



Seascapes of ‘Submarine Squatters’: Commercial Dugong Fisheries of North Queensland

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Abstract

Submarine squatting, dugong fishing on the Queensland (Australia) coast during the late nineteenth and early twentieth centuries, is a poorly understood livelihood. This study provides a fine-grained interpretation to expand our knowledge of the operation of commercial dugong fisheries through the practices of two commercial dugong fishers, John Lionel Ching and Daniel Dewar, operating in the Newry Island Group. Archaeological surveys of the Newry Island Group and nearby Stewarts Peninsula have highlighted the ephemeral nature of the commercial dugong industry in the seascape today. Despite this ephemeral landscape, contextualising the archival and archaeological research within a seascape framework has enriched our understanding of the daily lives of the commercial dugong fishers. It is important to acknowledge that a seascape approach is rarely applied to non-Indigenous archaeological contexts in Australia. The seascape approach used here has been successful in encompassing Western systems of maritime knowledge.

Keywords Archaeology · Commercial dugong fisheries · Maritime industries · Queensland · Seascapes

Introduction

Who ever heard of a Submarine Squatter before? (Moreton Bay Courier 1860: 2)

‘Submarine squatters’ is a term first applied to fishers in the mid-1800s engaged in hunting dugong (*Dugong dugon*), a slow-moving marine mammal found in shallow, tropical waters, abundant in seagrass, along the Queensland coast of Australia (Moreton Bay Courier 1860: 2–3). Commercial dugong hunting, primarily for the alleged medicinal benefits

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of dugong oil, with additional saleable products including meats and skins, was first practiced in Queensland at the Moreton Bay fishery from at least 1847, with some sources stating that it had started as early as 1830 (Daley 2005: 345). Eager to take advantage of a marketable industry in Queensland, fishers entered the dugong trade and established coastal and island fisheries along the Queensland coast. Non-Indigenous dugong fishers often relied on Indigenous knowledge and skill to assist in procuring dugong for commercial purposes (Marsh et al. 2004: 435). Prior to commercialisation and exported consumption, dugong hunting was (and continues to be) an essential element of Aboriginal and Torres Strait Islander people's maritime culture, demonstrating connection with traditional sea country and the continuance of long cultural traditions. The commercial dugong fishing regions in Queensland included Moreton Bay, Tin Can Bay, Wide Bay, Hervey Bay, Rodds Bay, Repulse Bay, Whitsundays, Burdekin River, Cardwell, Yarrabah Mission, Cape Bedford, the Torres Strait Islands (in particular Thursday Island) and Wellesley Island Group (see Fig. 1) (Daley 2005: 346).

By 1892, the Queensland Government imposed restrictions in Moreton Bay to conserve the dugong population which was steadily declining in that area (Daley 2005: 356). The government also imposed a ban on dugong fishing from 31 October 1894 to 14 May 1895 to sustain the dugong population, although given the dugong season operated in winter, this was already the off season (Brisbane Courier 1894: 4; Telegraph 1894: 2). As fisheries around Queensland had ceased operating due to low dugong numbers and government bans, Thursday Island became the last dugong fishery operating in Queensland (Folkmanova 2014: 39). Approximately 130 years after dugong fishing began on a commercial scale, the trade ended when the Queensland Order in Council stated that dugongs were now a protected species effective immediately on 20 March 1969 (Daley 2005: 361–363).

Herein, we continue to introduce the commercial dugong industry, including procurement practices and processing techniques, as well as dugong products and their advertisement. We also highlight the lack of prior archaeological investigation into this industry in Queensland. Following a brief biography of the lives of John Lionel Ching and Daniel Dewar—dugong fishers in the Newry Island Group, near Mackay (see Fig. 2)—we describe the archaeological methods used to investigate this case study area and provide the archaeological results. A consideration of a seascape approach, and its prior focus on Indigenous contexts, precedes a discussion of the archival research on this commercial industry within a seascape framework. Specifically, this paper seeks to provide a useful framework for interpreting 'Western' systems of seascape knowledge, after Russell's (2018) research. Further exploration into this poorly understood industry is finally recommended.

Procurement and Processing

Dugong fishers employed a number of procurement strategies. Early non-Indigenous dugong fishers were reliant on Indigenous traditional knowledge of dugong hunting and employed Indigenous peoples in the commercial industry (Bennett 1860: 165; Blackwood 1997: 168; Folkmanova 2016: 100–101). Initially, both Indigenous and non-Indigenous fishers in the industry used the harpoon to decapitate the dugong (Darling Downs Gazette 1887: 3). After striking the dugong with a harpoon, the dugong would attempt to flee its attackers but would soon tire. The fishers, following the rope attached to the harpoon, would thrust a second harpoon into the dugong to kill the animal (Darling Downs Gazette 1887: 3).



Fig. 1 Major commercial dugong fisheries located in Queensland, Australia, as mentioned in the text (map courtesy of M. Elsley, ArcGIS)



Fig. 2 Major islands within the Newry Island Group (Acacia Island, Newry Island, Outer Newry Island, Rabbit Island) and adjacent coastal locations of Stewarts Peninsula and Dewars Beach as mentioned in the text (map courtesy of M. Elsley, ArcGIS)

The Moreton Bay commercial dugong fishery had several groups of dugong fishers operating in the bay, deploying a small vessel with an Indigenous crew who assisted non-Indigenous crews by harpooning dugong (Bennett 1860: 165–166; Sydney Morning Herald 1847: 3; 1858b: 6). A typical Moreton Bay dugong fishing vessel was approximately 20 tons and similar to a whaler in that it was also fitted with a furnace to process oil (Sydney Morning Herald 1858a: 3). Most dugong processing occurred at shore-based stations; however, dugong fishers limited the time needed onshore if they had the ability to process dugong onboard a vessel. As early as 1859, commercial dugong crews at Moreton Bay also hunted dugong by deploying nets in the mouth of shallow rivers (Sydney Morning Herald 1859: 6).

The practice of harpooning, popular during the 1870s, was over time seen as unproductive and diminished after fishers recognised the effectiveness of mesh nets positioned to capture dugong (Brisbane Courier 1887: 2). Fishers captured dugong by placing nets across channels that were close to their natural feeding grounds (see Fig. 3) (Moreton Bay Courier 1860: 3). The commercial dugong fishing season occurred in the winter months (June–August) (Telegraph 1878: 4; Viator 1879: 1). To accommodate sluggish periods of dugong fishing, and in the summer months (December–February), the fishers would hunt turtles and various fish species (Telegraph 1878: 4).

Folkmanova (2016: 104) states that a crew of dugong hunters and a large vat were enough to qualify as a dugong processing plant. Boilers helped to distribute the oil during processing (Telegraph 1893: 2). The method of processing dugong oil was as follows:



Fig. 3 Narrow channel between Newry Island and Rabbit Island in the Newry Island Group would have been ideal for capturing dugong in nets (photograph by T. Foster, 28 February 2018)

Once caught, the dugong was cut up, and the pieces placed in the vat filled with water, which was then hung above a fire. When dissolved over the heat, the oil was scooped off the surface using a ladle or, alternatively, via a tap located at the top of vat so that the oil could be drawn into a prepared container (Folkmanova 2016: 104).

Products

The harvesting of dugong produced oil, medicine, cosmetics and soap, meats and skins. Dr William Hobbs of Queensland was instrumental in influencing local newspapers regarding the benefits of dugong oil in curing harmful diseases (Sydney Morning Herald 1859: 6). Dugong oil reportedly contained medical benefits, and many considered it to be a substitute for cod liver oil. The oil was either consumed or rubbed on the body for respiratory diseases and was also used by arthritis patients (Folkmanova 2014: 6). The oil was popular with chemists who regularly sold it in their stores (Darling Downs Gazette 1887: 3). Dugong oil was also utilised for baking bread and cakes and as a substitute for cooking oil (Rockhampton Bulletin and Central Queensland Advertiser 1870: 2). Meat, processed into bacon, steaks and ribs, were delicacies (Goulburn Herald 1884: 4). Hobbs also specified that dugong meat was able to cure sick stomachs (Thorne 1876: 250–251). The ivory tusks and rib bones were polished and carved into decorative cutlery handles. The hides when raw were used for brakes, while when tanned produced solid leather (Week 1892: 9).

The Queensland Government was eager to expand the state's population and industry by placing exports into international exhibitions, with dugong products exhibited to show their medicinal properties (McKay 1997: 177, 225). Dugong fishers also used exhibitions as a mechanism to sell their dugong products to colonial and overseas markets. Dr William Hobbs established his own dugong fishery in Moreton Bay to supplement his supply of dugong oil and was the first dugong fisher to exhibit his dugong products in the 1855 Paris international exhibition (Folkmanova 2016: 102; McKay 1997: 225). According to McKay (1997: 225), the dugong exhibitions continued until 1889 when the dugong was too scarce to exhibit because of overfishing, although in 1911 the Yarrabah Mission sold dugong oil to the Cairns Hall Exhibition, receiving positive reviews (Cairns Post 1911: 3).

Archaeological Investigations

Maritime archaeologists have conducted limited archaeological research on commercial dugong fisheries. This gap in the literature is remarkable given the archaeological examinations that have been undertaken on other marine fisheries operating across the Australian coast in the nineteenth and twentieth centuries. Previous archaeological investigations of whaling (Anderson 2016; Gibbs 2003, 2010; Gojak 1998; Lawrence 2001, 2006; Prickett 2008; Staniforth et al. 2001), sealing (Anderson 2016; James 2002; Kostoglou et al. 1991; Lawrence and Davies 2010; Prickett 2008; Walshe 2014), pearling (Burningham 1994; McPhee 2001; Paterson 2006) and *beche-de-mer* (also known as trepang) collection (Grave and McNiven 2013; Macknight 1986; McKinnon et al. 2013; Mitchell 1996; Morwood and Hobbs 1997; Wesley et al. 2014, 2016) situate the commercial dugong industry within the wider corpus of literature focusing on marine industries.

While the commercial dugong industry has not received the same scholarly attention as other marine extractive industries listed above, archaeological research has been undertaken on Aboriginal and Torres Strait Islander dugong hunting sites. Dugong fishing is culturally and ritualistically important for Aboriginal and Torres Strait Islander peoples who

have hunted dugong for over 4000 years (McNiven and Bedingfield 2008: 506). Extensive research on Aboriginal and Torres Strait Islander fisheries have focused on hunting sites located at dugong-rich hunting areas in Queensland, including the mainland coast of Cape York (Minnegal 1984) and Torres Strait Islands (McNiven 2003; McNiven and Bedingfield 2008; McNiven and Feldman 2003; Urwin et al. 2016).

Submarine Squatters

In spending years in a sub-tropical climate, exposed to many hardships and disasters, in preparing the most palatable, nourishing, and valuable medicinal oil known to science ... (Darling Downs Gazette 1887: 3).

The biographical details of the two prominent Newry Island Group commercial fishers, John Lionel Ching and Daniel Dewar, provide context for the discussion in the following section of the seascapes of these dugong fishers. Selected because their prominence resulted in detailed contemporary documentation, outlined below is their family history, living arrangements, leases, crew, vessels and fishing and processing practices and locations.

John Lionel Ching

John Lionel Ching was a British citizen who had migrated to Australia in 1873 to take up his appointment as the general manager of Ebenezer Thorne's dugong fishery (Brisbane Courier 1873: 2). Thorne's fishery did not last long, and Ching made the decision to take up the business by himself (Granville 2018). Ching, born in Launceston, England, and the son of a chemist and wine and spirit merchant, married Mary Louisa and fathered a son, Francis Humphrey Ching (Bundaberg Mail and Burnett Advertiser 1893: 3; Maryborough Chronicle, Wide Bay and Burnett Advertiser 1893: 3). Tin Can Bay, located south of Maryborough in the Wide Bay District, was Ching's first Queensland dugong fishery (Maryborough Chronicle 1874: 2).

Ching shifted his camp to Stewart Island and, in addition to fishing there in the Great Sandy Straits, he also owned land near Bingham, eventually making this the headquarters of his operations (Maryborough Chronicle 1874: 2; Morning Bulletin 1887a: 5). Ching left south-east Queensland and is first recorded in the north Queensland Mackay region in 1879 while stationed in Bloomsbury, approximately 80 km north-west of Mackay (Mackay Mercury and South Kennedy Advertiser 1879: 2). Possibly around this time, he also lived with his family on an island in Repulse Bay (offshore from Bloomsbury), establishing a dugong fishery on an island named Dunheved and employing family members as crew (Morning Bulletin 1887a: 5).

Subsequent to his work in the Mackay region, Ching returned to the Wide Bay district, anchoring at several places including Big Woody Island in 1887, having purchased a schooner, *Moeeyan*, for £1500 and refitting it for an additional £1000 for dugong fishing and also accommodating his family (Morning Bulletin 1887a: 5). All the bottling of oil was also done onboard (Morning Bulletin 1887a: 5). Ching died on 5 November 1893 and was buried in the Maryborough Cemetery (Brisbane Courier 1893: 5). The executors of Ching's will included Thomas Edmund Malpas who was also a Mackay dugong fisher (Queensland State Archives 1900). Ching's will states that the main benefactors were his wife and son.

Daniel Dewar

Daniel 'Bob' Dewar, the eldest son of Reverend James Dewar of Arrochar, Scotland, first resided in Cape Hillsborough, Mackay, close to the Newry Island Group in 1886 (Brisbane Courier 1886: 3; Hayward 2001: 71; Mackay Mercury 1889: 2). Dewar lived on Stewarts Peninsula, and subsequently Newry Island, from 1889 until his death in 1934 (Blackwood 1997: 71–72). The colony of Queensland granted Dewar a lease to Stewarts Peninsula in 1884 to increase the value of land (Queensland State Archives 1887). Dewar used this land selection as his permanent fishing base to exploit the local dugong population and for agricultural purposes, growing subsistence crops to support himself (Blackwood 1997: 168). Dewar was also responsible for establishing a coconut palm nursery on the Newry Island Group, under an arrangement with the Queensland Government, to provide a source of food for shipwrecked sailors (Blackwood 1997: 168; Hayward 2001: 71). However, the poor soil of the islands led to its disestablishment in 1902.

Dewar commercially exploited dugong hides and oils, as well as turtle (Brisbane Courier 1886: 3; Daily Mercury 1934a: 8). Dewar's crew members were Aboriginal people from Lindeman Island, located approximately 80 km north of Mackay, including an Aboriginal man named Brother, who was Dewar's best harpooner (Daily Mercury 1939: 6). Queensland (1912: 29) records Dewar's vessel, *Petrel*, as 30 ft long and 13 ft wide, with four canoes attached and eight Aboriginal crew. A British marine biologist, William Saville Kent, visited Dewar's dugong fishing station at Repulse Bay, indicating his dugong activities extended beyond the Newry Island Group (Morning Bulletin 1890: 5).

There are two conflicting reports regarding Dewar's marriage. In 1889, Dewar married Maggie Ann Reid (Mackay Mercury 1889: 2). Yet Blackwood (1997: 168) and Hayward (2001: 71) mention that Dewar married an Aboriginal Ngaro (Whitsunday) woman named Ginny and had at least one son named Frank. Dewar resided with a group of Aboriginal peoples from the Whitsunday Islands, engaging with Ngaro culture and following a 'traditional' lifestyle, fishing for dugong and turtle until the late 1920s (Hayward 2001: 71). After living on Stewarts Peninsula, Dewar made a home on Newry Island from 1930 to 1934, basing himself on the south-western coast of the island, at Sunset Beach (Blackwood 1997: 168; Daily Mercury 1934a: 8). Dewar died at his residence on Newry Island, according to his headstone on 31 July 1934, aged 81, and was buried in the Presbyterian section of the Mackay Cemetery (see Fig. 4) (Daily Mercury 1934b: 6, Daily Mercury 1934a: 8).

Archaeological Methods and Results

Chosen as a case study to investigate commercial dugong fishing, the Newry Island Group, a collection of islands located 50 km north of Mackay, and nearby Stewarts Peninsula is in the southern part of the North Queensland region. Aboriginal peoples inhabited the islands frequently to access available food resources before and following colonisation (Queensland Government Department of Environment and Science 2017). According to Tindale (1974), the Aboriginal group known as the Gia (Giya) occupied the coast from St Helen's north to Bowen and the Juipera (Yuipepa, Yuwibara, Yuwi) occupied the coast from St Helen's south to Cape Palmerston (Barker 2004:



Fig. 4 Daniel Dewar's headstone at the Mackay Cemetery (photograph by B. Gealy, 11 May 2018)

29–30). Archaeological investigations of the Whitsunday Islands region reveal highly specialised marine-based settlement and subsistence systems, dating to the late Holocene, emerging from less specialised but still largely marine-based economies (Barker 2004: 2).

Intensive archaeological survey of Aboriginal sites has not yet occurred on the Newry Island Group, however, Rowland and Ulm (2011: 22) identified four fish traps of interest to this study: an extensive stone wall (60–90 cm high) trap at Mentmore Beach; a partially sand-covered, stone wall trap at Dewars Point; a fish trap at Seaforth Beach consisting of concentric lines of individual stones (10 cm wall height); and a ruined 'arrowhead' trap on Rabbit Island (in the Newry Island Group), subsequently identified as a modern wooden trap. These fish traps have the potential to provide evidence of subsistence activities relating to the dugong industry but substantiating such an association requires further research outside the scope of this study. Often, neither archival documents, oral histories nor dating is effective in ascertaining those people who may have actually used a fish trap (Rowland and Ulm 2011: 37).

Archival evidence indicates that the commercial dugong fishery, established on the islands from 1885 until 1934 (Mackay Mercury and South Kennedy Advertiser 1882: 3; Week 1889: 11), was not as successful as the later fin fisheries operating in Mackay. Tourists and Mackay locals utilised the Newry Island Group as a holiday resort from 1938 until 2001, with the island changing hands between various owners and playing a significant role in the evolution of tourism in the Great Barrier Reef Marine Park (Great Barrier Reef Marine Park Authority 2017: 4). The Queensland Parks and

Wildlife Services (QPWS) now manage the Newry Island Group as the 464-hectare Newry Islands National Park, located entirely within a Dugong Protection Area—Type A (Department of National Parks, Recreation, Sport and Racing 2013: 1, 5).

Archaeological surveys carried out on the Newry Island Group and Stewarts Peninsula attempted to identify evidence of the dugong fishery and understand its spatial extent. Conducted during two field periods, February–March and May 2018, the archaeological survey focused on three potential targets within the Newry Island Group and adjacent mainland identified through thorough archival research. Newry Island, Acacia Island and Dewars Beach warranted coastal archaeological survey. Commercial dugong fisher Daniel Dewar built his hut on the south-western coast of Newry Island, at Sunset Beach. The most likely location of the dugong processing station is the western coast of Acacia Island, due to its topography (see Fig. 5). Secondary sources identified Dewars Beach on the Stewarts Peninsula as the location of an occupation licence granted to Daniel Dewar for his work planting fruit on the Whitsunday Islands (see Fig. 6) (Blackwood 1997: 71–72). Archival sources did not reveal the location of Dewar and Ching’s Aboriginal crews’ quarters, either at or separate to the Newry Island Group and Stewarts Peninsula. Engagement with Aboriginal communities, outside the scope of this study, may shed further light on this aspect of the industry.

Field methods included non-disturbance pedestrian surveys conducted around the entire coastline of Newry Island, Acacia Island and Dewar’s Beach to identify and record possible remains of Dewar and Ching’s occupation of the area and other archaeological sites relating to dugong procurement and processing. Evidence of habitation



Fig. 5 Low-lying western point of Acacia Island is the most likely location of the dugong processing plant, looking south-east with the mainland visible in the far right (photograph by B. Gealy, 11 May 2018)



Fig. 6 Looking north-west along the length of Dewars Beach (photograph by M. Fowler, 12 May 2018)

(post holes, corrugated iron, rainwater tanks, sawn timber and domestic refuse), processing (glass bottles, pots, coppers, casks, sheds, plant and slipways) and fishing (harpoons, nets, stakes and landing places) may indicate archaeological sites associated with dugong fisheries. Three people conducted the pedestrian survey in transects of approximately 20 m, running parallel to the coast from the low tide mark inland as far as accessible. The variable environment of the survey area—from scrub, mangrove and sandy beach to eroded rock on the islands, and the radically transformed pastoral landscape of Dewars Beach—resulted in greater or lesser survey coverage. Significant environmental factors, such as tides, dense vegetation and the health and safety risks posed by dangerous wildlife (saltwater crocodiles, snakes and green ants) also prevented access to some areas during the archaeological survey and impeded coverage. The exact location of Daniel Dewar's dwelling on Stewarts Peninsula was not located through archaeological survey, nor any archaeological evidence of his hut at Sunset Beach, Newry Island, or any signs of his crews' quarters. Acacia Island revealed no tangible evidence of John Lionel Ching's dugong nets, processing plant or living quarters. The lack of tangible remains suggests that the Newry Island Group fishery is now ephemeral. The absence of archaeological material may be evidence of opportunistic salvage (and reuse) by local communities (fishing, camping and tourism) given the accessibility of the area or systematic removal by QPWS to 'clean' the national park (Bennett and Fowler 2016: 186–187). Natural post-depositional factors, including the frequency of tropical cyclones in the region, humidity and erosion, may have also contributed.

Seascapes

As recently as 2014, McKinnon et al. (2014: 61) described the concept of seascapes as ‘still somewhat ambiguous in the literature’ due to a lack of exploration by archaeologists working in coastal and island maritime research. Seascapes developed out of an Indigenous, coastal and island archaeology school of thought (used but not defined by Gosden and Pavlides (1994) and Walters (1989)). Defined as ‘contoured, alive, rich in ecological diversity and in cosmological and religious significance and ambiguity’ (Cooney 2003: 323), we must of course recognise at the outset that the concept of ‘seascapes’ is a Western construct and an archaeological paradigm.

A seascape approach is most often intended to give voice to Indigenous cultures, rather than non-Indigenous or colonial ones (McKinnon et al. 2014: 61) and is usually employed by archaeologists studying ‘ancient’ societies (McNiven 2008), becoming synonymous with Indigenous ‘prehistoric’ contexts. McNiven (2003, 2008) has largely advocated for, and undertaken, the employment of a seascape approach. McNiven (2003, 2008) only uses the term ‘seascape’ for Indigenous groups whose engagement with the sea is highly specialised, based on his criteria (Ash et al. 2010: 57). According to McNiven (2008), within a seascape, communities are best described as maritime peoples, sea peoples or ‘Saltwater Peoples’, with maritime societies usually made up of small-scale Indigenous communities. McNiven (2003: 330) therefore sees degrees of coastal use by Indigenous peoples in Australia, as while most coastal peoples exploited both marine and terrestrial resources, he only categorises those marine specialists, mostly found in tropical northern Australia, as ‘Saltwater Peoples’.

Generally applied within pre-contact contexts (for example, see Barber 2003; McNiven 2003), seascape studies typically examine two main ideas relating to the sea: marine resources, natural environments, ecology, food procurement, subsistence regimes and technological adaptations; and their cognitive, ontological, symbolic and spiritual relationships. These studies are exemplary in the way they move away from the preoccupation in coastal archaeological studies with the earliest date, quantities of species and so forth and start to provide more pluralistic interpretations. Indeed, McNiven (2003: 329) states that ‘an archaeology of seascapes is more than an archaeology of marine subsistence and procurement technology; it must also be an archaeology of spiritscapes and rituals’.

We deem seascapes to be a specific component of—rather than ‘fundamentally the same concept as’ (Anderson 2016: 50)—the broader umbrella of ‘maritime cultural landscapes’, the latter of which stems from the extensive literature associated with Westerdahl (1992). Maritime cultural landscapes examine the two main ideas above with the addition of a third arm, the functional and practical aspects of maritime material culture—the boats and ships that were once the principal site of study by maritime archaeologists. As this third branch was not within the remit of our Newry Island Group study, we adopted a seascape approach to interrogate commercial dugong fisheries as a maritime resource extraction industry operating within a ‘maritime industrial seascape’ (Raupp 2015: 297). It seems surprising, however, that post-contact researchers and historical archaeologists do not more frequently apply seascapes in their work. Ash et al. (2010) and Fowler et al. (2014) use seascape approaches in an Indigenous post-contact context in Australia. Interestingly, Duncan (2000) made a singular application of seascapes within a non-Indigenous context in Australia (with Duncan and others using a synonymous cultural seascape/maritime cultural landscape approach, e.g. Anderson 2016, Ash 2007, Duncan 2004 and Duncan 2006). In this paper, we adopt a seascape approach in the historical context of commercial dugong

fisheries and in particular the lives of two non-Indigenous dugong fishers. This research contributes to the literature surrounding seascape approaches by specifically applying it to a site that archaeologists would normally approach from an historical archaeological school of thought.

Discussion

A seascape approach attempts to understand the ways in which coastal peoples identify themselves, their sense of place and histories (Cooney 2003: 323). People socialise their seascapes through local knowledge and lived experiences, a trait shown by dugong fishers John Lionel Ching and Daniel Dewar (Cooney 2003: 324). Notionally plausible and accepted, although undeveloped, few studies have endeavoured to provide a methodological approach or structure within which to interpret the concept of a 'Western' seascape (Duncan 2000: 21, 25). Seascapes are 'owned by right of inheritance, demarcated territorially, mapped with named places, historicized with social actions, engaged technologically for resources, imbued with spiritual potency and agency, orchestrated ritually... legitimated cosmologically' (McNiven 2008: 151) and 'inscribed with sites' (McNiven 2003: 331).

Owned by Right of Inheritance, Demarcated Territorially and Mapped with Named Places

Claimed, named, divided and inherited, the sea is not an empty space (Crouch 2008: 132–133). Ching and Dewar, as English and Scottish emigrants, respectively, had no natural claim to the islands or seas of the Queensland coast. Dewar, however, obtained a permanent base on Stewarts Peninsula, planted fruit and grazed land while hunting dugong and later leased land on Newry Island. Ching, on the other hand, led a more nomadic lifestyle across the Queensland coast and never held a long-term residence. Ching rarely went into Maryborough, living on his fishing vessel *Moeeyan* (Brisbane Courier 1893: 5).

Maritime cultures cross borders created by authorities, including 'those shaped by laws defining jurisdiction over an area and those created for the sake of territoriality' (Westerdahl 2008: 226). Dewar and Ching felt a sense of ownership over the coasts, islands and seas they operated in, whether legitimate or not, inscribing their legacy on the landscape through place names. Ching's naming of Dunheved Island, the location of his Repulse Bay fishery, attests to his sense of ownership of this region. Dunheved, the former name for the town of Launceston in Ching's native Cornwall, may have been an intentional choice to claim or familiarise this colonial seascape. Ching did also own and lease land in Bingham, Queensland, as well as basing his dugong operations from his vessel *Moeeyan* for some time (Brisbane Courier 1887: 2). According to Blackwood (1997: 167), Acacia Island had the dual toponym of Chings Island in old boat charts, which may reflect Ching's use of the island as a dugong processing base. Modern maps continue to associate the name with the island. The beach on Stewarts Peninsula, Dewars Beach, and a street located on the coast close to Stewarts Peninsula, Dewar Street, are both eponymous of Daniel Dewar. Place names are a vital and significant source of intangible data when examining seascapes (Westerdahl 1992: 6). The naming of Chings Island, Dewars Beach and Dewar Street after Ching and Dewar reinforce their indelible presence within the Newry Island Group.

Historicised with Social Actions

The ‘marine environment should actively influence, and be influenced by, the overall social organisation’ of a society (Firth 1995). Local newspapers highlight the fishing exploits of both Ching and Dewar throughout the late nineteenth and early twentieth century, also offering an insight into the fisher’s role in the broader social landscape. Noted as hospitable, intelligent and well-respected, many visitors stopped to greet Dewar on Newry Island (Daily Mercury 1931: 2). Ching was similarly well known, especially in the Wide Bay region, and also hosted visitors, although often with a more touristic focus. Some travellers saw the dugong trade as an attractive sport and Ching’s fishery catered to their interests. Travellers who visited Ching were often allowed to take part in a guided hunt for dugong (Darling Downs Gazette 1887: 3). Dugong fishing received attention from many newspapers in Queensland and journalists often visited Ching’s fishery in Wide Bay to report on the industry (Darling Downs Gazette 1887: 3).

Ching and Dewar were active members of broader society, through social relationships and through their entrepreneurial endeavours to increase the dugong market. Advertisements stated that ‘Mr. Ching’s manufactures have been tested at various Exhibitions, also by well-known chemists and medical men, and found to be absolutely pure’ (Darling Downs Gazette 1887: 3). Dugong oil was first advertised in Mackay in 1881 when H. & E. Bromberg, a general store located in Sydney Street, Mackay, was the sole local agent for Ching’s dugong oil (Mackay Mercury and South Kennedy Advertiser 1881: 3). Mackay Mercury and South Kennedy Advertiser (1881: 3) advertised the product as an industrial lubricator and also for medical purposes, specifically mentioning that it could cure consumption, liver soreness, chronic dysentery and indigestion.

Both Dewar and Ching exhibited their dugong oil within public forums. In an effort to advertise his dugong oil, Dewar displayed his products at the more local 1889 Brisbane Exhibition (Week 1889: 11). To expose his dugong products to retailers, Ching showed his wares at various exhibitions, including Brisbane and Melbourne in Australia, and Paris and Philadelphia (United States of America) overseas (Brisbane Courier 1878: 5, 1889: 3; Darling Downs Gazette and General Advertiser 1877: 3; Queenslander 1875: 8). Ching sold bottles of dugong oil, as well as skulls, tusks, teeth, leather and whole mounted dugong (McKay 1997: 225). Ching was also celebrated for the quality of his dugong oil and won numerous awards in these exhibitions. These marketing opportunities aimed to increase the demand for dugong oil and were therefore valuable showcasing occasions for Ching and Dewar to sustain the industry.

Engaged Technologically for Resources

The rich ecological diversity of the sea results in an economic focus for coastal communities to whom ‘the sea is merely another resource’ (Christie 2013: 152–154). Marine subsistence and procurement technologies form a large component of the archaeology of seascapes (McNiven 2003: 329). Harpooning was Ching’s initial method of procuring dugong, with the assistance of Indigenous crew, as he had problems with using a net that he argued was too coarse and too heavy when pressed against the tide (Maryborough Chronicle, Wide Bay and Burnett Advertiser 1874: 2). At his Wide Bay fishery, harpooning secured an equal number of dugong as netting (Darling Downs Gazette 1887: 3). Harpooning was undertaken by Aboriginal people employed by Ching (Darling Downs Gazette 1887: 3):

These men, having extraordinarily developed senses of sound and sight, were enabled to see their prey approach under water from a considerable distance.

Suitable nets were not available from local suppliers at that time. To resolve this problem, Ching had to leave the country to customise his equipment to better suit dugong fishing. Importation of mesh nets from Devon, England, more effectively captured dugong and provides an insight into the global networks involved in the dugong industry.

Across the deep and narrow channels... were stretched long and very strong nets of wide mesh, made especially for the purpose at Biddiford, North Devon... (Darling Downs Gazette 1887: 3).

Thus, Ching changed his method of procurement from harpooning to capturing dugong with stronger, more durable nets (Darling Downs Gazette 1887: 3). By 1887, Ching had three-quarters of a mile of netting made from coir (coconut fibre) line, and he brought enough line from England to make about two miles (Morning Bulletin 1887a: 5). When in England, Ching ordered a vast plant, not only of fishing material, but of neat bottles for the oil, pots with screw tops for the ointment, labels with directions, seals, placards and pamphlets (Morning Bulletin 1887a: 5). Thus, Ching secured the vast majority of machinery and equipment used in the manufacturing process, such as the steam powered machine, bottles, pots and so forth, from overseas suppliers.

Exploiting marine resources for economic gain, the fishers also relied on their tradition of usage and local knowledge to manage and sustain the industry. Although reliant on harpoons during his early career, Ching later opposed the use of harpoons to procure commercial quantities of dugong and exclusively used stake-nets (Queenslander 1890: 1040). He also disapproved of the capture of dugong calves in nets with too fine a mesh size, using meshes of no less than one square yard in his nets to allow dugong calves to slip through (Morning Bulletin 1887b: 5; Queenslander 1890: 1040). This indicates his concern for the sustainability of his business, however, also reveals an attitude of environmental and conservation awareness. While Ching was thinking about the long-term health of the dugong fishing industry, his Aboriginal crew continued to harpoon dugong. This allowed the Aboriginal participants to continue practicing traditional hunting methods, in exchange for their service to Ching as employees. Dewar also favoured nets for hunting; however, his Aboriginal crew used harpoons.

Imbued with Spiritual Potency and Agency, Orchestrated Ritually and Legitimated Cosmologically

In addition to economy, seascapes must also incorporate ‘an archaeology of spiritscapes and rituals’, used to facilitate spiritual relationships with the sea (McNiven 2003: 329, 2008: 149). However, not all seascapes are rich in cosmological and religious significance (Cooney 2003: 323). A ‘ritual orchestration of seascapes’ is not a defining feature of maritime communities (Ransley 2011: 894). Rather, it is tradition of usage—a pattern of actions and choices, which is not coincidental or based on a whim, but depends on cultural practice and mediated knowledge—that provides the cognitive connection to seascapes (Westerdahl 1992: 8, 2006: 60). Local knowledge of the underwater environment and seabed topography, currents, swells, winds, stars and seasonal changes aid a fisher in placing their location on a mental map (Cooney 2003: 324; Ford 2011a: 4).

Dewar and Ching benefited from increasing local maritime experiences, practical learning and tradition, undoubtedly developing well-used routes and favoured hunting

grounds. Ching shared his knowledge and practices concerning salting, curing and smoking meat with his companions, most often travellers or journalists who participated in hunting the dugong for sport or reported on the industry to local newspapers (*World's News* 1931: 12). His accumulated knowledge was likely shared through oral traditions.

Ching and Dewar's fisheries were also influenced by their local knowledge of the marine environment. Ching captured dugong at night during the first and last quarter moon. Dugong in Moreton Bay were only hunted in the winter months and at night, as the winter tides from June to August were the largest—dugong were able to see the nets during the day, hence why the fishers chose to place their nets at night (see Fig. 7) (*Queenslander* 1893: 708). The tides and depth of water in creeks were important for both dugong fishermen to consider. Ching placed large nets across small island channels, staking the nets to the ground onshore to guarantee that strong tidal currents could not displace them (*Capricornian* 1887: 28; *Queenslander* 1890: 1040). As the tide receded, dugong would head to the deepest part of the creek and wait for the incoming tide to continue feeding (see Fig. 8) (*Maryborough Chronicle, Wide Bay and Burnett Advertiser* 1887: 2). Ching, in particular, used the entrance to creeks:

Mr. Lionel Ching's mode of catching dugongs is to block up the mouth of one of these creeks with a net, and send wings out on either side even to a quarter of a mile in length (*Morning Bulletin* 1887a: 5).



Fig. 7 Dugong nets were most often placed at night, when dugong were less likely to spot them, Newry Island looking east towards Outer Newry Island (photograph by M. Fowler, 1 March 2018)



Fig. 8 Seagrass is exposed at low tide, forcing dugong to retreat to deep water to await the incoming tide, Newry Island looking south towards Acacia Island (photograph by T. Foster, 1 March 2018)

Inscribed with Sites

Although an attempt to understand a seascape is an attempt to understand daily life within that specific place, much of what defined daily life for past peoples is lost and unknowable today (Ford 2011b: 73). Despite the intensity of use, investment of time and required cultural capital surrounding the dugong industry, its archaeological signature, altered or erased by cultural and natural post-depositional factors, is almost non-existent. At John Lionel Ching's Wide Bay fishery, for example, boats dispatched every morning collected the dugong captured in the nets and towed them back to camp or to an inclined railway reaching down to the nearest channel or creek (Darling Downs Gazette 1887: 3). Processing operations took place as follows:

The camp was well-placed on the sea beach fronting a vast expanse of shallow water, enclosed, or nearly so, by a long sandy island, inside which came with each tide flocks of Dugong... The Dugong having been taken into the [cutting up] shed, the first operation performed was skinning.... The carcass was then cut up into convenient sized pieces, each of which being placed on an exquisitely clean slab, the delicate task of flinching had to be gone through. This consisted of carefully separating the thin streaks of fat from the accompanying lean right down to the ribs.... This done, the meat was salted and placed in casks for use on the up-country sugar plantation, whilst the priceless fat, after being cut into smaller pieces, was passed through a large sausage machine and then into the coppers, where it

had to be boiled for a certain length of time. The oil then went through two stages of refining and filtering... (Darling Downs Gazette 1887: 3).

The Hervey Bay fishery at Maryborough was further fitted out with ‘large “trying out” and “salting” houses ... seven or eight very substantial huts, in which the white men in the employ live, besides a more commodious dwelling occupied by the proprietors’ (Illustrated Sydney News and New South Wales Agriculturalist and Grazier 1876: 11). With the exception of railway slip-ways, processing plants and salting and curing houses marking the locations of dugong processing, the only archaeological evidence of this industry would be stakes, bottles, casks and coppers. It is likely that natural and modified landscape features, such as creek mouths, narrow channels and landing places, would characterise these locations. Yet none of these places have been definitely ascertained from the historical record or identified archaeologically within the Newry Island Group or Stewarts Peninsula. Despite this invisibility, the dugong industry was a major aspect of the Newry Island Group seascape and any reconstruction of past maritime use must account for its presence.

Conclusions

Reflecting on the relevancy of a seascape approach to this commercial industry, it is important to acknowledge that, except for Duncan (2000), archaeologists have only applied an exclusively seascape approach to Indigenous archaeological contexts in Australia in the past. The seascape approach used here has been successful in encompassing Western systems of maritime knowledge. As McNiven (2016: 34) notes, when discussing worldviews, it is important not to fall in the dualist trap of Western versus Indigenous. Such a division leaves little room for ontological overlap and denies Westerners the capacity for spiritual beliefs (McNiven 2016: 34). Scientific epistemological principles do not predicate all knowledge systems in the West (Lane 2006: 71–72). Rather than closed, static systems, both ‘categories’ are open-ended, continually subject to change through cross-cultural dialogue (Lane 2006: 71–72; McNiven 2016: 34). The investigation of a seascape ‘may better capture the cultural and ontological meaning of the sea’ and has proven to be a useful way to consider intangible and cognitive aspects of commercial dugong fisheries, that other approaches—which centralise focus on the land as opposed to the sea—may neglect (McKinnon et al. 2014: 61–62).

The archaeological survey at the Newry Island Group and Stewarts Peninsula, while unsuccessful in locating physical evidence of the industry, highlights the rarity of such remains should sites in the future reveal tangible material. Future research should prioritise additional archaeological surveys of dugong fisheries located at Moreton Bay, Maryborough, Hervey Bay and Repulse Bay. Given the lack of extant remains at the Newry Island Group fishery, any archaeological evidence at these locations would represent a rare example of an archaeological site type with scientific and research potential. Often declared insolvent and stranded on remote islands with severe weather damaging their fishing boats, the industry chosen by commercial dugong fishers was difficult. On the other hand, the dugong fishers were able to sustain their livelihood through conservative approaches, construct positive relationships with the local community and maintain associations with Aboriginal crew members. The dugong fishers of the Newry Islands contributed to an under-studied yet important industry in Queensland’s maritime history and continued archaeological research should occur into this invisible industry of ‘submarine squatting’.

Compliance with Ethical Standards

Conflict of interest The authors declare that they have no conflict of interest.

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