigation itself and included food consumption, medical, hygiene, diving, ship systems and souvenirs. Analysis of groupings included both *in situ* and excavated material. Functional groupings contributed to the understanding of life aboard, the use of different ship compartments and distinguish cargo from ship stores.

3.6 Tableware analysis: form, decoration and imperfections

One grouping is food consumption, with artefacts made of porcelain, glass, wood, lacquer and bakelite (an early synthetic plastic). Of these the majority are porcelain, and constituted tableware; the plates, bowls and cups that made up part of the setting for a communal meal. Twenty-seven intact porcelain artefacts were excavated, with more intact porcelain recorded *in situ*. Ceramics are one of the most commonly studied material by archaeologists, and traditional investigations focus on three dimensions of variation. These are: technological, which includes manufacture; function, which is related to form; and style, which includes decoration (Banning, 2002, pp. 161-184).

The *Sanyo Maru* ceramic tableware assemblage provides an opportunity for significant material analysis of ship stores and food consumption. These are complete examples not

fragmented sherds. The excavated artefacts were removed from a single shelf compartment and represent a dining-set. This represents a communal meal, and an opportunity for ethnographic analysis. Stylistic attributes include symbolic messaging through traditional motifs, and varying manufacture quality can be understood as mass-production with a focus on quantity and efficiency over quality. Lastly widening the study, and noting that historic footage shows sailors eating with more rudimentary tableware, raises questions of class across the fleet.

3.6.1 Comparative analysis problems and approach

Historical research into ceramic production over the Late Taisho (1912-1926) and Early Showa (1926-1945) periods shows that the 1930s was a peak period with a focus on mass production for local and Asian markets (Dick, 1989, p. 253). This did not mean automation, but an assembly line approach producing traditional forms with traditional decoration, although made quickly, and commonly with imperfections. The problem in researching this material is a common disinterest by Japanese archaeologists and museum curators. Archaeologists typically work in earlier historical periods and art and museum curators focus on more historical pieces, examples of technical excellence, or representative examples of a specific tradition or artist (pers com. Dr Jun Kimura, 2019; Ross, 2012). English language catalogues of Japanese art and ceramics provide little assistance, as they too demonstrate a lack of interest in this material (Japanese Craft Forum, 1996; Sanders, 1980; Yamanaka, 1934), with some writers openly critical of later phases of mass production (Stitt 1974). The trade of 20th century Japanese ceramics in the antiquity markets of Western countries focuses predominately on export-ware, as this type is readily available in those countries. This explains the proliferation of ‘Made in Japan’ ceramics. The *Sanyo Maru* assemblage was not export-ware for a western market, but a domestic assemblage for internal use and in Southeast Asia.

This paucity of authoritative references and Japanese comparative assemblages creates a risk in analysis. Chapter 7 provides locations where some of the material was produced, but this comes after experts confirmed sources based on specific attributes. There is a tendency amongst amateur dealers to prioritise manufacturing stamps, however they can prove misleading. Some manufacturing stamps may not signify the maker but the purchaser or wholesaler (pers com. Iwai Toshimi, 2020; Ross, 2012, p. 24). In other cases, older established

manufacturing marks are copied by other makers, using it as a form of prestige decoration (pers com. Iwai Toshimi, 2020). Therefore, manufacturing marks can be unreliable.

Whilst some curators were of assistance, research shifted from visiting Japanese museums to visiting antique and second-hand markets. Two examples, purchased by the author, are versions of SM17 and SM65 (see Appendix E). This experience showed that at the time of research, porcelain of this quality and vintage were not being accessioned into museum collections, but were appearing in local street markets amongst vintage clothes, historic postcards and other collectables.

Another source of information about these kinds of tableware porcelains are comparative archaeological studies of Japanese material of the early 20th century. Ross focuses on the Japanese assemblages from fishing camps on Don Island, British Columbia, Canada, and provides a robust framework for artefact analysis based on form and decoration (Ross, 2009, 2012). Here porcelain is categorised by various attributes including how decoration was applied and decorative themes. Not dissimilar is earlier work by Costella and Mainery, who in studying Japanese artefacts recovered from Walnut Grove California, classified broken sherds from trash deposit layers by form, decorative method and decorative theme (1988).

Further, there is Campbell's analysis of porcelain sherds recovered from three communities of first-generation Japanese, in Washington, Oregon and California (R. Campbell, 2017a, 2017b). Similar to Ross she identifies very specific forms using Japanese terminology, decorative techniques, decorative elements and their symbolic meaning. Of particular geographic relevance is Dixon's study of Okinawan labourers on a pre-World War II plantation on Tinian, Mariana Islands, associated with Japanese colonialism in the Pacific (2004).

These are significant empirical studies which offer a framework for artefact analysis that suits aspects of this study's research goals. The thesis follows much of their procedure considering form, decorative method, decorative themes and their symbolic meanings. There is less emphasis here on assigning classifications of form, as this research is more focused on the social and cultural context of the shared meal experience and the symbolic messaging in decorations. There is also a concern that a strict interpretation of function based on form alone minimises the possibility of unique dining habits and pieces being interchanged.

3.6.2 Quantitative analysis issues

Most of the porcelain was excavated from one location, a storage compartment that was once a part of a larger wooden furnishing. Investigations proved that another compartment once existed above the one excavated but at some point was lost. Ceramics from this fell and spilled on top of the existing compartment and around it. Some fallen artefacts that made up this spill zone were photographed in 2012, but by 2016 most of these ceramics had been looted by divers. The research implications are that the compartment excavated was undisturbed by the salvage, but other material was stolen and can no longer be studied in context. Further, it shows that the material excavated was not the only tableware ceramics once stored on the ship and deposited in archaeological context.

3.6.3 Conceptual bias

Chapter 2 considered the dangers inherent in studying different or foreign cultures in terms of cultural bias. An aspect of this risk is that a researcher may think of these kinds of artefacts, traditional ceramics forms and decoration, as exotic and thereby misunderstand the mindset of the user, which may have been that these were in fact comforting and familiar. The archaeology of WWII internment camps for Japanese residents in the United States provides a valuable comparison. Skiles and Clark identify Japanese ceramics brought into Amache, a Japanese internment camp in Granada, Colorado. They write:

‘... at Amache these items were likely not considered exotic by the people who used them. The power of the Japanese ceramics was that they were familiar, even mundane. In fact, the imported Japanese goods at this site probably were some of the least “foreign” elements of the internee environment’ (2010, p. 190).

In the same way, shared meals aboard the *Sanyo Maru*, which material evidence shows included traditional tableware and toasting with sake, reinforced a shared culture, and confirmed social and working relationships, and reminded sailors of home when they lived distant from it.

3.7 Material culture study- coastal finds in collections

Chapter 8 confirms that foreign Japanese lugger crews did not establish formal seasonal camps, but did on occasion make landfall and set up rudimentary temporary bases. This raised the prospect of material evidence of this activity deposited along the coast. Correspondence with the Museum and Art Gallery of the Northern Territory (MAGNT), Western Australian Museum and the Queensland Museum, all major repositories of northern Australian archaeological material, confirmed that none had material in their collections identified with foreign Japanese pearling crews. However, an examination of the MAGNT collection stores by the author proved that some ceramics collected as part of Campbell Macknight's surface collections in the late 1960s were Japanese, although they had not since been identified as such by either Macknight or museum staff since (Macknight, 1969a).

In 2016, as Senior Heritage Officer of the Northern Territory Heritage Branch and prior to the *Sanyo Maru* excavation, the author took custodianship of an intact stoneware jar recovered by marine scientists and Aboriginal sea rangers on a beach on Elcho Island. It closely resembled the sake jar SM46 which was excavated some months later from the *Sanyo Maru* by the author. This jar is now in the process of being returned to the community. Another example of the same jar was discovered on the mainland south of South Goulburn Island by traditional owners many years earlier. They received incorrect advice that it was Macassan in origin. Its eventual location was unknown to the community, but it was finally tracked down by the author to the MAGNT stores. The author then inspected it and correctly identified it as the same kind of jar (Japanese origin). On a separate occasion the author visited the Aboriginal community of Maningrida on the central Arnhem Land coast, and discovered a broken example of the same kind of Japanese sake jar in the Art Centre's store, which like the jar collected south of Goulburn Island had been wrongly identified as Macassan in origin.

3.8 Japanese institutions and locations visited

An important part of this research project was to understand the shipwreck, the artefact assemblage and the history of the ship and industry through the available Japanese sources. Japanese sources were discussed earlier in this chapter, but it is useful to address Japanese

research based on places physically visited in Japan by the author, demonstrating the overarching commitment to the research project.

Major repositories visited included the National DIET Library; Diplomatic Archives; National Archives of Japan; the library of the Japan Maritime Center (sic) and the National Film Archives, all in Tokyo. Also visited was the NYK [Nippon Yusen Kaisha] Maritime Museum in Yokohama; Edo-Tokyo Museum in Tokyo, Yokohama Port Museum, and government ship registry offices in both Yokohama and Tokyo, the latter two agencies that deal in contemporary registration but hold records that go back many decades. The Sea Breeze Rest Area, Shionomisake, Kushimoto, Wakayama, has a pearling exhibit and a small library of primary and secondary records. Also visited was the Taiji Whaling Museum. The historic site of the Mihara shipyards in Osaka, where the *Sanyo Maru* was built, was visited including the river where it launched. There was nothing left of Mihara shipyard, but the visit provided the opportunity to meet the Director of the Nanshin shipyard located close-by.

Ceramic centres in the Gifu, Aichi and Ehime prefectures were visited based on preliminary research indicating that the majority of ceramics from the assemblage came from there. This included museums and craft centres in the towns of Seto, Mino and Tobe. The purpose of the visit was to seek expert identification of the assemblage and develop a better understanding of manufacture techniques, form and classifications. As stated earlier a number of antique markets were visited and similar ceramics recorded and purchased (see Appendix E).

3.9 Expert consultation

Formal oral histories were not conducted because the period being studied is beyond living memory. However, experts were consulted on a range of topics over the course of the research. The research was not an oral history initiative, recording events from the past. Rather the research aimed to secure knowledge and understanding of the past and its material remains via expert consultation. A Japanese born technical expert from Paspaley Pearls, Mr Takenobu (Taki) Hamaguchi, was consulted on the design of the *Sanyo Maru*, confirming various compartments were not designed to process shell or pearl. Mr Senchiro Fujita, an expert in the Japanese merchant marine, with over 60 years experience, explained the importance of hierarchy in the merchant marine culture. He also confirmed that maritime company records are rarely accessioned into archive collections.

The Director of the Nanshin Shipbuilding Company confirmed that the Mihara shipyard and its records were lost in an allied bombing of Osaka. Museum curators assisted in identifying where the artefacts within the *Sanyo Maru* were made and how to interpret various artefact attributes. The curator of the Taiji Historical Archives provided access to records held in private collections. Outside of Japan archaeologists in the United States assisted in comparing ceramic assemblages, and an expert from the Historical Diving Society (Australia) assisted in identifying diving artefacts and interpreting historic film footage.

3.10 Conclusion

The methodology used in this research project to address the questions raised in Chapter 1 primarily drew from the disciplines of historical and maritime archaeology and history. A wide range of historical sources were used including primary documentary evidence written in Japanese and English, but also other sources such as historic film and photography. Archaeological methods include an underwater survey and excavation of an historic Japanese shipwreck, and the reanalysis of material held in local collections.

The research methods evolved, adapting to the fragmentary nature of the sources, but also taking advantage of new opportunities. This included visiting museums and ceramic manufacture centres in Japan, but also second-hand markets and antique stores to better understand the excavated material. Research in Japan included consulting experts in areas such as the Japanese merchant marine and Japanese 20th century shipbuilding.

While it is correct to summarise this research as an historical archaeology project, the thesis also draws from sources, analysis and frames of references from outside this discipline. This included anthropological studies on Indonesian seafaring in Australian waters, global sociological studies of contemporary fishing, anthropological studies of Aboriginal maritime tenure, and Aboriginal uses and taxonomies of local shellfish. Therefore, while maintaining a disciplined adherence to the methods and standards of shipwreck research and historical archaeology, this thesis confidently drew on other work to enrich the research and better address the research question.

Chapter 4: The maritime industrial frontier of 1930s Northern Territory

'In 1931 Arnhem Land in the Northern Territory was gazetted an Aboriginal Reserve and so technically closed to all outsiders with the exception of the Anglican and Methodist missionary societies. In practice, the coast of Arnhem Land provided fishing grounds for large numbers of non-Aboriginals. In particular Darwin-based boats with Japanese crews would harvest trepang along the north coast bartering tobacco, flour and trinkets for Aboriginal labour' (Dewar, 1995, p. ix).

4.1 Introduction

The following chapter provides a background to the study of Japanese pearling in the Northern Territory, by describing and explaining the relevant conditions of the NT itself. This background is targeted, illuminating the aspects of the local environment and society that the Japanese encountered and responded to. The foreign fleets experienced shallow waters but strong tides; local factors that shaped how they operated. The coastline was void of regional ports and coastal development, and local laws prohibited the Japanese from establishing their own coastal stations. This reinforced a practice of transshipment in the open sea, rather than moving supplies, harvest and personnel via a port or base.

Chapter 8 explores meetings between Japanese crews and others, while this earlier chapter establishes who these others were. The only commercial boats the Japanese fleets encountered were local Australian pearling boats from Darwin, Broome or Torres Strait. These were manned predominately by Japanese nationals as indentured labourers. They did not encounter for example long range Australian fishing fleets from Darwin or southern ports, and neither were there commercial fishing fleets based along the coast. The coasts and islands were inhabited by coastal Aboriginal peoples, while there was an absence of white Australians, other than a scattering of missions and the odd fisherman or anthropologist. These conditions shaped specific elements of the Japanese operation.

The geographic focus of this study is the Northern Territory rather than the entire northern coast of Australia. This was in part because of the inherent limitations of a PhD study, but principally because the historic records confirm this peak in Japanese pearling, occurring in 1937-1938, happened on the pearl beds of the NT over other locations. Foreign Japanese pearlery certainly worked Western Australia and Queensland waters, but not to the same extent. In 1939, the *Palao Maru*, a mother-ship of 150 tons, that serviced a fleet of 14 luggers sank off

the WA coast (NS 21/7/1939, p.12). Also in 1939, the *Koshin Maru no. 5*, a large lugger operating as a pearl, trochus and trepang boat, worked off the Queensland coast (NAA, F1,1938/584, Haultain, 18/01/1938). However, the great fleets of nearly two hundred boats and thousands of men came down into the waters of the Northern Territory.

This contained geographic scope has provided the opportunity to identify and bring to the foreground local conditions and issues. It was a place of specific administrative and cultural boundaries, of limited economic and industrial development, where the first Australian border Patrol Service operated, and where arrests of Japanese luggers were made. Whilst the edges of frontiers are porous, and vessels entered and left local waters, specific conditions and circumstances shaped how industries operated within it. The big themes of colonialism, frontier capitalism and territorialism can be explored through this particular historical and geographical lens.

The map below shows the Northern Territory highlighting the coastal missions and reserves relevant to the history of Japanese pearling.

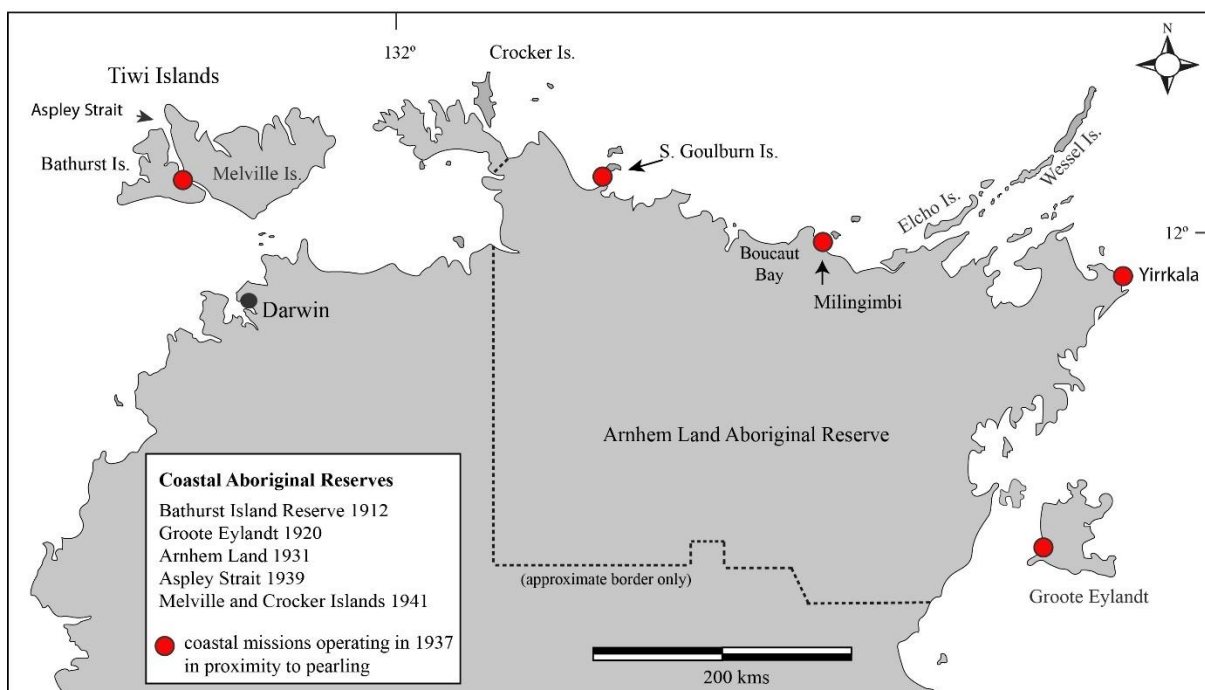


Figure 11. 'Top End' of the Northern Territory highlighting Aboriginal reserves and relevant coastal missions.

4.2 Natural conditions that shaped the industry

The Northern Territory is 1,600 km in distance, from the north coast to the southern border, shifting from tropical to desert/semi-arid environments. The tropical zone, which includes the coastline and seas is colloquially known as the ‘Top End’. The specific natural conditions of Top End waters shaped the pearling industry. Seasons, local tides and depths all impacted on how, when and where the fleet operated. The tides for example created a work cycle of intensive harvesting and then periods of rest, when the fleet came together, supply ships arrived and some crews secretly sought shelter and shore.

4.2.1 Seasons

For the purpose of this research it is sufficient to identify four major seasons in the Top End, although Aboriginal cycles identify more. The Gulumoerrgin (Larrakia) language group that includes Darwin recognise for example seven major seasons in their seasonal calendar (L. Williams et al., 2012). The four major seasons with the corresponding pearling work cycle is depicted below. Which month a season starts and finishes is based on data from the Bureau of Meteorology and recorded Aboriginal knowledge systems. It should be appreciated that there are early or late onsets each year and that it varies across the Northern Territory.

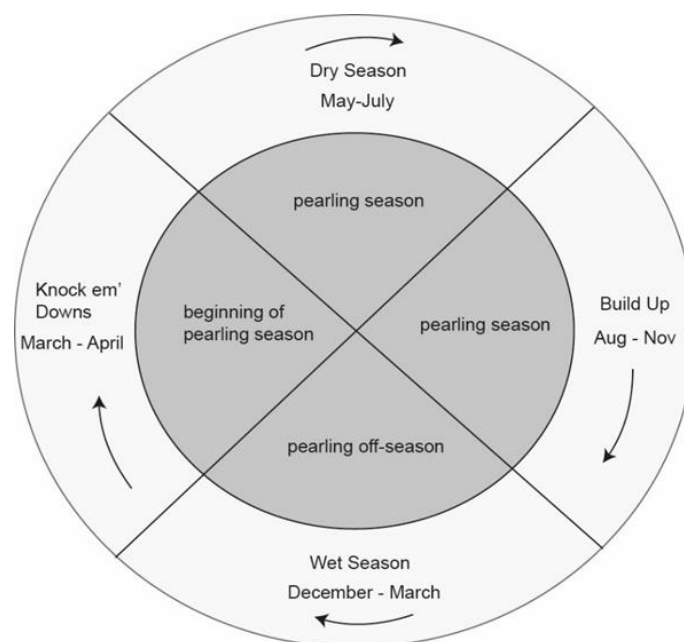


Figure 12. Four major seasons of the Top End in relation to the pearling season <http://www.bom.gov.au/nt/> viewed 19/01/2018, (L. Williams et al., 2012)

The Wet Season generally falls between December and March and is characterized by heavy rainfall, occasional cyclones, and a northwest wind pattern, also known as the north-west trade winds. These winds assisted sailors to travel south from Asia, and were the winds that brought the Macassan fishers from Indonesian waters to Australia's northern coast. The Japanese pearling fleets did the opposite. They could use diesel engines if the winds were unfavourable, and they left at the on-set of the monsoon because of worsening seas and diving conditions.

This is also the Cyclone Season, which can result in dramatic and destructive cyclonic events, such as the one that struck Darwin in January 1897 resulting in the loss of 18 of the 29 pearling luggers in the harbour (NTTG, 25/01/1897, p. 2). However, they are infrequent, with the Top End averaging only 7.7 days per year in which it may experience a cyclone somewhere (<http://www.bom.gov.au/cyclone/>, viewed 14/05/2018). Each cyclone is confined to a particular erratic track that may avoid populated areas, anchorages and pearling grounds. Furthermore, cyclones vary in severity. The majority of the time the seas and winds are calm.

High rainfall associated with Wet Season greatly increases the flow of rivers into coastal waters, depositing sediment from land to the ocean. Sediment can also be deposited from land by wind. The deposition of land sediment is a dominant cycle, and had particular bearing on diving. Pearl oysters are suspension feeders and collect nutrients from suspended organic particles in the water (Hart et al., 2016, p. 44). However, paradoxically, the muddy seabed and high concentration of particles in the water (high turbidity) reduces diver visibility. The Arafura Sea has a varying seabed substrate which can include sand, broken shell and clay but is dominated by soft sediments, to the extent that this region supports the largest terrigenous province on the entire Australian continental shelf, that is, substrate formed from land sediment (NMBPS, 2007, p. 2). The impact on diver visibility was exacerbated by tide and the shallowness of the water, as will be discussed shortly. The Wet Season was generally the lay season for the industry because of destructive winds and seas, and impacts on diver visibility.

Following the Wet Season is a short season known colloquially as the Knock em Downs which falls over March-April, named after the strong winds that knock down the tall grasses grown over the Wet season. The Knock em Downs mark the end of the monsoonal rains but localised storms can persist. This period may bring some of the strongest winds of the year. They come from the southeast marking the shift in wind direction from the northwest. Over May-July is the cooler Dry Season. Average temperatures are lower, there is no rain and the southeast trade winds are established. The winds of the Dry Season are consistent and strong (NMBPS, 2007,

p. 7), and are dangerous noting the *Sanyo Maru* sank in July. The final season is the Build Up, occurring over August- November, and known for the lack of wind, calmer seas and high humidity. This was one of the more productive seasons for the pearling fleets, with the calmer seas and better visibility due to reduced turbidity.

4.2.2 Tides

Tide had a considerable impact on all dive work cycles in the Northern Territory. There are no major ocean currents in the Arafura Sea with large tides the significant driver of current (NMBPS, 2007, pp. 3-7). Tide was particularly relevant to pearl-shell operations. The physical force of tidal current made diving unproductive and dangerous, noting tide impacts the entire water column including the seafloor (National Oceans Office et al., 2005, p. 4). Secondly, tidal current would stir up sediment from the seabed into the water column impacting visibility. Tidal current is strongest during the extreme high and low tide cycle, known as Spring tides, where there is the greatest movement of water. This is driven by the full and new moons. Correspondingly tidal current is least when there is less variation between a high and low tide, known as the neap tides, and driven by the crescent moon. In Darwin, for example, the maximum tidal range is 8.1 metres, with a mean spring tide average of 5.5 metres, and notably smaller mean neap tide movement of 1.9 metres (Dept. of Lands and Planning, 2011, p. 130). For this reason, neap tides were the diving tides, and spring tides the lay periods.

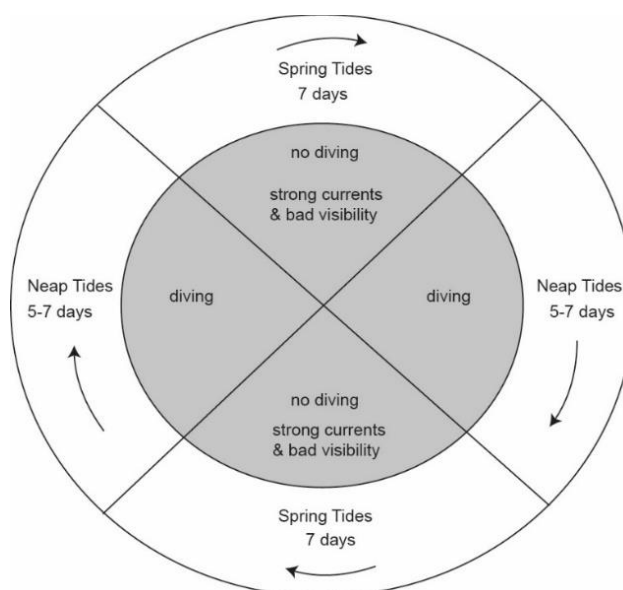


Figure 13. Monthly tide cycle and diving
Variation occurred based on specific cycles and locations along the coast

Although the Japanese fleets returned north to their homeport of Palau during the Wet Season, the distance was too great to make this voyage each Spring tide, when conditions prohibited diving. This forced hiatus provided a window to rest, replenish supplies, conduct repairs and maintenance and share information with other crews.

4.2.3 Depth

Seasons and tides influenced *when* diving operated, but *depth* determined whether shell beds could be worked at all. The Arafura Sea is a semi enclosed continental shelf basin, submerged during sea level rises less than 18,000 years ago (NMBPS, 2007, p. 16). As a continental shelf its waters are far shallower than the waters beyond. For example, the *Sanyo Maru* sank 46 kilometres (32 nautical miles) from the coast but sits in only 28 metres of water. Further, the nautical chart for that general area shows that at 110 kilometres from the coast (60 nautical miles) depths range between 35-54 metres (2010). So how accessible were these depths to divers in the 1930s?

Commercial pearl shell diving involved divers wearing hard helmets with air pumped to them from the deck of the boat via hoses, the air supplied originally by hand pumps, and later by engine driven compressors. Idriess notes that after World War One the introduction of petrol driven air compressors and more dependable decompression schedules meant divers consistently worked deeper water putting the average at 18-40 metres with an extreme working depth for shell to 64 metres (Idriess, 1968, p. 182). A 1936 newspaper article claimed Japanese divers of the foreign fleets worked up to 46 metres (Northern Miner, 22/5/1936, p. 4). Based on these depths and charted depths, there were areas too deep to dive, but Japanese divers were still able to prospect and harvest across huge tracts of sea far from the coast.

4.2.4 Seabed topography

Oysters grow on hard surfaces and so oyster beds (or ‘patches’) correspond with seabed topography. This is not unique to the Top End but does mean that knowledge of its seabed topography was related to a productive harvest. Nautical charts of the Northern Territory coast in the 1930s were of limited accuracy and may have marked a few known reefs and shoals but were certainly not comprehensive. The implication was that fleets had to explore and prospect,

annotating their charts as they went. Later chapters will show that the Japanese fleets were large, coordinated and had dedicated prospecting vessels, with information that was shared across the fleet.

4.2.5 Wessel Islands

Later in the dissertation the Wessel Islands are identified as a popular destination for Japanese pearling crews to land (see Figure 11). Noting the islands natural attributes at this juncture establishes how their natural benefits encouraged visitation. The Wessel Islands are identified as one of the richest and most diverse biodiversity locations in the coastal region. (NMBPS, 2007, p. 20). This included a large mackerel fishery and a home for a varied range of migratory and local birdlife. These were all possible food sources for visiting crews, with birds providing a welcome change from fish. There is also an abundance of fresh water springs, proving fresh water supplies (NMBPS, 2007, p. 20). However, the area experiences strong tidal currents between islands creating forceful local eddies (NMBPS, 2007, p. 20). This is reported historically, with the Patrol Service recommending navigation only with the assistance of 'local' pilots (meaning Aboriginal) (NAA:A1,1937/2419, Haultain 5/1/1937). These would be dangerous to mariners unfamiliar with local conditions. Chapter 8 analyses stories of Japanese crews using Aboriginal pilots around these islands, and these particular conditions may explain why this local expertise was sought.

4.3 Traditional knowledge and uses of mother of pearl

The following explains how the traditional harvest of mother of pearl shell by local Aboriginal peoples influenced the emergence of colonial pearling industries in Western Australia, and the Torres Strait but not in the Northern Territory. For reasons particular to the Northern Territory this mollusc did not easily propagate in shallow waters, and so was not accessible to locals prior to the appearance of diving technology. This makes the emergence of colonial pearling in the NT a unique story, and relates to Aboriginal involvement in the industry.

4.3.1 Aboriginal and colonial entrepreneurs in Western Australia and Queensland

The discoveries of rich shell beds in northern Western Australia (WA) and the Torres Strait, the other major centres of Australia's pearl-shell industry, came from white colonists and entrepreneurs observing local harvest and uses. In the case of northern WA, pastoralism brought settlers into traditional lands who observed Aboriginal people engaged in an extensive trade network of *Pinctada maxima* (Anderson, 2012, p. 30; Bach, 1955, p. 5; McCarthy, 2002, p. 30; Paterson, 2018). As Bach recounts the expansion of the industry was rapid and by the end of 1870 thirty boats were operating off the northwest coast, with over sixty white men and close to three hundred local Aboriginal people. As with the Torres Strait, the shallow beds reached by free-swimmers (without the use of diving equipment) were soon depleted, and the industry shifted to dress diving, with the technology introduced in 1885 (Bach, 1955, pp. 5-8).

Akerman and Stanton confirm that the main shell sought by Aboriginal peoples in Western Australia was the 'gold lip' varieties of *Pinctada maxima* and also the smaller *Pinctada albina* (Akerman & Stanton, 1994, p. 1). Historic collections also record the use and trade of a fresh water pearl oyster (*Meleagrina margaritifera*) (Mountford & Harvey, 1938). WA Aboriginal peoples would use shell in ceremony, as an exchange commodity and for personal adornment (Akerman & Stanton, 1994; Mountford & Harvey, 1938). Large shell pieces were often worn as pendants hung around the neck as chest plates or around the waist. Rich engraved artistic traditions of both figurative and geometric designs were practiced, with some experts suggesting engraved shell emerged at the Contact Period (Akerman & Stanton, 1994). Smaller trimmed blades of shell were added to necklaces and tucked into headbands over the forehead and temples (Akerman & Stanton, 1994).

Traditionally shell was procured by WA Aboriginal groups by 'reefing', which meant collecting at extreme low tides (Akerman & Stanton, 1994, p. 1). Groups at the Buccaneer Archipelago were observed using rafts to visit off-shore reefs to collect pearl shell. Traditional use continued after commercial pearling was established, with locals procuring shell from commercial lugger stations for customary use (Akerman & Stanton, 1994, p. 1).

Based on historical ethnographic accounts and comparisons of engraved motifs, it has been argued that shell sourced from the north-west coast of Australia travelled through an extensive trade network reaching into central Australia, the Northern Territory and South Australia (Akerman & Stanton, 1994, p. 14; Konishi & Paterson 2021, p. 125; Mountford & Harvey,

1938, pp. 123-132). This model suggests that the shell used across the NT, including Darwin, Daly Waters, Tennant Creek and Alice Springs, originated from the north-west coast of Australia and not from local waters.

Turning to the Torres Strait, traditional trade and exchange networks that predated colonial interference connected New Guineans and Aboriginal and Torres Strait Islander peoples. The pearl shell, commonly presented as a breastplate, was one of the Islanders most valued exports, and particularly prized by highland New Guineans (Mullins, 1995, p. 13). Captain William Banner and his crew of mostly Pacific Islanders are credited with the first large scale shipment of shell from the Torres Strait, which was harvested from Tudu (Warrior) Island in 1869 (Bach, 1955, p. 14; McPhee, 2004, p. 365; Mullins, 1995, p. 54). McPhee notes that Banner and his crew had established a trepang base on the island, and the local inhabitants, possibly visibly adorned with pearl shell decoration, indicated the location of the shallow beds to Banner's men (McPhee, 2004, p. 365).

Banner's operations included dive boats and 'swim boats': in the latter, free swimming locals were employed to collect in the shallows (Goldie et al., 2012, p. 46). McPhee notes that harvest at Tudu Island started at shallow depths but progressed into deeper water as the beds were exhausted (McPhee, 2004, p. 365). The necessity for pearl-shelling to shift from low tide collection and shallow water free-swimming to dressed diving was rapid across the Torres Strait, with Bach dating the introduction of hardhat diving technology to the Torres Strait pearling industry at 1874 (Bach, 1955, p. 15).

4.3.2 Mother of pearl in the Top End

West Australia and the Torres Strait are relevant because they establish a contrast to the Top End. A definitive Yolngu identification guide to shellfish of north-east Arnhem Land identifies Mother of Pearl (*Pinctada maxima*) as *muthiyarra* or *rrimudalnu* (Bentley & NAILSMA, 2016). The guide confirms it is 'Not eaten, Japanese trepangers used to collect it and at times it can be found on the outer reefs'. The reference to trepangers may not be an error, for as discussed later, some trepangers also dived for shell depending on the tide. Importantly it was not a food source, found only occasionally on distant reefs, and there is no reference to cultural uses.

Meehan's work with the Gidjingali encompassing the east side of the Liverpool River, Maningrida, Boucaut Bay and the Blyth River to Milingimbi is also relevant (Meehan, 1982). Through oral history she confirms contact between locals and Japanese pearlshellers, but in her taxonomic study of harvested species, Mother of Pearl is omitted. Meehan explains that shells assigned the prefix 'man' form a special group and are associated with 'Macassan and Japanese' and come from 'deep water' (Meehan, 1982, p. 52). Furthermore, *Pinctada maxima* does not appear in excavations of Northern Territory coastal middens (Faulkner 2013, Hiscock and Mowat 1993; Mowat 1995).

These more contemporary sources are supported by older historical sources. Alfred Searcy was a sub-collector of customs at Port Darwin for 14 years arriving in 1882. This was a crucial decade, as plans to introduce license fees to visiting Macassans meant Customs needed to make contact with them and develop an understanding of their industries. Searcy was charged to develop an understanding of their procurement of resources which included trepang, tortoise shell and pearls. This decade also heralded the arrival of colonial pearlshellers to the Northern Territory.

Searcy suggests that Macassans employed Aboriginal peoples to collect pearls at free-swimming depths. He states:

I received reliable information that a proa the previous season had taken away thirty-five cattie's weight [21 kilograms] of pearls, no doubt the majority being inferior, but amongst such as quantity there was bound to be some of great value. The natives collected the pearls during the absence of the Malays for whom they saved them and received in exchange grog and tobacco. On all the outlying reefs at low water pearl-shell could always be procured (Searcy, 1909, p. 32)

It's likely that this was not the highly valued commercial species *Pinctada maxima* but an inferior pearl shell. Fred Gray, a famous trepanger who worked the Arnhem Land coast for many years before settling on Groote Eylandt in the 1940s spoke of locals collecting pearl shell, but that the quality of the shell and pearl were not standard commercial varieties (Gray, 1979). He recalled that:

'We found a very good pearl, not the commercial pearl, a type of pearl shell which was much smaller and very prolific in pearls. Well, knowing a little bit about pearls, I was able to sort and grade these pearls and set them up for putting into jewellery, that was the best of them. The indifferent stuff, I knew the pearl buyers and was able to sell what we call the 'baroque'

pearl to them which was usually sold to the Chinese and ground up for medicine' (Gray, 1979, p. 5).

This shell may have been *Pinctada radiata*, known amongst Yolngu as 'garrwilli', or Bastard Pearl Oyster (Bentley & NAILSMA, 2016). It was more accessible, edible, formed a nacre shell and occasionally a small pearl. Trudgen argued that some Yolngu knew how to cultivate pearls beyond just wild harvest, also selling these to Macassans, although Trudgen provides no substantiating evidence, and it is not reported elsewhere (2000, p. 14).

The commercial pearl industry in the Northern Territory began with master pearlery from other places visiting and prospecting local waters, with eventually some investment in locally based ventures. None of these early operations referred to observing Aboriginal people harvesting commercial quality shell for traditional uses. In 1874 the *Northern Light* came from the east and surveyed for both pearl shell and trepang in Darwin waters but with only limited results (NTTG, 24/7/1874, pg 2). In 1884 the local news was still reporting that although some shell had been found by local operators, it was not in sufficient quantities to make the industry viable. (NTTG, 16/2/1884 pg 2). The *Sree Pas Sair*, did engage Aboriginal informants and conducted a detailed prospecting survey but found nothing, with the local newspaper suggesting the informants made up the information for payment (North Australian, 2/5/1884 pg 3). Searcy recalled how Streeter, a master pearler wanted to meet visiting Macassans to inspect their pearls and learn about local conditions, but Searcy refused to make an introduction (Searcy, 1909).

Early anthropological records further propose that *Pinctada maxima* did not feature in custom and trade. Early 20th century anthropological studies do not record extensive harvest, use and trade of pearl shell, while listing in detail other items used in ceremony, exchange and trade (R. M. Berndt, 1951; Thomson; Warner, 1969 p. 452; Worsley, 1955). It is also worth noting that Christian missionaries established in the early 20th century were desperate for revenue and used unpaid Aboriginal labour with ease, but made little to no attempt to establish their own pearl-shell industries. This is qualified later in this chapter. Bleakey, who visited a number of coastal missions in the late 1920s as part of a government survey, referred to trading locally procured goods, but did not mention shell (1928). Similarly, when Syd Kyle Little attempted to establish a trade post with local Aboriginal people in the area now known as Maningrida, he envisioned exporting snake skins, crocodile skins, trepang, timber and woven goods such as baskets, but made no reference to utilising an existing trade in pearl or pearl shell (Kyle-Little, 1993). Also relevant is the lack of reference to pearl shell and pearls in a study of jewellery and

decoration, a study which does reference using marine vertebrae, showing an general inclination to utilising marine resources (D. Wright et al., 2016).

The aesthetic qualities of the shell and pearls of *Pinctada maxima* make it highly desirable, but the evidence suggests that in Top End waters it was generally not accessible without diving equipment. There is neither evidence of traditional uses nor a colonial history of successfully procuring local knowledge. As described by Meehan's informant this was a deep-water variety and associated with visitors. The implication is that the pearling industry, including the later Japanese industry, did not disrupt traditional procurement or use of this resource. This is relevant to later discussion about labour and negotiations over resources between Japanese and Aboriginal groups.

4.4 Aboriginal sovereignty over land and water

Aboriginal sovereignty was established over the coast and waters of this maritime frontier prior to the appearance of colonial settlement, with scientific evidence for occupation at 50-60,000 years (R. G. Roberts et al., 1994). Furthermore, as the coastline has changed over time, many of the earliest occupation sites are now submerged. The appropriation of coasts, bays, rivers, and open water, and the demarcation of *territorial waters* were expressions of colonialism, and the 3nm miles that made up this administrative border, bore no relationship to established cultural boundaries.

Anthropological work has described complex ownership systems across coasts and open seas (Davis & Prescott, 1992; Peterson & Rigsby, 1998). The detailed empirical studies describing significance, and who speaks for what waters, is beyond this study, but an appreciation of its scope and complexity is relevant. For example, there are 128 separate groups whose territory encompasses the coastal areas of Arnhem Land (Davis & Prescott, 1992, p. 28). Coastal waters are not defined by just simple extensions of coastal territory, but were complex systems, with separate ownership of islands, sand banks exposed at low tides, reefs and sea grass beds (Bagshaw, 1998, pp. 154-159; Bradley, 1998, pp. 128,129; Danja & Steinberg 2001; Davis & Prescott, 1992, p. 2; Memmot & Trigger, 1998, p. 117). One example is 'Gunumba', the reef system north of the crocodile islands (Davis & Prescott, 1992, p. 29), an area frequented by Japanese pearlery.

Some researchers suggest that as a general guide, ownership over open sea extended as far as that which could be seen from the land, taken as approximately 20 km, but this was not absolute and distant waters that were rarely visited were still accommodated within cultural boundaries (Memmot & Trigger, 1998, p. 121; Peterson & Rigsby, 1998, p. 4). Peter Danaja, a Martay Burarra elder and historian, confirmed the language group that speaks for the specific waters where the *Sanyo Maru* sank, which was 30 km from the coast. (NT Heritage Branch; shipwreck files). The name is confidential knowledge and so not repeated here. All these distances extend far beyond what was territorial waters. This means that Open Access and the Commons, though first seemingly egalitarian, involved a denial of traditional Aboriginal ownership of sea country (Pannell, 1998, p. 236; Sharp, 1998, pp. 52-54).

Within these sovereign lands and waters there were established ways to accommodate visitors accessing resources (Palmer, 1998, p. 151; Peterson & Rigsby, 1998, pp. 3,5; Sharp, 1998, p. 55). This included Macassans who reputedly asked permission and paid tribute. In contrast were other outsiders, including some European fishermen, who appeared, exploited an area and moved on, without recognition of Aboriginal ownership (Pannell, 1998, p. 236). This study considers whether there is sufficient evidence to confirm whether foreign pearling crews were of the former or latter kind.

4.5 Northern Territory economy and industry of the 1930s

In the 1930s, when Japanese pearlers appeared from the north, the economy of the Northern Territory was weak. Industry was limited, migration to the territory was poor, and there was minimal expansion and development along the coast. There was only a small local pearling industry that could provide any competition, and its primary workers were ironically indentured Japanese. With no regional ports other than Darwin, much of the Northern Territory coast remained vast, distant and remote to those living in Darwin or the country's capital. This all had both a direct and indirect impact on the Japanese pearling industry.

4.5.1 Economy and demographics

Colonial occupation of the Northern Territory had a number of false starts with the eventual permanent settlement of Palmerston in Port Darwin in 1869 (Powell, 1982, p. 85). From 1869 through the 1930s the NT struggled economically. Agricultural, pastoral and mining revenues

were consistently weak, never realizing expectations, while the population of non-Aboriginal people remained steadily low. Illustrating these circumstances are two brief examples from different years. In 1898 a lengthy review summed up the state of affairs thus ‘There is good ground for surprise that with so many natural advantages to be utilised...that the history of the region is so largely a record of failure’ (Advertiser, 2/9/1898, pg 6). South Australia continued to lose money in its northern enterprise, until it petitioned to have its rights and responsibilities revoked. The Commonwealth took control in 1911 and things fared no better (Powell, 1982, pp. 138-189).

The year 1924, a useful midpoint between Commonwealth control and the period of study, is another example. The Administrator’s report provides grim figures (NAA:A1, 1925/26598, Urquhart 16/12/1924). The deficit for the 1923/4 year was £303,133. Its white population was 2,240 and its ‘coloured’ non-Aboriginal population was 1,043. Imports exceeded exports and local banking activity decreased. The local pearling industry only harvested seven tons of pearl shell. The Administrator summarised that there was an absence of productive industries and employment for white people (NAA: A1, 1925/26598, Urquhart 16/12/1924).

Turning to 1937, population figures show an increase in the white population, but still only a fraction compared to major cities in Australia.

Table 1. Darwin and NT non-Aboriginal population figures

Darwin population	Northern Territory population
1,473 Europeans	4,011 Europeans
679 Asiatic	798 Asiatic
368 half castes	981 half castes
17 ‘other’	23 ‘other’

(Abbott, 1937)

The vast majority of the Asiatics, which included Chinese, Malay, Koepangers and Japanese, were based in Darwin, and worked mostly in maritime industries. There was no accurate census of the Aboriginal population but only the roughest estimates. Anthropologist Donald Thomson estimated the population of Arnhem Land at 1,475 (Abbott, 1937). The Administrator then roughly extrapolated that the overall NT Aboriginal population did not exceed 10,000 (Abbott, 1937).

A summary of the economic state of affairs within the specific period of the 1930s can be gleaned from a report of a board of enquiry into NT land-based industries from 1937 (Payne & Fletcher, 1937). In short it reported on why the NT was failing to thrive economically and

provided recommendations. Authored by pastoralists Payne and Fletcher the introduction confirms that:

The Northern Territory as it exists today is a national problem, a national obligation, a challenge to other nations, and a detriment to ourselves. Since the Commonwealth Government has been in control since 1911, to date the expenditure exceeds £15,000,000 whereas the increase in population (inclusive of Asiatics and half-castes) number only 2,144 persons...Nature has not been lavish in bestowing resources to the Northern Territory.

It is notable that the report's survey of resources focuses almost solely on potential industries on land and not water, with the proposed solutions being the pastoral and mining industries. Wharf infrastructure is flagged but as the means to export land-based products. Resolutions 486-494 are about pearling, but are only brief and descriptive, not analytical. Significant to this research the authors criticise the establishment of Arnhem Land as an aboriginal reserve because it restricts access to all pearlers and so is bad for the economy. The report also emphasises the values and importance of the White Australia policy. On the White Australia policy, Reynolds argues that the tight restrictions on Asian migration and workers to northern Australia, based on racial prejudice not economic sense, shaped lives and communities, and most significant here, stunted economic development (2003).

In the 1930s Darwin was a small struggling town further tasked with functioning as the administrative hub for a vast expanse of land and sea. Unlike Broome, pearling did not make Darwin an industrial boom town, nor was there profitable industry elsewhere. In his 1937 Administrator Report Abbott stated that:

The Northern Territory is a vast area of good, bad, and indifferent land, with good lands, very much in the minority. Settlement and development here can only be regarded as being where it was in other parts of the Commonwealth many years ago' (Abbott, 1937, p. 17).

Although Abbott provided no example above, a suitable comparison could be Perth of the 1820s (Niendorf, 2016). Like Perth, Darwin was geographically isolated from the rest of Australia, had little immigration and served as an administrative centre for a vast region that had no thriving industries bringing in large revenue.

4.6 Local maritime industries of the frontier

Local pearling, trepang, fishing and edible shellfish harvest, were small struggling commercial marine industries operating in the NT in the mid-1930s. The vast majority were based in Darwin as there were no regional ports along the coast. In an emergency small missions could be visited for medical assistance, and pearling or trepang crews had their favourite secret beach camps, but there was no coastal infrastructure, regional ports or towns to base themselves, lay up for the off-season or buy supplies. Of these industries, local pearling makes for the most obvious comparison with foreign pearling fleets, working the same beds, harvesting the same shell, and selling to the same overseas markets.

4.6.1 Trepang

The end of the Macassan trepang industry in the NT and the emergence of a locally based one, has been well documented (A. Clarke, 1994; Macknight, 1976; Powell, 2010). For hundreds of years Indonesian seafarers voyaged to the north coast of Australia. The main purpose was to harvest trepang, with other items like tortoise shell and pearl also taken (Macknight, 1976, p. 84). The trepang, also referred to as *bêche-de-mer* and sea slug, was almost exclusively purchased by the Chinese, who used it in cooking, its popularity boosted by its reputation as an aphrodisiac (Macknight, 1976, p. 7). Trepang was collected in the intertidal flats and shallows. Processing (curing) involved a combination of boiling in cauldrons and then sun-drying and/or smoking, all done on a beach at a temporary camp.

Macknight explains the series of administrative controls by the South Australian government against the Macassans trade in the NT that led to its collapse in favour of local operators (Macknight, 1976). Licensing was introduced in 1882, bringing in revenue, but from 1906 licenses were no-longer issued to Macassans, favouring instead local operators. The first mention of local trepanging in NT waters dates back to 1875 (Macknight, 1976, p. 101; May et al., 2013). Locals would try their hands for a few years and move on to other enterprises or leave, with local trepang harvest continuing into the 1940s. Significant is that some local operators would switch between pearling, trepanging and fishing depending on their fortunes (Powell, 2010, p. 212; Sunter, 1997, p. 162).

George Sunter harvested trepang in the NT waters between 1928 and 1932 (Sunter, 1997). Although he owned and operated the venture, it was dependant on Aboriginal knowledge and labour to collect the trepang, with workers either wading out up to their hips and collecting as they walked or free-diving from canoes in water up to 7.3 metres (four fathoms) deep, with the produce collected in fifty pound flour bags (1997, pp. 40-41, 47, 51).



Figure 14. Showing harvested trepang, Goulburn Island
National Archives of Australia M105/2

Particularly telling was how rudimentary the harvest process was, and that little had changed in the curing process from the previous Macassan run industry. Processing happened on temporary beach camps. Stone fireplaces were erected, galvanized tubs had replaced cast iron pots in some cases but the trepang was still sundried (Sunter, 1997, pp. 41-42). The lack of equipment and technical expertise made trepang a viable industry for some to try.

Advocating to allow trepangers to work in the Aboriginal Reserve of Arnhem Land, Cecil Cooke, Protector of Aborigines (sic) and medical officer, explained that it was a small-scale industry, of minor export value but which offered employment to the white fisherman. He stated 'The trepang industry offers a more or less lucrative employment to persons who would otherwise be unemployed' (NAA, A431,1951/199, Cooke/28/09/1933).

In contrast, contained in the same letter was his description of Aboriginal employment:

The practice of trepangers is not to employ aboriginals but to barter with them. The aboriginals' fish the trepang and exchange it for flour and other trade to persons engaged in

the industry, the curing and packing being done by the purchasers'(NAA, A431,1951/199, Cooke, 28/09/1933)

Sunter also described a Japanese indentured labourer named Hoshikawa (aka Hana), who skippered the *Coral* for a white owner and which had an Aboriginal crew (Sunter, 1997, pp. 65-70). He would trepang during the spring tides and dive for shell during the neap tides, with a trusted Aboriginal crewman referred to as 'Billy half-caste' as his dive tender. He confirmed Hoshikawa was unique in navigating the coast by land bearings, where as most others used Aboriginal pilots.

Fred Gray, like Sunter, was a white trepanger. Gray had spent three months in Broome working as a shell-opener on pearling boats before he moved to Darwin (Gray, 1979). Gray used Aboriginal labour and paid them in flour, tinned food, calico (a type of cloth) and other goods (Gray, 1979). He mostly worked in east Arnhem Land, having a base for example in Caledon Bay, and on occasion would take his trepang to Thursday Island and sell it there, getting higher prices than those offered in Darwin (Gray, 1979).



**Figure 15. Fred Gray's trepang camp, Caledon Bay, East Arnhem Land
Caledon Bay Peace Mission Collection, 1934
Northern Territory Library PH0731-0057**

Reflecting on Sunter and Gray, Powell clarifies that they were the exception working the boats themselves (2010, pp. 218-219). Most enterprises were owned by white men, but the boats were crewed by Japanese and others, using the assistance of Aboriginal workers and pilots. Following poor returns in pearl shell in 1931 V.R Keperter converted two of his pearling boats,

the *Mrylta Olga* and *Raf* for trepanging (Lamb, 2015, p. 123; Powell, 2010, p. 210) In 1932 the two boats were crewed by six Japanese and a number of Aboriginal men recruited from Melville Island and the English Company Islands (Evening News Rockhampton, 17/10/1933, p. 8). At the time Keperit himself resided in New South Wales and his nephew represented his interests in Darwin. Trepang license records for the NT provide a perspective of scale.

Table 2. Operation licenses and boat registrations for trepang collection by year in the NT

Year	Operation licenses issued	Boats registered	Total export
1934/5 financial year	No full year licences, 8 half year licences	1 half year license	Nil or unlisted
1935/6 financial year	2 full year licenses, 5 half year licenses	2 full year licenses, 3 half year licenses	Nil or unlisted
1936/7 financial year	2 full year licenses, 1 half year license	2 full year licenses, 1 half year license	300cwt, £679
1937/8 financial year	No annual licenses, 3 half year licenses	No annual licenses, 2 half year licenses	336 cwt, £905

(Nylander, 1935, 1936, 1937, 1938)

A few significant conclusions can be drawn from the above figures. Firstly, in 1937/38 only three half year trepang licenses were issued and only two boats were registered, indicating that this was a very small industry. Furthermore, licenses were at times only aspirational, meaning just because a license was held; it did not mean it was used. There was also the prevalence of half year licenses, which is likely associated with a reluctance to work the Wet Season. This meant that there was no activity at all for half the year, and when there was it was minimal.

4.6.2 Fishing and edible shellfish

Despite the extent of the coastline and that it remained relatively unexploited, commercial fishing was only large enough to service local consumption, and the population was small. In the early decades of Port Darwin Chinese locals dominated the fishing industry. Although the vast majority initially came to mine, Chinese residents also produced local fresh produce in market gardens, supplied fish and operated many stores in town (T. Jones, 1997; Powell, 1982). Alfred Searcy, who lived in Darwin from 1882 to 1896, recalled how the Chinese would ‘stake nets for hundreds of yards alongside the mangroves at high water’ and then collect the fish at low tide (1909, p. 311). They would also use seines nets (two-person hand-held nets). He

further recalled that Chinese fishermen would use their purpose-built boats, ‘sampan’, to net prawns for local consumption and export to China (1909, p. 314). The Chinese fishing ‘sampan’ were a picturesque feature of Darwin harbour for many years (The Australasian, 25/05/1907).

The overall numbers of Chinese in the NT would diminish considerably over later decades, in most part because of race based restrictions (T. Jones, 1997; Powell, 1982), and this devastated commercial fishing. An angry local in 1935 recalled how anti-Chinese policies and regulations years earlier had ravaged what was once a vibrant trade in local produce and seafood, resulting now in poor supply and high costs (NS, 2/4/1935 p. 4).

The local fishing industry of the 1930s was focused almost solely on meeting local needs. Export records do refer to the export of small consignments of dried goods in some years, but this mostly constituted the sundried oyster of pearl shell, and so was a supplement to another enterprise (Nylander, 1938). Annual reports of the Administrator provide a sense of the small scale of the local commercial fishing industry through licensing and registration records. The table below shows the figures over six years. Again, it is important to reflect that licenses were aspirational, and less boats than reported may have actually operated.

Table 3. Fishing licenses and boat registrations by year in the NT (excludes trepang and pearling)

Year	Operations licenses issued	Boats registered
1933/4 financial year	10 half year	4 half year
1934/5 financial year	8 half year	1 half year
1935/6 financial year	12 half year	4 half year
1936/7 financial year	11 half year	3 half year
1937/8 financial year	5 half year	None recorded
1938/39 financial year	14 half year	Not specified

(Abbott, 1939; Nylander, 1935, 1937, 1938)

Government administrators measured the local fishing industry against the low bar of whether it could satisfy local demand. In 1935/6 and 1936/7 fresh fish was available for most of the year except for those months when fishing was deemed too difficult because of weather restrictions. (Nylander, 1936, 1937). Over the 1937/8 year there was a population increase and less catch of fish, and so demand outstripped supply (Nylander, 1938). In response the following year saw an expansion of licenses from 5 to 14 (Abbott, 1939). Oral history records provide part of the picture too; confirming that some fish supplied to locals were from small

basic fish traps operated around town by a few families as a supplement income (Haritos, 1981; Villafior, 1988).

The preference for half year licenses as shown in the table suggests that people engaged in fishing when the weather suited, and perhaps balancing other commitments. Without refrigeration on the fishing vessels themselves or commercial facilities available in Darwin, fish was sold fresh soon after catch. Therefore, fishing boats would have stayed within the close vicinity of Darwin, to get their fish to market before it spoiled. The rare government tender to supply the hospital for example, provided some financial security to the few who got it (NS, 11/12/1936, p. 14). For a time, a local held a lease over waters near Grose Island to supply edible oysters to Darwin, but it was short-lived, the leasee died soon after it started, and the venture collapsed (Nylander, 1936).

4.6.3 The local pearl shell industry to the Second World War

The local pearling industry operated alongside the foreign run pearling industry, diving the same waters for the same resource, and so they make for a valuable comparison. There were significant differences in the number of boats and workers, the capital available, and whether they were supported by auxiliary ships. Like the local fishing or trepang industries, local pearling was a small operation, although it was the largest of the three. Like all other local maritime enterprises, it was hindered by the lack of secondary ports and related infrastructure along the coast. In this regard there were many similarities between local pearling and other resident enterprises like fishing and trepang, not shared with foreign pearlers even though they were in the same industry. Nonetheless the local and foreign pearling industries were both collaborative and competitive, and so the local industry also provides insight into the foreign concerns.

The table below provides licensing and registration by year. It's important to appreciate that similar to trepang and fishing, these figures may have been aspirational, and not reflect how many truly operated. Similarly, the harvest figures must be critically examined. These reflect the harvest of locally registered boats, excluding boats registered in other ports such as Broome, Torres Strait and Dobo, who may have visited, and operated just outside territorial waters, and then sold their produce at other ports.

Table 4. Pearling licenses and registrations issued by year in the NT

Year	Master pearler licenses	Boats registered	Divers	Diver tenders	Overall harvest
1934/5	6	28	46	47	474 tons
1935/6	7	27	58	60	743 tons
1936/7	6	34	72	66	781 tons
1937/8	5	57	46	25	804 tons
1938/9	Not specified	Not specified	Not specified	Not specified	410 tons
1939/40	5	12	Not specified	Not specified	179 tons
1940/41	4	Not specified	Not specified	Not specified	109 tons

(Abbott, 1939, 1940, 1941; Nylander, 1936, 1938)

The table highlights different aspects of the industry. There is a steady increase in the harvest over consecutive years, until a sudden collapse in 1938-39, which mirrors changes in the foreign industry. This suggests that the growth and collapse of both were connected. The collapse, for example, was related to the over exploitation of the pearl beds, as will be qualified in Chapter 6. The figures above also show there was a decrease in the number of divers and dive tenders, as the industry grew. This appears to be counter intuitive, but was the product of indentured workers moving out of the local industry to join the expanding foreign fleets. The figures also show that there were more boats than pearling licenses, indicating that one license, held by a person or company, controlled more than one boat.

Master Pearlmen, moved their fleets between the four main pearling centres of the region, Broome, Darwin the Torres Strait and Dobo (Aru islands) depending on circumstances, competition, controls and reports of good beds. Many of the historic figures that appear in histories from adjacent pearling waters moved fleets in and out of the NT. Government records confirm that in 1932, Clark, Gregory, Kepert, Muramat/Mc Kay, Edwards and Cochrane held Northern Territory licenses (NAA, A1,1933/938 Part 2, memorandum 5/8/1932). In 1935 the discovery of new grounds north of Darwin encouraged Cross to bring four boats from Dobo, and commitments from Gregory and Carpenter to increase their Darwin fleets (NAA: A, 1935/1727, Carraodus 20/11/1934). However, this transience also included boats departing, as in 1936 when Streeter and Male transferred six boats from Darwin to Broome and Carpenter and Sons transferred four boats to Thursday Island (Nylander, 1937).

Controls over local pearling could be divided between ordinances specific to pearling and ordinances associated with entry to aboriginal reserves, the latter discussed in Chapter 8. Of particular relevance is a 1930 NT pearling ordinance that stipulated in great detail how pearling

must operate (*Ordinance no. 19, 1930*). It established rules over subjects such as licensing, registration, ownership and employment. For example it ordered that boats be numbered and identify their port of registry, hence historic photographs of boats in Darwin Harbour painted as D36 or similar (see figure below).

A critical aspect of the registration process, is that it made no concession for foreign owned pearling fleets. Simply put, if a pearling operation was not formally registered in the Northern Territory but operated in territorial waters it was deemed illegal. Ordinance no. 19 also provides a glossary of useful terms. It identifies two types of commercial pearls the 'baroque' and the 'blister'. It defines pearling as the work of 'searching for' (prospecting) or 'obtaining' (harvesting) pearl or pearl shell. Pearling boats are defined and include support ships such as those functioning in a supervisory role, holding stores for the crews or loading and storing the harvest.

Local pearlery openly complained about government policy. Over the years shifting policies reduced registration fees, eliminated harvest limits (quotas), limited the number of crews permitted on boats and their racial makeup (NAA, A1,1933/938 Part 2). For example Edwards, a Master Pearler, wrote to the NT Chief Inspector of Fisheries in October 1932 stating that quotas should be abandoned because registered boats competed against unregistered [foreign] boats outside of territorial waters, and those boats didn't work to quotas (NAA, A1,1933/938 Part 2, Edwards 27/10/1932). He notes a marked increase of boats with propulsion engines and mechanised dive compressors, and this predates the appearance of the large-scale Japanese fleets.



Figure 16. Crew alongside Darwin registered pearling lugger D36,
Darwin Harbour, 1930
Northern Territory Library PH0238/0174

Indentured labour working in northern Australia’s pearling industry were allowed to enter and work as exemptions to migration and labour laws. Such workers were sponsored by a Master Pearler and worked a set period under their employment (NAA, A7359/14, Sub collector of Customs 5/3/1929). If a fleet was being relocated, perhaps from Broome to Darwin, the relocation of indentured labour had to be approved. (NAA, A7359/14, subcollector of Customs 7/2/1929). Similarly, moving between employers required approval. Once a contract ended they were to leave the country. Other controls were also introduced: indentured divers for example could be paid a salary and a lay (commission against size of harvest), but they could not own a part of a pearling business or hold a license (*Ordinance no. 19, 1930*). The table below provides overall figures regarding the number and ethnicity of indentured labours in the Northern Territory in 1937 and 1939 (Abbott, 1939; Nylander, 1937).

Table 5. Indentured labour in the NT Pearling Industry, June 1937 and June 1939

Total indentured labours in the pearling industry of the NT at June 1937	236
Japanese	144
Malays and Koepangers (not distinguished)	89
Chinese	2
Filipino	1
Total indentured labours in the pearling industry in the NT at June 1939	100
Japanese	63
Koepangers	8

Malay	28
Chinese	1
Filipino	nil

The table shows that Japanese workers far outnumbered other indentured labour. Although they could not own pearling operations, they controlled the local industry through their labour and expertise, and attempts to supplant Japanese dominance as skilled workers failed (Bailey, 2002). Also significant was that many Japanese indentured workers left the employment of Australian Master Pearlmen, only to return as divers and crew for Japanese fleets, bringing their technical skills and local knowledge (NAA, BP234/1, SB1933/1992, Eames 6/2/1934).

While the Japanese fleet is the subject of later chapters, part of understanding the local industry is noting the appearance of its competition, and the movement of all pearlmen as new grounds were located. Government officer reports detail the appearance of the foreign fleets. Nylander, Chief Pearling Inspector of the Northern Territory, reported that in the 1934/5 season the local industry was on the rise and much of the harvest for that year derived from pearling grounds 50 miles west of Bathurst Island, north of Darwin (Nylander, 1935). He reported that these grounds were fished by vessels from Darwin, Thursday Island, the Dutch East Indies and Japan and were outside the 3 nautical mile limit, and so beyond his jurisdiction. One such operator was V.J. Clark, whose boats at the time came down from the Aru Islands, and were serviced by his supply ship *Petrel* (NAA:BP234/1, SB1933/1992, Eames 11/6/1934). His catch went north and so he avoided registration and license fees.

Reporting on the following year (1935/6 year) Nylander explained that the Bathurst Island beds were growing 'patchy' from over exploitation (Nylander, 1936). He also reported that:

Apart from local pearling vessels the beds are being worked by a Japanese pearling fleet numbering from 60 to 70 vessels. These vessels are each of about 30 tons of gross, and are serviced regularly by a large mothership. The opposition to local pearlmen is formidable. The services of experienced Japanese divers for local vessels are hard to obtain in consequence of such opposition.

Much can be derived from this quotation. There were twice as many foreign pearling boats than local registered boats; unlike the local boats they had support from visiting supply ships, and the foreign boats averaged 30 tons. In comparison Muramat's *Maive* was 14 tons (NAA: A7359, 9, Muramats 14/08/1933). Nylander also confirms as suggested earlier, that indentured divers and tenders were moving across to the foreign fleets.

The Administrator's report for the 1938/39 year discussed the rapid decline of the local industry (Abbott, 1939). There were heavy financial losses and discussions about government incentives and controls to assist the local industry. He also reported on the decline of the number of foreign boats, possibly also due to depletion of the beds. The 1939/40 Report details a further decline of the industry and again confirmed a reduction in the number of foreign Japanese boats, attributed to the over exploitation of the resource and the depressed world market (Abbott, 1940).

4.7 Japanese fishery surveys and enterprises

The Japanese pearling industry is considered in later chapters, but the Japanese had other maritime commercial interests in the Northern Territory at this time. In 1936 the Japanese government survey ship *Zuiho Maru* visited both Darwin and Broome as part of a prospecting survey of north Australia waters for the Japanese trawl fishing industry (Telegraph (Brisbane), 23/01/1936, p. 14; West Australian, 22/10/1936, p. 16). This was a level of strategic investment not seen from the Australian government. The *Shinkyō Maru*, for example, trawled fish of the Western Australian coast in 1936, operating outside of territorial waters, shipping the harvest to Singapore in its refrigerated holds (The Western Australian, 5/2/1936, p. 18).

Also relevant were confidential plans started in circa. 1934 to establish a Japanese fish cannery on Sir Edward Pellow Islands, off the east coast of Arnhem Land; confidential because two companies Mitsi and Mitsubishi had rival plans (NAA: A8911,2, Chick, 13/10/44). Engineering details included foundations for a powerplant, refrigeration, breakwaters, a causeway and even plans for producing hydroelectric power at the MacArthur River, the latter related to a parallel pastoral industry proposal. This was a time when there was no refrigeration or cannery in Darwin, so the small number of fish exported was preserved by drying and salting. These plans were interrupted by the War. Although the cannery did not eventuate, it nonetheless symbolised the extent of Japanese commercial interests in Northern Territory waters, and the lack of local investment in comparison.

4.8 Aboriginal reserves and restricted spaces

This maritime frontier included land and sea. Shell was harvested from the water, fleet anchorages were located in open seas, and ships arrived and departed moving personnel, supplies and the harvest. However as will be described in Chapter 8, Japanese boats also secretly entered bays, navigated up rivers, and crew's made landfall. Attempts by the government to control Japanese activities, involved both land-based and sea-based regulations and ordinances.

The map showed the coastal aboriginal reserves established around the study period. The Bathurst Island Reserve was established in 1912, and so any landings on the island after that date by Japanese pearlery, whether local or foreign, were illegal. In 1939, Apsley Strait was prohibited to traffic, to hinder pearlery using it as a protected anchorage and to inhibit landing on Bathurst Island (NS, 18/7/1939, p. 8). By 1941, the adjoining Melville Island was declared a reserve, which as in the case of Apsley Strait, was a direct response to pearlery. Arnhem Land was declared a reserve in 1931. This means that over the study period of 1937-1938 Bathurst Island and Arnhem Land were prohibited land for any unauthorised outsiders, and as this study shows the best pearl beds were located directly off these reserves.

A series of arrests of Japanese foreign pearlery crews in 1937 is discussed in Chapter 8, and these hinged on a particular ordinance related to Aboriginal reserves. These crews were not arrested for entering an Aboriginal reserve *per se*, but for entering the territorial waters off an Aboriginal reserve, which mixes the restrictions related to reserves with jurisdiction over territorial waters. In 1937, Aboriginal Ordinance no. 5 (key section 19AA) passed, prohibiting any unauthorised vessel from entering the territorial waters adjacent to an aboriginal reserve (*Ordinance no. 5, 1937*). This covered a vast stretch of coastline including the waters off Arnhem Land and Bathurst Island. But as with all ordinances, it was limited by the 3nm of territorial jurisdiction, so whilst covering an extensive length of coastline, it remained only 3 nm wide. This explains why Japanese anchorages were located more than 3nm from the coast, although sheltered waters within a bay would have been preferred. This was a boundary across open water without physical demarcation, the kind provided by the water's edge, a river or a mountain range. The practical difficulty faced by pearlery and Patrol Services to identify this line accurately is discussed in Chapter 8. This ordinance restricted local and foreign pearlery alike, but permitted others such as mission boats.

4.9 Coastal missions as bases and maritime enterprises

John Harris, in a comprehensive history of missions, explains that over the first half of the twentieth century there was a considerable increase in mission work by the major churches, and that many new missions were established along the northern coast of Australia (1990 p. 693). Bleakley, who strongly influenced government policy in this area, argued that it was not sufficient to just establish reserves, but also an active network of missions was required, to provide paternal type guidance (Bleakley, 1928).

Whilst missions had tremendous impact on Aboriginal life generally, two aspects of coastal missions are specifically relevant to this research. The first was that missions served as outposts of government administration. They were not charged with compliance duties, but were treated as expert witnesses and commentators about pearlers and interactions with locals. They reported on circumstances, as they understood them, both to officials and publicly. This role was further formalised with their incorporation into the Coast Watch program, which used remote citizens as sources of information on foreign activities. The second relevant aspect pertaining to missions was their capacity as industrial centres. Missions struggled to be economically self-sufficient, and attempted various industries including marine industries. The table provides the coastal missions active in the Top End over the study period. To be inclusive Roper River (Ngukurr), Oenpelli (Gunbalanya) and Port Keats (Wadeye) are included although because of geographic location they had no contact with pearlers.

Table 6. Coastal missions operational in the 1930s in the Northern Territory

Mission and year established	Location	Denomination
Roper River (Ngukurr) 1908	Southern Arnhem Land, located on the bank of inland river	CMS (Anglican)
Bathurst island 1911	Tiwi Islands north of Darwin	Catholic
South Goulburn Island 1916	West Arnhem Land coast	Methodist
Groote Eylandt 1921	Island off the east coast of Arnhem Land, Gulf of Carpentaria	CMS
Milingimbi 1923	Eastern Arnhem Land north coast	Methodist
Oenpelli (Gunbalanya) 1924	East Alligator river, west Arnhem Land	CMS
Port Keats (Wadeye) 1935	Along Daly River, west of Darwin	Catholic
Yirrkala 1935	North-east Arnhem Land	Methodist

4.9.1 Bathurst Island Mission

Bathurst Island Mission had some of the most direct and long-term contact with pearling fleets, both local and foreign, during the 1930s. This was due to the extensive beds found off Bathurst Island, and the fact that Aspley Strait, the passage between the islands, provided both shelter and anchorages with fresh water. Visiting pearling crews disrupted mission life in part because many Aboriginal boys and men would leave the mission during pearling season preferring to work aboard the pearling boats than at the missions themselves (NAA,A431,1951/1294, Gsell 1938). Therefore, although the missions were not in direct commercial competition as pearlers, they were vying for aboriginal labour.

Bathurst Island Mission did not engage in any commercial marine exploitation. Its chief industries were agriculture and animal husbandry, and this was predominately for local consumption. An interesting exception is a reference in the December 1934 Report that fresh produce was sold to pearling crews (NAA, A431,1951/1294, Gsell 1934). The 1934 Report also confirms that the mission had a lugger with auxiliary (engine) and dinghies, which ran to Darwin for supplies. Ironically this lugger, *St Francis*, was built by Japanese boat builders (Powell, 2010, p. 212). The 1934 Report also confirms that they had a fish trap to supplement the mission diet. A range of 100-300 Aboriginal people were reported to be residents of the mission, which was also visited by an additional 1,000 Tiwi peoples over the course of the year. A medical account by a Dr Fenton dated 1935 also reported that specifically 70 acres were under cultivation, and the diet of residents was supplemented by marine food such as oysters, dugong and fish (NAA, A431,1951/1294, Fenton 1935).

4.9.2 South Goulburn Island Mission

Although the South Goulburn Island Mission predominately engaged in agricultural and animal husbandry, it also engaged in trepanging, as reported in the December 1933 Report and subsequent years (NAA, F1, 1949/456, Goldsmith, Dec.1933). In 1935, the Mission suspended trepanging to allow local wild stock to recover (NAA, F1 1949/456, Goldsmith, Dec. 1935). In the year ending December 1937, the Report confirms it exported 70 bags of trepang and had built functional smoke houses for processing (NAA, F1, 1949/456, Sweeney, 19/2/1938). The same report defined their trepang industry as being from October–December. The 1935 report

confirmed that there were 85 ‘able-bodied’ Aboriginal adults dependent on the Mission, and a further 100 visited regularly (NAA, F1 1949/456, Goldsmith, Dec. 1935).

4.9.3 Milingimbi Mission

Industry at the Milingimbi Mission focused predominately on agriculture, sawmilling and building houses, with no exploitation of marine resources for commercial purposes. The December 1931 Report does qualify that the Mission collected and processed a small amount of trepang, predominately as an experiment (NAA: A431,1951/1397, Webb 1931). Traditional exploitation of marine resources by Aboriginal people associated with the mission continued, and through the exchange of labour these locals ‘purchased’ materials to assist fishing such as fishing lines and ropes for harpoons.

The same report also confirmed that the Mission had access to a motored ketch, a second small motored boat and six native canoes. The Report also qualified that this Mission also had 130 ‘able-bodied’ adult Aboriginal people living permanently, and a further 250 visitors. The 1933 report confirmed that shipping and supplies from Darwin were transported using the mission boat (NAA: A431,1951/1397 p. 118). By 1937, agricultural land was expanded, the sawmilling continued and cattle were introduced (NAA: A431,1951/1397 p. 77). The loss of the mission boat in Darwin in 1937 was a heavy blow to the community.

4.9.4 Yirkala Mission

As with the Bathurst Island Mission, Yirkala was positioned relatively close to the pearling grounds frequented by local and foreign pearling crews. However, work at the Mission only began in 1935 and was for its first few years attended solely by superintendent William Chaseling and his wife (NAA:F1,1949/459, Chaseling, Sep.1940). This period covered the peak of the Japanese industry and this project’s study period. In short there was little industry at the mission. As late as 1940 they recognised the extensive trepang beds in the area, but a mission based industry was yet to emerge (NAA: F1,1949/459, Chaseling, Sep.1940).

4.9.5 Groote Eylandt

Although there is no documentary evidence of contact with pearling crews, Groote is briefly considered because it is a coastal mission in close proximity to east Arnhem Land. The mission was located along a river on Groote Eylandt, which is the largest island in a group located off the west coast of Arnhem Land in the Gulf of Carpentaria. The Mission Report for 1935 made no mention of pearlery, who likely did not frequent their waters, being too far east from known pearling grounds (NAA: A659,1943/1/70, Perriman 30/11/1935). Taking into account how far east the mission was located, supplies were secured from Thursday Island rather than Darwin. The 1932 Mission Report to the Administrator confirms that they tried trepang along with commercial fishing, but this proved unproductive and was later abandoned (NAA: A659,1943/1/70, Perriman Jan 1933).

4.10 Conclusion

This was a maritime frontier shaped in part by specific conditions and circumstances. High turbidity and tidal range formed a cycle of diving and lay periods each month. Darwin itself remained small, and aside from a handful of struggling missions, there was limited industry along the coast, and no regional ports. This relative isolation meant that for coastal Aboriginal peoples their sovereignty over lands and waters was more intact than elsewhere in Australia at this time. Chapter 8 will consider this in relation to maritime interactions.

Chapter 5: Japanese pearling in the Northern Territory and the wider pelagic empire

5.1 Introduction

This chapter commences the in-depth study of Japanese pearling at the core of this dissertation. It describes the emergence of Japanese pearling in the region, noting some key historical figures, identifies the boom period, and qualifies it as a boom with figures of the harvest. It then continues to investigate the history of pearling from multiple perspectives. It describes and examines the corporate evolution from small company, to corporation and conglomerate, identifying new capital and connections with other Japanese industries. It uses authoritative sources to detail the costs of outfitting a Japanese lugger, and the payment of its crew. It recognises pearling as an industrial process, and critiques the mothership, or floating system; assessing its role, and identifying its parallel in other Japanese marine industries of the time. The chapter also identifies the connection between Japanese pearling and a broader national commitment to distant fisheries as a commercial sector, and to industrial advances through research, training and system management. Importantly the chapter also builds a picture of how colonial powers and nation-states, other than Australia, came into conflict with both Japanese pearlery specifically, and Japanese fishermen more generally. In this regard Japanese pearling was another aspect of the vast Japanese pelagic empire that came into conflict with many other nations.

5.2 Japanese fisheries in the Open Seas and conflict with other nations

While this thesis focuses on conflict between Australian authorities and Japanese pearlery, Japanese fishermen were also in conflict with other colonial powers in the region, and other nations globally. Dobo in the Aru Islands, a major port for pearlery, lay just north of Darwin, in what was at the time the Dutch East Indies. Holland had discretion over pearling licenses in its territorial waters, and like Australia guarded those waters from unauthorised entry by foreign fleets. For example, the Australian pearler Clark operating the Celebes Trading Company was awarded an exclusive lease in 1905 over pearling grounds in the territorial

waters of Aru Islands, New Guinea and Timor by the Dutch authorities (Mullins 2005). From 1935 there were reports that the shell beds in Dutch waters off the Aru islands and New Guinea were being overexploited by Japanese pearlers (Kataoka, 1983; TDB 29/6/1937, p12; TDN, 12/5/1936, p 3). The Japanese were accused of harvesting juvenile oyster thereby threatening the populations (TDN, 12/5/1936, p 3). In February 1937 nine Japanese luggers from foreign fleets were caught sheltering inside the three-mile limit of the Aru Islands, and were arrested (NS 25/3/1937 p. 9). With Dutch waters overexploited, the Japanese came south and worked the waters off the NT coast.

Complaints about Japanese fishing were widespread. They were accused of poaching pearl and trochus shell within Australia's mandated territory of New Guinea, the former Germany colony (NAA, B6121, 311F, 1877/13/167). Australia had limited resources to police these waters and collect solid data, but stories consistently came in of incursions and conflict. Other colonial nations also complained about Japanese poachers taking pearl and trochus shell, including the French in the Pacific, the Dutch in the Dutch East Indies, and the British in the Solomon Islands (NAA, B6121, 311F). Conflicts were also happening outside of the region. Notably Japan refused to sign international whaling agreements in the 1930s to conserve Antarctica whaling stock, or agree to help conserve salmon stocks outside territorial waters off the west coasts of Canada and the USA (Scheiber, 2004, p. 39). Australia was not alone in dealing with a dominant Japanese fishery.

The great distances travelled by some Japanese fleets, far from Japan and its mandated territories, was motivated by government incentives. There were laws, policies and financial incentives to establish and maintain distant water fisheries. The *Distant Water Fisheries Promotion Act* 1898 enshrined this policy, and the law was amended multiple times to respond to advances in technology (Udagawa & Uehara, 2012, pp. 25,26). Diesel engines extended the cruising range of ships, and supply ships ensured catch boats did not have to leave fishing grounds. Onboard refrigeration and canneries allowed fisheries to preserve their harvest when distant from markets. Here pearling had a great advantage over other Japanese fisheries. It benefitted from advances in marine engineering and the expanded range it provided, yet processing remained basic, and the shell did not spoil like fish.

5.3 1937-1938: the Japanese 'gold rush' off the Northern Territory coast

Japanese pearling underwent a short lived 'gold rush' in the late 1930s; proven by the marked increase of boats, men and harvest, and by the industry's impact on the homeport of Koror, Palau. In his comprehensive history of Japanese Micronesia, Peattie notes that the port of Koror was experiencing a boom in the late 1930s, analogous to a gold rush town, and he associates it with the pearlers that returned seasonally from the Australian coast (1992, pp. 140-141,176). The details will be referenced shortly, but at this juncture, it is important to reflect how short this boom lasted. Japanese pearlers first descended into the waters off the Northern Territory coast circa 1935. The numbers of boats, men and the size of the harvest grew exponentially in 1937, but by 1939 the numbers had plummeted. The industry struggled on, but ended in November 1941 because of military tensions. While the years before and after this period are important for context, this study continues to return to the two year peak of 1937-1938.

Kataoka (1983) provides a brief history of the Japanese pearl and trochus industries across a region spanning the Philippines, Aru Islands, Papua New Guinea and the Arafura Sea. With pearling he acknowledges the pioneering Japanese figure Tange Fukutaro, who in 1931 started one of the first Japanese owned pearling operations in the Aru Islands. A few Japanese fishing enterprises had been operating in this region for some decades beforehand, such as Komine Isokichi, working in German New Guinea (Iwamoto, 1999, pp. 29,40,45). Even so Tange is noted as a pioneer, and was one of the first to send Japanese owned boats into waters off Australia. Kataoka suggests this started in 1931, although as shown below foreign pearlers are not mentioned in Northern Territory records until 1935. Kataoka explains that in those early years the pearlers returned to Dobo as their homeport for provisions and to unload shell, and only occasionally went as far as Koror. By 1936 Japanese pearlers adopted the mothership (or floating station) system which substantially changed how they operated (Kataoka, 1983).

Mullins argues that pearler James Clark perfected the mothership system in the 1880s and in doing so revolutionised the Australian industry (Mullins, 2005). The system, as described by Mullins, involved schooners working as support vessels delivering supplies to working luggers and taking away the cache of shell. Schooners also carried carpenters, sail-makers, spare divers and crew. The system allowed the luggers to stay on the water and venture further from port working distant grounds. Clark may have invented this system for pearling, but later in this chapter it will be shown that the Japanese were introducing supply and support ships across

many maritime industries. The adoption of the system by Japanese pearlers in 1936 may have been a confluence of learning belatedly from their Australian competitors, but also from their compatriots working in other marine industries.

The transition to the mothership system included shifting operations from Dutch controlled Dobo, to the Japanese colony of Palau, with the distance covered by a fleet of transport ships. This transformed Palau into a forward base for fisheries that operated on grounds thousands of kilometres away, and resonates with Peattie's observation that Japanese colonies were used as stepping stones for more distant capitalist projects (Peattie, 1984, pp. 49-60,100). The intent was a closed system (see Morgan, 2006) in which pearling boats and supply ships departed from Japanese territory, operated in international waters, and returned. The move also freed operators from using Dobo in the Aru Islands as a base, as the Dutch were becoming increasingly hostile to Japanese pearlers (NAA:A981,JAP158 PART3, Sheldon 2/4/1937).

The years 1935 and 1936 were profitable for all pearlers working waters just north of Darwin, with rich beds found just outside territorial waters. The new finds, the high prices for Darwin shell, and the recent arrival of Japanese competition, was hotly debated between master pearler Clark and local mariner Cochrane (NS 7/2/1936, p5). Clark argued the Japanese were poachers, and stole the best divers from the Australian industry. Cochrane countered, arguing that the visitors operated outside territorial waters, and that divers were free to move between operations.

The arrival and rapid growth of the Japanese industry is reflected in the boat numbers, and although exact figures were not found, reliable estimates do certainly demonstrate this growth. The Commonwealth Report on the Administration of the Northern Territory for the 1934/35 financial year reported that luggers operating in the territory were focused on a patch located 50-60 miles northwest of Bathurst Island, in deep (but accessible) international waters. (Nylander 1935). The patch was worked by about 60 vessels, from Darwin, Thursday Island, Japan and the Dutch East Indies (Dobo). Only 22 of these vessels were registered in Darwin, and accepting that others may have been from Thursday Island, the rest were foreign luggers. Some of the foreign luggers would have been registered in Dobo, and owned by Japanese and Australians. Others were Japanese boats from Palau. The report for the following year (1935/36) reported that the 27 local boats were facing competition from 60-70 Japanese luggers operating on the same beds (Nylander 1936). By 1937-1938 Australian estimates put the numbers at 170-190 Japanese luggers (Argus Supplement, 6/8/1938, p1-2). One reliable

Japanese source puts the Japanese fleet in 1937 at 143 luggers (Tomonobu 1977). The difference between the two figures may be that the Australian sources include Japanese boats from Dobo. Another authoritative Japanese source puts the 1938 fleet from Palau at 160 luggers and 2,000 men (NAA: B6121, 311F, Lloyd 1938).

The table below shows the rapid growth and then decline in the Japanese pearl shell industry over five years by the shell harvested. It distinguishes the international waters directly off the Australian coast from the traditional grounds in the northern reaches of the Arafura Sea, such as the Aru Islands and Dutch New Guinea. The year 1936 shows a rapid growth in the north Arafura Sea which then drops off in 1937, as the fleet moved south to Australia. From 1936-1937 Japanese activities off the Australia coast grew from 750 imperial tons to 3,300 imperial tons, a growth rate of nearly 450%. There is then a decline in 1938 and a larger reduction the following year.

Table 7. Annual Japanese pearl shell harvest by imperial tons (and converted to metric tonnes), in waters off the Australian coast, and the more northern waters of the Arafura Sea

Year	Off the Australian coast	Northern Arafura Sea	Total ton (tonnage)
1935	250 tons (254 tonnes)	500 tons (508 tonnes)	750 tons (762 tonnes)
1936	750 tons (762 tonnes)	1,100 tons (1,118 tonnes)	1,850 tons (1,880 tonnes)
1937	3,300 tons (3,353 tonnes)	540 tons (549 tonnes)	3,840 tons (3,902 tonnes)
1938	2,950 tons (2,997 tonnes)	509 tons (517 tonnes)	3,459 tons (3,515 tonnes)
1939	433 tons (440 tonnes)	450 tons (457 tonnes)	883 tons (897 tonnes)

(Bach, 1955, p. 299)

The table below compares the shell harvests of different operations: Australian registered boats; Dutch registered boats and Japanese boats from Palau (the latter identified as not registered in the other ports). The table shows that the harvest from Australian boats was relatively consistent over the three years. The harvest from Dutch registered boats plummeted, and the harvest from Japanese boats from Palau peaked in 1937. An important fact is that the Japanese only worked international waters whilst the others worked both territorial waters and international waters.

Table 8. Annual pearl shell harvests by imperial tons (and metric tonnes) for Australian and NEI registered boats and Japan boats, the latter working in international waters only

Year	Australian registered boats harvest	Dutch registered boats harvest	Japanese boats neither registered in Australian or Dutch territories harvest
1936	2,780 tons (2,825 tonnes)	1,385 tons (1,407 tonnes)	1,850 tons (1,880 tonnes)
1937	2,854 tons (2,900 tonnes)	959 tons (967 tonnes)	3,840 tons (3,902 tonnes)
1938	2,453 tons (2,492 tonnes)	537 tons (546 tonnes)	3,459 tons (3,515 tonnes)

(Bach, 1955, p. 299)

An interesting discrepancy in the figures above is that while the estimated number of foreign luggers working the 1938 season was greater than the year before, their harvest for the year proved less. The increase in boats was the result of an increase in capital and investment, but conversely there was overexploitation, making the grounds *patchy*, and an oversupply of stock to the market. (Bach, 1955, pp. 190, 254). Though emphasised by Bach, the patchiness was a considerable problem, and explains the movements of the fleet across the Northern Territory as discussed in the next chapter. The smaller yield in 1938 was the product both of patchiness but also controls introduced to reduce oversupply, the latter discussed shortly.

Overcapitalisation was certainly a particular mistake in this instance, but as Bach explained pearling was always a precarious economic venture:

In theory, the causes of the recurrent crisis in the pearling industry are simple. The nature of the product, its limited uses and the restricted demand for it, the high labour factor in the total cost, and instinctive refuge in greater production to combat a reduced world price, all contribute to the precarious state of the mother-of-pearl shell fishing (1955, p. 180).

One Japanese response to overproduction was the creation of Nippon Shinju, a parent corporation that would organise the fleet and control production. Mitsui the central trading house for Japanese shell delayed the start of the 1938 season, and the fleet was controlled by new measures such as quotas and controls over areas (South Sea Agency Bulletin Vol. 6, 1937). Japanese industrial leaders were publicity optimistic, reassuring the Australian Government that oyster recovered quickly in Australian waters, and new beds will always be found (NAA: A1,1937/13441, Yamami 20/08/1937). The industry continued to rapidly decline. A confidential survey of north Australian waters in 1938 by Japanese scientists confirmed the rush was over (NSS 1938) (also see Appendix H).

5.4 On corporate terminology

The corporate history of Japanese pearling is confusing, with complex vertical hierarchies, amalgamations, parent and subsidiary relationships and outside business interests. Helpful economic terms used in this examination are company, corporation, parent corporation and conglomerate. For the purpose of this research, a company was a small pearling operation owned by one or two people, with one or a few boats, and possibly a supply vessel. Australian pearling ventures operated exclusively at this level. A corporation was a larger company

controlled by shareholders. A parent corporation controlled all the subsidiary pearling companies and functioned as a cartel, to control the industry. A conglomerate was a larger corporate group engaged in multiple industries. Although the Japanese did not use these terms, they are helpful signposts in what is a complex history.

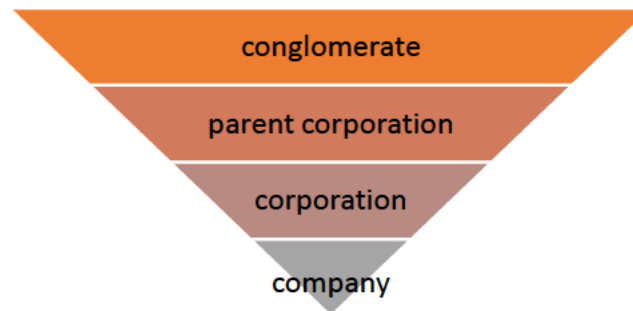


Figure 17. Levels of corporate hierarchy that governed the Japanese pearling industry in its final prewar years

5.5 The corporate structure that drove the Japanese pearling industry

There is no definitive existing history of Japanese pearling companies, but a picture can be constructed based on collated sources. It is beyond the scope of this research to analyse the complexities of Japanese corporate structures over the inter-war years, or provide a history of the many subsidiary and parent companies active in Micronesia and the South Seas active in the 1930s. This is provided with authority elsewhere (Nakamura & Odaka, 1999; Peattie, 1992). Rather the aim here is to map the growth of corporate control over pearling, and through that recognise the involvement of larger corporate interests and how that influenced the industry.

Three doctrines or policies help explain why things changed, and why they changed the way they did. In summary the first was the drive towards cartel-like control over all separate Japanese industries. The second was the drive to control different industries under larger national policies, and to create entities to enact those policies. The third was a cultural capacity to balance competition and cooperation. These three drives help explain these changes.

In his comprehensive study on the rise of big business, Hashimoto describes an early 20th Century government policy to amalgamate companies and establish cartels to control industrial

organisation (Hashimoto, 1999, p. 213). Here smaller companies were encouraged to merge, and cartel behaviour within an industry was encouraged to develop efficiencies and outcompete outsiders. This happened in many sectors or industries across Japan including pearling.

Sitting above an industry was the conglomerate (Wolferen, 1989, p. 46). A major conglomerate, or 'zaibatsu', that sat at the apex of Japanese corporate life, was the Mitsui group (Hashimoto, 1999, pp. 216, 217; J. Roberts, 1973). Mitsui would have overarching control over pearling, and for example delay the beginning of the 1938 season to reduce oversupply. Another entity that had conglomerate like control over pearling was Nanyo Kohatsu, which controlled the business interests of the Japanese empire in the mandated islands and areas to its south (Peattie, 1992). Through this structure industrialists with diverse interests (such as Mitsui), and a colonial administration expanding its influence, was able to reach down and control pearling, operating on the fringe of southeast Asia and Australia.

The third concept was the ability to balance competition and cooperation. Fukawa explains how Japanese fishermen working on the British Columbia coast in Canada were competitive, but also collaborative, pooling resources in difficult times, forming associations and buying boats to ship their produce together (2014, p. 57). The creation of associations was common across Japanese industries at this time, such as the Osaka Textile Exporters Association (Asia Directory 1937-38). Associations managed disputes, pooled resources and created a collective voice in negotiations with buyers. This kind of collaboration was something Australian pearlery attempted, but were unable to fully realise (Mullins, 2005). The Japanese pearling associations are outlined shortly.

5.5.1 From small companies to corporations

The Japanese boats that arrived in 1935 to work the pearl shell beds of Bathurst Island were owned and operated by small Japanese companies. However, by 1937 most of the operations were merged into two corporations: Kaiyo Shoukasan and Taiyo Shinju (Kataoka, 1983; Okajima, 1952). Kaiyo Shoukasan was formed by Tange Fukutaro the pearling pioneer referenced earlier, and Haruzi Matsue from the conglomerate Nanyo Kohatsu (or Nanko), with Nanyo Kohatsu the parent company (Okajima, 1952, p. 41). Nanyo Kohatsu would become the dominant economic enterprise in Micronesia (Peattie, 1992, p. 127).

Kaiyo Shoukasan was based in Palau with an office in Tokyo, and was said to have had 43 pearling luggers and 4 carriers (support ships) (Okajima, 1952, p. 41). An Australian newspaper suggested 11 of these 47 vessels were owned personally by Tange (DM 21/9/1937 p.6). The British embassy in Batavia and the British Foreign Office in London discussed the purchase of Tange's original pearling company, Nanko Shinju, by Kaiyo Shouksan. (NAA: A981, JAP158 PART3, British consulate 10/02/1938). Nanyo Kohatsu, the parent company, was here described as the brain behind the octopus like tentacles spreading across industries.

Taiyo Shinju was formed by Kashiro Yamami, a prominent pearler from Wakayama, and Haruo Kitaoka from Nanyo Takushoku (Okajima, 1952, p. 41). Nanyo Takushoku (or Nantaku), the South Sea Colonization Corporation, was a government run entity established in 1936 involved in multiple industries in the mandated territory of Micronesia, with major industrialists and government officials on its board (Peattie, 1992, pp. 132-133). Thus, Taiyo Shinju and Kaiyo Shouksan were subsidiaries of parent corporations that had controlling interests in other industries such as mining and agriculture in Southeast Asia. Demonstrating the close financial relationships at the higher levels of Japanese commerce, Nanyo Kohatsu was a shareholder in Nanyo Takushoku, even though they were parent companies of competing pearling corporations.

The diagrams below show the purchase of Japanese pearling companies by one of the two major pearling corporations. The chart also shows that some companies did not amalgamate but remained outliers and independent, although these were very few in number and are not the subject of this research. Although exact figures are not available, Kamper an Australian Customs Officer, observed 85-100 luggers anchored at the Japanese anchorage north of Bouchaut Bay, Arnhem Land, in November 1937 and reported that 8-10 were Japanese but from Dobo, 8-10 were Australian owned, and the rest were Japanese luggers from Palau (NAA: F1, 1939/420, n.p, Kampers log, 4/11/1937) The chart also shows the appearance of a new parent company in 1938, Nippon Shinju, discussed below.

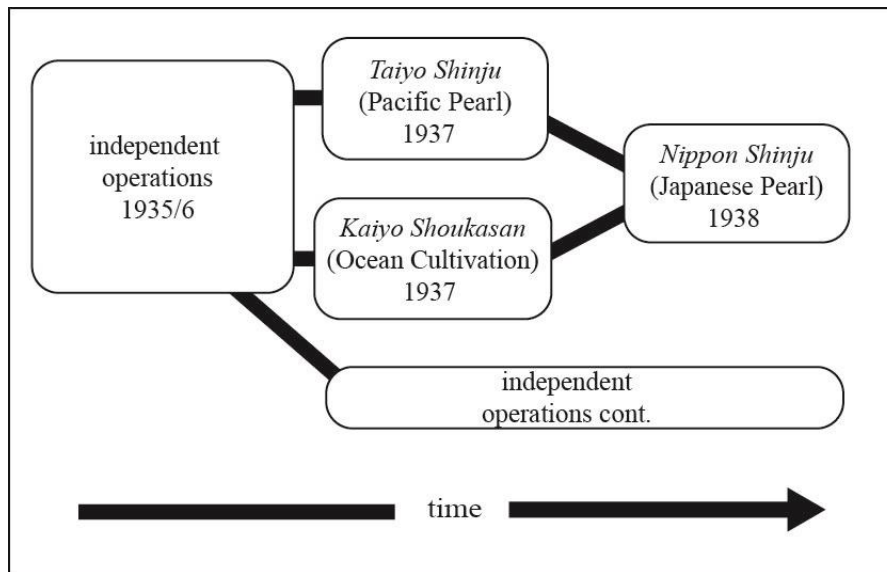


Figure 18. The evolution of Japanese pearling companies operating off the Northern Territory coast

5.5.2 A new parent company, Mitsui and the associations

Pearling in 1937 was managed under the new corporations Taiyo Shinju and Kaiyo Shouksan. It was a year of considerable problems. The massive harvest flooded the market creating an oversupply. The increase in boats and men caused concern in Australia and so became a diplomatic issue. Also, Japanese boats were seized by the Australian Patrol Service, which impacted on operations, created legal problems, and further increased the spotlight on Japanese activities (these are discussed later in the dissertation). The Japanese response was the creation of a parent corporation, Nippon Shinju, to have greater control over operations.

In May 1938 the Consul General for Japan in Australia wrote to the Australian Minister for the Interior saying:

‘With reference to the Japanese pearling industry, I have to [sic] honour to inform you that the consideration of the Japanese Government have been giving to the matter of controlling the management activities of this industry has already resulted in the establishment recently of an amalgamated company [Nippon Shinju], which will control the whole of the industry’ (NAA: F1, 1938/584, Torao Wakamatsu 14/5/1938).

Further detailing the new circumstances was a government announcement dated 23 April 1938. Translated and shared by the Australian consulate in Japan, it announced that the pearl shell industry operating in the open sea north of Australia, with 160 vessels, employing 2,000 men, and with an annual catch valued at five million yen, was going to be united under a new

company Japanese Pearls (Nippon Shinju) (NAA: B6121, 311F, Lloyd 1938). The translation details that it was an initiative of various companies including the conglomerate Nanyo Takushoku. Existing boats owners would be offered shares and the company would supply the fleet, transport and sell the harvest and generally control operations.

Confidential correspondence from Sheldon, a British citizen residing in Dobo, to the British consulate, dated April 7, 1938, provides further details (NAA: F1,1938/584, Sheldon 7/4/1938). Sheldon confirmed that an important role of the new company was to control production. He explained there was considerable surplus stock from the 1937 harvest and the huge trading conglomerate Mitsu, which managed export, wanted to reduce the harvest. Controls would be introduced including delaying the start of the 1938 season. He further explained that many boat owners and operators were not happy with the merger and any attempts to limit their harvest.

In September 1938 a Mr Koisuke Yamada appeared as a witness in the Darwin Supreme Court in a case related to the seizure of the lugger *Dai Nippon* (NAA: E470, 22/1937, pp. 74-83). These cases are discussed in greater detail later in the dissertation. Yamada was a clerk for Taiyo Shinju in Palau, and he explained the relationship between Nippon Shinju and the subsidiary corporations of Taiyo Shinju and Kaiyo Shoukasan. Yamada clarified that both the latter corporations still existed and boats working under each were still owned by individuals or consortiums. The harvest from each boat was tallied and the owners paid based on their contribution to the overall harvest. Nippon Shinju, he further explained, dealt with provisioning the fleet and selling the harvest. The shell was sent by carriers to Palau and then a regular shipping service to Mitsui in Kobe, Japan. Okajima (1952) confirmed Nippon Yusen (Japan Mail Shipping Company) provided the shipping service.

By 1940 the roles of the different companies changed. Kaiyo Shoukasan was relegated to sorting shell in Osaka, no-longer directly connected to the harvest process (Nanyo Kohatsu 1940). Regarding the buyers of shell, Sheldon reported in April 1937 that by 1935, Mitsui had entered into an arrangement with Otto Gerdau Company of New York, to sell the pearl shell from the Arafura Sea exclusively to it (NAA:A981, JAP 158PART3, Sheldon 2/4/1937).

The diagram below is a simplified representation of the hierarchy established in 1938 with the formation of Nippon Shinju. The diagram only shows the vertical relationships as detailed in cited records. Not shown are the horizontal relationships with other companies and corporations, those not directly engaged in pearling but with strategic relationships. One such

company was Nanyo Sekiyu (Southern Ocean Oil), of which 19% of its stock was owned by Nanyo Kohatsu (Nanyo Kohatsu 1940). Nanyo Sekiyu is discussed in greater detail later in the next chapter, as its President Takashi Tomiya owned the *Sanyo Maru*. At the apex was Mitsui which was one of the largest and most powerful *zaibatsu* (J. Roberts, 1973).

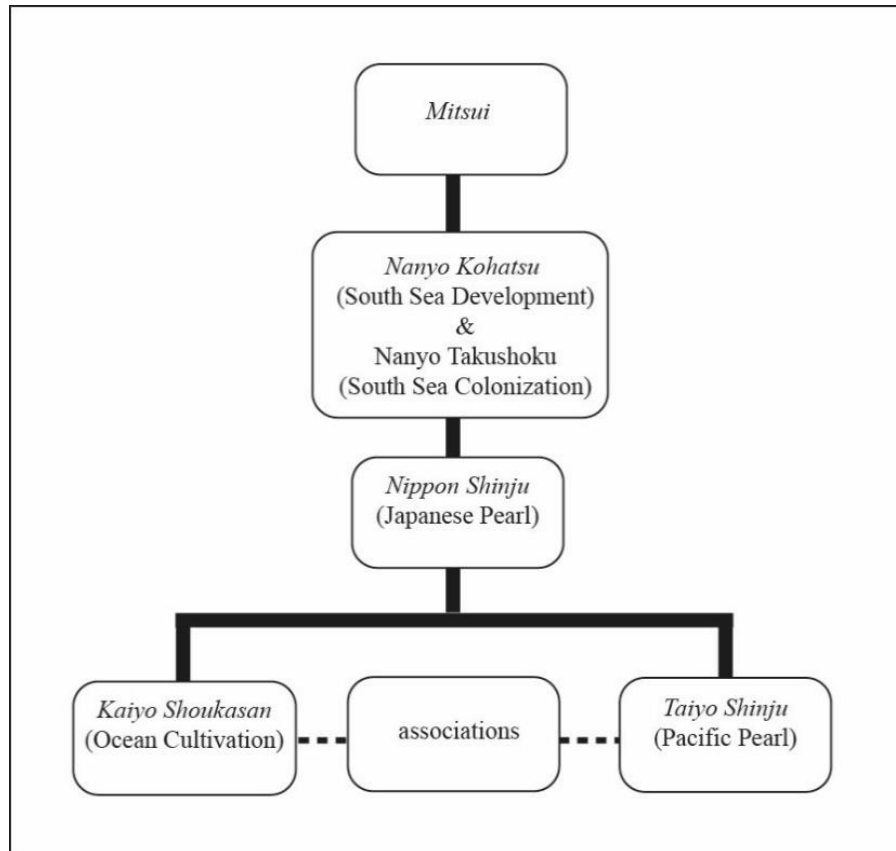


Figure 19. The vertical hierarchy of pearling companies over 1937 and 1938, noting Nippon Shinju formed in 1938

5.5.3 Boat ownership, costs and wages

Testimonies in civil cases provide valuable evidence about the industry. In September 1937 *Tokyo Maru No.1* was seized by the Patrol Service for being within territorial waters, in the vicinity of Bremer Island in East Arnhem Land. Yasuchi Okishima, the Captain of the *New Guinea Maru*, gave evidence in the case of the *Tokyo Maru No.1* (NAA: E470, 21/1937, p. 63). He confirmed that the arrested lugger was part of Tange's fleet and the *New Guinea Maru* was its mothership.

Okishima was able to provide details of payment. He explained that on luggers run by Tange divers were paid 220 yen per ton, dive tenders 110 yen per ton, and the engineers 45 yen per ton. In contrast others were paid a flat fee, with Captains paid 180 yen per month and the crew 50 yen per month (NAA: E470, 21/1937, p. 77). A lugger the size of the *Tokyo Maru* would collect 5 tons of shell each neap, with 2 neap cycles per month, bringing the monthly total to 10 tons of shell. Okishima also estimates the costs of provisioning and subtracts that against the profits for harvest depending on the going market price for shell. This testimony confirms that profits were not shared between luggers, even those owned by the same person or company. Rather crews were incentivised to compete.

One of the more valuable archive records sourced was a Japanese government gazette that lists luggers registered in Koror for the 1937 season (South Seas Agency Bulletin, 1937). Page 49 of the gazette lists 12 of the luggers registered to operate that year. Five were boats owned by Yamami, the famous pearler spoken of earlier, his boats being named *Dai Nippon* with different numerical prefixes. Yamami's home address is listed as Palau. Three other boats on the same registry page were owned by Shigeziro Nishiwaki, residing in Hyogo Prefecture, and the others owned by operators from Osaka and Wakayama.

The gazette also provides details of each boat. For example *Dai Nippon No.1* was 25 tons and registered for a crew of 12. Australian sources confirm this boat was lost in a fire on 29 August 1937 off Arnhem Land (NMHMA 7/9/1937 pg 7). Importantly the gazette also provides a government registration number to each vessel, and so *Dai Nippon No.1* is registered as lugger number seven. This provides another important insight. *Dai Nippon* numbers 1, 2 and 3 are registered as luggers number 7, 8 and 9, but registered boats 10 and 11 are *Dai Nippon* numbers 7 and 8. Missing from the government registry are *Dai Nippon* numbers 4, 5 and 6. The reason is unclear, and complicated by the fact that *Dai Nippon No.5* was seized by the Patrol Service on 8 August 1937 for entering the territorial waters of Elcho Island, and so was operational that year. Although this discrepancy cannot be explained, the gazette shows that not all boats owned in a fleet were registered for each season of pearling.

The court proceedings related to the seizure of *Dai Nippon No.5* provides an understanding of the costs of outfitting a lugger. Yoshimatsu Fukami, a master mariner with 36 years' experience in pearling provided testimony (NAA, E470,22/1937, Fukami 23/9/1938). He offered a breakdown of costs for purchasing and fitting out a lugger, estimating the boat itself cost 6,500 yen; the propulsion engine 3,500 yen; the sails, tanks, anchors and chain 2,800 yen;

and sundries like cooking utensils, lamps and ropes at 1,600 yen. This made a total outlay of 14,400 yen. To install the propulsion engine and dive compressor cost a further 1,000 yen. The dive equipment cost: 3,000 yen for the compressor; 3,600 for the dive helmets; 1,080 yen for the dive hoses; and 6,600 yen for the dive suits and life lines at 160 yen. This added a further 15,440 yen.

The above breakdowns provide the opportunity to compare the costs of specific items. In short, the dive equipment alone cost more than everything else, with the dive dresses costing more than the boat and the dive helmets worth more than the engine. This shows that the financial investment rested more in the dive operations, than the boat that facilitated them. Another significant figure was the cost of moving from Japan to Australia; including fuel, salaries and provisions at 2,000 yen. These costs were corroborated by another expert witness in a similar case (NAA: E470, 21/1937, p72).

Pearling appeared to have worked similar to the Japanese salmon fishery which also had motherships and associations (Nagasake, 1967, pp. 201-202). A large salmon mothership, which doubled as a factory ship, would follow the fleet of salmon catcher boats. The mothership was owned or chartered by a fishing company and the catchers owned by individual boat owners that belonged to a fleet. They all operated under an agreement, for example the price of fish was negotiated by the company and the boat owner's association. The function of the mothership was to provide supplies like water, fuel and food, replacement gear, and take the harvest.

5.5.4 Pearling Associations

The diagram above showed a dashed line between associations and the two corporations; dashed indicating that the relationship was complicated, with there being some degree of autonomy. Prior to the boom there were two discrete pearling associations, possibly representing boat owners from different locations, although they eventually amalgamated. In April 1936, Tange was the president of the South Sea Pearling Shipowners Association, representing the interests of Osaka-based boat owners (Kataoka, 1983). Yamami led a rival association, based in Wakayama called the Great Japan Pearling Association (Kataoka, 1983). In 1937, the same year the two pearling corporations were formed, these associations were possibly amalgamated (Kataoka, 1983). Japanese records on the sinking of the *Sanyo Maru*

note that a Mr Torajiro Miyazaki was the Director of two pearling associations in 1937; the South Seas Pearling Industry Association and the Australia and South Seas Pearling Boat Owners Association (DAMFA: B0904225270). They had a shared head office in Koror, Palau and a shared home base in Kobe, Japan.

In his witness statement in September 1938 Yamada explained how an association and a company were different. He stated that Yamami was the President of South Seas Pearling Association, but that the association was separate from the companies and their business concerns (NAA, E470, 22/1937, Yamada 23/9/1938). In September 1937 Yamami wrote to the Australian government as the President of the newly formed association, confirming it would exert control over the behaviour of Japanese luggers assuring the authorities that they would no longer enter territorial waters, and would introduce a ship to supervise the luggers and protect immature shell grounds (NAA: A1,1937/13441, p73-77, Yamami 20/08/1937). Yamami showed considerable organisational influence and diplomatic authority in this correspondence showing the high status of the associations in the industry.

5.6 Building industrial capacity – the relevance of other fisheries

Japanese pearling of the 1930s, and other Japanese marine industries of that time, were connected in many ways. This chapter has outlined possible connections through conglomerates and entities with shared interests across multiple industries. However, there were also other connections and similarities around scientific research, training, and the growing complexity in fishing systems. New industrial practices shaped both pearling and other marine industries alike.

By 1936, the homeport for nearly all the Japanese pearling fleets was Koror, in the Japanese mandated territory of Micronesia, which was already a centre for other fisheries and for marine research. While the Japanese Government eventually stopped reporting on its activities to the League of Nations, its 1930 Annual Report on the Administration on the South Sea Islands provides insight into how other fisheries were managed there (Japanese Government, 1930). The report confirms that as early as 1924 the government sponsored research into fishing, marine products, which included pearl shell, and oceanographic studies. In 1931 the government established the Marine Products Experimental Station at Koror (Peattie, 1992, p.

138). The implication is that these fisheries, including pearl shell, were driven by scientific knowledge of the resource and its environment.

The research at Koror was also supported by infrastructure development across Micronesia. This included water services for fishing vessels, ice manufacture to preserve catch, cold storage, oil storage, ship building and repair facilities, and harbour dredging (Higuchi, 2007, p. 57; Peattie, 1992, p. 248). Peattie provides a map of Koror dated 1938 that shows multiple large wharves (Peattie, 1992, p. 175). These works contributed to making Koror an effective homeport for fisheries operating in Micronesia and beyond.

Historic sources also show that different Japanese fishing systems underwent similar advances to pearling. For example, bonito, a major fishery, also greatly expanded with the introduction of motorized vessels (Higuchi, 2007, p. 52). This industry was also supported by a fleet of lighters that quickly moved the harvest from the fishing grounds to a jetty where they were unloaded for factory processing (Higuchi, 2007, p. 59). The Japanese salmon and trout fleets had introduced motherships from 1927, and this evolved to include floating canneries (Krug & Day, 1946; Tsudani, 1977, p. 156). In 1936 the Japanese fishing fleet based in Singapore included 54 carriers, which visited fleets on the fishing grounds to tranship supplies and harvest (Shimizu, 1997, p. 335). The introduction of support ships and motherships greatly increased the harvest and made the systems more complex.

Japanese whaling provides another example of a Japanese fishery that underwent both growth and an intensification of its industrial process during the 1930s. In 1931 Japan made up only 1% of the world's whaling catch, but by 1938 it produced 12% (Tsutsui, 2013, p. 25). Kawamura argues that Japanese whaling operations changed dramatically in the 1934/35 Antarctic season with the introduction of factory ships that followed the fleet of catcher boats (Kawamura, 1980). Kawamura stressed that the whaling system was one of the most developed fisheries systems, both in terms of ship management but also worker management. Whilst recognising this it is also important to note Japan learnt much from Norway who introduced whaling factory ships in 1926 (C. Clark & Lamberson, 1982). The reference to worker management makes an important and rarely heard argument; that with the introduction of new specialised ships and greater system complexity came new roles, new skills and a greater dependence on people management skills.

Japanese fisheries, including pearling, benefited from the reprioritisation of knowledge, training and organisational systems that emerged across Japan. Hashimoto explains that during

the inter-war years new vocational, technical and engineering schools emerged (1999, pp. 203, 212). Graduates from these schools entered Japanese industries and brought new skills and knowledge. Fukasaku refers to the professionalisation of marine engineering and naval architecture (1992, p. 65). Also emerging was a formally educated managerial class. This brought greater scrutiny of the industrial process, production, quality control and labour supervision (Hashimoto, 1999, p. 221). When criticised by trade rivals, Japan explained the reasons for its export success included superior organisation and control, technical skills and investment in machinery (ACIPR, 1934). The idea of superior organisation and control was echoed by others. As earlier explained Japan followed a policy of cartel-like control over each industry; and one reason for this was to perfect the process and introduce efficiencies (Hashimoto, 1999, p. 213).

Japanese passenger and services and cargo were also undergoing rapid growth in this period, and although they not related to marine exploitation, they correspond to a Japanese mercantile ascendancy over the seas. Prior to the war in the Pacific the Japanese merchant fleet moved 6.3 million gross tons, or about 8% of the worlds shipping, ranking it third against the United States and Great Britain (Shindo, 1983, p. 126). Similarly, Japan operated luxury passenger liners that reviled its competitors (NYK Maritime Museum, 2005). While marine exploitation is a priority in this research the dominance of the Japanese on the seas more generally is part of a larger picture.

5.7 Conclusion

The primary focus of this chapter has been to describe and examine the pearling companies that operated in the waters off the Northern Territory, to identify the boom period of 1937-1938, and to explain the corporate amalgamations that brought much of the industry under central control. In providing a comprehensive history the chapter develops the idea of the informal empire raised in Chapter 2. The study shows that pearling did not just come under the control of one parent corporation, Nippon Shinju, but that larger entities also had a controlling interest, including the conglomerate Mitsui, and Nanyo Kohatsu, the latter whose mission was regional development. The informal empire is also a useful lens to understand pearling as a part of a larger pelagic empire. In this context, pearling was shaped by industrial advances occurring elsewhere, for example with whaling and the salmon fisheries. Furthermore, conflict

between Australia and Japanese pearl-ers can be compared to similar conflict between Japanese fishermen and other colonies and nations at this time.

Chapter 6: Japanese Pearling operations along the Northern Territory coast

It is being proved that poachers can be combated. It is the well-organised, highly efficient, and modern pearling fleets, operating lawfully at less cost than our own, that constitute the real menace to our pearling industry. (The Evening News (Rockhampton), 23/9/1937, p. 6)

6.1 Introduction

The last chapter provided an examination of the Japanese pearling industry from the perspective of corporate and organisational changes, and larger changes in Japanese society notably industrial and commercial expansion. This chapter focuses more specifically on the pearling operations itself.

This chapter begins with an overview of the pearling fleet moving across the Northern Territory coastline driven by over-exploitation and seasonal conditions. It then briefly interprets harvesting and over-exploitation in terms of forager behaviour and resource raiding. The chapter then explores the operational problems the Japanese experienced, and the response of the Australian authorities to these difficulties. The chapter then provides an examination of the industry by discussing specific vessels and classes of ships. The discussion on luggers provides the opportunity to describe the collection and harvest of shell, the role of the tender, navigation and from where in Japan many divers originated. The section on carriers provides an in-depth history of the *Sanyo Maru*, the archaeological subject of this study. The chapter concludes by framing these different boats as part of a larger network, drawing on contemporary fishery studies, network theory and returning to themes in organisational theory.

As outlined in Chapter 3, this research contended with a limited and fragmentary historical record. Crucially, company records were not located, and are presumed destroyed. These would have provided a wealth of information about pearling operations; including fleet schedules, the movements of lugger and auxiliary boats, the transshipment of supplies, annotated maps, and provided an insight into strategic planning. In response to this research problem, the chapter identifies a series of known boats, to build a larger picture of the fleet. These boats were recorded in observations; photographed or filmed and thus provide a reliable beginning point. The risk of a focus on boats is that the study may become too technical and narrow in scope, and result in a summary of industrial equipment rather than an examination of an industry. This

is avoided by sourcing and curating historic footage; bringing in anthropological perspectives from contemporary fishery studies, and through the examination of court testimonies from Japanese workers who provide reliable glimpses into operations.

6.2 Fleet movements; the search for new grounds and seasonal winds

The following is a description and analysis of fleet movements over the 1936-38 seasons, noting the impact of overexploitation, and seasonal winds. Figure 19 (below) depicts the Northern Territory coast as a series of anchorages, pearling grounds and fresh water sources. Dates indicate when pearling grounds were first harvested, showing for example, a movement eastward from the Tiwi Islands to the central coast of Arnhem Land. The grounds are demarcated as dotted lines, because they are based on general descriptions and so are not precise borders. For example, Chapter 8 describes the arrest of the *Tokio Maru No.1* off Bremer Island, which places it further east than the pearling grounds depicted. Court testimony suggests that this particular vessel was far from the fleet, therefore although it clearly harvested beyond the demarcated grounds, it may have been an exception. The map also does not identify prospecting voyages, in which crews were tasked to travel beyond known grounds to locate new ones.

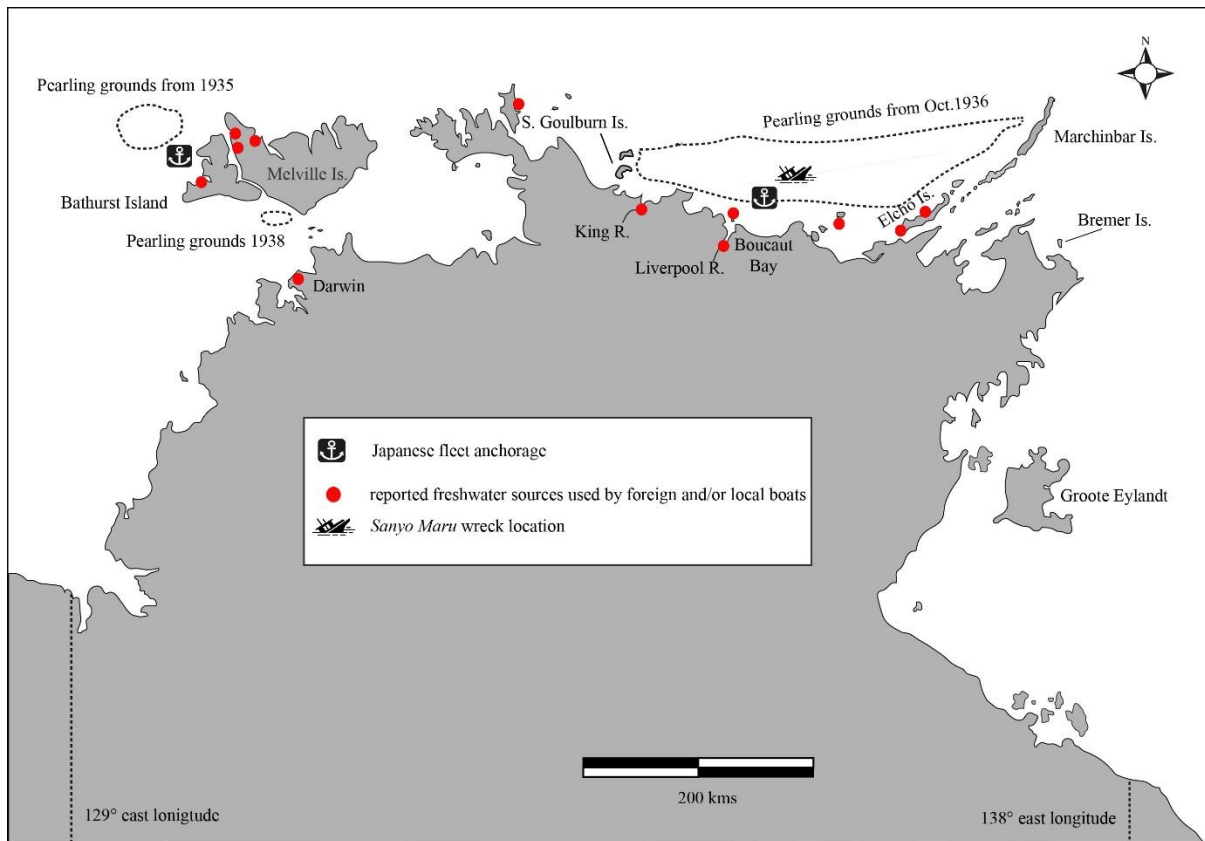


Figure 20. Japanese pearling grounds off the Northern Territory, recorded fresh water sources and the location of the *Sanyo Maru* wreck

Notable from the map above is the absence of major pearling grounds both southwest of Darwin and along the east coast of Arnhem Land, the latter of which also marked the west coast of the Gulf of Carpentaria. While some lone Japanese luggers were observed operating as far east as Bremer Island, as discussed in Chapter 8, there were no firsthand authoritative observations of Japanese pearlers off the west coast of Arnhem Land. This should briefly be considered, as there was anecdotal evidence of pearlers present.

In November 1937, the Northern Territory Patrol Service was policing Arnhem Land waters and could not locate most of the foreign fleet. The patrol visited the Yirrkala Mission and spoke to Aboriginal informants who according to the Patrol Service reported that the fleet was off the east coast in the Gulf of Carpentaria (NAA: A1, 1937/2419, Haultain 23/11/1937). While Aboriginal informants could potentially provide the most authoritative information, there are many ways their evidence could be misinterpreted. The observations may have been a reference to indentured Japanese trepangers, or lonely prospecting voyages, but not the fleet proper. Further, as shown in Chapter 8, Yolngu peoples commonly protected Japanese pearlers from the authorities, so it may have been deliberate misinformation. Darwin based pearling experts

of the time doubted that the Japanese were operating off the east coast of Arnhem Land or further into the gulf, as these waters had proved to be poor pearling grounds (Advertiser 31/12/1937 pg 20). Furthermore, as will be explained, over the following seasons, the Japanese were observed moving between the Tiwi Islands and the central Arnhem Land coast and not extending to the gulf.

The movement of the Japanese fleet from the west of Bathurst Island to central Arnhem Land was precipitated by the grounds at Bathurst Island becoming over-exploited. The Chief Pearling Inspector for the Northern Territory reported that over the 1934-35 financial year 60 luggers from Darwin, Thursday Island, Dobo and Palau (Japan) were all working a pearl shell bed located 50-60 miles northwest of Bathurst Island (ANT 1934/35) -well outside territorial waters. The report for the following year (ending June 1936) confirmed that the 27 local boats were experiencing extreme competition from 60-70 larger sized Japanese luggers, and as a consequence the grounds were becoming increasingly 'patchy', with divers needing to descend to 20 fathoms (37 metres) or more (Abbott 1936). Although most of the 1936 season's pearl shell was still gathered from this ground, in October of 1936 the Japanese foreign fleets moved from Bathurst Island to a new extensive bed that had been discovered 20 miles (32 kilometres) north of the Liverpool River, on the central Arnhem Land coast (Abbott 1937).

This new patch was soon referred to colloquially as the Goulburn Island Patch (NAA: F1, 1938, 584, p99, Sheldon 7/4/1938). It expanded beyond the Liverpool River to cover waters from the Goulburn Islands, to the Wessel and Elcho Islands, and possibly further east to the English Company Islands (NAA: F1, 1938, 584, p99, Sheldon 7/4/1938). The fact that it was called the Goulburn Island Patch, although it stretched far further east, may reflect a Darwin-centric perspective, in which the grounds were thought simply as just the waters beyond the Goulburn Island Mission. It is also important to confirm that these beds were all located outside territorial waters, a fact confirmed by Japanese delegates in court testimony (NAA: A1,1937/13441, p73, Yamami 20/08/1937).

The distance between the original patch north-west of Bathurst Island to the Goulburn Island Patch was 270 nautical miles (500 km) and there was no record of the grounds in between being harvested by the fleet. Therefore, this move was not a simple progression eastward. Rather, prospecting boats had discovered the new grounds and reported the results. Yamami the industry leader confirmed that it was the Japanese pearlers that found new grounds, and local

boats benefitted by following the foreign fleets (NAA: A1,1937/13441, Yamami 20/8/1937). Prospecting boats are discussed as a specific category later in this chapter.

By December 1938 it was reported that pearlery had been returning to the waters around the Tiwi Islands, leaving the beds off Arnhem Land because they had become 'worked out' or 'patchy' (NAA: F1, 1937/584, p62, Abbott 13/12/1938). This was 15 months after the Goulburn Island Patch was discovered. References suggests some new grounds were found around the Tiwi Islands (NAA: F1, 1937/584, p83, Abbott 21/9/1938). After 1938 the Japanese fleets would greatly diminish in number, but as late as 1941 Japanese motherships and luggers were still moving between the Tiwi Islands and the central Arnhem Land coast.

The over-exploitation of known grounds and the discovery of new grounds was the primary driving force behind the movement of the fleet. A lesser variable was the response to seasonal winds which caused rough sea conditions. C.R. Sheldon from Dobo provided the British consulate information on how seasonal conditions in the waters off the NT impacted the pearl shell season and fleet movements (NAA: F1,1938/584 Sheldon 7/4/1938).

Sheldon explained that the local Darwin fleet started operations in mid-April and ended in mid-December. June and July were not productive months because of the strong Southeasterly winds, with the most productive months being October, November and December. When the Japanese fleet first arrived, it worked the waters northeast of Bathurst Island, and it started earlier- in January- because if seas became too rough the fleet could seek shelter in Gordon Bay, Bathurst Island. However, when this ground grew patchy, and the fleet moved to Arnhem Land, shelter was more difficult to find. The coastline provided fewer options for safe anchorage, and by then the Patrol Service was arresting boats found close to shore. Sheldon suggested that another reason why the 1938 season was delayed, in addition to surplus stock as discussed in the previous chapter, was waiting for the southeast winds to begin, usually in April. Cook supported this idea suggesting in early May 1938 that the pearlery may move from the Tiwi islands to Arnhem Land once the winds change (NAA: F1,1937/584 p129, Cook 6/6/1938).

6.3 Pearlery as foragers and raiders

There are two prominent conclusions from the history provided above. Firstly, the Japanese would harvest in an area until it was deemed too patchy, and then move on to new grounds.

Secondly, the Goulburn Island Patch constituted an area 300 km across and 150 km wide, constituting a vast area of water, encompassing coastline and islands. These two conclusions are considered together through the concepts of foraging in fishing, and the history of resource raiding.

In 1937, the lugger *Dai Nippon No.5* was seized by the Patrol Service for being inside the territorial waters of an Aboriginal reserve, being found near Point Bristow, Elcho Island. In court proceedings the head diver, Masiji Kametake, provided expert testimony confirming that it was not the case, as assumed by Australian authorities, that Japanese luggers worked in pairs or groups, but just as commonly worked alone and far from the fleet (NAA: E470, 22/1937, p40). Therefore, while a fleet may move together to a general area, luggers, individually or in small groups, would move far away from the designated sea anchorage, in search of shell. Contemporary fishing studies draw on ecological studies, conceptualising the fishing boat as a predator who wants to maximise the kill with the least expenditure of energy (Putten et al., 2012, p. 220). The application of foraging behaviour to historical archaeology is not unprecedented (Gibbs, 2010, p. 117; Hardesty, 1985, 2003; Langhorne, 1988).

Dorn studied the behaviour of factory trawlers, which worked independently, as an example of foraging behaviour, and considered decision-making; namely the decision to work a particular patch, and the decision to continue or move on. (2001, p. 239). The predator stays until the density of prey drops to a certain level in which the expenditure of energy does not justify continuing, or in the vernacular of pearling, when the diver observes the immediate grounds to be *too patchy* to be worth the time. Moving from one area to another consumes time and fuel and is no guarantee of better results, making leaving a crucial decision in the effort-return equation. Sampling an area, measuring if pearl shell is abundant, could only be done in pearling by diving, labour intensive even if only for short durations. Fishing, as Dorn explains, is a decision-making process based on uncertain information about a stochastic environment (2001, p. 248).

While this study is not concerned with the technical process of pearl diving, it does consider the process as an example of foraging behaviour. Bedford provides a directly relevant study, which considers relocation decisions by harvesting divers in the contemporary abalone industry in southern Australia (Bedford, 2014). Like the historic pearl shell diver, the modern abalone diver visually measures density. Like the pearl oyster, the abalone is a mollusc and so lacks mobility, and in aggregating in clusters, makes collection relatively easy (Bedford, 2014, p. 5).

The significance of Bedford's work to this research lies in its account of diver decisions to stay or migrate within specific areas.

The comparisons with factory trawlers and the abalone industry show how a single fishing boat functions as an individual decision-maker. These individuals also factor the proximity of the fleet. The fleet can have a push or pull effect on boat-level decisions and the dispersal of the fleet across a sea. Boats may avoid each other to reduce competition in a specific area, or conversely follow each other to capitalise on a discovery (Putten et al., 2012, p. 222).

Framing historic pearling through contemporary fishery foraging studies provides insight into decision-making at the lugger level beyond the larger movements of the fleets as a whole. The pearling diver made decisions about the density of patches thereby controlling where his lugger, or a small group working together, may go. Similar diver level decision-making was made by the fleet's prospecting lugger, that searched for large beds, and where to move the whole fleet.

In the context of colonial history and Aboriginal sovereignty, Pannell described visiting fishing fleets as resource raiders, depleting local stocks with no care for conservation, and then moving on to new grounds to do the same again (Pannell, 1998, p. 236). The massive increase in the number of boats in the 1937-1938 seasons, as outlined in the previous chapter, and the movement of the fleet eastward then westward as the grounds become overexploited, does suggest that the Japanese were not concerned with the health of the resource, but driven by short term profits. These accusations were addressed by industry leader Yamami who wrote to Australian authorities in 1937, confirming new corporate structures would have better control over pearlery, that Japanese never took juvenile stock, and that shell matures within 3-4 years regardless (NAA: A1,1937/13441, Yamami 20/08/1937).

6.4 Unfriendly waters: the needs of the Japanese fleet and the Australian response

A major logistical challenge for the Japanese pearling fleet was that its homeport of Koror was 2,000km (1,080 nautical miles) away from the rich shell beds off the Northern Territory coast. This created logistical challenges including how to resupply the fleet, conduct repairs, assist the injured and transport the harvested shell. The shell had to be transported for market, but the shell also had to be taken regularly to free cargo space so harvesting could continue. At times,

harvesting was compromised because there was no cargo space left in the hold of the lugger (NAA: E470,22/1937, Kametake 22/9/1938). There appeared to be no viable intermediary port between Koror and the NT coast that the Japanese could use. Therefore, there were only two possible solutions: either the logistical problems would all be managed at sea, or the NT coast must be accessed. The tension between these two solutions is a core subject of this study. These solutions also recall earlier discourse on the organisation as a machine (closed system) versus the organisation as an organism (open system).

Yamami wrote to Australian authorities about these problems. He stated that Japanese luggers suffered from a shortage of fresh water and firewood [for cooking stoves] and that the distance between Darwin and the pearl beds was too great for small luggers to use it as a resupply point (NAA: A1,1937/13441, Yamami 20/08/1937). The problem was confirmed to Captain Haultain, of the Patrol Service, by unnamed Japanese Captains, who reported that motherships were unable to carry sufficient water for the needs of the fleet (NAA B6121, 311F, Haultain 20/7/1937). Haultain also confirmed that the Japanese requested the right to establish formal bases along the coast. Chapter 7 covers the specific needs of the fleet in the examination of clandestine landings by crews. At this point the focus is the problem in general and the Australian response.

The Australian government responded in four ways. The first was that it refused to allow the Japanese to land on the Australian coast and expanded restricted areas through legal ordinances. The second was to redeploy a boat service, originally tasked to rescue survivors of plane crashes, to police territorial waters. The third was the establishment of two control stations to allow locally owned boats to land within designated areas, but prohibit foreign crews. The fourth was to allow the Japanese fleets to have restricted access to Darwin as a port of call from 1937. Darwin and the control bases are discussed below.

Darwin was the homeport for the local fishing boats and the single established port along the NT coast, the closest other ports being Broome and Thursday Island. There was considerable debate whether boats from the Japanese fleet should be permitted to use Darwin as a port of call, with some arguing it gave the Japanese a further advantage (NAA, F1, 1937/360, NAA B6121, 311F, Garrett 27/10/1936). Though technically the port was open to the foreign luggers for resupply, there were many restrictions. They were charged the usual port fees for wharf use, and as with all fishing boats they were exempt from lightering fees if provisioning water or fuel (NAA,F1,1938/584, Giles 13/7/1939). But there were restrictions in movement. Boats

could not be careened on the beaches and crews were not permitted shore leave. The local pearling fleets were also awarded a fuel subsidy, and so the Japanese paid a premium (NAA, F1, 1938/584, Abbott 11/6/1938). A poor Wet Season at the end of 1937 also resulted in a restriction on the sale of water to foreign Japanese pearlmen, which meant they could not replenish water supplies from Port Darwin over the 1938 year (NAA: F1 1938/584, McEwen 8/6/1938).

Unfortunately, from a research perspective, the Darwin port registry recording the arrival of Japanese boats is lost. However, a court testimony and a newspaper article provide some useful information. We learn from court testimony that the *Dai Nippon No.5* was in Darwin on 12 July 1937 and took on 700 gallons of water and an unknown quantity of fuel oil (NAA,E470,22/1937, Kamitake 22/9/1938). The separate newspaper article estimated the foreign fleet at 105 luggers, of which only 2-4 visited Darwin each month over the pearling season, for fuel, engine repairs and sundry supplies (The Mail 21/8/1937 p 9). The article also revealed they were not welcomed but were tolerated, and their activities while in port restricted. Allowing Darwin as a port of call did not solve the logistical problems. The distance between Darwin and the pearling grounds off central Arnhem Land was too great to make calling at Darwin practical.

Two control stations allowing landings in designated areas were established around September 1937, one at the mouth of King River and the other at Cape Bristow, Elcho Island (SMH 16/9/1937, pp 7, The Herald 15/9/1937, pp2). These were manned by customs officers and established to provide specific locations where local pearlmen could careen their boats, take on water and cache supplies. According to Cook, Chief Protector of Aborigines (sic), the primary intent was to establish some control over landings, thereby reducing contact with Aboriginal peoples, particularly in the context of spreading diseases such as cholera, which were said to be prevalent in China and Japan (NAA F1 1937-675, pp14, Cook 22/10/1937). He asserts the initial plan was to allow the foreign Japanese crews to also use the facilities, as their inclusion made sense from a quarantine perspective. Cook saw health risks with water ships bringing potentially contaminated water from Palau, and the use of multiple water sources across the coast by pearlmen. However, the control stations were not open to foreign boats (NAA F1 1937 675 p 1). They were eventually closed and considered to have been a failure in policy (NAA F1 1938 584, pp 64, Abbott 13/12/1938).

The Japanese response to these logistical difficulties was to solve the problem at sea by increasing the number and tonnage of auxiliary ships. This was the organisation as machine, and the following description of different boats in the fleet should be considered in context to this response. Chapter 8 takes another direction and examines the activities of specific crews who responded differently, by landing in secret and negotiating access not with the Australian government, but local Aboriginal peoples.

6.5 Ships of the Japanese pearling industrial system in the late 1930s

The collation and analysis of fragmentary historical data provides a solid general understanding of the Japanese pearling system as it operated over 1937-1938, including the types of boats engaged in the fleet. As discussed earlier the sources are limited without, for example, company records that would provide an overview of the system. Rather, the found sources are more specific and consist of historic footage of a supply ship, photographs, and testimonies from workers about their specific role. These sources provide pockets of deeper knowledge about the operation of a particular boat, the qualification of a skipper and specific processes. Therefore, while the history remains incomplete, there is new and significant knowledge about specific processes such as the transportation of live oysters for experimentation, the storage of harvested shell, transshipment, navigation and hardships created by logistical problems.

The incomplete nature of Japanese records has meant that it was not possible with confidence to confirm the number of luggers and auxiliary ships engaged in the fleet over the 1937-1938 period, although some sources are found to be more authoritative than others. Many of these quantitative questions about this history remain unanswered.

The diagram below depicts the collection of shell by divers and its transshipment through the fleet; from lugger, to mothership and in some cases, to carrier ship. The line to the carrier is dotted, because a carrier was not always used. Other auxiliary/supply ships were also recorded by observers and so have been included in the chart although they were not involved in the process of harvest to shipment. Also depicted is the transport of live oyster for research and experimentation, although technically this was a separate process to shell processing. Prospecting luggers searched for new grounds reporting back to the fleet.

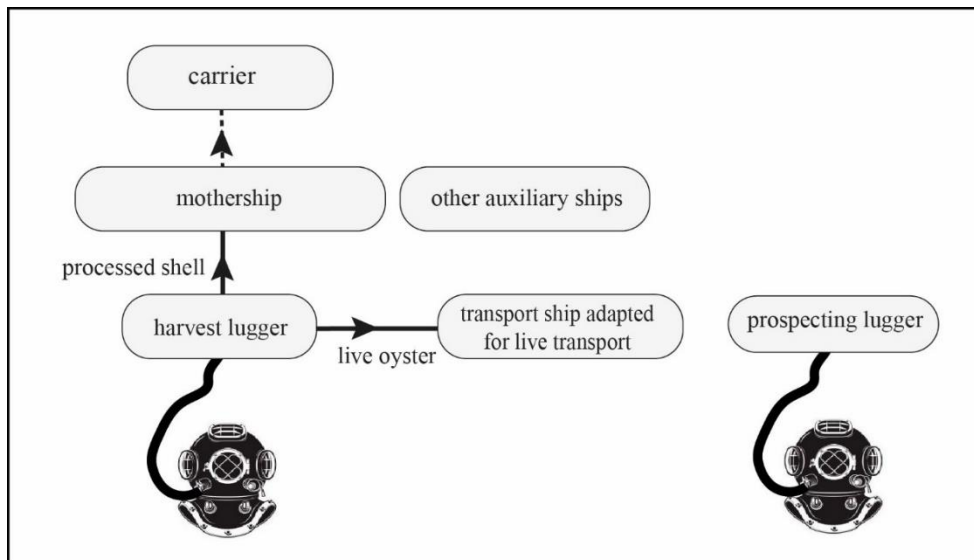


Figure 21. A general guide to the harvest and transshipment of produce, acknowledging other vessels and processes

The problem in dealing with outsider observations about the fleet includes both the misidentification of the role of a ship, and the inconsistent use of terms. Lugger is generally accepted amongst mariners of the past and historians today as the vernacular describing the dive boat used in the harvest of pearl shell. It derives from the lug sail plan, which gave advantages against tide and was popular in fisheries (Kemp, 1976). However, it was also common for the Australian media to report Japanese luggers as *sampans*, which is a Chinese word co-opted to simply distinguish Asian boats from Australian ones (SM 4/1/1942, p3, COIC, 1941:DS/69,8/8/41). Perhaps the biggest problem in dealing with observer accounts is the common overuse of ‘mothership’ to describe any larger vessel supporting luggers. For example, at the time of its sinking Australians referred to the *Sanyo Maru* as a mothership, although the fleet had other motherships. The *Sanyo Maru* was in fact a carrier not mothership. Japanese scholars make the important distinction between *kohyusen*, the supply ships that moved amongst the fleet, and *unpansen*, the carrier or transport ships that visited the fleet (Kataoka, 1983; Okajima, 1952).

6.5.1 Luggers

The following analysis of luggers in the Japanese pearling fleet comes from four particular luggers. As mentioned previously, the *Dai Nippon Maru No.5* was arrested by the Patrol Service for being within territorial waters off Elcho Island, which was part of the Arnhem Land

Aboriginal Reserve, and civil court proceedings against the government provide expert testimony on its operation. The *Tokyo Maru No.1* was arrested in September 1937 under similar circumstances, off Bremer Island in East Arnhem Land, and civil court proceedings against the government also provide expert testimony. The *Nanko Maru No.2* was photographed from different perspectives off the Milingimbi jetty in 1939. The quality of the images provides an exceptional opportunity to conduct a technical study of the deck. In contrast other photographs in collection show luggers from a great distance, or depict them moored in Darwin with gear stowed away and the crew absent. The final lugger is the *Tama Maru*. Australian journalist Terry Southwell-Keely joined the *Tama Maru* in 1938 in Darwin and travelled with it to the fleet in Bouchaut Bay reporting first hand on activities and life aboard. The analysis is further complemented by still images taken from historic footage depicting some aspects of operation, although the lugger is not identified.

6.5.2 Roles

A Japanese lugger of the late 1930s commonly had 12 people aboard, although this could vary (South Seas Agency Bulletin, 1937, p. 49). Sankichi Higashi served as the engineer aboard the *Tokyo Maru No.1* and provided court testimony (NAA E470, 21/1937, pp 47-53, Higashi). He explained that at the time of the arrest the lugger had a crew of 13, comprised of three divers, three tenders and seven boat crew including the Captain and himself. His primary job was as engineer, but he was also responsible for stacking and storing the shell. It was also common for a crewman to be designated the cook like Kenzo aboard the *Tama Maru* (Argus 19/11/1938 pp 8,9).

The dive team was made up of divers and tenders. The tender would assist the diver to dress in and out of the heavy dive gear, and communicate with the diver during the dive through line signals (Argus 19/11/1938 pp 8, 9). Divers collected the oysters in mesh bags and signalled for the bag to be lifted and emptied when full (Argus 19/11/1938 pp 8, 9). The Japanese divers were diving in deep water, 15-20 fathoms (or 27-37 metres) (NAA A1 1937 13441:73). At these depths even a short working day would have made them highly susceptible to decompression sickness without a slow staged ascent. This vital ascent process was controlled by the tender using a line (Argus 19/11/1938 pp 8, 9).

In his testimony, Masihi Kamitake, head diver on the *Dai Nippon Maru No.5* at the time of its arrest, confirmed two aspects about crew aboard luggers. He confirmed firstly, that crew would be swapped between luggers and secondly that at the time of its arrest the lugger had a carpenter from the mothership *Asahi Maru* aboard conducting hull repairs (NAA E470 22 1937: pp 48,56, Kamitake). Both facts reflect the connection between a single lugger and the fleet. Crew, including divers, were not necessarily committed to a single lugger for the whole season but moved across the fleet. Secondly the fleet had experts aboard the mothership to keep luggers operational. These points again reinforce the idea of the organisation as a single machine, and attest to the complexity of the pearling system given that expert carpenters were at its disposal.

Divers commonly came from the Wakayama Prefecture on Honshu the main island of Japan. Hayato Sakurai, curator of the Taiji Historical Archives, explains that young men from the small coastal villages in this area had three options to escape from their village and make good money to send back to their families (Sakurai 2014). They could join the whaling fleets in Antarctica, salmon fisheries in British Columbia and the United States or the pearl shell fisheries in northern Australia.

6.5.2.1 Lugger deck layout- an analysis of historic photographs of the Nanko Maru No.2

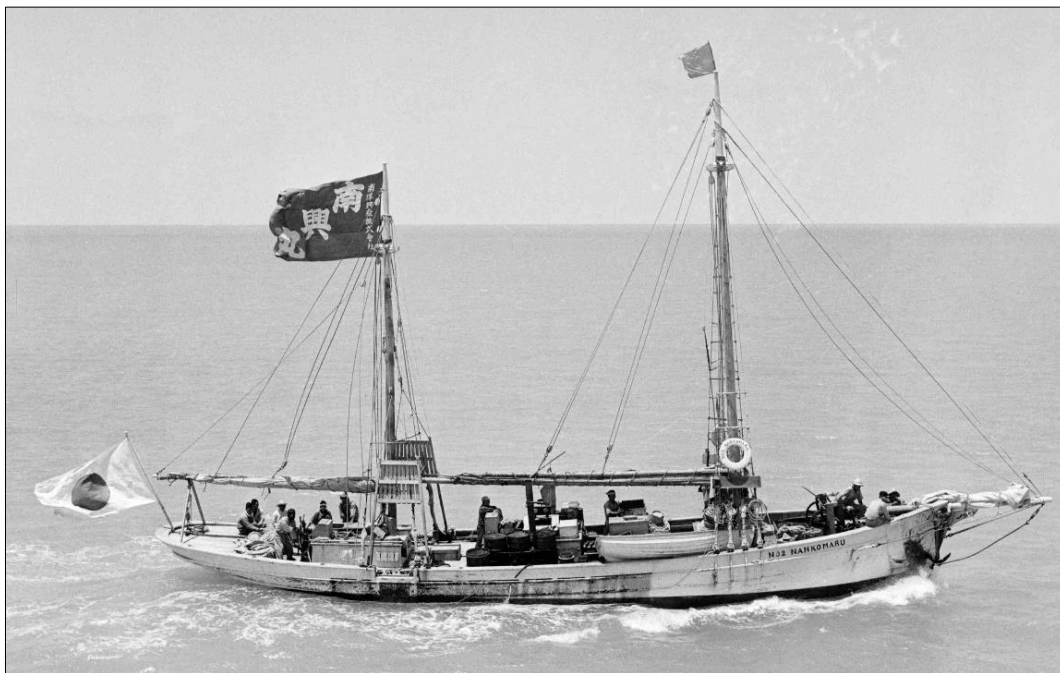


Figure 22. *Nanko Maru No.2*, Milingimbi 1939
Ph. XP24016, Charles Barrett Collection, Museums Victoria

As stated earlier, photographs of the *Nanko Maru No. 2* provide an unparalleled opportunity to study a lugger underway. The lugger is flying the flag of the Japanese conglomerate Nanyo Kohatsu, rather than that of a specific pearling company such as Nippon Shinju or Taiyo Shinju, reinforcing the South Seas Development Company's reach into the pearling industry. The use of English letters to spell its name was a common convention providing easier identification in international waters and foreign ports. A crew of 11 are visible.

The boat is engine powered and rigged as a gaff schooner with a jib, foresail and main sail. The booms and bowsprit all have sails wrapped and ready for quick deployment. The extensiveness of the sail plan and readiness to deploy them demonstrates that sail propulsion or sail assistance would be regularly used to preserve limited fuel reserves. There is a hand-driven rather than engine-driven windlass on the foredeck again showing a concern for fuel conservation.

The foremast is used to hold life rings, port and starboard lights and dive tender ropes and dive hoses. Just aft of the forward mast is a stowed life boat, a large square raised hatch, which in another photograph of the series is without its lid. On the port side of this hatch lies a dive helmet, under a bucket, sitting on a neat coil of dive hose. Aft of the hatch is a raised wooden structure that may have served as a wind guard for the cook.

At the midships are five 44-gallon fuel drums tied to the deck, two on the starboard side and three on the port side. A sixth drum appears shorter and open, possibly adapted for storing equipment or as a bath. At the midships is a tall rectangle hatch which doubles as a raised storage platform. Boxes and equipment are stacked on top, and a top hatch is lifted to provide ventilation below. A wooden box with hoses is fixed to this deck structure. It may be a control box for the diver compressor with gauges and dials.

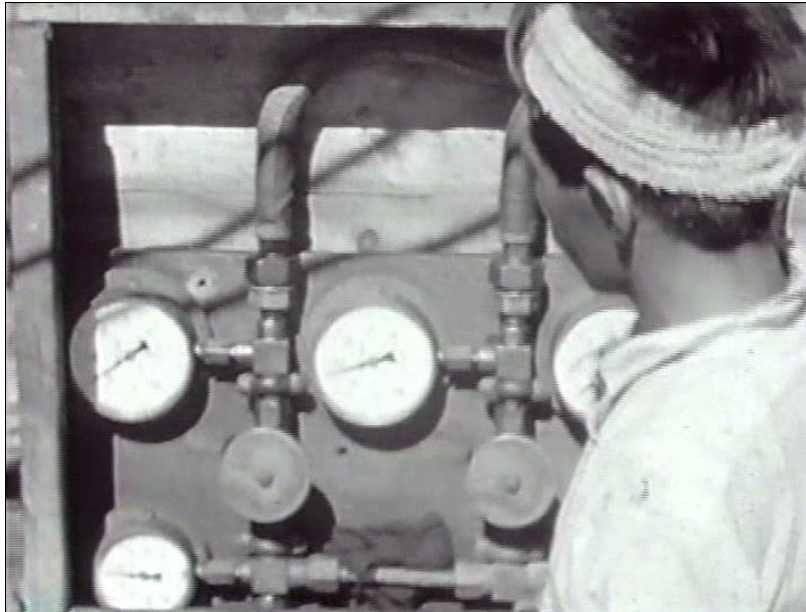


Figure 23. Dive panel aboard an unknown lugger of the Japanese fleet (Tachibana, 1937)

Although this image does not depict the diver panel aboard the *Nanko Maru* it was probably very similar. A closer examination of the still image above, and of the rest of the historic footage before and after, indicates that the gauges have English words, not Japanese, and so were manufactured in an English-speaking country for English speakers. In contrast divers depicted in the same footage are wearing TOA dive helmets, which were manufactured by a Japanese company. Therefore, the dive equipment aboard this lugger, at least, was a mix of Japanese equipment and equipment imported from outside Japan. This relates to the doctrine of *kokusanka*, the drive for self-sufficiency in manufacturing, discussed earlier (see Samuels, 1996, p. 41), proving that in this case self-sufficiency in manufacture was not completely realised.

Returning to the image of the *Nanko Maru No.2*, prominent are the raised platforms that when lowered allowed the tender to stand over the water and have a clearer view and line of communication with their diver. Aft of the stowed platforms is the main raised deck hatch which likely lead to the engine and below decks. The deck is orderly but crowded, and life aboard would have been uncomfortable. There is a raised deck at the back with no equipment stored, and crew sitting in a relaxed pose. The raised deck is likely a respite from the crowded main deck and may have been used for meals etc. The cramped living conditions suggest that crews may have secretly made landfall not just for supplies, but for respite. Aboard the *Tama Maru* crew slept on the deck wherever they could find space (Argus 19/11/1938 pp 8,9).

6.5.2.2 Processing and storing shell

As stated, oysters were raised onto the boat in mesh bags, collected by the divers. Once on deck crew would remove biological growth from the outside surface of the oyster, open the oyster, cut out the meat, collect any pearls, separate the halves and wash the shells (Argus19/11/1938 pp 8,9). The shells were then stacked inside each other and stored in the hold (NAA E470, 21/1937 pp. 47-53, Higashi). Washed, stacked and stored shells are shown in the images below. These would be bagged before transshipment to the mothership. Kametake describes that in the month before the *Dai Nippon Maru No.5* was arrested it had collected 5½ imperial tons of shell, 2½ in the first neap cycle, and 3 in the second. The mothership was unable to take its harvest in full, and 2-2½ had to stay aboard (NAA: E470, 22/1937, p59).



Figure 24. Hull of Japanese lugger filled with stacked pearl shell being unloaded for transshipment (Tachibana, 1937)



Figure 25. Shell stored in the lugger's hull being bag on deck for transhipment to the mothership *Kokoku Maru* (Tachibana, 1937)

6.5.2.3 Lugger navigation

In court testimony related to the arrest of *Tokyo Maru No.1*, Captain Dajiro Hirai provided a detailed account of how lugger crews navigated (NAA: E470, 21/1937, pp. 363-379, Hiari). They kept a log of their movements with positions, soundings and descriptions of the grounds worked, which was then shared with the fleet. He added annotations to his chart with explanations in his log. Hirai would take his position by land transects or through celestial means, the latter using a chronometer for longitude and at noon a meridian for latitude. He didn't use a speed log but determined speed by the time it took to travel between two known points. There was no radio aboard.

6.5.3 Motherships and smaller auxiliary ships

While certain ships were certainly motherships, a critical review of sources shows two research problems in understanding them and the rest of the auxiliary ships tasked with supporting the luggers. The first is that Australian and Japanese sources conflict about how many motherships,

carriers and smaller auxiliaries there were. The second problem is that the term mothership is used too broadly by some, and so includes other ships, which actually had different duties.

These problems stem from there being no Japanese or Australian records that describe or quantify the different support ships. The Japanese gazette of luggers that listed the fleet for 1937, discussed in Chapter 5, only lists the luggers and not the support ships (South Seas Agency Bulletin, 1937). These ships were of less consequence to the government, and company records qualifying them are lost. Furthermore, Australian authorities had no detailed understanding of how the fleets worked. As these were foreign fleets working in international waters, the boats were not registered in Australia, nor did they have to comply with customs laws. Australian authorities had only a few observations to work with. When they did have contact with a ship, they determined its role was the specific action it was observed doing at that time. For example, the *Arafura Maru No.5* was described as a water carrier, because it once transported water from Darwin (Australian War Memorial image 302933 caption). A critique of historic naval records on Japanese fishing activities over 1937-1938, including testimony from Australian experts, reveals how little was understood (NAA 311F, B6121).

Secondary sources, even those of high regard, prove to be problematic in breaking down the auxiliary boats with any certainty. Bach and Kataoka both distinguish motherships from transports but both draw from what were observations and conjecture (Bach, 1955, p. 301; Kataoka, 1983). For example, Bach states that there were seven transports and one mothership in 1937, but another source suggests the fleet consisted of 115 boats and four motor schooners that year (Bach, 1955, p. 301; NAA: A981, JAP 158PART3, Sheldon 2/4/1937). If Bach was correct, did Kaiyo Shokusan and Taiyo Shinju share a mothership? Okajima notes that in 1937 Kaiyo Shokusan had four carriers and Taiyo Shinju had three carriers, which equals Bach's summary of seven carriers, but again the question remains, would they have separate transports but share a mothership (Okajima, 1952)? Haultain, from the Patrol Service, in a confidential memorandum dated July 1937 said that the Palau group of boats had 'four motherships' (NAA: B6121, 311F, Haultain 20/7/1937). A journalist, who in a series of reports on the industry in 1938 also repeats the number four and may have used Haultain as a source (Argus 6/8/1938).

A critical assessment puts these five sources in context. Haultain's assessment mirrors Sheldon's, because Haultain likely used Sheldon as a source, as the Argus journalist later used Haultain. But Sheldon was based in Dobo and would only have contact with the Dobo based pearlery. He was not an authority, and may have been mistakenly reported on only one

corporation's fleet. Kataoka references Okajima, and he may have been Bach's source also, but Okajima does not reference his source.

In conclusion, because of the nature of the records, it is more productive to build a sense of the industry through qualitative observations, than attempt to quantify the auxiliary fleet. Taking this approach two observations stand out. The first is the distinction between the carriers (*unpansen*) from the supply ships (*kohyusen*) and secondly, that Kataoka suggests the carriers visited monthly (Kataoka, 1983; Okajima, 1952).

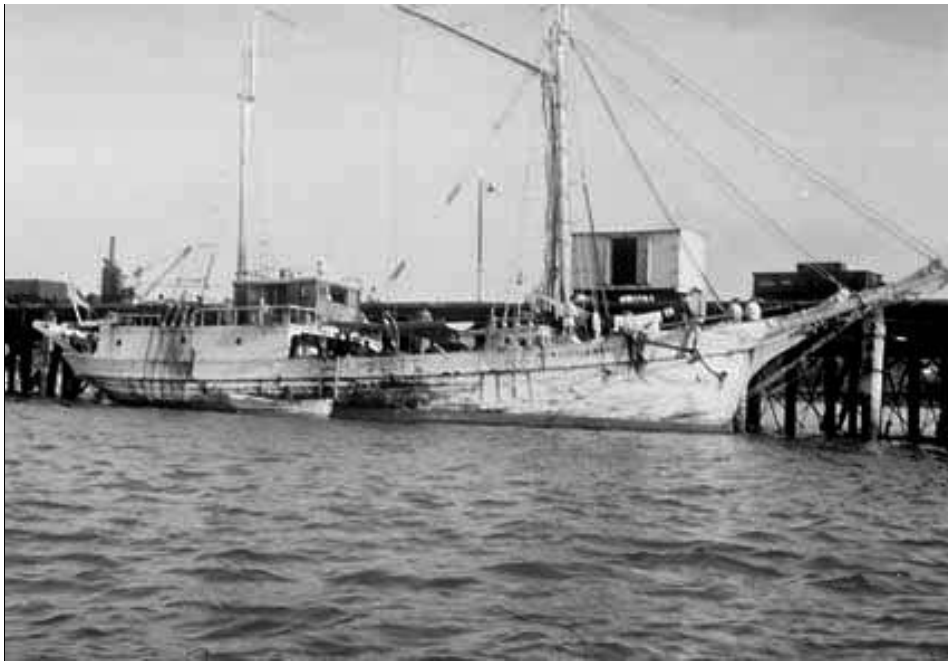
6.5.3.1 The mothership *New Guinea Maru*

The *New Guinea Maru* was a 132 gross ton wooden auxiliary schooner built in 1934 and owned by Tange (LR). Its name likely alludes to Tange's earlier pearling grounds; before over exploitation drove the fleets further south to Australia. Yasuchi Okishima who served as Captain of the *New Guinea Maru*, in 1937, was called as a witness in the Darwin Supreme Court in relation to the seizure of the *Tokyo Maru No.1* (NAA: E470, 21/1937, mariner and that the *New Guinea Maru* was Okishima, 28/7/1938). In his testimony, he confirmed he was a qualified master the mothership for 35 luggers. As the Captain of the mothership, he also worked as the purser. He kept records of the oil, water, or food he distributed to luggers, and the tonnage of shell that it loaded. The profit for that boat is the sum of the tonnage harvested against the costs of operating (NAA: E470, 21/1937, Okishima, 28/7/1938). He also argues that had the *New Guinea Maru* not been delayed on the water due to the compliance action, it would have departed for Palau. The qualification that he was a master mariner confirms that the captains had civil qualifications and were not necessarily naval officers as suggested by some (Haultain, 1971).

The clarification that the purser aboard the mothership tallied the supplies given to the crews, taking the costs from the crew's profits, showed that the motherships worked as company stores. Company stores, as discussed in Chapter 2, provide a particular capitalist lens in which the lugger crewman is understood as a consumer, and the mothership as a company owned and operated store. This is a particularly insightful analogy when the sale of personal items, not just essential items, is discussed in the case of the *Asahi Maru*. The mothership certainly had a monopoly as the crew were based at sea, but whether it was truly exploitative or just a fair service depends on the costs. Regardless, this clarification confirms that the arrival of the

mothership was not just the arrival of a supply ship, but the appearance of a floating emporium, which could provide both the basics, and a few comforts if one could afford them.

Okishima was cross examined about the position of the *New Guinea Maru* when stopped by the Patrol Service. It is a crucial exchange which confirms the quality of the maps used by motherships. Okishima used a Japanese translation of the Admiralty Chart 1044 (NAA: A1, 1938/20320, Okishima, 5/10/1938). From its description it was a Japanese trace of a commercial chart, with names written in Japanese. He would annotate the charts marking good pearl beds. Examined for this study, Chart 1044 covers the entire Northern Territory, and it was confirmed in the court case that it was not considered at the right scale, with sufficient detail, for safe navigation. A series of more detailed charts could be bought, but these were not purchased by the company for Okishima. This provides an important insight into the level of mapping the Japanese were conducting. The Australian military believed that the Japanese held detailed charts of the Australian coast based on Japanese hydrography, although the military accepted that they had no evidence of it (NAA,B6121,311F, Street, 17/11/1938). This suggests they did not exist.



**Figure 26. *New Guinea Maru*, Darwin wharf, 1937
M119:11, National Archives of Australia**

6.5.3.2 The mothership *Asahi Maru*

The *Asahi Maru* was a 172 gross tons wooden mothership built in 1934 (LR, SNNS). Having four owners over its working life, its final owner was the pearler Yamami (SNNS, TTB). There were different vessels under this name and the correct *Asahi Maru* was call sign JMLJ, vessel number 39133 (SNNS, TTB).

The *Asahi Maru* receives the most detailed treatment in the Australian press, with journalist Terry Southwell-Keely witnessing its arrival at anchorage. He provides an informative photograph of the *Asahi Maru* at anchor as luggers surround it and cargo is moved across (Argus 6/9/1938). Using evocative language, he provides both details and a broader sense of how this was a gathering of countrymen, an event of considerable social and cultural importance.

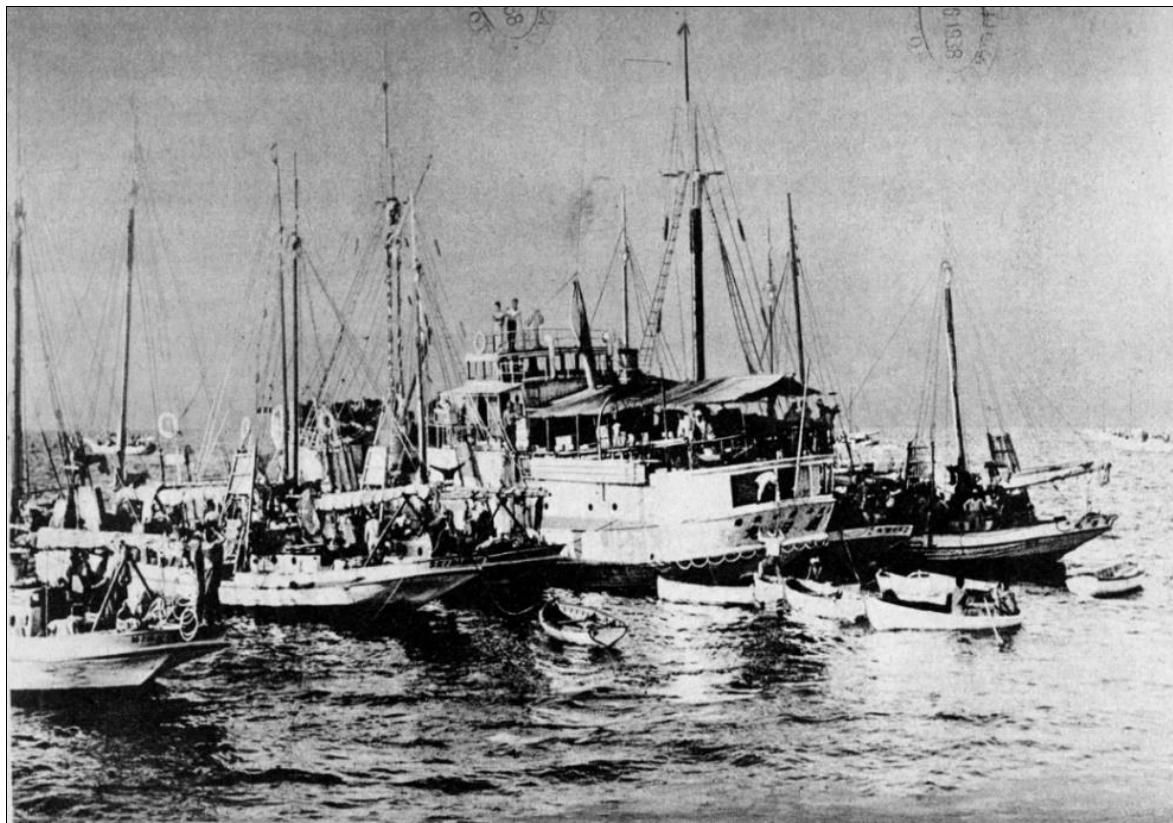
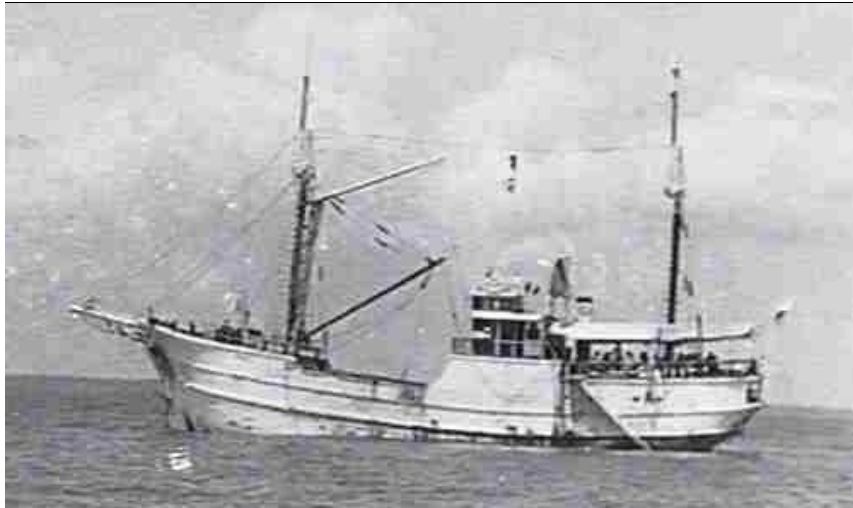


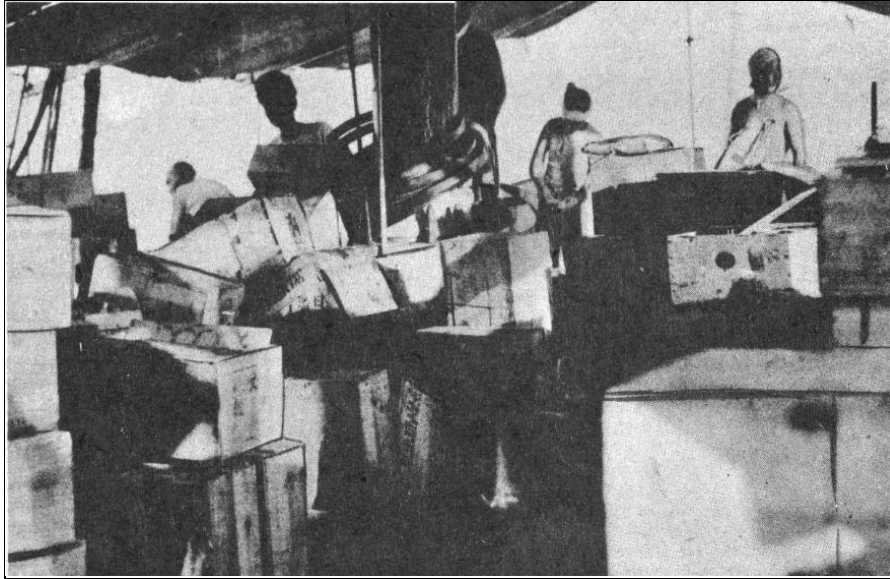
Figure 27. The *Asahi Maru* servicing its fleet in April 1938
The Argus 6/8/1938



**Figure 28. The *Asahi Maru*, in profile, 1940
image 302952, Australian War Memorial**

Southwell-Keely refers to the gathering as a ‘floating foreign township’ and the ‘Floating Venice of Arnhem Land’ (Southwell-Keely, 1938). Justifying this prose he notes that there were more men working in these fleets just off the coast, than there are people in any northern township in Australia. Australian authorities also appreciated the symbolic scale of the fleet anchorages. Without a homeport in Australia, naval observers classified the homeport of its motherships as ‘Arafura Sea’, not Palau, suggesting their cyclic return to a local but major sea anchorage deserved some formal recognition (WWII MSMR 45/4).

Specific observations by Southwell-Keely, such as what goods he saw loaded onto luggers offers valuable detail and provides a very human account of life at sea and isolation from home. Beyond staples such as rice and tinned foods, there was hair tonic and local newspapers from home-towns. He calls the luggers ‘miniature emporiums’. The gathering was also an event. A break from work in which music was played, card games won and lost and those crews without an on board wireless could hear news from home. The article includes historic photographs that, amongst other subjects, show the haphazard way that boxes of goods are stored on the deck.



**Figure 29. Disorganised boxes of goods on the deck of the *Asahi Maru* during the transshipment of supplies
The Argus, 6/8/1938**

6.5.3.3 The mothership *Kokoku Maru*

The *Kokoku Maru* was a 161 ton mothership built in 1937 in Koza, Wakayama (TWA 1/8/1939 p.3; Tachibana 1937). Historic footage sourced in Wakayama shows its construction, launch and maiden voyage through the South Seas to the pearling fleet working off the Northern Territory coast (Tachibana 1937). The footage depicts the mothership in detail and aspects of the industrial process including the unloading of supplies to the lugger crews and the taking of shell. Steel barrels of fuel, stacks of firewood and vegetables are shown being transhipped by crane and hand. Bags of shell are tallied and loaded aboard. Random scenes of life at the anchorage are shown including reading letters from home.



Figure 30. A small punt delivering wood from the *Kokoku Maru* to luggers in Arnhem Land waters, 1937 (Tachibana, 1937)



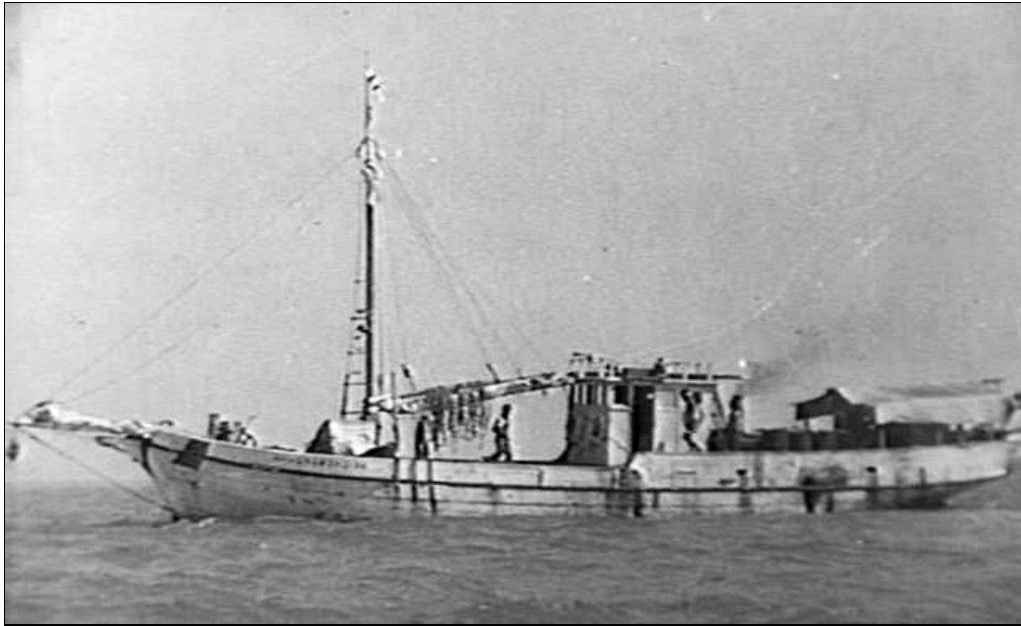
Figure 31. Transshipping a drum of fuel to a lugger, Arnhem Land waters, 1937 (Tachibana, 1937)



Figure 32. Bags of shell being loaded onto the *Kokoku Maru*, Arnhem Land waters, 1937 (Tachibana, 1937)

6.5.3.4 *Seicho Maru No.10*: life oyster transport and other duties

The *Seicho Maru No.10* was a 32-ton wooden boat (NAA:A1,1938/20319, Takahara 10/10/1938). It had a single mast, unlike the diving luggers, which was likely used more as a davit and crane for the cargo hold than for wind propulsion. It was also not equipped with the folded platforms used to support divers, so characteristic of the pearling boats. The photograph below depicts the vessel with a number of barrels at the stern, likely holding fuel.



**Figure 33. *Seicho Maru No. 10*, 1940
picture 303915, Australian War Memorial,**

The *Seicho Maru No. 10* was arrested on June 10, 1937 as a substitute for the seizure of the *New Guinea Maru* (NAA A1, 1938/20319). The larger vessel was left because the patrol officers were concerned its deep draft would cause issues on the voyage to Darwin, and they appreciated that the loss of a mothership would jeopardise the whole fleet. At the time of its seizure, *Seicho Maru No. 10* was distributing oil to the fleet, which it had sourced in Darwin. However, under oath Captain Katashi Takahara, Master of the boat at the time of the arrest, made an important clarification. It had sourced fuel in Darwin only because at the time the fleet was short. The vessel's primary role was to transport living juvenile shell to Palau (NAA A1: 1938/20319, Takahara 11/10/1938). It would go amongst the luggers working the patches about 35 miles from Bouchaut Bay and collect a full cargo hold, which took a few days, and then travel directly to Palau, making the journey in nine days. The transport of juvenile live shell is an important admission. It contradicts Yamami's guarantee to Australian authorities that the fleet was not engaged in interfering with immature beds (NAA:A1 1937/13441, Yamami 20/8/1937).

6.6 The large carriers (unpansen) - *Sanyo Maru* case-study

6.6.1 The 'elusive' large carriers

A direct result of this research project was the correct categorisation of the *Sanyo Maru* as a carrier rather than a mothership. The *Sanyo Maru* was not observed working as a mothership off the NT coast, however reports of its sinking off Arnhem Land in July 1937 in various sources described it as one of the largest 'motherships' of the fleet (SMH 10/7/1937 p 17; Argus 12/7/1937 p2). Here mothership was used as a generic term. Identification as a mothership continued with historians, including suggestions it was the same class as the *Asahi Maru* (Wilcox, 2006). However, an examination of historic records on the ship's construction, and an archaeological investigation of its remains, show that it was significantly larger than other known motherships, built of steel not wood, and was markedly different in design. The conclusion is that the *Sanyo Maru* was not a mothership, but worked as one of the largest, if not the largest, carrier of the Japanese pearling fleet.

Historic records on carriers in the pearling fleet are scarce. As already shown Japanese records on the industry are limited in general, and existing records focus on the luggers. Australian observations are also rare. The occasional recorded observation of the fleet focused on the issues relevant to the observer, for example in the case of the Patrol Service it was the number of luggers and their proximity to territorial waters. Luggers also stayed at the anchorage for days or weeks, and so there was a greater chance of seeing them. In contrast the large carriers, working the run between Palau and the fleet, would only stay long enough to tranship goods and shell. Therefore, there was less chance of sighting them.

An exception to this was an observation made by Nick Kamper, an officer from the Patrol Service assigned to supervise the salvage of the *Sanyo Maru*. On 9 November 1937 at 1700, whilst underway near Entrance Island, he made the following note in his log:

Passed big ship on NW course. Japanese said she has been in Boucaut bay to collect shell and was returning to Palas [Palau] (NAA: F1,1939/420, Kamper)

This is a crucial observation. In comparison, on November 24, while anchored over the wreck with the salvage team, Kamper noted in his log that at 9:30am the 'Japanese carrier ship *Kimi Maru* passed' (NAA: F1,1939/420, Kamper). The *Kimi Maru* was a wooden auxiliary schooner

built in 1935 and was 199 gross tons, 146 net tons, and 29.2 metres long (Lloyds Register 1937-38: official number 41133). That is 27 tons larger than the *Asahi Maru*, one of the largest motherships, suggesting it was some kind of carrier. However, it was not described as big as the ship recorded on November 9. This observation referred to another kind of ship altogether. The *Sanyo Maru* was steel not wooden, and was listed as 283 gross tons, 189 net tons and 36.5 metres long (LR). In comparison that's 82 gross tons and 43 net tons larger than the *Kimi Maru* and 8.3 metres longer. Whatever ship Kamper observed on the 9 October, it was probably in the class of the *Sanyo Maru*.

In submitting Kamper's report to the Secretary of the Department of the Interior, Abbot the Administrator of the Northern Territory, wrote:

Seaman Kamper's report is very interesting and you will notice on page 2 that a large steam vessel was seen on the 9 November. It appears from the remarks of the Japanese that it was not unusual for these large Japanese vessels to make contact with the fleets while well outside Territorial Waters, and a considerable quantity of pearl shell is transferred at sea for shipment to Japan. This appears to be a reasonable business precaution as the motherships are not able to carry a great deal of cargo, and as the case of the 'Sanyo Maru' has shown, loading these boats at sea is dangerous (NAA: F1, 1939/420, Abbott 7/12/1937).

This quotation further establishes the existence of a larger class of carrier little known to Australian authorities. However, it is ironic that both Kamper and Abbott failed to identify the *Sanyo Maru* as one of these ships, although this can be explained. Firstly, the *Sanyo Maru* was sunk in deep water and so Kamper, not diving himself, could not inspect it firsthand. It was described both in the media and in formal correspondence as a mothership, so like others he would assume it was the same class as the motherships he could see. The second reason involved his role. He offered no technical support. He was there to note any custom issues with the salvaged goods and arbitrate landings and interactions with Aboriginal people. Logging the carrier that passed was a significant first step in Australia's better understanding how this foreign fleet operated. If re-floating had been successful, he may have appreciated his mistake.

6.6.2 The *Sanyo Maru* - from fish carrier to pearl fleet transport

The *Sanyo Maru* was built at yard 210 at Mihara Shipyards in Osaka, Japan. It was constructed in February 1935, and launched the following month (Lloyds 1938/1939 Vol.4; LR 1935;

SNNS; NSM 1936). Japanese registries put the ships gross tonnage at 281 and 281.35, with Lloyds listing it as 283 gross tons (NSM 1936; TTB; LR 1935). In 1937 the tonnage and crew capacity were increased with modifications by a new owner (TTB). For the purpose of this research gross tonnage can be used as a reliable and quick measure of a ship's size, but in truth tonnage is a complex calculation. The ship was steel, 36.5 metres in length and 7 metres wide and capable of 9 knots. Its Japanese registry code was 40160, its call sign JYGH (SNNS). It was classified as a fish carrier (SNNS).

The author visited the historic site of the Mihara shipyards, and confirmed no visible surface evidence remains. The owner of an adjacent yard confirmed there were once multiple yards along that section of the river bank but it was heavily bombed by the Allies during the war. The *Sanyo Maru* had a series of sister ships of the same or very similar design. Mihara shipyards built a series of ships called *Fukuyei Maru*, (spelt *Fukuei* by some sources), and differentiated by a number prefix. Some can be considered sister-ships to the *Sanyo Maru*. The table below shows that *Fukuyei Maru No. 5* and *No.7* were at 285 gross tons, only two tons heavier than the *Sanyo Maru*. *Fukuyei Maru No. 6* and *No.8* were at 284 tons only one ton different. It was common that Japanese shipbuilders would build to a general plan with minor variations.

Table 9. *Sanyo Maru* and its near sister ships, of the *Fukuyei* (or *Fukuei*) *Maru* series

Ship Name (reg. & signal)	Tonnage	Date of const., builder	Owner
<i>Fukuyei Maru No. 5</i> (39708, JWVI)	285 gross tons	1934, Mihara,	Mansen Unyu KK
<i>Fukuyei Maru No. 6</i> (40019 JFFJ)	284(5) gross tons	Dec.1934, Mihara	Mansen Unyu KK
<i>Fukuyei Maru No. 7</i> (40027 JFKJ)	285 gross tons	1935 Mihara,	Mansen Unyu KK
<i>Fukuyei Maru No. 8</i> (40193 JFVJ)	284(5) gross tons	March 1935 Mihara	Munakata Kisen K.K.
<i>Sanyo Maru</i>	283 gross tons	March 1935, Mihara	Sanyo KK

Lloyds 1938/1939 Vol.4 & SNNS
(Where there's conflict SNNS has precedence)

Mihara Shipbuilders built ships in Osaka at various yards close to each other. The *Sanyo Maru* was built at yard 210. The *Fukuyei Maru No. 8* was built next door in yard 211 at the same

time. That means the *Sanyo Maru* and the *Fukuyei Maru No. 8* were built side by side, by the same builder, but for different clients. They were certainly built off the same general ship plans, with minor decisions by owners about aspects such as engine size or accommodation accounting for the differences. The *Fukuyei Maru No.7* was built at the adjacent yard 209, only two months earlier. The engine of both the *Fukuyei Maru No.7* and the *Sanyo Maru* were built at the Hanshin Iron Works in Kobe, the difference in engine cylinder size being the single difference between the ship specifications.

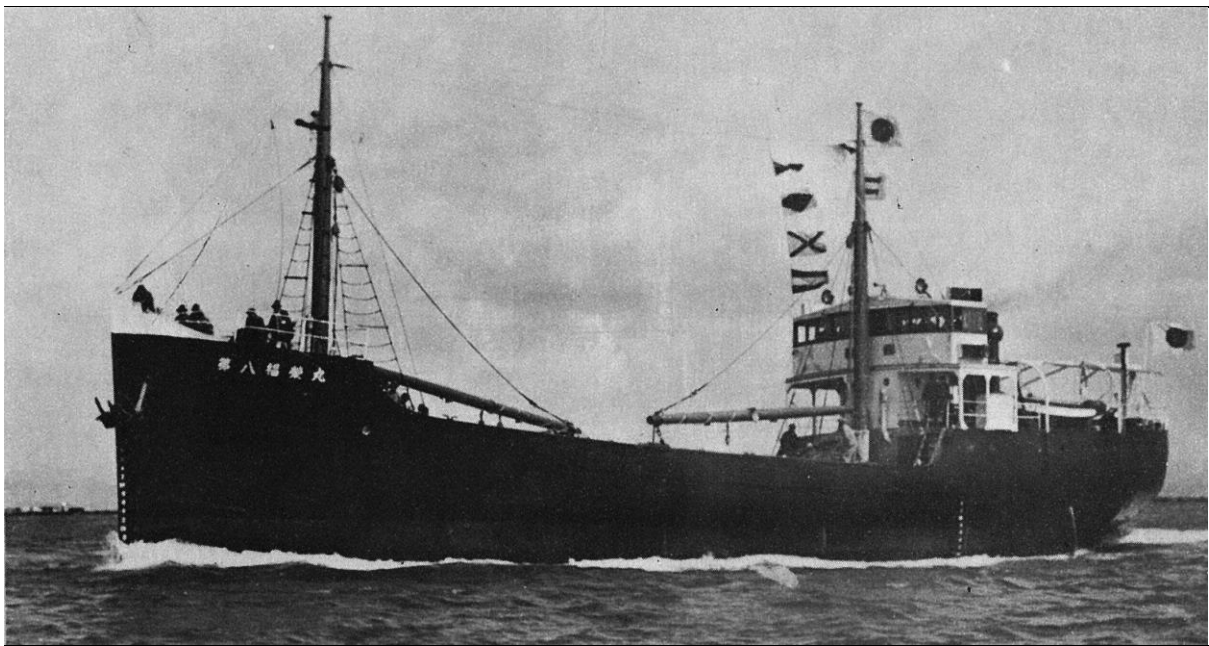


Figure 34. *Fukuyei Maru No. 8*, *Sanyo Maru* sistership
(Kaiyunsho Kisen Hyo)

The *Sanyo Maru* was built for a company called Sanyo KK (Sanyo shipping) whose address was 2 Minami Ajikawa Tihi, Minatoku, Osaka (KHS 1937:120). Nothing is known of the company, but it can be inferred from its name that the *Sanyo Maru* was either its flagship or only ship. The ship was sold in April 1937 and there are no records detailing how it was used by its first company, but inferences can be made.

The *Sanyo Maru* was classified as a *fish carrier* both in Japanese registers and a confidential small craft index compiled by the United States Armed Forces (SNNS; ONI 298-J,2,SCI). The same Japanese registry lists the *Fukuyei* numbers 6, 7 and 8 as general cargo ships. Tsudani explains that the difference between a fish carrier and a small cargo ship was not design but

designation (1977, p. 164). If moving marine produce from port to port it was designated a cargo ship, but if visiting the fleet on the fishing grounds, and transshipping supplies and product, it was registered as a fish carrier.

The fish carrier was used across many Japanese marine industries, and as with pearling, in the latter half of the 1930s these industries were operating further away from Japanese ports and increasing the scale of their operations. In 1936, Japanese fisheries based in Singapore included 54 'fish carriers' (Shimizu 1997:335). With holds filled with ice these carriers transported fish from distant fishing grounds to ports. This does not just explain how carriers were common features of Japanese fisheries, but also suggests the kind of work the *Sanyo Maru* was engaged in for the first two years of its short working life before it joined the pearling industry.

Tsundani's encyclopaedic review of Japanese fishing boats provides a vital description of the fish carrier (1977, p. 164). Tsundani confirms that fish carriers were steel and varied in tonnage. He notes a convention of carriers having separate fuel tanks for its own consumption, and for the fleet it serviced, confirming carriers doubled as fuel supply ships. This would make organisational sense, but also provide ballast for the carrier on its voyage to the fleet.

The classification in authoritative sources of the *Sanyo Maru* as a fish carrier suggests its work prior to joining the pearling fleet. Whether classified as a fish carrier or general cargo ship the *Sanyo Maru* was based on a very simple, practical and popular design that was repeated over decades in different sizes. The US Armed Forces produced guides for personnel to identify Japanese merchant ships, and the *Sanyo Maru* fits the designation Steel Sea Trucks, code name 'Sugar Charlie Sugar' (ONO 208-J,2,FASC). These varied in size, but were under 1,000 tons, steel, diesel driven, had a simple box profile, one or two open cargo holds at the midships, a straight stem, a double or triple story stern wheelhouse and a protruding curved stern. To offset the loss of steel during the War the type was repeated in wood, and classified by the US Forces as Wooden Sea Trucks or 'Sugar Dog' (ONO 208-J,2,FASC). The general type continued into the post-war period with for example the fish carrier *Bansyu Maru No.2* shown in a 1956 catalogue (SAJ 1956 p.73).

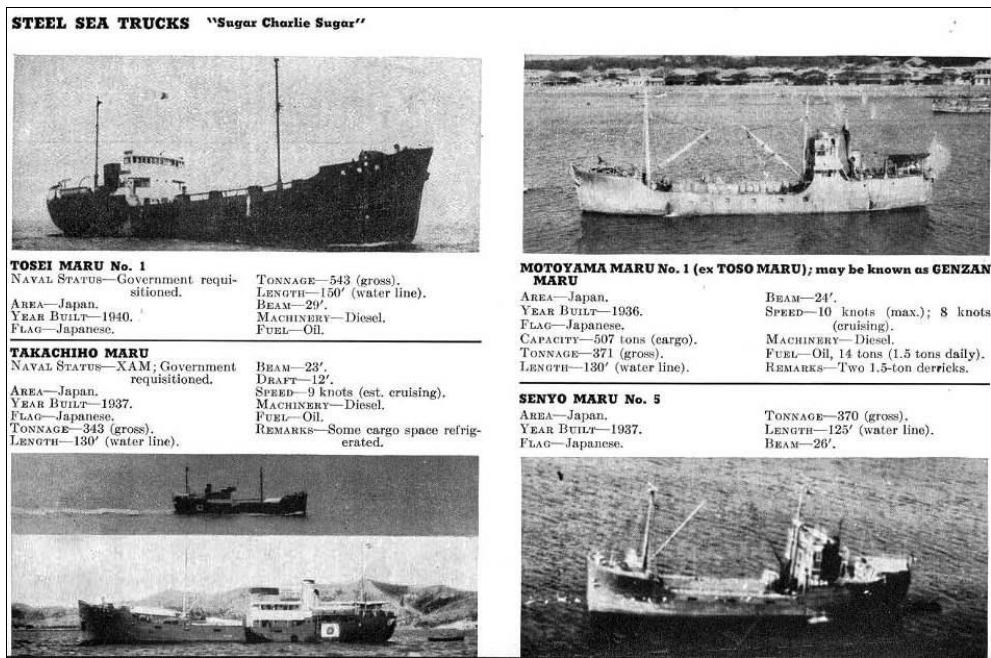


Figure 35. US Armed Forces classified merchant ships of similar design and size to the Sanyo Maru as Steel Sea Trucks, codename 'Sugar Charlie Sugar' (ONO 208-J,2,FASC).

On 26 April 1937 the *Sanyo Maru* was sold to a Mr Takashi Tomiya, only two months before its sinking (TTB, 40160). Takashi Tomiya was the Executive Director (Vice President) of Nanyo Sekiyu (Southern Ocean Oil) (Nanyo Kohatsu 1940). Nanyo Sekiyu was founded in 1934, was based in Palau and had a branch office in Tokyo (Nanyo Kohatsu 1940). Nanyo Kohatsu, the conglomerate, owned 19% of its stock. The significance of Takashi Tomiya's business interests are that the ship was not owned by a Master Pearler like Tange or Yamami but by a person not directly engaged in the pearling industry. Therefore, it was not part of the fleet proper, but was contracted or leased to the industry. With the ship owned by a high-level industrialist and bureaucrat in Southern Ocean Oil, there is also a question of whether it was purchased to service the Japanese oil industry. The Japanese company Borneo Oil was formed in 1937, the year the *Sanyo Maru* was purchased (NAA: A981, JAP158/Part 3, British consulate 3/4/1937). Borneo Oil was probably a subsidiary of Southern Ocean Oil, and its major stockholder was Mitsui, which had a direct interest in pearling.

Whether the ship was purchased to service the Japanese oil industry in the South Seas remains unclear, but the connection further supports the idea that it was used, or at least intended for other industries. The other aspect of Takashi Tomiya's business interests was that Nanyo Kohatsu held stock in Southern Ocean Oil, while also holding stock in Kaiyo Shoukasan. This was possibly the connection that led to the *Sanyo Maru* being contracted, and not another ship.

In correspondence Japanese diplomats told the Australian Government that the wrecked ship was owned by Kaiyo Shoukasan, which was not strictly correct, but was a convenient half-truth. The ship was contracted to it, and the entangled relationship of parent companies suggests other associations. It was a simple explanation that did not uncover complex corporate interests.

6.6.3 The *Shinyo Maru*: a true floating station

The introduction of the *Sanyo Maru* as a solution to the bottlenecks in the industrial process, namely the unloading of shell and supply of the luggers, ended with tragic results. The next response was far grander, although also short lived. It would surpass in scale and capacity all previous motherships and carriers and perhaps for the first time, truly earn the description floating station. In correspondence dated 14 May 1938 Torao Wakamatsu Consul-General for Japan wrote to the Australian Minister for the Interior stating:

‘...Further a plan is now under consideration for a mother-ship to accompany pearling luggers, in order to supply them with fresh water, provisions and fuel, with a view to preventing any trouble which may otherwise occur in connections with the supplying of such necessities to the luggers’ (NAA: F1 1938 584 pg 131).

In July 1938 Australian newspapers reported the arrival of the *Shinyo Maru* anchored just outside territorial waters (Advocate 27/7/1938; Herald 19/7/1938). The comprehensive articles reported that it was a converted Chinese gunboat, seized in the war with China, and was 3,000 gross tons. It would provide water and fuel and all supplies for the fleet so there was no longer a need to call at Darwin. It was equipped with a hospital and decompression chamber, doctor and nurses, and an engine repair shop. It would be loaded with shell, which would at intervals be transferred to visiting carriers, and so would remain anchored just off the Australian coast for the 9-month diving season (Herald 19/7/1938). With divers getting injured, decompression sickness, and engines breaking down, the *Shinyo Maru* could provide comprehensive medical care and rebuild or replace a faulty engine.

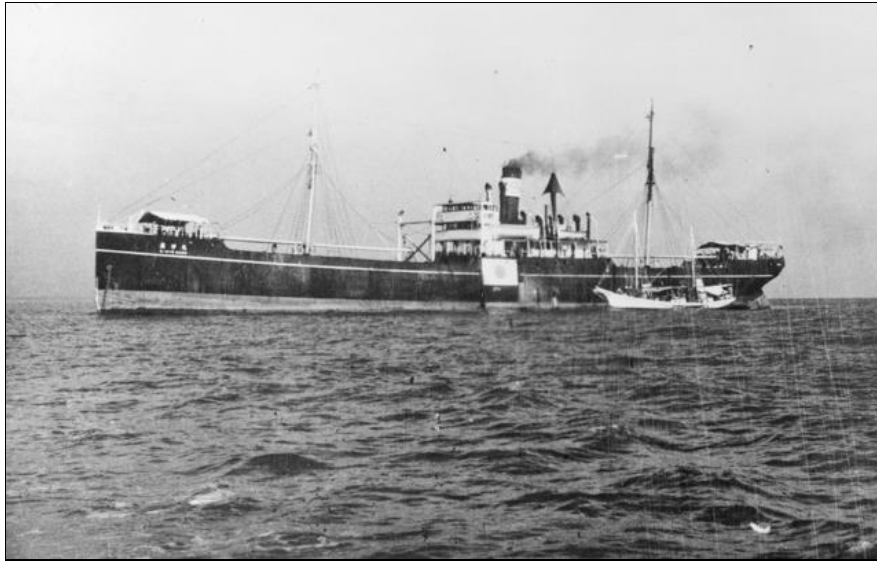


Figure 36. *Shinyo Maru* introduced in mid-1938, with a pearly lugger alongside. It represented the next stage in support ships, but the industry was soon interrupted by war image 303933, Australian War Memorial

Australian authorities scrambled to confirm details of the arrival of the *Shinyo Maru*, unsure when it had arrived and whether it was stationed off Boucaut Bay or Bathurst Island or moving between the two (NAA: F1, 1938/777). The authorities were still uncertain in mid-August of 1938, with rumours spreading it was servicing a pearling fleet at New Guinea. A request was sent from Cabinet that it be updated on the *Shinyo Maru* and other new vessels joining the fleet. In confidential telegrams on the 12th and 28th of October 1938 respectively, the Administrator informed the Commonwealth that the ship was initially stationed off Bathurst Island but had then moved to Bouchaut Bay (NAA F1, 1938/777). It then departed with a fleet of 30 luggers, he believed were heading for Palau. The departure may have been earlier, as Japanese sources state it supported the Japanese survey of the Australian pearling grounds and was said to have transported the survey team back to Palau on July 17, 1938 (NSS 1938). It did not return. Appendix A provides a summary of the ship's violent history during WWII.

6.7 The fleet as a network

The detailed descriptions of different categories of ships given above provides important insight to specific aspects of the industry and its workers, but it may inadvertently create the impression they worked independently, which was not the case. The boats and ships worked

as a system or network spread geographically across a seascape. The use of contemporary fishing studies to better understand historic fisheries was done earlier in this chapter, in relation to foraging behaviour by individual divers and boats. Contemporary fishing models may also be used to better identify conditions that may have shaped the operation of an entire fleet (Putten et al., 2012). This is generally understood as fleet dynamics (Branch, et al 2006; Putten et al., 2012). Where the concept of foragers emphasised the individual boats, fleet dynamics can involve capacities and decisions at the organisation or group level.

One approach in fisheries studies is the use of network theory (Putten et al., 2012). Network theory is used across different disciplines, including the hard sciences with some applications involving large amounts of data and complex computations (Betts & Stouder, 2004). The approach here is to use simple analogies, from the discourse, to more easily understand the historic fleet as a dynamic network of boats and ships. Another approach in maritime history may be to simply list boats in a static hierarchy, classified by tonnage or similar. However, this says little about their interaction, and becomes more an engineering study. Through network theory, the anthropology and sociology of contemporary fleets can bring life to the study of past fisheries.

Network theory is not new to archaeology. Orser considers it specifically for historical archaeological analysis (2005, p. 84). Particularly relevant is his affirmation that a culture can exist across a network, and be spatially defined by it. Here is the fleet as culture, returning again to organisational metaphors. Orser also suggests, although not clarified overtly, that networks need not inhabit traditional spaces like a settlement connected by roads or rail. Rather a fleet across a seascape can be studied as a network. This invites research opportunities for comparisons between historical industrial networks. A study of the historic Michigan timber industry showed that the arrival of larger corporations with capital brought upgrades in transportation networks including larger gauged rail (Langhorne, 1988, p. 27). Similarly the arrival of corporations and capital in Japanese pearling resulted in larger carrier ships. In both cases the infrastructure of the network evolved as more capital was made available.

A network analogy frames the fleet as a structure of interconnected nodes (luggers) and hubs (motherships). Motherships and supply ships function as hubs, as they have greater connectivity to a range of boats. The image of the *Asahi Maru* surrounded by luggers provided earlier in this chapter illustrates this idea. A pearling fleet network, unlike many other industrial networks is dynamic and cyclic, expanding geographically as luggers venture out, and only a

few weeks afterward, contracting as the fleet comes together during the neap tides, to expand again some days later. A failure to appreciate that networks can be dynamic, changing and even cyclic has been a problem with the application of network theory (Oh & Monge 2017 p.7).

The mothership, supply ships and carriers were central hubs in the spread of materials, personnel, information, instructions and culture. They transhipped personnel, supplies and harvested shell. There was also the top down transmission of instructions, strategic plans, and shared local knowledge. Also relevant here is how culture can exist and be reaffirmed across a network, returning to Morgan's organisation as culture raised in Chapter 2. Here the episodic clustering of the fleet was a gathering event, reinforcing culture in all its manifestations; from company allegiance, identity through shared experience, but also nanshin and the shared goal of Japanese prosperity. Here the mothership becomes the agent of imperialism, and not just simply as a vital hub or cog in the industrial process, but as an active agent reinforcing culture.

Above is a view of a centralised network, clustered around hubs, but as Chapter 8 will show small groups of luggers also came together independently to share knowledge. This knowledge may well have been confidential or privileged within this smaller cluster or group, for example knowledge about unsanctioned locations such as a water hole or sheltered bay. It is well established that social networks of information sharing exist in contemporary fisheries (Putten et al., 2012, p. 222). Studies of social networks amongst small scale fishers note the exchange of information through various relationships of trust, such as kinship, friendship and acquaintance (Ramirez-Sanchez & Pinkerton, 2009). Pearling crew would have multiple forms of allegiance to draw from, creating a Venn diagram of overlapping connections. There were connections to other luggers owned by the same person or consortium, or those luggers associated with the same company. There were also more personal connections, associated with extended families, villages in Japan or friendships and trust built up over the course of this hazardous work.

6.8 Conclusion

Over 1937 and 1938 thousands of men worked on over 170 boats and ships just a few miles off the Northern Territory coast as part of the Japanese pearl shell industry. The fleets moved between major pearling grounds along this coast, depending on the season and when locations become overexploited. Framing this process this chapter drew on contemporary studies of

fishing and foraging behaviour and historical analogies about colonial fisheries and resource raiding. Despite their scale the Japanese fleets were hampered by operational difficulties, and because they were restricted from landing on the Australian coast, they responded by increasing the tonnage of their support ships. This heralded the arrival of larger ships like the *Sanyo Maru*, the subject of the archaeological research, and the even larger *Shinyo Maru*.

In spite of the limited and fragmentary nature of the Australian and Japanese primary sources on the *Sanyo Maru*, a construction and operational history of the ship was provided, correctly categorising it as a carrier (*unpansen*), identifying its sister ships, and thereby associating it with other small Japanese cargo ships of similar design and function. The detailed study of specific ships provided further insight including the role of the *Seicho Maru No.10*. Finally, the chapter drew on fleet dynamics studies, network theory and recalled organisational theory from Chapter 2, to conceptualise the fleets as part of a dynamic industrial system.

Chapter 7: The *Sanyo Maru*: an archaeological study

7.1 Introduction

This chapter builds on the history of Japanese pearling in the Northern Territory by focusing specifically on the *Sanyo Maru*, which sank off the Arnhem Land coast in July 1937. The previous chapter described the ship's construction, ownership and its role as a carrier. This chapter examines the history of its sinking and salvage and presents the analysis and findings of the archaeological survey and excavation program. As concluded previously, most of the historic records on Japanese pearling operations, particularly the use of carriers, is now lost. The archaeology of this shipwreck therefore provides a significant response to a gap in knowledge. Furthermore, as the previous chapter confirmed that the *Sanyo Maru* was designed and built to serve as a general carrier and not specific to pearling, archaeological findings provide insight both into pearling and to other historic Japanese industries.

This chapter begins by assessing the significance of the ship's sinking and the goals of the Japanese salvors. It then explores the class of ship the *Sanyo Maru* was, based on the archaeology and comparative ships plans, discussing general ship design, such as the deck, and specific systems and features, such as tanks and hoses. Life aboard for the officers and crew is discussed with the interpretation of compartments in the wreck's cabin and the analysis of material remains. Both excavated artefacts and those recorded *in situ* are considered in artefact analysis. The excavated assemblage is analysed according to location, type and function. A deeper analysis of the decorated porcelain artefacts considers manufacture origins, form, decoration and quality. The methods chapter outlined how the fieldwork was conducted and Appendix M provides a list of related documentation, particularly the fieldwork report which is referenced widely. Appendix B provides information in table form on all excavated artefacts.

7.2 The sinking and historic salvage

7.2.1 The sinking event and its significance

Available accounts of the *Sanyo Maru*'s sinking are limited to Australian newspaper articles, whose sources were pearling crew from other boats returning to Darwin. Nevertheless, these

accounts detail much about the event. One article confirmed that on the 1 July 1937 the *Sanyo Maru*, carrying ‘at least 300 ton of shell’, and about 20 men, made up of crew and a few sick divers, sank in a squall north of Bouchaut Bay, Arnhem Land (SMH, 10/07/1937, pp17). One of the injured divers and the ship’s purser drowned. The survivors were rescued by Japanese lugger crews in the vicinity.

The same account also provides insight about the ship’s schedule and function. It states the ship had been at the Japanese pearling anchorage for a week, before setting out on its voyage back to Palau on 1 July 1937. That means it arrived on June 24, during a full moon and the peak of the spring tides, when diving operations would have ceased (Papuan Courier, 18/06/1937, p. 7). July 1, the day of departure saw a quarter moon, the neap tides, when diving operations would be underway. This schedule, shows that the *Sanyo Maru* arrived at the anchorage at the beginning of the rest period and departed when diving work recommenced. This further confirms that its primary role was as a carrier not a mothership, the latter of which would stay with the fleet in a supervisory capacity during dive operations.

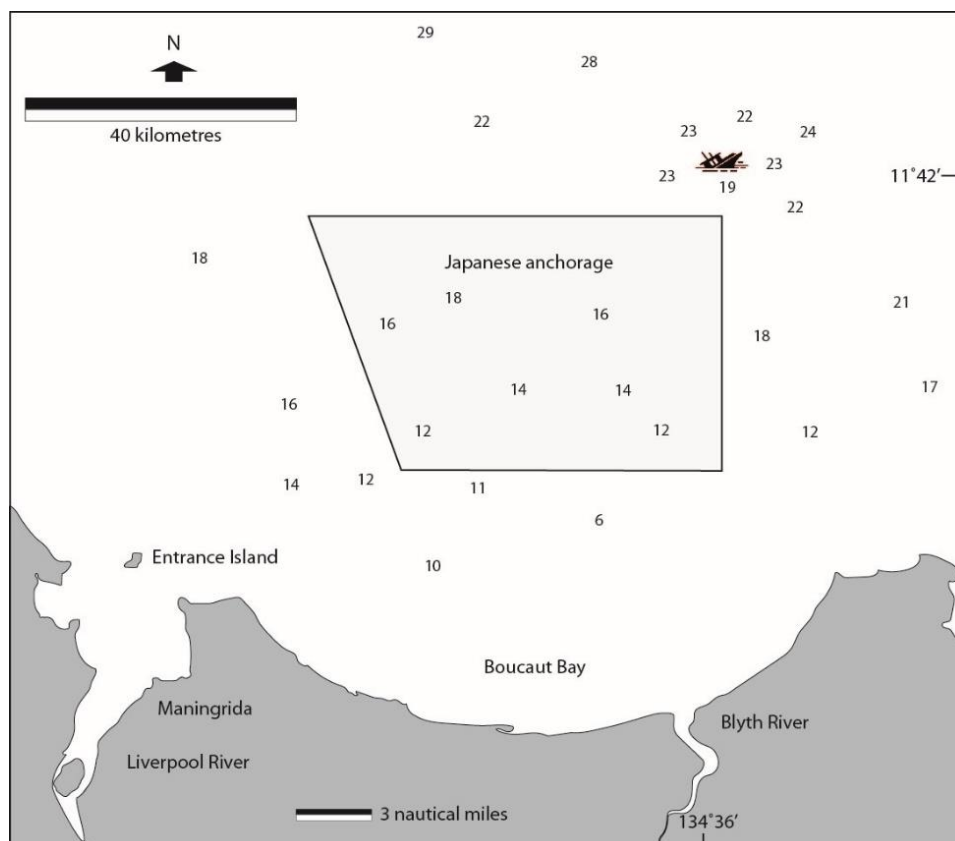


Figure 37. Location of the *Sanyo Maru* and the historic Japanese anchorage, based on chart AUS 718, with anchorage based on Haultain (1971 back inside back). Depths provided in metres (LAT), and 3 nautical mile scale illustrates extent of territorial waters

This was the largest ship in the fleet at that time, and its sinking was a great loss. One Australian newspaper described the ship as the ‘newest and largest all-steel Japanese mother-ship’ and that its sinking constituted the ‘most severe blow ever suffered by Japanese pearlers working the grounds off the Australian coast’ (SMH, 10/07/1937, pp17). The irony behind Australian accounts of the sinking was that Australian journalists and authorities did not know a ship of this scale was even operating off the Australian coast.

The ship was said to have sunk in a squall. The Patrol Service was near the anchorage, watching the sea from the Liverpool River, and reported to Darwin by telegram that the ‘weather was dangerous out here’ NAA, F1,1937/600, Haultain 7/7/1937). The ship was described as having rolled from side to side, with the cargo shifting unsecured (Examiner, 10/07/1937, p 8). The captain was said to have been trying to bring the ship around to meet the waves, and in that attempt may have caught a wave or swell side-on (SMH, 10/07/1937, p17). What is most striking in the accounts of the sinking, is that although there were over 140 other boats in the vicinity, all considerably smaller, no other vessels were reported to have sunk. Therefore, contributory factors specific to the ship played a significant role.

The cargo was the major reason why the ship sank. Japanese government records confirm that the cargo of harvested shell weighed 240 tons, and there was an additional 100 tons of further unspecified cargo, making a total of 340 tons (DAMFA, E4909005). The ship had a net tonnage between 175 tons and 189 tons, depending on sources, with net tonnage commonly used as a measure of cargo weight capacity. Net tonnage is not a precise measure because the calculations consider space as well as weight, but it remains a reliable broad guide, and so confirms that the ship was heavily overloaded. Australian newspapers generally attributed the sinking of the ship to being overloaded (Examiner, 10/07/1937, pp 8). The Sydney Morning Herald also put a value on the shell at £42,000, and the ship’s worth at £58,000 (SMH, 10/07/1937, pp17).

The role of the cargo in the ship’s sinking is further understood from inspections of the shipwreck itself, and what were then industry standards in cargo storage. Field inspections confirm the ship had a single cargo hold, which at the time would have been full of shell. Kiyoshi explains the practice was for each ton of shell to be packed into 16 hemp bags or 89 wooden boxes (1952). The historic footage of the *Kokoku Maru* suggests the fleets were using hemp bags (Tachibana, 1937). This meant 240 tons of shell would have been packed into 3,840 hemp bags. The *Sanyo Maru*’s hold would have been full, with the rest strapped to the deck

contributing to the ship being top-heavy. Storage of cargo on the deck and not in the hold can be a hazard to ship safety (R. Thomas, 1937, p. 125). Furthermore, hemp is highly absorbent, and once wet by waves crashing onto the deck and sea spray, would have added substantially to the dead-weight of the cargo.

Other factors beyond the pearl shell cargo had compromised the ship's seaworthiness. There was an additional 100 tons of general cargo that had to be stored. Furthermore, archaeological inspections identified four liquid storage tanks below deck, visible from the hold. These may have been near empty when the ship departed the anchorage on its final voyage, with the crew having replenished the fleets stocks of fuel and/or water. These factors would have added to the ship being top heavy and unstable.

The primary insight into the ship sinking, for the purpose of this research, was that although it was the largest carrier in the fleet, it was not able to safely transport the huge amount of shell being harvested. Taking the cargo provided the shell for market, which was the very purpose of the industry, and it emptied the holds of the working luggers, so they could harvest more. Despite having the largest cargo capacity, it was heavily, dangerously, overloaded. It was a victim of what was the rush to harvest shell, precipitated by a bottleneck in the transport of the harvest. This was recognised by management, with the arrival of the far larger *Shinyo Maru* the following season.

Australian journalists reporting on the sinking also made a connection with the court cases underway in Darwin, concerning Japanese pearlers trespassing into territorial waters. Some had suggested the Captain may have been reluctant to seek shelter inshore, fearing prosecution for entering territorial waters (SMH, 10/07/1937, pp17). If true this means Australia's strict policies on territorial maritime borders had fatal consequences. It is also fair to consider that if the Japanese had been permitted to land supplies and cache their harvest on shore, as they had originally requested, then the Captain would not have been under pressure to take on so much cargo. Consequently, there is an argument that the tragedy can be linked to both the unprecedented scale of the harvest, and the territorialism of the Australian government.

7.2.2 Historic salvage by the Japanese

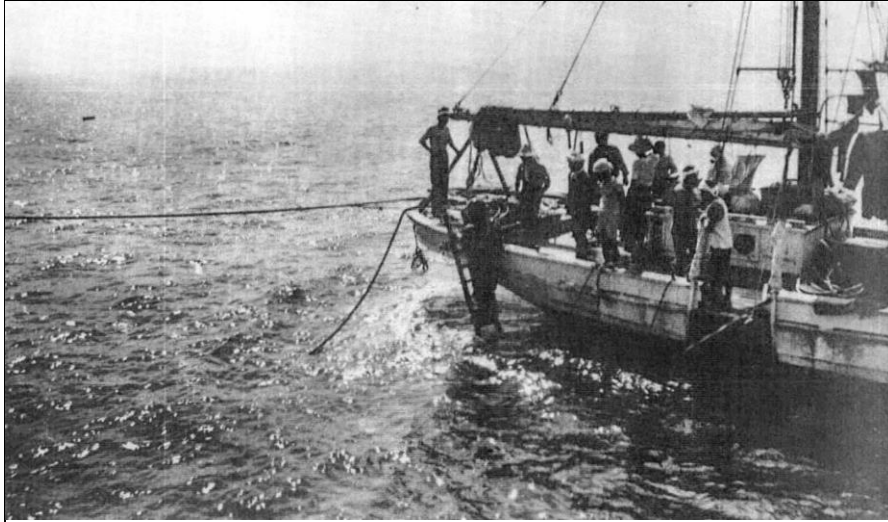
The shipwreck was visited and salvaged by the Japanese in July and then again in November of 1937. The first phase was an immediate response, prioritising the recovery of the harvested

shell, using re-tasked pearling crews. The second phase was a more planned process involving a specialised salvage ship sent from Japan to recover the *Sanyo Maru*. The Murakami Kaiji Works of Japan were contracted to do the salvage and recovery in November 1937 (DAMFA, E4909005). The *Bishu Maru* of 180 tons, with a crew of 69 and captained by Yahei Kawahara would conduct the work, assisted by two luggers from the fleet (DAMFA, E4909005).

The initial salvage work consisted of two days of work possibly from July 10-12 (Advertiser, 13/07/1937, p. 21; Argus, 13/07/1937, p. 9). The salvage team was made up of 12 luggers each providing three divers, constituting an overall dive team of 36 divers (Advertiser, 13/07/1937, p. 21). The *Dai-ichi Tora Maru* a steel cargo ship was also sent from the Dutch East Indies, most likely to collect the salvaged shell (Townsville Daily Bulletin, 14/09/1937, p. 12). The *Dai-ichi Tora Maru* was a 438 ton ship that served Japanese enterprises in east Borneo and the southern Moluccas (Dick, 1989, p. 257).

The luggers would have worked the wreck in shifts. Divers were described as lifting hatches and recovering both bagged and loose shell (Advertiser, 13/07/1937, p. 21). The body of the injured diver was recovered, but the body of the purser was not. It is unknown what happened to the recovered remains, but there is no record of a request to bury him on the Australian mainland. The body of another diver who died off Arnhem Land in August of 1937 was taken back to Dobo, so it can be concluded that shipping bodies north on luggers was certainly done (Townsville Daily Bulletin, 14/09/1937, p. 12). An article stated that the 'more valuable fittings' were stripped, but these were not listed (Advertiser, 13/07/1937, p. 21).

Nick Kamper, a customs officer for the Patrol Service was assigned to supervise the November work and his short daily log provides certain details (NAA F1 1939/420, Kamper). The two luggers assisting the *Bishu Maru* were the *Tokyo Maru No. 2* and *Tokyo Maru No. 3*, both Tange owned. Dragging operations to snag (locate) the wreck began on November 2 1937. This work continued, with the wreck finally snagged and located on the 15th of November, 13 days later. Diving operations commenced on November 20, 142 days after its sinking. On that first day, diving started at 0600 hrs but ceased at 0900 as the current was deemed too strong. Diving recommenced at 1500 but ceased after only one hour, probably for the same reason. Diving operations continued for nine days with the last day of diving on November 29.



**Figure 38. *Tokyo Maru No.2* anchored over the wreck during salvage
(Haultain 1971: pages 200-201)**

According to Kamper's log over those nine days approximately eight hours of diving each day were completed (NAA F1 1939/420, Kamper). Divers were tasked with salvaging goods and preparing the wreck for recovery. On the afternoon November 29, gear was packed up in preparation of a storm that rolled in that evening. At 0400 the next morning, they departed the site altogether. The diplomatic records confirm that the salvage team had missed the calm doldrums, and the storm season had begun (DAMFA, E4909005). The sea conditions were rough and probably deemed unsafe. The recovery was postponed for the following year, but they never returned.

Kamper did not provide an inventory of what was recovered, but made brief notes in his log. Ship papers and over 500 yen were recovered from the Captain's cabin, confirming the cabin survived the sinking event. Chains, anchors and a winch were recovered as was a motorboat, stripped of the engine and metal, and the hull sunk. On 20th and 22th of November, 'general cargo' was recovered, although Kamper did not qualify what this was. The cargo salvaged on November 22 was described as spoilt but the cargo recovered on November 20 was not. Divers reported that the work was difficult owing to broken boxes, bad visibility and strong tides. The 'boxes' may have been empty boxes of supplies that had been distributed to the fleet. A postscript to the salvage was that a boat was reported to have been found floating by Aboriginal people, and was used by the officers at the Control Station at King River (Wilcox 2006:25).

Although the ship was not refloated, the plan for its recovery provides further historical insight. It confirms that the *Sanyo Maru* was considered valuable enough as an asset to attempt to

recover, despite the cost and logistical hurdles. Secondly it suggests the ship was intact enough to be lifted from the seabed and towed. Japanese diplomatic records confirm that the plan was for the *Bishu Maru* to be positioned over the wreck, and then connected to the sunken ship by a harness and cables (DAMFA, E4909005). The wreck would be slowly winched off the sea floor, with air pumped into the ballast tanks to assist buoyancy. Both ships would be towed by luggers to shallow waters in the Liverpool River where the wrecked ship would be repaired sufficiently to then be towed by the *Bishu Maru* to either Palau or Japan. Earlier plans to beach the ship on Entrance Island were abandoned in favour of the Liverpool River.

The recovery of items and the plan to refloat the ship were processes that contributed to site formation. The recovery of the shell cargo as a priority in July of 1937 made it unlikely evidence of the harvest would be found during archaeological inspections. The plan to recover the ship would have established particular goals for November 1937. The salvors would be interested in removing dead weight to assist in the lifting, but were also aware that once the recovered ship had been beached at the Liverpool River, deadweight could be removed more easily and safely. Items that would have value as salvage, such as the brass propeller, were untouched, because the plan was for the ship to eventually be operational again. This was why the propeller was recorded *in situ* in 2012 despite a history of salvage (D. Steinberg, 2013).

7.3 Shipwreck overview and site formation

The *Sanyo Maru* lies 30 km off the coast, sits upright on the seafloor at a depth of 28 metres (tide dependant) with its bow facing east (100° bearing). The hull is mainly intact, with the main deck four metres off the seafloor. The seafloor is made up of a composite of coarse sand, a fine silty sediment and broken shell. In the vicinity of the wreck the seafloor is flat and barren with a few scattered boulders. The rudder and propeller are clear off the bottom rather than buried, meaning the shipwreck sits high in the sediment rather than settled down into it.

Comparisons with the historic photograph of its sister ship, *Fukuyei Maru No.8*, show that a wheelhouse and captain's cabin once sat above the poop (aft) deck, but these are now gone. The poop deck remains mainly intact, but much of the deck plating that made up its floor is gone exposing the deck beams (framing) and the internal space below. These beams are considerably degraded and many have broken away. The historic photographs of the *Fukuyei Maru No.8* and *Fukuyei Maru No.6*, the latter taken at a different angle, suggests that like them

the *Sanyo Maru* had a frame that held a canvas type awning forming a roof for the poop deck, but did not have a stern house of steel or wood (Kaiyunsho Kisen Hyo). Despite the loss of some features from the poop deck, surviving mechanical features such as the steering gear, the base of the smoke stack and bank of batteries provide insight to ship design and operations.

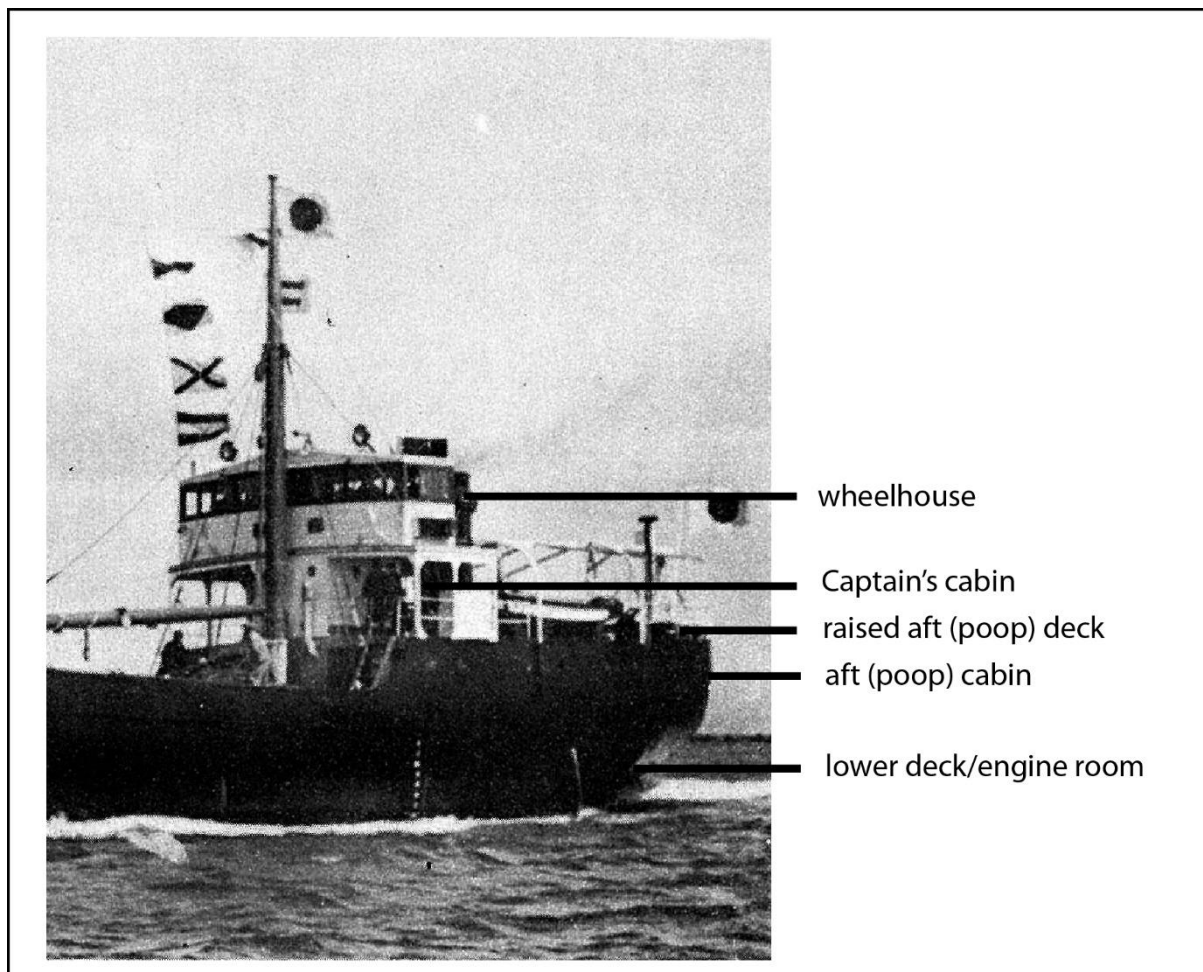


Figure 39.The stern of the sister-ship *Fukuyei Maru No. 8*.
Site inspections prove the wheelhouse and captain's cabin of the *Sanyo Maru* are now gone.
The aft (poop) cabin is level with the main deck and is located underneath the raised aft (poop) deck.
(Kaiyunsho Kisen Hyo)

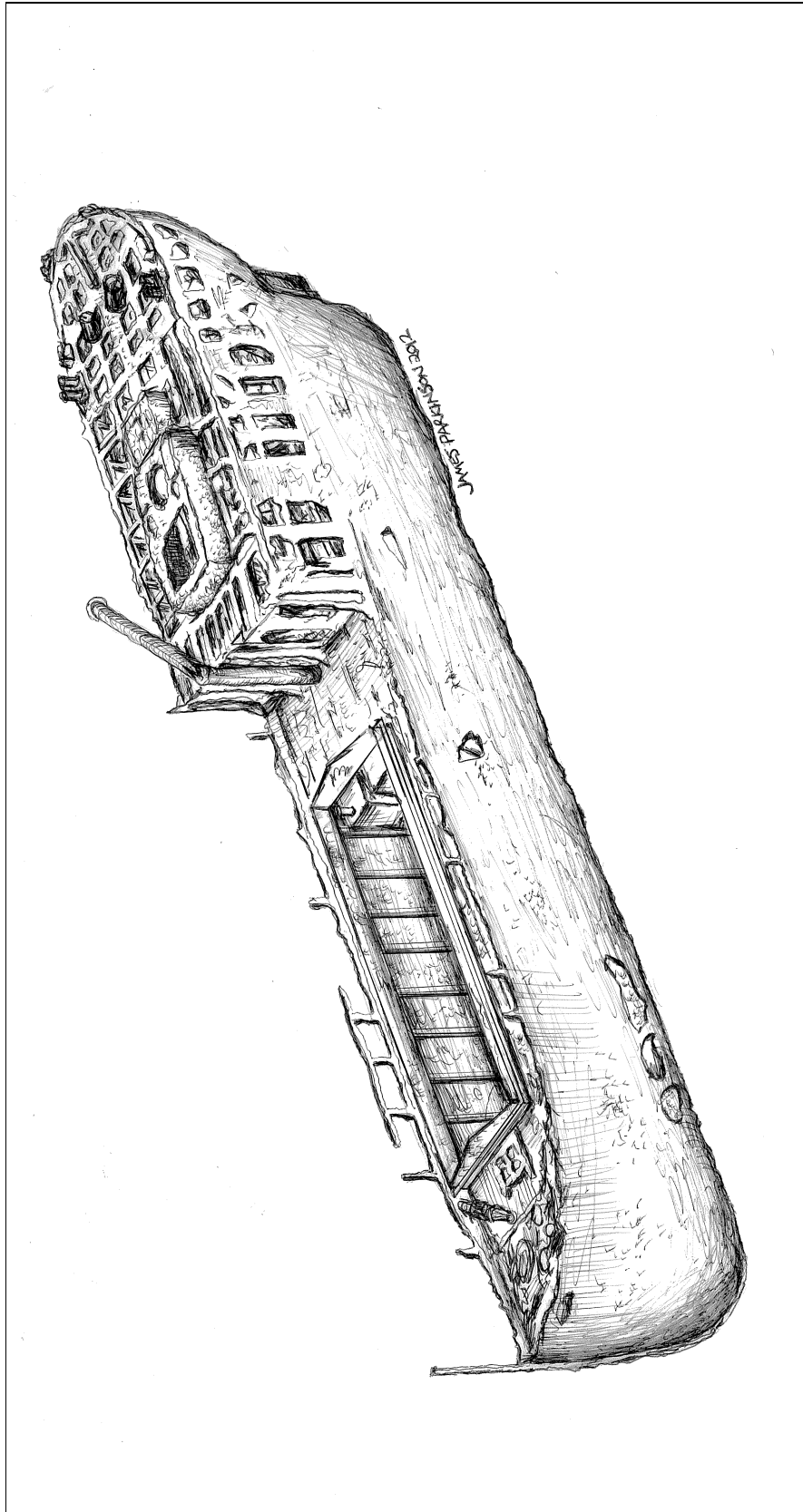


Figure 40. Site sketch by James Parkinson, drawn in the field in 2012

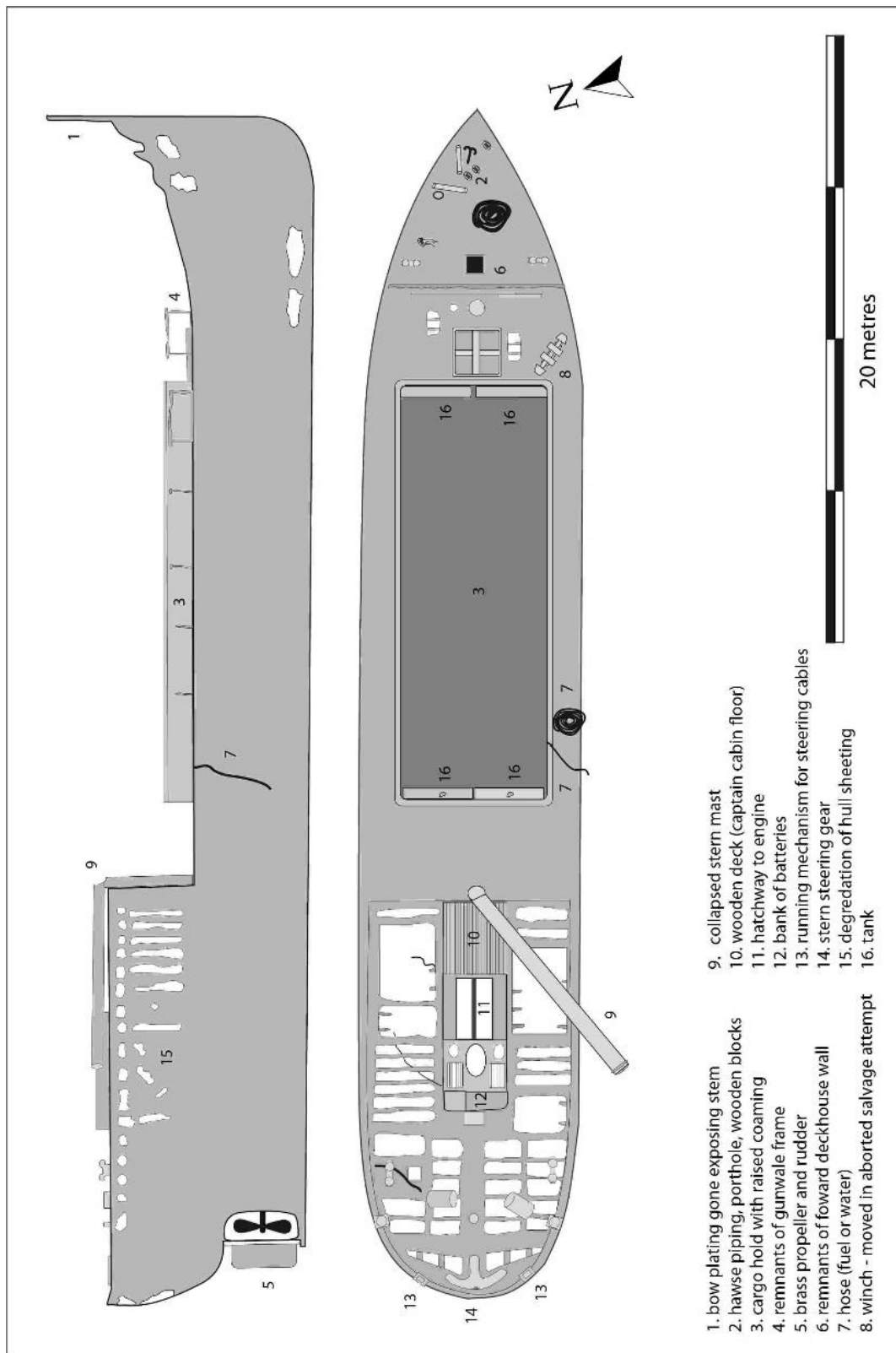


Figure 41. Site plan, based on 2012 survey results
 Chapter 3 addresses the reason the wreck is depicted in 2D

Chapter 3 discussed site formation generally, and listed three processes that impacted on the recording and understanding of the cabin of the wreck. These factors were: the concealment of some surfaces by biological growth and concretion; loss of wooden partitions and furnishings through abrasion and biological attack; and sedimentation. This chapter draws on archaeological evidence from the cabin and the wreck more generally. The table below provides a list of site formation processes, and their impacts to archaeological enquiry.

Table 10. Site formation processes and impact on archaeological enquiry

Process	Impact on archaeological enquiry
Salvage by Japanese divers in 1937	Removed the shell cargo and removed unknown amount of other cargo, ship stores and equipment.
High mechanical disturbance by episodic cyclonic activity	Likely caused loss of wheelhouse, captain's cabin, forward deck house (forecastle) and poop deck features. Likely contributed to hull plating loss on remaining structure. May have contributed to loss of water tight doors to the aft cabin.
Diver fossicking between 2012-2016	Unknown level of impact, which did include removal of artefacts recorded in 2012 and not found again in 2016.
Biological attack of wooden partitioning in the cabin space	Loss of wooden walls demarcating spaces within the cabin. Deposition of wall and door fixtures.
Biological attack of wooden furnishings	Loss of furnishing, contents spillage and damage
Sedimentation accretion in parts of the cabin	Sedimentation in the starboard side of the cabin has buried remanent of room partitioning and assemblage.
Corrosion of hull structure	Contributing factor to the loss of major structures during cyclonic events. Corroded structure falling into cabin scrambling elements.
Biological growth and concretion on surfaces	Surface detail for archaeological recording and identification obscured
Exposure of cabin to outside environment from loss of cabin hull plating.	Increase in corrosion rate and mechanical scrambling from water movement generated by tide and storms. Damage can include artefact removal (extraction) through gaps.
Mechanical interference by large school of wobbegong sharks observed on site. Resting sharks use tail action to launch and move.	Mechanical scrambling and damage of fragile material.

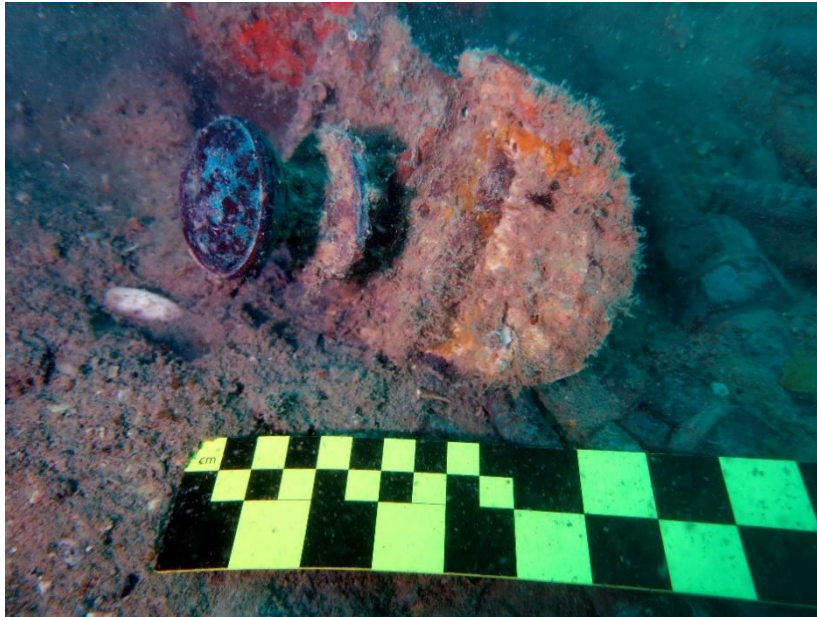


Figure 42. A brass door knob lying on the cabin floor in Unit 02, deposited following the loss of a wooden door.

Cyclones merit further discussion because they likely had considerable impact on the site. Cyclones are episodic and powerful. The wreck sits in 28 metres of water, and therefore is not directly exposed to winds or seas, however cyclones can also cause tremendous force within the water column. Remotely Operated Vehicle (ROV) footage shot by the Royal Australian Navy in 2001 shows structural frames associated with the captain's cabin (copy NT Heritage Branch records). This framing also made up the floor joists of the wheelhouse above the cabin. In the footage a central post emerges vertically from the wheelhouse floor, and may have been the assembly that held the ship's wheel or the binnacle (compass). The steel stern mast is upright. In contrast the 2012 archaeological diver survey confirmed that the Captain's cabin framing was gone altogether, as was the central post, and the stern mast lay horizontally across the deck. The site had undergone considerable deterioration between 2001 and 2012.

There was further evidence of change. The 2001 footage showed the poop deck with various features that were absent by 2012. This included a metal cover over the bank of batteries, a rectangular air vent that led to the crew space below, and a tall post associated with the steering mechanism. Inspection of the cabin space below the poop deck shows that little of this poop deck material had fallen down into the cabin, but had been taken off the wreck altogether. Diver searches on the seabed in the immediate vicinity of the wreck in 2012 and 2016 found some unidentified structure.

Although not recorded in the 2001 footage, as the ROV stayed by the stern, historic images of *Fukuyei Maru No.8* and *Fukuyei Maru No.6* suggest that the *Sanyo Maru* had a forward cabin up against the bow. Ship plans for similar ships show these were common-place and used for storage or crew quarters (Cundall, 2019). The remnant of walling and a porthole recorded in 2012 also support the proposal that a forward cabin once existed. This may have been lost as part of the wrecking event and/or post-depositional cyclonic activity.

A succession of cyclones over multiple seasons may have caused many changes, the process assisted by a structure weakened through corrosion. In March 2005 Cyclone Ingrid tracked directly over the site, and was at that point a ‘Category 5’ cyclone, the most destructive rating on the scale (<http://www.bom.gov.au/cyclone/history/ingrid.shtml>, viewed 16/8/2020). This event fits between the 2001 ROV survey and the 2012 diver inspection and may explain many of the differences.

7.4 The archaeology of the ship

7.4.1 Ship type and function

The previous chapters drew on historical evidence and confirmed that the *Sanyo Maru* was a small generic cargo ship, and not a purpose-built pearling mothership. But it was the archaeology, not the historical evidence, that first challenged the assumption that it was a purpose-built mothership. It was questions raised during the fieldwork, recording the design of the ship as it appeared, and post-fieldwork analysis, that directed the historical research, which led to these conclusions. From physical inspections the ship proved to be more box shaped and simply designed than the curved lines of pearling motherships depicted in historical photographs. The *Kokoku Maru* and the *Asahi Maru* were purpose built as motherships for the pearling industry and only a few years from the *Sanyo Maru*. A comparison of them against the archaeology of the wreck emphasises the difference in design.

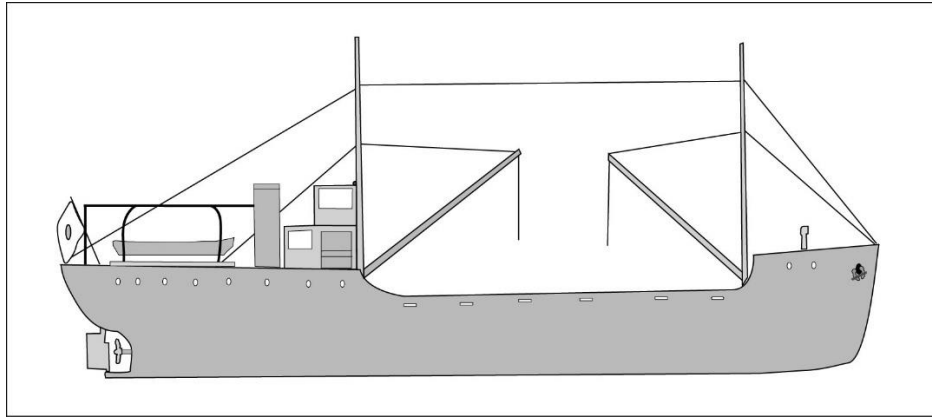


Figure 43. A simplified but useful profile of the *Sanyo Maru* based on the archaeology, an historic photograph of the *Fukuyei Maru No.8*, and ship plans of similar Japanese merchant vessels

Differences in design were identified in a comparison between the shipwreck, as recorded by diving archaeologists, and historic images of pearling motherships from the fleets. The wreck has a simple raked bow, not a curved bow, and though it had a curved counter stern like motherships, in comparison it did not protrude significantly. The 2012 survey results show that the *Sanyo Maru's* deckhouse was positioned further aft along the deck than the deckhouses seen on the motherships, and that most of the forward deck space on the wreck was taken up by a single cargo hold. The motherships had smaller holds in proportion to the length of the deck, creating more deck space. They also had a large open aired deck, aft of the deckhouse with a canopy but no walls. The *Sanyo Maru* also had an aft deck but not of the same scale. These preferences in the design of motherships related to cargo storage and climate.

Both the *Kokoku Maru* and the *Asahi Maru*, two purpose-built motherships, stored large amounts of cargo on the deck, particularly in preparation for offloading to the fleet at anchorage. Historic footage of the *Kokoku Maru* shows that items were stored both in front and behind the wheelhouse (Tachibana, 1937). Boxes and fuel drums are seen stored on the deck on the voyage to the fleet, and bags of pearl shell and fuel drums were stored on the deck for the voyage home. The storage of supplies for the fleet on the forward deck of the *Asahi Maru* is shown below.

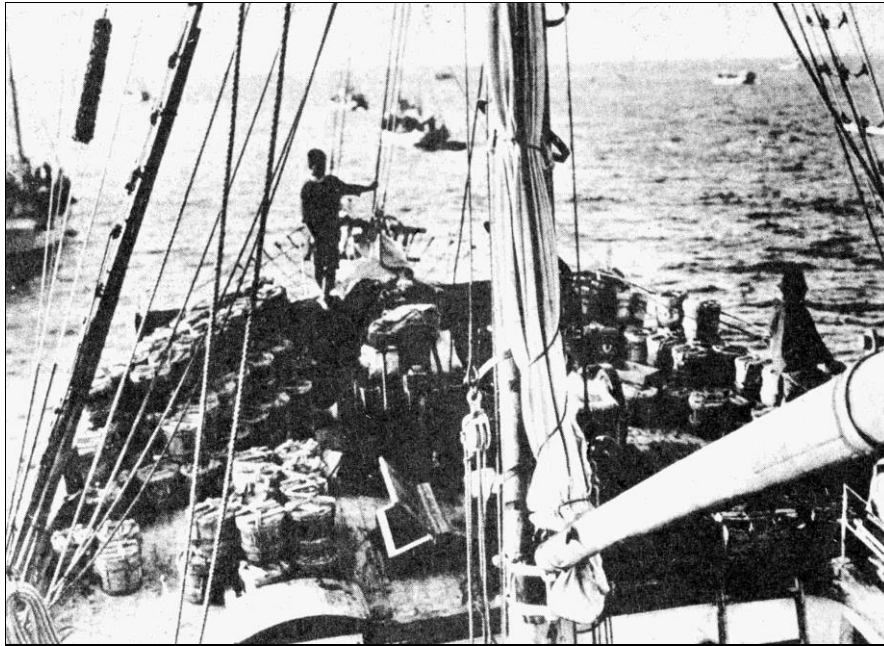


Figure 44. Small round wooden containers to be offloaded from the foredeck of the *Ashai Maru* to luggers
The Argus supplement 6/8/1938

Cargo storage on the motherships showed a preference for two practices; break-bulk storage, and deck storage over hold storage. Break-bulk freight is shipped in its individual parcels and shapes such as sacks, boxes and crates (Vigarié, 1999). In the Japanese pearling industry this included, as shown in this research, round wooden parcels, fuel drums and bunches of kindling. In short, the freight is broken or divided and stored by type. Furthermore, evidence from the *Kokoku Maru* and *Asahi Maru* shows that a lot of cargo was stored by type on the deck. All this goes to their purpose to supply and service a fleet of individual small luggers at anchorage.

The storage of material by type on the deck facilitated two processes. First it provided multiple locations on the deck to offload specific cargoes. For example, lugger crews wanting certain food parcels went alongside where that item was stored. The second process was the tally by the purser. Break-bulk storage allowed the purser to more easily account for how much of each type of supply was offloaded and to which boat. This provides further depth and explanation to journalist Southwell-Keely's analogy that motherships at anchorage were like miniature emporiums (Southwell-Keely, 1938). They resembled emporiums both because they provided a wide variety of goods, but also because these goods were displayed by type.

In contrast a generic cargo ship like the *Sanyo Maru* was built to stow general cargo in the hold and if necessary, in the cabin. The limited deck space meant stowage on the deck may be done as a necessity, but not by design. Generic cargo ships like the *Sanyo Maru* were predominately

built to ship from port to port, with a minimum amount of time spent loading and unloading, a factor referred to as 'port speed' (R. Thomas, 1937, p. 4; Vigarié, 1999, p. 4). Unloading techniques may have been adapted to suit the job of servicing the pearling fleet, but this was not reflected in the ships' design.

The purpose-built pearling ships were also built for tropical conditions. Greater deck space, covered with awning but open to the breeze allowed crews to comfortably be on deck. In contrast, generic cargo ships like the *Sanyo Maru* were built to operate in a variety of climates including temperate waters where crew would shelter inside from cold winds and rain. The needs of the crews in different climates were therefore a factor in design.

The ships also differed in how they provided fuel and water to the crews. Four liquid storage tanks were recorded protruding inside the hold of the wreck (figure 40). In close proximity were large rubber hoses with metal couplings (figure 40). This may have been how the *Sanyo Maru* provided fuel and/or water. Tsudani confirms that steel fish-carriers (a job classification proved earlier to be associated with the *Sanyo Maru*) had separate tanks to resupply their fleets (1977). Chapter 6 showed the offloading of fuel drums from the *Kokoku Maru*, demonstrating how it supplied fuel. No drums were located on the wreck of the *Sanyo Maru*. If they once existed, they may have been thrown from the wreck during the sinking event, but there was no evidence on the immediate surrounding seafloor. The *Sanyo Maru* may not have supplied fuel in drums but rather did so directly from its tanks.

Another significant difference in ship type are the stern hatches which were built into motherships in order to facilitate easy unloading to multiple luggers, a functional design that traded off hull integrity. Looking for this feature on the wreck, degraded hull plating first gave the impression of hatches, an idea further reinforced by broken ceramic found on the seafloor beneath. However careful inspection showed these are degraded parts of hull plating, and the *Sanyo Maru* did not have these hatches. This initial misinterpretation goes to the risk of assumptions based on the historic record only, and the importance of understanding site formation in shipwreck archaeology.

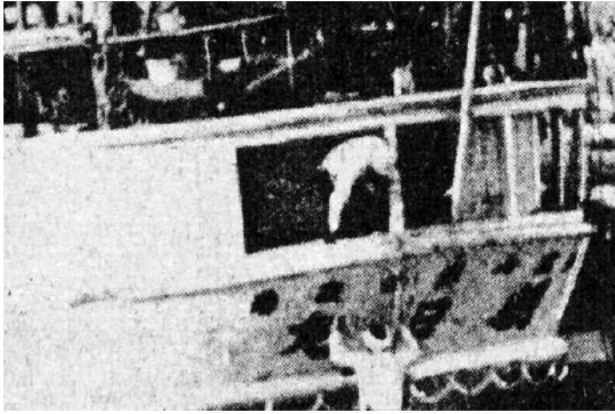


Figure 45. Stern hatches used on the *Asahi Maru* for unloading
Argus (Melbourne) 6/8/1938
High resolution sourced National Library of Australia



Figure 46. Gaps in hull plating at the stern of the wreck mimic hatches. 2012

Again, as stated earlier, it was site inspections, and the archaeology of the wreck, that raised questions about ship comparison. This process directed historical research and led to a greater understanding of carriers and motherships, how the pearling system operated, and its links to other Japanese marine industries.

7.4.2 Compartments, fixtures and life aboard

As outlined in Chapter 3 there was a focus on the archaeology of the cabin space, and within that focus, a field strategy of identifying spatial compartments as separate archaeological units. The poop cabin plan shows these designations and names the galley (kitchen), bath and engine space, because these have been identified with a particularly high degree of certainty. Other units have been identified as likely, with a medium level of certainty, and others again can be suggested but with only limited certainty. As earlier stated, factors that limited the interpretation of spaces included that internal walls were gone, surfaces were concealed by biological fouling and concretion, and some units had sediment deposits that hid floors and features. Sediment burial was a factor in Units 06, 09 and U12. The consequence is that the site plan lacks detail in some areas, showing these as blank spaces. This does not mean that these spaces were necessarily sterile. A more detailed description is provided in the wreck inspection report also by the author (D. Steinberg, 2017).

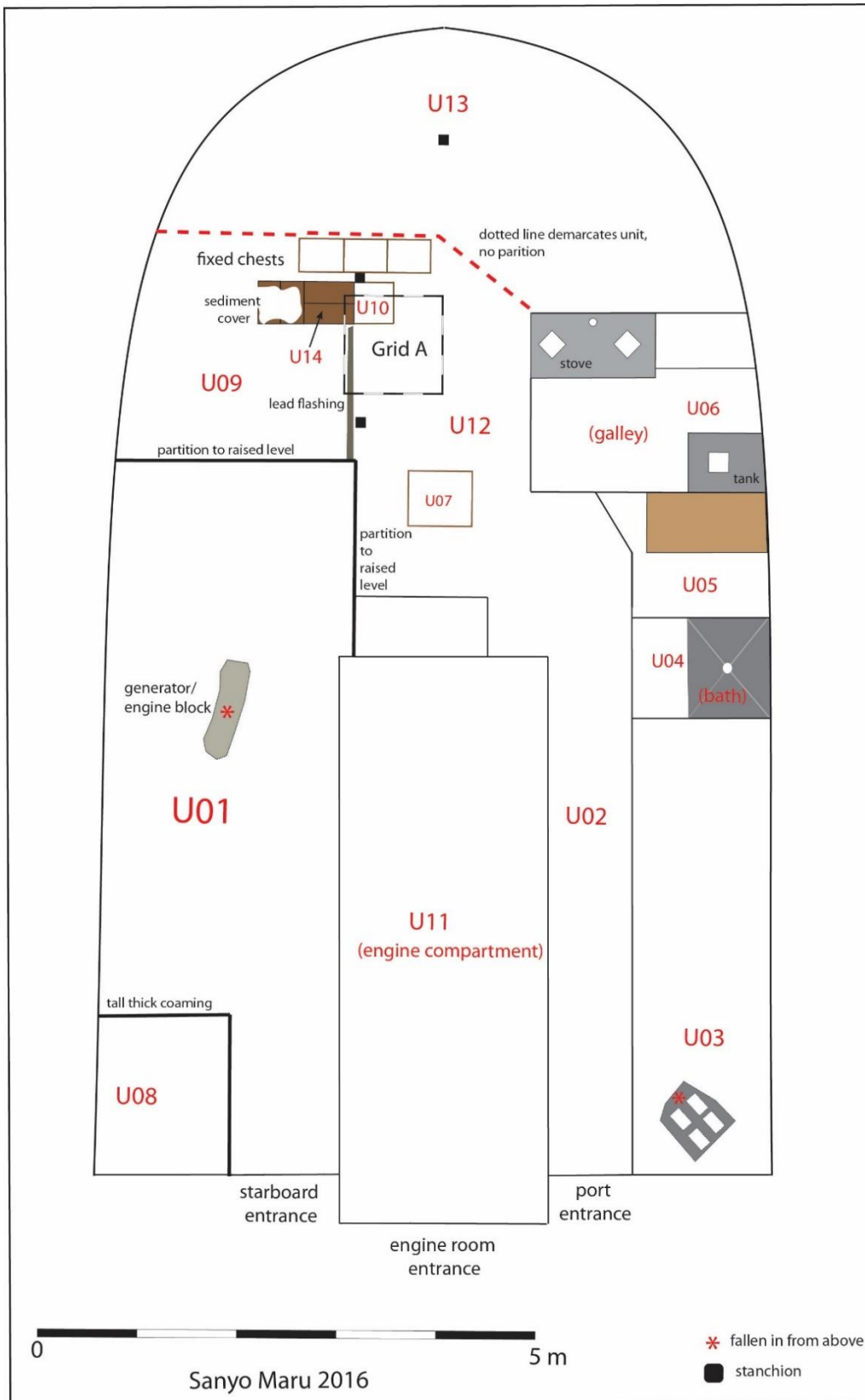


Figure 47. Aft (poop) cabin plan focusing on archaeological units and major features
 Blanks spaces do not necessarily indicate sterile areas
 Drawn in field by C. Corneous, reworked by the author

Although ship plans specifically of the *Sanyo Maru* and its sister ships were not located, and are likely lost forever, plans of similarly designed Japanese merchant ships provide compelling evidence for the layout of the poop cabin space and the location and use of specific compartments. Multiple ship plans of similar Japanese merchant ships divide the cabin in the same way as the *Sanyo Maru* appeared (Cundall, 2019). This consisted of a rectangular space in the middle of the cabin forming the engine casing, a passageway on either side of the casing, a series of rooms down the sides of the cabin, then an opening into a wider space at the end.

Turning to specific compartments, it is probable that Unit 03 was a saloon (officers or crew mess). One ship plan, depicting a Japanese cargo ship of similar layout, has a saloon in the same location and of the same dimensions [170 kinzan, NK1189/ship no. 60] (Cundall, 2019). This plan is reproduced as Appendix F. Further evidence for Unit 03 being a saloon was that in 2016 a porcelain teacup and a plate, evidence of tableware, were recorded in Unit 03 (D. Steinberg, 2017). This was also a logical location for a saloon, being close to the open deck providing for easy entrance and exit. A large metal feature located in Unit 03, not identified due to concretion obscuring its surface, originated from the poop deck above, falling after disintegration of the roof. It is therefore unrelated to the use of this space.

The same historical ship plan shows compartments down either side of the hull opposite the central engine casing. These are designated as the galley (kitchen), bath, toilet, store and individual quarters for officers. Unit 06 was immediately identified as the galley, having a stove and water tank. The stove has two diamond shaped stove top holes, no oven and a hollow centre for burning fuel (D. Steinberg, 2017). This kind of stove is called a *kamado* (Ishige, 2011, p.199). Concreted to the side was a metal pot and bowl. Unit 04 is divided into two connected spaces; the first a small open space and behind it a raised rectangular iron pan that slopes to a central drain (D. Steinberg, 2017). Though labelled a bath, this feature may have worked as a bucket shower.

A plan of a 1935 Japanese merchant ship of 302 tons, very similar to the *Sanyo Maru* in age, tonnage and design, has half of the cabin dedicated to cargo [39 Taka, taika maru, NK448, no.14] (Cundall, 2019). It is probable that on at least this final voyage, some of the cabin was used to store cargo. At the entrance to Unit 01 from the main deck, beverage bottles and dive hose couplings were found scattered, possibly dropped and discarded during the historic salvage. The bottles may have been either cargo or ship stores, but dive equipment was certainly for the fleet. The hose couplings are therefore examples of cargo stored in the cabin.



**Figure 48. Dive hose couplings scattered at the entrance of Unit 01
These tie back directly to the role of the ship carrying dive supplies
and confirm the cabin was used to store cargo**

If cabin space was taken up with cargo aboard the *Sanyo Maru*, then to compensate for the loss crew may have been housed in the small forward deck house (or forecabin). This was certainly a strategy adopted by other Japanese merchant ships when storing cargo in the aft (poop) cabin [Koa3/NK914] (Cundall, 2019). Ship registration details of the *Sanyo Maru* confirm that at the beginning of 1937 the vessel was modified, with a slight increase in net tonnage and crew capacity (Tokyo Transport Branch). It is possible the crew increase was accommodated with modifications to the forward deck house (also known as forecabin), from storage, to storage and crew quarters.

Unit 08 is a small rectangular space positioned close to the open deck with a tall thick coaming around its edges. This was either a storage space or special (precious) cargo locker. Thomas suggests that all merchant ships had secure reinforced cargo lockers for valuable cargo and these were usually positioned close to the officers' quarters (R. Thomas, 1937, p. 38). The tall coaming may represent either reinforcement for security, or waterproofing if used only as a normal storage space. Pearls are classified as special cargo that must be protected from pillage (R. Thomas, 1937, p. 211), and so if Unit 08 was a security locker, pearls may have been stored here.

Part of Unit 01 was likely used to store general and special cargo, but as detailed in multiple ship plans, the cabin also accommodated separate quarters for the officers, and so this may also have been the use of Unit 01. The provision of officer quarters was consistent across the Japanese merchant fleet (Cundall, 2019), and therefore the cabin provided accommodation for at least the First Officer, Chief Engineer and Ship Purser. Ship plans for Japanese merchant ships consistently put these rooms in the area designated in the archaeological survey as U01 (Cundall, 2019). Supporting the interpretation that Unit 01 included officer quarters is the discovery of a calligraphy ink stone and rubber boot, these being recreational and personal clothing (D. Steinberg, 2017).

The cabin had to also have a toilet, and this may have been accommodated within Unit 09. The thick sediment in this part of the cabin made it impossible to confirm with a high degree of certainty, and further disturbance through dredging was not justified. However, a large porcelain washbasin with a copper alloy drain plug was excavated from this unit (SM66) suggesting it was a bathroom. Furthermore, the partition of Unit 09 was covered in lead flashing, which was commonly used for water proofing. It is therefore probable that this area was a toilet.

Unit 13 was the central open space at the stern of the cabin. It measured 5 metres across at its widest point tapering in with the curve of the stern. The floor also rose making it a shorter space towards the stern to accommodate the rudder below. Sediment, concretion and marine growth made understanding the use of this space difficult. Some ship equipment was stored against the backwall including five kerosene lanterns, the largest which was excavated and recovered (SM06) (D. Steinberg, 2017). The harmonica recorded in 2012 was located here (D. Steinberg, 2013). Ship plans of different Japanese merchant ships suggest that this area of the cabin was used for both ship stores and possibly also crew quarters (Cundall, 2019). The lanterns confirm that this space was used for ship stores, but it is only possible, with a moderate degree of certainty, that this also included crew quarters.

Unit 12 is an area of the cabin that had multiple roles. It was a high traffic area, being access points for others spaces. It had fixed storage furnishings, and investigations confirmed ship stores were stored there. Unit 12 may also have been a living space, because some fixed storage furnishings consisted of a raised wooden floor with storage spaces underneath, a design common in traditional Japanese living spaces (Hanley, 1977, p. 56). Here crew may have reclined eating or relaxing, with ship stores stored underneath inside divided compartments.

There is physical evidence that the storage spaces in Unit 12 consisted of both tall storage spaces and low storage spaces (the raised floor).

The storage spaces beneath the raised floor were a focus of the 2016 fieldwork and a small controlled excavation and sampling procedure. Unit 10, a storage space within Unit 12, was fully excavated, and three sample bottles were removed from Unit 14 an adjacent space. A one metre grid, designed Grid A, was positioned partly over Unit 10 and this grid was also excavated. Small isolated items in close proximity to Grid A were collected and these were surveyed into the baselines. Chapter 3 provides an account of the methodology and the 2016 fieldwork report provides further detail (D. Steinberg, 2017). The majority of excavated material came from Unit 10 (see Appendix B).

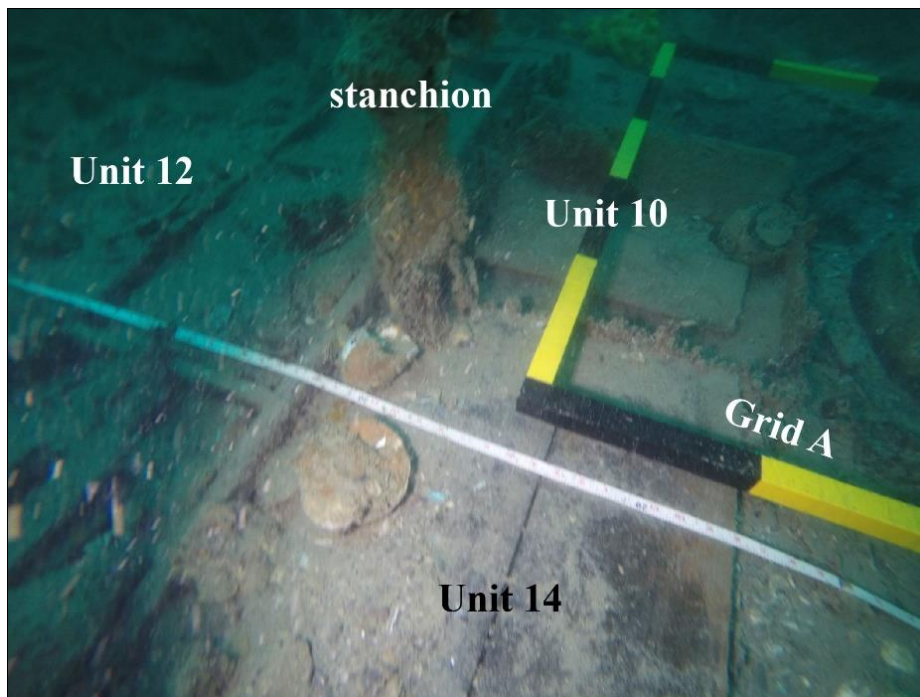


Figure 49. Unit 10 and Unit 14, inbuilt low storage compartments, before their wooden roof planks were removed. The starboard baseline is visible. The stanchion (post) which extends from the floor to the roof had two decorated porcelain bowls fixed to it, showing that a taller storage compartment was once hard up against it.

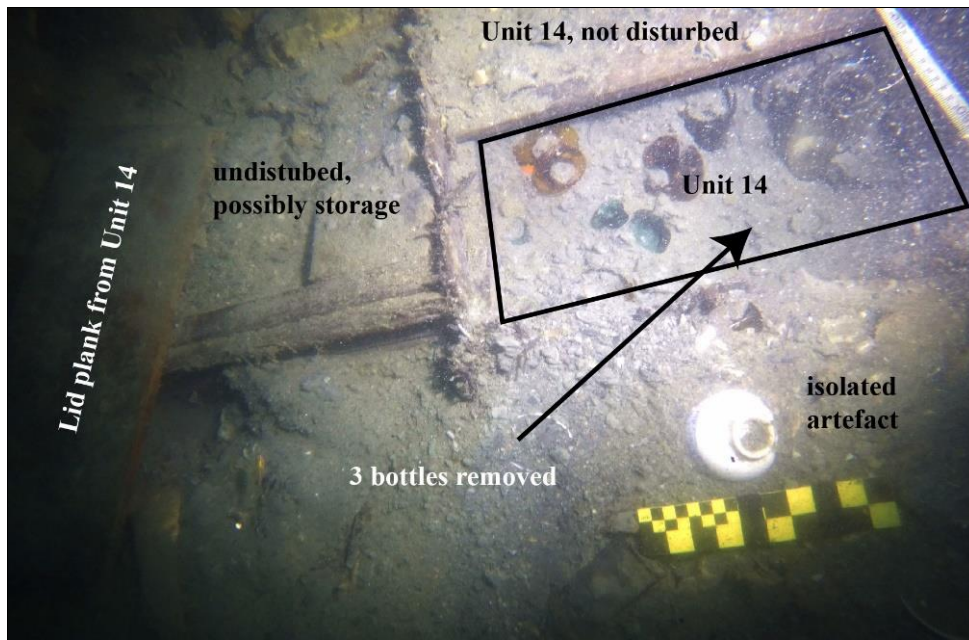


Figure 50. Unit 14 was an inbuilt compartment covered by two planks. The forward plank was removed and three bottles removed as a sample. A deep deposit of fine silt sediment is visible both inside Unit 14 and around it.

The relevance of this focus on Units 10 and 14 to this specific discussion is that these were fixed ship furnishings. This signifies that the artefacts inside were ship stores. If these storage spaces were proved to be movable boxes and not fixed furnishings then that would suggest they housed cargo supplies for the fleet. As ship stores, they provide evidence of life aboard the *Sanyo Maru*. This issue is further examined later in the chapter, in the context of excavated dinnerware.

Like the deck and cargo spaces discussed earlier, the compartments of the cabin reinforce the identification of the *Sanyo Maru* as a merchant cargo ship. The archaeological survey identified spaces that match ship plans of multiple Japanese merchant ships of this class and tonnage. The plans assisted archaeologists to understand the use of space and life-aboard, and reinforce the class of vessel. The storage of cargo and ship stores within the living quarters shows the cramped conditions of life on a small cargo ship. The division of sailors and officers by accommodation was a practice consistent across the Japanese merchant navy, and will be discussed again in the context of meals.

Some features also represent particularly cultural preferences. An inspection of the stove identified it as a kamado, having burners but not an oven. These are commonly used for grilling, smoking, boiling and frying, but not baking. Baking was less common in Japanese cuisine, for

example the preference for rice over bread. The low chests in Unit 12 were used for storage, but may also have served as a sitting platform, common in Japanese living spaces (Hanley, 1977, p. 56). Perhaps crew ate there, and officers ate separately in the saloon, and if not, then these groups would have eaten in the saloon at different times. Senchiro Fujita, who had worked in the Japanese merchant navy for over 60 years, confirmed that the Japanese merchant fleet was extremely hierarchical, and crew and officers would have separate quarters and meals (pers.com Senchiro Fujita 13/4/2020). This was confirmed in other sources including observations aboard a Japanese whaling ship (McCraken, 1948). A bucket bath was a cultural preference in bathing, opposed to the showers generally found in western merchant ships.

7.5 Analysis of the excavated assemblage by material

The chart below divides the 78 excavated artefacts by material type. Of note is that 27 artefacts, or 35%, is porcelain. All the porcelain is tableware, but not all tableware was porcelain, with related artefacts also made of glass, stoneware, metal, lacquer, wood and bakelite.

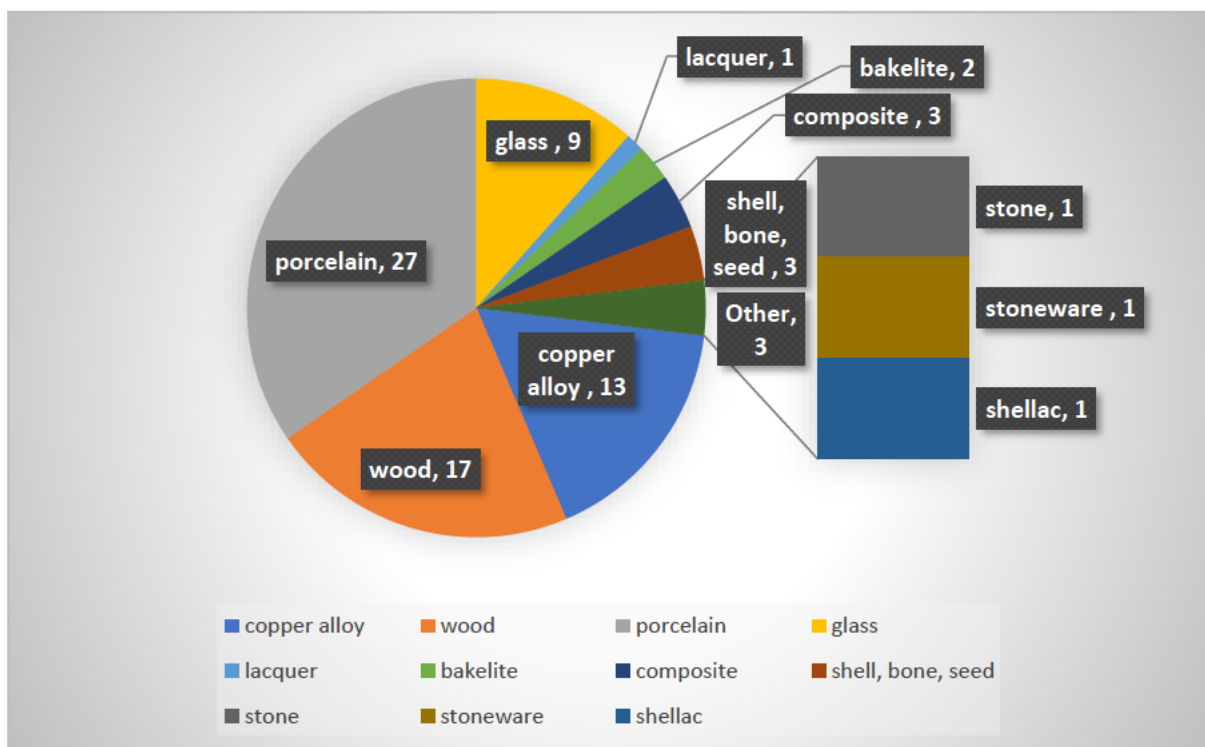


Figure 51. Excavated artefacts divided by material type

7.6 Functional analysis and manufacture markings in excavated and *in situ* material

7.6.1 Introduction and overview

Classifying artefacts by function was a strategy flagged in earlier chapters. With some artefacts, function is self-evident through their form, such as the harmonica, recorded in 2012 but not recovered (D. Steinberg, 2013). In other examples, particularly bottles, embossed markings in combination with form indicate function, such as identifying beverage bottles and different medical bottles. Embossed markings can also identify manufacturers, and interestingly bilingual markings can reflect a product made to serve customers of different nationalities. This theme is explored in the context of Japanese manufacturing and dependency on importation. Similar to the raised floor inside the cabin, some artefacts can only be understood within a Japanese cultural context. Artefact SM22 first appeared to members of the excavation team as a cocktail swizzle stick, but was in fact an ear cleaner, a commonly used hygiene instrument in Japan.

The 78 excavated artefacts were divided between functional groups, with 3 artefacts unassigned. Select artefacts recorded *in situ* are also included in the analysis. These groupings were not based on a predetermined list of functions, but were born out of the investigation itself. If useful to the argument, the unit in which that material was located is specified, otherwise this is detailed in Appendix B. The locations of some items have already been discussed as evidence in identifying compartments. The table below lists the 11 functional groups used in this research, and the graph below that, provides a breakdown of the number and percentage of the excavated assemblage by group.

Table 11. Functional groupings and examples, excavated and recorded *in situ*

Function Groupings	Examples
Beverage Storage	Sake storage jar (SM46)
Diving	Diver air hose coupling (SM68)
Personal hygiene	Shaver (SM57), toothbrush (SM51), ear cleaner (SM22)
Food and Beverage Consumption	Chopstick (SM39), beverage bottle (SM74)

Food preparation	pots with stove (<i>in situ</i>)
Medical	Surgical kit (SM09), medicine bottle (SM55)
Personal/Clothing	Rubber work boot (<i>in situ</i>), zori thong (<i>in situ</i>)
Recreational	Harmonica, calligraphy ink pad (<i>in situ</i>), gramophone record,
Ship Fittings and Furnishings	Key (SM1), knob with latch (SM50), sink (SM66), hinge (SM60),
Ship Systems	Globes (<i>in situ</i>), lantern (SM67), ink bottle (SM71)
Souvenir	Baler shell (<i>in situ</i>)

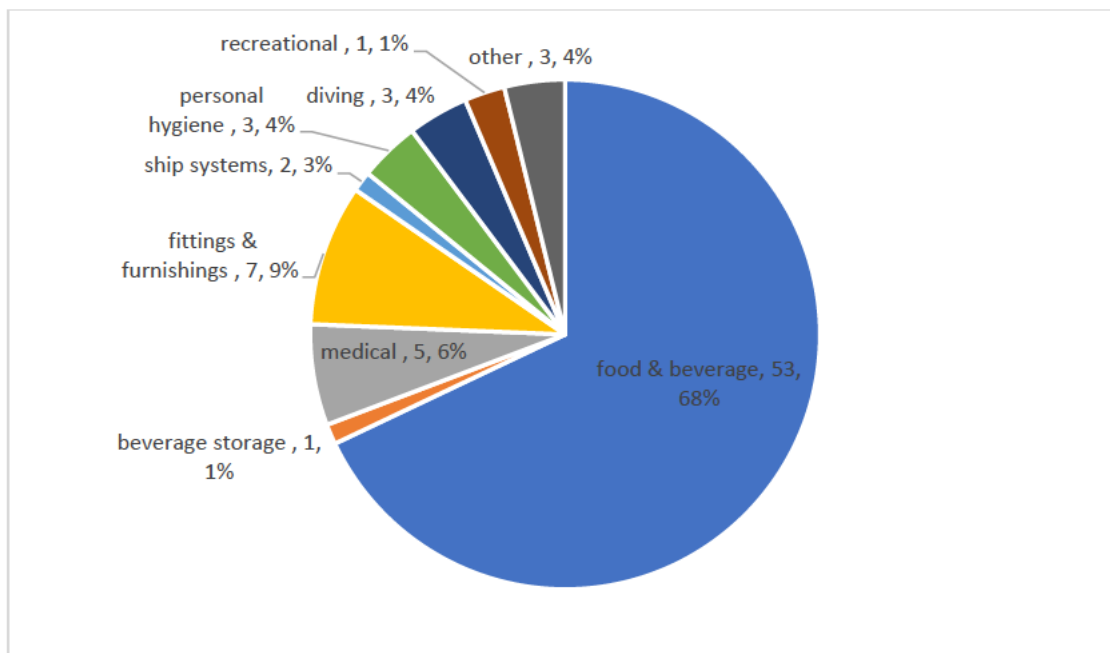


Figure 52. Percentages of excavated material by functional groupings

The chart above is a quantitative breakdown of the 78 excavated artefacts into functional groups. Noticeably 68% (53) are food and beverage related, reflecting both the targeted excavation strategy and the nature of the artefact deposit in the cabin. Only the artefacts relevant to the primary research questions of this thesis are discussed further. Other items may assist in other kinds of analysis, but are not a focus of this particular study.

7.6.2 Beverage storage

SM46 is a salt glazed stoneware jar with a single handle, flat spout and small hole opposite the handle to take a spigot. SM46 is best described as a jar and not a jug, because liquid was not poured from a spout, and the small handle was not for carrying but functioned only as a securing lug. It has black painted markings which could be the signature of the artist, or equally identify the brewer or shop (Stoltie, 1995, p. 107). It was filled with water and proved to hold 23 litres. SM46 was recovered from Unit 11 (U11), which is the engine section located in the middle of the cabin space. The object likely rolled and fell into U11 as a post-depositional process. It is possible this was stored securely in a wooden storage space, which had deteriorated over time.



Figure 53. SM46
Image taken in the field in 2016, following immediate conservation first aid.
This perspective shows the handle and painted mark

Research confirmed SM46 is a large sake storage jar from Tokoname, a major ceramic centre in the Aichi Prefecture, famous for stoneware (Japanese Craft Forum, 1996, p. 38; Stitt, 1974, p. 30). These were also used to store vinegar. The top flat spout was once sealed with a flat round ceramic stopper. Kondo suggests that by the inter-War years beer was superseding sake as the alcohol of choice in Japan, but sake retained a ceremonial and celebratory role (1996). Aboard a Japanese whaling mothership operating in the early 1940s sake was served with the meal once a week (McCraken, 1948, p. 34). Consumed with delicacies, sake may have facilitated a social gathering of the officers, perhaps marking the birthday of the Emperor, a safe arrival, or entertaining select captains of the pearling fleet. As Kondo explains

‘Drinking sake together after work – either with colleagues or clients – manages, through the ritual of sharing and cutting loose, to keep social cement in place even while it offers a forum to exorcising individual demons free of the leadenness of polite speech and decorum...’
(Kondo, 1996).

Sake was generally stored and transported in large wooden vats, but large ceramic storage jars like SM46 had also been used for centuries for shipping (Kondo, 1996; Stoltie, 1995, pp. 106,110). Sake is no longer transported in these jars, but the same jars adorn alcohol stores and restaurants in Japan as decoration (see Appendix E). Stoneware sake jars very similar to SM46 are discussed in Chapter 8, in context to isolated coastal finds along the Northern Territory coast.

7.6.3 Diving

As asserted earlier in this chapter, scattered dive couplings recorded in Unit 01 show that spare dive gear for the fleet was stored in the cabin. Three were collected. SM68, SM69 and SM70 are brass dive hose couplings, used to join together two sections of a diver’s air hose. Each coupling is made up of two end pieces and connecting bolts. A narrow-gauge hole runs through the whole fitting from end to end allowing compressed air to pass. The tapered male-end is pushed into the hose and secured in placed with a clamp.



Figure 54. 1932 sale catalogue Siebe Gorman diving apparatus, Westminster bridge, London



Figure 55. One of the excavated couplings conserved and dissembled

These are double-capped couplings which means the coupling can be separated in the middle while the two ends stay fixed to the hose. Dive teams can then mix and match hoses without undoing the male-ends. Discarding damaged hose and lengthening a hose was ongoing maintenance work. It was probable other dive equipment was carried aboard, such as helmets, but was recovered by Japanese salvage divers.

7.6.4 Personal hygiene

The toothbrush (SM51), shaver (SM57) and ear cleaner (SM22) fall under personal hygiene. The handle of the toothbrush is made of bone, has a hole at the end so can be hung, and has inscriptions. The Japanese inscriptions translate to ‘Lion’, a company in Japan, the word ‘toothbrush’ and a word for standard, meaning for adult use. The bristles of the toothbrush are gone, which in that era were commonly boar hair. The shaver (SM057) is a common and basic double-edged safety razor that required disposal blades. It had no blade fixed inside suggesting it was not in use. The handle, comb and guard are intact. There are no manufacturer markings. The ear cleaner (*mimi kaki*) is a broken and bent curette with a spatula shaped end. The toothbrush was recovered within Grid A/Unit 12. The shaver was recovered in U09 in close proximity to Grid A. The ear cleaner was excavated from Unit 10.



Figure 56. SM51, photographed in the field, 2016

7.6.5 Medical

Five items fall under the medical grouping. These are the surgical instrument set (SM2) and four bottles (SM21, SM55, SM72, SM73). The instrument set comprises of a pocket-sized rectangle brass box with seven surgical instruments inside and two removable fittings that hold the instruments in place. It was located in Unit 9 in close proximity to Unit 14, and the bottles were randomly sampled from Unit 14, a box shaped compartment.

It is more accurate to understand SM2 as a limited surgical kit rather than a medical kit, as it only contains surgical instruments. The seven instruments are: blunt end scissors; three scalpel handles with rusted scalpel blades; two tweezers; and a round ended probe with a sheath. The probe can be stored inside the sheath or screwed into the end, turning the sheath into a handle.



Figure 57. SM2, surgical kit following conservation

The blunt end scissors could be used to cut away clothing, even a canvas dive suit. The scalpels are for human tissue incision. There are two types of tweezers, one standard and one locking forceps, and both could be used for holding tissue or an artery while trying to stop bleeding. The probe has a solid rounded end and may have been used to aid general inspection and moving tissue.

A similarly designed and stocked kit which dates to circa. 1930 is part of the University of Melbourne Medical History Museum collection (item MHM02088) (University of Melbourne). This example holds more instruments than SM02, but is pocket-sized and also does not hold sutures or thread, which in both cases was stored elsewhere.

It was common for surgical instruments to be sold as a set, in small storage boxes like this one. The portability of the kit did not necessarily mean these were also supplied to luggers. Complete inventories of two Japanese luggers apprehended in Queensland list medicine but not medical kits or similar (NAA BP234/1, SB1936/2236). Instruments such as these call for a degree of expertise that may have been aboard the *Sanyo Maru* but not luggers of the fleet. It is possible that SM02 represents only a part of the medical equipment carried aboard the *Sanyo Maru*, as ship supplies.

Bottles SM21, SM55 and SM73 are all medical bottles that were likely manufactured in the United States. SM21 is a small (9 cm tall), brown bottle moulded, with a round body, wide neck and a wider neck finish to suit a cork or similar. Embossed on the base is an 'S' inside a

diamond and the number '63'. Based on the shape of the bottle and the cork finish these likely held tablets or salts (Fike, 1987, p. 15).

The embossed symbol of an S inside a diamond suggests that SM21 was probably manufactured by the Swindell Brothers of Baltimore (pers.com Corning Museum of Glass 18/12/2018). The symbol was also used by other companies, which can cause confusion, notably by the Southern Glass Company of California who interestingly exported to Asia (Lockhart et al., 2009). This company is excluded because it closed circa. 1930. Similarly, the Chicago Glass Company closed in circa 1892. The Swindell Brothers operated until 1959 and produced medicine bottles, and so is a strong candidate.

SM55 is a brown moulded bottle with rounded shoulders and an indented base. Along its shoulder it has raised lettering spelling 'OXY FULL' (in English) and repeated again in Japanese. Embossed on the base is an 'S' inside a diamond, and so with SM21, may be associated with the Swindell Brothers. Also embossed is the number '83'. Oxy Full was, and remains, a brand of hydrogen peroxide used as a concentrated general antiseptic. Antiseptic could be used as either a treatment or preventative, an example of the latter being a Japanese whaling crew disinfecting hair clippers before each haircut (McCraken, 1948, p. 32).



Figure 58. The shoulder of SM55, highlighting embossed English lettering stating 'OXYFULL'



Figure 59. The other side of the shoulder of SM55 highlighting embossed lettering which translates to 'OXYFULL'

Irrespective of which specific United States company manufactured SM21 and SM55 they represent foreign manufactured supplies used as ship stores. SM55 in particular represents a product made in a foreign English-speaking company (likely the USA) but for a Japanese market.

SM73 is a round light coloured green bottle with a round shoulder and thick neck which holds a glass stopper in place. The top of the stopper has an embossed letter 'P' inside a circle. The bottle is filled with a slightly milky coloured liquid. There are no embossed markings other than the letter. It was a practice amongst some manufacturers of medicines to mark a bottle as a poison for the blind, and so the raised 'P' is a warning that it should not be drunk, at least in its concentrated form. Glass stoppers and the colour green were commonly used for acids (Diamond I Products, 1926, p. 43). Various acids in diluted forms were used as a medicine. An embossed English letter is another example of an imported drug.

Similar in overall shape and size to SM73 is SM72. SM72 is a round bottle with a round shoulder but is amber in colour. It has a thickened reinforced band (spool) around its neck and a screw cap finish. It also has the number '2' embossed on its base. The similarity between SM72 and SM73 suggests they conform to some general standard. For example, the Illinois Glass Company sold standard medicine bottles to pharmacists, who in turn used them to sell various different drugs, the pharmacists labelling the bottles themselves (Diamond I Products,

1926). This particular round shaped bottle was a popular and versatile design used for ‘prescriptions and chemical and household products’ (Fike, 1987, p. 14). The Illinois Glass Company as one example made peroxide bottles in amber glass with screw tops, suggesting this bottle type may have been used for this kind of content (Diamond I Products, 1926, p. 47).

7.6.6 Personal clothing

Two types of footwear were recorded *in situ* but not recovered. A Japanese traditional *zori* thong (sandal) was photographed in 2012 and 2016. The *zori* was made of rubber, with the sole showing a patterned grip. The *hanao*, the fixture gripped between the toes, is in the centre, meaning it could be worn on either foot.

The *zori* was traditional and comfortable footwear suited to humid conditions. Lightweight it suited relaxation or only light work. The second kind of footwear was a rubber boot with a thick sole and heel, likely used for more demanding work. As a rubber boot it protected the foot from cuts, abrasions and was waterproof. It would have suited arduous work such as handling cargo on the deck.

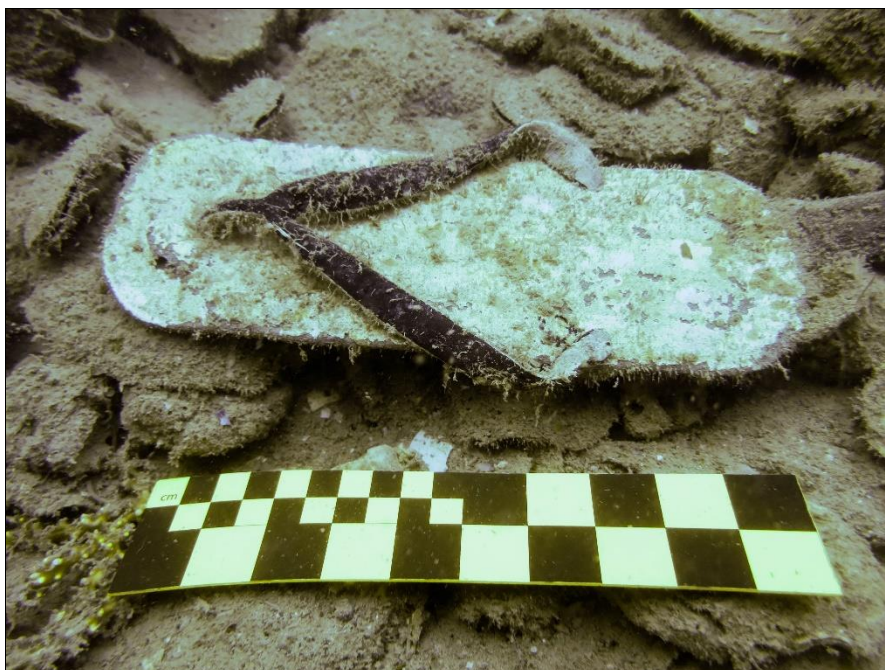


Figure 60. Zori, lightweight Japanese footwear, recorded in 2012

7.6.7 Recreational

A harmonica and the fragment of a gramophone record constitute recreational items associated with music. The fragment of record was found inside the lantern SM067 during conservation and was assigned the number SM067b. Gramophones were mass produced and popular in Japan and a journalist visiting the fleet in 1938 spoke of gramophone music playing Japanese songs on motherships (Southwell-Keely, 1938). The harmonica was a 23-hole tremolo harmonica commonly used in Japanese folk music. It was not relocated in 2016 and was likely stolen from the wreck after 2012 (D. Steinberg, 2013). Tremolo refers to an upper and lower reed (hole) along each of the 23 steps along the harmonica. Tremolo harmonicas are tuned differently depending on cultural origins and music traditions, and so although it appeared similar in design to European tremolo harmonicas, it would have been tuned to Japanese scales. The top and lower cover plates were missing, which may have had manufacturing marks.

An ink stone was recorded *in situ* in Unit 01 (D. Steinberg, 2017). An inkstone was used to grind and mix hard ink with water to form a paint which was subsequently used immediately in traditional calligraphy. Calligraphy was a form of art and relaxation. In contrast an ink bottle (SM71) was grouped as ship system, as writing with a fountain pen and ink included work tasks such as the ship's log and purser's tally.

7.6.8 Food and Beverage Consumption – Beverage bottles

Two types of beverage bottles are represented in the excavated collection, one Dai Nippon (Greater Japan) beer bottle (SM74) and two Durikono soda bottles (SM75, SM76). Durikono was a Japanese non-alcoholic sweet tonic popular in this era. All three bottles were recovered from Unit 01, in the starboard passage at the doorway to the main deck. They were randomly selected from a group of similar bottles lying intact and scattered at the doorway. Their location suggests they were first collected but then left by the Japanese salvors. It's less probable they rolled from another location and remained intact, and no nails were located to suggest they were stacked in crates that had deteriorated.

The beer bottle is a long-necked machine-made brown bottle with a crown type finish. Embossed around the base are the markings 'DAI NIPPON BREWERY CO LTD'; Japanese characters and around the shoulder is the word 'TRADEMARK'. Also embossed on the bottle

is a five-pointed star and the numbers '11' and '12' on the base. These are year stamps, marking the Showa era with 11 equalling 1936 and 12 equalling 1937.

The Durikono bottles are identical round clear glass bottles with a rectangle shaped panel for the label and embossed decorations. Embossed on the shoulder is the wording 'TRADE MARK DURIKONO', with 'DKN' on the base, with an embossed umbrella type pattern around the body. Durikono soda bottles are discussed again in Chapter 8 in context to isolated finds along the Northern Territory coast.



Figure 61. Durikono advertisement
https://blog.goo.ne.jp/gendai_premier, viewed
07/03/2019



Figure 62. SM 73, image taken in the field and prior to conservation

Domestic Japanese breweries emerged in the 1860s and by the inter-war years beer was more popular than sake and other traditional alcoholic drinks (Alexander, 2014, pp. 19,33). Dai Nippon (Greater Japan) Brewery was formed in 1906 with the amalgamation of three major competitors and by the following year it commanded 72% of the Japanese beer market (Alexander, 2014, p. 32). Sponsored by powerful corporate patrons Dai Nippon established manufacturing plants in Korea, and occupied Manchuria during the 1920s and 1930s and in China and Southeast Asia during the early 1940s (Alexander, 2014, p. 33). With this spread of manufacturing bases, the Dai Nippon beer bottle collected and those remaining *in situ* were

possibly manufactured, and the beer brewed, outside of Japan, and thereby symbolises Japan's growing industrialisation base south of the home islands.

7.6.9 A baler shell as souvenir

In 2016 a baler shell was recorded inside the cabin. Dr Katherine Woo, an archaeomalacologist, studied field photographs and concluded that the specimen was a particularly large and intact example (pers.com 2021). Its intactness suggests it was brought onto the ship before it sank, rather than deposited inside the wreck by extreme natural forces. Its impressive size suggests it was collected as a souvenir. A similar baler shell is exhibited at the pearling museum in Shionomisake, Kushimoto, Wakayama Prefecture. The caption reads 'A souvenir collected by someone who had travelled to the Arafura Sea to harvest shellfish. This was one of the top three mementoes brought back to Japan, the other two being Australian trumpet shells and horned helmet shells'.

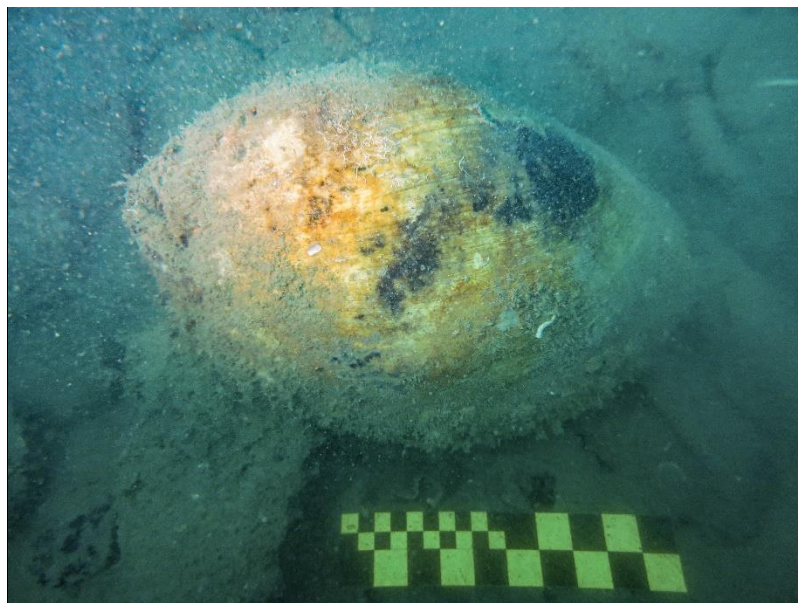


Figure 63. Baler shell photographed *in situ*



Figure 64. Baler shells were commonly collected as mementoes by divers in the Arafura Sea Japanese pearling museum, Sea Breeze Rest Area, Shionomisake, Kushimoto, Wakayama Prefecture
Photographed by author

7.7 A closer examination of food consumption through the tableware assemblage

Tableware is a useful term to categorise those artefacts associated with food and beverage consumption (Symonds, 2010). The tableware analysed in this study includes the porcelain plates bowls, sake decanters and cups, the metal teaspoons, wooden chopsticks, the lacquer and bakelite bowls excavated from Unit 10 and Grid A. The study also refers to two artefacts recovered in close proximity to Unit 10 (SM03, SM65).

7.7.1 Manufacture

Manufacture markings on tableware can support significant directions in archaeological analysis, providing insight not simply for manufacturing history, but also transport, trade, use, historic market value and the status of the user (Symonds, 2010). Appendix C provides a list of porcelain and lacquerware categorised by origin, form and decoration. While some of the porcelain excavated from the *Sanyo Maru* have stamps, Chapter 3 raised a warning about assuming either authenticity or meaning of marks on mass produced ceramics from the Taisho

and Showa era. For example, stamps may mark the buyer and not manufacturer, or may be copies of older prestige manufacturing stamps, being repeated as artistic motifs. Manufacturer markings must therefore be considered critically.

In Japan, the author visited the Aichi Prefectural Ceramics Museum in Seto, Aichi and met with curator Nanako Miyagawa. Nanako Miyagawa then consulted colleagues from the Buried Cultural Properties Centre in Seto, and together was able to make the following assessment (pers.com Nanako Miyagawa, 28/03/2020). Based on stamps, form and style artefacts SM12, SM14, SM15, SM19, SM20, SM47 and SM59 were likely produced in the Seto Prefecture. Furthermore, SM6 and SM17 were likely produced in the Mino Prefecture, with SM17 possibly produced more specifically in Tajimi Ichinokura. SM17 has distinctive decoration, as will be discussed, which may account for its more specific identification. Seto and Mino are neighbouring prefectures and are famous for their ceramic traditions (Cort, 1992). The above shows that the tableware set contains porcelain from different prefectures, also noting that within a prefecture, there were many different towns, factories and kilns. The implication is that the porcelain that comprised the dinner set in Unit 10 were not manufactured as a set, but were brought together as different pieces.

7.7.2 Shared meals between officers

When the *Sanyo Maru* was first thought of as the primary mothership of the fleet, the tableware was interpreted as possibly serving diplomatic visits or Japanese dignitaries. However, as the role of the ship was better understood, as a silent workhorse rather than the flagship of the fleet, these ceramics were reinterpreted as ship stores for the officers.

It is unknown what specific foods the officers ate aboard the *Sanyo Maru*, or how far their diet varied from a traditional Japanese diet. A traditional diet for the middle class generally consisted of rice, a soup, one or more side dishes of fish and vegetables, with pickles and condiments (Hanley, 1977, pp. 86,87). As a cargo ship at sea, it can be assumed that the situation dictated what was available to the cook, such as fish over eggs. Also, the route of the supply ships was between Palau and the pearling grounds, with no stops at other ports which may have provided the opportunity to resupply with local delicacies. As it was in Japan, it can be assumed that there were feasts on special occasions (Hanley, 1977, p. 87).

Analysis of the tableware as a set shows that the various forms represent a traditional meal, with small side dishes and condiments. The image below was taken from the historic footage of the *Kokoku Maru* on its way to the pearling beds off the Northern Territory coast, and shows some officers sitting down to a meal (Tachibana, 1937). Identifiable are beer bottles, chopsticks, a porcelain bowl, and a decorated porcelain teacup: the same kinds of tableware recovered from the *Sanyo Maru*. Not visible in this image, but seen in the footage of the scene, is a decorated porcelain plate, also similar to the *Sanyo Maru* assemblage. Visible behind the beer bottle is the stopper of a large ornately shaped glass decanter, seen clearly in the wider footage. This delicate addition further confirms this was the officer's table. Prominent in the foreground are metal teapots. Teapots would have also been on the *Sanyo Maru*, as teacups were excavated, but no teapots were located. This shows that the excavated material stands as only a sample of the tableware once aboard.



Figure 65. Officers having a meal aboard the *Kokoku Maru* (Tachibana, 1937)

In contrast, footage of the *Kokoku Maru* also shows ordinary crew eating a simpler meal, with few to no side dishes (Tachibana, 1937). Furthermore, this crew was eating from undecorated enamel plates, in contrast to the dinnerware depicted at the officer's table, and the decorated porcelain and delicate lacquerware represented in the *Sanyo Maru* assemblage. Mr Senchiro

Fujita, emphasised the significance of hierarchy, that rank provided comforts, and that officers would have eaten different meals off separate tableware (pers.com 13/4/2020). This is supported by an account of life aboard the Japanese whaling ship *Hashidate Maru*. When the first whale caught in the 1947 season was winched aboard, the chef immediately thinly sliced some meat and served it on a platter with condiments to the officers, not the crew (McCraken, 1948, p. 172).

Other accounts of meals served to ordinary crews support this distinction. Observers aboard the pearling lugger *Tama Maru* noted that meals for the crew were simple, and made up of rice, dried fish, and only occasionally tinned spices and soya sauce, all washed down with weak tea (Argus 19/11/1938). Aboard the whaling ship *Hashidate Maru* ordinary seamen were usually served fish and rice, with these occasionally swapped for beans and chopped wheat (McCraken, 1948, p. 172). Once whale was caught this supplemented their diet.

The *Sanyo Maru* tableware set signifies a traditional varied meal, served on a number of small plates and bowls. This includes decorated porcelain, delicate lacquerware and decanters for sake. It does not represent a simple meal or one served on basic utilitarian tableware. It served the officers not the crew, providing the former a level of prestige and comfort. Sometimes sake and a few small delicacies were served separate to a main meal, and so this tableware may have also on occasion served this purpose (Ishige, 2011, p. 177). The prestige the officers experienced was limited, and this is reflected in the tableware. Analysis shows the porcelain assemblage is poorly decorated with multiple imperfections. The imperfections suggest this tableware was not suitable for dignitaries, or luxury passenger ships, but was in line with the officers of a small cargo ship. Similarly, the mix of cheaper bakelite bowls amongst lacquerware, that match in form but not material, reflect an effort to maintain traditional appearances but with limited quality wares.

As detailed earlier in this chapter Unit 10 was a permanent self-contained storage compartment fully excavated in 2016. It was densely packed with various items of tableware.

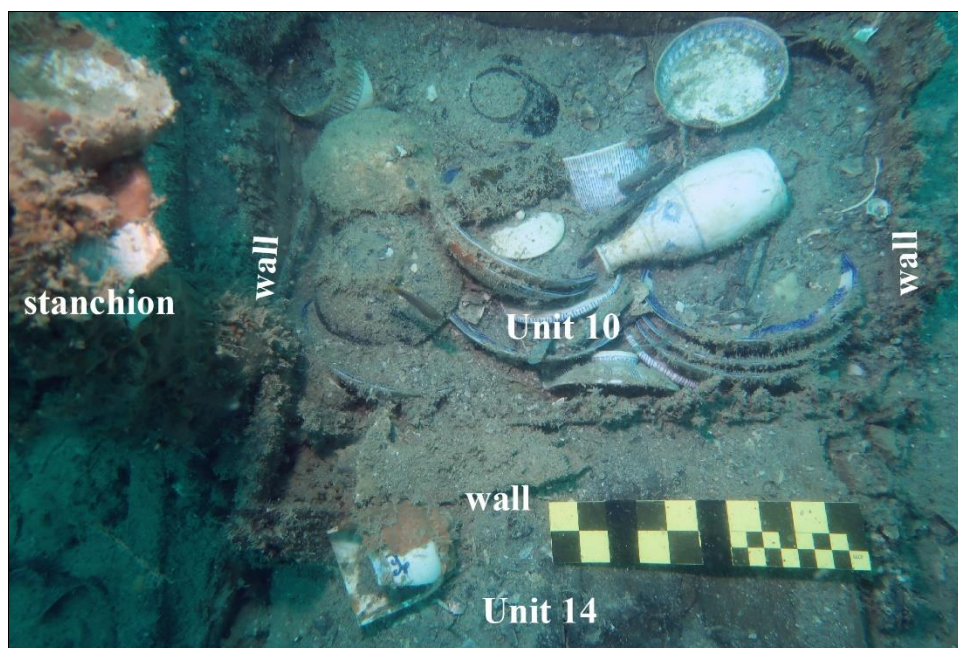


Figure 66. Unit 10 once the lid planking was removed prior to excavation. It contained 45 pieces making up all or part of a dinner-set of tableware for the officers.

Unit 10 is a near square (50cm x 45cm) the difference due to survey error or post-depositional warping of the box. The walls of the box are in place but are fragile, spongy to the touch, retaining form but are weak and light. Thick sediment lying on the cabin floor in this area suggests Unit 10 is periodically covered in sediment, explaining why the wood is partly preserved. The only non-tableware items found in Unit 10 were a small medical bottle (SM21) and the nose cleaner SM22 (hygiene). The explanation is that these small items likely came from another storage unit that once sat above Unit 10, whose contents spilled once that box collapsed.

Forty-five artefacts were excavated from Unit 10. Seven pairs of wooden chopsticks were excavated, suggesting this set could serve up to seven persons. This was a setting for a group of people sharing a traditional Japanese meal, which is comprised of a selection of small dishes. With the walls of the storage space Unit 10 intact, it is highly probable that everything contained within that specific box was recovered and recorded. However, there are forms missing that one would expect in a table setting, such as porcelain rice bowls (*gohan chawan*). Appendix D show an example of two forms of tableware, a bowl and plate, that were recorded *in situ* in 2012 but are not represented in the excavated assemblage. Therefore, while the contents of Unit 10 demonstrate much about food consumption, they do not constitute all of the tableware that was aboard and may not constitute all the tableware used in a meal.

7.7.3 Porcelain forms

Porcelain manufacture starts with sourcing the ingredients for porcelain which is a clay mixed with a high proportion of a pulverised white stone containing the mineral *kaolinite* (Stitt, 1974, pp. 22-23). The attributes of porcelain include its brilliant white colour, hardness, and that it is a good surface for decoration. This porcelain ware was likely manufactured using moulds allowing for the efficient and consistent manufacture of set forms.

As discussed in Chapter 3, function and form are closely related in ceramic analysis, and past archaeological studies have approached Japanese ceramics of this period with a strong focus on classification by form. The priority in this research is to focus on the use of an object, within an ethnographic setting, and where there is consensus, use preferred terms to identify forms, appreciating meanwhile that this is imperfect. For example, the same artefact may be defined based on its material or its assumed purpose, such as SM31, which could be described as either *gohan owan*, meaning lacquer bowl or *gohan chawan/jawan* meaning rice or soup bowl. Similarly, SM03 could be described as a *mamezara* (small condiment dish) because of its size and possible purpose, or *mukozukan* because of its size and unusual shape. Neither is incorrect but only describe different attributes. The following classifications draw from the Historical Japanese Ceramic Comparative Collection, (<https://www.lib.uidaho.edu/digital/hjccc>, viewed 20/10/2020) and confirmed in correspondence with experts.

One of the most recognisable forms in the assemblage is the sake decanter (*tokkuri*), (SM27, SM28) excavated from Unit 10. These two artefacts are versions of the same *tokkuri*. The measure 14 cm in height, and are decorated with large diamond shaped chrysanthemums surrounded by swirling vines around the neck. Blue lines border the motif and run around the base and spout. Tokkuri vary in material, form and decoration, but these examples represent a basic classic version and so are easily recognised (Stoltie, 1995). Tokkuri are specifically tableware and used to decant sake into small sake cups. They are not used for storage. Another recognisable form is the small sake cup (*sakazuki*) (SM17, SM18) also excavated from Unit 10. These match and measure 5.5 cm in diameter at the rim. These are small, holding only a small amount and so likely used in toasts. The elaborate decoration of the sake cups is discussed later in this chapter.



Figure 67. SM27, sake decanter (*tokkuri*), photographed in the field

Another form of small bowls includes *kobachi* (SM11, SM58, SM47), excavated from Unit 10. These have a rim diameter of 9.4 cm and match in form and decoration. These usually hold individual portions of side dishes (Ross & Campbell, 2018). Present also are porcelain lids for bowls and cups, which when turned upside down can also serve as shallow serving bowls (SM59, SM14 and SM15). Artefact SM59 was excavated from Grid A and the other two from Unit 10. These lids may have served as lids for tea cups or small bowls. Traditional handleless tea cups (*yumoni*) are also represented (SM19, SM20).

Another form present in the excavated assemblage is a deep pickle dish (*namasu-zara*) represented in seven examples, constituting the largest number matching in form and decoration. They are round, deep, and have a scalloped rim. Additionally, there are four small condiment bowls (*mamezara*) all of the same form and three with the same decoration. These are oval shaped and scallop rimmed (SM03, SM13, SM62, SM63).

These porcelain forms represent components of a varied traditional meal made up of a variety of condiments and side dishes that required the use of different food stores, and labour in preparation and presentation. Their form does represent a level of prestige, both as delicate tableware, but also because their purpose was to work collectively, with the lacquerware and bakelite bowls, to comprise a varied meal. Lastly, is SM65, which is a large heavily decorated soup/stew porcelain bowl. It measures 30.2cm in diameter and 12.5cm tall. This type is not represented in known archaeological studies of Japanese workers and migrants in the USA,

possibly because these were large, cumbersome and fragile (pers.com. Leland Bibb 10/07/2019). Its presence as part of tableware aboard the *Sanyo Maru* supports the prestige aspect of the meal, and reflects that the ship had more direct access to Japanese manufactured goods. By the 20th Century large meat and vegetable stews become a popular component of celebratory meals in Japan (Ishige, 2011 pp 151,152).



Figure 68. SM65, photographed in the field.

7.7.4 Decoration: methods, motifs and symbolic meanings

Decoration on the porcelain was analysed in terms of application method, structural elements, specific motifs and their symbolic meanings (Ross, 2009, pp. 180-181). The cobalt blue oxide, which gives the famous blue colour to blue and white porcelain is generally called *sometsuke*, and if not clarified also generally refers to items hand-painted with a brush (Bibb, 2001; Shimura, 2008). Other application techniques relevant in this study are paper stencil (*katagami*) and transfer plate (*doban*) (Bibb, 2001). Brush painting could be the singular method of decoration or done in combination. A paper stencil was cut by hand and placed directly on the ceramic, and transfer-ware was produced by first etching a copper plate and then using paper to transfer the decoration from the plate to the ceramic. The copper plate technique allowed more complex imagery, greater precision and was more durable, and so was preferred. It has been argued that paper stencils were phased out by the 1920s (Bibb, 2001; Ross, 2012, p. 8).

In many cases these different methods can be identified in the finished work (Bibb, 2001; Ross & Campbell, 2018). This is not just an exercise in art curation for its own sake, because application methods are aligned with dating, and the commercial shift to greater mass production.

Bibb explains that with stencils the design was always hampered by the need to maintain the structural integrity of the stencil itself, and so overall decoration was built up with a series of small separate stencils (Bibb, 2001). Stencil-ware were also some of the cheapest types of decorated porcelain, made quickly and with visible errors to include smudging and misaligned motifs. The work was done by unskilled labour, usually young girls and women (Bibb, 2001). They were also mass produced, repeating the same structural elements and often the same motifs, so popular, that these motifs almost define stencil-ware (Bibb, 2001). There is usually a round medallion in the middle with the ‘Three Friends of Winter’ motif, a ring of hatching, and reserve panels of motifs including mythical creatures. Further, Bibb explains that one of the most common stencil-wares found in assemblages in the United States are *namasu-zara* (pickle dishes). All of these attributes in form and decoration are present in the most common porcelain in the *Sanyo Maru* collection.



Figure 69. SM09, *namasu-zara* photographed in the field prior to conservation

The central medallion depicts the ‘Three Friends of Winter’; pine, bamboo and plum, symbols of winter, long life and the cultured gentleman (Baird, 2001, p. 66). The panels depict the peony flower and a lion surrounded in a fish scale diaper, classic motifs in themselves, but in association they symbolise a passage from the traditional *noh* play *Shakkyo* (The Stone Bridge) (Baird, 2001, p. 146). The outside is decorated with plum and vine. The rushed nature of the work can be seen in both smudging and misaligned motifs. In the first image below, note how the peony flower is centrally placed, but in the other image, it intrudes into a neighbouring panel. This shows the plate was designed with separate stencils and there was little care to get the correct alignment. Smudging and misalignment is clear when comparing different versions of the same designed plate.



Figure 70. A peony medallion in SM04. Note the paint dripping down the rim.



Figure 71. A peony medallion in SM05. Note the smudging, lack of sharpness and the misalignment of the peony stencil

As stated above, Ross and Bibb suggest stencils were phased out by the 1920s. Bibb also suggests that a recessed foot ring on the base, known as a ‘snake eye’ (*janome*) ceased to be used around the same time (Bibb, 2001). This feature is found on the seven *namasu-zara* of the collection. If these conclusions are correct, it suggests that these seven plates were at least 15 years old when the wreck sank. The quality in the application of decoration can also be compared between SM13, SM62 and SM63, the matching small dishes (*mamezara*). This employed a combination of brush and possibly transfer. None are of good quality but the reclining figures are indistinguishable in SM63, because of the faintness of the transfer and the heavy brushwork.



Figure 72. SM13, note the human figures are clearer than SM63, and paint smudges differ



Figure 73. SM63, note the poor definition of the human figures and paint smudges differ

Similar to the images on the *namasu-zara* plates that depict the classic *noh* play *Shakkyo*, is the depiction of the *noh* play *Takasago* on the sake cups (SM17, SM18). The decoration on the cups consists of a broom, rake and a written passage. The inscription is a passage from the play about the married couple Jo and Uba who symbolise longevity and fidelity (Baird, 2001, p. 226). The broom and rake are their implements.



Figure 74. SM17, sake cup, *sakazuki*, depicting words from the play *Takasago* photographed in the field prior to conservation

Finally, another form in the assemblage that deserves specific attention are the three *Kobachi* bowls (SM11, SM58, SM47), with SM47 as an example shown below. These appear to be

partly hand-painted, because of the varied line thickness, which is a more labour-intensive process. The outside depicts alternating panels of a crane and water plants and a stylised version of the ‘Seven Grasses of Autumn’ motif (Baird, 2001, p. 97). Nearer the base is a circle of overlapping waves (*seigaiha*) (Baird, 2001, p. 43). The inside rim is decorated with grass and a line of gold colouring, the latter applied post-firing. The manufacturer mark reads Sosan (‘village mountain’): having a mark suggests it was less hastily made (pers.com Leland Bibb 13/7/2019). This group shows there is a range of quality across the assemblage.



Figure 75. Exterior of SM47, *Kobachi*



Figure 76. Interior of SM47, *Kobachi*

Although as detailed above, one trait of stencil-ware is the mix and match of common motifs: because decoration on one piece was made up of multiple stencils, the reappearance of classic motifs but in different combinations is also present. For example, in the group of four *Mamezara*, all have the same form and three have matching decoration. The fourth (SM03) has the same exterior and rim motifs and only a different interior motif in the centre. Similarly, SM65 the highly decorated stew/soup bowl has the same detailed interior and exterior decorations with only the rim differing from the example purchased in Japan from the Minto Ceramic Centre by the author (Appendix E).

In summary, the decorations on the *Sanyo Maru* porcelain assemblage are benign traditional symbols of good fortune, virtue and contemplation represented in landscapes, animals, human figures in nature and images from traditional plays (Baird, 2001; Gunter, 2003; Shimura, 2008). The assemblage is divided into four themes: plants and animals; humans or built features in a tranquil landscape; written characters and images from old stories; and geometric shapes. Geometric shapes can be simply decorative without symbolic meaning (Gunter, 2003, p. 22).

Not represented are ship company insignias that were common aboard larger passenger/cargo ships (NYK maritime museum, 2005, pp. 60,73). Also absent are patriotic or military scenes, national flags, or images linked to technological development which were appearing in this era (Ross, 2009, pp. 181, 195). Therefore, decorations do not have a commercial or political significance but only a general connection to more traditional Japanese decorative themes.

In a comparison with other archaeological studies on Japanese ceramics it is worth noting the absence of marked export ceramics for the West. Noticeably absent are ‘Made in Japan’ marks, which appear in archaeological assemblages in the United States and signified importation (Bibb, 2007; Ross, 2009, p. 198). These assured the buyer that they were purchasing authentic Japanese goods, and was a condition under customs regulations. In contrast, the *Sanyo Maru* ceramics were made for either local Japanese consumption or possible markets in Asia.

7.8 Conclusion

The sinking of the *Sanyo Maru* marked the loss of the largest ship engaged in the industry at the time, and the explanations provided for its sinking are directly associated with the huge harvest being taken by the Japanese fisher, bottlenecks in the system caused by the small freight capacity of the supply ships, and the restrictions placed on the fleets by the Australian government. The archaeology of the ship revealed it was a different class of vessel to the historic photographs of pearling motherships, and set the research in a new direction. The archaeology of the ship confirms the *Sanyo Maru* was a small cargo ship, in line with *fish carriers* of other marine industries. The compartments of the cabin and the excavated assemblage provided fragments of insight into life aboard. The tableware assemblage provided the officers a limited comfort and prestige, but also the opportunity, through daily custom and habits surrounding food consumption, to reinforce cultural norms while working in foreign waters far from home. But the material life aboard was more complex and in part contradictory, with some medicines made in the United States, in conflict with the Japanese drive for local manufacture and self-reliance.

Chapter 8: Clandestine activities within the Japanese industry

‘After the visits of the Larrakia, the northern coastal Patrol Service boat, the overseas vessels would remain for some time outside territorial limits, before they re-entered it to mingle with vessels from Darwin and Thursday Island... The overseas vessels met during the night at watering places such as Elcho island. The Aborigines (sic) knew that all this was in defiance of the white man’s law, and the prestige of the white man fell greatly in their eyes’ Donald Thomson (NAA, A52, 572/99429THO, report 1936-37, p.15).

8.1 Introduction

This chapter examines the ‘clandestine’ activities of the foreign crews. The term was taken from a 1938 Australian government memorandum that described contact between Japanese foreign crews, local pearling crews and coastal Aboriginal peoples as ‘clandestine’, meaning something hidden, kept secret, possibly illegal (NAA: B6121,311F, Cwlth. Dept. of Health, 16/12/1938). This chapter examines the fragmented historical accounts of foreign crews landing, and identifies the multiple reasons why they did. It provides specific locations, where possible, thereby establishing a research program for future archaeological site inspections. The chapter also describes cases of foreign and indentured local crews socialising and bartering both on the water and at secret camps along the coast, and of contact between Japanese crews and Tiwi, Yolngu and people from the central Arnhem Land coast. As a study of an historical industry, by acknowledging clandestine activities, this work maps an expanded and more accurate geographic footprint of the industry, beyond the formal industrial system described in Chapter 6.

This chapter also draws on archaeological evidence in the form of isolated artefacts collected on the coast by others. These artefacts are re-examined and in notable cases correctly identified as Japanese in origin, and not Macassan or colonial as previously categorised. This has implications both for mapping the material evidence of Japanese activity along the Northern Territory coast, and more broadly, for contact studies across northern Australia, where Macassans and Japanese were active.

8.2 Comrades in foreign waters: contact and trade between Japanese indentured labour and foreign Japanese crews

As confirmed in earlier chapters, when foreign Japanese pearling boats were first observed working in waters off the Northern Territory coast in 1935, local pearling boats operated on the same grounds. It would be logical to assume these were in competition, as they worked for different companies based in different countries, but this was not the case. In reality, the crews were compatriots, working alongside each other in what was foreign waters to all of them. The masters of the local boats, mostly indentured Japanese, had almost full control and autonomy while at sea, while the owners, known as the Pearling Masters remained on land (Cassidy, 1989; NAA F1,1937/675, Abbott, 2/11/1937). This autonomy gave local and foreign crews the freedom to interact, build relationships and use the circumstances to best suit them.

The camaraderie between these crews was noted by many. Donald Thomson, the famed anthropologist working in east Arnhem Land, acknowledged the relationship between crews from Darwin, Thursday Island, and the Japanese territories (NAA A52, 572/99429THO, report 1936-37, p.14). Abbott, the Administrator of the Northern Territory, reported that the crews fraternised freely and would spend considerable time on each other's boats (NAA F1, 1937/675, Abbott, 2/11/1937). Cook, as medical officer, wrote about their association, being concerned about the transmission of infectious diseases (NAA F1,1937/675,Cook, 30/10/1937). Divers would also move between these businesses as employees, with some indentured divers returning to the Northern Territory as foreign crew after leaving the employment of an Australian Master Pearler.

The different crews did not just socialise together, but traded with each other and in doing so established practices of informal exchange separate from the mothership system of supply. Malay crewman would report that the Japanese masters of locally registered boats would source fresh water and other supplies in Darwin, and deliver it to foreign boats on the pearling beds (TDB, 17/09/1937, p. 11). This freed the foreign crews from inspections, tariffs and customs. The same circumstances were described by Cassidy, a patrol officer, who confirmed that local crews would supply fresh vegetables, Darwin beer and other local goods (Cassidy, 1989).

The crews bartered more than just perishables from Port Darwin. Australian government correspondence noted that local and foreign crews bartered sailing gear such as ropes and sails,

in addition to tinned food and cigarettes (NAA: B6121,311F, Cwlth. Dept. of Health, 16/12/1938). Haultain, of the Patrol Service, reported that informants at Milingimbi observed local boats trading their shell with the foreign motherships. (NAA: F1, 1937/600 Haultain, 4/12/1936). The sale or barter of ship equipment and harvested shell shows that a diverse market had emerged, and the latter suggested the foreign motherships were also engaged.

Trade between foreign and local boats may have also been an opportunity for local Japanese crews to access small luxuries from home. The tinned food and cigarettes cited above may have been Japanese products. When a Japanese salvage company worked in Darwin in the post-War period, local Japanese pearlers sought condiments such as sauces from the salvage crew, to enrich their meals (D. Steinberg, 2015). The foreign luggers were supplied these goods from the carriers and motherships of the fleets, and so the exchange of these items between the crews of luggers, shows that the distribution of materials from the supply ships moved beyond the immediate network of the foreign fleets. This further expands notions of the fleet as a network, as discussed in earlier chapters.

The extensive trade between foreign and local crews likely included local knowledge. Local knowledge encompasses a range of possible topics (Hardesty, 2003; Rockman, 2003), one being the location of fresh water, an example discussed later in this chapter. Knowledge, like food, beer and boat equipment was a commodity to be sold or bartered. While local knowledge would have been a valuable commodity, unless an observer and informant could speak the language, the transaction would be difficult to confirm, hence there are few references to knowledge sharing between crews in historical sources. Australian informants observed crews talking, but few could understand what was said.

8.3 Contact in extra-territorial waters: Aboriginal visitation on the high seas

Aboriginal people would travel beyond territorial waters in canoes to visit the foreign fleets at their anchorages and fishing grounds (NAA: B6121,311F, Cwlth. Dept. of Health, 16/12/1938). Two firsthand sources for this are examined. The first was the log of Patrol Officer Nick Kamper who noted that while travelling with a foreign crew, and visiting the fleet anchorage at Bouchaut Bay on November 24, 1937, a large canoe with five men and four young women approached the Japanese boats (NAA F1 1939/420, Kamper). Kamper confirmed that

canoes visited the anchorage on a daily basis. It is worth noting that the anchorage was distant from the coast and considerably beyond territorial waters.

The second source is film shot by a cameraman accompanying the *Kokoku Maru's* visit to the Bouchaut Bay anchorage also in 1937 (Tachibana, 1937). In this particular sequence the cameraman was aboard a lugger and filmed the arrival of two canoes. One had three Aboriginal men aboard. These men came aboard the lugger and traded a turtle for tobacco and cooked rice, the rice was consumed on the deck during the visit. The turtle was slaughtered and the lugger crew ate it. The second canoe had two men aboard. They tied up alongside and it appears they traded a large fish for tobacco. A title card inserted into the film states 'The indigenous sometimes bring fishes and turtles with a canoe'.

A striking aspect of the footage is that the seas are rough and the anchorage is far from the coast in open ocean. The canoes were simple dugouts powered by paddles, without outriggers or sails. The visitors displayed navigation skills, endurance, bravery and determination. The relationship between the visitors and crews appears cordial but remains unexplained. Did the cameraman capture barter between strangers, or was this another visit from a regular trade partner? In the image seen below the man in the middle of the canoe appears dressed in a headscarf similar to that worn by some Japanese crew, and wearing a cotton loin cloth, which may be cloth traded by Japanese. Japanese cloth used as loin cloths is confirmed later in the chapter.



Figure 77. Tying up a canoe to the lugger's boat before coming aboard (Tachibana, 1937)



Figure 78. Consuming cooked rice traded aboard the lugger at the Japanese anchorage (Tachibana, 1937)



Figure 79. A traded turtle, butchered for the Japanese crew by an Aboriginal visitor at the anchorage, with his countryman watching from their canoe (Tachibana, 1937)

Based on the itinerary of the *Kokoku Maru*, and where the fleet was based at this time, it is highly probable that this footage was shot at the Bouchaut Bay anchorage. The closest current community to the historic anchorage is Maningrida. As discussed in Chapter 3, this footage

was shown to several elders from Maningrida and the surrounding region. The men depicted in the footage could not be identified.

8.4 Trespass into territorial waters

An important demarcation repeated in this thesis is the delineation between territorial waters and the Open Seas, the latter beyond Australian administrative control. While the pearling grounds were in international waters, there were a number of reasons why foreign crews entered territorial waters and also made landfall. The chart below provides a list of reasons, all qualified by historical references. Some are direct consequences of failures in the formal industrial process, such as the failure of supply ships to provide adequate fresh water. Others reasons, such as careening a boat on the beach for cleaning and repair, are universal requirements in the fishing world that cannot be done at sea, and because of Australian restrictions, had to be done secretly.

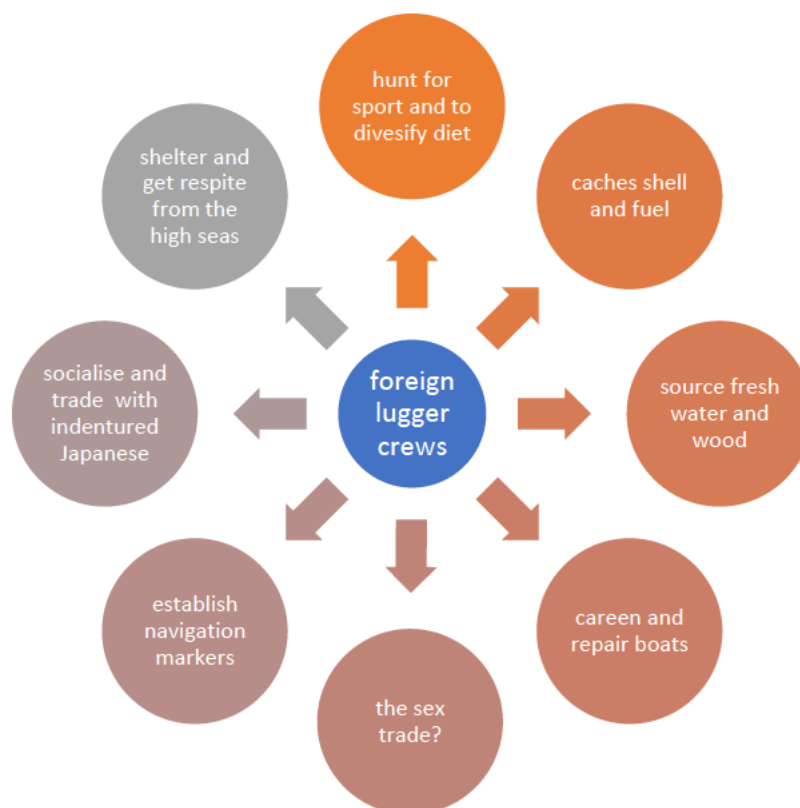


Figure 80. Chart detailing reasons why foreign pearling crews made illegal landfall on the Northern Territory coast

A number of sources confirm that foreign fishing boats trespassed into territorial waters or made landfall. Australian government correspondence was unequivocal that it happened. A memorandum from the Department of Health dated 1938 states 'These [foreign] vessels do not remain all the time on the fishing grounds. They come inshore during bad weather also to careen, and members of the crews come ashore to obtain wood or water or to make repairs' (NAA, B6121,311F,). Similarly, in 1938, Joseph Carrodus, a Secretary of the Department of the Interior confirmed that: 'There is not the slightest doubt that the crews of Japanese vessels land on the islands and the mainland of the northern coast to careen their vessels and obtain supplies of wood and water' (NAA, B6121, 311F).

These general statements were corroborated by more specific observations on the ground. When the fleets were working the beds off Bathurst Island there were accounts of landings in that area. A 1936 reference describes how local fleets landed at locations in Aspley Strait, whereas the foreign crews preferred the west coast of Bathurst and Buchanan Islands to source water, dump fuel, cache shell, careen boats and hunt geese (NAA, F1,1937/600, Nylander 18/8/1936). In particular the foreign boats chose Gordon Bay on Bathurst Island and sites between Rocky Point and Caution Point south of the bay, which were all good sources of water.

As the fleets moved east to the Goulburn Island Patch, new landings sites were found. A 1937 report from the Milingimbi Mission Station says that the Crocodile Islands had become the centre of activity for the foreign boats (NAA, A431, 1951-1397, Webb 1937). Donald Thomson gives greater detail noting that the outlying islands of the Milingimbi Island group provided shelter, with Moorroonga Island identified as a water source, and shell caches sighted on Rabona Island (NAA,F1,1937/600,Thomson,13/5/1937). Thomson also spoke of pearling crews congregating at water places on the Liverpool and King Rivers, but he does not distinguish between local and foreign crews (NAA, A52, 572/99429THO, report 1936-37, Thomson p.15). The Yirrkala Mission provided multiple reports of foreign luggers at Melville Bay and Bremer Island (NAA A1,1937/2419, Haultain 23/11/1937; NAA F1 1939/59, telegram 13/10/1937).

Pearlers were also said to be caching shell on the English Company Islands (NAA, F1, 1937/600, Haultain 4/12/1936). In October 1937, Cook boarded four Japanese foreign luggers to conduct quarantine inspections and examined the ship logs. He confirmed that water was sourced from various locations in Arnhem Land (NAA, F1, 1936/675). He concluded that in the majority of cases foreign crews sourced water from the Australian coast and islands, more so than from motherships or formal ports such as Darwin or Dobo.

A more detailed account comes from an embedded journalist who joined the Patrol Service in late 1937, as it patrolled Elcho and the Wessel Islands (Herald 7/12/1937 p 21). He reported that midway up Marchinbar Island, the largest of the Wessel Islands group, they met Aboriginal informants who identified a beach that Japanese pearlers had just left. The patrol inspected the beach and identified navigation markers on the shore, presumably used to guide boats into the bay, and sandal prints on the beach. Navigation markers, no matter how flimsy, represent coastal infrastructure; and signified repeated visits to that bay. Later they found empty Japanese cigarette packets at Cape Wessel, on Rimbija Island, the most northern island. More detailed accounts of foreign crews visiting Elcho Island and the Liverpool River, the latter on the mainland, are provided later in the chapter.

The intrusion of foreign luggers into territorial waters came to a head legally and politically with the seizure and detention of four Japanese boats by the Patrol Service, and a series of civil cases against the government, with the Japanese boat owners as plaintiffs (Haultain, 1971; Northern Territory Judgements, 2001, TWA, 30/6/1938 p.18). Four boats from the foreign fleets were seized, found within the territorial waters adjacent to an Aboriginal reserve, which was a breach of S19AA of the *Aboriginal Ordinances* 1918-1937. Under S19AA, any unauthorised person found on a boat in those waters was guilty of an offence, and the vessel and goods aboard were forfeit to the crown. The civil cases were first discussed in Chapter 6 because witnesses in court proceedings provided unparalleled explanation of the Japanese system. Here the cases are revisited as examples of clandestine activities conflicting with Australian territorialism.

The first case involved the seizure and detention of the *Takachicho Maru No. 3* and the *Seicho Maru No. 10* on 10 June 1937 (Northern Territory Judgements, 2001, p. 198). Again, as explained earlier, the *Seicho Maru No. 10* was not itself found within territorial waters, but taken as a substitute for the *New Guinea Maru*. The Patrol Service had determined that the *Takachicho Maru No. 3* and the *New Guinea Maru* were found in Bouchaut Bay, Arnhem Land. The court found serious problems with the practical application of the 3 nautical mile limit, questioning the ability to accurately determine the distance of a boat from the coast, and the very competency of the Patrol Service. It ruled damages to the plaintiff.



Figure 81. Cartoon depicting a weak Patrol Service led by two powerful Japanese During the arrest the *Larrakia* batteries failed and it had to be towed by the arrested vessel drawn by Mick Armstrong, sourced Haultain 1971

In its deliberations, the court considered conceptual and legal aspects of ‘territorial waters’. This was the first time S19AA was tested in court, and the Supreme Court was compelled to assess the legitimacy of *territorial waters* itself. It determined that the concept was vague, indefinite and only based on custom, international convention and some common law precedents (Northern Territory Judgements, 2001, pp. 203-205). It also cited different opinions about its relationship to the concept of crown sovereignty. A question posed in the ruling was whether the purpose of territorial waters was just to function as a military buffer, and so did not mean that its waters and resources were necessarily the property of the crown.

The second case involved the seizure and detention of the *Tokio Maru No.1* which was found by the Patrol Service off Bremer Island, east of the English Company Islands, on September 19, 1937 (Northern Territory Judgements, 2001, p. 227). The vessel was seized. The Japanese crew and owner argued that the vessel was in territorial waters by accident. They had drifted into local waters, as they were under sail with a damaged engine, the wind was weak and the tide pulled them to land. The court agreed that the trespass was accidental and so the seizure was unlawful and ruled in favour of the plaintiff.

The third case involved the seizure and detention of the *Dai Nippon No.5* which was found near Point Bristow, Elcho Island on August 8, 1937 (Northern Territory Judgements, 2001, p. 237). The case was settled after court proceedings, although before the final judgement was delivered, but the judgement was still recorded. The crew explained that they were in territorial

waters because they were sick from drinking bad water, and were searching for the mission they believed was on the island to receive medical care. The court decided that the true intention of the crew was to obtain better quality fresh water from the island, and this was a breach of the ordinance. The legal question before the court was whether the ordinance could apply to a foreign crew in territorial waters at all, an issue raised in earlier cases but not ruled on. If it did apply then this would conflict with the general agreement amongst nations that foreign vessels had the right to navigate freely if their intention was innocent. The ruling concluded that the ordinance could not be applied, and so landed in favour of the plaintiff. This ruling would have been a terrible embarrassment for the government and likely explains their willingness to settle out of court.

Records of the court cases provide unparalleled insight into examples of trespass by foreign crews. It also uncovered bias by the Patrol Service. In discussion over the seizure of the *Tokyo Maru No. 1* the judge agreed that Haultain was instructed to avoid apprehending local luggers, committing the same offences, in favour of arresting foreign vessels (NAA E470, 21/1937 p 417). It was concluded that as a Protector of Aborigines (sic) this was a failure of his duties, as he let Australian vessels making contact with coastal Aboriginal peoples. This bias against foreign crews was established early, with the initial instructions for the service, written in early 1937 outlining foreign boats were a specific target (NAA F1, 1937/600 'Darwin patrol vessel'). The motivation behind this bias was to protect the local industry over foreign companies, regardless of the impact on Aboriginal people. The same bias was arguably seen with the establishment of control stations, as discussed in Chapter 6. These were areas in which landings were allowed, but only to local boats. That this was in part a commercial decision was openly discussed by authorities (NAA F1,1937/600 Cook 21/1/1937).

8.5 Barter and employment: Aboriginal pilots on Japanese boats

An important difference between the Japanese and Australian pearling industries operating off northern Australia was that the Japanese companies did not use Aboriginal people as divers. There is also no compelling evidence that foreign crews employed Aboriginal people to do related tasks such as shell cleaning or bagging. This is in contrast to accounts of local crews who for example employed men from Millingimbi to bag shell (NAA, F1,1937/600,

Milingimbi, Dec 1936). As discussed in Chapter 6, only Japanese were employed on Japanese boats. This practice may be related to Japanese government subsidiaries and incentives for fisheries if they provided employment to Japanese citizens (Udagawa & Uehara, 2012, p. 25). The exception was in pilotage.

Aboriginal pilots were commonly used for safe navigation in dangerous local waters, and while doing so, served in other roles, such as mediator and ambassador. Haultain, of the Patrol Service, confirmed that for the Patrol Service itself to be successful, it needed a local Aboriginal pilot to guide the skipper, and one who could also work as a translator. He argued 'If our work was to have any success at all, we must engage Arnhem-Landers with pilotage knowledge of local waters, and able to interpret the native language of those we contacted along the coast' (Haultain, 1971, p. 221). The Japanese also used Aboriginal pilots. Haultain learned from various informants that local men were used as pilots to navigate reef systems and also to identify good watering sites (Haultain, 1971, pp. 90,167,237). It was also commonly speculated that Aboriginal pilots were used by Japanese pearlers particularly along the southern coast of Bathurst Island, where the waters were known to be treacherous (NAA: A1,1937/2419 Weddell, 12/8/1936).

It is worth considering pilotage to appreciate the status of this job. The *Oxford Companion to Ships and the Sea*, a definitive dictionary of nautical terms, defines pilotage as:

'...the act of navigating a vessel coastwise, especially when the land is close aboard and the water shallow. The expert is able to navigate his vessel in and out of harbour using his local knowledge of the disposition of channels and shoals and their land and sea marks and of tides and currents and other factors that influence safe navigation' (Kemp, 1976, p 647)

Pilotage is a particular skill set requiring local knowledge of reefs, tides and depths, and the ability to draw on that knowledge to provide direction. The Arnhem Land coast is characterised by shallow reefs and sand banks, and in this era, Northern Territory waters were poorly charted, with many of the reefs and shoals not marked. Chapter 4 identified the Wessel Islands in particular as dangerous waters for safe navigation. This confirms pilotage was not menial labour but a skilled service with the very safety of the vessel and crew at stake.

Other references allude to Aboriginal employment aboard Japanese boats, but frustratingly do not confirm the kind of work. Cassidy a patrol officer noted that the foreign luggers used Japanese labour, but did not qualify what they did (Cassidy, 1989). Similarly, in November 1937 the Patrol Service mentioned a man called 'Ringie', who had been employed aboard the

Tokyo Maru, although they did not confirm what he did (NAA:A1,1937/2419 Haultain 23/11/1937). Neither account suggests that anything other than pilotage was performed.

8.6 Permission: bartering for access and resources

In the process of functioning as pilots, Aboriginal workers may have also been expected to mediate over requests to beach and use resources. Seen through the lens of capitalism, permission to land on a beach, collect water and careen boats is about access to property and resources, and so suggests that visitors conceived of local people as owners, not workers. Requests to temporarily enter territory and exploit resources were commonplace between Yolngu people, and so although these were outsiders, and there were language obstacles, this kind of negotiation had precedence in Arnhem Land (N. Williams, 1986).

Fresh water was a major tradable commodity between Aboriginal peoples and Japanese pearl-ers and it is worth briefly considering how difficult it was for visitors to find water along this coast without assistance. The water table along the Northern Territory coast is high, and so small fresh water soaks can be close to the surface. But one needs to know where soaks are. Donald Thomson in an interim report highlighted this problem while wandering in coastal east Arnhem Land stating:

One of the greatest difficulties of this journey was that of finding water; it was not so much that water was lacking, but that on the lower brackish, stretches of these rivers, it is obtained by the natives chiefly from wells, which are known only to those who occupy the territory and who visit these little wells regularly in their nomadic wanderings (NAA, A52, 572/994THO, interim report p. 7).

Fresh water was an essential commodity, and Aboriginal people alone knew where it could be sourced. Negotiations between Aboriginal peoples and pearl-ers may not have stopped at where water could be found, but may have included further negotiations dealing with immediate or ongoing access, as suggested in the following example. In July of 1938, Constable Stokes was stationed alone at the Elcho Island control station, offered as an anchorage for local boats exclusively. He reported that 10 foreign luggers were anchored 12 miles north of his position. He did not confront them, but Aboriginal informants told him that the crews employed locals paying them in tobacco, rice and intoxicants [likely alcohol] (NAA, F1,1938/584, Stokes 6/7/1938). The jobs are not described. He then confirms that the crews had just negotiated the

right to land regularly at the same location. This was a negotiation for access to land resources (beachfront, water and wood), and not just for one visit but for ongoing access. This incident took place well after the arrests of boats by the Patrol Service of luggers found within territorial waters, proving the arrests had no real impact on clandestine visitation.

These kinds of arrangements between visiting fishers and Aboriginal peoples may not have been unusual. McMillan described how crews of indentured Japanese trepangers would land to establish a temporary camp and ‘rent a bit of space’ (McMillan, 2007 p. 122). To what extent pearlery recognised land and water as ‘Aboriginal property’ is unknown. But Stoke’s account establishes that on that day, on Elcho Island, a form of royalty was paid.

Haultain recalls an informant observed a foreign mothership with two luggers entering the Liverpool River, confirming that both supply ships and working luggers ventured inland (1971, p. 87). Haultain was told the visitors traded flour and sugar for access to wood, and had also made gifts of cloth. He distinguishes between bartering and gift-giving, but provides no explanation for the purpose of the gifts. If not related to a specific trade, they may represent attempts to establish longer term relationships. On another occasion the Patrol Service landed officers and inspected an Aboriginal camp southwest of False Point also along the central Arnhem Land coast (NAA, 1937/2419, Haultain 10/12/1936). Officer Myles reported finding empty ‘soy casks’, oil drums and ‘Japanese nagas’ being worn by people, naga being a colonial term for the traditional Aboriginal loin cloth.

8.7 Commodities

The examples cited above confirm that the goods Japanese bartered with Yolngu included alcohol, tobacco, flour, sugar, rice, containers or casks, and cloth. Donald Thomson, the anthropologist, reported tobacco, food, clothes, fish hooks and knives amongst the goods traded by Japanese pearlery, but he did not distinguish between local and foreign crews (NAA, A52, 572/99429THO, report 1936-37, p.15).

Other outsiders active in Arnhem Land traded in similar goods. In 1939 Gordon Sweeney, from the Goulburn Island Mission, suggested trade by the mission with peoples in the Liverpool River region, providing blankets, calico, tomahawks, knives, fish hooks and tobacco for labour, curios and turtle shell (NAA F1,1949/456, Sweeney 16/10/1939 p.15). Fred Gray, the trepanger

operating in east Arnhem Land paid workers in flour, tinned food, tobacco and calico cloth (Gray, 1979, p. 29). Widening the scope, early anthropologists Spencer and Gillen who studied the Aranda (or Arernte) peoples of the central Australian region of the Northern Territory at the turn of the century, traded flour, sugar, tobacco, tomahawks, knives pipes and mirrors to acquire traditional weapons, tools and ceremonial items (P. Jones, 1996, p. 141). The significance is that although many were critical of the Japanese presence, the Japanese did not introduce these items of trade, but were latecomers, trading in what was an existing currency.

In Chapter 2, it was discussed how trade in early Darwin between settlers and the Larrakia people established *negotiated relationships*, and that the Larrakia proved discerning trade partners. There is no evidence to suggest Tiwi, Yolngu or central Arnhem Land coastal peoples were any less discerning in their negotiations with Japanese pearlers in the 1930s. The Catholic Mission on the Tiwi Islands complained that pearling boats employed local men, the consequence being the mission would lose their workforce during the pearling season (NAA,A431,1951/1294, Gsell 1938).

The value of these commodities to the specific groups that received them is not defined in the historic record. Citing other stories of early trade Reynolds recorded how stone tools were rapidly supplanted by iron and steel and how European commodities infiltrated traditional tool kits and trade networks (Reynolds, 1981, pp. 6-7). Rose provides a simple chronology specific to east Arnhem Land:

In 1938 [in east Arnhem Land] the stone axe was still in use although the steel instrument was preferred. By 1941 none were in use although the Aborigines (sic) could still haft them. By 1948 the art of hafting had almost been forgotten and the steel axe was the only type used (1968).

Rose's summary is intriguing but problematic, being a broad generalisation, and mistaking preferences for forgotten knowledge. Yet perhaps he speaks with some authority, visiting the same families over a period of decades.

A final remark on the subject of commodities, is that this story of Japanese contact challenges the academic vernacular on the introduction of 'European' commodities. It is correct that similar items were also supplied by Europeans, and from a utilitarian perspective an axe is an axe. However, from a material culture approach, that considers the movement of specific materials, these goods were manufactured in Japan, not the West and were traded by non-

Europeans. This then deepens our understanding of commodities moving across the north Australian frontier.

8.8 Contact: the sex trade, conflated stories and the relevance of past conflicts

An analysis of clandestine contact between Aboriginal people and foreign Japanese pearlers, must include a critical examination of historical references to the sex trade. It is beyond the scope of this research to investigate the underlying social, political and ethical issues about the sex trade between Aboriginal people and pearlers, analysing for example power relationships, coercion, consent and agency. Work by Connor has tackled some of these issues (2013). Rather, this research sets out to qualify that the sex trade with pearlers happened, to confirm whether foreign crews also engaged in it, and to show that stories of the sex trade and poaching were conflated to work against the image of Japanese pearlers.

A sex trade between Aboriginal people and Japanese indentured pearlers in northern Australia was an issue for governments for decades before the foreign crews arrived in the mid-1930s (Reynolds, 1981, pp. 120-121; 2003, pp. 136-142). By the 1930s the focus was on the Tiwi Islands, where the sex trade was said to be most prevalent. Some reports suggested Buchanan Island, off the main islands, was one established rendezvous point (Singleton *Argus* 15/6/1936, p1.) Father Francis Xavier Gsell from the Catholic Mission at Nguiu on Bathurst Island reported in 1931, years before foreign fleets had arrived, that pearling lugger crews bartered food, clothes and tobacco for sex (NAA, A431/1951-1294, Gsell, Dec 1931, p. 2). He described it as widespread. Seven years later he confirmed that the trade was still strong, and that the mission couldn't compete by providing other employment, because in part the crews were so generous with their goods (NAA, A431/1951-1294, Gsell, Dec 1938, p. 3). It was also said to be prevalent at the King River, a watering place for luggers along the central Arnhem Land coast (NAA, A52, 572/99429THO, report 1936-37, p.15).

Firsthand observations of the sex trade can be divided between those that made a distinction between local and foreign pearling crews, and those that did not. Firsthand observations came from different sources, including government officials on the ground, patrol officers, missionaries and anthropologists. These stories were repeated by others such as church leaders, politicians and journalists. The distinction between local and foreign is not semantic. As

detailed below, many who wrote with direct firsthand experience concluded that it was exclusively the local crews that bartered for sex, and not the foreign crews.

There was a clear reason why some observers did not distinguish between local and foreign crews in their reports and writings. Donald Thomson, in a report to the government, did not differentiate, calling all Japanese pearlers and trepangers intruders and a threat to traditional life (NAA, A52, 572/99429THO, report 1936-37, p.15). Similarly, Father Gsell wrote extensively on the subject of the sex trade, petitioned for direct action, but did not distinguish between them (NAA, A431/1951-1294, Gsell, Dec 1936 p.2). The reason was not ignorance. The distinction could be easily made, as Australian luggers were marked with registration prefixes and foreign boats marked with Japanese names. The explanation, rather, was that both Gsell and Thomson were strong advocates for isolating Aboriginal people from all outside influences. Therefore, the discrepancy of who owned the boat that the intruder arrived on was irrelevant. With the distinction not being consistently made, newspaper stories would conflate the accusations of the sex trade with poaching; making Japanese fishers guilty of both stealing Australia's natural resources and contributing to the moral decline of northern Aboriginal peoples (Truth 17/1/1937 p 18; Connor, 2013, p. 63).

The sources arguing that it was local crews exclusively are authoritative. Both Haultain from the Patrol Service, and Abbott, the Northern Territory Administrator, identified the offenders as local crews (Haultain 1971:81,85,167; NAA A659 1939/1/7917, Abbott, 23/3/1938), Courier Mail 4/5/1938 p2). Cook, the medical officer, who was concerned with tracking infectious diseases, and so studied the issue from a health perspective, also confirmed it was the local crews (NAA A659 1939/1/7917, Cook 16/12/1936). In 1937 when the government was consulting before introducing the ordinance to ban all luggers from the territorial waters off Aboriginal reserves, the Minister met with a contingent of missionaries. Reverend Burton made the case that the government must not fold under pressure from Australian Pearling Masters to exempt local luggers, because it was the local crews, not the foreign crews, that bartered in sex (NAA, F1,1937/600, Carrodus 28/5/1937). The Minister assured the ordinance would ban all luggers.

There were other ordinances devised to manage interactions between visitors and Aboriginal people that had a bearing on the sex trade. A 1936 ordinance made it an offence to sell, give or supply, or permit to be sold, any intoxicating liquor to an 'Aboriginal or a half-caste' (*Ordinance no. 4*, 1936). Under the same ordinance any male person (except for 'Aboriginal

or half-caste') who cohabits or has sexual relations with any 'Aboriginal or half caste', who is not his lawful wife, shall be committing an offence. This included loving relationships.

The ordinance that resulted in the prosecution of pearlers over the sex trade was Ordinance 32 (1918-1937), which prohibited any Aboriginal woman from being aboard a boat unless authorised. In 1939 three local luggers were seized in the Tiwi Islands under Ordinance 32 when officers found women aboard (NAA: F1, 1939/503, Lovegrove 13/3/1939). It resulted in one dismissal and two convictions. In the defence of the guilty, it was proposed that in many cases, women arrived by canoe and boarded uninvited 'begging for food and soliciting prostitution' (NAA: F1, 1939/503, Lovegrove 13/3/1939). It was further argued that the women could be driven away, but that may have had repercussions for the crew when they landed to collect water and wood (NAA: F1, 1939/503, Giles 16/3/1939). Further on this issue, the President of the Japanese Society of the Northern Territory made a plea for leniency in the case of these men, and requested that a police base be established at Melville Island so that crews could restock water without suffering either harassment or temptation (NAA: F1, 1939/503, Nakashiba 13/3/1939). If this account of the situation was correct, it showed that the trade was so entrenched, it had established an expectation. There were no prosecutions of foreign boats under the same ordinance.

Some accusations against Japanese crews were simply fabrications. In 1937, an article in the Cairns Post and associated newspapers, reported that an Olaf Wolgarsen was mining in Arnhem Land and observed Japanese pearlers procuring Aboriginal children for sex and trading in rum and opium (Cairns Post 13/2/1937, p.6). He had also repeated stories of Japanese throwing women overboard (murdered) to avoid prosecution. The authorities pursued the issue with the newspaper because Wolgarsen had no permission to enter the Arnhem Land Reserve to prospect. It was concluded that he had never entered Arnhem Land, and so the stories fabricated (NAA A1, 1937/4639, Abbott 6/8/1937). The story was not publicly retracted.

There are contributing reasons why the foreign crews either did not engage in the sex trade at all, or did so to a far lesser extent. One reason can be drawn from a comment by Cook who confirmed that not all the local pearlers bartered for sex, but rather it was a smaller group of habitual offenders (NAA A659 1939/1/7917, Abbott, 23/3/1938). This implies it was not some norm for either local or foreign pearlers, but rather a practice by a smaller group of outliers. Another possible explanation was that that foreign crews did not seek shelter on shore at every spring tide, but would spend many of these periods at the anchorage at sea with the rest of the

fleet. Therefore, there was less opportunity. A third explanation was that the foreign pearlers were too fearful. Local boats were crewed by Aboriginal men and experienced indentured workers, all whom may have had relationships with remote Aboriginal groups. This was not the case for visiting foreign crews. Building on their fear, recent events proved the risk of violence was real, with a series of murders of both Japanese and white men in east Arnhem Land by Yolngu some years earlier (Dewar, 1995).

The most relevant of these stories was the murder of five Darwin based Japanese trepangers by Yolngu in Caldeon Bay in 1932. There is a wide body of work on this story, including the court records of the murder trial, commentary at the time by stakeholders and the media, and more recent analysis by historians and popular writers (Dewar, 1995; Evening News Rockhampton, 17/10/1933; Lamb, 2015, p. 123; Powell, 2010, p. 210). In short, the defence argued that the Japanese trepangers had mistreated local Yolngu men and had abducted a group of women molesting one (NAA, A1, 1936/111 Kirkland 1/4/1935). Three Yolngu men were found guilty of murder in 1934, and sentenced to 20 years, but after considerable lobbying they were freed in 1936 (NAA, A1, 1936/111).

Regarding this incident Dewar concludes that, although the true motive for the killings was not known, the accepted narrative was that the murders were in retaliation for mistreatment, and for the abduction and molestation of women (Dewar, 1995, p. 43). Although some in court questioned whether these accusations were true or fabricated, this defence was believed by many and the accused gained wide sympathy. The Caledon Bay murders would certainly have been a story circulating amongst local and foreign Japanese pearlers, and may have served as a warning, heeded by many but not by all. Peaceful trade was possible, but mistreatment, particularly around sexual misconduct, can end in violent retaliation.

One useful way to frame past examples of violence between Japanese visitors and Aboriginal peoples, and consider their relevance to these stories of contact, is the Individual Circumstances Model. It is a model applied to contact stories between Macassan and Aboriginal peoples; and proposes that there was no consistent state of either collaboration or hostility, or widespread change over long periods of time (Macknight, 1972, p. 289; Mitchell, 1994, pp. 94,110). Rather, it was the individual circumstances of a situation, and also the particular persons involved, that determined whether it was a peaceful or violent interaction.

8.9 The archaeological evidence for a Japanese presence on the coast

Many past archaeology and anthropology studies have failed to fully recognise Japanese visitation to the Northern Territory coast in the early 20th century, and so there are implications for interpreting archaeological and anthropological evidence. For example, contact archaeology studies have generally not recognised Japanese visitation, and with it the implications for identifying ceramic provenance. Some researchers assume Macassan provenance, but only describe their artefacts as ‘exotic to Australia’ or ‘porcelain of Asian design’ (Mitchell, 1994 p. 197; Wesley, Jones et. al. 2014). The 1948 American-Australian Expedition to Arnhem Land is an early and seminal example (Mountford, 1946; Thomas, Meale 2011). This expedition collected hundreds of pot sherds along the beaches (Mountford, 1956). While these visiting academics were quick to identify them as Macassan in origin, there is no general reference to Japanese visitation in the proceedings, nor a more specific acknowledgement that Japanese fishers may have also discarded or traded ceramics. The published records of the expedition present only a small select sample of what was collected.

This bias towards a Macassan explanation for findings is a consistent theme throughout the expedition records. A song was interpreted as being about a Macassan prau, however this vessel is described as having an engine, the problem being praus had no engines (Mountford, 1956, p. 98). This discrepancy was appreciated and the explanation provided was that more recent observations of *European* boats infiltrated the song. A similar example is the diagram below. It is of finger string art, and described as depicting a Macassan prau. However, the informant also provided descriptions of cargo including rice, tinned meats, jam, sugar and tobacco. Tins and jars of jam have not been excavated at Macassan sites, nor are these foods generally associated with the Macassan seafaring diet. The rice suggests an Asian crew, such as indentured Asian pearlshivers or trepangers from Darwin, or a crew aboard a foreign owned vessel. Those preferring a Western diet generally carried flour over rice.

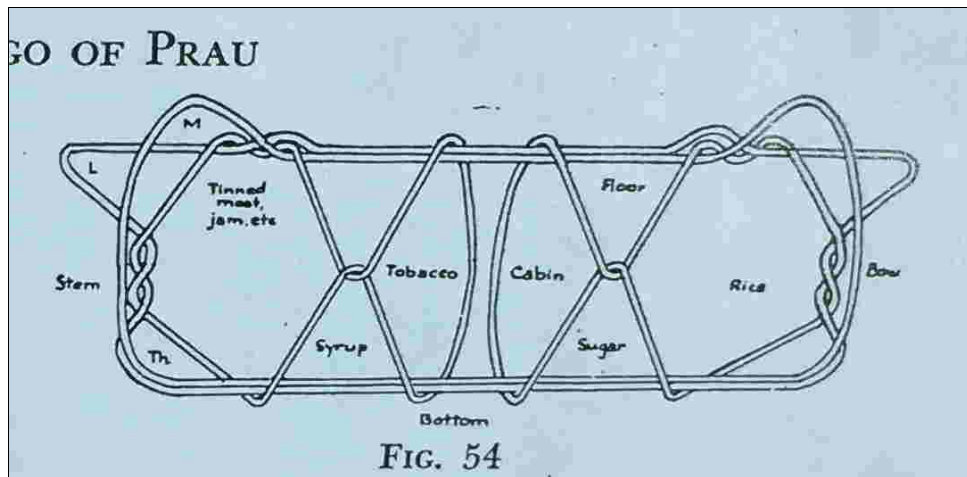


Figure 82. Finger art said to depict a Macassan prau but labelled with food stores not generally associated with a prau voyage (Mountford, 1956, p. 462)

While there is no evidence that either the song or the finger art refers to a Japanese vessel, or Japanese crew, these examples do reflect a blinkered perspective of visitation, and an underlying bias towards Macassan explanations for anthropological and archaeological evidence. Later in this chapter specific examples of researchers identifying Japanese ceramics as Macassan are provided.

Others researchers did acknowledge 20th Century Japanese visitation along the Northern Territory coast, and its implications for understanding the archaeological record (R. Berndt & Berndt, 1947). This included Thomson who recorded ‘shovel headed’ spears in east Arnhem Land, the head consisting of iron salvaged from Japanese trepang processing drums (Museums Victoria, ethnographic collection DT002026). The most detailed treatment to date was by Macknight, in his archaeological study of the early trepang industry along the NT coast, in which he identified and sampled Japanese ceramics (1969a). At Junction Bay he noted that the site was scattered with evidence of Aboriginal, Macassan, European and Japanese occupation (Macknight, 1969a, p. 140). Along the eastern and northern beaches of Entrance Island he identified post-Macassan material, confirming it likely Japanese, including 44-gallon drums and various bottles, the latter of which he sampled (Macknight, 1969a, p. 148).

Along the Liverpool River large sherds of ‘water pots’ were identified as Japanese in origin (Macknight, 1969a, p. 148). There is a strong likelihood that these were examples of Tokoname-ware stoneware jars, as excavated from the *Sanyo Maru* (SM46). Macknight’s categorisation of them as ‘water pots’ is not explained, and may refer to an assumption of

function or even reuse by Aboriginal people. Similarly, Japanese stoneware jars are likely behind the observation of ‘empty soy casks’ noted in an Aboriginal camp by Patrol Officer Myles in 1936, referenced earlier in the chapter. While ‘cask’ generally suggests wood, Myles may have used the term to distinguish size and a round barrel-like shape.

The author inspected three stoneware jars collected from the Arnhem Land coast that closely resemble SM46 (*Sanyo Maru*), and have been identified by the author as more examples of Tokoname-ware sake jars. One jar was wrongly identified as colonial in origin, and the other two had been previously identified as Macassan. The first was collected by Dr Carol Palmer with Aboriginal rangers in the intertidal zone of a beach on Marchinbar Island in circa. 2006 (pers.com Carol Palmer 09/08/2016). The exact location of the deposit had been forgotten in the 10 years since they collected it. The object was inspected by the author before the November 2016 expedition to the *Sanyo Maru*, and the subsequent discovery of SM46 as a potential comparison. In August 2016 one Australian expert suggested it was colonial (pers.com 09/08/2016). Dr Jun Kimura, Tokai University Japan, suggested it was a Tokoname-ware jar. The latter would be confirmed by a comparison with SM46. At the time of writing the author is negotiating to have the item returned to Galiwinku.



**Figure 83. Marchinbar Island jar recovered in circa. 2006
Identified and photographed by the author**

The Marchinbar jar depicted above provides an interesting comparison to SM46. Unlike SM46 it has no lug/handle. Discolouration from the salt glaze is more noticeable on this artefact, although this may be a product of post-depositional processes. The line between the shoulder and body appears uneven, showing imperfection in manufacture. It has a distinctive wear pattern around the shoulder, not found on SM46, which may be associated with securing for storage and transport. SM46 does not show this wear, possibly because the lug provided a securing point.

The second jar was recovered by elders from the Warruwi (Goulburn Island) and Minjilang (Crocker Island) communities some time prior to 2007, found on a beach on the mainland east of Goulburn Island. First held at Warruwi, in 2007 it was given to the Museum and Art Gallery of the Northern Territory (MAGNT). When inspected by the author in 2019, it was in the receiving room of the MAGNT and allocated the identification REC-1260. It had not been formally accessioned. Expert advice provided to the communities by a visiting researcher in 2007 was that it was Macassan in origin (author, copy of correspondence, Minjilang Community-MAGNT 20/10/2007). The MAGNT did not question this assessment. It is another example of a Tokoname-ware sake jar. Similar to the jar recovered from Marchinbar Island, but in contrast to SM46, it has a distinctive wear pattern around the shoulder, again possibly associated with storage.



Figure 84. Warruwi/Minjilang jar, currently held at the MAGNT as REC-1260 identified and photographed by author

The third jar is held at the Djomi Museum and managed by the Maningrida Arts Centre in Maningrida, located along the central coast of Arnhem Land. The author visited the museum and centre in November 2020, and noted an entry for a Macassan jar in the artefact index system, numbered 0456. The item is described as ‘3 pieces of a Macassan shards (sic) found on beach at Ndjudda Point by ex-Maningrida resident’. The resident is identified by name and being a ‘balanda’ (European descent). The image below was taken by the author in November 2020. Now broken into seven pieces, diagnostic characteristics include its shape, material, glaze, dimensions, distinctive shoulder and flat top. Like the other examples collected along the coast, but unlike SM46, it has a distinctive wear pattern around the shoulder.



Figure 85. Item 0456
Djomi Museum/Maningrida Arts Centre
identified and photographed by the author

A jar which matches SM46, and the jars above, was recorded on the ‘Helmet Wreck’ in Malakal Harbor (sic) Koror in Micronesia (Macdonald, 2016, p. 164). Unidentified, the wreck has been classified as a Japanese requisitioned coastal ship, sunk at war time and loaded with military equipment. A description identifies this jar as ‘a ceramic container’ and notes that sake bottles and cups are also on the wreck. This match shows the continuation of tableware forms through wartime, and hence their appearance in wartime shipwreck assemblages.

Returning to Macknight’s fieldwork, in 2019 the author examined the Macknight artefact collection held at the MAGNT. Macknight sampled randomly across the coastline, collecting Macassan and post-Macassan material, but not consistently confirming where the post-Macassan material was collected. An examination confirmed four Japanese beverage and medicinal bottles. One bottle collected from Arnhem Bay was identified by the author as a Durikono non-alcoholic tonic bottle (MAGNT: Collection No. AA2003.3, Box 21). Diagnostic characteristics include its shape, colour, size and distinctive embossed ridges on the body and the manufacturer mark on the base. Two matching Durikono bottles were excavated from the *Sanyo Maru* (SM75, SM76). Arnhem Bay is located south of the English Company Islands approximately 235 kilometres east from the Japanese anchorage. Macknight also collected decorated porcelain sherds, none which matched decorations and motifs depicted in the *Sanyo Maru* collection. Macknight ascribed these to Macassans, but admits the analysis was rudimentary (Macknight, 1976, pp. 280-281).



**Figure 86. The Japanese Durikono bottle from the Macknight collection, MAGNT
Identified and photographed by the author**

The three stoneware jars and the Durikono bottle are examples of Japanese material culture deposited/discarded along the Northern Territory coast, which match ceramics excavated from the *Sanyo Maru*. The possible scenarios associated with the discard may be either Japanese crews landing, establishing a temporary camp, and discarding after use, or these are items bartered with Aboriginal people, used for a time and then discarded. Either way it is more probable this material is associated with foreign pearlmen, and not local indentured pearlmen, because these items were more readily available from the supply ships that serviced the foreign crews, or were bought by these crews from Palau. The possibility that foreign crews traded these items with local pearlmen who then discarded them must also be acknowledged.

These discoveries match historical accounts of where Japanese landed. Although a specific location for the Waruwi/Minjilang jar was not recorded, the general area includes the King River, a known meeting place between central Arnhem Land people and Japanese pearlmen. The Maningrida jar was recovered from Ndjudda Point, the east point of the Liverpool River, the Liverpool River being another known meeting place. Marchinbar Island, where a jar was recovered in 2006 was also a known meeting place. As noted, the Durikono bottle was recovered from Arnhem Bay. While historical references for Japanese landing at Arnhem Bay were not found, references confirm Japanese camps were in the general proximity.

The finding that some researchers have ignored Japanese visitation generally, and that Japanese material culture has been wrongly identified as colonial or Macassan, exposes a problem in contact-related research and material culture analysis. A simplistic judgment has become

common practice in which ceramic finds are identified as Macassan, simply because they appear exotic, imported, or ‘Asian’, and were found along the coast. This problem of provenance may also extend to white porcelain sherds with unidentified decorative blue motifs. The *Sanyo Maru* assemblage now provides a rich dataset of Japanese ceramics from Arnhem Land waters for comparative work, allowing for more discriminating analysis.

8.10 Conclusion

The Tiwi Islands and the Arnhem Land coast was a frontier where for a short but intense period a discrete informal economy operated, formed by contact, trade and negotiation between foreign fishers, coastal Aboriginal peoples and indentured labourers. These were three groups of people who did not hold Australian citizenship, and whose movements and activities were heavily restricted by the Australian government. In this economy, the crews of different companies did not compete but worked alongside each other, and in some ways, collaborated. Foreign fishers bartered with Aboriginal people who visited them at sea, and when they landed along the coast, in breach of local ordinances. These clandestine activities went mostly unobserved, with government officers recording glimpses, nor seeing signs of activities; activities they could neither witness in full nor successfully control. These activities were outside the formal Japanese pearling industrial system, and show the true footprint of this industry.

This chapter set an agenda for future research. It brings together historical references and archaeological findings of Japanese landings, and so serves as a resource for future coastal archaeological investigations. The chapter has also highlighted the need to bring Japanese fishers more clearly into histories of visitation and the analysis of material remains. The misidentification of Japanese stoneware shows this failure has impacts not just on the archaeology of the Japanese in the Northern Territory, but also on contact studies more broadly. The need for greater discrimination in the analysis of archaeological evidence extends beyond ceramic analysis, and may include other evidence such as rock art depictions of watercraft (Chaloupka, 1993, p. 195; Wesley et al., 2012).

Chapter 9: Discussion and Conclusion

9.1 Introduction and review

This chapter provides the discussion and conclusion of this dissertation, explaining and evaluating the results of the research in relation to the specific research question posed in Chapter 1. Furthermore, it provides new ways of framing north Australian contact history and past fishing fleets. The chapter confirms the relevance, significance and contribution of the research, and the possible directions of future work. The following provides a review of the thesis structure, as the framework for how the thesis question was approached, and provides a brief summary of the main results.

Chapter 1 of this thesis provided the aim and scope of the research, assessing the literature on the subject and identifying the substantial knowledge gaps both in history and archaeology. It positioned this study as being, primarily but not exclusively, the archaeology of a single shipwreck. Chapter 2 provided the theory and concepts that frame this research. It began by placing the study within an archaeology theory framework, and then articulated the themes or lens used to frame this study. It provided a hermeneutic model of exploring territorialism and economic imperialism, historic themes specifically relevant to this topic, as conceptual pathways to discourse on the bigger picture themes of colonialism and capitalism in archaeology. The chapter also examined other concepts, such as a maritime industrial frontier, and showed the capacity to use approaches outside of archaeology, such as contemporary organisational theory to understand the pearling system.

Chapter 3 provided an explanation of the methods used to address the research question, including the survey and excavation of the *Sanyo Maru*, interpreting site formation processes, the critical analysis of historical sources and the search for and examination of coastal finds held in local collections. It explained the use of work outside of archaeology and history which included organisational theory, foraging behaviour and contemporary fleet dynamics, and the value of firsthand experiences of those who worked in related industries.

Chapter 4 framed the local setting explaining how the Japanese industry was, in part, shaped by local conditions and circumstances. This included natural forces, the lack of regional ports, missions, and the nature of the local pearling industry, in which it was in competition. This is all encapsulated within the lens of a maritime industrial frontier. Findings included that there

were no regional ports to provide a colonial presence in the pearling regions, and that the local pearling industry offered no real competition. It explained how the tides and turbidity determined the work and rest cycle. It also identified Japanese trawling in north Australian waters, and plans for a fish cannery on Groote Eylandt, illustrating how pearling represented only one Japanese commercial interest in north Australia waters.

Chapter 5 and 6 were companion chapters providing a comprehensive history of Japanese pearling. Chapter 5 findings revealed the evolution of Japanese pearling, from small company to corporate entity, and how this changed the operation. The chapter established 1937-1938 as a boom period, and made the connection between pearling and research at the fleets' homeport in Koror, and contemporaneous conflict between other Japanese fishers and other nations. Chapter 6 built on the preceding chapter providing a more specific examination. It mapped the pearling grounds, considered the impacts of local ordinances and how the Japanese adapted. Responding to gaps in the historical sources, it drew on foraging behaviour and modern analogies, to explain diver-level decision making, and fleet dynamics and network theory to explain fleet-level decision making. Finally, the chapter provided a review of vessel types including a history of the *Sanyo Maru*.

Where Chapter 6 placed the *Sanyo Maru* within the fleet, Chapter 7 provided a study of the *Sanyo Maru* as an archaeological site. It identifies natural and cultural site formation processes, and used the results of the archaeological survey to identify its class as a merchant ship. The *Sanyo Maru's* suitability for the role of supply ship is considered, based on recorded aspects of design such as deck space. The demarcation of private and working spaces reveal living conditions and cultural preferences in the galley and wash space are identified. The excavated assemblage, predominately tableware, provided insight into life aboard and aspects of class and cultural identity. Ship stores provide a mix of Japanese and imported supplies.

Where Chapter 6 and 7 focused on the formal industrial process, Chapter 8 examined evidence for an informal economy and clandestine activities. This expanded our understanding of the industry from being only a closed system (independent machine) to a more comprehensive picture, encompassing the organisation as organism (see Chapter 2). Findings showed that Japanese fishers traded goods with local indentured pearling crews and secretly landed to hunt, rest, and replenish supplies, painting a more inclusive, thus more comprehensive, picture of a frontier industry. These stories are framed as contact history, involving negotiations with Aboriginal land owners. Stories of secret landings have a direct bearing on archaeology.

Although the visiting fleets did not build significant coastal infrastructure, there may be material evidence of temporary camps. The study identifies a common failure amongst past researchers to consider Japanese visitation and its relevance to interpreting the archaeological record. The study then proves this argument by re-examining artefacts in collections, identifying them for the first time as Japanese.

9.2 The fringes of an informal empire

The research question posed in Chapter 1 asked what the Japanese pearling industry of the late 1930s revealed about Japanese imperialism. A related sub-question asked what Japanese economic, political and ideological forces shaped the pearling system. Part of the answer lies in the ‘informal empire’, a concept introduced in Chapter 2, which was a form of empire building that did not result in settlement, occupation or military and political control, but was characterised by commercial domination, industrial expansion and the extraction of resources from foreign territories (Gallagher & Robinson, 1953). Japanese pearling in the Arafura Sea was connected to a Japanese pelagic (marine) empire that included trawl fishing across northern Australia, dominant fisheries in Asia and the Pacific, whaling in Antarctica and salmon fisheries in Alaska (ACIPR, 1934; Coen, 2013; Higuchi, 2007; Kawamura, 1980; Peattie, 1992; Scheiber, 2004; Shimizu, 1997; Shindo, 1983; Tsutsui, 2013). It was an era when far more of the world’s oceans constituted the Open Seas or ‘common pool resource’ (Campling & Colás, 2018; Hardin, 1968; Heidbrink, 2008; Wijkman, 1982) and foreign fisheries could operate with impunity close to the shore of other nations. This was unchecked capitalism over the sea.

The Japanese informal empire was based on a particular kind of economy and driven by particular doctrines. It involved a close collaboration between government and industrialists, monopolistic control of industries, big investment, and valuing industrial and organisational sciences (ACIPR, 1934; Crawcour, 1998, pp. 384-444; Fukasaku, 1992, p. 65; Hashimoto, 1999, pp. 213, 221; Kawamura, 1980; Moore, 2006, pp. 3,10,21; J. Roberts, 1973, p. 246). Doctrines that explain these motivations include *nanshin*, the southern advance (Peattie, 1992), and *kokusanka*, self-sufficiency through national manufacture (Samuels, 1996, p. 41). *Kokusanka* is a useful concept to bring a material culture lens to this history, and guide insightful analysis of ship stores from the *Sanyo Maru*. The Japanese informal empire reframes our understanding of maritime encounters across northern Australia during the 1930s, repositioning northern Australia as being on the fringes of a Japanese industrial empire.

This empire was not made up of individual entrepreneurs and small-scale fishers, but of large fleets controlled by major commercial entities, such as Nanyo Kohatsu, dedicated to regional development in Southeast Asia, and Mitsui, one of the largest and most powerful conglomerates (zaibatsu) in Japan. Their fleets were far larger in number than local fleets, their boats larger, more technologically advanced and their system of resupply more sophisticated. A journalist who visited the fleet in 1938 described the boats at anchorage as a floating township bigger than any north Australian town (Southwell-Keely, 1938). Japanese pearling embodied two painful truths for Australia at this time. The first was that as territorial waters only extended three nautical miles out to sea, foreign fleets could work close to Australia with impunity. The second truth was that in competition over these fisheries, Japan dominated. Together these challenged Australia's expanding idea of its maritime sovereignty; doing so by affirming it had no legal claim, and proving it was unable to exploit the resource effectively.

The informal empire is an accurate and important lens through which to frame Japanese pearling off northern Australia, contrasting with the view of Japanese fisheries as some prelude to war. As argued in Chapter 2, it is a mistake to assume that all Japanese pearlers were spies, and fishing was a pretence for mapping the Australian coast. War was not inevitable in 1937-1938, and the Australian government of the time framed the problems with Japanese pearling not as a military issue, but one of commercial domination confronting Australian sovereignty over valuable marine resources. As a dissertation aimed at providing a more comprehensive and nuanced understanding of the history of pearling, this is a significant conclusion in itself. This also has implications for the archaeology of shipwrecks associated with Japanese fisheries in this period. As explored earlier in this chapter, and in Chapter 2, if ships are expressions of homeland aspirations and priorities, then the informal empire analogy correctly frames the *Sanyo Maru*, as representative of commercial, not military, aspirations.

Moving away from a paradigm about conflict and war provides space for an examination of historical themes about resource exploitation. Pannell labelled European pearlers and whalers operating in Australia as 'resource raiders' (Pannell, 1998, p. 236) depleting local stocks and moving on with no regard for either conservation or Aboriginal sovereignty. Evidence has shown that the Japanese certainly overexploited the shell beds across northern Australia over this short peak period. Therefore, this characterisation of resource raiders may be applied here.

Further to the topic of resource exploitation is colonial bioprospecting (Brockway, 1976; Schiebinger, 2004), a practice in which colonial scientists transferred wild stock from foreign

lands to their colonies or homelands to build industries. Chapter 6 discussed the *Seicho Maru No.10*, which was used to transport live juvenile shell back to Palau for cultured pearling. This practice contradicted assurances to Australia from Yamami, an industry leader, that Japanese pearlery were not interfering with immature beds (NAA: A1,1937/13441, Yamami 20/08/1937). While maritime industries may have had less impact on Aboriginal peoples in comparison to the seizure of lands for mining and pastoralism, (see Reynolds, 1981, p. 143), this study recognises that marine resource raiding and bio-prospecting are valid allegations.

9.3 The functions and symbolic meanings of the *Sanyo Maru*

Chapters 6 and 7 establishes that the *Sanyo Maru* served the Japanese pearling fleet specifically as an unpansen, a large transport/carrier. Australian records had consistently, and incorrectly, described it as a pearling mothership, a problematic generic classification, too commonly assigned to vessels observed around the fleet which were not diving luggers. The *Sanyo Maru* had a specific role and schedule. It visited periodically, bringing supplies, and took away the shell and the injured, but did not stay over the harvest/diving period to manage operations. The simplistic designation of the *Sanyo Maru* as a mothership reflected Australia's historic ignorance of the specifics of the Japanese operation. The implication of this is not just a technical detail, but better explains the role of this ship in the greater Japanese industrial project.

The *Sanyo Maru* was not purpose-built for the pearling industry, but was of a more generic design. It was built as a small cargo ship, and was described by observers who understood Japanese merchant ship types as a fish carrier; cargo ships assigned to supply fishing catch boats, and transport the fish harvest back to port (ONI 298-J,2,SCI; SNNS; Tsudani, 1977, p. 164). In 1936 Japanese fisheries based at Singapore included 54 fish carriers (Shimizu 1997:335). The *Sanyo Maru* was reassigned to serve the pearling fleet by its new owner in 1937, a person with commercial interests in Southeast Asia, but no direct connection to pearling (see Chapter 6). Where luggers and motherships were purpose built for pearling, the *Sanyo Maru* was not. In this way the *Sanyo Maru* demonstrates how Japanese pearling did not operate in isolation, but was increasingly connected to other commercial interests in the region.

The connection of this specific shipwreck to this larger pelagic empire, shows the importance of interpreting the particular significance of one ship from a whole fleet. As cited in Chapter 2,

Hodder explains that in Contextual Archaeology the interpretation of material remains is an ongoing process of refinement (1992, pp. 15,162,167). As we learn more, our interpretation becomes more nuanced. Perhaps from a different perspective it could be argued that any ship from the fleets represents the Japanese pelagic empire. However, after a careful reading of the *Sanyo Maru*'s particular history, the connection is clear and unique.

The *Sanyo Maru* sank whilst operating as an essential part of a specific industrial system. This research has examined this role drawing on fragmentary historical records and other sources including organisational and network theories (Morgan, 2006; Putten et al., 2012). In this context, the *Sanyo Maru* functioned as an essential node in a closed organisational system. The main explanation for its sinking was that it was overloaded with a cargo of shell harvested by the luggers, in what was a fatal bottleneck in the process. With Australian restrictions on caching shell on shore, the sinking of the ship was a consequence of a failure by the Japanese to adapt to restrictions enforced by Australian authorities.

As a supply ship that visited the fleet at anchorage the *Sanyo Maru* fitted the characterisation of 'miniature emporium', a term used to describe a similar Japanese supply ship by an Australian journalist in 1938 (Southwell-Keely, 1938). Here the term emphasises the diversity of goods distributed. These went beyond essentials and included for example personal grooming items. As part of a closed system of supply, these emporiums enjoyed the monopoly of a company store (Fishback, 1986). Returning to the archaeology of the wreck, and the specifics of ship architecture, again one can appreciate the *Sanyo Maru* was not purpose-built to serve this function. Unlike motherships such as the *Asahi Maru* there were no stern hatches to deliver goods, or large deck spaces to store and offload materials by type (see Chapter 7).

As confirmed by Adams, much of past shipwreck archaeology has focused on what physical traits explain about building traditions, but less work has met the research challenge of what ships symbolically meant to those in the past that used them (2010, p. 302). The response to this challenge is to conceive these visiting supply ships, such as the *Sanyo Maru*, as an *aide memoire* for the lugger crews. For these crews the waters off northern Australia constituted foreign and unfriendly waters distant from home, and crews stayed at sea for months at a time. In this context supply ships provided two services. Their arrival constituted a reason for the dispersed fleet to rendezvous, creating the temporary floating township (Southwell-Keely, 1938). This was a social event (ibid). Secondly, they distributed personal correspondence, letters from loved ones, photographs of family and local newspapers (Southwell-Keely, 1938;

Tachibana, 1937). Here, ships are *cultural agents*, reminding crews of home, identity and allegiances, which also brings the reader back to the concept of an organisation as culture (see Chapter 2).

9.4 Life aboard and evidence of an empire

As discussed in Chapter 2, one approach in shipwreck archaeology is examining the ship as a closed society or community (Adams, 2010; Muckelroy, 1978; Staniforth, 2006). In such studies one may consider what cultural and social norms from the homeland informed life aboard the ship, and in what ways life aboard differed. Here the particular historical context of the *Sanyo Maru* informs our understanding. This was a Japanese merchant ship from the 1930s crewed by merchant mariners. In this regard the archaeology of the *Sanyo Maru* is the archaeology of a ‘unpansen’, a carrier/transport ship, similar to those working throughout other Japanese fisheries at the time.

Archaeological analysis of life aboard has landed on three themes: living and working spaces on Japanese merchant ships, hierarchy, and culturally informed practices. Although no ship plans of the *Sanyo Maru* were found, the ship architecture was realised by archaeological investigation, which was then compared with plans of similar merchant ships. Living space was cramped, but hierarchical, with the Captain housed below the bridge and officers in private quarters. The space provided for social and private life was minimal. The engine casing took over much of the cabin, and the remaining space was divided between ordinary crew, officers, stores, some cargo, the galley and amenities. Some features represent cultural preferences: such as a stove top rather than an oven (*kamado*), for the cooking of rice and soups, rather than baked foods; raised wooden floors to sit on and bucket washes rather than showers.

The majority of excavated artefacts (68%) represent tableware, and the vast majority of these were excavated from one storage shelf, stacked tightly together. This provided strong physical parameters and identified this as a single table-set. The assemblage was analysed from multiple perspectives. As a table-set it represents a traditional meal for approximately seven people made up of a variety of condiments and side dishes that required use of different food stores, and labour in preparation and presentation. Here, Japanese culinary culture shaped food consumption. It also signifies hierarchy aboard the *Sanyo Maru* with analysis confirming this represents meals for the officers, not the crew.

Motifs decorating the porcelain are images that would have been familiar to the officers, and were traditional subjects, depicting characters from Japanese theatre or motifs of animals, plants and landscapes symbolising good fortune. The archaeology of World War II internment camps for Japanese residents in the United States provide valuable comparison. Skiles and Clark identify Japanese ceramics brought into Amache, a Japanese internment camp in Granada, Colorado (2010). As discussed in Chapter 2, these authors make the important observation that regardless how exotic these ceramics may be to the researcher, they were deeply familiar to the users (Skyle and Clark 2010:190). The authors also describe the ability of food consumption and traditional tableware to evoke memory and nostalgia:

Foods, their preparation methods, and their associated material objects, such as utensils and serving dishes, can represent and reflect elements of culture and this also represent group identity. Among groups of people, the act of eating is frequently a social event...In some cases, memorable aromas, flavors (sic) and food practices can also reinforce a sense of home and self, when home is far away or inaccessible (Skyle and Clark 2010:186).

Traditional meals amongst the officers, lubricated by sake (see sake cups and decanters SM17, SM18, SM27, SM28) and Japanese beer (see bottle SM74), were opportunities to reinforce group identity and reconnect with homeland culture. Through daily custom and habits surrounding food consumption, cultural norms were reinforced while working in foreign waters far from home. The porcelain tableware motifs reflected elements of traditional culture rather than overt ideological symbols of the empire, such as depictions of flags, the military campaign in Manchuria or industrial successes. In Amache and elsewhere this is the archaeology of the Japanese in diaspora. On the maritime frontier, on the fringes of the empire, traditional meals on classically decorated tableware, and celebratory toasts of sake were familiar experiences reinforcing shared culture.

The ceramic tableware excavated from the wreck proved to be cheaply made mass-produced porcelain from Japan. The research identified where in Japan many of the ceramic artefacts were manufactured, and recognised that many decorations are smudged and or misaligned. Motifs were repeated because the same stencils were reused again and again, and the work is imperfect because speed and efficiency were a priority over quality. Some have identified Southeast Asia as the market for this product (Dick, 1989). But as these artefacts represent ship stores aboard a Japanese merchant ship, this study confirms these products were also consumed by Japanese. This resonates with research on the purchase of imperfect seconds, and the existence of different classes of consumers within a society (see Crook, 2011).

Correspondingly, the appearance of cheaper bakelite amongst the lacquerware, similar in form and appearance, shows the effort to maintain traditions and appearances within what was affordable. This relates back to the Japanese officers specifically aboard the *Sanyo Maru*. Whilst the officers dined on finer tableware than their crew, they were only officers aboard a small cargo ship and the tableware reflects this limited status.

The study of ship stores excavated from the *Sanyo Maru* also provided the opportunity to expand this research beyond that of the isolated community, and consider manufacture and consumption within the empire. The Informal Empire included the intensification in manufacturing output in the inter-war years, and that included mass production of household goods. Ship stores are examples of this output. The analysis of production and consumption of material goods expands this dissertation's examination of capitalism and industrialisation beyond resource extraction (pearling).

The drive to manufacture was urged by the doctrine of kokusanka, self-sufficiency through domestic manufacture over imports, and the excavated ship stores provide a study of whether this doctrine was followed unconditionally. The assemblage includes Japanese beer and soda bottles which were made by Japanese companies with factories in Japan and Asia (SM74, SM75, SM76). This exemplified kokusanka. But some medicinal bottles were manufactured in the United States, and furthermore, one of these has bilingual markings, indicating Western manufacture for a Japanese market (SM55). This shows that Kokusanka was not, or could not, be followed unconditionally, and so the great Japanese imperial project was, in a small way, supported by Western manufacture.

9.5 Australian territorialism and clandestine interactions

The research question presented in Chapter 1 proposed that Japanese pearling somehow challenged Australian maritime territorialism. This was addressed, in part, above, in the explanation about Japanese dominance in pearling on the Open Seas and the smallness of the waters that constituted Australia's maritime territory. Australia's territory was further challenged by its very legal standing, the inability of Patrol Services to practically enforce a porous border, and how other cultural boundaries proved more important. The Japanese foreign pearling fleets did not operate in isolation and at great distance from Australia, but did so close to the northern Australia coast. This had implications for how they worked, and with whom

they had contact. This proximity brought crews into contact with local pearlers and coastal Aboriginal peoples both on land and on water. It made the northern coast and its surrounding islands a viable option for different activities on land, including careening boats, gathering supplies and caching fuel and harvest. Their proximity to coastal waters, their occasional trespass, and subsequent maritime encounters brought the fleets into conflict with local authorities. As a study of an historical industry, by acknowledging clandestine activities, this work maps an expanded and more comprehensive picture of the industry.

The *Sanyo Maru* is directly associated with the issue of territorial waters and trespass, even if it never entered territorial waters itself. It sank in part because it was overloaded with pearl shell. It was laden because the luggers needed to clear their holds, and the industry was not permitted to cache shell on Australian land. Furthermore, some suggested that a contributing factor to the sinking, was that the Captain elected not to seek sheltered waters during the storm, for fear of being prosecuted for entering territorial waters. The threat was real. When the *Sanyo Maru* sank in July 1937, other Japanese pearlers were in the Australian Supreme Court in Darwin facing accusations of trespass.

Japanese pearling threatened Australian maritime territorialism in four ways. The first was that Japanese pearling forced Australia to re-examine the geographic scope of its territorial waters. Australia concluded its marine borders were too narrow to capture what it had begun to think of as its sovereign property. While some commentators referred to the Japanese as poachers, the Australian government knew they operated legally in the Open Seas. Compounding the problem of the Japanese operating with impunity so close to the coast, was their domination of the industry. Appendix I provides a map of the extended waters claimed by Australia after the Second World War. This massive territorial expansion was a direct result of conflict with Japanese pearling fleets in the prewar years. The expansion had implications for returning Japanese pearlers, and Indonesian fishers working traditional fishing grounds (for latter, refer Chapter 2). Territorial expansion was fundamentally about privatising the ocean, severing it from the Commons, and claiming it as an owner.

The second reason why pearling was considered a threat was because the Australian Supreme Court, in its deliberations about Japanese trespass, questioned the very validity of territorial waters and the right to control foreign boats within it. The arrests were the first time Australia attempted to prosecute foreign boats under ordinances regulating territorial waters. The Supreme Court noted that ‘territorial waters’ was just a custom, not a law, and so questioned

its very foundation. The court also proposed that if the boats that had been seized were not engaged in fishing at the time of their arrest, their actions constituted innocent passage.

The third reason Japanese pearling was so confronting to Australian maritime territory came from the Supreme Court's criticism of the competency of the Patrol Service. It was shown that the patrol was unable to accurately measure three nautical miles from the coast, to determine with certainty whether a Japanese boat was indeed trespassing. If accurate cartography, precision and measurement can define borders and give power over space and people (P. Steinberg, 2009, p. 472), then the inability of the patrol to identify where their authority started and finished was a challenge to their authority altogether. If territorial sovereignty is something that has to be practised (Albert, 1998, p. 61), then the failure of the patrol to identify the border for themselves questioned whether the distinction between what was inside and outside was meaningful in the first place.

The fourth reason Japanese pearling was a threat to Australian maritime territorialism was because the contact between pearling crews and traditional owners, and their negotiations over access, no matter how secret and unofficial, proved that the original owners of the land retained some authority and agency. Territorial borders and local ordinances were ignored by visitors and owners, in favour of established practices and boundaries. It proved territorial waters to be a recent construct, a colonial invention, superimposed over an existing cultural seascape, and it was ignored by many.

Chapter 8 introduced and examined multiple stories of contact, forming an *aggregate* of historical evidence for contact between foreign Japanese pearlmen and other groups, particularly Aboriginal peoples. Foreign crews would regularly land at specific sites along the west coast of Bathurst Island and Tiwi and Yolngu men were trusted as pilots, to guide pearling luggers through dangerous seas. One account from Manchinbar Island, on the east coast of Arnhem Land, confirms that an arrangement was made with traditional owners for foreign crews to secretly use a beach as a harbour over an extended period. These accounts, limited as they are in detail, challenge the dominant narrative that all Japanese encounters with Aboriginal people resulted in conflict. This resonates with the 'individual circumstances model', which may also explain different stories of contact between Macassans and Aboriginal peoples, some of collaboration, some of conflict (Macknight 1972:289, Mitchell 1994: 94,110).

Paterson's conceptual framework for understanding key attributes and the implications of cultural contact is drawn on in the analysis of encounters (Paterson, 2011, pp. 42-49). One

variable he identifies is isolation from administrative centres. The encounters associated with foreign Japanese pearling happened away from Darwin, the administrative centre and single port of the Northern Territory. The coastline is vast, and was patrolled by only a few men on one boat. As shown in Chapter 4, there were no local fishing fleets, like trawling fleets, also working these waters. This degree of isolation provided the opportunity for pearling crews and Aboriginal peoples to meet and barter on their own terms. This has parallels with Macassan visitation (Macknight, 1969a, 1976).

Turning to barter specifically, one variable to consider is what goods and services were exchanged. Whilst the goods traded by Japanese pearlery were the same kinds of goods traded to Aboriginal people by European visitors, the Japanese foreign crews had particular requests. Unlike pearling and trepang crews from Darwin, foreign Japanese crews did not commonly employ Aboriginal people as workers, although there is evidence they were employed as pilots guiding boats. Also, the sex trade was restricted to a select group of local indentured crews. The Japanese foreign crews wanted access to beaches and resources, and paid for it, as a form of tribute or rent.

The beginning of this thesis discussed encounters using the concept of agency, in particular addressing what these encounters may imply about Aboriginal agency (Chapter 2). Agency is a complex and disputed concept, and while the evidence for the encounters in this study is fragmented and based only on colonial observations, they do make an important contribution to the topic. As discussed above, negotiations for access between pearlery and Aboriginal peoples deals with agency. Observers spoke of their frustration that Yolngu people used signal fires to warn Japanese pearlery that the patrol was close. This demonstrated that contact with Japanese crews was favoured even protected, not resisted or just accommodated. Relevant are Donald Thomson's warnings to authorities at this time that the Japanese and Yolngu were developing a strong relationship. Also pertinent was the Tiwi preference to work on Darwin pearling boats crewed predominately by Japanese rather than for the Catholic mission. Here one can turn to Wells and her study of the Larrakia people of the Darwin region being discerning traders rather than victims of trade (2003). Also relevant is Mitchell's conclusion that Aboriginal peoples would preference trade with either Europeans or Macassans, depending on the best terms (1994:113). As stated above, perhaps the clearest expression of agency was the disregard for ordinances dealing with territorial waters and reserves. Instead, Tiwi, Yolngu and elders from the central Arnhem Land coast negotiated with visitors on their own terms

based on established cultural land and sea boundaries, as they had in the past when dealing with Macassan visitors.

9.6 Coastal finds and their implications

Chapter 8 provided a persuasive investigation of how many previous anthropology and archaeology studies had failed to fully recognise Japanese visitation to the Northern Territory coast in the early 20th century, and the implications for interpreting the archaeological record. This resulted in a failure to consider visitation in historical overviews and chronologies, in the explanation of ethnographic evidence, and from an archaeological perspective, a scientific failure to accurately identify Japanese material culture. This hid Japanese visitation from academic narratives of contact, and compromised the results of their work.

In arguing this case this study cited historical observations of landings, of Japanese goods integrated into Aboriginal communities, and showed ambiguity in historic ethnographic evidence. Perhaps most convincing was the re-examination by the author of both the Macknight collection and other finds. Here the *Sanyo Maru* assemblage proved to be a valuable representative sample of Japanese material culture brought into the Northern Territory, with a similar Durikono bottle found in the Macknight collection, and its Tokonoma sake jar matching three jars found in local collections, wrongly identified as either Macassan or colonial. The more obvious implications of this study is for Japanese pearling in the 20th century to be properly incorporated into chronologies of maritime contact, and for archaeologists to appreciate that 'import-ware' found in coastal sites may be Japanese in origin. Other implications include the interpretation of other types of archaeological evidence, such as the remnants of coastal camps, and depictions in 20th century rock art.

9.7 A single shipwreck study

As explained in both chapters 1 and 2 this research began with the investigation of a single shipwreck, which is generally described as a particularistic study (Bass, 1983; Gibbins & Adams, 2001; Staniforth, 2003b). This brought the narrow focus and technical discipline of a particularistic approach (see Nash, 2006; Stanbury, 2003; Stanbury, 2015), whilst avoiding its possible limitations, as recalled in Chapter 2 (see Richards, 2006; Staniforth, 2003b; Veth,

2006). While it has proved valuable for maritime archaeology to expand to include landscape studies for example (see Duncan & Gibbs, 2015; Ford, 2011), and draw on other forms of physical evidence, wreck assemblages, because of their characteristics and number, will remain the primary data-set in historical maritime archaeology (Gibbins & Adams, 2001, pp. 280,281).

The physical integrity of the *Sanyo Maru*, and the quality of its artefact assemblage, provided rich data for a research project that primarily focused on a single site. This approach was also motivated by necessity. There are no other located wrecks associated with the Japanese pearling industry in northern Australia for a multi-site study, nor did the foreign fleets build coastal infrastructure or substantial seasonal camps to be investigated as a part of a thematic study. In this regard the archaeology of the *Sanyo Maru* reemphasises the necessity at times, but also the value, of a comprehensive in-depth study of a single shipwreck.

This single shipwreck study connected with broader themes and ideas, avoiding the trap of a narrow research design. The survey of the wreck identified the particular class of ship, and this connected to the broader analogy of the informal empire (Gallagher & Robinson, 1953). In this way this particular shipwreck symbolises the broader Japanese imperial (and capitalist) project. This study is also broadened by its emphasis on the fleet as a whole, and its incorporation of other elements of the industrial process such as the operation of luggers. Ship stores provided an artefact-based appraisal of kokusanka, the national campaign prioritising local manufacture over imported goods (Samuels, 1996, p. 41). Furthermore, in context to other research, this shipwreck assemblage stands as a representative sample of Japanese artefacts brought to Australian waters, an important resource for archaeological contact studies across northern Australia. In these ways the archaeology of the *Sanyo Maru* connects with broader themes and ideas beyond the operation of one vessel.

9.8 Research limitations and future work

Due to the limits of time and resources inherent in a PhD research project some areas of research were left for the future. Future work may focus on the discovery and study of other wrecks of the Japanese pearling fleets such as luggers or wooden motherships. The wrecks of the lugger *Dai Nippon Maru No. 1*, which sank in 1937 in Bouchaut Bay (see Chapter 3) and *Kokoku Maru* which sank in 1941 in the Banda Sea (see Appendix A) are yet to be discovered. Over the course of this research the author found a historical reference to a *Palao Maru* sinking

in 1939 off the Western Australian coast. The Western Australian Maritime Museum was notified, but the site is yet to be located. Remote surveys of recorded anchorages may also locate flotsam and jetsam that fell to the seafloor, or even wrecks not mentioned in surviving records.

Whilst the study was able to investigate ceramics held in collections, confirming Japanese provenance, no coastal surveys were conducted. This study established that there were no substantial coastal bases or camps, however there are historical observations of temporary landing sites, including locations repeatedly visited, such as the King River on the mainland and Gordon Bay, Bathurst Island. Coastal surveys of these places could be complemented by community outreach, investigating material held in other small and private collections in townships, outstations and homelands.

This study stands as the first archaeological study of Japanese ceramics of the early 20th century in Australia. It therefore provides a valuable and necessary resource for comparative work. The *Sanyo Maru* assemblage may be used as a dataset to compare new findings, or reanalyse existing collections, as done by the author with the Macknight collection and other coastal finds. In this dissertation comparisons were based on form, material, markings and decoration. Future work may include complementary scientific analysis (e.g. portable XRF).

This was, in part, a historical study of an industry that involved hundreds of boats and thousands of men, but the documentary evidence from Japan proved fragmentary. More research can always be performed. It had been disconcerting, for example, to focus on the *Sanyo Maru* without identifying the names of the Captain, officers or crew, or the names of those that died when it sank. Identification would enrich the story with human biographies and provide other possible sources, as descendants may hold documents, photographs or objects in private collections.

Another unrealised goal was locating annotated contemporary Japanese charts of the territory coast. Japanese versions of commercial charts were discovered, but a company annotated version was not (Appendix G). Court testimony confirmed that annotated charts existed, marking shell beds and the results of prospecting and harvesting activities. Annotations may have also included Japanese names for sheltered waters, dangerous reefs and tidal rapids, features not identified in Australian commercial charts, but learnt and recorded as new knowledge. Possibly annotated charts included fresh water sources, Aboriginal names for

places and even names of contacts. Future work may look to post-war pearling records, in the hope that older prewar references were used in the revitalisation of the industry.

This study was a comprehensive historical and archaeological study of Japanese pearling in the Northern Territory. Future work may include a comparative study of Japanese pearling in the Aru Islands and its surrounding waters. As a colonial power the Dutch administered territorial waters and pearling licences, and confronted Japanese pearlery on the fringes of its territorial waters. Similar to Australia, Holland had little capacity to monitor and police its vast coastal and marine territories. A comparison with the Dutch maritime frontier would expand the study of Japanese pearling, and could also feature as part of a larger study of the Japanese pelagic empire and its conflict with other colonial powers such as Britain and Russia in the more general region. Furthermore, while beyond the scope of this study, another area of research could be comparing Japan's pelagic empire of the 1930s with contemporary Chinese maritime expansion in the same region.

The lens of a prewar Japanese pelagic empire, as established in this dissertation, may assist in the study of the shipwreck resource of Micronesia, which prior to the war was a Japanese Mandated Territory and the base for marine industries (Jeffery, 2014; Macdonald, 2016). Whilst much has been written about wartime Japanese wrecks in this region a focus on prewar fishing fleets may serve as a new and valuable research theme. Aside from the identification of prewar wrecks, the material analysis provided here may also assist in the interpretation of ship store assemblages across prewar and wartime Japanese wrecks, for example Tokonoma sake jars on the 'Helmet wreck' in Palau (Macdonald, 2016, p. 164).

Finally, as this research progressed it became increasingly important to identify what type and class of ship the *Sanyo Maru* was. While the diver based manual recording of the wreck, supported by photography, video and side-scan imagery, proved to be of sufficient accuracy and detail to address this, future work may be complemented by high resolution 3D recording and interpretation.

9.9 Conclusion

Through a contextual archaeology approach this study has examined the *Sanyo Maru* shipwreck and its excavated assemblage. The ship was not a pearling mothership, purpose built for the work, as described by many commentators of the time, and researchers since.

Archaeological investigation revealed it to be a small cargo carrier of generic build, which functioned as an unpansen, or supply ship. It provided essentials and comforts to a fleet isolated and far from its homeport. Further, as a 'symbol in action', it functioned as a cultural agent for the fleet, reminding workers of home, identity and allegiance, an *aide memoire*. Its use by the industry reflected logistical problems imposed by the Australian authorities, and the support of larger Japanese corporate and conglomerate interests.

Japanese pearling was part of a larger informal empire, a capitalist-based form of imperialism shaped by ideology, economic policy and capacity. The archaeology of the *Sanyo Maru* and its artefact assemblage reflects aspects of class and identity, and the ship stores in particular provide a complex material culture centred appraisal of this imperial project, showing a reliance on imported materials from the United States.

Japanese pearling threatened Australia's maritime territorialism, interpreted in this study as an expression of colonialism, in multiple ways. At this time territorial waters reached only 3 nautical miles out to sea, with the rich shell beds located beyond this boundary, but still at accessible depths for divers. This border was too small to satisfy what Australia had begun to think of as its sovereign wealth. Compounding this grievance was that the foreign pearlery dominated the industry over the Australian boats. Another threat was court proceedings challenging whether territorial waters were even lawful. Further, the competency of the Patrol Service was questioned, being unable to determine 3 nautical miles precisely, and so whether boats were trespassing or not. This challenged the very authority and validity of the border altogether.

Outside the formal industrial process, and in defiance of local ordinances, foreign crews, indentured crews and Aboriginal peoples met at sea and on land. An informal economy emerged along this maritime industrial frontier, with crews secretly landing and negotiating access with traditional owners. On one level this finding provides a more comprehensive study of a maritime frontier industry, encompassing both the formal and informal aspects of it. It also has implications for contact studies. Accounts of peaceful interactions challenge simplistic generalisations that all interactions were hostile, providing new insight into what has remained a hidden history. Here Australian legal borders were ignored in preference to more established cultural boundaries. This further heightened Australia's unease over its territorial waters, proving that it is only a colonial construct, and ignored by many.

This dissertation provides the first archaeological investigation of a Japanese pearling shipwreck, and the first study of 20th century Japanese ceramics in Australia. Whilst from a cursory perspective any shipwreck from this fleet could be said to symbolise this great imperial project, the particular operational history, role, design and archaeology of the *Sanyo Maru*, truly reflects it. Similar to the *Xantho* project, cited in Chapter 2, what a specific shipwreck represents is open to a nuanced interpretation, one which overtime, and with ongoing analysis, may be further and further refined. More generally, the research also functions as a significant case study of a marine extractive industry, and how we can understand its operation through both archaeology, as well as by drawing on other sources and approaches.

This study firmly puts 20th century Japanese pearling in a chronology of maritime frontier and culture contact in the Northern Territory, with implications for northern Australia more broadly. The particular circumstances of the Northern Territory, particularly on the Tiwi Islands and in Arnhem Land, means researchers must rethink colonial and contact archaeology, appreciating that in some places these events were playing out differently, and much later. The examination of artefacts in collection has shown that past researchers wrongly identified Japanese ceramics found along the coast as Macassan or colonial. This conclusion challenges the methods of some past researchers, and calls for a new appreciation of the Japanese pearling footprint in the Australian archaeological record.

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Appendix A The end of the industry, military tensions and repurposed vessels

The pearling industry was in rapid decline after 1938, a combination of oversupply and overexploitation. As already detailed, in July 1938 the *Tama Maru* conducted a research survey of pearling grounds off northern Australia from south of Cossack on the Western Australian coast, to the Torres Strait and the scientists concluded the beds were overexploited (NSS 1938). The resource could not sustain the industry. The sense that the boom was over was reflected in historic footage promoting the Nanyo Kohatsu, the corporation dedicated to South Seas development, dated 1938 (Nanyo Kohatsu 1938). Depicting a tour by company dignitaries and very much appearing as a promotional video it shows numerous industries such as sugar cane, phosphorus mining, and agriculture Japanese ventures in Southeast Asia, but only for the briefest moment pearling, which had by then fallen out of favour.

Observations of the foreign Japanese fleets by Australia also changed in tone and purpose after 1938. Whereas in 1937 the Japanese were seen as a commercial threat, in later years the industry was seen as the vanguard of a military one. Where knowledge first came from observations by local custom officers, only a few years later they were based on military surveillance. This change shows how the industry which ended for commercial reasons, coincided with a change in the political landscape.

Japanese boats returned in dwindling numbers after the boom of 1937-38, and it was the rise in military tension that truly ended their work. Military intelligence dated 24 August 1941 reported that Japanese pearling motherships and luggers were leaving north Australian waters, as part of a world-wide evacuation of Japanese shipping to Japanese held territory (COIC DS82 24/8/1941). The *New Guinea Maru* and its luggers were said to be leaving, and others off Bathurst Island and at the Wessel Islands, were to follow. However, either this intelligence was wrong or ships returned, because on 29 October 1941 the *Kokoku Maru* called at Darwin for water, and confirmed it was servicing a group five luggers off Bathurst Island (COIC DS133, 30/10/1941). Opinion in Darwin was that as it was October, the end of the season, the purpose of the fleet in Australian waters was not commercial but possibly military reconnaissance. It was noted in these accusations that the Japanese used small motor auxiliaries for reconnaissance and that these vessels carried powerful radio transmitters (COIC DS104,19/9/1941).

Intelligence dated 18 November 1941 stated that the *Kokoku Maru*, positioned off Bathurst Island, was awaiting the arrival of the motherships *New Guinea Maru* and *Arafura Maru* and their boats, and seeing it was off season, it was suggested their purpose was to evacuate Japanese nationals residing in northern Australia (COIC DS145, 18/11/1941). The evacuation of Japanese nationals, and the retreat of Japanese flag vessels to Japanese held waters was happening globally. The interception of a cable between Nakashiba, President of the Japanese Society in Darwin to Tokyo in which evacuation is discussed, further suggests this was their true purpose, confirming the repurposing of pearling boats as evacuation ships (COIC DS148, 21/11/1941). Further intelligence dated 22 November stated that 25 luggers were departing Palau to fish patches at Bathurst Island, Arnhem land and Thursday Island, but whose real intention was to assist in the evacuation of nationals (COIC DS149 22/11/1941). By the 3 December 1941 Japanese lugger and motherships groups are reported off Bathurst Island, the Wessel Islands and Thursday Island (COIC DS 155 3/12/1941).

On the 4 December the fleet was instructed to hastily retreat to the Japanese mandated islands. On the morning 8 December the Dutch declared war on Japan, and that afternoon a convoy of the pearling boats in the Banda Sea led by the *Kokoku Maru* was attacked by a Dutch Flying Boat. There were no casualties. The following day a second air attack on the convoy resulted in the sinking of the *Kokoku Maru* with a reported nine fatalities (de Jong 2015: 20). Although not confirmed, if working as an evacuation vessel it may have had aboard Japanese nationals who a few days earlier were residing in Darwin.

The attack and sinking of the *Kokoku Maru* violently marked the end of the prewar Japanese pearling industry. Its end and the transition to a wartime footing is also demonstrated in two examples of the military repurposing of pearling ships: the mothership *Asahi Maru* and floating station *Shinyo Maru*. The *Asahi Maru* stopped functioning as a pearling mothership and was sighted on route between Ambon and Dilli on the 29 August 1941, thought to be serving as a surveillance vessel and support vessel for trial aircraft flights between Palau and Dilli in October 1941 (COIC DS86, DS124, DS133). It departed Dilli on the 8 November 1941 and though its movements afterward are not known, it was requisitioned by the military and stayed in the general region (COIC DS139). It was sunk in an Allied air attack on 25 January 1944 (SNNS). The *Shinyo Maru* was used by the Imperial Japanese Navy to transport Allied prisoners of war from the Philippines (Playter 2000). In September 1944 whilst travelling in a convoy, but not marked as a prisoner transport, it was attacked and sunk by the submarine *USS*

Paddle. The Japanese, under orders from their commander, began to execute the prisoners as the ship sank. Of the 750 Allied prisoners aboard 688 died.

The operational life of the *Sanyo Maru* ended in 1937 but had it not, it would have likely been incorporated into the Japanese war effort as a Sea Truck (ONO 208-J,2,FASC). These were vessels of similar design that functioned as transport, pilot ships, escort and in other capacities, but predominately to move supplies to the frontline (Parillo 1993, p.183). Further reflecting on what may have been, the *Fukuyei Maru No.7*, a sister ship, was converted into an Imperial Japanese navy auxiliary minesweeper. It was observed escorting the cargo ship *Shokei Maru* on 26 March 1944 (Bertke et.al. 2009 p. 362).

Appendix B Table of excavated artefacts

Artefact	Brief Description	Measurements	Material Type	Function	Unit / Grid
SM01	Key - oval bow (handle) basic shaft and bit		Cu alloy	Ship furnishings	U09
SM02	Surgical/instrument set kit comprising of a pocket-sized rectangle brass box with seven medical instruments inside and two removable fittings that hold the instruments in place.		Copper alloy/ ferrous composite	Medical	U09
SM03	Decorated small condiment dish, tableware	Di:7cm Ht:5.8cm	Porcelain	Food consumption	U12
SM04	Decorated pickle dish, tableware	Di:15cm	Porcelain	Food consumption	U10
SM05	Decorated pickle dish, tableware	Di:15cm	Porcelain	Food consumption	U10
SM06	Decorated pickle dish, tableware	Di:15cm	Porcelain	Food consumption	U10
SM07	Decorated pickle dish, tableware	Di:15cm	Porcelain	Food consumption	U10
SM08	Decorated pickle dish, tableware	Di:15cm	Porcelain	Food consumption	U10
SM09	Decorated pickle dish, tableware	Di:15cm	Porcelain	Food consumption	U10
SM10	Decorated pickle dish, tableware	Di:15cm	Porcelain	Food consumption	U10
SM11	Decorated small bowl, tableware	Di:9.4cm	Porcelain	Food consumption	U10
SM12	Decorated small bowl lid, tableware	Di:10cm	Porcelain	Food consumption	U10
SM13	Decorated small condiment dish, tableware	Di:7cm Ht:5.8cm	Porcelain	Food consumption	U10
SM14	Decorated small bowl lid, tableware	Di:10cm	Porcelain	Food consumption	U10
SM15	Decorated small bowl lid, tableware	Di:10cm	Porcelain	Food consumption	U10
SM16	Undecorated teapot lid	Di:7cm	porcelain	Food consumption	U10

SM17	Decorated sake cup, tableware	Di:5.5cm	porcelain	Beverage consumption	U10
SM18	Decorated sake cup, tableware	Di:5.5cm	porcelain	Beverage consumption	U10
SM19	Decorated teacup, tableware	Di:7cm Ht:6.2cm	porcelain	Beverage consumption	U10
SM20	Decorated teacup, tableware	Di: 9cm Ht:6.5cm	porcelain	Beverage consumption	U10
SM21	Bottle-brown glass, moulded, makers mark on base 'S' inside a diamond and '63', likely held tablets or salts	Ht:9cm Base Di:3.5cm	Glass	medical	U10
SM22	Ear cleaner (<i>mimi kaki</i>) twist shaped stem and spatula shaped end, bent and broken.	L:12.7cm	Cu alloy	personal hygiene	U10
SM23	Spoon-small teaspoon shape	L:12.5cm	Cu alloy/EPNS	Beverage consumption	U10
SM24	Spoon-small teaspoon shape	L:12.5cm	Cu alloy/EPNS	Beverage consumption	U10
SM25	Spoon-small teaspoon shape	L:12cm	Cu alloy/EPNS	Beverage consumption	U10
SM26	Spoon-small teaspoon shape	L:11.2cm	Cu alloy/ EPNS	Beverage consumption	U10
SM27	Decorated sake decanter, tableware	Ht:14cm Di:7cm	Porcelain	Beverage consumption	U10
SM28	Decorated sake decanter, tableware	Ht:14cm Di:7cm	Ceramic	Beverage consumption	U10
SM29	Bakelite bowl, black undecorated possibly soup/rice bowl	Di:12cm Ht:5.3cm	Bakelite	Food consumption	U10
SM30	Bakelite bowl lid, black undecorated	Di:11.2cm Ht:3cm	Bakelite	Food consumption	U10
SM31	Lacquerware bowl, black undecorated possibly soup/rice bowl	Di:12cm Ht:5.5cm	Wood/ Lacquer ware	Food consumption	U10
SM32	Chopsticks-unsplit pair	L:21cm	Wood	Food consumption	U10
SM33	Chopstick	L:22.3cm	Wood	Food consumption	U10
SM34	Chopstick	L:22.3cm	Wood	Food consumption	U10
SM35	Chopstick	L:22.1cm	Wood	Food consumption	U10
SM36	Chopstick	L:22.2cm	Wood	Food consumption	U10

SM37	Chopstick	L:22.4cm	Wood	Food consumption	U10
SM38	Chopstick-damaged at handle end	L:19cm	Wood	Food consumption	U10
SM39	Chopstick	L:22.4cm	Wood	Food consumption	U10
SM40	Chopstick-broken tip	L:20.5cm	Wood	Food consumption	U10
SM41	Chopstick-broken tip	L:19.3cm	Wood	Food consumption	U10
SM42	Chopstick-broken, handle end	L:15.2cm	Wood	Food consumption	U10
SM43	Chopstick-broken, tip end	L:13cm	Wood	Food consumption	U10
SM44	Chopstick-broken, tip end	L:13.2cm	Wood	Food consumption	U10
SM45	Chopstick-broken, handle end	L:10cm	Wood	Food consumption	U10
SM46	Jar-large sake/vinegar storage, salt glazed stoneware, single handle on shoulder, hole at top for filling and small hole for tap near base, signature decoration	Ht:48cm Base Di:30cm, holds 23 litres	Stoneware	Beverage consumption	U11
SM47	Decorated small bowl, tableware	Di:15cm	Ceramic	Food consumption	U10
SM48	Small clear glass bottle stopper		Glass	Unclassified	U10
SM49	Worked timber fragment - found loose in crate on surface, possible remains furnishings		Wood	furnishings	U10
SM50	Knob and latch-small size swivel-type latch with timber remains attached		Cu alloy/ timber	Ship furnishings	U09
SM51	Toothbrush, Japanese inscriptions, no bristles		Bone	personal hygiene	U12, Grid A
SM52	Spoon-small teaspoon shape, bowl eroded		Cu alloy/EPNS	Beverage consumption	U09 (found on top of U14)
SM53	Seed (unidentified, marine or terrestrial)		Organic	Unknown	U12, Grid A
SM54	Stone-small rounded pebble, possibly basalt		Stone	Unknown	U12, Grid A
SM55	Bottle-cylindrical brown moulded with raised lettering 'OXY FULL' and Japanese characters on shoulder, makers mark 'S' inside diamond and '83' on base, cork inside		Glass/ Cork	medical	U12, Grid A
SM56	Four worked timber fragments		Wood	Ship furnishings	U12 Grid A

SM57	Shaver-knurled hollow handle, safety razor type		Cu alloy	personal hygiene	U09 (located just forward of U14)
SM58	Decorated small bowl, tableware	Di:9.3cm Ht:2.8cm	porcelain	Food consumption	U12, Grid A
SM59	Decorated small bowl lid, tableware	Di:10cm Ht:3cm	porcelain	Food consumption	U12, Grid A
SM60	Hinge-in fully opened position with six copper alloy screws in situ (3 each side of hinge)	7.5 x 3cm	Cu alloy	furnishings	U12, Grid A
SM61	Flat rectangular plate with four screw holes, one in each corner, one screw remaining, and two central holes, possible handle cover plate	15.5 x 3.6cm	Cu alloy	furnishings	U12, Grid A
SM62	Decorated small condiment dish, tableware	7.1 x 5.8cm Ht: 2.5cm	porcelain	Food consumption	U12, Grid A
SM63	Decorated small condiment dish, tableware	7.1 x 5.8cm Ht: 2.5cm	porcelain	Food consumption	U12, Grid A
SM64	5 worked timber fragments, appears to be edging for timber furniture		Wood	furnishing	U12, Grid A
SM65	Large decorated stew/soup bowl, tableware	Di:30.2cm Ht:12.5cm	porcelain	Food consumption	U01
SM66	Undecorated white circular basin with extended lip around rim to seat in washstand, with copper alloy drain plug with threaded fittings	Di:33.5cm Ht:12.8cm, Drain di:2.8cm	Porcelain / Cu alloy	Fitting	U09
SM67	Ship's lantern, copper alloy housing with clear glass lantern shield, kerosene burning type with glass lamp inside (glass is broken), handle on top and lug on base to allow to be raised/ lowered on a guy rope	Ht:52cm Di:33cm	Cu alloy/ Glass	System	U13
SM67b	Fragment of a shellac phonograph record found inside SM67		Shellac	recreational	U13

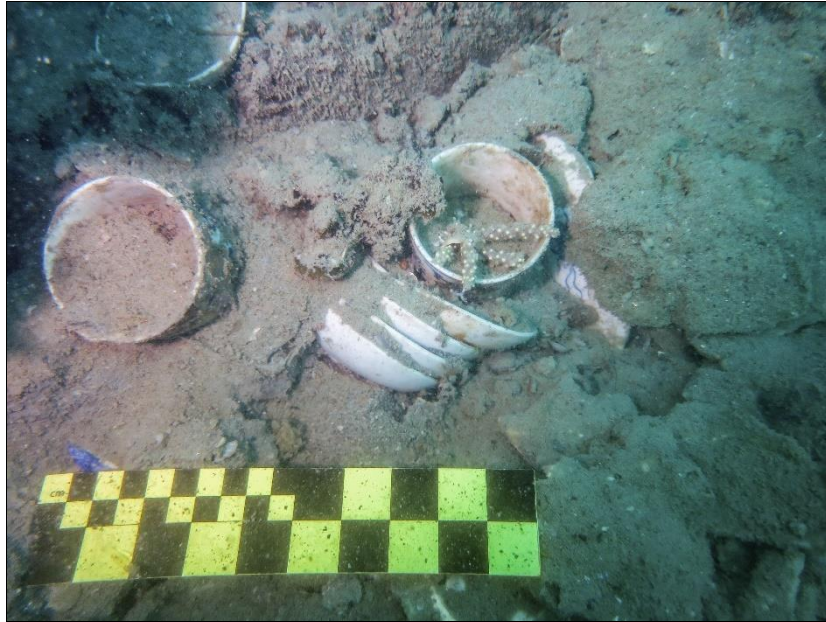
SM68	Dive hose coupling, two male ribbed ends for fitting and two joiner bolts, hole through the middle to accommodate gas flow	L:21cm Int diam:8mm	Cu alloy	Diving	U01 (starboard passage just aft of U008)
SM69	Dive hose coupling, two male ribbed ends for fitting and two joiner bolts, hole through the middle to accommodate gas flow		Cu alloy	Diving	U01 (starboard passage just aft of U008)
SM70	Dive hose coupling, two male ribbed ends for fitting and two joiner bolts, hole through the middle to accommodate gas flow		Cu alloy	Diving	U01 (starboard passage just aft of U008)
SM71	Jar, clear glass with cork and contents intact. Contents separated into black and clear liquid, possible ink jar	Ht:16.8cm Base Di:6.8cm	Glass/Cork	system	U14
SM72	Bottle-brown glass, moulded, thin neck and threaded lip, closure(lid) missing	Ht:21.3cm Base di:7.5cm	Glass	medicine	U14
SM73	Bottle-pale blue glass with glass stopper, 'P' [poison] in circle mark on top of stopper, clear contents intact.	Ht:19.5cm Base di:7.5cm	Glass	medicine	U14
SM74	Beer bottle, brown glass, crown-type finish (lid missing), embossed marking around base 'DAI NIPPON BREWERY CO LTD'; Japanese characters and 'TRADEMARK' around shoulder, embossed five-pointed star and '11' and '12' on base			Beverage consumption	U01 (at starboard passage doorway)
SM75	Carbonated soda bottle, clear glass, moulded, cork type seal (cork missing), embossed 'TRADE MARK DURIKONO' on shoulder, 'DKN' on base, 'Umbrella' type pattern embossed around body with facets	Ht:19cm Base di:6.5cm	Glass	Beverage consumption	U01 (at starboard passage doorway)
SM76	Carbonated soda bottle, glass, moulded, cork type seal (cork missing), embossed 'TRADE MARK DURIKONO' on shoulder, 'DKN' on base, 'Umbrella' type pattern embossed around body with facets	Ht:19cm Base di:6.5cm	Glass	Beverage consumption	U01 (at starboard passage doorway)
SM77	Oyster shell (species unknown), not cargo, post-depositional marine life		Shell	N/A	U08

Appendix C Porcelain and lacquerware categorised by origin, form and decoration

<i>Item</i>	<i>Possible origin</i>	<i>Form</i>	<i>Decoration method</i>	<i>Decorative theme</i>	<i>Decorative structure and elements</i>	<i>Manufacturer Stamp/mark</i>
<i>SM03</i>	unknown	<i>Mamezara</i> (small condiment dish). Scallop edged and ovoid shape Could also be called <i>Mukozukan</i> because of shape	Cobalt blue, transfer and brush	Human or built features in landscape	Interior- two reclining human figures under tree. Rim has bands and repeated symbol. Exterior - flower and vine motifs	Stamp on base
<i>SM4, SM5, SM6, SM7, SM8, SM9, SM10</i>	Mino	<i>Namasu-zara</i> (pickle dish)	Cobalt blue, stencil ware	Plant and animal	Interior – central medallion of <i>Three friends of winter</i> (pine, bamboo and plum), ring of hatching. Panels of lion surrounded by fish scale diaper and panels of peony. Lion and peony depict noh play <i>Shakkyo</i> , Exterior- stylised cherry and vine	none
<i>SM11, SM47, SM58</i>	Seto	<i>Kobachi</i> (small bowl)	Cobalt blue, brush (hand painted), over glaze	Plant and animal	Exterior- stacked wave motif along bottom, crane and water plants panels. <i>Seven grasses of autumn</i> panel (basket, chrysanthemum and other plant). Interior- repeating grass motif, gold rim over glaze.	Stamp on base
<i>SM12</i>	seto	<i>Kobachi no futa</i> (small bowl lid)	Cobalt blue, brush	Geometric	Exterior - repeating pattern of four lines, alternating position and colour. Colour alternating between light blue and dark blue. Pattern banned by rings.	none
<i>SM13, SM62, SM63</i>	unknown	<i>Mamezara</i> (small condiment dish). Scallop edged and ovoid shape. Could also be called <i>Mukozukan</i> because of shape	Cobalt blue, transfer and brush	Human or built features in landscape	Interior - Humans reclining under tree, one bearded. Rim has bands and repeated symbol. Exterior - flower and vine motif.	none
<i>SM14, SM15,</i>	Seto	<i>Kobachi no futa</i> (small bowl lid)	Cobalt blue, transfer	Plant and animal	Exterior - stylised bamboo	none
<i>SM16</i>	unknown	<i>Dobin no futa</i> (teapot lid)	Undecorated	none	none	none

<i>SM17, SM18</i>	Mino (Taijimi Ichinokura region)	<i>Sakazuki</i> (Sake cups)	Cobalt blue, brush	Written characters and implements,	Exterior - Written passage and broom/rake, from the <i>noh</i> play <i>Takasago</i> about the married couple <i>Jo and Uba</i> (Baird 2001)	none
<i>SM19, SM20</i>	Seto	<i>Yumoni</i> (teacup)	Cobalt blue, transfer	Plant and animal	Exterior- Stylised bamboo	none
<i>SM27, SM28</i>	unknown	<i>Tokkuri</i> (sake decanters)	Cobalt blue, transfer	Plant and animal	Exterior- Stylised diamond shaped chrysanthemum, with vine decoration known as 'Chinese grass' (<i>karakusa</i>). Bordered by blue lines. A blue line runs around the base and spout of the bottle.	none
<i>SM29</i>	unknown	<i>Gohan chawan/Jawan</i> (rice or soup bowl). bakerlite	N/A	N/A	N/A	none
<i>SM30</i>	unknown	Futa (lid) (bakerlite)	N/A	N/A	N/A	none
<i>SM31</i>	unknown	<i>Gohan chawan/Jawan</i> (rice or soup bowl) (lacquerware)	N/A	N/A	N/A	none
<i>SM59</i>	seto	<i>Kobachi no futa</i> (small bowl lid)	Cobalt blue, transfer	Plant and animal	Exterior - Plum blossom and second stylised flower outline	none
<i>SM65</i>	unknown	<i>Large stew or soup bowl</i>	Cobalt blue, transfer and brush	<i>Human or built features in landscape</i>	<i>Interior- large central scene of craggy mountain with central tree and path to village; rim with peony flower and cross hatching. Exterior- craggy mountain, ship on water, rim with peony flower and cross hatching.</i>	<i>Stamp on base</i>

Appendix D Examples of material recorded in 2012 but then stolen prior to 2016 fieldwork



Undecorated porcelain stacked inside each other
Photographed *in situ* in 2012 and stolen from site prior to 2016 fieldwork.



A decorated porcelain plate and bowl recorded *in situ* in 2012
but stolen prior to 2016. Although its specific stencils are not seen in excavated assemblage
the traditional benign themes are consistent

Appendix E Ceramics located in Japan matching examples in assemblage



Glazed stoneware sake jars, resembling SM46, restaurant near Tasho Station Osaka. An historic maritime district where the *Sanyo Maru* was built.



Jar in sake shop in Kyoto food market. Shows tap inserted.

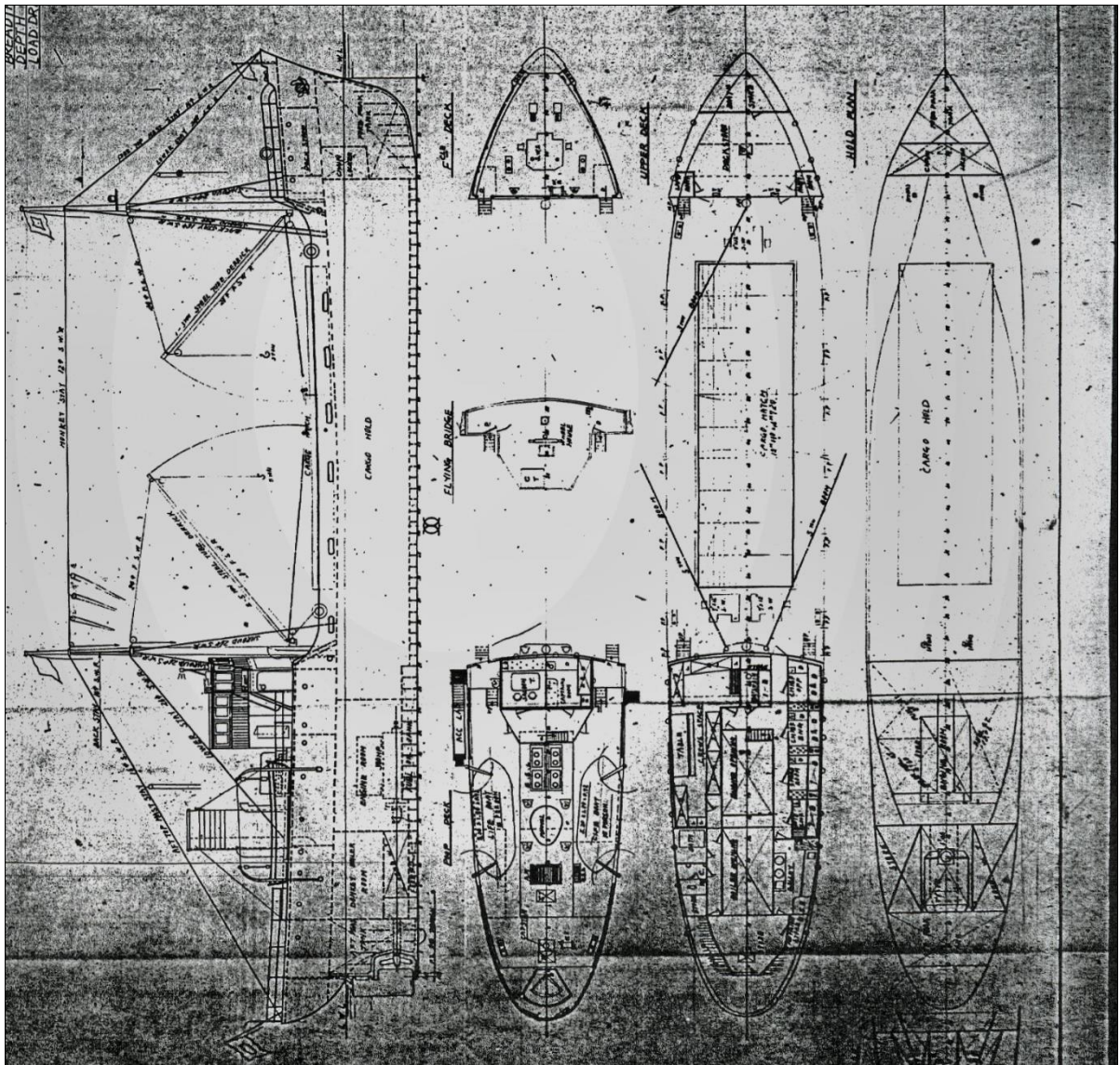


**Bowl, same form, dimensions and main decoration as SM65. Used for soups and stews
Antique fair, Mino Ceramic Park January 2020**



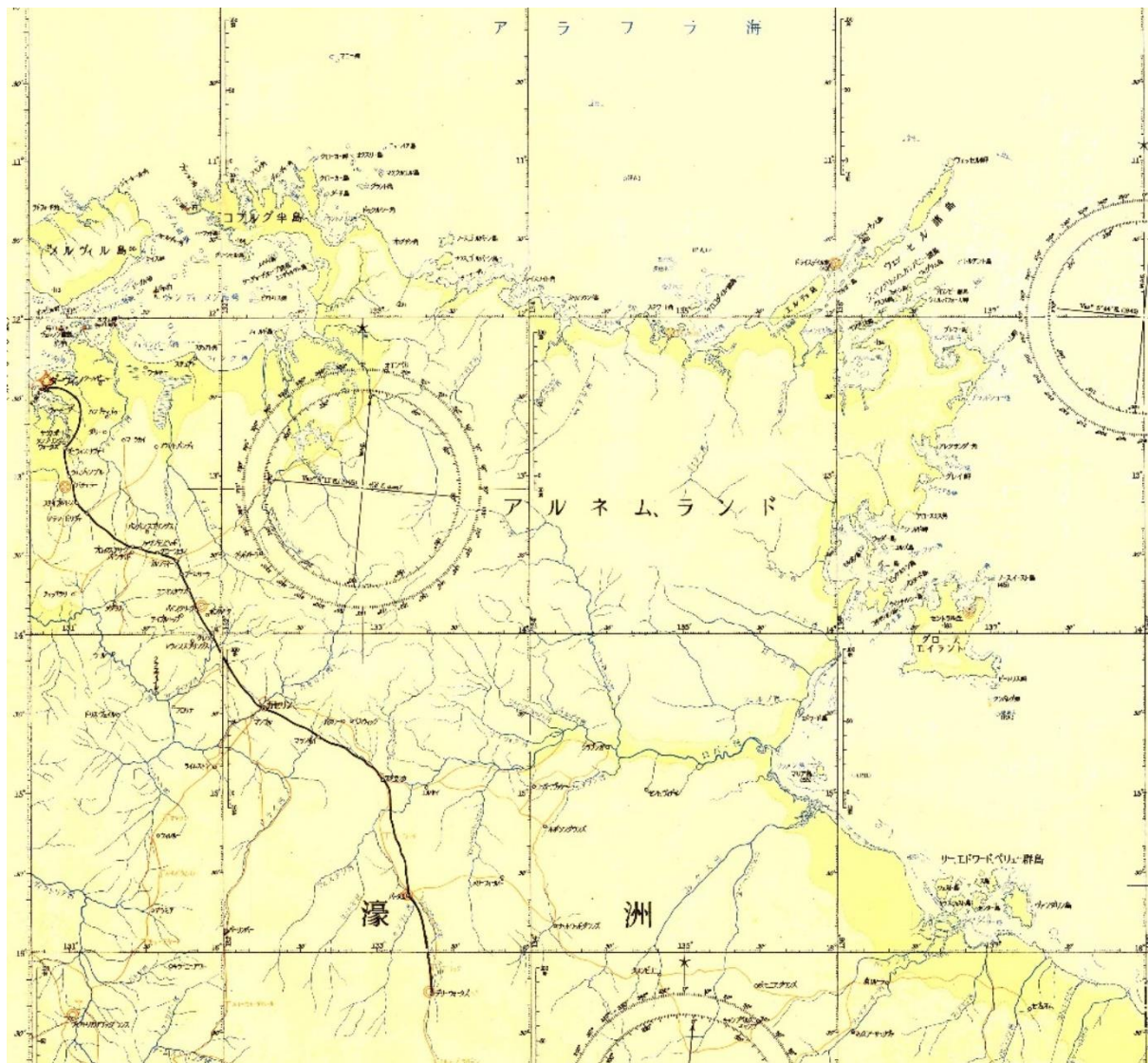
**Kyoto antique market January 2020
Boxes of sake cups in foreground
Includes cups that match SM17 and SM18 in size, form and decoration**

Appendix F Ship plan of similar Japanese merchant ship,



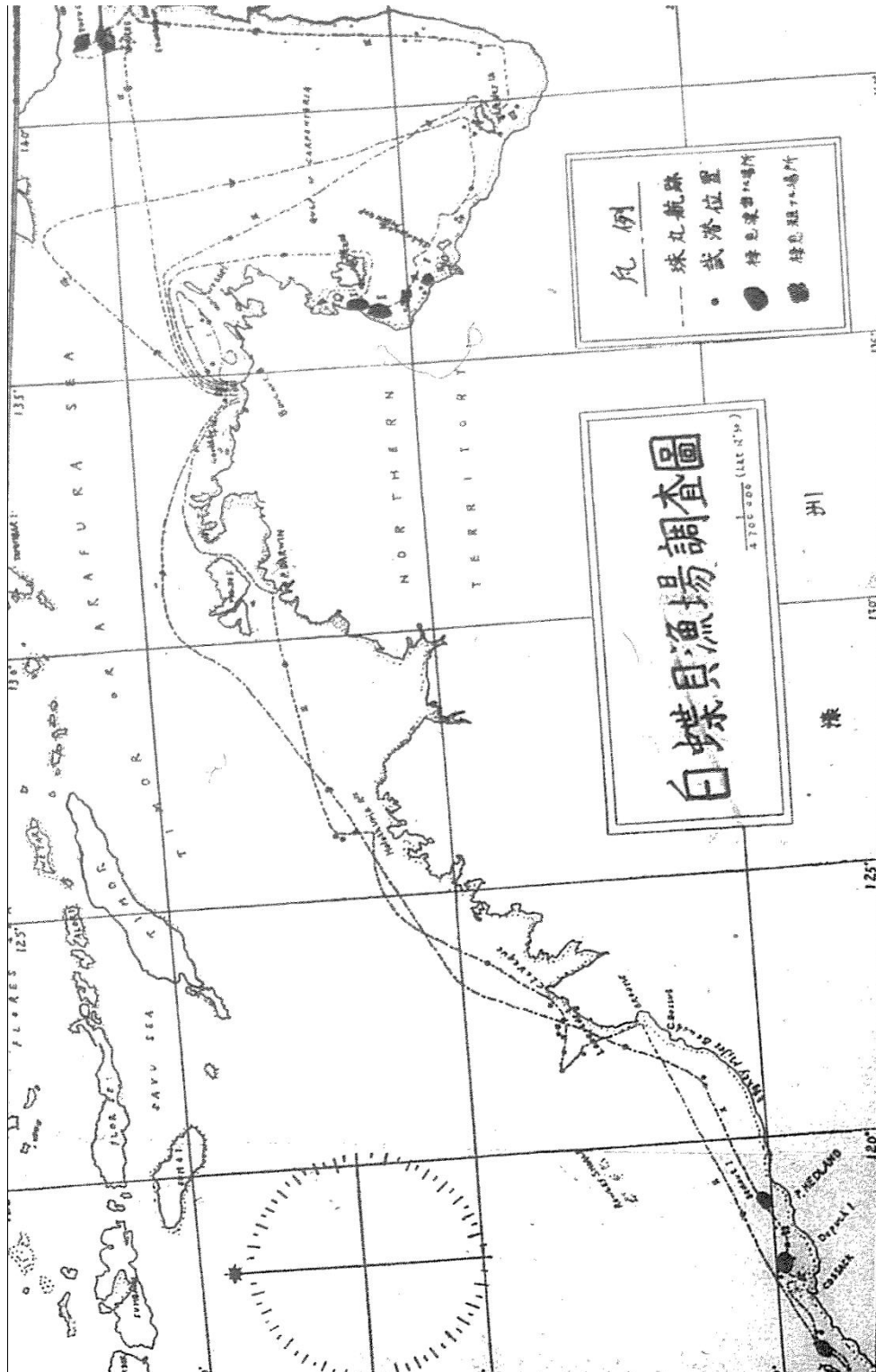
Japanese plan for a merchant ship of similar design
170 kinzan, NK1189/ship no.60 (Cundall 2019)

Appendix G Japanese map of Arnhem Land



Extract from Japanese map showing Arnhem Land. Names translate to names in Australian maps and charts.
Includes some unique annotations such as reefs and currents not on Australian versions.
It is not a company chart depicting shell beds, or fleet anchorages.
Map 809284, Cape York Arnhem Land Southern New Guinea, 1942
Queensland State Archives

Appendix H Confidential survey of the *Tama Maru*, 1938, confirming shell overexploited across northern Australia



NSS 1938

Appendix J History of known visitation to the site

Visitor to site	Date	Type and Purpose	Impact/observations	Record
Japanese salvors	10-12 July 1937	Owner salvage	Damage and removal	Brief reference in secondary historic source
Japanese salvors	November 1937	Owner salvage	Damage and removal	Brief reference in primary, secondary historic source
HMAS Leeuwin	2001	Remote sensing for explorations	Nil	Sidescan images
HMAS Huon	17 July 2001	ROV video, unverified reference to deploying divers for exploration	Shows aft section of hull, and features gone by 2012 survey. This includes poop deck features and framing associated with Captain's cabin above poop deck. Standing structure may be steering mechanism leading into where wheelhouse was.	Video of remote sensing control room, ROV footage
Museum and Art Gallery of the NT	July 2001	Non-disturbance inspection	Poor results. Stern mast standing.	Brief daily log
NT Heritage Branch	October 2012	Non-disturbance inspection	Site, plan, site sketch images, video and observations	Report
Unknown	Unknown	Unknown	Comparisons between 2012 and 2016 archaeological fieldwork confirm random fossicking by unknown divers	Nil
NT Heritage Branch	October 2016	Survey and excavation	Controlled sample excavation, <i>in situ</i> stabilization procedure	Report

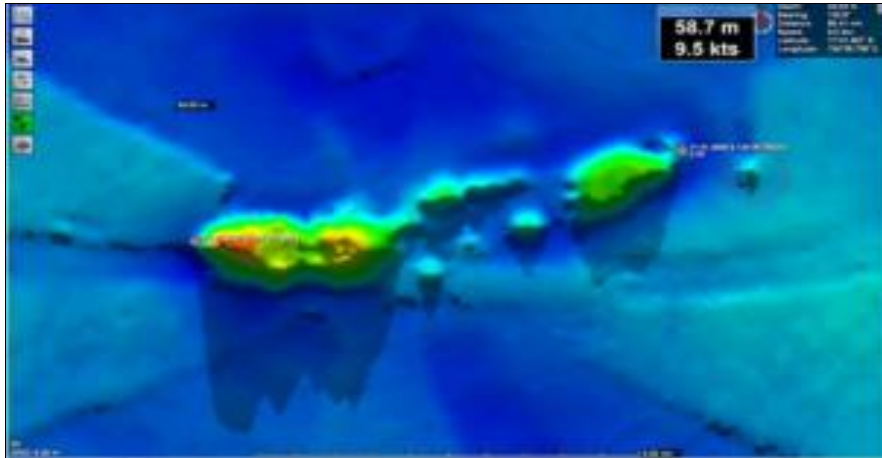
Appendix -K *In situ* preservation procedure following excavation

A layer of inert geotextile was placed into the cavity formed by the excavation; a material nonreactive with artefact surfaces, which allows water exchange, retards organic growth and provides protection from sand abrasion. Then sterile medium grain sand, transported from Darwin, was poured into the cavity to secure the geotextile and fill the gaps providing support for material. A layer of polyethylene mesh (green 70% mesh UV block shade-cloth) was laid and then a layer of half-filled sand bags were deposited to physically secure the conservation materials and underlining *in situ* material. The protective layer shields against physical impacts and facilitates the establishment of anerobic burial conditions which are more conducive to artefact preservation. The procedure was planned by Jon Carpenter, Conservator at the Western Australian Museum's conservation laboratory and member of the field team.



The final stage of the *in-situ* procedure over the excavated area

Appendix L Operation images from the 2016 excavation



Bathymetric data captured during the 2016 fieldwork, using the WASSP (Wire Arc Seismic Section Profiler) multi-beam bottom profiler, displayed through a MaxSea chart plotter system. It wrongly depicts the wreck as broken up. The circled target was searched for by divers but not located.



Orange excavation crates inside cage, winched to the surface from the wreck



Objects were placed inside containers and plastic bags with tags by the divers, staying both wet and supported



Immediate onsite conservation work by conservator Jon Carpenter included removing organic material from the surface of excavated artefacts. After registration, recording and immediate treatment artefacts were packed (stored wet) and shipped to the conservation laboratory of the Western Australian Museum for conservation treatment.

Appendix M Site related Northern Territory government documentation

Danaja, P. & Steinberg, D. 2001 Wreck inspection surveys in Arnhem land; recent oral histories and other sources referring to Maningrida, Museum and Art Gallery of the Northern Territory, unpublished

Pre-fieldwork

Parkinson, J. & Steinberg, D. 2012 *Sanyo Maru* dive plan (with risk assessment)

Steinberg, D. 2016 Project plan: expedition to the *Sanyo Maru*

Steinberg, D. 2016 Sanyo Maru research plan: a research design and excavation plan

Parkinson, J. 2016 *Sanyo Maru* expedition 2016 dive project plan

Steinberg, D. 2016 *Sanyo Maru* project risk assessment

Post fieldwork

Steinberg, D. 2012 *Sanyo Maru* wreck inspection report

Steinberg, D. 2017 *Sanyo Maru* historic shipwreck 2016 fieldwork report