

Empowering her guardians to nurture our oceans future

Mibu Fischer^{1,2}, Kimberley Maxwell³, Per Ole Frederiksen (Nunnoq)⁴, Halfdan Pedersen⁵, Dean Greeno^{2,6}, Nang Jingwas (Russ Jones)⁷, Jamie Graham-Blair⁸, Sutej Hugu⁹, Tero Mustonen⁹, Eero Murtomäki⁹, and Kaisu Mustonen⁹

¹CSIRO Oceans & Atmosphere

²Centre for Marine Socioecology

³Environmental Research Institute, University of Waikato

⁴The Pisuna Project

⁵Pikkoritta Consult

⁶College of Arts, Law and Education, University of Tasmania

⁷Hereditary Chief, Haida Nation

⁸Institute for Marine and Antarctic Studies, University of Tasmania

⁹Affiliation not available

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Mibu Fischer^{1,2}, Kimberley Maxwell³, Nuunoq (Per Ole Frederiksen)⁴, Halfdan Pedersen⁵, Dean Greeno^{2,6}, Nang Jingwas Russ Jones⁷, Jamie Graham Blair⁸, Sutej Hugu⁹, Tero Mustonen¹⁰, Eero Murtomäki¹⁰, Kaisu Mustonen¹⁰

¹ CSIRO Oceans & Atmosphere, Brisbane, QLD, Australia; ² Centre for Marine Socioecology, Hobart, TAS, Australia; ³ Environmental Research Institute, University of Waikato, Tauranga, New Zealand; ⁴ The Pisuna Project, Attu, Greenland; ⁵ Pikkoritta Consult, Greenland; ⁶ College of Arts, Law and Education, University of Tasmania, Launceston, TAS, Australia; ⁷Hereditary Chief, Haida Nation, Canada; ⁸ Institute for Marine and Antarctic Studies, University of Tasmania, Hobart, TAS, Australia; ⁹ Indigenous Taiwan Self-Determination Alliance (ITW-SDA), Namasia, Taiwan; ¹⁰ Snowchange Cooperative, Selkie, Finland

Corresponding author: Mibu Fischer mibu.fischer@csiro.au

Author ORCID IDs: Mibu Fischer: <https://orcid.org/0000-0002-1216-3451>; Kimberley Maxwell: <https://orcid.org/0000-0002-6360-0252>; Tero Mustonen: <http://orcid.org/0000-0002-2023-9065>

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Abstract

Coastal Indigenous and Traditional Peoples communities are starting to see changes to their lives from climate change, whether this is from species range change or displacement from land changes. For many of these communities the ability to adequately adapt to these changes is limited by the governance structures they are required to live within, which differ from their customary practices and culture. A group of Indigenous and Traditional Peoples attended the Future Seas 2030 workshop in November 2019 and discussed the consequences of climate change along with the biggest barriers for their communities to contribute towards more sustainable future using traditional knowledge that will benefit all of earth's people. The aim of this was to highlight and give voice to the various backgrounds and real-life situations impacting on some of the world's Indigenous and Traditional Peoples whose connection with the oceans and coasts have been disrupted. The paper raises issues of oppression, colonisation, language and agency on why it has been difficult for these groups to contribute to the current management of oceans and coasts, and asks scientists and practitioners in this space to become allies to enable the needed shift for earth's guardians to take a leading role in nurturing her for our future.

Key words: indigenous, traditional people, First Nations, traditional ecological knowledge, colonisation, climate change

Preamble

The University of Tasmania, which is home to the Future Seas project, lies only a short distance from the site of an infamous massacre of local Indigenous peoples. As described in this paper, Indigenous people across the world have much to contribute to a better future for our oceans. But meaningful dialogue and engagement on ocean issues requires recognition of historic injustices as the first step towards a true reconciliation. Stories such as the one below, reveal an uncomfortable history. But retelling those stories becomes an opportunity to educate and heal past traumas. This story has historical value but is also a story of survival of the original people who cared for these lands, waterways, seas and skies in a sustainable manner for thousands of years. These original people continue to be the guardians of their unique spiritual and cultural land and seascape.

Standing around the fire on a fresh spring morning at piyura kitina, lutruwita (Risdon Cove, Tasmania), surrounded by gums and the occasional playful squeal of a child from the nearby childcare centre, in peaceful silence was a group of people, varying in age and ethnicity. What followed that tranquil moment was an introduction to the brutal history of the country they were gathered upon. The local Mumirimina palawa (Tasmanian Aboriginal People of the Pittwater & Risdon area) were custodians of this place. Guardians of the river, forest and hunting plains for thousands of generations, it was these people that thanks and respect was offered to in this gathering. Caretakers of a complex system of lore which had kept them in harmony with land, sea and sky for millennia, only to be disrupted by the arrival of Lieutenant John Bowen and the first British colonialists. On this very spot on the 3rd May 1804, while hunting for a large ceremonial gathering with the Big River palawa, the mumirimina had circled a big mob of kangaroo and were driving them down towards the river. With cannons and muskets, the soldiers at Bowens camp opened fire on them all, killing men, women, and children who were armed with nothing but waddies¹Australian Aboriginal war club used for hunting or fighting.. Many bodies of the deceased were packed into barrels of lime to remove the flesh and then shipped off to Sydney for scientific interest. The first child to be forcibly removed from his parents was stolen that day, christened and given the new (and only recorded name) Robert Hobart May. This began a legacy of forced child removal, violence and dispossession that the palawa still feel and navigate today. But it is not only the palawa who felt this loss, but the land and waterways of the area too.

You see at the time of writing this, Australia has recorded only two marine extinctions, both of which have occurred in the Derwent Estuary, the river that these Mimirimina palawa were responsible for caring for. Had their sovereignty been recognised, their rights to exist freely and uncolonized retained, the river would have remained healthy and these extinctions (and the many other forms of environmental damage witnessed in the Estuary) would most likely not have occurred.

The colonial settlements of Tasmania all built upon events and massacre sites not unlike this place. This extends to both the academic and industrial institutions of the island, and indeed the accumulated knowledge and understanding of the island. Even though piyura kitana has since been returned to the palawa community, the pain and loss of this massacre, and the numerous other incidences of human rights abuses that occurred here, are still felt today, but seemingly only acknowledged and talked about by the Indigenous people.

Lutruwita's brutal early interactions with the British that nearly saw them wiped entirely off the face of the earth within only three decades is not an isolated incident. Every continent has been invaded at some point in history, and the process of invasion has been honed and adapted to take supreme control over the Indigenous and Traditional Peoples communities, to the point where they are eliminated, or their history erased. Regardless of which foreign power (British, French, Spanish, Chinese, Portuguese...) was responsible for invading Indigenous and Traditional Peoples lands and waterways, the pathway to asserting foreign sovereignty has followed a repeated narrative. Separation of the generations is often a prominent part of colonisation and is a recognised form of genocide (Docker 2015; Krieken 1999; Schimmel 2005). By doing this, the transmission of intergenerational knowledge is interrupted, resulting in a loss of identity and key cultural responsibilities to land and water. Often during this cultural breakdown, new knowledge around language, religion, and social conventions is forced onto the younger generations to assimilate them to the invader's philosophies and views. These forced assimilations also include massive changes to diets and subsequently overall health of communities, which to this day is still a prevalent issue (Griffiths et al. 2016; Sherwood 2013). Whilst this is not a comprehensive list of colonial impacts, it highlights the systematic and well-designed nature of invasion and conquest with widespread and parallel impacts on Indigenous and Traditional Peoples' cultures, cosmologies and ecologies. The shared history of colonisation that many Indigenous and Traditional Peoples around the globe remember and live with is what brings them together in solidarity. Due to the nature of elimination, the domination of Indigenous and Traditional Peoples has resulted in the disenfranchisement of thousands of communities, with over 5,000 different Indigenous and Traditional Peoples communities worldwide (Amnesty International 2020). This should highlight the importance of decolonisation, not only for the Indigenous people and their usurped way of life, but the systems and institutions that benefit from their dispossession and mistreatment.

Now, going back to that cold spring morning at piyura kitina, standing amongst that group of people was a small collective of Indigenous and Traditional Peoples from across the world. We are now connected through the Future Seas 2030 Project, and the joint experiences we shared during the November 2019, Future Seas 2030 workshop.

Introduction

Indigenous and Traditional Peoples have successfully utilised marine and coastal resources using traditional management practices that are rooted within their epistemologies and ontologies for millennia (Kinnear 2007; Prosper et al. 2011). The survival for many communities and the ability to continue these practices have been reduced due to colonial impacts, where practices have remained or been revitalised it is through the persistence of the community.

It is the belief of many Indigenous and Traditional Peoples that we come from the lands, waterways and seas, as such the stewardship in maintaining a healthy country is synonymous with maintaining our own health (Ganesharajah 2009; Jarvis 2019; Kingsley et al. 2013). Structure of management is in many cases not through formal processes, but tied with individual and community customary rights, ceremonies, songs,

taboos, totems which result in ‘restrictions’ in marine resource use between clan groups, and serve a purpose for the sustainability of the shared resources. Whilst these practices have a deep importance and strong cultural link to Indigenous and Traditional Peoples communities, their marginalisation through colonised management processes have led to the exclusion of these sustainable and long successful stewardship practices, resulting in the degradation of the marine and coastal environment. There are many communities who wish to be included to continue their stewardship over their homelands and waters.

This paper aims to present one version of a vision for a fair ocean future for Indigenous and Traditional Peoples around the world. However, we must first begin with a description of where and how we started, both literally, for this paper and this purpose, and historically, as Indigenous and Traditional Peoples we were systematically disposed of our lands, our waters and our oceans. Following this is a brief overview of an Indigenous worldview, followed by understanding limitations around language. We then journey around the globe to hear of varying Indigenous and Traditional Peoples accounts of life with the oceans. Most case study narratives talk about the implications of colonialism on their culture, and the resulting impacts of this attempted genocide. Whilst a fair future marine environment is a common goal for the Future Seas paper, this paper differs in that Indigenous and Traditional Peoples have often been disadvantaged through numerous drivers, which have been identified as colonialism, globalisation and agency (ability to adapt to change).

The biggest impact to Indigenous and Traditional Peoples to contribute to a sustainable future for all is foreign sovereignty and reductionism of our beliefs and governance systems, and rights to resources. Whilst some Indigenous and Traditional Peoples have been able to continue to practice culture relatively uninterrupted by colonial powers, many are at risk of a second wave of attempted genocide from climate change and globalisation. The discussion will explore the various ways in which our case study narratives have been impacted by a generalised Business as Usual approach to oceans, with examples of positive steps that are available for foreign powers, including settler states, and Indigenous and Traditional Peoples to work together. Despite these positive steps, more can be done to allow Indigenous and Traditional Peoples to be a part of the solution for a sustainable ocean future for all. We will conclude with our opinions on how to address the lack of Indigenous and Traditional Peoples participation in climate change studies, solutions and research moving forward.

The authors want to be explicit in recognising that we are not trying to create a one world vision for Indigenous and Traditional Peoples perspectives on climate change or sustainability challenges, as they relate to our oceans, as this would be impossible for our group to address given the diversity of Indigenous and Traditional Peoples of the world, the different languages, histories, environments and needs. It would be irresponsible for us to try and develop a future scenario that could represent all Indigenous and Traditional Peoples.

The recent global development of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), and the coronavirus disease (COVID-19) leading to a pandemic, has impacted everyone the world over. We understand that these impacts may serve as an opportunity for change, we do hope that the forced change of pace allows those in positions of power to reassess the relationships that they have with the Indigenous and Traditional Peoples nearest them and increases awareness to their unique experiences and knowledge, some of which we are sharing in this paper.

Worldviews

According to the United Nations the upwards of 5,000 different Indigenous and Traditional Peoples cultures contribute to the majority of the 6,000 world languages across 90 countries (UN DESA 2019; UNESCO 2018). There are approximately 370 million Indigenous and Traditional Peoples, making up 5% of the world’s population, however this extremely diverse yet small group are responsible for 80% of global biodiversity (UNESCO 2018). Nature’s contribution to people that these diverse ecosystems provide to the remaining 95% of the human population is large, creating an imbalance of powers, economic disadvantages and more

for Indigenous and Traditional Peoples. The loss of natural environment and access to lands and waters, due to changing land use for the benefit of victory and riches for the foreign power is vast and of great concern to many Indigenous and Traditional Peoples, depicted in Figure 1 (Cannon 1995; Kusiluka et al. 2011; Proce et al. 2006; Stavig 2000; Walls and Whitbeck 2012). The impacts from changes to the landscape that Indigenous and Traditional Peoples have felt, go beyond impacts of food security and enjoyment of place.



Fig. Western Worldview (Business as Usual) - Dean Greeno. Indigenous view of westernisation destroying Mother Earth including the oceans through misuse of natural resources. The domination of westernisation globally was triggered through colonisation of many groups in the 17th and 18th centuries, leading to the current unbalanced system.

In order to attempt to understand the nature of Indigenous and Traditional Peoples perspectives there must be some understanding of our worldview (Martin 2017). An Indigenous worldview does differ from that of the Western mindset, due to the interconnectedness and right to life that the environment and everything within it has (Cajete 2000; Johnson 2012; Johnson et al. 2016; Le Grange 2007). These views can be called endemic or specific (Mustonen 2014). They are often non-global ways of thinking having inherent values to themselves. This right to life is the main difference, where Indigenous and Traditional Peoples place humans within the system and are actively part of it, whilst the Western system places humans outside of the environment and views it as something to control (Figure 2).

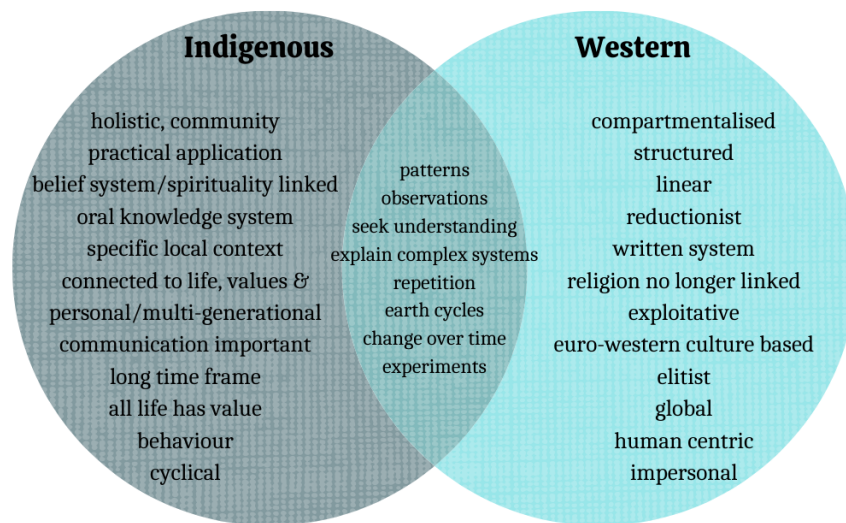


Fig. 2 Comparisons of Indigenous and Western Worldviews

“One can ask questions about the multiplicity of values that a landscape has for people. But these questions cannot readily be asked within an Aboriginal concept of country because country has its own life, its own imperatives, of which humans are only one aspect. It is not up to humans to take supreme control, or to define the ultimate values of country.” (Rose, 1996 p.10)

Indigenous and Traditional Peoples have known the need to live a harmonious lifestyle since the beginning of time (Figure 3), yet it is only now that we are being empowered to have a say in western governance systems and against the consumerist system that we have been dragged into. The myriad of climate change predictions has already begun impacting on Indigenous and Traditional Peoples lifestyles, including our culture (Mustonen et al. 2020, this issue). Therefore, listening to how Indigenous and Traditional Peoples can be part of the solution is one step towards tackling many mitigation and adaptation questions. Eero Murtomäki from Finland has defined this difference as one of harmony (natural system) and chaos (imposed colonial rule over nature). In a contemporary context where Indigenous and Western mindsets are being brought together a number of frameworks have been and continued to be developed, ‘Two-Eyed Seeing’ is one of those practices (Reid et al. 2020).



Fig. Indigenous Worldview (Sustainable Future) - Dean Greeno. Holistic, nurturing practices of Indigenous and Traditional Peoples have seen these communities care for 80% of global diversity.

Language Barriers

Before we continue, we must acknowledge that we are writing about Indigenous and Traditional Peoples ideals in English, which frequently is the language of science. A language which for some of us is foreign and for others was used as a tool to colonise our ancestors. It can continue to perpetuate harm to Indigenous and Traditional Peoples communities through the continued use of westernised names, especially those that reference past atrocities and at locations that have cultural significance i.e. Cape Grim, Tasmania. Language is part of knowledge systems, and we are not trying to disconnect the two by writing in English but rather translate our perspectives and knowledge as Indigenous and Traditional Peoples on our own terms. The ability to translate the meaning behind traditional languages into a western context can be difficult in some instances, as the meaning and emphasis on particular words can be lost, the importance can be captured in the quote from *Decolonising the Mind*, by famous African writer Ngugi wa Thiong'o (1986).

"Language carries culture, and culture carries, particularly through orature and literature, the entire body of values by which we come to perceive ourselves and our place in the world... Language is thus inseparable from ourselves as a community of human beings with a specific form and character, a specific history, a specific relationship to the world." (Thiong'o 1986, p.16)

2019 was the International Year of Indigenous Languages and was a catalyst for many nations to start to think about the benefits from Indigenous and Traditional Peoples languages. Unfortunately, it was not enough to reduce the continued loss of languages that are occurring, with the UN stating 4 in 10 Indigenous languages are close to disappearing (UN News 2019).

Linda Tuhiwai Smith notes in her book, *Decolonising Methodologies*, the number of indigenous communities who have stated 'we are the most researched people in the world' (Tuhiwai Smith 2012). As she discusses, it isn't the truth to the statement, it's the meaning behind it, Indigenous and Traditional People the world over have in the past been the focus of research. The purpose of this paper is to give a voice to the quiet minority, those who have done little to contribute towards anthropogenic global warming, those who were first affected, who have solutions that saw them through previous ice ages and warming episodes. The

quietness of Indigenous and Traditional Peoples on this topic, was not by a lack of trying but is perpetuated through racism, language and knowledge superiority; this results in vastly decreased opportunities.

Methods

Community Locations

Due to the high diversity of Indigenous and Traditional Peoples globally our case study narratives are from a range of communities, with varying political, cultural and economic influences in their ability to practice and pass down knowledge of their traditional customs. The case study locations were influenced by the heritage of our team members and contributors, with 6 located in the northern hemisphere and 3 in the southern hemisphere.

Our paper focusses on traditional (non-western science) methodologies, that align with our own thinking, position and strategies. The method we used was Yarning Circle, which has been used extensively in the health sector (Dean 2010; Geia et al. 2013; Goulding et al. 2016; Shay 2019; Walker et al. 2014; Yunkaporta and Kirby 2011). Oral pedagogies in the style of yarning is a shared tradition across many Indigenous and Traditional Peoples communities globally, with narratives being a major part of knowledge sharing (Bessarab and Ng'andu 2010; Yunkaporta and Kirby 2011). The style of yarning that occurred over the Future Seas Workshop Week (Nov 2019), was a combination of collaborative and research topic yarns as described in Bessarab and Ng'andu (2010). The sessions included topics related to each of the Future Seas 2030 Project 'key challenges' such as: Blue Economy (Bax et al. 2020, Novaglio et al. 2020, both this issue), Pollution (Pusick et al. 2020 this issue), Governance (Haas et al 2020, this issue), Food Security (Farmery et al. 2020 this issue), climate-driven species distribution (Melbourne-Thomas et al 2020, this issue) and more. These sessions facilitated by co-author Tero Mustonen. The yarning sessions consisted of Indigenous and Traditional Peoples and non-Indigenous Peoples depending on the topic being discussed. The paper direction was informed by our own diverse and rich collective knowledge and experience, in combination with some of these discussions and the case study narratives.

Case Study Narratives

In order to appreciate the varied knowledge that Indigenous and Traditional Peoples have worldwide we will journey around the globe and hear from communities tied to our team members about how we have come to the current state (Business as Usual (BAU)), and highlighting where changes are necessary and activities that should be supported to continue to achieve future aspirations. Each of the case studies have been written by the Indigenous and Traditional authors, the goal was to allow Indigenous and Traditional Peoples the opportunity to share their diverse experiences.

We start our journey in the North-Western Pacific Ocean.

Haida Gwaii (Canada), contributed via hereditary Chief Nang Jingwas (Russ Jones)

Haida Gwaii or "Islands of the People", is an archipelago lying on the edge of the continental shelf off the north coast of British Columbia (BC) and home of the Indigenous Haida Nation. The Haida Nation has about 5,000 citizens¹¹All persons of Haida ancestry are defined as citizens according to the Haida Constitution. and about half currently live in Haida Gwaii. Beginning in the late 1800s, Haida territory, economy and self-governance was usurped by colonial systems such as Indian Reserves and discriminatory regulations. Haida people approved a Constitution and established an elected Council of the Haida Nation in the early 1980s to represent all people of Haida ancestry. Negotiation of modern treaties and agreements have proceeded slowly supported by recent Canadian reconciliation approaches such as recognition of rights (Jones et al. 2020a; Jones et al. 2020b). In the Haida case, the negotiation of interim agreements and management plans for land and marine spaces was catalysed by a mix of Haida political actions and litigation including a court case to prove title to Haida Gwaii that was launched in 2002. The Haida Nation currently co-manages several large

protected areas with marine components and has worked with the federal and provincial governments and other coastal Indigenous Nations on integrated ocean management plans.²² Protected Area include Gwaii Haanas (“Islands of Beauty”) National Park Reserve, National Marine Conservation Area Reserve and Haida Heritage Site that stretches about 10 miles from shore, *SG aan K inghas* (“Supernatural Being Looking Outwards”) – Bowie Seamount Marine Protected Area lies 180 km west of Haida Gwaii, and a further 11 coastal protected areas with a marine component; Integrated marine plans include Pacific North Coast Integrated Management Area and the Marine Plan Partnership; Another initiative underway is designing an MPA network for the Northern Shelf Bioregion.

The Haida Gwaii Marine Plan, endorsed by the Haida Nation and Province of BC, is an example of this collaborative work. It guides marine activities and outlines a future scenario for Haida Gwaii that focuses on a conservation and local economy path:

“Twenty years from now Haida Gwaii has followed a path that prioritizes culture, healthy intact ecosystems and sustainable communities. Marine use and development are balanced with high environmental protection standards and a comprehensive network of marine protected areas. Marine industries generally have low environmental impacts and are consistent with the distinct Islands lifestyle. Community growth is based on a diversity of activities that tap into a growing global demand for sustainable seafood and a unique visitor experience.” (Haida Nation and Province of BC 2005: 32-33).

The Marine Plan identifies about 20% of Haida ocean territory as candidates for marine protection. External drivers and pressures such as climate change and global markets are expected to have a significant impact on the future of Haida Gwaii. Internal drivers included out-migration of youth and its negative effects on community infrastructure such as schools, health care services and transportation. Potential economic opportunities included shellfish aquaculture, increased local benefits from commercial and recreational fisheries, marine-based tourism, and renewable energy development such as wind or tidal power. Fisheries was not fully addressed in the Marine Plan since it lies outside Provincial jurisdiction. The Marine Plan includes detailed objectives and strategies that align with the future scenario. The plan will soon have been implemented for 5 years and is making significant progress.

In general, governance structures for Haida Gwaii plans are based on consensus decision-making. Similar collaborative governance structures are being applied at the Large Ocean Management Area scale for initiatives such as MPA network planning and shipping and marine protection in partnership with Canada and nearby Indigenous Nations. Haida ethics and values (Jones et al. 2010; Jones and Williams-Davidson 2000) and insights from traditional knowledge are incorporated into marine and protected area management plans. Collaborative planning and management are meaningful steps towards reconciliation of Haida and State responsibility which is continuing through negotiation as well as litigation.

Next we travel up through the Bering Strait into the Arctic and down to Baffin Bay, Greenland.

Attu, Greenland, contributed via Per Ole (Nuunoq) Frederiksen and Halfdan Pedersen

Attu is north of the Arctic Circle, situated on Greenland’s west coast (67°56’26.33”N, 53°37’15.26”W). Over several thousand years, different Inuit-related groups have inhabited Greenland with the present population largely descending from a North American immigration a little over 1000 years ago. A Norsemen group also entered southern Greenland then and stayed until the mid-15th century. A Danish-Norwegian pastor started a Christian mission in 1721 and this time is referred to as the beginning of the colonial period. In 1774, Denmark closed Greenland off by establishing KGH, Den Kongelige Grønlandske Handel, subsequently prohibiting any development of the people and country. A Danish commercial post was established to the south of Attu in 1759, later called “Illuerunnerit”, Gamle Egedesminde, for targeting local species. However, the Danes there died of hunger and disease in the terribly cold winters and the post was moved north of Attu to Aasiaat in 1763. In 1818 Attu was established as a commercial post. Unknown to many Greenland and Danish people, in the latter half of the 1940s the UN demanded Denmark develop Greenland and to lift the development ban which she did in 1950. During the 1950s and 60s many habitations in the broader

Attu area were compulsorily abandoned and most of the people moved to Attu itself. In the 60s, Attu people harvested fish alongside the Danes and living from hunting almost became a historic relic. Danish regulatory and societal structure was exported to Greenland and imposed by short-term contracted Danes. Greenlanders had no participation nor authority in their own community. In 1964, the Danish government proposed a ban on the use of the Greenlandic language. The bill was renounced after 3 years due to immense opposition and this instigated the mission to achieve self-governance, the Greenlandic People call themselves *kalallit* and the name for country is *Kalallit Nunaat*. Home Rule was introduced in 1979 to recognise that “the permanent residents in Greenland have fundamental rights to Greenland’s natural resources” (Danish Government 1978) and Greenland’s self-government was introduced in 2009 (Danish Government 2009). However, Denmark continues not to recognise the *kalaallit* people’s rights to, or knowledge of, their natural resources. In the 1960s, the Attu population increased from about 50 to 400 and remained stable until 1990. At this time the Greenlandic government promoted education and training, and the Attu population fell to c.200, due to a lack of jobs for highly educated people. This also affected the number of full-time fishers and hunters, and now there are only about 30 full-time fishers and hunters left in Attu.

Locals have in-depth knowledge of Greenland’s climate, such as atmosphere and water temperatures, ice melts, and effects on fishing and hunting resources. The Attu elders recollect ancestral stories handed down from one generation to the next. For example, every 50 summers and winters or so Greenland became warmer or colder. They had noticed that the inland icecap kept a steady position until the beginning of the 1500’s. From then, the melting of the icecap had quickened, and they noticed during their summer reindeer harvesting the first mountain peaks protruding through the icecap and lakes near the icecap had grown bigger and some had become part of the sea, for example *Tasiusarsuaq* cove in the *Naternaq* area.

The post-1950 impact of Denmark control on Greenland is described as a technocratic tyranny, which is leading to a cultural genocide. Scientific reports and local observations are inconsistent, resulting in hunting regulations which are also inconsistent with climate change effects on species availability. Greenland halibut and narwhal total allowable catch (TAC) limits suggest the species are rapidly declining, whereas small-scale fishers are harvesting the TAC in unprecedented quick times. The regulations are effectively imposing bans on hunting and fishing practices. For example, due to earlier river melts, Arctic Charr are migrating to sea and fattening earlier (from April to July/August), where the harvest season doesn’t open until June 15 before closing on August 15. This endangers winter supply harvesting, as does the walrus season which ends when the walrus arrives in the *Ittoqqortoormiit* (Scoresby Sound area) in east Greenland; and the thick-billed murre bird hunting season which now begins after the bird has left the area due to climate change.

People have lived in the Attu area a long time prior to colonization because here there is an abundance of seals, walruses, belugas and narwhals, arctic char, birds and halibut, among other things, up to this very day. In 2030 the Greenland community wants to put local food products first before resorting to importing food, with local arrangements developed to facilitate this lifestyle, based on local conditions, know-how, mentality, history and knowledge. They expect their knowledge to be acknowledged by others, regardless of position, rank, creed, colour, ethnicity and nationality. Attu people will continue to invite scientists to work with them to create regulations, based on their mutual knowledge.

Next we move southeast through the North Sea and into the Baltic Sea.

Coastal and Forest Finnish Communities, contributed by Tero Mustonen, Kaisu Mustonen and Eero Murtomäki

The Baltic Sea, today the world’s most polluted inland sea, is home of many traditional and Indigenous cultures. Whilst the Sámi are internationally best known as the Indigenous peoples of the Nordic space, the small nations of the Baltic and coastal communities have preserved unique non-Indo-European relations and cultures with their sea areas until today (Tunon 2018). Some of them, such as Livonians and Izors, also have domestic status of Indigenous peoples.

The UN Convention on Biological Diversity Ecologically and Biologically Significant Marine Areas (EBSAs) lists nine important sub-areas of the Baltic. Five of them are discussed here from the point of traditional and

Indigenous relations with the sea (West Estonian Archipelago, Åland Sea and Archipelago Sea of Finland, Kvarken Archipelago, Eastern Gulf of Finland and Northern Bothnian Bay) (EBSA 2018).

Many coastal Finnish and Swedish communities maintain old ways of maritime coastal cultures, for example in the Kvarken-High Coast World Heritage Area of glacial rebound (Mustonen and Mäkinen 2004; Tunon 2018). The island of Maa-Kalla has full autonomy and its own customary laws, even to this day, separate from the laws of Finland and other European countries (EBSA, 2018).

Maa-Kalla is a small island in the northern Baltic that arose from the sea due to glacial rebound some centuries ago. It was used as a seasonal base of Baltic Herring fishery by the coastal Finnish fishers and family. In 1771 the Swedish King (ruler of Finland at the time) provided the island with a full autonomy so that fishermen themselves can rule and decide on all issues of the island. This continues to this day (EBSA 2018) so that Maa-Kalla island is technically owned by the state of Finland but the state has no power - only the traditional customary ruling body consisting of the fishing families. Maa-Kalla is therefore a rare full autonomous space outside the EU and national legislation built on traditional governance and seasonal occupancy of the island.

The Baltic coastal Indigenous and traditional communities have also been influenced by the large geopolitical and socio-historical events of the past 100-200 years, most significantly by the Second World War and subsequent modernisation, where the sea was a crucial operational theatre for participating naval powers. Subsequently the Baltic was part of the Iron Curtain separating the Soviet-controlled states from the Neutral countries (Sweden, Finland) and NATO states (Germany, Denmark). This has made its specific footprint and marking on how traditional and Indigenous knowledge has survived or been lost, preserved and/or being revitalized.

In some parts of the Baltic, we need to acknowledge that the traditional maritime culture has been lost, probably permanently, due to the forced relocations of the Soviet era, modernisation and other reasons. In such cases, the examples from the documented practices and cultures may serve as important and stimulating points for present-day action and cultural heritage. Elias Raussi (1966), a tradesman from the community of Virolahti, in Bay of Finland, witnessed fishing families self-organising each year out on the islands for the herring harvests in the early 1800s. This endemic fishery (Mustonen 2014) and locations of harvests were decided by consensus and on a rotational basis so that no one person or family could dominate the harvest locations and each community had a chance to equally participate in the harvest of the fish in their turn in their customary governance.

Revitalising governance of the Baltic to recognize community rights and participation is still relevant today despite its increased role as an oil and cargo transportation route especially from Russia out to the global markets. The ethics of the traditional systems, such as the Merikarvia and Pori as well as Kvarken region communities (Mustonen and Mäkinen 2004) could be included in the co-governance of marine protected areas and cultural heritage plans of the Baltic. Equity and justice issues are still very relevant in the context of the Izhorian plight of the oil terminals and environmental pollution of the Baltic on the Russian sector (EBSA 2018). This small nation could still be supported to preserve its homeland and unique way of life. Under Russian legislation for example the concept of traditional land (and marine) use (The law on Territories of Traditional Nature Use TTNU, Закон о территориях традиционного природопользования (ТТНУ)) could be implemented to preserve the Izhorian coastline and community rights.

Another region-wide equity issue pertains to the rights of the small-scale fishers across the Baltic where the prevention of access to quotas and inability of young fishers to come forth to the trade is being challenged by the present-day governance of the Baltic, favouring large trawling fleets and industrial practices. This also means that traditional knowledge will be discontinued if there are no new fishers.

All across the Baltic, the inclusion of traditional knowledge in community-based monitoring and baselines, especially regarding the eutrophication and other pollution events on the coasts and at sea could be a measure that would reform and improve the work of Baltic Marine Environment Protection Commission (HELCOM, <https://helcom.fi>), the state-driven international cooperation on the environmental protection of

the Baltic (EBSA, 2018; Tero Mustonen, Mustonen, & Madine, 2018). Ecologically or Biologically Significant Marine Areas (EBSA), the UN-led work to identify crucial marine areas of the Baltic, recently identified locations and steps to include traditional knowledge and community-based monitoring into their processes (EBSA, 2018).

We now head over land southeast to arrive on an island in Taiwan.

Pongso no Tao, Taiwan, contributed via Sutej Hugu

We call ourselves ‘Tao,’ with a population of about 4,300 people. Pongso no Tao (literally meaning the ‘Homeland of Tao people’) is a small northern volcanic outlier of the Batanes Islands southeast of Taiwan (now labelled ‘Lanyu’ or ‘Orchid Island’ on the official atlas). There are six independent tribal communities, each with origin myths and legendary stories of its own. Nurtured by the richness of the Large Marine Ecosystem of the Kuroshio Ocean Current, the Tao people have lived ‘the original affluent society’ with their comprehensive traditional ecological knowledge and practices for millennia. There are the non-hierarchical and unspecialized egalitarian tribal communities, without chiefs or ruling elders but functional leaders responsible for various production, construction, and ceremony activities or events, and only has a complementary sexual division of labor within households. Tao people follow their unique time reckoning system called ‘ahephep no tao’ (evening of people), which is an original eco-calendar to keep track of both monthly lunar cycles and annual solar cycle.

Pongso no Tao has been colonized by numerous foreign powers since the 19th century, most recently the Chinese Nationalist government which attempted to assimilate the Tao people into their culture. Despite numerous attempts in recent history, the Tao people have remained strong although their shift from a system that was once that of a vigorous and optimized indigenous marine culture to one of unnatural poverty has had numerous impacts on the Tao people.

Since 2010 we have started to build three knowledge bases. The first is Tao Cultural Digital Archive, second is the Pongso no Tao Tribal GIS Database and third is the Tao People Ethnobiology Knowledge Base. In conjunction with the three knowledge bases we have established Tribal Heritage Keepers Groups for elders from each patriarchal lineage to join families from the six tribes on the island. As an alternative to modern capitalist development and an extractive economy these groups provide guidelines of tribal governance for island management for future generations.

Following the eco-calendar along with its ecological and phenological knowledge contents there are three major ceremonies to initiate each season with critical ethic value. One of the ceremonies is mivanoa for rayon season, all men, young and old, should gather on the community beach to have a ritual of summoning the flying fish school back, and reconfirming their inter-species pact between the flying fishes and Tao people from the ancient time, to implement the rights of nature and order of the living world. From the mythology of the Tao people, that was the ancestor of the noblest black-winged flying fishes teaching the ancestors of the Tao people how to appropriately harvest and treat the flying fishes for survival of both species. In the same story, there is the first account of the arrangement of works and ceremonies all around the year for Tao people.

In the Tao marine governance institution, rayon season is for the fishing of migratory species only. Fishing on coral reefs is completely prohibited during this period. Fishing of flying fish is stopped when they come into the peak time for reproduction. Whilst in the other seasons the coral reef fishery is opened. They are however divided into three categories of oyod (good), rahet (bad) and jingangana (not-for-eating), this is to spread and mitigate the pressure on the food chain. Oyod fish are for women and children whilst rahet is for men and elders only. Less valued species are considered rahet and only for men, with some species in rahet labelled kakanen no rarakeh, which is only for elders.

The worldview is expected to explicitly and implicitly guide our game rules for daily life and the principles for social cultural praxis.

We then travel further south into the Pacific Ocean.

Ōpōtiki, Te-Ika-a-Maui - Te Ika a Maui me Te Wai Pounamu (New Zealand), contributed by Kimberley Maxwell

New Zealand (NZ) is a group of islands in the South Pacific Ocean – Te Moana-nui-a-Kiwa. Polynesian ancestors migrated to these islands onboard multiple waka (canoes) from across the Pacific from c.1200AD (Hogg et al. 2003). Those ancestors brought with them their knowledge, skills and culture, and then adapted it to better suit the sub-tropical to sub-antarctic NZ context. NZ Māori is the collective term for the Indigenous members of the 100+ iwi (tribes) and 800+ hapū (sub-tribes) of NZ (Te Puni Kokiri (Ministry of Maori Development), 2018). “Indigenous” is a descriptor used by most Māori and Pasifika scholars to position themselves within the postcolonial era (Smith et al. 2016).

From the late 1700s European whalers, sealers, missionaries and settlers began to colonise NZ. In 1840, more than 500 Māori leaders signed the Treaty of Waitangi with British Crown representatives, which initiated the formation of the NZ government (Kaiser et al. 2019). The principles and history of the Treaty of Waitangi are fundamental to understanding NZ’s Māori-Crown relationships.

During the time of writing this contribution I am working on behalf of one of my Iwi, Te Whakatōhea, who are located around Ōpōtiki township, in the eastern Bay of Plenty, North Island (Te-Ika-a-Maui), New Zealand. Therefore, I share the Whakatōhea context in relation to the blue economy. There are multiple (± 6) hapū (sub-tribes) associated with Te Whakatōhea. Whakatōhea were a prospering nation at the turn of the 18th century. During colonisation my ancestor and Whakatōhea chief, Mokomoko, was wrongfully imprisoned and hanged for the murder of Reverend Carl Volkner, the fertile lands of our tribe were confiscated, and we were ordered onto a reservation in the corner of our traditional territory. As I child, I bore witness to the Government pardon of Mokomoko, and as an adult I witnessed the Mokomoko pardon being passed into law. These activities had dire consequences on our people’s socio-economic wellbeing ever since. However, Whakatōhea have remained culturally strong within their relatively ecologically healthy territories and are in the 20+ year process of settling our grievances with the Crown, while simultaneously planning for a prosperous future.

As an iwi we have a vision to ‘be the food basket of the world’ in the broadest sense of the meaning – to nourish people’s physical, spiritual and mental well-being, now and into the future. This vision is based on a Whakatōhea narrative about our ancestor, Tāpuikakahu, who uttered the words, ‘te kai hoki i Waiaua.’ The Waiaua River is one of our ancestral rivers and has long been an important food basket for Whakatōhea. Mārearea (Galaxiid spp.), eels, flounder, tītiko (mudsnails), pipi (Paphies spp.) and other resources are bountiful in the Waiaua estuary. Our customary fisheries, commercial offshore aquaculture venture and kaitiakitanga (reciprocal relationship of care between ourselves and the environment), are an important part of achieving this vision. Although we have lost our lands, Whakatōhea are developing a marine and coastal area plan to characterise and define how we will manage activities in this part of our territory, in collaboration with external entities, including our tribal neighbours.

We will also need to mitigate the risks of climate change such as increased marine heatwaves on our rohe moana (marine territory) while maintaining cultural integrity. Marine heatwaves have the potential to stress our shellfish species, and potentially reduce recruitment. Our harvesting activities need to be adjusted to address the impacts of these major stressors for example, by changing the mussel catch limits and by growing mussels deeper in the water column.

At the end of 2019, Whakaari (White Island) erupted during a tourist excursion to the Island. Many lives were lost and the eastern Bay of Plenty tribes, including Whakatōhea, placed a rāhui (temporary prohibition of take) on the sea and coast south-west of the Whakaari Island for over two weeks. This halted mussel harvesting on the farm, which was due to take place in the area, and all coastal activities except for the search and rescue. This rāhui was adhered to and reflects the importance of Māori cultural practices above economic risks, better known as cultural bottom lines. This scenario highlighted the need for Iwi to discuss their priorities relating to practicing values in the marine space.

A short trip across the Tasman Sea and we reach the island continent of Australia.

Lutruwita & Quandamooka Country, Australia, contributed via Dean Greeno, Jamie Graham-Blair and Mibu Fischer

According to the Australian Bureau of Meteorology, there are eight major climate zones across Australia (<https://www.bom.gov.au/Resources/Tools-Calculators/Climate-Zone-Map-Australia-Wide>), ranging across those zones are hundreds of First Nations (<http://nationalunitygovernment.org/pdf/aboriginal-australia-map.pdf>). With this geographical variance in climate, so too are there variances amongst the nations in lores, beliefs and management of the lands, waterways and skies. This makes for one complex system for the present-day colonial government to understand. Lutruwita sits in a globally recognised hot spot for climate change (Pecl et al. 2019), the impacts that the Palawa People are seeing around their coasts is shifting fast and of concern to many of the old people.

“Gathering shells was a fun activity because the beach was an extension of our backyard and playground, and we were attracted by their colour and shape. As kids it was part of a natural activity as we ran along with Mum though, as I came to learn, it was also an introduction to an important part of our culture.” (Greeno 2014)

The importance of connection to country is reflected by renowned artist and Palawa Truwana Elder Aunty Lola Greeno in the statement above, her experience represents the intrinsic nature of the relationship that many First Nations Australians have with country. It also shows how her deep understanding of the maireener shells has allowed her to notice changes in their abundance. What is causing these changes is unknown at present by the local community, but they speculate it is linked with climate change. The importance that maireener shells have to the Palawa community is immense, the contemporary use of marine shell necklaces goes beyond economic purposes, the shells are a link to culture.

Gathering shells is an important practice that is continued on Minjerribah (North Stradbroke Island, QLD), however these shells are for food. Eugaries (*Plebidonax deltoidea*) are a significant cultural resource and food staple combined with other shellfish species for the Quandamooka People, with the entire coastline of Minjerribah and Moorgumpin (Moreton Island, QLD) once covered in towering middens (Cope 2020; Hall 1984; Hall and Bowen 1989; Moore 2011). Connections to marine species and habitats are important sources of nutritional, emotional, spiritual and cultural health for coastal and seagoing First Nations Australians. Quandamooka People were recognised as being the Traditional Custodians of their lands and sea in 2011 by the Federal Government after a 16 year battle (Delaney on behalf of the Quandamooka People v State of Queensland [2011]), part of this agreement has meant that management of some lands and coastal waters is back in the hands of Traditional Custodians. As a result the Quandamooka People have numerous Traditional Custodian Rangers, who work on country to conserve, maintain and connect to the land and sea (Fischer et al. 2019).

Quandamooka People have been caring for country for over 21,000 years, there are traditional narratives about life before the last sea level rise 8,000 years ago (Lee et al. 2009; Machado 2014; Stephens and Sharp 2009). These types of narratives are not unique to Quandamooka, there are traditional narratives, lores and beliefs tied to landscapes that were lost by the rising tides around Australia (Nunn and Reid 2015). These histories tell stories of human survival through climate events, which can only suggest that there is much to be learnt from First Nations Peoples about adaptation to a changing climate.

Additional Anecdotes

In addition to the case studies from the authors communities the following contains stories that have been shared from colleagues of the Snow Change Cooperative in Finland, recorded for the purpose of Future Seas 2030 process and consented by the communities to share here.

Sámi, Russia

Maritime Skolt Sámi Diaspora and Nexus of Arctic Geopolitics



Figure 4 Russia: A traditional wooden outpost on the coast of Murmansk region, 2018. Snowchange 2018.

Rybachy Peninsula is located in Murmansk region, Russia. It is the ancestral homeland of the Skolt Sámi people, an Eastern Sámi language group of Indigenous peoples in the European North (Mustonen and Mustonen 2013). Rock art from the area are linked with Sámi occupancy (Shumkin 2000). Rybachy Peninsula is *Kikker'njarg* in Skolt Sámi, referring to the three-cornered bone located in the head of a reindeer that is said to be of similar shape as the Peninsula itself (Tanner 1929).

Skolt Sámi preserved their endemic Indigenous governance of village council, *Sida sábbar* the longest, until 1944. Then they were relocated to present-day Finland, leaving their marine fishing areas and coastal occupancy of the Rybachy Peninsula to Soviet Union that annexed the area.

Petsamo region where Rybachy Peninsula is located had been already partially modernized and occupied by the Finnish state in 1920s when the Peace Treaty of Dorpat provided the young northern European country access and ownership to this traditional Skolt Sámi area (Tanner 1929). The Finns who arrived occupied Sámi dwelling and fishing sites and introduced large-scale fishing fleets to the region. Subsequently also the industrial mining of ores, especially nickel started in Petsamo, forcing many Sámi to re-locate internally and suffer the loss of reindeer pastures, sacred landscapes and alterations to nomadic routes (Mustonen and Mustonen 2013).

Between 1917 and 1944 Rybachy Peninsula was divided between Finland and Soviet Union. On the Soviet side the Stalin purges caused severe impacts, for example the Snaulin family was executed (Stepanenko 2002) and many ethnically Finnish and Sámi families put to labour camps and interned in the center of Murmansk region, Lovozero. During the WW2 the peninsula saw heavy fighting between Germans and Soviets. In between the Skolt Sámi lost their pasture lands, fishing areas and home areas. We can call this the Skolt Sámi Maritime Diaspora that continues to this day. Rybachy Peninsula is a closed-off military zone in Russian Federation.

Significantly enough the maritime knowledge and deep connections the Skolt Sámi have had with the Rybachy Peninsula are not lost even today. Present generation of Skolt Sámi leaders is actively documenting oral histories and knowledge regarding their past presence on the area. Documentation of place names from Rybachy Peninsula, such as *Cabb'njargg*, describing rich areas of seastars on a cape; *Ainne'suolla*, place associated with female gray seals (*Halichoerus gryps*), as well as very white snow; *Soti'suelo*, an island where you needed to melt the snow for freshwater (from Tanner 1929), and place names of the region associating with

the culturally-relevant Greenland Shark (*Somnious microcephalus*) indicate the rich endemic knowledge the Rybachy Peninsula Sámi developed over the centuries regarding their ecosystems. This wealth of knowledge embedded in the toponyms is an important ecological source of information for future developments of the territory.

Zulu Nation, South Africa



Figure 5 Fishermen and women of Nibela tending nets, preparing for fishing, July 2019. Snowchange, Antoine Schrerer, 2019.

Traditional Zulu fishing communities of the province of Kwazulu Natal strive for a return of traditional governance of their marine and freshwater areas, feeling that the present-day management is not respecting their rights and the current urgencies. To them a solution would be the re-establishment of traditional community-based governance:

Our parents and even we have witnessed these climate changes and seen the negative impact on the Lake. In the face of a range of climate changes that result in limited fishing days due to severe storms and unusually high winds, drought in some places, unseasonal flooding, rising waters and the disappearance of certain previously common species upon which we relied on for food, the fishers are finding it difficult to rely on traditional knowledge. This is made worse by the fact that the Government has introduced stringent criteria for the allocation of fishing rights and many youth are excluded on the grounds that they do not have ten years of experience. This then makes it difficult for the fishers to share their indigenous knowledge with the next generation.

The introduction of the extractive ‘Ocean Economy’ policy, known as Operation Phakisa in South Africa has further exacerbated this situation. The state is introducing off-shore oil and gas and mining and industrial style aquaculture projects. Many of our fishers feel trapped in a fast-changing environment and unable to impart the wisdom of the Elders onto the youth of the future generation. We are deeply concerned about the impact of these developments on the fish and other sea life. In our culture the Elders have knowledge of these resources. We want to once again become the guardians and caretakers of the lake, forest and our lands.

In our Zulu culture it is very important for young persons to learn from their elders. We have a lot of traditional rituals and processes to ensure that the young ones learn the practice of ukulondaloza and other practices that enable knowledge of how to fish, to use resources from the coastal forest for medicine and

traditional healing practices, how to use grass and wood for building and so on are transferred from one generation to another. Our dream is that we can participate in the co-management of our lands, lakes and forests so that we can ensure that these natural resources are managed sustainably and will be there for our children and future generations.

(Mzileni S, Nkunat T 2019)

Kawawana, Senegal



Figure 6 Fishermen of Kawawana returning from a ranger mission, 2019. Snowchange, Salouto Sambou, 2019.

In order to realize steps towards renewed self-governance and maintaining of ecological health, Salouto Sambou, a fisherman and an Indigenous leader from Senegal positions their local work into thoughts of a sustainable, reformed future:

*Our Kawawana, because of its limited size, cannot offer sustainable long-term solutions alone. Our resources move, they migrate. That's why we need to strengthen our protection actions and rules in Kawawana, but also engage in fruitful discussions with other communities along the coast. We need more interactions between stakeholders and communities from the district level to the regional level, in order to create a communal space that will generate significant and concrete results by 2030. Extending our area of influence will secure the resources it provides for all of us. Kawawana is quite small, yet on our scale we can already witness species migrating elsewhere because of climate change. Communities must acknowledge that and be on the same page on these kinds of issues, because **if the marine resources disappear, our lives are at risk**. Communities must understand that protecting their environment and its resources is also their responsibility, in collaboration with governmental and non-governmental organizations. We need to be all together in this. Communities need to realize that they will be the first to benefit from conservation and restoration measures, even before the government. Sure, there will be national and international political benefits from that, but **for local communities it's a matter of survival**. Today, we, on the ground, depend on national and international policies, but local people really need to start thinking about taking care of themselves and retrieving their governance in their everyday lives. When awareness will be raised on this, I think everything can change quickly.*

(Sambou S 2019)

The case studies shared above are only a small example of the many experiences from those communities, and are but a mere drop in the ocean for the global experiences Indigenous and Traditional Peoples are faced with daily, the Preface for this journal edition also highlights additional community experiences (Mustonen et al. 2020, this edition).

Our Reality

The next sections will build off the case studies and yarning session conversations on the current reality for many coastal Indigenous and Traditional Peoples communities. The case studies have highlighted past, present and (for some), future visions for their communities, from these and the yarning sessions identified three main themes. For the purpose of the discussion agency, colonisation and globalisation are consistent themes throughout the case studies and seen as having significant impact towards persistent systems where the communities were unable to continue or adequately continue their traditional cultural practices relating to oceans and coasts. In a colonised and western dominant system Indigenous and Traditional people's agency is reduced, and in some cases, non-existent, with colonisation and globalisation structures contributing towards their ability to create change for themselves. We will first start with undesirable business as usual scenarios identified from the narratives, before moving to future scenarios that can be modelled or built upon current practices to effect desired change for a more sustainable 2030 for coastal Indigenous and Traditional Peoples.

Business as Usual - undesirable

Many coastal Indigenous and Traditional Peoples communities are the first to be directly impacted by climate change (Abate and Kronk 2013). With half the world's population living within 200km of the coast (Neumann et al. 2015), coastal Indigenous and Traditional People are at risk of a second wave of attempted genocide in the form of climate change and globalisation. However, the ability for many of these communities to enact change is influenced by external factors, commonly enforced through foreign sovereign powers. Colonisation is the structure that underpins many of the current disparities between Indigenous and non-Indigenous communities, the current inequitable nature of laws, access to areas, learning systems and more all stem from genocide, assimilation and many other horrific techniques used to eliminate Indigenous and Traditional Peoples communities to gain access to territory. In Canada First Nations economies and self-governances were suppressed by colonial systems like Indian Reserves and discriminatory regulations. In Greenland, the kalaallit traditional ways of life were directly restricted by the colonising government regulations and policies. Pongso no Tao were colonised by multiple foreign powers since the 19th century, which resulted in the attempted assimilation of the Tao People into the Chinese Government system. In all the case studies restrictions and removal from territory is the key to the disconnection of Indigenous and Traditional Peoples from their management of ocean resources, which has led to the general BAU approach where Indigenous and Traditional Peoples are not considered when it comes to our oceans.

Highlighting that colonisation is a structure and not an event helps shed light on the current undesirable scenarios where Indigenous and Traditional Peoples communities are forced to work within the constraints of the western system, much to the continued detriment to many communities. Coupled with climate change, the impacts are increasingly stacked against communities. The Zulu Nation identifies the landscape changes they have seen and are concerned that climate change combined with the extractive resource focus of colonial powers, will continue to exclude the traditional guardians of that area from including their knowledge for sustainable management of their many resources. As mentioned in the Australian case study, the lutruwita (Tasmanian) Aboriginal Community has observed changes to important cultural species and are concerned with what that could mean for their future cultural practices, if it is directly related to climate change.

Climate change is of concern to Indigenous and Traditional Peoples, but the impacts of colonisation limit their ability to respond to the changes they are observing.

Despite many governments acknowledging the importance of international declarations and protocols which pertain to Indigenous and Traditional Peoples, such as the UN Declaration on the Rights of Indigenous Peoples (UNDRIP), their enforcement at an internal national level is still seemingly a struggle. Even internal legislation is not often enforced in some places, as is the case with Kalaallit Nunaat (Greenland) and the eternal struggle for the kalaallit population to contribute to the management of their resources. For many community members it directly impacts on their livelihoods and survival in a remote region of the world. Despite government legislation (Danish Government 1978), the kalaallit are not considered to have rights to resources, which goes against what is outlined in UNDRIP Article 32. Article 32 states that Indigenous and Traditional Peoples have the right to determine and develop strategies for the use of their territory and resources; and that states should consult and seek approval for the use of resources, and adequate compensation should be paid (United Nations 2007). Current fisheries management in Greenland is guided by Danish regulations, whose management plans are informed by old and incomplete studies, with no regard for the observations of the kalaallit community. With rapidly changing conditions from climate change i.e. ice melts, unprecedented temperature variances and changes to species distribution, the current BAU approach to management unfairly disadvantages the kalaallit community from being able to continue their fisheries livelihoods as the management regulations do not align with changes to species movements and ocean conditions (Melbourne-Thomas et al. 2020 this issue).

On top of colonial structures is the constant threat of globalisation and the idea of a one world approach and the losses associated with that, like language, cultural practices, territories, access to resources and livelihoods, this is in addition to the climate change threats that Indigenous and Traditional Peoples face (Dana and Dana 2007). Globalisation is often thought to be linked with Westernisation (Pieterse 1994), and due to this interpretation is often seen as a negative to Indigenous and Traditional Peoples communities. In many contexts colonisation and westernisation occurred in unison, however this was not the case for all, the people of Pongso no Tao were colonised by Japan and later China. Hirst and Thompson (2019) identified that if globalisation was to continue as it is perceived, it would lead to governance systems that would threaten nation states and that there would be a backlash against globalisation. Unfortunately, the nation states that would be threatened do not relate to the nations of Indigenous and Traditional Peoples. The impacts to these communities from globalisation can be identified from the case study narratives. For the Zulu Nation from South Africa the introduction and expansion of oil, gas and mining imposes further restrictions to fishing zones, impacting on traditional fishers. The same is happening in the Baltic where large fishing fleets are favoured, pushing out traditional subsistence and commercial fishers. New gas pipelines and oil terminals are examples of unstoppable megaprojects affecting small-scale fishers. Not only do these threaten community livelihoods, but in these examples the importance of fishing practices and the passing down of knowledge during the practices has been expressed as something that is inhibiting younger generations from accessing that knowledge (Patrick 2019).

Exclusion is not a new concept for Indigenous and Traditional Peoples with many western management practices focused on zoning restrictions for conservation and restoration purposes (Campbell et al. 2012; Day 2002; Day et al. 2008; Grantham et al. 2013; Halpern et al. 2008; Lunn and Dearden 2006), which inadvertently prohibits Indigenous and Traditional Peoples from accessing livelihood spaces. Management isn't the only reason for exclusion of space, conflict over territory also shuts communities out of traditional areas, in the Baltic many communities were excluded from their traditional coastal and sea spaces as a result of conflicts between warring nations i.e. World War II and then the subsequent Communist rule between 1954-1992 on the Eastern Baltic. The resulting situation from exclusion adds to the impacts from colonisation, globalisation and climate change by reducing agency of Indigenous and Traditional Peoples to remove or shift barriers to continuing traditional practices. Agency as we refer to it, is the ability for Indigenous or Traditional Peoples communities to enact change. There are some communities who have worked through barriers and established management plans in line with cultural beliefs and practices but fall short when they need to enforce these plans with groups outside of the community. In several of the

case studies there are desires by the community to provide information towards management practices, to enable their inclusion in coastal and ocean practices, but also economies. It is clear that communities want to gain their rights to self-governance and use traditional management techniques, without limiting their ability to participate in livelihood opportunities. Current benefits to Indigenous and Traditional Peoples from participation in management practices are often measured in terms that are outlined by the western or oppressing system (Austin et al. 2018), and do not take into account the wider benefits the communities are wanting to achieve.

The above outlines some of the undesirable actions, systems and practices that continue to persist in today's world, and into the future. They are considered undesirable as they continue the narrative of leaving Indigenous and Traditional Peoples out of the story or forcing traditional practices within a western structure. It continues the perception and colonial story of dominance and discrimination. To benefit all earth's people, there needs to be equity between all. If the current dominant systems proceed without consideration for Indigenous and Traditional Peoples, then these communities and wider population will continue to be impacted greatly from a Business as Usual (BAU) approach. The connection with the marine environment for many will be jeopardised for the benefit of those who aim to financially benefit from extractive use of resources.

A Future Scenario - more sustainable 2030

The desired future of the Indigenous and Traditional Peoples within our team is one of self-governance, cultural respect and recognition for their continued sustainability efforts and knowledge. A future where traditional knowledge is recognised, and Indigenous and Traditional People can provide a service to the wider community that enables the nurturing and protection of our ancestral lands, seas and skies for future generations. We've outlined the current approaches and scenarios that are deemed undesirable for Indigenous and Traditional Peoples communities, but what does a more sustainable 2030 look like for these communities?

Raising awareness of disadvantages, discrimination and marginalisation is not to say that these communities are without positives. From the case study narratives there are multiple examples of what more appropriate inclusion of Indigenous and Traditional Peoples can look like. The diversity amongst colonisers and the variance in internal structures that have been put in place to reduce the agency of the colonised all influences the ability for different Indigenous and Traditional Peoples communities to continue their guardianship over their ancestral territories. In New Zealand the Treaty of Waitangi is important in understanding the relationships between Māori and the Crown, and how the different Iwi can have influence over what happens on their traditional territories. In Canada the Haida Gwaii Marine Plan is an example of the colonised working within the colonisers systems to create change and influence using their traditional customs. Key lessons from the Haida Gwaii experience include the value of cooperative visioning and planning of ocean spaces and equitable co-governance arrangements that share power and responsibility (Jones et al. 2020a). An initial plan was developed by the Council of the Haida Nation, with input from a Haida Marine Work Group. The Haida Gwaii Marine Plan was further developed and endorsed by both the Haida Nation and the Province of British Columbia (BC) as part of the wider Marine Plan Partnership for the North Pacific Coast, which is a partnership between BC and 17 First Nations groups. It is one example of co-produced management framework using traditional knowledge and western science. The broader issue of Haida rights to the land and sea is playing out in a lengthy legal battle for recognition of Haida title. Where agreement between Indigenous peoples and the State on land and ocean use is not possible, incremental progress may be possible through mechanisms such as the designation of land or marine territories as Indigenous Community Conservation Areas (ICCAs) while building on international commitments to establish protected areas (Aichi Target 11).

These are steps in the direction of sovereignty and self-governance over natural resources, and further examples can be seen in the Taiwan and Finnish case studies, Pongso no Tao and Maa-Kalla respectively, who are governed by traditional laws. To allow this to happen power is needing to be forfeited and handed back to communities. The island of Maa-Kalla falls within Finnish territory yet is fully autonomous from

Finnish governance and follows traditional customary laws. Nyong et al. (2007) highlighted the importance of complimenting traditional knowledges with modern technologies to assist in the articulating traditional practices as one of four important steps in integrating the knowledge systems together. The Pongso no Tao community are exemplifying this through their return to a traditional way of life, utilising modern technologies to assist in the rebuilding of their society. This frames the importance on knowledge and passing that knowledge on to future generations (Fernández-Llamazares and Cabeza 2018; Magni 2017; Nalau et al. 2018; Opore 2016). They have also made a point to avoid capitalist development and extractive economies as it conflicts with the Tao worldview.

Globalisation also can contribute positively to the narrative, as it has allowed the Indigenous and Traditional Peoples collective to come together and increase our voices on issues that are having direct impacts to our quality of life (Dana and Dana 2007). An increase in the use of modern technologies, including social media, has enabled many communities to not only connect with each other but engage with western practitioners who are wanting to make a difference to the livelihoods of these communities (Berg-Nordlie 2018). The sharing of different avenues of managing coloniser governance systems is creating a more western educated platform for communities to advocate for social, cultural, political and educational changes.

All case studies show marginalised and minority groups, who are struggling for cultural survival in the various current systems. All have lost territory or their capacity to decide on the land and sea uses, and few have a clear path forward to achieve equity regarding their marine resources and meaningful decision-making around ocean use. Whilst we have identified here a few examples that can be considered successful, there is still a long way to go for colonial structures in giving up power and allowing communities to self-govern. A move towards a more inclusive system, which encourages decolonial thinking and facilitates for Indigenous and Traditional Peoples to successfully move towards self-determination and self-governance practices will work towards a more sustainable 2030 for all.

Sharing the Ocean's Wealth

The true extent of knowledge and management practices that is currently known by Indigenous and Traditional Peoples are not known by western science, and it is only when true equality is reached through transmission of power over these resource areas by foreign powers that this breadth in knowledge will be shown. As the race for domination of the marine environment heats up, Indigenous and Traditional Peoples want to make sure their customary marine areas are recognised, and they are considered as more than stakeholders in the process. The idea of staking a claim in the evolving marine realm is not a new one with numerous communities interested in participating and leading pathways back to a more traditional way of managing ocean and coastal areas (The Sea Within: Marine tenure and cosmopolitan debates 2017). However, the extractive consumerist lifestyle of the western worldview, compared to the holistic based indigenous worldview is of concern to Indigenous and Traditional Peoples who fear their knowledge and culture will be westernised through incorrect interpretation of practices resulting in the misuse of traditional knowledge, which only perpetuates the colonial system that exists in today's world.

If we take a literal understanding of wealth from oceans, then the plethora of economic benefits from ocean and coastal resources are not adequately shared with coastal Indigenous and Traditional Peoples (Spalding et al. 2016). Even so, wealth to these communities (and some western communities) extends beyond those of an economic nature and relate to the spiritual and cultural affiliations with these species and habitats. Due to conflicting resource uses, historically Indigenous and Traditional Peoples values have been considered of low importance. It is this disadvantage that needs to be addressed, to enable fair and equitable access and say over ocean and coastal resources. One solution may be enactment of seascape use and occupation studies which have happened for example in Inuit areas of Canada and coast of Murmansk, Russia (Mustonen and Mustonen 2013; Riewe 1992). Transfer of previously globally 'unknown' uses and customary right areas may, provided the context is there, lead to a recognition of maritime rights of Indigenous and Traditional Peoples communities.

We are not suggesting here that just because historically Indigenous and Traditional Peoples have been

marginalised, disenfranchised and oppressed that all communities perceive themselves as such. There are many communities who are practicing culture and thriving, it's the western ideals of development that influence ideals around poverty, education and income. This only highlights the inequalities between the different worldviews and how they contribute towards society, and ultimately towards a sustainable future.

Fair Future

For a fair ocean future for all of earth's people we will next suggest ways forward that shift the narrative for inclusion of Indigenous and Traditional People in the ocean's future, towards a future that empowers communities to actively participate in their future. Whilst Indigenous and Traditional Peoples continue to face barriers, educating allies are essential in pushing for our inclusion. Moving forward toward a more desirable future, would see a shift in allies leading, to one where they start to actively ask themselves questions – Am I the best person to be leading this? Is there an Indigenous or Traditional Person who can lead this? Do I really understand this situation fully? Who is identifying the benefits? A shift in the way practitioners engage with communities and a push from the bottom-up level as well as governance shifts at the highest levels will work together towards the inclusion of Indigenous and Traditional Peoples in ocean and coastal spaces.

Our group is not alone in wanting to express the desire and struggles of Indigenous and Traditional Peoples, coastal indigenous representatives are voicing their perspective to direct how to achieve our desired Future Seas in multiple places at multiple levels (locally, regionally and globally). For example, at the OceanObs'19 Conference held in Hawaii, September 2019, the Indigenous delegation (Aha Honua) presented a Coastal Indigenous Peoples declaration acknowledging our continuous connections and responsibilities to the ocean and coastal systems, and calling on the ocean observing community to formally recognise the Traditional Knowledge of Indigenous Peoples worldwide, and the articles of UNDRIP, and to create meaningful partnerships with Indigenous and Traditional Peoples to advance the United Nations Sustainable Development Goals and the goals of the United Nations Decade of Ocean Science for Sustainable Development.

The UN General Assembly declared 2010-2020 the Third Decade for the Eradication of Colonialism. And with colonisation a major theme and threat to ability for communities to make decisions for themselves about their adaptability for their continued survival from the very real threats of climate change from displacement due to loss of land, to food resource changes from species range shifts. There are also the unknown global threats that influence the global human population, like the spread of SARS-CoV-2 from Wuhan, China to the rest of the world.

Coronavirus and Our Communities

The global pandemic of 2020 is of considerable concern for many Indigenous and Traditional Peoples communities. Previous rates of pandemics amongst Indigenous and Traditional Peoples introduced through the colonisers resulted in devastating loss to lives, in Haida Gwaii between the early 1800's and 1910, the population went from approximately 10,000 to around 500 people. In Australia two previous waves of illness have swept through Indigenous Australia, first the small-pox that came with the colonisers in the late 1780s and then the Spanish Flu pandemic in 1919, with Indigenous Australia not counted as citizens in 1919 the true impact to the population is not known.

Many communities are on high alert due to increased risk of mortality should the virus appear in these locations. Haida Gwaii declared a state of emergency in relation to Covid-19 in order to reduce the impacts to their community, with the Council of the Haida Nation in charge of approvals for off-Island visitors. Indigenous and Traditional Peoples are more often at higher risk of developing serious diseases like cardiovascular diseases, diabetes and serious kidney illnesses. With many remote and rural communities already struggling for appropriate medical attention and facilities. Another fear in addition to potential loss of life to Indigenous and Traditional communities should COVID-19 appear is the loss of knowledge that will likely occur, considering it is the elderly who are the highest percentage age group to be dying from the disease.

This loss of knowledge can have direct impacts to the ability of many communities to continue to practice their culture.

During COVID-19, some Indigenous communities globally are afforded time to coordinate their voices and efforts at the local and regional levels, while international initiatives are postponed, giving a chance for our voices to become stronger through unity.

Recommendations

Whilst there are seemingly many limitations to utilising Indigenous and Traditional Peoples knowledge a few of the more noticeable ones are the prejudice these communities face from western society and the constant need for legitimacy of their knowledge systems. Although beginning to be widely accepted in environmental sciences Traditional Knowledge has deep cultural connections and should not be taken out of hands of Indigenous and Traditional Peoples. This has been difficult due to language barriers and systemic oppression and silencing. Whilst there are some scholars who may say there are numerous studies and papers expressing the importance of Indigenous and Traditional Peoples to environmental management, many of these papers are not written by people belonging to these communities. They are often interpreted by well-meaning western trained scholars and practitioners. The time is coming for Indigenous and Traditional Peoples to not only be respected for their knowledge and for an equal seat at the table, but also to be handed over power to be able to make decisions over their coastal and ocean spaces.

As members of Indigenous and Traditional Peoples communities we offer a few suggestions moving forward and beyond current BAU approaches. The first is: as scientists and practitioners in ocean and coastal science/management to challenge processes, structures and strategies that do not include Indigenous and Traditional Peoples' voices. The second is: to question yourself, your position and your projects, do they require Indigenous and Traditional Peoples engagement and if so, are you the right person to be leading this question? A third suggestion is: to widen your worldview, our ancestors have not survived previous climate change events without learning and passing down that knowledge, it is real knowledge, do not force someone to legitimise it. The fourth is: that climate change is having and will have real impacts to our communities, that will not only force movements and changes to livelihoods, it will also have drastic influence over entire cultures. These communities want to and are willing to be involved in addressing these issues where they can, it's just the current systems of power that are limiting their involvement. A fifth recommendation is: a shift towards Indigenous and Traditional control and management of Marine Protected Areas and marine developments in an era of climate change and adaptation. For example, promotion of Indigenous management of protected areas would be a modest step towards achieving biodiversity targets for protection of marine and coastal areas (Aichi Target 11) whilst mobilising Indigenous and Traditional Peoples knowledge.

We feel deeply that Indigenous and Traditional Peoples knowledge is for connecting and living, while western science is for conquering and controlling. There is a need for a paradigm shift and power transition to counter the dominance of industrial civilisation and capitalist globalisation of destruction and corruption. Our contribution is beyond the alternative data and information from our hunting, fishing and gathering skills. Indigenous and Traditional Peoples knowledge is about our rights and institutions, our knowledge and ethics, the livelihood and wellbeing of our communities and how we are embedded within the ecosystem of life.

The case studies in this paper are remarkable stories of survival against all odds and express the sentiment of people and their communities with powerful determination to rise again – people's lives are at stake here. Inclusion in the decision-making processes that impact our shared resources are essential to the continued survival of cultures and sustainable oceans. Especially if we are to reach a sustainable future globally. However, this inclusion needs to move from passive reference groups, community meetings and heartfelt statements of wanted change to active participation in management practices, movement towards self-governance of traditional territories, changes to government legislations and international related marine treaties and true reconciliation between all of Earth's people.

As guardians of our oceans and coastal environments we have an intrinsic connection to the needs of our Mother through our cultural practices and knowledge. We have been able to adapt to her changes over generations, it is important therefore, now more than ever, to listen and include our knowledge if we are to achieve any sort of sustainable future.

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