



MONASH University

**The conceptualisation and representation of coastal
Indigenous Peoples health values in connection to seafood
and the implications for policy**

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THESIS ABSTRACT

Background

This thesis explores how coastal Indigenous Peoples health and wellbeing values are conceptualised and represented in connection to seafood and the potential significance of this for health and policy outcomes. While it is recognised in the literature that coastal Indigenous Peoples access to seafood is important for positive health outcomes such as dietary nourishment and food security, the conceptualisation and representation of Indigenous epistemological grounded health and wellbeing values connected to seafood are not realised to the same extent. This is significant as global and national Australian calls to action, for sectors to consider their role in strengthening health and wellbeing outcomes for Indigenous Peoples beyond health policy and service delivery sectors. The thesis aim, therefore, has been constructed as it is argued that if the health literature does not consider Indigenous perspectives of health linked to seafood, it can be assumed that sectors impacting Indigenous Peoples, such as the marine and fisheries sectors' ability to gear policies towards improving health and wellbeing outcomes for Indigenous Peoples, will be limited.

Methods

This thesis applies Indigenous research methodologies to centre Indigenous theoretical assumptions within research and policy. Specifically, three empirical studies have been undertaken to address the thesis aim: first, a systematic literature review investigated 24 peer-reviewed articles to assess the current global health literatures' representation of the health and wellbeing benefits of seafood for Indigenous Peoples; second, a qualitative case study explored how 16 Aboriginal Peoples in a remote community in the Northern Territory (NT) of Australia conceptualise their connection to seafood for nutrition health and wellbeing; and, third, a policy content analysis assessed how 10 NT's coastal, marine and fisheries policies represented health and wellbeing connections.

Results

The systematic literature review identified that health literature has primarily focused on the role of the physiological benefits of seafood towards health and wellbeing outcomes for Indigenous Peoples, with minimal consideration of Indigenous-grounded perspectives. The qualitative case study conducted in Maningrida identified that Aboriginal Peoples connection to seafood for health and wellbeing is intimately interconnected to their Indigenous Knowledge Systems. A range of values, such as respecting elders and maintaining culture and connections to sea country, were explicitly identified. The policy content analysis of this thesis recognised Aboriginal health and wellbeing values were largely represented within a socio-economic lens that overlooks the significant interconnected Knowledge Systems and values central to Indigenous Peoples health, wellbeing, and identity.

Discussion

Overall the thesis explored how coastal Indigenous Peoples health and wellbeing values are conceptualised and represented in connection to seafood through global, regional and local analyses. It was revealed that seafood is interconnected to the Indigenous Knowledge Systems that considers social, cultural and ecological values that are imperative to the collective health and wellbeing of the community. Considering the findings, it is imperative that localised Indigenous perspectives are represented within sector policies to improve health outcomes. This thesis identifies three possible implications for future policy and research: greater inclusion of Indigenous Values within Health In-All-Policies, strengthening nutrition-sensitive interventions within Indigenous fisheries and Closing-The-Gap consideration of Indigenous fisheries.

DECLARATION

This thesis is an original work of my research and contains no material which has been accepted for the award of any other degree or diploma at any university or equivalent institution and that, to the best of my knowledge and belief, this thesis contains no material previously published or written by another person, except where due reference is made in the text of the thesis.

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PUBLICATIONS DURING ENROLMENT

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THESIS INCLUDING PUBLISHED WORKS DECLARATION

I hereby declare that this thesis contains no material which has been accepted for the award of any other degree or diploma at any university or equivalent institution and that, to the best of my knowledge and belief, this thesis contains no material previously published or written by another person, except where due reference is made in the text of the thesis.

This thesis includes *one* original paper published in a peer-reviewed journal. The core theme of the thesis is to explore how coastal Indigenous Peoples health and wellbeing values are conceptualised and represented in connection to seafood and the policy implications. The ideas, development and writing up of all the papers in the thesis were the principal responsibility of myself, the student, working within the *Department of Nutrition, Dietetics and Food, Faculty of Medicine, Nursing and Health Sciences* under the supervision of *Associate Professor Julie Brimblecombe* and *Professor Natasha Stacey* (*Charles Darwin University*)

In the case of Chapter 5, my contribution to the work is shown in table below:

Thesis Chapter	Publication Title	Status (<i>published, in press, accepted or returned for revision, submitted</i>)	Nature and % of student contribution	Co-author name(s) Nature and % of Co-author's contribution*	Co-author(s), Monash student Y/N*
5	How is nutrition, health and wellbeing conceptualised in connection with seafood for coastal Indigenous Peoples	Published	Design conceptualisation, conducting data collection, funding acquirement, transcript analysis, manuscript writing 80%.	1.) Julie Brimblecombe: Supervisor, design conceptualisation, funding acquirement, manuscript editing (10%) 2.) Natasha Stacey: Supervisor, design conceptualisation, funding acquirement, manuscript editing (10%)	No

For the published paper included, I have used the original numbering as part of the inserted manuscript, as well as page numbering consistent with the rest of the thesis to generate a consistent presentation within the thesis.

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I hereby certify that the above declaration correctly reflects the nature and extent of the student's and co-authors' contributions to this work. In instances where I am not the responsible author, I have consulted with the responsible author to agree on the respective contributions of the authors.

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Chapter 1 INTRODUCTION

1.1 Introduction

This thesis explores how coastal Indigenous Peoples health and wellbeing values are conceptualised and represented in connection to seafood and the potential significance of this for health and policy outcomes from an Indigenous perspective. Currently, global marine and fisheries literature and policies have to a degree recognised, that seafood is considered an essential source of dietary nourishment and a food security contributor (Cisneros-Montemayor et al., 2016; Simmance et al., 2022; FAO, Duke University & WorldFish, 2023), and that seafood is important for social and cultural expressions for coastal Indigenous Peoples (Menzie & Butler, 2007; Smyth, Egan, & Kennett, 2018; FAO, Duke University, & WorldFish, 2023). There is, however, a considerable knowledge gap within scholarship and policy where Indigenous Peoples connection to seafood has not been explicitly linked to health outcomes from an Indigenous-grounded perspective. As such, the research and policy discourses have largely not considered the impact and contribution of seafood on health and wellbeing outcomes aligned to the epistemological values of Indigenous Knowledge Systems. This thesis responds by applying Indigenous research methodologies that privilege and centre Indigenous theoretical assumptions to address this knowledge gap from an Indigenous perspective.

While many theses may go into a deep dive within one academic discipline, especially in the health disciplines, this thesis takes a different approach. It incorporates a breadth of interdisciplinary perspectives that privilege and centre Indigenous philosophical standpoints beyond the boundaries of one academic discipline. While this approach to a PhD posed challenges, it was done explicitly for reciprocity to contribute “*mutual benefits*” and be “*relevant*” for the broader Indigenous community through consideration of the practical implications of the research (McGregor & Marker, 2018; Paksi & Kivinen, 2021. P.203). To achieve such reciprocity through this, the author applied Indigenous epistemological, ontological, and axiological positionings and emphasised the importance of methodological coherence to consider an Indigenous topic of interest and position Indigenous voices at the centre of the research and the translational implications (Smith, 2021; Wilson, 2008). Specifically, this thesis draws upon this Indigenous theoretical positioning to explore how seafood is conceptualised in connection to nutrition, health and wellbeing for Indigenous

Peoples and from the findings makes recommendations for increased visibility of this conceptualisation within academic and policy discourses.

This Chapter therefore begins by unpacking the complex interconnection of Indigenous Knowledge Systems and values, the significance of this for nutrition, health and wellbeing and identifies the role of marine and fisheries sectors in improving health and wellbeing outcomes. It presents the aims, research questions and positioning, the significance of this thesis and why there is a focus on the jurisdiction of the Northern Territory, in the Top End of Australia. Finally, the Chapter finishes with thesis presentation and Chapter summaries. For this thesis, the concept of nutrition, from this point forward, is positioned within health and wellbeing unless otherwise explicitly stated.

1.2 Key concepts of Indigenous health and wellbeing values within fisheries

Several fundamental concepts must be articulated before further detailing the thesis, including ‘Indigenous Knowledge’ and ‘values’, and their meaning, when considering “nutrition, health and wellbeing”. Indigenous Peoples globally have developed and maintained Knowledge Systems intrinsically linked to customary rights and obligations that have guided governance structures and processes to interact with the natural world, including health and wellbeing (Bruchac, 2014; Janke, 2018; O’Keefe et al., 2022). However, historically, Indigenous Peoples have had these Knowledge Systems reduced through ‘colonial lens’ that, for long periods of history, have classified this Knowledge System as “*primitive*” and a detriment to the progression of “*modern civilisation*” (González Zarandona, 2020; Nakata, 2002. P. 281). In recent times however, Indigenous Knowledge Systems has been given increased status in the academic literature and its distinct epistemological underpinnings and practices associated with the interconnectedness to the environment and, for example, the sustainable management of natural resources, has been given more globally recognised (Jessen et al., 2022; McAllister, Hikuroa, & Macinnis-Ng, 2023). As a result, there has been a rising interest in the practicality of Indigenous Knowledges’ to complement scientific endeavours to address global issues through intersectoral action, such as biodiversity loss, degradation of ecosystems and health and wellbeing (Jessen et al., 2022; Mazzocchi, 2006; Sangha et al., 2015). However, there is concern that without reciprocity and inquiry lenses positioned within Indigenous epistemological perspectives, the research approach is fundamentally entrenched in discourses that still reduce Indigenous Knowledge Systems to serve the interest of colonial

agendas (Nakata., 2002; Hikuroa & Macinnis-Ng., 2023). Therefore, this thesis will not apply a reductionist lens of integrating Indigenous Knowledges' as a mechanism for 'solving global issues'; instead, Indigenous Knowledges' will be referred to as the overarching epistemological and ontological perspectives that have governed and sustained Indigenous communities' interconnected beliefs, customs and interactions with the world (Martin & Mirraboopa, 2003). However, the interconnectedness of Indigenous Knowledge Systems makes it challenging to analyse health and wellbeing values and contribute to academic thought in a meaningful way within inquiry lens that do not consider the broader local contexts (Wilson, 2008). This is because Indigenous Peoples have relationally connected with their Indigenous Knowledge Systems through highly contextual tangible and intangible values that transcend disciplines and incorporate broad socioecological and cultural aspects (Wilson, 2018; Bruchac, 2014). While due to the heterogeneity of Indigenous Peoples Knowledge and relationships to their local ecologies, defining these values for Indigenous health and wellbeing as a concept that applies to all Indigenous Peoples is inappropriate. However, it is generally accepted globally that Indigenous Peoples reflect health, including nutrition and wellbeing values, through broader collective perspectives, including historical, relational, social and cultural ones, that interconnect with the Indigenous Knowledge System (Fish & Moin, 2018; O'Keefe et al., 2022; Reid et al., 2021). This connection may be expressed through values such as connection to country, culture, social expressions, kinship and intergenerational knowledge transfer (Butler et al., 2019; Gall et al., 2021; Gee et al., 2014). Indigenous scholars globally, however, have stressed the importance of Indigenous-grounded research when considering Indigenous Knowledge's connection to health. O'Keefe et al. (2022:12) capture this grounding in describing the importance of values linked to context when considering mental health for Indigenous youth in Canada, Australia, New Zealand and the United States of America:

“It remains critical for such research to be Indigenous-led and grounded in the specificity of local place and culture. By focusing on complete ecologies and domains of strength, Indigenous-led research and action is leading the way in advancing Indigenous youth wellbeing and promoting flourishing within and by communities”

In the context of the scope of this thesis, it is essential to understand that this interconnected Knowledge System extends to the Indigenous food system, which is vital for health and wellbeing (FAO, 2021). Indigenous Peoples have utilised and interacted their

Knowledge Systems and associated values to govern, access, cultivate, harvest and manage foods and maintain food systems that have nourished and provided a source of income and food security for Indigenous Peoples and communities (FAO, 2021; Joseph & Turner, 2020). Furthermore, Indigenous Peoples relationship with their food systems is connected to values of identity and culture, in alignment with their underpinning Indigenous Knowledge Systems (Brimblecombe et al., 2014; Kuhnlein et al., 2013; Thompson et al., 2020). This relationality and interconnectedness of Indigenous Knowledge for connection to local ecologies and food systems is a fundamental difference from linear mass production value-chain-orientated food systems (FAO, 2021; Kuhnlein & Chotiboriboon, 2022; Lugo-Morin, 2020). Brimblecombe et al. (2014), have linked Indigenous perspectives of food towards health and wellbeing through “*identity*” and “*socioecological/sociocultural*” values, or Thompson et al. (2001, 2000) who have linked “*family*” and “*community*” towards health and wellbeing including social outcomes as well as the need to consider “*ecological*” perspectives when considering Indigenous values of food provision. This thesis will take this understanding one step further by grounding Indigenous Knowledges’ at the centre of the inquiry and linking associated values to seafood to demonstrate Indigenous Peoples complex interactions with and their connection to food systems and seafood.

The interconnected Indigenous Knowledge System extends to Indigenous Peoples who reside close to coastal and marine regions which is classified for this thesis as the zone between the high and low watermarks (Helmuth, 2016), in the Australian Aboriginal and Torres Strait Islander context this region is often referred to as ‘sea country’ (Smyth, 1994). Indigenous Peoples have accessed, governed and maintained these coastal and marine zones to access, interact and consume seafood (Barber, 2010; Menzies & Butler, 2007; Rist et al., 2019). Seafood, as one part of an Indigenous food system, is defined in this thesis as wild-captured marine species of fish, crustaceans, invertebrates and mammals. Seafood is a significant dietary and food security contributor for global Indigenous Peoples, who consume up to 15 times more seafood than non-Indigenous populations (Cisneros-Montemayor, Weatherdon, & Ota, 2016; Jentoft et al., 2018; Marushka et al., 2021). In addition, seafood is well documented as a rich source of high-quality protein, polyunsaturated fats and micronutrients such as vitamins A, D, and E, calcium, magnesium, iron, iodine and selenium, which are all essential nutrients for human healthy growth and function and contribute to positive health outcomes (Draper, 1977; Hicks et al., 2019; Tacon, Lemos, & Metian, 2020). The contribution of seafood to dietary

quality and health outcomes has been recognised by global entities such as the Food and Agricultural Organization (FAO), which has called for more significant consideration of the role of marine and fisheries sectors in contributing to healthy diets and improved nutrition and food security for all (FAO, 2017b). This call stems from recognising that seafood's nutrition, health and food security benefits have been overlooked in marine and fisheries policies in favour of economic and political development and conservation efforts (Arthur et al., 2022; Koehn et al., 2022). There is a level of recognition that seafood contributes to nourishment and food security outcomes for Indigenous communities, including in Australia (Islam & Berkes, 2016; Ferguson et al., 2017), however its contributions and links to Indigenous health and wellbeing values are often unclear due to difficulties conceptualising the connections and the lack of Indigenous grounded research.

This call for greater consideration of the role of marine and fisheries sectors to contribute to health and wellbeing has particular implications for Indigenous Peoples who experience ongoing colonisation and related disconnection from their socioecological connection to the world and who historically have had poor epistemic visibility within the policies impacting them (Moreton-Robinson, 2015; Smith, 2021). These factors compound the growing health disparities and inequities between Indigenous Peoples and benchmark populations (I. Anderson et al., 2016; MacDonald & Steenbeek, 2015; Sherwood, 2013). Therefore, if health, including nutrition, is to be considered within marine and fisheries policies that impact Indigenous Peoples, then the unpinning Indigenous Knowledge of Indigenous Peoples must also be represented and valued within these policies (Kuhnlein & Chotiboriboon, 2022; O'Keefe et al., 2022). This acknowledgment of the need for increased representation of Indigenous Knowledge, including health and wellbeing values, is supported by the United Nations (UN) through their non-binding international framework, the Declaration on the Rights of Indigenous Peoples, that advocates for Indigenous Peoples to govern and have input into policies that impact them (UN, 2007). As of 2009, Australia has endorsed this UN declaration to support the rights and interests of Aboriginal and Torres Strait Islander Australians. This is further described in Chapter 2, section 2.4.

1.3 Research aim and questions

Considering the knowledge gap this thesis aims to explore how coastal Indigenous Peoples health and wellbeing values are conceptualised and represented in connection to

seafood and the potential significance of this for health and policy outcomes from an Indigenous perspective. This research aim has been constructed as it is argued that if the health literature does not consider Indigenous perspectives of health linked to seafood, it can be assumed that the marine and fisheries sectors' ability to gear policies towards improving health and wellbeing outcomes for Indigenous Peoples will be limited. This thesis argument is addressed through three research questions and associated empirical studies first, a systematic literature review to investigate the global academic health literature's current representation of the health and wellbeing benefits of Seafood for Indigenous Peoples; second, a qualitative case study to explore how Aboriginal Peoples in a remote community in the Northern Territory (NT) of Australia conceptualise their connection to Seafood for nutrition health and wellbeing; and, third, a policy content analysis to assess how the NT's current coastal, marine and fisheries policies represent health and wellbeing connections. As such, the following three research questions are addressed:

RQ 1. How are the nutrition, health and wellbeing benefits of Seafood for Indigenous coastal Peoples presented within global health literature?

RQ 2. How do Aboriginal Peoples in Maningrida community conceptualise the connection of seafood to nutrition, health and wellbeing?

RQ 3. How are Indigenous nutrition, health, and wellbeing values of seafood conceptualised in NT coastal, marine, and fisheries policies?

Through the findings of these studies and the lenses of Indigenous Peoples, this PhD thesis provides evidence which can be applied to support and strengthen Indigenous values and needs in policy agendas and academic discourses which impact their lives. The thesis's findings are relevant for Indigenous Peoples globally and in the Australian context, particularly, the NT context, as discussed below in sections 1.5 and 1.6.

1.4 Research positioning and methodological approach

This thesis applies the first person to the reflexivity and relationality sections. Before presenting further details about the PhD research, I submit my research positioning and theoretical approach. This section therefore, provides a brief insight into the concept of relationality and why it is essential to position myself within this thesis. Detailed personal, interpersonal, methodological and context reflexivity is given in Chapter 3.

The concept of relationality is described as a process of strengthening and valuing Indigenous relationships to kinship, responsibility and practices (Tynan, 2021; Lindstrom, 2022). It is inherent in being Indigenous that Indigenous researchers hold themselves accountable to their community and the community they are undertaking research with for both ethical and cultural integrity (Lindstrom, 2022; Tynan, 2021). This is an essential process, and Indigenous Peoples have long been the subjects of invasive and exploitive research practices that have contributed to researcher mistrust (Guillemin et al., 2016; Smith, 2021). Therefore, this thesis must draw from methodologies that seek to value and strengthen Indigenous Knowledges' that "*decentres colonial frameworks to make Indigenous lived realities more visible*" (De Leeuw & Hunt, 2018, p. 9). Considering this, I elected to undertake this PhD research to focus on increasing Indigenous visibility in scholarship by applying research that addresses Indigenous interests by an Indigenous person. As I am an Aboriginal (Larrakia and Wadjjigan) man from the NT, Australia, conducting research with Aboriginal Peoples on Aboriginal topics of interest, it is my responsibility to my own and the broader Aboriginal communities to situate our epistemological and ontological worldviews at the centre of our research approach (Gerlach, 2018; Rossiter, 2012; Thambinathan & Kinsella, 2021). To achieve this, I utilised principles in research primarily from the Indigenous Research Paradigm by Shawn Wilson (Opaskwayak Cree, First Nations), and applied an Indigenist inquiry lens by Lester-Irabinna Rigney (Narungga, Kaurna and Ngarrindjeri, Aboriginal) and Decolonizing Methodologies by Linda Tuhiwai Smith (Ngāti Awa and Ngāti Porou, Tūhourangi, Māori), to construct and implement research designs and methods that value and incorporate Indigenous perspectives (Rigney, 1999; Smith, 2021; Wilson, 2008).

1.5 Significance of this Thesis

This thesis makes timely contributions to relevant international discussions such as the FAO 'Global Hub on Indigenous Peoples Food Systems', which seeks to ensure that Indigenous Knowledge and rights are central to discussions that impact their food systems, including Indigenous marine, fisheries and aquaculture sectors (FAO, 2021). In addition, this thesis has been carefully aligned with other global roundtable discussions, such as the World Health Organization (WHO) Health In-All-Policies and related agendas, that consider healthy policy implications beyond the health and health service delivery sectors (WHO, 2019). It is recognised in the literature that due to the contributions of seafood and its potential positive impact on health outcomes for Indigenous Peoples, marine and fisheries sectors can play a

significant role in contributing to health outcomes for coastal Indigenous Peoples (Cisneros-Montemayor et al., 2016; Hicks et al., 2019). Therefore, this thesis aligns with FAO's call to action to integrate nutrition outcomes into marine, fisheries and aquaculture sector policies for better food security and nutrition outcomes and improved global health (FAO, 2017b). This thesis also makes timely scholarship contributions within Australia, as Aboriginal and Torres Strait Islander Peoples, like other Indigenous Peoples, experience health disparities that include lower life expectancy, higher rates of non-communicable diseases and malnutrition, as well as lower social (i.e., education- and economic-related) outcomes compared to non-Indigenous Australians (I. Anderson et al., 2016; Australian Government, 2020a). In response to these disparities, the Council of Australian Government (COAG), in 2008, approved the National Indigenous Reform Agreement, known as the Closing-The-Gap strategy. This strategy aims to improve the health and social outcomes for Indigenous Peoples with a critical target of closing the life expectancy gap within a generation (Australian Government, 2009). The 2022 Closing-The-Gap report indicates that only four of the 17 targets are currently on track to be achieved, highlighting the need for significant reform and urgency from Australian Governments and stakeholders to improve health and social outcomes (NIAA, 2022). This dire shortfall in progress has provoked the Australian Government to re-evaluate its approach to addressing the disadvantage experienced by Aboriginal and Torres Strait Islander Peoples (Dawson et al., 2021; Lowitja Institute, 2022). This rethinking in approach has allowed for a paradigm shift to address health outcomes from a disease-focused and 'blaming' approach to health towards a priority reform agenda that addresses the underlying concerns of Aboriginal and Torres Strait Islander communities through partnership and actionable implementation plans (Lowitja Institute, 2022; NIAA, 2022). This paradigm shift resulted in a significant announcement from the Australian Government in February 2023, where for the first time since its inception, the Closing-The-Gap strategy will now implement targets that address food security, in addition to other underlying values associated with health, bringing a spotlight to the role that food, its access, provision and governance, has on health and wellbeing outcomes, through a dedicated National Food Security Strategy in Remote First Nations Communities (Australian Government, 2023a, 2023b).

1.6 Focus on the Northern Territory of Australia

This PhD thesis incorporates the global Indigenous literature to consider the topic of seafood in connection to health and wellbeing from a global perspective. It clearly addresses

globally relevant knowledge gaps and policy discourses. However, two studies in this thesis are undertaken as case studies in the NT, Australia, for several reasons. First, the author of this thesis is an Aboriginal man from the NT and can stay methodologically coherent with the Indigenous research methodologies through relational accountability due to familiarity with the cultural, historical and political contexts of the NT (De Leeuw & Hunt, 2018; Wilson, 2008). Second, the NT has unique regulations regarding the governance of land and marine waterways in which 50% of the land and 85% of the coastal intertidal zone are owned and governed by Aboriginal Peoples who continue to maintain ongoing customary connections to seafood (Australian Government, 1976; Butterly, 2020; Mechan, 1982). Third, members of the remote Aboriginal community of Maningrida in the NT, where one of the thesis studies was conducted, maintain customary connections to seafood and their sea country (traditional sea estates) and operate a commercial Indigenous fishing enterprise (Stacey & Van Wyk., 2019).

1.7 Thesis format

The thesis is presented as a thesis by publication per Monash University standards. The thesis comprises five traditional chapters - Introduction, Background, Methodology, Discussion and Conclusion - and three empirical studies prepared and submitted for publication. These three studies are presented as study one (Chapter 4), a systematic literature review with a narrative synthesis, study two (Chapter 5), a qualitative case study, and study three (Chapter 6), a policy content analysis. For this PhD thesis, the studies are referred to by their chapter names from this point onwards to avoid confusion. It is essential to understand that while these three study chapters are presented linearly, the individual studies were conducted simultaneously. While they can all be viewed as individual standalone studies for publication, they are interlinked and have been designed to contribute to the foundation of this thesis argument and narrative, as shown in Figure 1:1. All chapters and publications include a brief linking and concluding summary at their beginning and end to improve the thesis flow and prepare the reader for the subsequent chapters. In addition, references cited in the thesis Introduction, Background and Discussion Chapters are included in the reference list at the end of the thesis. References cited in the studies are listed within their corresponding chapters and have not been duplicated in the reference list. This format was taken for consistency, as one study has been published. The American Psychological Association (APA) style referencing has been used for all chapters except Chapter 4, systematic literature review, which, for practical reasons, uses the Vancouver style.

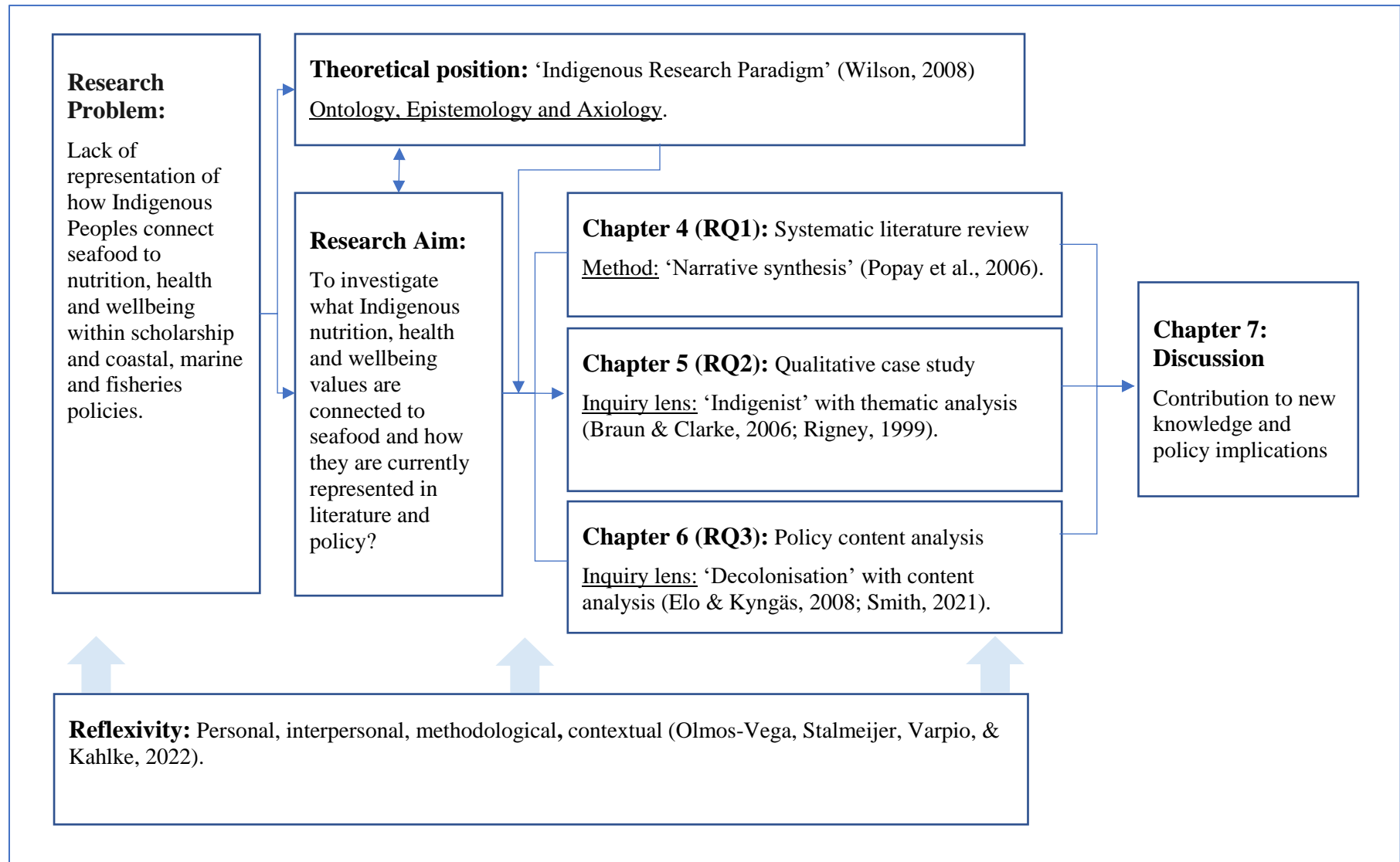


Figure 1:1 - Thesis overview, aims, and chapter structure

1.8 Chapter summaries

Chapter 1: Introduction

This Chapter establishes the foundations and argument of the thesis to the reader with a brief introduction, research questions, position and significance, followed by the thesis mode of presentation and chapter summaries.

Chapter 2: Background

Chapter 2 provides background information on Indigenous Peoples histories, experience with colonisation and recognition of rights, current health and wellbeing discourse, Indigenous perspectives on health and wellbeing, Indigenous Peoples connection to seafood, Health In-All-Policies, nutrition-sensitive policies, and the gaps within the literature concerning these.

Chapter 3: Methodology

Chapter 3 is the methodology chapter. This Chapter describes how and why the methodological approaches were applied. This includes a description of the theoretical positioning and method for an Indigenous research paradigm followed by a description of the individual study designs - systematic literature review: narrative analysis; qualitative case study: Indigenist inquiry lens; and, policy content analysis: Decolonisation inquiry lens. This Chapter also describes the reflexivity of the author, research ethical considerations, and details the research study sites.

Chapter 4: Systematic literature review (To be submitted for publication)

Chapter 4 is the first study chapter and comprises a systematic literature review to answer the first research question of the Thesis: *RQ1. How are the nutrition, health and wellbeing benefits of seafood for Indigenous coastal Peoples presented within health literature?* This Chapter identifies the knowledge gap that global health literature has not conceptualised Indigenous Peoples health and wellbeing connections to seafood.

Chapter 5: Qualitative case study (Published Food Policy: (Cubillo, Stacey, & Brimblecombe, 2023))

Chapter 5 is the second study chapter and is presented as a qualitative study. This study is focused on answering the second research question of the thesis *RQ2. How do Aboriginal*

Peoples in Maningrida conceptualise the connection of Seafood to nutrition, health and wellbeing? This Chapter explores the localised relationship Aboriginal People in a remote community have with Seafood and the intrinsic values reflected in this connection. This Chapter contributes to the knowledge gap identified through the systematic literature review of study two and conceptualises the nutrition, health and wellbeing values connected to Seafood for Aboriginal People in Maningrida.

Chapter 6: Policy content analysis (To be submitted for publication)

Chapter 6 is the third study chapter presented as a policy content analysis. This study is focused on answering the third research question of the thesis *RQ3. How are Indigenous nutrition, health, and wellbeing values of Seafood conceptualised in Northern Territory coastal, marine, and fisheries policies?* This Chapter identifies how coastal, marine and fisheries policies represent health and wellbeing values and principles of self-determination for Aboriginal People. Finally, this Chapter identifies ways the knowledge gained through the qualitative case study, Chapter 5, is considered within policy and how policy can be strengthened to better consider the identified values described in Chapter 4.

Chapter 7: Discussion and Conclusion

Chapter 7 the discussion chapter synthesises the findings of the three studies in relation to the thesis argument and the overarching question. This Chapter also presents this thesis's overall findings and contribution to new knowledge concerning the knowledge gap identified and the implications of this new knowledge. Finally, this Chapter will conclude by addressing the strengths and limitations of this thesis and a final reflexivity statement and a concluding statement.

1.9 Terms used in this thesis

This thesis refers to and applied many terms that need to be defined. First, terms relating to Indigenous Peoples have been broadly considered, which may not be fully agreed upon. Second, this thesis takes an interdisciplinary approach and includes words and terms that may be referred to differently across disciplines. This list provides some insight into the commonly referred terms within this thesis.

Aboriginal: The term Aboriginal is used globally to represent several Indigenous People groups and Nations. However, this report uses the term Aboriginal explicitly when referring to the Australian mainland and Tasmanian Indigenous Peoples (AIATSIS, 2021).

Aboriginal Land Trust and Native Title: These terms recognise Aboriginal and Torres Strait Islander Peoples rights to their traditional lands, however, they are distinguished by their legal status. Aboriginal Land Trusts are granted titles from the government that recognise their traditional interest and customary ties. A successful Aboriginal Land Trust claim will place the management of the land and its resources under the community's or representing organisation's control to preserve them for future generations (ALRC, 2015). In contrast, Native Title is not granted but recognises Aboriginal and Torres Strait Islander Peoples pre-existing inherent rights to their land (Reid, 2019).

Coastal and marine: The term coastal and marine in this thesis refers to the coastal zones and marine landscapes, ecosystems and resources that connect mainland and islands to the ocean such as estuaries, mangroves, beaches, reefs and are usually located between the high and low intertidal watermarks (Australian Geoscience, 2014).

Coastal Indigenous Peoples: The term coastal Indigenous Peoples for this thesis is defined as Indigenous Persons that have access to customary coastal and marine spaces that are central to their cultural and social responsibilities (Cisneros-Montemayor et al., 2016)

Country: The term country in this thesis describes a place with significant value and cultural importance to Aboriginal and Torres Strait Islander Peoples. Country does not explicitly refer to the environment but instead to a place or entity that connects individuals with their epistemological and ontological relations, such as identity, ecological and spiritual relations (Kingsley et al., 2013; Smyth, 1994; Whitehouse et al., 2014).

Indigenous Knowledge: The term Indigenous Knowledge in this thesis refers to Indigenous Peoples ways of knowing, being and doing that represent their unique epistemologies and ontologies and govern their relations with the natural world (Martin & Mirraboopa., 2003; S. Wilson, 2008). Throughout this thesis for respect for Indigenous Peoples the term 'Indigenous Knowledge' and 'Knowledge System' will be capitalised.

Indigenous Peoples: The term Indigenous Peoples refers to the greater global community of Peoples who practise, maintain and connect with different cultural practices and the environment in which they live and who are economically and politically separate from the dominant society (Martinez Cobo, 1982).

Indigenous Values: The term Indigenous values refers to the specific intangible and tangible expressions that enable Indigenous Peoples to relationally connect to their Knowledge Systems which may be manifested as cultural and social practices, spirit, lore, kinship, and inter-generational knowledge transfer. These values are highly contextual to each Indigenous People group or nation (Bruchac, 2014; Wilson, 2008).

Nutrition, health and wellbeing: When referring to the concepts of nutrition, health and wellbeing, this thesis takes a collective perspective that incorporates individual and community values linked to health and social outcomes for Indigenous People. This may include but is not limited to physical, social, emotional, cultural, and spiritual dimensions of health and wellbeing (Gee et al, 2014; Australia. National Aboriginal Health Strategy Working, 1989). Nutrition is defined as the body's essential need to source nutrients for healthy growth and function and the prevention of disease and death. Nutrition throughout this thesis is incorporated with health and wellbeing unless directly referred to otherwise.

Outstation: The term outstation in this thesis is an Australian term that refers to a specific country estate where Aboriginal Peoples have inherent rights and responsibilities to maintain ongoing cultural and social significance (Myers & Peterson, 2016). Most outstations in the NT are held under Aboriginal Land Trust and in some regions are called homelands.

Sea Country: The term sea country is interlinked with the term country. However, sea country refers explicitly to the geographically significant coastal and marine regions that hold substantial values, knowledge, resources and cultural and social obligations of Aboriginal and Torres Strait Islander Peoples (Smyth, 1994; Whitehouse et al., 2014).

Seafood: The term seafood in this thesis includes crustaceans, invertebrates and mammals accessed by Indigenous Peoples in marine estuaries and brackish water.

Torres Strait Islander: The term Torres Strait Islander in this report solely refers to the Indigenous Peoples of the Torres Strait Islands, which include a series of islands that span

48,000² Km of marine space (Britannica The Editors of Encyclopaedia, 2017) and stretch from northeast continental Australia to Papua New Guinea (AIATSIS, 2021).

1.10 Chapter 1: summary

This Chapter has provided an overview of the thesis, including the aim, research questions, and the researcher's position. This Chapter also includes the thesis significance, the rationale for focusing on the NT of Australia, chapter summaries and key terminology. Chapter 2, presented next, will provide a background to the thesis argument and justification of the gap within the literature that this thesis aims to investigate.

Chapter 2 BACKGROUND

2.1 Introduction

This background chapter aims to contextualise and situate the thesis through the lens of an Indigenous perspective and develop the thesis argument by further explaining the research gap and its significance and implications. First, the Chapter begins with a historical account and political positioning of Indigenous Peoples rights globally and in relation to Aboriginal and Torres Strait Islander Peoples. Second, it provides a description of Indigenous health and wellbeing, including the global and national Australian health policies. The third part describes Indigenous Peoples connection to seafood and the role of seafood towards improving collective Indigenous health and wellbeing outcomes. Finally, a summary of the knowledge gap and the need for integrative policies to improve health and wellbeing outcomes for Indigenous Peoples is given.

2.2 Indigenous Peoples and Aboriginal and Torres Strait Islander Australians

Indigenous Peoples is an identity term embedded in colonial overtones to describe heterogeneous groups with distinct social, cultural and political characteristics connected to a place (Peters & Mika, 2017; Stewart, 2018). This includes continually maintaining a connection to particular ancestral land, sea and resources for an extended period (Durie, 2004). Due to the ambiguity and complex nature of defining Indigenous Peoples, the term is the centre of much debate amongst global scholars and Indigenous communities with no universally agreed definition (Kuper, 2005). In 1981, the UN sub-commission on preventing discrimination and protecting minorities conducted a study led by José Martínez Cobo after much political appeal from global Indigenous communities striving for recognition (1982). The investigation resulted in a working term for Indigenous Peoples, which is the definition applied in this thesis (Martinez Cobo, 1982). While not entirely definitive, this definition offers an understanding of what Indigenous identity may include. As such, an Indigenous group must occupy part of their ancestral lands and have common ancestry to those lands and demonstration of cultural manifestations, language and residence. The individual must self-identify as Indigenous and belong to a community with the sovereignty to decide if they are Indigenous without external interference (Martinez Cobo, 1982). Using this definition, the UN estimates that 370 million Indigenous Peoples reside in 70 countries (2021). However, this global working term for Indigenous Peoples does not automatically grant recognition for many

Indigenous Peoples within their colonised states (Coates, 2004). It is recognised that Indigenous Peoples are continually struggling for recognition from global and national governing bodies as well as institutions, organisations and even their communities (Coates, 2004; Wolfe, 2006). As this thesis focuses on Australia, the term Aboriginal and Torres Strait Islander Peoples is explicitly used to represent the Indigenous Peoples of Australia. Aboriginal and Torres Strait Islander Peoples encompass over 250 distinct language groups (AIATSIS, 2021). As defined in Chapter 1, Aboriginal for this thesis is used only when referring to the Australian mainland and Tasmanian Indigenous Peoples (AIATSIS, 2021). The term Torres Strait Islanders relates solely to the Torres Strait Island Indigenous Peoples, whose land and seas comprises a series of islands stretching from north east continental Australia to Papua New Guinea (AIATSIS, 2021). As of 2021, Australia's Aboriginal and Torres Strait Islander population was estimated to be 984,000, representing 3.8% of the total population (ABS, 2021).

2.3 Indigenous Peoples: Imperialism, colonisation and subjugation

When discussing Indigenous Peoples health and wellbeing, it is critical to address the historical and political events of ongoing colonisation (Bombay, Matheson, & Anisman, 2014; Kauanui, 2016; Lee, 2017; Menzies, 2019; Sherwood, 2013). The sustained disposition and oppression against Indigenous Peoples over their colonial histories have contributed to current political, social, economic and health inequities (King, Smith, & Gracey, 2009; Mitrou et al., 2014). These inequities are examined further in this Chapter and referred to throughout this thesis. It is acknowledged that imperialism and colonisation are complex and much-debated terms within the settler-colonial and post-colonial discourses that stretch across multiple academic disciplines (Bhambra, 2014; Carey & Silverstein, 2020; Fanon, 1967). This thesis assumes that imperialism is a theoretical construct that explains how European powers sought to exercise power through control over foreign sovereignty (Margaret & Reddy, 2023; Wood, 1983). The history of the imperial pursuit and rapid economic expansion via colonisation by European empires from the 15th century is significant for the global history of Indigenous Peoples (Smith, 2021). As Māori scholar Linda Tuhiwai Smith (2021, p.24) described, Imperialism incorporates four layers: “1). *imperial economic expansion*; 2). *Imperialism as the subjugation of others*; 3). *Imperialism as an idea or spirit with many forms of realisation*; and 4). *Imperialism as a discursive field of knowledge*”. The first three layers of imperialism relate to Eurocentric views; however, the fourth layer refers to the perspectives of the colonised population and the need to consider how Eurocentric domination has also colonised the minds

of Indigenous Peoples through discursive fields of Knowledge that oppress the realities of the Indigenous Peoples (Foucault, 2013; Ngugi wa, 1998; Smith, 2021). The colonisation process geared towards imperialistic pursuit has resulted in the “*discovery, conquest, exploitation, distribution and appropriation*” of Indigenous Peoples land, resources and knowledge over a prolonged period (Nakata, 2007; Smith, 2021, p. 26). In the case of Australia, where two of the three studies of this thesis take place, the term settler-colonisation is often used, which is described as the coloniser seeking permanent settlement through the displacement of the original inhabitants (Kauanui, 2016; Tuck & Yang, 2012; Wolfe, 2006). This settlement has been achieved through a process described by Patrick Wolfe (2006) as the ‘logic of elimination’, which involves the ongoing displacement and systemic erasure of Indigenous inhabitants through structural methods (Geiger, 2017; Wolfe, 2006). These methods include the destruction of Indigenous Knowledge, dispossession of land and resources, genocide, introducing of foreign diseases and assimilation (Coates, 2004; Kauanui, 2016; Tuck & Yang, 2012; Wolfe, 2006). In addition, the colonisation process resulted in Indigenous societies and Peoples being labelled as savages and primitive because their interaction with the world did not fit within the coloniser’s intellectual thought at the time of contact (Moreton-Robinson, 2015; Nakata, 2007; Smith, 2021). This thinking has been the foundation for the development of identity race structures which continue to affect Indigenous Peoples by enabling colonial states to dictate who is Indigenous (Samson, 2017; Tuck & Yang, 2012). The implication is Indigenous Peoples ability to determine their interests through political action as they are at the mercy of the colonial state recognition (Francis, 1996; Wolfe, 2006; Yap & Yu, 2018). This has been further compounded by creating divisions amongst Indigenous Peoples, contributing to lateral violence and colonising the minds of Indigenous Peoples to embrace and value Eurocentric views (Fanon, 1967; Ngugi wa, 1998; Whyman et al, 2021). The impact of imperialism and ongoing colonisation is felt across all four layers, highlighted by Linda Tuhiwai Smith (Smith., 2021). This is important to the approach of this thesis, which endeavours to position the research of the thesis within the scholarship that represents and values Indigenous Knowledge and resists dominant Eurocentric views. Further detail on the epistemic suppression of Indigenous Knowledge is detailed in Chapter 3.

2.3.1: *Aboriginal and Torres Strait Islander Australians: Colonial history*

Aboriginal and Torres Strait Islander Australians’ experience with settler-colonisation arguably began when a British fleet led by Captain James Cook and his ship, the Endeavour,

landed in Botany Bay along Australia's East Coast in 1770, which later became the first penal settlement site in 1788 (Nugent, 2008). However, before a settlement could be established without objection from the international community, the British Empire had to legally claim the land under the belief that it belonged to no one, later known as the Terra Nullius doctrine (Buchan & Heath, 2006). To support their ideology, the British authorities claimed that the Indigenous inhabitants had no existing titles, ownership, or sovereignty over their traditional lands, reducing Aboriginal and Torres Strait Islander Peoples to primitive savages (Moreton-Robinson, 2015; Nakata, 2007). From 1788 to 1838, settler violence was prominent and resulted in large-scale massacres of Aboriginal and Torres Strait Islander Peoples (Harris, 2003; Wolfe, 2006). To escape the legal consequences of violence, the British military enacted various strategies and tactics to attack Aboriginal and Torres Strait Islander Peoples by deeming them hostile (Harris, 2003; Sherwood, 2013).

Furthermore, throughout the 1800s, the British regime remained unchallenged on their various scientific axioms that assumed Aboriginal and Torres Strait Islander Peoples would die out, such as the Doomed Race Theory (McGregor, 1997; Sherwood, 2013, p. 32). While it is beyond this thesis's scope to portray the entire history of Aboriginal and Torres Strait Islander Peoples historical context of colonisation, the critical point is that the entrenched assumptions of the so-called Eurocentric enlightenment era continue to influence policies and scholarship in Australia, further described in Chapter 3. Eventually, in 1882, out of concern from several citizens, pressure was placed on the British administration to appoint a Board for the Protection of the Aborigines (Sherwood, 2013). This resulted in the remaining Aboriginal and Torres Strait Islander Peoples being forced into missionaries or government settlements for their protection, but it created further issues such as welfare dependencies by controlling rations and institutionalising Peoples behaviour (Foster, 2000; Sherwood, 2013). The following centuries resulted in additional assimilation policies and systemic oppression of Aboriginal and Torres Strait Islander Peoples that continue to have a lasting impact (Harris, 2003; Wolfe, 2006).

After many political movements in response to the lack of human rights of Aboriginal and Torres Strait Islander Peoples, in 1967, a referendum for constitutional change was achieved through a public vote, with 90.77% of Australian citizens voting yes. Finally, Aboriginal and Torres Strait Islander Peoples would be deemed citizens with full voting rights in Australia. However, it must be recognised that Aboriginal and Torres Strait Islander Peoples rights have not been fully liberated. Aboriginal and Torres Strait Islander Peoples, at the time

of this thesis, are battling for a voice within the Australian Parliament that would provide governance over their interest and recognise them in the constitute of Australia. To date, Australia remains the only Commonwealth country that does not have a treaty with its Indigenous Peoples despite Aboriginal and Torres Strait Islander Peoples never ceding their sovereignty (Williams, 2018). This historical and political context is essential to the positioning of this thesis as it is well established that these continuing colonial legacies impact Aboriginal and Torres Strait Islander Peoples today, including their health and wellbeing (Sherwood, 2013).

2.4 Indigenous Peoples: recognition of rights

The global prolonged oppression and systemic displacement of Indigenous Peoples lives have ignited global-scaled collective human rights-based movements and frameworks to redress how Indigenous Peoples have previously sought recognition structurally, most notably the non-binding 'UN Declaration on the Rights of Indigenous Peoples (Erueti, 2022; UN, 2007). At the same time, the process of gaining recognition and rights through such global declarations has highlighted the fight against oppression for Indigenous Peoples globally (Kingsbury, 2001). The Declaration has been criticised because many states globally still have immense control over how they interpret and implement it, including Australia, whom initially opposed it (Wensing, 2021). The Indigenous minorities within such countries, including Australia, have had their ability to obtain recognition and sovereignty hindered through lack of treaties and self-determination or self-governance, which has been the centre of much debate within these countries (Moreton-Robinson, 2015; Ryder et al., 2020; Wensing, 2021). Understanding the context of Indigenous rights is an essential component of this thesis as it is the foundation from which policies, strategies and initiatives must be developed, evaluated and implemented to address inequities, disadvantages and power imbalances through self-determination (UN, 2007; WHO, 2022).

2.4.1: Self-determination

Self-determination has become synonymous today with Indigenous Peoples and is frequently referred to within research and political discourses. However, the term was first developed after the American and French revolutions and became particularly prominent at the conclusion of the first and second World Wars (Britannica, 2023). By its fundamental principles, self-determination means for a community to choose its political governance and,

as such, the freedom from “*foreign, colonial and racist domination*” (Senese, 1989, p. 1). There are two common interpretations of self-determination, external and internal. External self-determination focuses on the international acknowledgement of a state and nationhood (Senese, 1989). In contrast, internal self-determination refers to the ability of communities to politically, economically and socially govern their interest within state and nationhood. The latter is the self-determination interpretation applied in this thesis and applies to Australia’s Aboriginal and Torres Strait Islander context (Senese, 1989; UN, 2007). The UN Declaration on the Rights of Indigenous Peoples (2007) has set the most comprehensive standard for Indigenous self-determination at an international level; particularly Article 3, “*Indigenous peoples have the right to self-determination. By virtue of that right, they freely determine their political status and freely pursue their economic, social and cultural development.*” Australia, despite initially opposing the Declaration, has been ‘supporting’ it since 2009, however as concluded by the UN Special Rapporteur on the rights of Indigenous Peoples on her visit to Australia, Victoria Corpuz (2017. P.18) stated:

“While the (Australian) Government has adopted numerous policies to address the socioeconomic disadvantage of Aboriginal and Torres Strait Islanders, those policies do not duly respect the rights to self-determination and to full and effective participation. The compounded effect of the policies contributes to the failure to deliver on the targets in the areas of health, education and employment in the ‘Closing-The-Gap’ strategy”

It is therefore, acknowledged that greater implementation plans need to be considered to improve health and wellbeing outcomes. As Aboriginal scholar Megan Davis has further highlighted that self-determination must consider the greater contextual representation and more nuanced implementation plans by governments to improve health and wellbeing outcomes beyond solely relying on rhetoric blanket statements related to doctrines such as the UN Declaration on the Rights of Indigenous Peoples (Davis, 2013). Considering this interpretation of self-determination and its historical context, this thesis aims to position Indigenous contextual values at the centre of the discussion when identifying how self-determination can contribute to Indigenous health and wellbeing outcomes through Peoples through connection to Seafood.

2.4.2: *Policy of Self-determination in Australia*

In the Australian context, self-determination also refers to the Commonwealth of Australia's Self-determination Policy, 1972, implemented to displace the previous Policy of Assimilation, 1961 (Jenkins, 2002). This was a significant national policy milestone in Australian history where then Australian Prime minister Gough Whitlam and his Government vowed to address the social inequities through a “*mandate to change the way of life*” of Aboriginal and Torres Strait Islander People through a “*national will*” (Jenkins, 2022. P.188). While it is believed the Whitlam, Government had good intentions to improve socioeconomic inequities for many Aboriginal and Torres Strait Islander People through self-determination (Jenkins, 2002; Webb, 2012). Nevertheless, the approach was situated within a colonial frameworks that reinforced the Eurocentric way of life as the dominant position and consequently positioned Aboriginal and Torres Strait Islander People as a ‘burden’ incapable of managing their affairs (Webb, 2012; Rademaker & Rowse, 2020). This is also significant for this thesis as these ‘self-determination’ approaches to policy implementation continually impact Aboriginal and Torres Strait Islander Peoples (Behrendt, 2013; Hart, 2018). It should be noted; however, despite the colonial standpoint of the Policy of Self-determination and its large-scale failure to improve social inequities, the Whitlam Government is credited with delivering the foundation for the Aboriginal Land Rights Act, which was passed in the subsequent Fraser Government in 1976 (Jenkins, 2002; Webb, 2012). This is also problematic as it is argued how can Aboriginal and Torres Strait Islander seek recognition for land they never ceded sovereignty to (Shrinkhal., 2021). It is beyond the scope of this thesis to investigate these legal constructs but it is important to note as part of the broader context.

2.5 Indigenous health and wellbeing discourse

It has been well established in the academic literature that Indigenous Peoples globally experience lower health outcomes than benchmark populations, including lower life expectancy and higher rates of obesity and maternal and infant mortality (I. Anderson et al., 2016; The Lancet, 2020). It is reported that Indigenous Peoples are also at higher risk of malnutrition and food insecurity (Kuhnlein et al., 2013; Lee & Ride, 2018; Shafiee et al., 2022). In addition, Indigenous Peoples experience lower social outcomes such as higher unemployment rates, lower education and incomes, increased juvenile detention and higher rates of racism (I. Anderson et al., 2016; Gall et al., 2021; Mitrou et al., 2014). While it is understood that Aboriginal and Torres Strait Islander Peoples in Australia have experienced

improvements in health outcomes in the last decade, these are still disproportionate to the benchmark population, and the social outcomes remain particularly unaffected (Australian Government, 2020b; Australian HealthInfoNet, 2022). Overall, like other Indigenous populations globally, Aboriginal and Torres Strait Islander Peoples are still impacted by lower health and wellbeing outcomes, including lower life expectancy, birthweights and rates of non-communicable diseases (NIAA, 2022). In addition, Aboriginal and Torres Strait Islander Peoples of Australia also experience lower social outcomes, such as higher incarceration rates and lower education and economic outcomes (Australian HealthInfoNet, 2022). Understanding why Indigenous Peoples health and wellbeing are disproportionate to the benchmark population is complex and intertwined with the historical and political hegemony of the regimes colonising each country (Gee et al., 2014; Sherwood, 2013; The Lancet, 2020). This thesis recognises that the complex nature of these seemingly intractable Indigenous health and wellbeing outcomes is linked to structural issues such as racism and colonial political hegemony (Aldred et al., 2021; Gee et al., 2014; Pulver et al., 2010). In response, this thesis applies and incorporates an integrative approach that considers a broad scope of disciplines in addition to policies to understand how health and wellbeing outcomes can be improved through the lens of Indigenous Peoples.

2.5.1: *Deficit discourse*

Deficit discourse in this thesis is referred to as the disempowerment of an individual or population group through language and framing that represents the individual as the problem by highlighting and attributing failures to the individual and that disregards the resilience and/or strengths of those being researched (Fforde et al., 2013). This is a standard lens used within health research and political contexts when referring to Indigenous Peoples (Aldred et al., 2021; Fforde., 2013; A. Wilson et al., 2020). It is important to note that turning away from this deficit discourse does not diminish the reality of health disparities and disadvantages for Indigenous communities (Fforde et al., 2013). It instead shifts the narrative to a strength-based approach that recognises the underlying roots of inequity rather than pathologizing Indigenous health and wellbeing and in doing so placing the blame for health inequities on Indigenous Peoples and Indigenous ways of knowing, doing and being (Aldred et al., 2021; Fforde et al., 2013). It is acknowledged that current Indigenous health and wellbeing research and research evidence translation to health policy is shifting to approaches that incorporate Indigenous Knowledges and values (Bryant et al., 2021; Fforde et al., 2013). It is recognised however, that

to address health inequities, a structural paradigm shift about how health and wellbeing are considered needs to occur beyond solely targeting health and wellbeing outcomes through incorporating knowledges and values (Fforde et al., 2013; Lowitja Institute, 2022; Thomas, Bainbridge, & Tsey, 2014). This structural shift must address the underlying structures and processes related to health and wellbeing values that influence health outcomes for Indigenous Peoples, such as identity, self-determination, governance, and systematic racism (Aldred et al., 2021; Fforde et al., 2013; Watego et al., 2021), and use process-driven and relationship-building approaches with communities (Askew et al., 2020; Bryant et al., 2021). It is recognised globally by the UN and nationally through the Closing-The-Gap strategy that there is a need for a multidimensional approach to address health and wellbeing outcomes that incorporates many disciplines and sectors beyond the health policy and health service sectors (UN, 2007; Australian Government, 2022).

2.6 Indigenous Peoples perspectives: health and wellbeing

Indigenous Peoples interpretation of health and wellbeing is contextual to individual communities. It encompasses uniquely localised values and is challenging to define in the global Indigenous context (Gall et al., 2021; Hansen et al., 2004). Nevertheless, some consensus exists. Indigenous Peoples share similarities between values, such as a collectivist view of health and wellbeing, that often places community health before that of the individual (Butler et al., 2019; Patrick, 2017; UN, 1994). This is in contrast to the contemporary dominant biomedical models of health that focus on disease treatment and prevention through intervention at more of an individual level (Bryant et al., 2021; Durey & Thompson, 2012). In response, many Indigenous Peoples within colonised countries have advocated for health services and sector policies beyond mainstream health services and procedures that address the needs of Indigenous Peoples, such as the Australian Aboriginal and Torres Strait Islander Aboriginal Community Controlled Health Organisations, New Zealand's Māori Health Providers, Canada's the First Nations and Inuit Health Authorities, and the United States of America's Indian Health Services (Harfield et al., 2018). Driving principles of these health services include self-determination, thereby enabling the individual communities to incorporate their knowledges and values into health service policies that impact their health and wellbeing (Harfield et al., 2018; Lin et al., 2023; Pulver et al., 2010). Example of broad values may include cultural connections, relationships with others, belonging, spirit, identity, resilience and physical health (K. Anderson et al., 2022; Gall et al., 2021).

2.6.1: **Australian Aboriginal and Torres Strait Islander health**

In 1989 in Australia, the National Aboriginal Health Strategy Working Party convened in response to the growing Aboriginal and Torres Strait Islander health disparities and implications of colonisation (Australia. National Aboriginal Health Strategy Working, 1989; Harfield et al., 2018). As a result, the working party developed an Aboriginal Peoples Concept and Perception of Health.

“Health to Aboriginal Peoples is a matter of determining all aspects of their life, including control over their physical environment, dignity, community esteem, and justice. It is not merely a matter of provision of doctors, hospitals, medicines or the absence of disease and incapacity” (Australia. National Aboriginal Health Strategy Working, 1989, p. ix)

Since then, Aboriginal and Torres Strait Islander health and wellbeing concepts have been further defined. They may include the historical, political, economic and social contexts connected to values such as family, land, resources, culture, spirituality, community, body, mind and emotions (Gee et al., 2014; Pulver et al., 2010). In Australia, such examples of implementing these values into strategies include the National Aboriginal and Torres Strait Islander Health Plan 2021-2031, National Aboriginal Community Controlled Health Organisations and, significant for this thesis, the Closing-The-Gap strategy.

2.6.2: **Closing-The-Gap**

In 2007 the Council of the Australian Government committed to Closing-The-Gap health inequities between Aboriginal and Torres Strait Islander Peoples and other Australians (Australian Government, 2009). In 2008 the Government approved the National Indigenous Reform Agreement to address several social and health outcomes through specified targets such as improving education, life expectancies, child mortality and employment (Australian Government, 2009). However, over the next decade, the Closing-The-Gap targets failed to improve the health inequities between non-Indigenous Australians and Aboriginal and Torres Strait Islander Peoples (Cox et al., 2022; NIAA, 2022). Due to the large-scale failures and pressure from Aboriginal and Torres Strait Islander Peoples and other advocacy groups such as health professionals, the Australian Government has reconsidered their approach to Closing-The-Gap, shifting from an outcome-driven approach to one that recognises Aboriginal and

Torres Strait Islander Peoples values of self-determination and relationship and partnership building (Australian Government, 2009, 2020a).

There has, however, been criticism within the academic literature that Closing-The-Gap is based on deficit discourse that has focused too heavily on individual- and community-level behaviour changes without addressing underlying structural issues such as racism (Bryant et al., 2021; Dawson et al., 2021), even despite the significant investment and development of Aboriginal Community Controlled Organisations throughout Australia. The complexities of addressing health and wellbeing disparities and inequities are recognised within this thesis. It is understood that considerable pressure is placed on the health sector and service delivery organisations to improve health and wellbeing outcomes for Aboriginal and Torres Strait Islander Peoples whilst Indigenous values connected to health and wellbeing may sit across sectors and political structures.

2.7 Integrated policies: addressing nutrition, health and wellbeing

International entities have advocated for structural change within policy frameworks that take a more integrated approach. For example, the WHO, The UN, and the FAO have all called for action to address health inequities through multi- and inter-sectoral policies and self-determination for Indigenous Peoples (FAO, 2013; UN Committee on Indigenous Health, 2002; WHO, 2014).

2.7.1: *Health-In-All Policies and the consideration of Indigenous Peoples context*

It has been recognised that for policy to improve health inequities, there needs to be multi- and inter-sectoral approaches that consider individual and collective health and wellbeing views in addition to human rights-based approaches that incorporate self-determination (UN, 2021; WHO, 2022). Multi- and inter-sectoral approaches to improving health outcomes through more significant social and economic policy have steadily developed since the 1978 WHO conference on Primary Health Care (Ståhl, 2018). Currently, the preferred term for this approach is Health in-All Policies which the WHO defines as:

“an approach to public policies across sectors that systematically consider the health implications of decisions, seeks synergies and avoids harmful health impacts to improve population health and health equity. It improves the accountability of policymakers for health impacts at all policy-making levels. It includes emphasising the consequences of public policies on health systems, determinants of health and wellbeing” (WHO, 2014, p. 2).

When considering the Health in-All Policies, the literature suggests focusing on context and country-specific approaches to improve policy implementation and effectiveness (Mundo et al., 2019). Health in-All Policies, when considering Indigenous Peoples therefore, must contain self-determination at the centre to enable communities to factor in their values related to health (UN, 2007). This integrative policy stance has been taken in this thesis and recognises that to Close-The-Gap on Aboriginal and Torres Strait Islander health inequities, attention must be placed on sectors beyond health service delivery.

2.7.2: Nutrition-sensitive intervention and the call to sector policies

In addition to Health In-All Policies, the FAO has highlighted the need for integrative approaches to address health inequities by strengthening sector policies for better food security and nutrition results (FAO, 2017a). Globally there is a growing double burden of malnutrition with overweight/obesity and diet-related non-communicable diseases, and undernutrition such as micronutrient deficiencies and underweight, particularly in children (Popkin, Corvalan, & Grummer-Strawn, 2020). As a result, there have been calls within the global literature to consider how nutrition-related outcomes can be addressed through indirect and direct underlying drivers of nutrition, referred to as nutrition-sensitive interventions (Pinstrup-Andersen, 2013; Ruel & Alderman, 2013). The nutrition-sensitive intervention typically focuses on agriculture, child and maternal nutrition, women’s empowerment, hygiene and sanitation, climate and environment (FAO, 2017a; Pinstrup-Andersen, 2013; Ruel & Alderman, 2013). Sectors and industries impacting the underlying causes of nutrition outcomes are especially those concerning food production, processing, distribution and consumption (Doonan & Field, 2017; FAO, 2014; Ruel & Alderman, 2013). There are calls therefore, for a multi-sectorial approach to incorporate nutrition-sensitive interventions across sectoral policies to address the global burden of health and wellbeing inequities (FAO, 2017a).

2.7.3: *Nutrition-sensitive fisheries policies*

As this thesis is centred around seafood, understanding the role of nutrition-sensitive policies within marine and fisheries sectors is important (Thilsted et al., 2016). Seafood is connected to food production and the fisheries industry contributes importantly to diets (Arthur et al., 2022; Farmery et al., 2020; Simmance et al., 2022). Fisheries also contribute significantly to food security by providing nourishment and livelihood outcomes (FAO, 2017a). Seafood provide essential bioavailable nutrients for populations through seafood, including high-quality protein, fatty acids, and vitamins such as A, E, and B and minerals iron, zinc, calcium and selenium (Govzman et al., 2021; Hicks et al., 2019). Considering the significance of this nutrient-rich food source provided by the fisheries sectors, there are calls to action for the sector to consider more/greater nutrition-sensitive interventions to address health burdens (FAO., 2017b). However, there are growing concerns that marine and fisheries sector related policy is becoming geared towards commercial development, with little nutritional and health value considered (Arthur., et al 2022; Koehn et al., 2022). It has been suggested by Koehn et al (2022, p.139) that food is rarely considered within fisheries policies, and “*without such policy direction, fish will continue to be produced and managed for revenue, jobs and conservation*”, and that this may impact populations most reliant on seafood for nutrition and livelihood connections such as coastal Indigenous Peoples and small-scale fisheries. As such the FAO have called for greater sector support for small-scale fisheries sectors that provide and are essential to food security for smaller dependant fishing communities to protect their health, wellbeing, livelihoods including income, cultural and social connections (FAO, 2017a). This has implications for Indigenous Peoples, as stated in Chapter 1, they consume up to 15 times more seafood than non-Indigenous Peoples, and seafood remains a significant livelihood and food security contributor for coastal Indigenous Peoples (Cisneros-Montemayor et al., 2016; Marushka et al., 2021). Further, and as this thesis explores, Indigenous Peoples have customary connections and values connected to seafood, that are important for health and wellbeing and for healthy ecosystems (FAO, Duke University, & WorldFish, 2023).

2.8 Exposing the knowledge gap

As, there have been implications for Indigenous Peoples a result of the Imperial pursuit and colonisation by European Empires including the lack of recognition and rights, disconnection and dispossession from access to land, waterways and resources, and cultural suppression (Jentoft et al., 2018; Moreton-Robinson., 2015; Smith, 2021). Indigenous Peoples

as a result, disproportionately experience significant lasting health and wellbeing inequities due to underlying structural impact, including systemic racism, and oppression of governance, identity, and social and cultural expression (Griffiths et al., 2016; King et al., 2009; Sherwood, 2013). Significant pressure has been placed on the health sector, such as Aboriginal Community Controlled Health Organisations, and other services outside of health, such as Aboriginal Legal Services, employment agencies and education institutes, to address health and wellbeing inequities (Australian Government, 2020b; Panaretto et al., 2014). However, even though access to food, food systems and waterways is essential to human health and wellbeing, only recently has the Australian Government explicitly linked nutrition provisions to Closing-The-Gap targets through an \$AUD11.8 million investment into a National Strategy for Food Security in Remote First Nations Communities (Australian Government, 2023a, 2023b). There is a need to consider multi and intersectoral policy actions to be implemented in Australia to improve health and wellbeing outcomes alongside the health and health service delivery sectors, such as through the marine and fisheries sectors. To contribute to this understanding, multiple frameworks and a broad scope of multi-disciplinary literature and approaches have been used within this thesis to explore the research topic and contribute to nutrition scholarship. The international literature has been drawn on, including FAO-Strengthening Sector Policies for Better Food Security and Nutrition Results, the WHO Health In-All-Policies, and the call for fisheries and aquaculture sectors (FAO, 2017a, 2017c; WHO, 2014). In addition, this thesis also considers how “*cultural adaptations of nutrition interventions for Indigenous Peoples*” can be considered within policies to better align with the UN Declaration on the Rights of Indigenous Peoples and be situated relationally with Indigenous Knowledge Systems (UN, 2007; Vincze et al., 2021, p. 9). Considering the knowledge gap this thesis aims to explore how coastal Indigenous Peoples health and wellbeing values are conceptualised and represented in connection to seafood and the potential significance of this for health and policy outcomes from an Indigenous perspective. The next Chapter presents the thesis methodology Chapter 3

Chapter 3 METHODOLOGY

3.1 Introduction

This Chapter outlines this thesis's underpinning theoretical foundation and methodological approach, including a description of the three study designs that draw from several qualitative and Indigenous research methodologies. It begins with an outline of the research design, the background of Indigenous research methodologies, and the thesis's ontological, epistemological, and axiological stances, followed by a reflexivity statement. The Chapter then provides a detailed framing of the applied study designs, including a description of the research context and settings, data collection and analysis methods, research partners, and the relevant human ethics considerations. Overall, this Chapter demonstrates methodological coherence between the thesis's design frameworks, the inquiry lens, and the overarching epistemological and ontological foundations. The overall thesis structure, aims, methodological aspects and chapter summary is also provided in Chapter 1.

3.2 Research design and approach

The aim of this thesis is addressed through the following three study designs: a systematic literature review with a narrative synthesis of the benefits of seafood within the health literature (Popay et al., 2006; Snilstveit, Oliver, & Vojtkova, 2012); a qualitative case study with an Indigenist inquiry lens (Rigney, 1999); and, a policy content analysis with a Decolonising inquiry lens (Smith, 2021; Thambinathan & Kinsella, 2021). As the thesis uses qualitative methodologies, the Association for Medical Education Europe (AMEE) Guide No. 149 was applied, to address subjectivity through reflexivity (Olmos-Vega et al., 2022; Walsh, 2003). The thesis provides an extensive perspective using multiple paradigm inquiry lenses to investigate how Indigenous values of health and wellbeing are connected to seafood. This includes a systematic literature review with a narrative analysis to understand how these values are represented within academic health literature, followed by a qualitative case study to determine how Aboriginal Peoples in the Maningrida community in the NT of Australia conceptualise these values, and a policy content analysis to understand how coastal, marine and fisheries policies consider these values and the implications of this for coastal Aboriginal Peoples in the NT. This thesis approach was carefully constructed and applied for several reasons. First, using multiple design frameworks underpinned by multiple paradigm inquiry lenses and data triangulation provides a nuanced perspective. Second, this research intends to

translate the results to inform future research, policy development, and health outcomes. Therefore, an in-depth investigation was needed to explore this novel area of scholarship that considers the complex interconnected nature of Indigenous values connected to seafood and the meaning of this to health and wellbeing. This approach in this thesis has applied multiple design frameworks and narrative synthesis to consider implications presented in Chapter 7 Discussion section 7.5.

3.3 Indigenous resistance to dominant colonial inquiry

In Chapter 2 section 2.2 it is described how colonisation continually impacts Indigenous Peoples through epistemic violence and suppressing Indigenous Knowledge, a crucial marker of domination, and how its persisting structures perpetuate health and wellbeing inequities (Brunner, 2021; Dotson, 2011). This section details how this domination of the Eurocentric hegemony of knowledge validates Indigenous epistemological and ontological foundations within research from a reduction lens (Kennedy et al., 2022; Smith, 2021). Indigenous researchers have resisted this domination by applying Indigenous research methodologies to coherently align their understanding of knowledge within their scholarship, as Indigenous Peoples relationship to the nature of knowledge and its construction fundamentally differs from a Eurocentric inquiry lens (Martin & Mirraoopa, 2003; Wilson, 2008). The Eurocentric inquiry lens fundamentally positions dominant European philosophy at the research centre, thus othering Indigenous Peoples and dismissing their identities (Burney, 2012). In contrast, Indigenous research methodologies position Indigenous worldviews at the centre of research. This thesis is not an argument against Eurocentric theoretical approaches to research and knowledge construction, as there are Eurocentric theoretical paradigms that have positively contributed to Indigenous communities' needs. Instead, it uses Indigenous methodologies to understand how an appropriate theoretical inquiry lens considering relationality and engagement with Indigenous communities can appropriately represent Indigenous Peoples constructs of knowledge and values (Nakata, 2002; Smith, 2021; Wilson, 2008).

Misrepresentations of Indigenous Peoples Knowledge through inappropriate inquiry lenses and the associated negative experience with research have contributed to the compounding mistrust between Indigenous communities and researchers (Moreton-Robinson, 2015; Nakata, 2002; Rigney, 2001; Wilson, 2008). The consequence of misrepresentation is the translation of the research to policy that potentially impacts Indigenous communities

adversely. Therefore, it is crucial to have methodological inquiries that align with Indigenous Knowledge and corresponding values (Smith, 2012; UN, 2007; West et al., 2012). In response to misrepresentation, many Indigenous academics have developed and implemented Indigenous research methodologies, best practice guidelines for research with Indigenous Peoples, and strength-based approaches to research, including the use of co-design and engagement processes that can benefit the community (Harfield et al., 2020; Huria et al., 2019; Rigney, 1999; Wilson, 2008). While Indigenous research methodologies have significantly developed and are becoming accepted as a legitimate method of inquiry within educational institutions, there is still a need to continue to validate and build upon existing Indigenous methodologies to cement Indigenous academic thought in scholarship (Martin & Mirraboopa, 2003; Weber-Pillwax, 1999; Wilson, 2008). Considering this described phenomena, this thesis will contribute to further developing Indigenous research methodologies and theoretical positioning that support Indigenous representation within scholarship. Thus, the overarching theoretical approach this thesis applies is the Indigenous Research Paradigm by Canadian First Nations (Opaskwayak Cree) scholar Shawn Wilson (2008).

3.3.1: *Indigenous research paradigm: epistemology, ontology and axiology*

Ontology, the study of being and what exists to know, and epistemology, the study of knowledge and how it is created, are essential for research as they guide the philosophical assumptions about what is possible to know and enable researchers to explicitly address the research questions through appropriate design, implementation, analysis and synthesis (Moon & Blackman, 2014). Axiological assumptions are also crucial for the justification and presentation of the research's value and the basis of the positioning of ontology and epistemology (Patterson & Williams, 1998). Many examples of theoretical research approaches have successfully positioned Indigenous Peoples and communities at the centre of the study through partnership and co-design (Simonds & Christopher, 2013). Indigenous scholars, however, have reported difficulties both personally and theoretically with applying non-Indigenous paradigms to their research as it has not always aligned with what and how they and their communities understand and interact with their Knowledge Systems (Rigney, 1999; Simonds & Christopher, 2013; West et al., 2012). As stated, this thesis has been positioned within an Indigenous Research Paradigm that seeks to value Indigenous realities and knowledge constructs. Applying this particular paradigm to this thesis therefore requires an understanding of the theoretical assumptions.

It has been established that many Indigenous Peoples believe that multiple realities exist, much like traditional interpretive and constructionist schools of thought, however, a point of difference for Indigenous research methodologies is the concept of relationality (Moreton-Robinson, 2016; Tynan, 2021; Weber-Pillwax, 1999; Wilson, 2008). The Indigenous Research Paradigm emphasizes the relationships that Indigenous Peoples and communities have with their Knowledge Systems and with the assumption that these are not socially constructed but have always existed (Wilson, 2001, 2008). As Shawn Wilson (2008, 2008, P. 73) describes, *“reality is relationships or sets of relationships...therefore reality is not an object but a process of relationships”*. Indigenous Peoples relationships and interactions with the natural world and kinships are the foundation of Indigenous reality and the connection to their nature of knowledge (Dudgeon & Bray, 2019; Wilson, 2008). Indigenous Peoples relationship with their unique Knowledge System, including the mechanisms for such connection, such as the expression of culture, which is a part of the reality and nature of knowledge, is of value (Moreton-Robinson, 2016; Tynan, 2021; Wilson, 2008). When considering Indigenous methodologies, therefore, it is fundamental that Indigenous ways of knowing, being and doing are the basis of such knowledge construction (Martin & Mirraboopa, 2003; Tynan, 2021). For Indigenous Peoples, the reality of knowledge is not individual thought but it encompasses a whole community and system of knowledge and; the relationship to that Knowledge System is the foundation of an Indigenous Research Paradigm (Tynan, 2021; Wilson, 2008).

When applying the Indigenous Research Paradigm, it is imperative to consider the axiological assumptions. As relationality is the basis of the premise of knowledge, relational accountability is the validity or metric of the value of the research, or more accurately, the accountability of the researcher (Martin & Mirraboopa, 2003; Wilson, 2008). Therefore, the strength of those relationships between the Indigenous researcher and the Indigenous community engaged in the research are significant (Dudgeon & Bray, 2019). This differs to the concepts of validity and trustworthiness considered as the gold standard methodological principles within the Eurocentric sciences for reliable qualitative design and interpretation (Cypress, 2017). For the Indigenous Research Paradigm, relational accountability and cultural integrity are the gold standards (Bainbridge et al., 2015; Moreton-Robinson, 2016; Weber-Pillwax, 2001; Wilson, 2008). This axiological approach assumes that the Indigenous researcher cannot be separated from the research interpretation. As such they must place accountability on themselves and hold integrity and responsibility to the communities and

informants at the centre of the investigation (Lindstrom, 2022; Tynan, 2021; Weber-Pillwax, 2001). Therefore, the strength and metric of the research value in this thesis are judged on the three themes of respect, reciprocity and responsibility, which foster integrity between the researcher and the Indigenous Peoples engaged in the study (Lindstrom, 2022; Weber-Pillwax, 2001).

This axiological position is described and embedded throughout the research process and was considered iteratively in designing each of the thesis' studies and methodologies. Respect is referred to as the process by which the researcher demonstrates their commitment and integrity to the community of interest by meeting their conditions and being honoured and respected by their Indigenous community (Fitzpatrick et al., 2016; Weber-Pillwax, 1999; Wilson, 2008). Reciprocity is the process of ensuring the results are helpful towards contributing to community orientations (Kennedy et al., 2022; Wilson, 2008). Responsibility ensures the researcher is transparent and authentic in sharing knowledge, fostering a research relationship, and aligning research with community values (Rossiter, 2012; Wilson, 2008; McGuire-Adams, 2020). Considering these three axiological assumptions, this thesis has addressed the research questions using design frameworks, and associated methods, analysis, and synthesis approaches that position relationality at the centre of the philosophical assumption of reality, knowledge and validity. Finally, the Indigenous Research Paradigm assumes that Indigenous ontology and epistemology are embedded in a relational connection to an object and not to the objects themselves (Wilson, 2008; Hart, 2010). Considering this, the aim of the thesis has been methodologically aligned with theoretical foundations, paradigm inquiry lenses, design frameworks and methods that consider Indigenous Peoples values that are relational to their Knowledge Systems.

3.4 Reflexivity: orientations

This thesis comprises one systematic literature review utilising narrative synthesis and two qualitative studies, therefore, subjectivity must be addressed before moving on to the design frameworks (Creswell & Poth, 2018). Many authors of traditional qualitative studies have previously tried to neutralise subjectivity by removing themselves as the researcher from the research by bracketing their perspectives (Dodgson, 2019; Glaser & Strauss, 2017). This traditional approach is considered outdated, especially with participatory approaches like the methodological design frameworks applied in the research studies of this thesis (Koopman,

Watling, & LaDonna, 2020; Olmos-Vega et al., 2022). A reflexivity statement is used with participatory-style research approaches to explicitly address the subjectivity present during the research through self-critique, appraisal and evaluation of the researcher's influence and address any dilemmas that may arise (Olmos-Vega et al., 2022; Guillemina & Gilliam., 2004). Managing reflexivity within this thesis is critical as the Indigenous Research Paradigm concept of relationality assumes that the researcher places themselves within the research (Tynan, 2021; Wilson, 2008). Considering this assumption of reflexivity and the concept of relational accountability, the researcher must hold themselves accountable to the Indigenous community, who is at the centre of the research and the researcher's community. Therefore, this thesis takes the stance that subjectivity is inherent to the research paradigm applied, and focuses on how reflexivity has shaped and influenced the research and its outcomes, and added value to the investigation (Lindstrom, 2022; Olmos-Vega et al., 2022; Rossiter, 2012). The researcher's positioning, interactions with the world, beliefs, Indigeneity, and education have shaped how this thesis has been designed and implemented and its findings disseminated. The 'AMEE Guide No. 149' presented by Olmos-Vega et al. (2022) has been used to address the author's subjectivity. The following four pillars of the AMEE Guide are addressed throughout the thesis: personal, interpersonal, methodological, and contextual reflexivity (Olmos-Vega et al., 2022; Walsh, 2003).

3.4.1: ***Reflexivity: statement***

For Aboriginal and Torres Strait Islander Peoples introducing ourselves is an essential concept for building trust and showing respect, and is an important aspect of this thesis's relational accountability and theoretical positioning. Thus, on my grandfather's side, I am an accepted member of the Larrakia nation under the Cubillo family, a coastal People group and the Traditional Owners (TO) of the greater Darwin region in the NT of Australia. I am also an accepted member of the Wadjigan People, the TO of the Wagait region in the NT, which is also a coastal People group. My family is explicitly connected to the Western Wagait stretch. I identify with these People groups and was raised in both countries. There is a long history of interaction between these two People groups along the over 200km stretch of coastline. On my grandmother's side, our family were a victim of the stolen generation, where my great-grandmother was forcibly removed from her family in the Numbulwar Roper Gulf region of the NT. While my grandmother has since reconnected with her People, it has not come without damage. This includes disruptions to inter-generational knowledge transfer. While I

acknowledge that I am connected to my grandmother's People in Numbulwar, I do not openly identify with this group, as I have not been raised in this community and do not fully understand their values and protocols at this time. I have had a lifelong interaction with seafood and coastal and marine spaces with my family accessing sea country and passing down inter-generational knowledge. This experience has influenced my decision to engage in this PhD. While privileged enough to have a connection to my ancestor's countries, it has not come without hardships, as we have also experienced the impact of assimilation and oppression with some degree of loss, including language and cultural expressions.

I acknowledge that I have had the opportunity to attend private schools and elite Universities to gain a high-level Eurocentric education. I was supported financially by numerous equity-based scholarships. I only state this as it must be acknowledged how my privileged position has allowed me to conduct this PhD thesis. I am a Eurocentric-educated Aboriginal male who has been supported from a young age to achieve a 'socially acceptable' Eurocentric mainstream career. Many Indigenous Peoples have elected not to do so, as they elected to follow Indigenous protocol, such as staying on country, or did not have the opportunity like me. This is important to state, as when engaged in research practices, opinions and academic discussions on Indigenous community topics and research approaches, I keep in mind my power positioning. This power positioning influenced the research design and data collection methods I applied in this thesis. However, despite the privilege I have had, it does not separate my identity of who I am and where I come from. First and foremost, I represent my communities and family. I have tried my best to design and conduct honest and accurate research to hold myself relationally accountable to Aboriginal Peoples, especially to my Peoples, the Larrakia and Wadjigan, and to the Aboriginal Peoples of the Maningrida region.

During my schooling and university education, I had to sacrifice access to country, kinship and cultural obligations in favour of pursuing my education many thousands of kilometres away from home, which influenced the project study design of this thesis. Before commencing my undergraduate studies in nutrition and dietetics, I was optimistic about the positive impact I may have had on my Aboriginal community as a practising dietitian to address nutrition-related health 'problems'. However, I soon realised there were conflicts within my conceptions of the relationship between food for Aboriginal Peoples in my community and what I was learning. I was therefore, unable to finish the degree in nutrition and dietetics and left the university with a human nutrition undergraduate degree. In Australia, this would mean

I could not register as a dietitian. This experience is not isolated to me and has been researched and critiqued within the critical dietetics and the cultural interface discourses (Nakata, 2002; A. Wilson, 2011). At this point though, I want to draw special attention to the fact I understood that Indigenous ways of knowing, being and doing portrayed nutrition and food differently from Eurocentric nutrition and food scholarship. I was unaware of how to reconcile these differences then, and I would later unpack this throughout this PhD thesis. While oversimplified here, these formative experiences would, to some degree, influence my subsequent research studies and the theoretical positioning of this PhD thesis and lead me to want to utilise Indigenous research methodologies.

I have described my background above, but this description must further demonstrate how this has impacted the thesis and corresponding studies. The critical question asked in the *AMEE Guide No.149* for reflexivity is, '*How are our unique perspectives influencing the research?*' (Olmos-Vega et al., 2022). This PhD thesis was initially co-designed by myself and my supervisors in brief. It would later be iteratively developed through consultation with various stakeholders. This is described in further detail under the design frameworks in this Chapter. While some students may accept a project already designed, I opted for a PhD project where I could exert my Indigenous ways of knowing, being and doing with the support of my two supervisors. Based on my supervisors' connections and experience working in remote regions of the NT and my identity as an Aboriginal person from the NT, I could use my positioning and theirs to design such a thesis. This positioning was important for co-developing research studies that would benefit the Aboriginal community I worked with, and not be invasive and harmful. Due to us being familiar with the Aboriginal historical, political and cultural experiences in the NT, it was easier for myself and my two supervisors to engage in respectful and ethical manners and be relationally accountable. Despite being located in Melbourne, Australia, throughout the PhD degree, I travelled to the NT extensively as two of my research studies were focused on the NT coastal region and one of my supervisors was located in Darwin. Choosing to co-create a PhD project focusing on a research topic and conducting research in an area I was familiar with enabled me to feel culturally safe and made it easier for me to hold myself accountable to the Aboriginal communities, including my own. My earlier experiences with nutrition and dietetics, as well as my Aboriginal ways of understanding food systems, also impacted the design of the thesis. Growing up learning about

fishing and the importance of the coastal country for our Aboriginal Peoples also shaped the lens through which I conducted and positioned this research.

3.5 Design frameworks: research strategy

The three study Chapters presented within this thesis each describe the methodology used for the specific study. However, these methodology sections are presented in a manner that contains them within their particular study design and are restricted in length to fit with journal guidelines. This section of the methodology Chapter thus provides a more in-depth and robust account of Chapters 4, 5 and 6 and the specific study designs that are methodologically coherent with this thesis's overarching Indigenous Research Paradigm and aim. When situating research within the theoretical positioning of an Indigenous Research Paradigm, the methodology tends to be orientated towards qualitative design frameworks as Indigenous Peoples experiences and knowledge constructs tend to be accommodated by such approaches (Lavallée, 2009; Wilson, 2008). For example, qualitative research approaches offer theoretical underpinnings and methods that enable historically suppressed Indigenous voices to incorporate Indigenous ways of knowing, being and doing within research (Moreton-Robinson, 2016; Wilson, 2001). The design framework described in Chapter 4 is a narrative synthesis used to converge a wide range of studies that reflect Indigenous Peoples position within academic health literature (Popay et al., 2006; Snilstveit et al., 2012). Chapter 5 describes a qualitative case study design that applies an Indigenist inquiry lens with Yarning as a data collection method (Bessarab & Ng'andu, 2010; Rigney, 1999). Chapter 6 describes a content analysis design that applies a Decolonisation inquiry lens (Elo et al., 2014; L. Smith, 2021). Please note that as this thesis is by publication, some aspects of this methodology Chapter may be repeated in the respective Chapters of the individual studies.

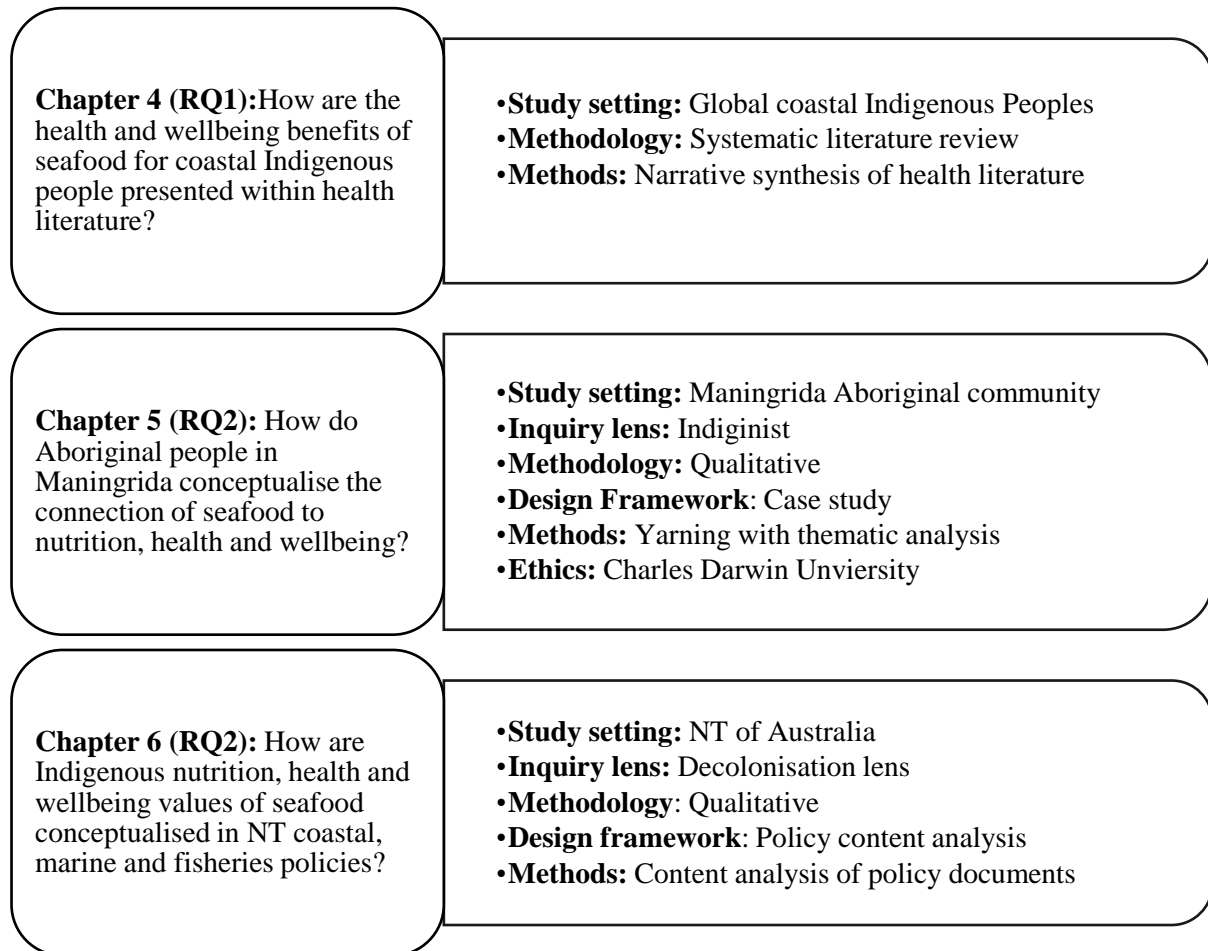


Figure 3:1 - Design frameworks for 3 key results Chapters

3.6 Chapter 4: a systematic literature review

This systematic literature review identifies and synthesises how seafood is connected and positioned with health and wellbeing outcomes for coastal Indigenous Peoples in the global health literature. It is recognised in Chapter 2 that health and wellbeing for many Indigenous Peoples is a collective concept that is inclusive of broad cultural and social values (Gall et al., 2021; O’Keefe et al., 2022). This study critiques the design and outcomes of the articles in this review against this Indigenous understanding of health and wellbeing. A global perspective was applied to this systematic literature review as it was essential to understand how coastal Indigenous Peoples are positioned within the empirical literature and to align with global advocacy movements to strengthen Indigenous representation (UN, 2007). As described in this methodology Chapter, the historical positioning of Indigenous Peoples has been invasive and has misrepresented Indigenous societies and their interactions with the world (Guillemin et al., 2016; L. Smith, 2021). The study applied a narrative synthesis method to systematically

analyse and synthesise the data across the identified themes in the review (Popay et al., 2006; Snilstveit et al., 2012). A narrative synthesis method was utilised as it was not feasible to apply a meta-analysis of the studies as there was heterogeneity in the design and outcomes of the resulting articles (Mulrow et al., 1997; Popay et al., 2006). In addition, this review was not focused on quantifying the health and wellbeing effect as the physiological health benefits of seafood are already well documented (Govzman et al., 2021; Hicks et al., 2019). Instead it aimed to draw upon the strengths of a narrative review by synthesising multiple studies to “*tell the story of the findings included in the studies*” (Popay et al., 2006, p. 5). There is currently little understanding of the application of Indigenous methodological approaches within health literature when assessing benefits of seafood, so the narrative synthesis method was a suitable choice. This study was explicitly aligned with the Indigenous Research Paradigm as the study was focused on synthesising how Indigenous health and wellbeing benefits are connected to seafood. Chapter 4 provides the detail of this study.

3.7 Chapter 5: qualitative case study

This methodological framework applied in this Chapter is a qualitative case study design that utilised an Indigenist inquiry lens and Yarning as a data collection method to privilege Indigenous voices and conceptualise Indigenous health and wellbeing outcomes connected with seafood (Bessarab & Ng’andu, 2010; Rigney, 1999). This study was conducted in Maningrida Aboriginal community between 2019 and 2022. This section in addition to describing the methodology of this study, provides background on the existing relationships to the community and the Fisheries Research Development Corporation (FRDC), the funder of this research project.

3.7.1: Study location: Maningrida

This research study of Chapter 5 takes place in Maningrida (Manayingkarírra), a remote coastal Aboriginal community located in the North Central Arnhem land region of the NT of Australia. Maningrida is located 500km east of Darwin, the capital city of the NT, along the coast of the Arafura sea and the Liverpool River as shown in Figure 3:2. Maningrida community is located in a tropical zone. During the wet season, approximately November to April the roads are impassable due to high rainfall, with air and sea-barge the only options for travel and freight. As of 2021, the population was 2,518, with 91% identifying as Aboriginal and/or Torres Strait Islander (ABS, 2021). Maningrida is surrounded by over 100 individual

traditional-owned sea and land clan estates, including over 30 family-based outstations (BAC, 2022). There are many languages spoken in Maningrida; however, the five most commonly spoken Aboriginal languages at home include Burarra (39.1%), Ndjebbana (14.1%), Kuninjku (8.7%), Kune (5.2%) and Kunwinjku (3.2%) in comparison to English as the primary household language (6.8%). See Figure 3:3 for a visual of the Maningrida region and all the outstations frequented by the author during the research's consultation and data collection phases. The Aboriginal Peoples of Maningrida and its surrounding outstations have maintained an ongoing connection to their sea country and seafood, making this an ideal case study location to co-design a research project related to seafood.

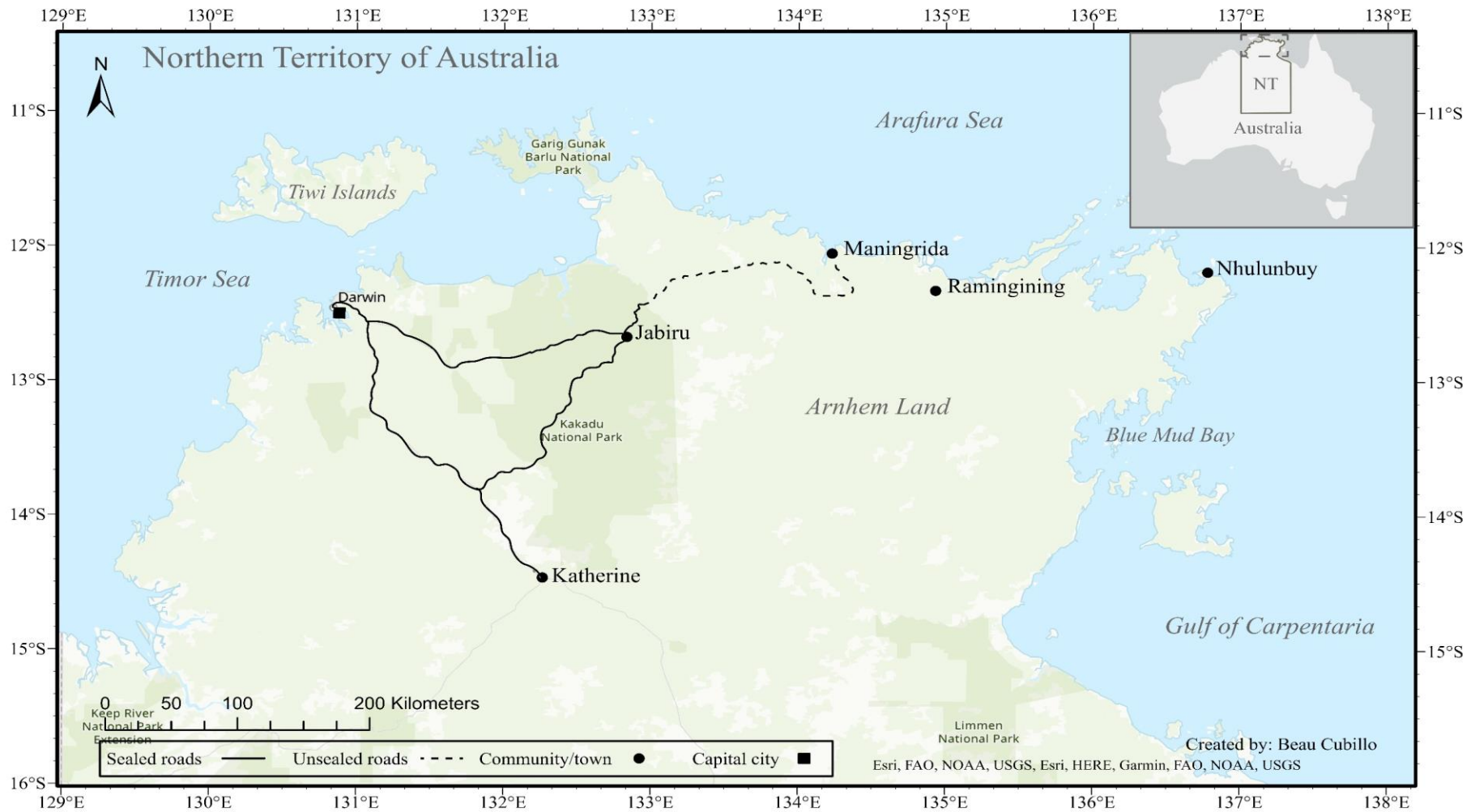


Figure 3:2 - Top End region of the NT of Australia

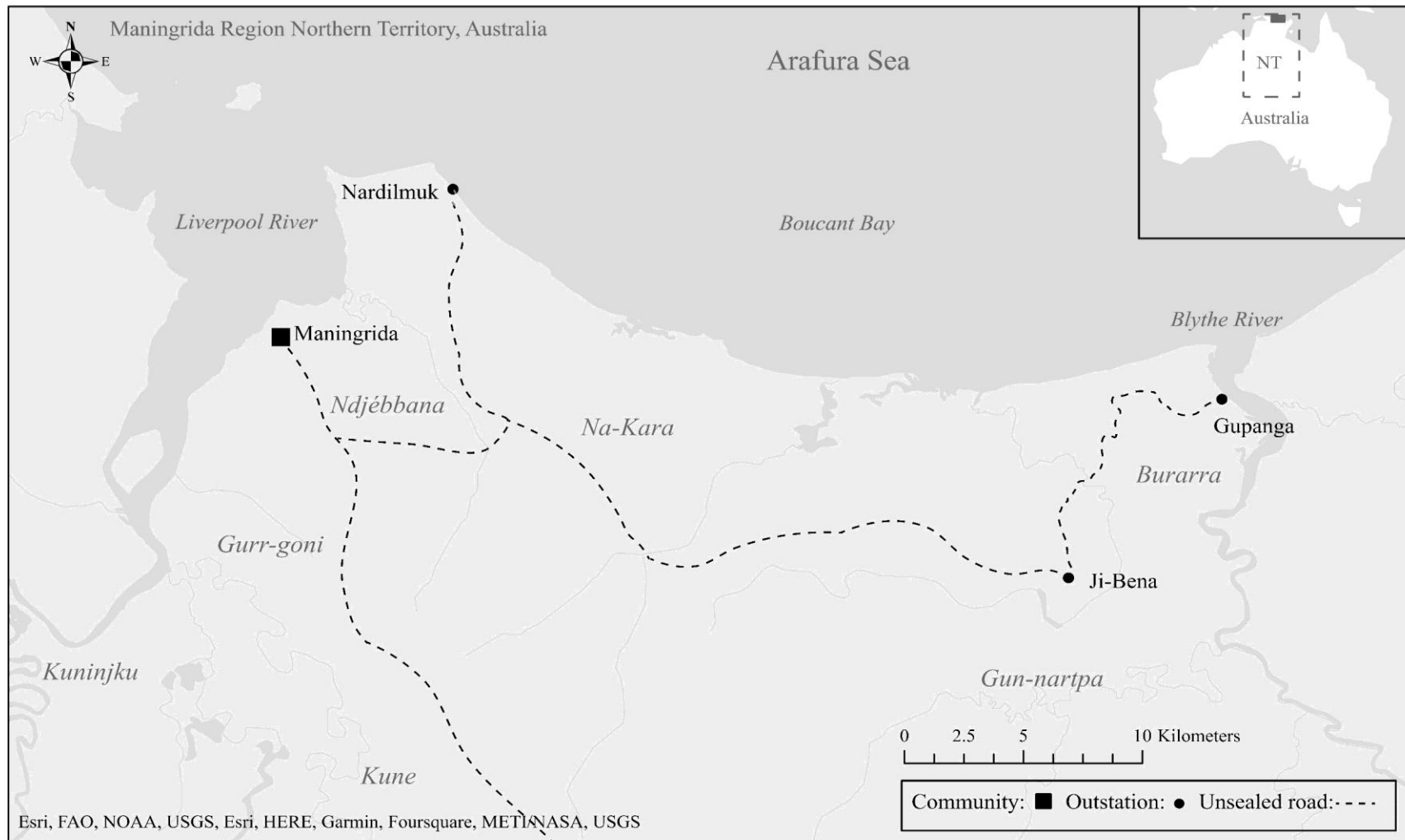


Figure 3:3 - Maningrida region, NT, Australia

3.7.2: *Research logistics*

Due to the remoteness of the Maningrida community, many logistical considerations were needed for this study. The roads to Maningrida are notoriously in poor condition even during the dry season see Figure 3:4; the drive would take an estimated eight hours from Darwin to Maningrida. The flight to Maningrida from Darwin would take an estimated one hour and sometimes be expensive. Despite the author of this study being experienced with remote travel, training was needed before commencing data collection; this included defensive four-wheel drive training and remote first aid. The author of this study used their four-wheel drive for trips to Maningrida, and to ensure field safety, the author of this study carried a remote first aid kit in their vehicle along with off-road recovery equipment and significant water supplies as temperatures can range from 21-35 °C with 35-80% humidity. Before commencing field trips, a detailed travel plan and risk management report were conducted.



Figure 3:4 - Maningrida field trip photographs. Top left, water crossing on the road to Maningrida. Top right: Cahills crossing, East Alligator River in Kakadu on the way to Maningrida, an impassable tidal river in the wet season (Dec-April). The bottom left, and right is a fishing location in Nardilmuk. The author of this thesis took all pictures, and permission was gained from relevant Traditional Owners.

3.7.3: *Research partners and funding*

This qualitative case study was undertaken in partnership with the Aboriginal community representative body Bawinanga Aboriginal Corporation (BAC), Charles Darwin University (CDU) and Monash University. An existing relationship between BAC and CDU had been established through previous research and professional associations, which was a significant contributing factor to the design and facilitation of this research project. At the time of the PhD commencement, CDU researcher Stacey, BAC and several key Traditional Owners collaborated on a Fisheries Research Development Corporation (FRDC) project proposal to address aspirations raised through earlier discussions among the partners. The FRDC proposal was aligned with this PhD study to seek additional funding to support the research and in particular production of community identified outputs of the research to complement the PhD

thesis and academic publication, as presented in Chapter 5. The final proposal was funded (FRDC 2019-143) through the FRDC Indigenous reference group program. The funding was specifically granted in support of an Indigenous PhD candidate. Collaboration, co-design, and support from the TOs and BAC on the project and (Chapter 5) was undertaken consistent with human ethical approach and Aboriginal and Torres Strait Islander research principles, as show in section 3.7.4: of this Chapter. A research agreement between the research team from CDU, Monash University and BAC was executed by all parties. See Appendices Figure: 3 for letter of support from BAC and TOs.

The governing entity of Maningrida is BAC, which offers a range of administration and services to the Maningrida community and 32 surrounding outstations, including overseeing and operating several key development arms relevant to this study, such as the Aboriginal fishing enterprise, Maningrida Arts and Culture Centre and the Bábbarra Women's Centre (BAC, 2022). BAC's contribution as a partner of this study was through providing access to essential community members who provided advice and input into the co-design of the research. In addition, a support letter from the Bawinanga Arts and Culture sub-committee comprising 13 traditional owners of the land and seas of the geographical area serviced by the BAC was provided. The letter was addressed to the author of this thesis to support them in conducting the research within the community.

BAC also provided logistical support for the author of this thesis by providing access to resources such as the library, museum artefacts, office space, internet services and employee access for Yarning sessions. Throughout the research study, including the design phases, BAC staff members, such as the Enterprises Development Manager and Arts and Culture Centre Manger, supported the author even when the author was not present in the community. The BAC staff organised initial consults with crucial community members and, at later stages, arranged the transport for key informants to come together for online video or phone calls to provide feedback information or general discussions about the research. BAC also provided the administration with reimbursement of time via cash payments. At the time of this study, in 2020-21, BAC managed several commercial fishing licenses in addition to supporting several community members in obtaining specialised Aboriginal commercial fishing licenses, as described in Chapter 4. The significant time invested by the research team to develop respectful relationships with the community and honour their community protocols and engagement with research must be noted.

3.7.4: **Ethics**

Ethics clearance and oversight for this study were obtained through CDU Human Research Ethics Committee (CDU-HREC-H20082) per the national statement on ethical conduct in human research (NHMRC, 2018), as shown in Appendix. To achieve ethics approval from CDU, the following requirements were met: Indigenous-led research, supported by relevant Peoples and communities and of benefit to the Aboriginal and Torres Strait Islander Peoples; an Aboriginal and Torres Strait Islander Research Agreement (ATSIRA) gained, which is a detailed agreement between all parties that demonstrates a complete understanding of what is expected between all parties; informed consent was sought from every informant before data collection, and informants were made aware that they have the right to not participate and can withdraw from the research at any moment; and, all research was de-identified unless otherwise specified by the informants. All data alongside signed informed consent forms were securely stored on Monash University cloud Lab Archives with access only granted to the research team. As this research involved Aboriginal and Torres Strait Islander Peoples, the Australian Institute of Aboriginal and Torres Strait Islander Studies Code of Ethics and The National Health and Medical Research Council Ethical Conduct Guidelines were addressed in the ethics application and were conditions of approval. Ethical approval was sought from CDU as it was believed the human ethics reference group at CDU would be familiar with research being conducted in the region and appropriate research protocols.

3.7.5: **Australian Institute of Aboriginal and Torres Strait Islander Studies: code of ethics**

To conduct responsible research and uphold the integrity of the Aboriginal community involved, the Australian Institute of Aboriginal and Torres Strait Islander Studies four critical pillars of ethical research were addressed. *Principle one) Indigenous self-determination:* Several steps were taken to ensure the research fostered self-determination. These included engaging the Aboriginal sub-committee of the BAC from the start of the study to ensure the design would address community concerns. Steps were taken throughout the research process to protect Indigenous Knowledge, such as not including sensitive information in published papers and cross-checking data with informants. *Principle two) Indigenous leadership:* this was addressed as the lead researcher, and the author of this thesis is an Aboriginal person who collaborated with and conducted the research with Aboriginal informants, including liaison with the Aboriginal community representative body, BAC and the Maningrida Arts and Culture subcommittee. Before any public presentation, including conferences and publications,

community members were consulted via zoom or in person to discuss the information that would be shared, such as Microsoft PowerPoint presentation slides, pictures, text and publication information, to ensure informants agreed to or were given a chance to provide feedback. *Principle three) Impact and Value:* The research was informed through liaison with BAC, key informants and the author of this thesis to establish beneficial outcomes for all parties. All informants were reimbursed for their time via cash payments organised through BAC. Outputs of the research were designed at the start of the study to address local and national Aboriginal concerns. One of these outputs, which is yet to be finalised, is the development and construction of resources for the community based on the findings of Chapter 5. *Principle four) Sustainability and accountability:* the research of this thesis is being carried out to support Indigenous fisheries and to address joint interests to promote Aboriginal governance. A key feature of relational accountability is the researcher's responsibility beyond formal rules. During the field trips, the author respected another Aboriginal person's country by only travelling to research areas accompanied by senior TO or following their instructions. The research has been transparent from the start, including design, benefits, outputs and data through constant discussion with involved parties and informants, including sharing all materials and providing and receiving feedback.

3.7.6: *Indigenist inquiry lens*

To create and implement a study design that was internally coherent towards the Indigenous Research Paradigm and could address the knowledge gap, several phases of design planning took place over 12 months, 2019-2020 (Palermo, Reidlinger, & Rees, 2021; Smith, Devine, & Preston, 2020; Wilson, 2008). This iterative process involved the investigation of knowledge gaps described in Chapter 2, extensive consultation with Aboriginal community representatives and critical knowledge holders, and articulating the methodological research inquiry lens Indigenist (Harfield et al., 2020; Rigney, 1999). This approach to the study design was made to incorporate Indigenous research methods that align with best practice principles for Aboriginal and Torres Strait Islander research in Australia to improve quality and transparency (Harfield et al., 2020). Although this process required lengthy consultation and relationship building, this was imperative for relational accountability and the design of a research project that would be meaningful for Aboriginal and Torres Strait Islander Peoples and be aligned with the study community's values (Moreton-Robinson, 2016; Weber-Pillwax, 2001; Wilson, 2008). The reason for taking such precautions is that in Australia, Aboriginal

and Torres Strait Islander Peoples, like other Indigenous Peoples, have historically been the subjects of invasive research practices and research that has been taken rather than given, which has contributed to the mistrust with researchers and academic institutions (Macdonald, Stanwick, & Lynk, 2014; Smith, 2021). It is extensively reported in the literature that Aboriginal and Torres Strait Islander Peoples have been over-researched and have benefited little from health and wellbeing research (Bainbridge et al., 2015; Thomas, Bainbridge, & Tsey, 2014). After considering the research problem, it was decided that a qualitative research design utilising Yarning as a data collection method overarched by an Indigenist inquiry lens would be best suited for contributing to scholarship in this study and more broadly.

As described in the previous sections, the overarching ontology, epistemology and axiological knowledge assumptions are based on the theoretical underpinnings of the Indigenous Research Paradigm (Wilson, 2008). An Indigenist lens has been applied to this study design as the inquiry lens that values and aligns Indigenous knowledge constructs with the fostering of self-determination and values relational accountability of the research to the Aboriginal community. This Indigenist methodological inquiry is an essential and appropriate lens that resists Eurocentric paradigms and strengthens the voices of Indigenous Peoples within research (Rigney, 1999; West et al., 2012). To situate this research within the Indigenist lens, three fundamental principles were addressed, described below and applied to the study.

- 1 Resistance as the emancipatory imperative in Indigenist research
- 2 Political integrity in Indigenous research
- 3 Privileging Indigenous voices in Indigenist research

The “*Resistance as the emancipatory imperative in Indigenist research*” acknowledges that Aboriginal and Torres Strait Islander Peoples in Australia have been the subjects of assimilation and oppression by colonial forces (Moreton-Robinson, 2016; Rigney, 1999; Smith, 2021). This historical impact on the Aboriginal and Torres Strait Islander community has developed into resistance and battle for recognition of self-determination principles (Rigney, 1999). The research design of this thesis recognises this resistance and provides a theoretical lens and uses methods that support Aboriginal Peoples to voice their struggles, and enables the strengths of their knowledge construct about seafood and its connection to their health and wellbeing to be recognised (Kennedy et al., 2022; Menzies, 2019). Rather than

applying a structured approach to the research, the research design allowed and encouraged vital informants and community members engaged in the study to express their cultural, political and personal perspectives on the topic of interest (Shay, 2021).

“*Political integrity in Indigenous research*” is a principle that states that for Indigenist research to be conducted and situated appropriately within the political context of Aboriginal struggles, Aboriginal Peoples must lead the research (Rigney, 1999). In alignment with this principle, this research study has been primarily designed and led by an Aboriginal researcher and conducted with Aboriginal Peoples, with collaboration and support from non-Indigenous supervisors. The informants and researchers of this study may have different experiences, cultures and languages but are unified by the connection shared through the struggle of Aboriginal Peoples and the push for self-determination (Wensing, 2021; West et al., 2012). This connection is achieved through establishing a connection and listening to the struggles of the study informants, sharing knowledge and stories to build an understanding and relationship with each other, and expressing shared values of our communities before conducting the research (Dudgeon & Bray, 2019).

“*Privileging Indigenous voices in Indigenist research*” – As described, Aboriginal and Torres Strait Islander Peoples have a history of being the subjects of exploitation and prejudiced research that has presented them as the subjects of inquiry (Martin & Mirraboopa, 2003; Rigney, 1999). Privileging Indigenous voices was achieved in this thesis through consultation with the community, implementing ethical guides and best practice principles of Aboriginal and Torres Strait Islanders research, as described in 3.7.4: Ethics, section within this methodology Chapter (Harfield et al., 2020; Huria et al., 2019; NHMRC, 2018). The research design of this thesis focused on the vital principle of privileging Indigenous voices and asserting their Indigenous epistemological and ontological views (Rigney, 1999; West et al., 2012).

3.7.7: Data collection: Yarning

In the study described in Chapter 5 of this thesis, the term Yarning was applied as a qualitative method for engaging in the two-way sharing of knowledge between the researcher and the knowledge holders (Bessarab & Ng’andu, 2010). Yarning facilitates a space for those involved to converse about the topic of interest (Walker et al., 2014). While the structure of Yarning may be random due to conversations incorporating many aspects of an individual or a community’s experiences, there is a process and protocol (Atkinson, Baird, & Adams, 2021;

Walker et al., 2014). Yarning provides a safe platform for Aboriginal and Torres Strait Islander researchers and knowledge holders to engage and express their understanding of the research topic, drawing on their experiences and Knowledge Systems to convey what they believe is important regarding the topic of interest (Atkinson et al., 2021; Bessarab & Ng'andu, 2010). What makes yarning significant for this research strategy is the fundamental core principles and values that the method is built on. Yarning is grounded in the researcher's relationship, trust and accountability to the knowledge holders (Atkinson et al., 2021; Hughes & Barlo, 2020). It is therefore a method that is methodologically coherent with the theoretical positioning of this thesis and study paradigm. As applied within this study, the Yarning process focuses on four distinctive types: social, research topic, therapeutic and collaborative (Bessarab & Ng'andu, 2010; Walker et al., 2014). Social yarning is the first Yarning type that needs to occur. For Aboriginal Peoples, this first conversation is essential for the knowledge holders and researchers to get to know each other and their positioning. It is often where trust begins to formulate (Bessarab & Ng'andu, 2010). Naturally, as the researcher and knowledge holders are all Aboriginal, this process also involves understanding each informant's Aboriginal language group, country and family, which is fundamental for accountability (Bessarab & Ng'andu, 2010; Walker et al., 2014). The social Yarning throughout a research project becomes more detailed and in-depth, which was the experience of the study reported herein. Once the foundations of the relationship and trust had begun to be built, introducing the research topic and learning about this topic took place. This process involved gathering knowledge from the study informants through an unstructured or semi-structured interview that prompted discussion and story-sharing (Bessarab & Ng'andu, 2010). The research topic Yarning can involve in-depth discussions about contextual, historical, cultural, political and personal stories and conferences related to the research topic or questions (Bessarab & Ng'andu, 2010). This approach is specifically critical as it places the power on the knowledge holders engaged in the research to interpret and answer the interview questions how they see fit (Walker et al., 2014). During this phase, it is imperative that the researcher shows respect and listens carefully to what is being constructed and allows the knowledge holder to guide the conversation of what is important to them and their community (Bessarab & Ng'andu, 2010; Martin & Mirraboopa, 2003; Murrup-Stewart, Atkinson, & Adams, 2022). Collaborative Yarning is when multiple knowledge holders are present and engaged in the discussion (Bessarab & Ng'andu, 2010). This aspect of Yarning was used for this research study to construct the knowledge needed about the connection of health and wellbeing values concerning seafood. There needed to be

multiple knowledge holders present to discuss the research topic and articulate it as a group. Therapeutic Yarning is vital for the researcher to hear what the knowledge holders express in their stories, which may invoke intense emotions (Bessarab & Ng'andu, 2010). In study two of this thesis, some intense and personal discussions occurred due to the historical and political context of fisheries and land and sea access. It was important for the researcher to acknowledge these and provide a platform to listen.

3.7.8: Yarning protocol

The approach to Yarning and the research topics and questions for the study described in Chapter 5 were developed over consultation and engagement with informants. The overarching research topic *How do Aboriginal Peoples in Maningrida conceptualise the connection of seafood to nutrition, health and wellbeing?* had to be broken down throughout the Yarning sessions. First, it needed to be understood what health and wellbeing meant for the informants, followed by how seafood plays a role. This iterative process involved in-depth discussions about the history of fishing and marine access, family and community protocols, and types of seafood important for health and wellbeing. This also included discussions about what the essential outputs of the research needed to be from the perspective of the study informants to ensure that community orientations were also met. The Yarning session took place in the Aboriginal community, and this method is detailed in Chapter 5.

3.7.9: Data analysis: thematic analysis

Data analysis and presentation within Indigenous research is the most underdeveloped area due to the interconnectedness of Indigenous ways of knowing, being and doing and the heterogeneity among Indigenous Peoples' values and contexts (Cunsolo et al., 2012). While it is understood that breaking down Indigenous knowledge constructs into individual meanings is an artificial construct, thematic analysis was the selected data analysis method (Braun & Clarke, 2006). This method was chosen as it enabled the research team to present the data to address the research question and present findings that could practically be translated to policy or future research. To align the data analysis method with the overarching research paradigm, careful steps were taken to ensure the data presentation reflected Indigenous values and contexts as accurately as possible, even when deconstructed (Wilson, 2008). This involved emphasising the research process, which included an Indigenist inquiry lens that positioned Indigenous values through Yarning to foster communication and knowledge exchange in

alignment with Indigenous matters. Every phase of the research process involved Indigenous Peoples, including the author (Kennedy et al., 2022). Data were member-checked throughout the research process to ensure the researcher understood that the meaning provided by the informants was correct and appropriately represented (Kennedy et al., 2022). The inductive thematic analysis enabled the researcher and informants to co-construct knowledge and meaning to answer the research questions (Braun & Clarke, 2019; Olmos-Vega et al., 2022). Further detail of this is provided in Chapter 5.

3.8 Chapter 6: policy content analysis

The design framework applied in this Chapter is a content analysis involving a Decolonisation inquiry lens to analyse how Indigenous Aboriginal health and wellbeing values are represented within coastal marine and fisheries policies in Australia's NT.

3.8.1: *Research setting: NT of Australia*

The NT is a self-governing Commonwealth Territory of Australia with an area of 1.42 million km², a coastline of 10,953km, and coastal waters covering 72,000km², which faces the Arafura and Timor Seas (NT Government, 2019). The population of the NT is 233,000, with 26.3% or 61,000 of the population identifying as Aboriginal and Torres Strait Islanders (ABS, 2022). European settlement in the NT occurred in 1824 by the British Empire as a military trading outpost and would fall under the jurisdiction of various Australian states until 1911 when the NT became a Commonwealth-controlled Territory (Human Rights and Equal Opportunity Commission, 1997; National Library of Australia, ND). However, it wasn't until 1978 that the NT was granted self-government rights, entitling the NT to several statehood responsibilities. Even though the NT now has a level of self-government, it is still subjected to a degree of Australian Commonwealth legislative power, including over some but not all resources, mainly uranium, land, marine protected areas, and several national parks and significant for this study, the legal status of land and sea access rights within specifically the Aboriginal Land Trust (Australian Government, 2007). This is significant when considering the policies analysed in this study as NT Government policies need to be investigated, and policies of the Commonwealth Government and agencies need to also be included due to the historical and political context.

3.8.2: *Aboriginal land and sea rights*

Aboriginal land rights Act (NT) [1976] (Cth) (ARLA) is a landmark piece of legislation that enabled Aboriginal Territorians to claim Aboriginal freehold on vacant crown land establishing a series of land councils to govern and manage rights and royalties from industrial operations (ALRC, 2015; Australian Government, 1976). Since its inception, 50% of the NT land area as of 2022 has been recognised as Aboriginal-owned (NIAA, ND; NLC, ND).

Significant for this study is that a landmark legal decision, in 2008 of a Commonwealth of Australia high court decision of *Blue Mud Bay [NT of Australia v Arnhem Land Aboriginal Land Trust [2008] HCA 29 (30 July 2008)]*. This case resulted in 85% of the NT Coastal intertidal zone being legally recognised as Aboriginal land under the ALRA Act (1976), and entry to the intertidal zone would require permission from the relevant Aboriginal land trust (Altman, 2013; Butterly, 2020; Jentoft et al., 2018). This includes access for commercial and recreational fishing purposes. The Blue Mud Bay case has ultimately resulted from the ongoing struggle for coastal Aboriginal Peoples to have their sovereign authority over the sea country and its resources recognised (Altman, 2013; Butterly, 2020). This legal case is significant for this research study as it represents a critical hallmark of decolonisation in the handing back of land and seas to Aboriginal Peoples (Tuck & Yang, 2012).

3.8.3: *Decolonisation inquiry lens*

Settler colonialism is the structure and process that European Empires have utilised to systemically eliminate Indigenous Peoples and diminish their Knowledge Systems in favour of their own (Tuck & Yang, 2012; Wolfe, 2006). Aboriginal and Torres Strait Islander Peoples have experienced this through policies such as a Policy of Protection of Aborigines, a Policy of Assimilation and a Policy of Self-determination. While notably positioned to ‘protect’ Aboriginal Peoples, these policies further oppressed them through an imperial lens (Moreton-Robinson, 2015; Smith, 2021). In response to systemic policies disregarding Indigenous ways of knowing, being and doing, scholars have highlighted the importance of Decolonisation in policy-making to challenge dominant Eurocentric positions (Keikelame & Swartz, 2019; Smith, 2021). A practical approach to address this is through Decolonisation research that contests underlying Eurocentric philosophical assumptions to improving the quality of life of marginalised Peoples, and instead recognises and represents Aboriginal Peoples Knowledge Systems and values (Smith, 2021; Thambinathan & Kinsella, 2021).

As such, there have been calls to action for a transformative praxis within policies to incorporate Aboriginal and Torres Strait Islander Peoples values and interests (Lowitja Institute, 2022). In this study, the Decolonisation lens refers explicitly to creating a space to position and centre the epistemological and ontological views of the non-dominant group, in this case, Aboriginal Australians (Smith, 2021; Thambinathan & Kinsella, 2021). While there is no universal guide to implementing Decolonisation research, this study has attempted to achieve this by centring Aboriginal Knowledge Values within the data analysis and synthesis stages while acknowledging the history of marginalisation of Aboriginal Peoples (Thambinathan & Kinsella, 2021; Tuck & Yang, 2012). This Chapter 6 study focuses on how this transformative praxis is represented explicitly within coastal, marine and fisheries policies that impact the lives of Aboriginal Peoples in the NT who have long-standing connections to coastal marine regions and access to seafood. The study approach recognises that Aboriginal Peoples have significant investment into actions on their lands and seas in the NT and there is potential for Government, agency, and industry policies in partnership with Aboriginal Peoples to achieve positive health and wellbeing outcomes. This study is further described in Chapter 6.

3.8.4: *Data analysis: content analysis*

An inductive content analysis was applied to this study as the data collection and analysis method. While content analysis is similar to the thematic analysis applied in the Chapter 5 study, there are differences and reasons for using this method in this Chapter 6 study. First, the content analysis was focused on assessing how the policy text situates and represents Aboriginal values and then on reducing the identified text to a series of broad categories to describe the data and analyse the representation (Cavanagh, 1997; Elo et al., 2014). This is in contrast to thematic analysis, which was applied in Chapter 5, where the focus was on the in-depth construction of themes from participant Yarning data (Braun & Clarke, 2019). Second, the categories presented in Chapter 6 were constructed from a series of coding in which the author drew from their knowledge and understanding of Indigenous Knowledge and Values through an inductive approach. Third, the content analysis was aligned theoretically within the overarching Indigenous Research Paradigm to situate and value Indigenous ways of knowing, being and doing to construct the main overarching concepts to answer the research questions, as further described in Chapter 6.

3.9 Chapter 3: summary

This Chapter presents this thesis's theoretical positioning, rationale, and justification of the various methodological approaches and methods, including data collection, synthesis and representation. The Chapter also includes the researcher's reflexivity and addresses ethical and best practice approaches to Indigenous research. Finally, Chapter 4 presents the first study, a systematic literature review with a narrative synthesis.

Chapter 4 HOW DOES HEALTH RESEARCH REPORT COASTAL INDIGENOUS PEOPLES VALUES CONNECTED TO MARINE SEAFOOD: A SYSTEMATIC LITERATURE REVIEW WITH NARRATIVE SYNTHESIS

4.1 Foreword to Chapter 3

This Chapter presents the first study of this thesis, a systemic literature review to address *RQ1. How are the nutrition, health and wellbeing benefits of seafood for Indigenous coastal Peoples presented within global health literature?* This study is planned to be submitted for publication.

4.2 Abstract

Objectives: This systematic literature review with a narrative synthesis aimed to understand how seafood contributes to health and wellbeing outcomes for global Indigenous coastal Peoples through an Indigenous lens and how the health literature reports coastal Indigenous Peoples values in connection to seafood health and wellbeing benefits.

Methods: A literature search was conducted in 2022 to identify empirical research articles reporting on health and wellbeing outcomes for coastal Indigenous Peoples concerning seafood access to and consumption. A 'Guidance on the Conduct of Narrative Synthesis in Systematic Reviews' was used.

Results: Twenty-four studies were identified from research conducted in six countries. Seafood was reported to positively impact health outcomes, including overall diet, mental health, lipid-related health, cardio-metabolic, vitamins and minerals, diabetes, and bone quality. However, there was mostly a lack of recognition by authors of Indigenous values concerning seafood-related health and wellbeing outcomes.

Conclusion: The recognised connection of seafood to livelihoods, identity, culture and other Indigenous values that underpin health and wellbeing needs to be represented within the health research literature, especially when investigating the health and wellbeing benefits of marine seafood, to strengthen Indigenous visibility within literature and policy.

What is already known on this topic: Globally, Indigenous Peoples have maintained connections to seafood for nourishment, livelihoods and food security. The nutritional quality of seafood and its contribution to Indigenous diets is widely documented. Despite this, it is not clearly understood how Indigenous Peoples values connection with seafood in relation to health and wellbeing outcomes are situated within the health literature.

What this study adds: Quantitative studies dominate the health literature when reporting on the health benefits of seafood for Indigenous Peoples. Seafood consumption for Indigenous Peoples may improve several health outcomes. However, findings indicate that the health literature examining the health and wellbeing benefits of seafood has not represented the connection between these and Indigenous values.

How this study might affect research, practice or policy: There is a need for research on the benefits of seafood that conceptualises the connection to health and wellbeing outcomes for Indigenous Peoples from a perspective that incorporates Indigenous values.

4.3 Positionality and terminology

As this review is a narrative synthesis, there is a level of subjectivity present, and a positionality statement has been included to provide insight into the positioning of the authors (1). This review team comprised a coastal Aboriginal Australian (Larrakia and Wadjigan) first author (BC) with professional experience in nutrition and Indigenous research methodologies, the senior author (JB) with national and international experience in nutrition, food security and determinants, and in collaborative research with Aboriginal People in remote Australia, and co-author, NS with experience and expertise in fisheries, livelihoods and international and national community-based research. Co-authors (EVB and ET) have professional and research experience in nutrition and dietetics. This review has applied the term Indigenous Peoples to represent a global community that reflects heterogeneous cultures, nations and diversity across the globe (2, 3). This study also refers to the following terms: Inuit refers to the Indigenous Peoples of the Arctic region, specifically Greenland and Canada; First Nations refers to a selective group of Indigenous Peoples in Canada; Yup'ik refers to the Indigenous Peoples in Alaska, United States of America; Nenets refers to a group of Indigenous Peoples in Arctic Russia; Amerindian ancestry refers to a group of Indigenous Peoples of Ecuador; and, Torres Strait Islanders refers to the Indigenous Peoples of the Torres Strait Islands in Australia. It is accepted these terms are not universally agreed upon. This study defines seafood as marine species of fish, crustaceans, invertebrates and mammals accessed and consumed by Indigenous People.

4.4 Introduction

Access to seafood for global coastal Indigenous Peoples remains essential for dietary nourishment, food security and economic outcomes, and for social and cultural expression (4-6). Seafood contains nutrients for healthy human growth and function, such as high-quality protein, α -linolenic acid, vitamins A, B and D, and minerals such as zinc, selenium, calcium and iron (7, 8). The potential of Indigenous Peoples traditional diets to protect against non-communicable diseases has been scientifically documented, contributing to large-scale interest in Indigenous Peoples diets, especially marine seafood (9-11). Despite this, the historical

impact of colonisation continues to challenge Indigenous Peoples ability to access their traditional food sources, including seafood, with the dispossession of land and seas, environmental degradation and a growing burden of health and social inequities (12-15).

This colonial impact has seen the assimilation, dispossession and degradation of Indigenous Peoples access to their food systems and contributed to the reliance on store-purchased foods for nourishment (14, 16) and the adverse impact of this on the diet quality and health outcomes of Indigenous Peoples (17-19). This colonial struggle for Indigenous Peoples disproportionately affects their health outcomes compared to benchmark populations, including higher rates of non-communicable diseases and child malnutrition, lower life expectancy (including higher rates of infant and maternal mortality), and lower social status (including education and economic outcomes) (20).

Due to the high nutrient quality of seafood, there have been global calls for action by United Nations (UN) agencies and other global entities to consider the role of seafood in addressing this disease burden (21). To support this, there is scientific literature dedicated to understanding and quantifying the physiological health benefits of consuming seafood and its disease prevention properties, however this has not been synthesised in relation to Indigenous Peoples health outcomes (22). Further, for many Indigenous Peoples, health and wellbeing outcomes and the concept of health and wellbeing extend beyond the physiological benefits to incorporate a collective focus that considers the community before the individual, and includes values such as connection to country, kinship, culture, spirit and interconnectedness; all of which have been impacted by colonisation (13, 23-25). As such Indigenous values must be represented with a broader inquiry lens that reflects Indigenous communities' connections to health and wellbeing beyond physiological health outcomes (4, 20, 26).

Historically, Indigenous epistemological perspectives have been largely overlooked in the global health literature despite the global movements to decolonise health research, thus further compounding the suppression of marginalised voices (27, 28). This is significant for Indigenous Peoples as Roach & McMillian (2022, p.2) have identified "*global health research and public health research have a history of conducting research 'for' and 'on' Indigenous People rather than with*" (27). To move away from this, the global academic community has recognised the growing need for inclusive research practices (27, 29, 30). This may include participatory research approaches and Indigenous methodologies that actively engage

Indigenous communities to reflect their perspectives and report meaningful research that develops their priorities (31). It has been suggested by Griffiths et al (2022, p.2) that engagement, involvement and leadership of Indigenous Peoples within research is necessary for Indigenous "*understandings, values, and aspirations and elevates and amplifies their voices*", and must incorporate self-determination principles (32). Several academic journals have recognised this and now require explicit detail about engagement processes, such as the Australian Journal of Rural & Remote Health, the Canadian Journal of Rural Medicine and PLOS Global Public Health (27, 33). This study further contributes to these developments in research processes and reporting by exploring how global health research has represented Indigenous Peoples values in connection with seafood for health and wellbeing outcomes, hoping to strengthen and inform future research practices with Indigenous Peoples.

4.4.1: **Rationale**

The physiological and nutritional health benefits of seafood consumption and its contribution to Indigenous Peoples diets and disease prevention has been documented to a degree (4, 22). However, to the best of the authors' knowledge, no published systematic review has presented or synthesised how seafood's health and wellbeing benefits for Indigenous Peoples and their communities are represented in the academic health literature using an Indigenous lens. This systematic review has included a worldwide search as coastal Indigenous Peoples globally have been the subjects of research on seafood health and wellbeing benefits (7). It is acknowledged that all Indigenous foods are essential for Indigenous Peoples, however, this systematic literature review focused on seafood due to the significant contribution of seafood to coastal Indigenous Peoples diets (4).

4.4.2: **Objectives**

The following research question underpinned this review: How does health research report coastal Indigenous Peoples values connected to marine seafood health and wellbeing outcomes? An important aim of this study is to synthesise the overall reported health and wellbeing outcomes even if they did not report specifically on Indigenous values as it was important to understand the underlying representation of 'how' the reported health outcomes were positioned.

4.5 Methods

4.5.1: Protocol and registration

This systematic literature review followed the 'Preferred Reporting Items for Systematic Reviews and Meta-Analyses' and 'Guidance on the conduct of Narrative Synthesis in Systematic Reviews' (34, 35). The lead author developed the protocol and Population Intervention Control Outcome (PICO) framework (BC), with consultations with the senior author (JB) with contributions from (ET), as shown in

Table 4:1. No protocol was formally registered for this review.

PICO strategy		
Population	Coastal Indigenous Peoples	
PICO strategy		
Intervention	Connection, access, consumption and	
Population	Expression of wild harvest marine animal species for food	
Intervention	Connection, access, consumption and	
Comparison or control	No connection, access, consumption or animal species wild harvested marine species	
Comparison	No connection, access, consumption or	
Outcome	Expression of wild harvested marine species and wellbeing benefits	
Outcome	These outcomes could include measurement of health and wellbeing, food security and physiology (e.g., BMI and other anthropometric measurements such as diet and nutrient intake); psychological (e.g., BMI and other health indicators); social (e.g., health, social health, social support, social capital, community); biological parameters; social (e.g., belonging); spiritual/cultural (e.g., identity, place, connection to country, connection to language, knowledge transmission, other Indigenous values)	
	place, connection to country, connection to language, knowledge transmission, other Indigenous values)	

Table 4:1 - PICO Strategy

4.5.2: Eligibility criteria

Inclusion/exclusion criteria are described below in Table 4:2. Studies had to include all the following: 1). peer-reviewed articles published in English with no date restrictions; 2). Indigenous Peoples be the informants/participants of the research: the definition of an Indigenous person throughout this review is the UN working definition (36). 3). Marine animal seafood species were the intervention and had to be significant for the Indigenous Peoples group of interest 4). Indigenous Peoples reported in the study had to connect, access, or consume seafood. 5). Outcomes reported had to include marine species' health and wellbeing benefits for an Indigenous Person.

Table 4:2 - Study inclusion and exclusion criteria

Inclusion:	Exclusion:
Peer-reviewed articles	Grey literature
All study designs except reviews	Studies that do not report/explore consumption and access of a wild harvested marine species
Studies that report/explore the outcome must be measurable: Physical health, food security, dietary quality, social, emotional, cultural, and other (e.g., Medicinal)	Studies that do not report one of the benefits listed in the inclusion criteria
Coastal Indigenous populations	Studies focused on environmental contaminants' contribution to toxicity
Studies reporting consumption/access of a wild harvested marine animal species	Plant marine species
Food security and economic studies that include a consumption component	Imported marine food
All age groups and genders	Descriptive studies with no measurable outcome

4.5.3: Information sources

The electronic databases searched included OVID Embase, OVID Medline, CINAHL, PubMed, Global Health, Informit and ProQuest, with no date restrictions on any searches. However, an English language-only filter was applied due to the large ProQuest databases. The investigation was run in all databases between the 20th of May and the 30th of June 2019 (BC) and again on the 6th-7th of January 2022 (EVB).

4.5.4: Search terms

Each electronic database searched had a unique search strategy developed due to the variability of each database search. See Appendices Table: 2 for a full list of search terms used for each database, including the results. Search terms were specifically developed to incorporate broad scope of Indigenous Peoples globally and consistent with global literature when referring to Indigenous populations (78). Marine seafood and health related search terms were designed using professional experience of the research team and trialled several times to include key articles that specifically reported on health and wellbeing benefits of seafood. Monash University health faculty librarian was also consulted to assist with refining the search terms and strategy.

4.5.5: Study selection

Identified studies were downloaded to an endnote library and then exported to Covidence web-based application for screening (37). Duplicates were removed using the Covidence remove duplicates function. The first stage of screening consisted of an article title and abstract screen by (BC) and (ET) with conflicts being recorded to be assessed by the senior author (JB). The second stage of screening was a full-text screen by two researchers done independently by (BC) and for the first half (ET) and the second half (JB) with conflicts identified and discussed amongst the research team. Before the second stage of screening, three articles were selected and screened by (BC) and (ET) and then examined with a third reviewer (JB). In addition, new articles identified from the second search run were screened by (BC) and (JB). Finally, all full-text articles were excluded with the reason recorded in Covidence.

4.5.6: Data extraction and synthesis

Eligible articles were included for data extraction, consisting of three articles independently extracted by (BC) and (JB), then discussed to ensure results were similar and agreement was achieved. All articles were then screened by the lead author (BC) using a data collection table developed by (BC) and (JB) to extract appropriate data to answer the research questions. The data extraction template included study design, study start and end date, Indigenous People group, country and region, setting (urban, rural, remote), the study aims, sampling framework, inclusion/exclusion criteria, recruitment method, number of participants

and description, data collection instruments, type of food and marine species, outcome measures, reported health outcome measure, data analysis, diet assessment method, finding/results, ethical approval, Indigenous involvement and description of engagement. The data generated through the extraction were compiled by (BC) using a narrative synthesis approach for several reasons (35). First, meta-analysis was not appropriate due to the heterogeneity in the population, interventions, control and outcomes (38). Second, the review objectives were focused on defining the characteristics of the articles and the underlying story as per narrative synthesis (35). This required a synthesis approach to describe how the research reported Indigenous values connected to seafood for health and wellbeing outcomes within the literature (35). The 'Guidance on the conduct of Narrative Synthesis in Systematic Reviews' was used for the narrative synthesis (35). This involved: 1.) Determining how the studies analysed position and frame Indigenous Peoples values 2.) Developing preliminary synthesis of the findings of how nutrition, health and wellbeing outcomes connected to seafood were represented 3.) Exploring relationships in the articles; and 4.) Assessing the robustness of the synthesis (35).

4.5.7: Assessment of study quality

The 'Effective Public Healthcare Panacea Project' (EPHPP) quality assessment tool was used to assess bias (39). Three articles were randomly selected and evaluated independently by (BC) and (EVB) to ensure an agreement rate. Following this, all articles were assessed for quality by (EVB). The quality assessment was not used to exclude any studies. An Indigenous appraisal tool to evaluate Indigenous engagement quality was not applied due to the lack of information reported in the studies on Indigenous research engagement. Instead, data were extracted on reported Indigenous involvement and engagement to assess Indigenous research engagement. This included data on 'Indigenous involvement in design and implementation, dissemination of findings back to Indigenous communities, Indigenous knowledge representation in findings and Indigenous advocacy'.

4.6 Results

4.6.1: Results of the search

The initial search yielded 11,031 articles. First, 2086 duplicates were removed, and then 8292 articles were excluded in the title and abstract screening. Next, the remaining 153 articles

were retrieved for full-text screening. Five were excluded as they could not be located or were not in English. A further 124 were excluded as they did not meet the eligibility criteria, see visual representation in Figure 4:1.. Finally, the remaining 24 articles were included for data extraction.

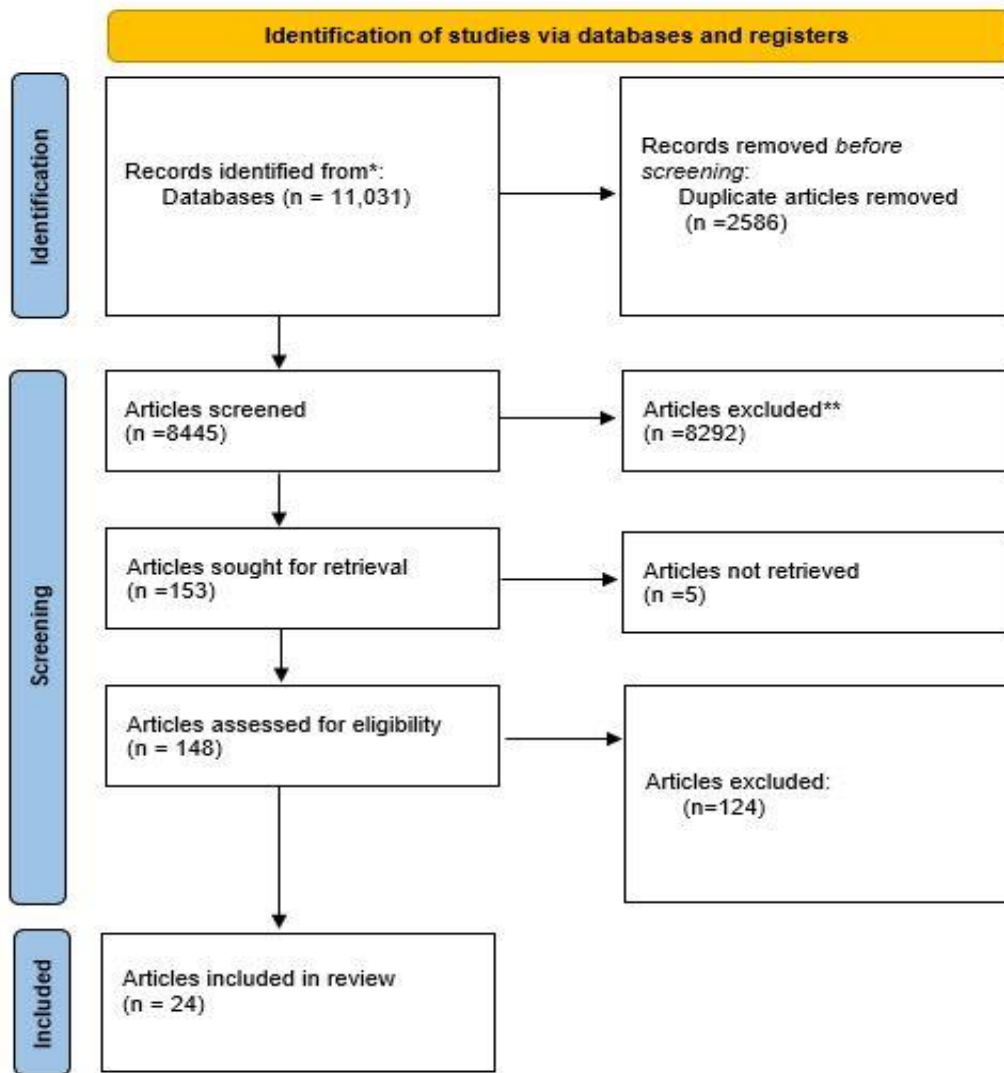


Figure 4:1 - PRISMA flow chart diagram study selection

4.6.2: Exclusion of articles

The most common reason for exclusion at the full-text screening was that the article did not report nutrition, health or wellbeing related outcomes from seafood (n=44), followed by articles that did not focus on marine seafood (n=27), were book chapters and were not peer-

reviewed (n=22). Other reasons included coastal Indigenous groups not being the population of interest, environmental contaminants focused on toxicity, and purely economic-focused studies, and duplicates (n=31).

4.6.3: Assessment of quality results

All included studies were quantitative methodologies. Sixteen articles explicitly stated they were quantitative, and eight were described as cross-sectional in design. Articles were assessed on eight bias metrics for quantitative studies: study design, analysis, withdrawals and dropouts, data collection practices, selection bias, intervention integrity and blinding (39). Fifteen articles were assessed as weak (40-54), eight as moderate (55-62) and one as strong (63). Most papers were considered weak due to being cross-sectional in design and other bias metrics. See Appendices Table: 1 for further detail.

4.6.4: Study/article characteristics

All 24 articles included in the data extraction are peer-reviewed, all were published between 1997-2021, and 17 studies were conducted initially between 1991-2018. The articles primarily reported on data from remote or rural regions, with several reporting on urban and remote/rural data. Most articles (n=12) were on studies conducted in Canada describing studies with one or multiple First Nations, James Bay Cree or Inuit Peoples. Six articles were on studies conducted in Greenland, all referring to the Inuit Peoples. The United States of America was represented with three articles, with two involving the Yup'ik Peoples and one referring to Alaskan Natives. Australia was represented with an article focusing on the Torres Strait Islander People. One study in Ecuador involved the Amerindian Peoples, and one in Russia involved the Nenets Peoples.

The following areas of focus concerning health outcomes were: diet quality, attitudes and beliefs (n=1) (63), selenium blood levels (n=1) (47), hypertension/blood pressure (n=1) (54), white matter hyperintensities (n=1) (43), vitamin A (n=1) (48), type 2 diabetes and cardiovascular health (n=1) (53), vitamin D/serum 25 (OH)D (n=2) (40, 56), psychological distress or depressive symptoms (n=3) (55, 57, 58), the association of marine seafood with fatty acids (n=6) (42, 44-46, 52, 60), and, a range of cardiovascular conditions or health-related biomarkers (n=7) (41, 49-51, 59, 61, 62). See Table 4:3 for further article characteristic details.

Table 4:3 - Study/article characteristics

Author/Date	Study design	Start and end date	Indigenous Peoples Group	Country and region	Setting (urban, rural, remote)	Study aims	Marine seafood
Hansen 2004.	The study is part of Greenland's Danish National Implementation Plan of the AMAP human health sub-programme (Cross-sectional).	1999-2001.	Inuit.	Greenland Ittoqqortoormiit, Tasiilaq and Uummannaq.	Remote.	Assess the Selenium blood levels of the Inuit in Greenland, which consumes marine species.	Muktuk, fish meat and seal meat.
Luick 2014.	Cross-Sectional study.	December 2003 till March 2005.	Yupik.	Alaska (USA) 6 remote communities from the Yukon Kuskokwim River Delta.	Remote.	Investigate serum 25-hydroxyvitamin D (25(OH)D) concentrations of the Yup'ik People of southwestern Alaska concerning demographic and lifestyle variables, particularly with the use of locally harvested (local) foods.	Fish contribution is 90.1% of significant Vitamin D consumption. Whitefish 35.4%, Salmon 26.8%, Herring 13.1%, blackfish 4.1% and Pike 3.1%.
Bersamin 2019.	A participatory approach to designing the Neqa Elicarvigmun program.	N.D.	Yup'ik.	Alaska (USA).	One rural community and one remote community.	Evaluate the preliminary efficacy of a school-based intervention Neqa Elicarvigmun or the Fish to-School Program on diet quality, fish intake, and attitudes	Fish and marine mammals (nitrogen stable isotope ratio of hair).

						And beliefs around traditional foods (specifically fish).	
Petrenya 2012.	Cross-sectional study.	2008-2009.	Nenets.	Russia.	Remote and rural.	Compare serum lipid profiles of residents of urban (Arkhangelsk city) and rural (NAO) regions of Arkhangelsk County, and investigate the effects of fish consumption on the predictor of cardiovascular events Apolipoprotein (Apo) B/Apo A-I ratio.	Fish (oily fish), salmon, mackerel, herring.
Panunescu 2013.	A longitudinal study (cross-sectional).	2000.	Inuit.	Greenland.	Remote.	Examine the relationship between omega-3 and omega-6 PUFA status and quantitative ultrasound (QUS) parameters in Greenlandic Inuit women.	Fatty fish and marine mammal fat.
DelBrutto 2021.	Population cross-sectional design.	ND.	Amerindian ancestry.	Ecuador (Atahualpa, El Tambo and Prosperidad).	Rural.	Assess the association between oily fish intake and WMH (white matter hyperintensities) severity in a population of frequent fish consumers.	Pacific bumper fish, pacific mackerel, short jaw leatherjacket, pacific thread herring and sardine.
Marushka 2018.	Cross-sectional study.	2008-2018 study data from FN food and nutrition	First nations.	Canada (British Columbia).	Rural and remote.	Describe seafood consumption patterns in First Nations (FN) in British Columbia (BC) and examine lifestyle characteristics associated with seafood consumption. Identify the top ten	Salmon, shellfish and sea mammals.

		and environment study.				most consumed seafood species and their contributions to EPA and DHA intake; and estimate dietary exposure to methylmercury, polychlorinated biphenyls and dichloro-diphenyl dichloroethylene.	
Mansuri 2016.	Cross-sectional analysis.	2003-2005 (using data from this survey).	First Nations.	Canada (Ontario).	Remote.	Investigate the determinants of serum 25(OH) status in a First Nations community in Ontario, Canada, with a focus on the role of traditional food consumption and activities.	Whitefish, pickerel, northern pike, goldeye, burbot, sturgeon, trout, fried fish guts.
Lucas 2010.	Quantitative.	2004.	Nunavik Inuit.	Canada.	Remote.	Examine the relationship between red blood cell (RBC) omega-3 (n-3) long-chain Polyunsaturated fatty acids (LC-PUFAs) and usual dietary marine food.	Marine mammal fat, fish.
Lucas 2004.	Quantitative.	1993-1996.	Inuit.	Nunavik region of Quebec, Canada.	Remote.	Determine the impact of marine n-3 HUFA on Nunavik mothers' GA and their newborns' anthropometric characteristics while controlling for the effects of environmental contaminants.	Marine mammals and fish.
Lucas 2009.	Populational cross-sectional.	1991.	James Bay Cree.	Canada Quebec.	Remote.	Examine the relationship between psychological distress (PD) and plasma n-3 long-chain (LC) PUFA, i.e. EPA,	Fish.

						docosapentaenoic acid (DPA _n -3) and DHA.	
Lucas 2009.	Quantitative.	1992.	Inuit.	Nunavik Canada.	Remote.	Examine the relationship between psychological distress (PD) and plasma n-3 among 368 Nunavik Inuit aged 18-74.	Fish.
Hu 2017.	Survey data.	2007-08.	Inuit.	Canada.	Remote.	Describe the modern Inuit diet, the eicosapentaenoic acid (EPA), docosahexaenoic acid (DHA) and methyl mercury (MeHg) intake and estimate their contributions to the risk of MI. Assess the effect of promoting the consumption of more traditional food on Inuit's MI Risk.	Arctic char, ringed seal, beluga, narwhal, whitefish, salmon, herring.
Hu 2018.	Cross-sectional population health and nutrition survey.	2007-08.	Inuit.	Nunavut, Nunatsiavut and Inuvialuit Settlement Regions Canada.	Remote.	Identify contemporary dietary patterns among Inuit and investigate their association with cardiovascular disease outcomes.	Muktuk, fat and fish.
Egeland 2004.	Quantitative.	1998-1999.	Inuit (Canada).	18 communities representing 5 Inuit regions in Canada.	Remote.	Evaluate total dietary vitamin A intake for Canadian units from market food and traditional food sources in the Arctic and assess the retinol concentrations in liver and fat.	Blubber: beluga, narwhal, walrus, ringed seal, Liver: Ringed seal, Loche liver.

Dewailly 2001.	Quantitative.	1992 survey data was collected.	Cree.	Canada (Nunavik).	Remote and rural.	Verify the relation between plasma phospholipid concentrations of the n3 fatty acids eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) and various cardiovascular disease risk factors among the Inuit of Nunavik, Canada.	Fish and marine mammals (meat, fat, skin, liver).
Dewailly 2003.	Quantitative.	1990-1992.	Cree and Inuit.	Canada (Quebec), James Bay Cree (southern Quebec, and Inuit of Nunavik of Northern Quebec.	Remote and rural.	Compare fish intake and plasma phospholipid concentrations of EPA+ DHA in the three populations. Compare the relations between EPA +DHA and plasma HDL cholesterol and triglycerides.	Fish.
Dewailly 2002.	Healthy survey data from 1991.	1991 data were collected, and blood samples were analysed in 1998.	Cree.	Canada.	Remote and rural.	Examine the profile of plasma phospholipid concentrations of the n3 fatty acids eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) among James Bay Cree and verify the relation between these concentrations and CVD risk factors.	Fish.
Bjerregeerd 2000.	Quantitative (cross-sectional/observational study).	1993-1994.	Inuit.	Greenland, west coast (3	Remote and rural.	Analyse associations between seafood and risk factors associated with cardiovascular (lipid profile, blood glucose,	Meat, blubber and organs of Marine mammals (PCB and Hg used as

				towns and four villages).		blood pressure and obesity) for this population as they have a high intake of n-3 fatty acids.	markers associated with marine intake).
Bjerregeerd 1997.	Cross-sectional study.	1993-1994.	Inuit.	Greenland.	Remote, rural and urban.	Analyse behavioural, clinical and serological cardiovascular risk factors for IHD in Greenlanders.	Seal, whale, and saltwater fish.
Bjerregeerd . 2003.	Cross-sectional study.	1993-94 and 1999-2001.	Inuit.	Greenland (Nuuk, Qasigiannnguit, and four villages in the district of Ummannaq (Ikerasak, Saattut, Qaarsut, and Ukkussissat).	Remote, rural and urban.	Determine the risk factor pattern between Inuit (who generally have a high marine diet compared to the general European population) and type 2 diabetes and cardiovascular disease compared to the European population.	Fish and Marine Mammals.
Bjerregeerd 2013.	Information was taken from the country's health survey.	2005-2009.	Inuit.	Greenland.	Remote and rural.	Explore the association between dietary omega-3 fatty acids and serum lipids in a population with a high intake of marine food. To test interaction with sex and ethnicity.	Fish and marine mammals, Marine food (taken from countrywide health survey 2005-2009).
Berger 2018.	Cross-Sectional Study.	October, November and December 2016.	Torres Strait Islander People	Australia Torres Strait Islands (Australia) Islands (Mer and Waiben)	Remote.	Investigate the associations between fish consumption and LCPUFA levels with depressive symptoms.	Fish, octopuses, crayfish, crabs, prawns, oysters and clams are being reported.

				Islands/communities.			
Beaulieu-Jones 2015.	Cross-Sectional study data from the CANHR study, a community-based participatory research study.	2003-2008.	Alaska Native People (not specified precisely what language or People's group) mainly refer to Yup'ik Peoples.	Alaska (USA).	Remote.	Examine whether sex, adiposity, and hypertension modify the inverse association between marine food intake and blood pressure.	Primarily fish and seal oil contributed 69% of the 22% of traditional food intake.

4.7 Synthesis: dietary collection instrument and marine seafood type

In total, a wide variety of marine seafood species were reported. Generic or local Indigenous terms were more commonly applied than the consistent use of scientific names of marine species. The most frequently reported marine seafood type as crucial to Indigenous Peoples diets was fish (salmon, whitefish, blackfish, pike, arctic char, bumper fish, mackerel, short jaw, sardine, herring, fish guts), followed by marine mammals such as whale (blubber, muktuk, beluga, narwhal, whale liver) and seal (ringed, seal oil, seal meat). Other marine seafood species mentioned were octopus, crayfish, crab, prawns, oysters, clams, and shellfish. For marine seafood, details see Table 4:3.

Seven articles described food frequency questionnaires (FFQ) as the dietary data method used (41, 43, 47, 50, 55, 56, 62). Six articles did not use or mention a dietary collection method as pre-collected nutritional and biochemical data were used (42, 45, 51, 52, 57, 58). Five articles used FFQ and 24-hour dietary recall methods (44, 46, 49, 53, 59). Four used 24-hour recalls only (54, 60, 61, 63). One used 24-hour dietary recalls and 3-day FFQ (40). One article used 24-hour dietary recalls and seven-day and three-month FFQ (48). See Table 4:4.

Table 4:4 - Participant description, outcomes, dietary collection instrument and reported findings

Author Date	Bias assessment tool rating (EPHPP)	Participants Description	Outcome Measures	Reported Health Outcome	Dietary collection instrument	Findings/results
Hansen 2004.	Weak.	Ittoqqortoormiit: 52 men, 42 women; Tasiilaq: 40 men, 48 women; Uummannaq: 48 men.	Whole blood concentrations of selenium.	Higher intakes of traditional food marine species were associated with higher blood selenium levels, and the inverse was observed for smokers.	14-item food frequency questionnaires, FFQ adapted from Willet (1998) (validated).	In the Greenland Inuit population, the dietary intake of selenium is sufficient. It can, in specific individuals, reach a level where adverse effects could be expected, but no clinical signs of selenosis have been reported. The selenium supply is related to the traditional marine diet. Still, as a rapid dietary transition is ongoing towards a western lifestyle, the dietary intake level is suspected to decrease to an inadequate level, as shown in several European countries.
Luick 2014.	Weak.	Yup'ik in Alaska in the Yukon river delta region where the population is 16,500. The median age in the area is 23.5 compared to the USA's median age of 35.3.	Reporting on serum hydro (OH) D, the relationship between age, BMI.	Higher vitamin D intakes are associated with traditional food, particularly seafood intake and away from this could put	Diet was assessed using interviewer-administrated 24-hour recall (24hr); a sub-sample of participants (n=293) also completed a 3-day diet record—24hr dietary recall software (Nutrition Data System for Research [NDS-R] software version 4.06.	Dietary serum Vitamin D was positively associated with the consumption of local foods. The mean serum 25(OH)D across all participants was sufficient (greater and equal to 50nmol/L). Estimated calcium intakes largely failed to meet current dietary recommendations. Dietary vitamin D was derived mainly from locally harvested foods. Fish, primarily locally

				Native Alaskans at risk of 25(OH)D deficiency risk.		harvested whitefish, salmon, and herring, was the primary source of Vitamin D. Milk was ranked 6th of all dietary vitamin D sources at 3% of the total. Also, milk was the primary market source of vitamin D, followed by cereals 1.2% and eggs 1.1%. Synthesising and non-synthesising months didn't affect Vitamin D concentration; however, the serum 25 (OH)D was strongly correlated with age, and youth were more likely to have low serum 25(OH)D and constitute an age group known to consume more market foods and less energy from vitamin D rich local seafood.
Bersamin 2019.	Strong.	Middle and high school Yup'ik students.	24hr recall and a validated biomarker of fish and marine mammal intake, nitrogen isotope ratio hair.	Programs that reconnect Indigenous youth with their traditional food system may be used to promote food security and improve diet quality. The intervention group had improved diet	24-hour recall that was administered by a certified interviewer using a computer-assisted nutrition data system for research (NDS-R).	Overall the rate of improvement in diet quality was 4.57 times greater in the intervention group relative to the comparison group. However, the overall improvement was modest; the rate of increase in fish intake measured using the biomarker was 0.16 times greater in the intervention relative to the comparison group.

				quality by 4.57 units compared to the comparison group.		
Petrenya 2012	Weak.	In the rural area of the Nenets Autonomous Okrug (NAO) in Russia, Arctic region, most NAO participants had ethnic Nenets for parents (68% of men and 82.6% of women from NAO). The sample consisted of 300 subjects between 18 and 77 years of age (54 males and 246 females). In total, 28 men (16.9%) and 138 women (83.1%) from Arkhangelsk city and 26 men (19.4%) and 108 women (80.6%) from the village of Nelmin-Nos were enrolled.	ApoB and ApoA-I ratio and Bmi, age and consumption of oily fish.	It is reported that fish consumption did not affect ApoB and ApoA-I profiles.	Fish consumption in grams/day was estimated using a food frequency questionnaire. Information about portion size for the first fish item (boiled cod, haddock and saithe) was derived from the question for boiled fish meal and information about portion size for the second fish item (fried cod, haddock and saithe) was derived from the question for fried fishmeal. National Russian food composition tables were used.	Results suggest that the rural population of the Arkhangelsk region have a relatively favourable lipid profile compared to the urban Arkhangelsk population. Age, BMI, physical activity and the amount of fat consumed from meat dishes were predictors of the ApoB/ApoA-I ratio. However, fish consumption did not affect the apolipoproteins profile.

Panunescu 2013.	Weak.	118 Inuit women from Nuuk (Greenland), aged 49-64 years.	N-3/n-6 ratios. EPA and DHA, BUA (broadband ultrasound attenuation)	Dietary marine consumption may affect bone quality and strength positively due to a higher n-3/n-6 PUFA ratio and EPA and DHA.	No diet was recorded. Biochemical measurements were used.	Bone intrinsic quality and strength increased with the content of long-chain omega-3 PUFAs and with a higher total omega-3/total omega-6 ratio in erythrocyte membrane phospholipids of Greenlandic Inuit women living in Nuuk. In addition, the frequent consumption of fatty fish and marine mammal fat provides intakes of EPA and DHA that favour bone health in these Inuit women.
DelBrutto 2021	Weak.	Participants were 60 years or older, had Amerindian ancestry, and lived in the coastal villages of Ecuador.	Amount of oily fish intake as a continuous variable and the presence of moderate-to-severe white matter hyperintensities	Dietary intake of oily fish was significantly higher among individuals with none-to-mild than in those with moderate-to-severe white matter hyperintensities (inverse association)	Fish intake was assessed via a questionnaire and then quantified using weighed food assessment.	Increased dietary oily fish intake is associated with lower severity of white matter hyperintensities. In practical terms, however, ingesting more than eight servings per week is difficult to sustain in persons not used to eating fish daily or those with other options for getting animal protein from food. Since this amount of oily fish roughly corresponds to 10 grams of n-3 PUFAs, this requirement could be more readily accomplished (in other populations) by taking commercially available fish oil preparations. For individuals trying to compensate for insufficient amounts of dietary oily fish intake by taking fish oil preparations, it would be warranted to add supplements of vitamin D, and selenium since the effect of oily fish on white matter hyperintensities

						severity and stroke prevention may not be exclusively related to their content of v-PUFAs
Marushka 2018.	Weak.	First Nations of 1103 People living in twenty-one communities across eight ecozones in British Columbia, Canada.	EPA and DHA levels	Marine seafood intake was associated with First Nations People reaching their recommended amounts to achieve a healthy lifestyle.	24 hr recall and traditional FFQ 208 traditional foods items.	Seafood continues to be an essential part of the contemporary diet, especially among Older First Nation. Seafood consumption contributed significantly to the intake of EPA +DHA, reaching dietary recommendations, and was associated with a healthier lifestyle. Seafood species mostly consumed were low in contaminants. Salmon remained the most consumed seafood and an important source of essential nutrients. Given numerous health benefits, seafood consumption should be promoted in British Columbia First Nation, especially among the younger generation, to prevent the development of chronic disease. Efforts towards the sustainability of fishing should be directed to maintain and improve access to fisheries for First Nation.
Mansuri 2016	Moderate.	First Nations, Sandy Lake Health District, Ontario, Canada. A total of 445 participants were older than 12.	25 (OH) D concentrations, BMI and dietary consumption of market foods.	Higher concentrations of vitamin D were associated with traditional	Food frequency questionnaire (not validated).	Findings of negative associations of 25(OH)D with BMI and TV watching were observed, and positive associations with spring/summer season and physical activity were found to be consistent with what had - been reported previously. Among

				marine food consumption.		study participants, women had lower 25(OH)D concentrations than men. Results suggest that the consumption of traditional foods (wild fish, in particular) contributes independently to better vitamin D status in a northern First Nations community with a high prevalence of sub-optimal vitamin D status. Understanding the determinants of 25(OH)D levels may assist in identifying those at risk of low vitamin D status and increasing awareness about foods and practices that contribute to healthy vitamin D status.
Lucas 2010	Weak.	630 Nunavik Inuit adults across 14 Nunavik communities.	N-3, LCPUFA, RBC.	Marine mammal fat dietary intake is associated with higher RBC n-3 LCPUFA levels among Inuit.	24hr recall and FFQ (validated), Canadian nutrient file (2005).	Multivariate analysis indicated that age is the most critical factor in explaining RBCn-3LC-PUFA levels among the Inuit of Nunavik. In addition, marine mammal fat intake blubber made from seal and beluga) was found to be more critical than fish for RBCn-3LC-PUFA levels.
Lucas 2004.	Weak.	51.5% (n=234) from Hudson Bay and 48.5% (n=220) from Ungava bay. The participants come from 14 villages along the coast, with their infants born at	FA in umbilical cord plasma phospholipids: HUFA, MUFA, EPA and DHA, N-3.	High intakes of seafood and an increase in the proportion of umbilical cord plasma PL of n-3 HUFA (of the	No diet was recorded. Biochemical measurements were used.	There was no evidence that contaminants negatively affected gestational age or birth weight. In this seafood-eating population, an increase in the proportion of n-3 HUFA (of the total HUFA), measured in umbilical cord plasma phospholipids, was

		the Tulattavik Health Centre (Ungava bay) and Innulitsivik Health Centre Uhudson Bay).		total HUFA) were associated with significantly longer gestational age.		associated with significantly longer gestational age.
Lucas 2009	Moderate.	852 James Bay Cree First Nations adults aged 18 years and over.	EPA was the only Individual n-3 FA associated with the risk of psychological distress.	N-3 LCPUFA were inversely associated with PD from fish intakes; however, this may have been influenced by other factors.	No diet was recorded. Biochemical measurements were used.	n-3 LC PUFA proportions in plasma PL, a marker of n-3 LC PUFA consumption from fish, were inversely associated with PD. These observations were reported to be consistent with other investigations indicating an effect of n-3 LC PUFA in mood disorders. However, the authors cautioned that the causal relationship between n-3 LCPUFA in plasma PL and mood in this population should be established prospectively.
Lucas 2009	Moderate.	Nunavik Inuit, aged 18–74 years, took part in a survey in 1992.	EPA and DHA and total n-3.	Men had no inverse association with psychological distress, and women had higher EPA and DHA concentrations (a marker of	No diet was recorded. Biochemical measurements were used.	Findings suggest that marine n–3 may affect Inuit women's psychological distress. The authors reported that the gender difference observed in the analysis must be examined more carefully in future studies.

				marine consumption) that may be inversely associated with PD.		
Hu 2017	Moderate.	Inuit International Polar Year Inuit Health Survey (IHS) was a comprehensive health and nutrition survey conducted in 2007–8 with 2072 participants (aged 18–79) in Canada.	Blood n-3 PUFA levels, EPA and DHA, MeHg.	Inuit traditional marine diet intakes benefit myocardial infarction through increased EPA and DHA and lower methyl mercury.	FFQ (validated) Canadian nutrient file.	In the Inuit diet, the beneficial effect on Myocardial infarction of EPA and DHA is diminished by the adverse impact of MeHg. Therefore, promoting increased consumption of fish species with high EPA+DHA and low MeHg may help prevent MI among Inuit.
Hu 2018	Moderate.	1,570 adults (aged ≥18 years) from Nunavut in the International Polar Year Inuit Health Survey 2007-2008.	Outcomes measured included the prevalence of coronary Heart disease, myocardial infarction, stroke, hyperlipidaemia, and hypertension.	A diet with higher intakes of fish and low sugar was negatively associated with cardiovascular outcomes amongst Inuit.	24-hour recall and traditional FFQ (validated).	A diet featuring high food variety, high fish intake, and low sugar intake was negatively associated with the prevalence of cardiovascular outcomes among Inuit. Three dietary patterns were identified: market food, country food fat, and country food fish. The country food fish diet, characterised by high consumption of diverse fish species and low intake of sugars and sweets, was inversely associated with the prevalence of coronary heart disease, myocardial infarction, stroke, and hyperlipidaemia.

Egeland 2004	Weak.	39 communities' representatives across Inuit regions in Canada, including 18 Inuit communities for the dietary surveys	Dietary vitamin A intake.	Assessment of vitamin A intake amongst Inuit populations shows that particular species may yield high information on vitamin A across all age groups. Therefore, the reported outcome of the study is through the assessment of dietary liver and blubber retinol amounts.	24hr dietary recall questionnaire was administered in participants' homes, and the interviewers used locally available portion models. In addition, for traditional food, a seven-day and 3-month frequency questionnaire was administered.	Among those 15–40 years of age, 68% of men and 60% of women had a dietary vitamin A intake below the estimated average requirement (EAR) for retinol activity equivalents (RAE)/day. Among those over 40, only 11% of men and 15% of women had a dietary vitamin A intake below the EAR. Young Inuit men had a relative risk of 6.2 (95% CI= 4.5–8.4), and young Inuit women had a comparable chance of 4.0 (95% CI= 3.1–5.0) for dietary inadequacy compared to the older Inuit men and women, respectively. The median retinol content of the liver of ringed seals, caribou, and fish was comparable to levels observed in market food liver. However, the liver was less frequently consumed by those 15–40 years of age than among older Inuit.
Dewailly 2001	Weak.	Inuit People who live in Nunavik.	N-3, HDL and triglycerides.	A traditional Inuit diet with marine products may protect against ischemic health diseases	The dietary assessment included the 24hr diet recall and food frequency questionnaire administered by the nurse. The 24hr recall measured the amounts of marine foods consumed by the Inuit community. Traditional	Despite the high prevalence of obesity and smoking among the Inuit of Nunavik, the mortality rate of IHD is low in this population, most likely because of their traditional diet rich in n3 fatty acids. Our study showed some benefits of n3 fatty acids (derived from marine sources) on CVD risk, notably

				in Inuit People.	foods refer to 23 food items (including several parts of the animal). In addition, the frequency of consumption was recorded for four seasons.	increased HDL-cholesterol and reduced triacylglycerol concentrations.
Dewailly 2003	Moderate.	Non-institutionalised men and women were aged 19-74 years (1323 men and 1480 women). The composition of the study population for ethnicity was as follows: 52% Québécois (n = 1460, mean age = 40.1 yr.), 33% Cree (n = 917, mean age = 35.2 yr.), and 15% Inuit (n = 426, mean age = 38.2 yr.).	The primary objective of these surveys was to collect information on physical, social, and psychosocial health with a particular focus on "heart health".	That Cree and Inuit would have higher phospholipid concentrations of n-3 fatty acids than Québécois due to the higher intakes in the diet.	Fish intake data were obtained using a 24-h dietary recall administered by nurses and nutritionists during the face-to-face interviews conducted in participants' homes. Fish intake comprised intake of fish, shellfish, and marine mammals. Models of standardised portions were used to define and describe the amounts of food eaten by the participants.	Concentrations of EPA + DHA in plasma phospholipids were highest among Inuit (8.0%), second-highest among Cree (3.9%), and lowest among Québécois (1.8%). When the three populations were grouped, there was a positive association between concentrations of EPA + DHA stratified into quartiles and HDL cholesterol, with a significant relation in quartile 4 (EPA + DHA \geq 4.04%). An inverse association was also found between EPA + DHA and triacylglycerols in quartile 4. Results indicate that increased fish consumption as a source of n-3 fatty acids is beneficially associated with HDL cholesterol levels and triacylglycerols.
Dewailly 2002	Moderate.	18-74 yrs	EPA and DHA, and N-3 fatty acids.	Traditional fish-based diets may protect against cardiovascular disease.	Daily fish intake data were obtained using a 24-h dietary recall questionnaire administered by a trained nurse during a face-to-face at-home interview. The	n3 Fatty acids may favourably influence some CVD risk factors. The authors recommended that the Cree population be encouraged to maintain their traditional fish-based diet, which may be one of the factors protecting

					interview permitted the recording a detailed and precise description of foods consumed in the preceding 24 h. Models of standardised portions were used to define and describe the amounts of food eaten by the respondents.	them against mortality from CVD. n-3 Fatty acids were higher among coastal residents than among inland residents. A positive association was observed between plasma HDL and n3 fatty acids. EPA and EPA+DHA were inversely associated with triacylglycerols. Among subjects aged 50–74 y, an inverse association was observed between EPA and EPA: AA and total cholesterol.
Bjerregeer rd 2000	Weak.	121 men and 138 women	Plasma n-3 fatty acids.	Positive correlations of a marine diet with HDL, including an inverse association with VLDL and triglyceride, were observed (not all statistically significant due to the small number of cases).	The dietary questionnaire was developed specifically for this study since no standardised questionnaires on traditional Greenlandic food were available. The questionnaire was of the food frequency type and included questions on traditional Greenlandic food and specific imported food categories. In addition, there were four questions about Specific Greenlandic food items, i.e. seal, whale, wildfowl and fish, and four questions on Greenlandic food in general, i.e. consumption during spring, summer, fall and winter.	Marine diet was positively associated with serum high-density lipoprotein (HDL) and blood glucose and inversely related to very-low-density lipoprotein (VLDL) and triglyceride. Association with low-density lipoprotein (LDL), diastolic and systolic blood pressure, waist ± hip ratio, and body mass index were inconsistent and not statistically significant. The pattern was similar within groups with low, medium and high marine food consumption. There were statistically significant associations between the consumption of marine food and specific lipid fractions in the blood and in this population with a very high average intake of marine food. The authors noted that the observation that blood glucose is positively associated with

						marine diet in a population survey is new and should be repeated. There was good agreement between the results for the reported consumption of seal and those for the biomarkers.
Bjerregeerd 1997.	Weak.	West Greenlanders Males 18-59 were under represented in the study. The patients were categorised as either traditional or westernised, depending on their place of birth, knowledge, and occupation. The traditional group was older mean ages were 34 and 45, respectively.	n-6/n-3 ratio, triglycerides, blood pressure, total cholesterol and mono unsaturated fatty acids.	A decrease in triglyceride concentration and n-6/n3 ratio may be associated with a lower incidence of coronary heart deaths. However, changes in blood pressure, total cholesterol, and monounsaturated fatty acids were not statistically significant.	They were not stated.	Consumption of seal was estimated to be 8.9 meals per month, 4.2 meals of whale per month, and 8.5 meals of fish per month; the consumption was higher in the sub-sample (p=0.0007). This may improve the triglyceride concentrations and n-6/n-3 ratio. While IHD risk may be reduced from consumption of a marine diet, genetic risk, smoking prevalence, and physical activity must be promoted, there is also a concern that increasing a marine diet may also increase the consumption of toxins and organic compounds.
Bjerregeerd 2003.	Weak.	Inuit Greenlanders living in Greenland and Denmark 18 years and older	It is reported that a marine-rich diet impacts HDL and reduces	A marine diet reduces some risk factors associated with	Diet was measured using dietary surveys, including a 24hr recall, and questionnaires on food	The authors concluded that the relationship between cardiovascular risk and marine diet among the Inuit is far from explained. Further studies with a longitudinal design are needed

			LDL and triglycerides, which reduce risk factors of cardiovascular disease and diabetes amongst Inuit. However, other factors, such as smoking, increase the risk factors, and the conclusion that a marine diet on reducing risk factors is far from being explained.	cardiovascular disease and diabetes amongst Inuit.	frequency with portion sizes.	to provide additional perspectives on these issues. HDL is positively associated with a marine diet, while LDL and triglycerides are negatively associated with a marine diet.
Bjerregeerd 2013	Weak.	While the initial survey was countrywide, this study focused just on the Inuit, and after the exclusion criteria were applied, the remaining base was 2280. In addition, the participants had to self-identify as Inuit.	HDL, LDL and triglycerides.	Marine dietary intake was positively associated with increased HDL and LDL and decreased triglyceride amongst Greenlanders to reduce	No diet was recorded. Biochemical measurements were used.	HDL increased with the concentration of EPA in RBC. LDL also increased while serum triglyceride decreased. VHDL was significantly higher amongst women than men and among participants with full Inuit ancestry.

				potential cardio vascular risk factors.		
Berger 2018	Moderate.	Aboriginal and Torres Strait Islanders with n=19 participants with moderate/ severe depressive symptoms and n=187 with no/mild depressive symptoms.	n-6 PUFA and blood PUFA status and depressive symptoms.	Significant positive associations between fish and seafood consumption with n-3 LCPUFA, a negative association between takeaway food consumption with n-3 LCPUFA, and an association between the n-6/3 PUFA ratio and low levels of n-3 LCPUFA with depressive symptoms.	Food questionnaire.	Demographic results and diet showed no significant differences in age and gender distribution between participants at both study sites. Mer participants reported significantly higher seafood consumption and lower takeaway consumption than participants on Waiben. The authors reported not observing a consistent direct association between dietary intake of fish and seafood and depressive symptoms. This may seem surprising, given that fish and seafood are the primary sources of EPA and DHA. However, the lack of association is consistent with previous large-scale studies that failed to observe associations between dietary fish intake and depression while showing significant associations between n-3 LCPUFA levels with depression.
Beaulieu-Jones 2015	Weak.	Yup'ik Alaskan Natives. 56% were overweight or obese, 47.5% were male, and 7% were	Diastolic and systolic blood pressure in men.	The inverse association of marine food intake with systolic and	Nutritional intake was assessed by using 24hr recall interviews (n=547). The portion sizes were estimated using methods	In this Yup'ik study population, the inverse association between marine food intake and diastolic blood pressure was observed in both men and women. However, marine food intake

		clinically hypertensive.		diastolic blood pressure was more significant in non-obese individuals—a more prominent inverse association between marine food intake and systolic blood pressure in men than in women.	developed by the Fred Hutchinson Cancer Research Centre. Nutrient analysis was conducted using the University of Minnesota Nutrition Data System for Research. (NDS-R; R: software version 4.06, 2003). If foods were missing from the database, they were substituted, or an item was added.	was associated only with systolic blood pressure in men.
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4.8 Synthesis: reported health outcome measures

4.8.1: *Mental health-related outcomes*

Three studies report on mental health-related outcomes. One reported that dietary intake of marine seafood and takeaway food impacts the n-3 long-chain polyunsaturated fatty acids (PUFA) levels and, therefore, has the potential to impact depressive symptoms for Torres Strait Islander People (55). In addition, one article reported that eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) plasma concentrations as a result of marine intake were inversely associated with psychological distress for Inuit women (58). Finally, one article identified that n-3 long chain poly unsaturated fatty acids (LCPUFA) was inversely related to psychological distress, which may result from fish intake (57).

4.8.2: *Lipid related outcomes*

Six studies report on lipid-related outcomes. One concluded that an inverse association of marine food intake with systolic and diastolic blood pressure was more significant in non-obese compared to individuals with obesity (54). One study reported that marine dietary intake might reduce some risk factors associated with cardiovascular and diabetes among Inuit Peoples (53). One study reported a statistically significant association between marine nutritional information and decreased triglyceride concentration and n-3 to n-6 ratio, which the authors reported may be associated with a lower incidence of coronary heart deaths of Indigenous Peoples. However, in this same study, no statistically significant associations between marine dietary intake and blood pressure, total cholesterol and monounsaturated fatty acids (MUFA) were observed (51). One study showed positive correlations between a marine diet with high-density lipoprotein (HDL) and inverse associations with very low-density lipoprotein (VLDL) and triglyceride concentrations that did not reach statistical significance (50). One article reported that higher consumption of marine seafood recorded higher highly unsaturated fatty acids (HUFA) in umbilical cord plasma and was associated with longer gestational age (45). One article reported that for the Inuit, marine mammal fat provides the highest source of red blood cell LCPUFA (46).

4.8.3: *Cardio-metabolic-related outcomes*

Seven studies report on cardio-metabolic-related outcomes. One study reported an association between marine dietary intake and elevated HDL and LDL and decreased

triglyceride concentrations which the authors reported may be associated with lower cardiovascular risk factors (52). One study reported that Cree and Inuit, who consumed higher concentrations of marine dietary intakes, had higher levels of n-3 fatty acids than non-Indigenous Peoples in the same region, which may benefit heart health (60). One study reported that a fish-based diet might protect against cardiovascular disease by influencing n-3 fatty acids (61). Another also reported that an Inuit diet with marine products might protect against ischemic health disease for Inuit Peoples through increased n-3 fatty acids (49). One article demonstrated that Inuit traditional marine diet intakes are beneficial for myocardial infarction through increased LCPUFA, EPA and DHA; however, for modern Inuit, consumption may not be substantial enough to provide this benefit (62). One study reported that fish consumption by the Nenets People in the Arctic did not affect ApoB and ApoA-I ratios for improved cardiovascular outcomes (41). One study reported that oily fish consumption was inversely associated with white matter hypersensitivities for reducing strokes among Amerindian People (43).

4.8.4: *Vitamin and mineral-related outcomes*

Four studies focus on vitamin and mineral-related outcomes. One study reported that dietary liver and blubber assessment might increase retinol levels for Inuit populations as older populations who consumed higher amounts of traditional marine food sources than younger populations had higher retinol levels (48). One article reported that selenium intakes are associated with aquatic diets for Inuit Peoples, and a transition to a western-style diet may adversely impact this (47). Finally, two articles reported that higher increased marine dietary intake was associated with higher vitamin D; and a shift away from the traditional diet for Inuit and First Nations respectively, could see vitamin D deficiency risk (40, 56).

4.8.5: *Diabetes-related outcomes*

One article reported that Inuit diets with traditional intakes of primarily fish and low sugar were negatively associated with cardiovascular outcomes (59).

4.8.6: *Bone quality-related outcomes*

One article reported that consumption of dietary marine seafood for Inuit women due to the increased EPA, DHA and n-3/n-6 PUFA ratio might improve bone quality and strength (42).

4.8.7: *Diet quality-related outcomes*

Two studies report on diet quality-related outcomes. One study on diet quality reported that fish intake for school children was associated with higher overall diet quality than the non-fish school children (63). One study reported that seafood consumption patterns was associated with high fruit and vegetable intake and recommended intakes of EPA and DPA for First Nations Peoples (44).

4.9 Synthesis: Indigenous People's representation

Fifteen out of 24 articles did not mention Indigenous engagement. In the nine that mentioned engagement it was reported as Indigenous Peoples being involved in the design, data collection, review, authorship or how the research benefits Indigenous communities, see Table 4:5.

Table 4:5 - Indigenous representation

Author Date	Indigenous Involvement	Indigenous community benefits
Hansen 2004.	No Indigenous involvement was stated.	Not stated how this study benefits the Indigenous communities.
Luick 2014.	A local field assistant was hired (not stated if they are Indigenous).	Not stated how this study benefits the Indigenous communities.
Bersamin 2019.	The study Integrated a 'Yup'ik worldview', a community working group inclusive of Yup'ik values and traditions.	Influence policymakers to improve diet quality and risk of chronic disease for Alaskan Native high school and middle school children that strengthen ties to traditional food systems.
Petrenya 2012.	No Indigenous involvement was stated.	Not stated how this study benefits the Indigenous communities.
Panunescu 2013.	No Indigenous involvement was stated.	Not stated how this study benefits the Indigenous communities.
DelBrutto 2021.	No Indigenous involvement was stated.	Not stated how this study benefits the Indigenous communities.
Marushka 2018.	First Nations chiefs in assembly passed resolutions.	Given numerous health benefits, seafood consumption should be promoted in British Columbia First Nations, especially among the younger generation, to prevent the development of chronic disease. In addition, fishing sustainability efforts

		should be directed to maintain and improve access to fisheries for First Nations.
Mansuri 2016.	Sandy Lake First Nation community approved.	Findings were communicated to community members and stakeholders using a variety of approaches, and the information was incorporated into ongoing community-based prevention programming.
Lucas 2010.	No Indigenous involvement was stated; however, food questionnaire was conducted in local languages if needed.	Not stated how this study benefits the Indigenous communities.
Lucas 2004.	No Indigenous involvement was stated.	Not stated how this study benefits the Indigenous communities.
Lucas 2009.	No Indigenous involvement was stated.	Not stated how this study benefits the Indigenous communities.
Lucas 2008.	No Indigenous involvement was stated.	Not stated how this study benefits the Indigenous communities.
Hu 2017.	No Indigenous involvement was stated.	A comprehensive nutrition policy that accounts for contaminant exposure and food availability may be needed to promote heart health among Inuit in Canada.
Hu 2018	No Indigenous involvement was stated.	Not stated how this study benefits the Indigenous communities.
Egeland 2004.	Locally trained interviewers and the local language used when needed.	In Inuit communities, it is often iron, and Vitamin A deficiencies reported. Therefore, liver consumption could benefit both as iron is better consumed with vitamin A than alone.
Dewailly 2001.	No Indigenous involvement was stated.	Not stated how this study benefits the Indigenous communities.
Dewailly 2003.	No Indigenous involvement was stated.	Not stated how this study benefits the Indigenous communities
Dewailly 2002.	No Indigenous involvement was stated.	The Cree population must be encouraged to maintain or increase their consumption of traditional foods, i.e., fish, which contribute to the intake of n-3 fatty acids. The study results will allow health professionals to confidently promote the health

		benefits of fish consumption to the James Bay Cree.
Bjerregeerd 2000.	No Indigenous involvement was stated.	Not stated how this study benefits the Indigenous communities.
Bjerregeerd 1997.	No Indigenous engagement and no Indigenous perspectives.	Not stated how this study benefits the Indigenous communities.
Bjerregeerd 2003.	All interviews were done in the selected languages, including local Indigenous languages; however, it is not stated if the authors are Inuit or Inuit Peoples involved in the study design.	Not stated how this study benefits the Indigenous communities.
Bjerregeerd 2013.	No Indigenous involvement was stated.	Not stated how this study benefits the Indigenous communities.
Berger 2018.	A dedicated Torres Strait Islander Health Service conducted a programme and The local community council approved the study.	The association of dietary intake of fish/seafood and takeaway food, n-3 LCPUFA levels and depressive symptoms in the cross-sectional study in two Torres Strait Islander communities highlights the potential role of a traditional fish-based diet as a protective factor against depression. The authors report that a growing body of literature supports the notion that diet is an important modifiable risk factor for depression. Their findings align with this view and represent a potential explanatory model for epidemiological differences in depression prevalence in Indigenous populations.
Beaulieu-Jones 2015.	Cultural consultant Yukon-Kuskokwim Health Corporation Human Studies Committee.	Not stated how this study benefits the Indigenous communities

4.10 Indigenous involvement in design and implementation

Seven articles explicitly involved Indigenous communities and representatives at some point in the study. Three of these articles utilised locally trained interviewers who spoke the local language and implemented questionnaires in the local language (46, 48, 53). One article reported that a dedicated Torres Strait Islander Health Service administered the programme and sought local community approval (55). One article reported they utilised a cultural

consultant and sought permission from a local Indigenous health corporation committee (54). One study had the First Nations Chiefs in Assembly approve the research (44) and another had the Sandy Lake First Nations Community support the research (56)

4.10.1: *Dissemination of findings back to Indigenous communities*

One article communicated the findings to the community to ensure the information would be incorporated into ongoing community-based prevention (56). No other articles reported this.

4.10.2: *Indigenous knowledge representation in findings*

One article integrated a Yup'ik worldview that recognised and included values and traditions important for the Yup'ik Peoples and this study also acknowledges the sociocultural connections Yup'ik Peoples have with their Indigenous food systems including seafood (63). No other articles reported this.

4.10.3: *Indigenous advocacy*

Four articles communicated Indigenous advocacy towards policy or programs. One article recommended First Nations fisheries be supported to prevent diseases and recognised that greater access to fisheries is needed for First Nations Peoples (44). One article recognised that broader nutrition policies may be needed to address health for Inuit communities (62). One article also recommended policies to strengthen Yup'ik ties with their Indigenous food systems through strength-based measures (63). Finally, one article encouraged Cree Peoples to maintain and increase their access to and consumption of traditional foods (61).

4.10.4: *Synthesis: exploring relationships*

In line with a narrative synthesis approach, the findings of the individual articles are grouped to assess the data representation, as the articles have too much heterogeneity to complete a meta-analysis (35, 64). It is clear from the articles included in this review that the research focus was mainly on the physiological health outcomes of seafood consumption with less consideration of Indigenous values.

4.11 Discussion

This literature review presents a narrative synthesis of 24 peer-reviewed articles, which include research conducted in Australia, Greenland, Canada, Ecuador, Russia and the United States of America. While previous literature has identified the importance of seafood for physiological health benefits and contributions to food security for Indigenous Peoples (4, 6, 8, 9), this review takes this further by synthesising the literature from an Indigenous perspective to explore how the global health research has reported the health and wellbeing benefits of marine seafood for coastal Indigenous Peoples.

Overall the health and wellbeing benefits reported in the literature indicate that the dietary contribution of marine seafood to the health and wellbeing outcomes for coastal Indigenous Peoples is positive. The findings also suggest that the health literature has significantly emphasised the physiological health benefits of seafood for Indigenous Peoples in isolation of the collective ecological and socioecological values connected with seafood. This is an important finding as it has been shown that food for Indigenous Peoples is intrinsically connected to socioecological and sociocultural values and identity and as such must be considered within the narrative of nutrition (65-67). This has also been indicated by Lambden et al (2022. P.317) who have suggested that “*traditional food (including fish and seafood) has many meaningful attributes that contribute to health and cultural life of Arctic Indigenous peoples*” and needs to be considered when implementing policies to strengthen the Indigenous food system (68, 69). Cubillo et al (2023. P.5) with the 16 Aboriginal Peoples of Maningrida community in North East Arnhem Land of Australia reported that seafood is interconnected to “*culture, connection to country, traditional medicine, intergenerational knowledge transfer*” (66). In this review, Bersamin et al (2019) specifically recognise the importance of sociocultural values connected to seafood for Yup’ik school children (63) and Marushka et al (2018) recognise that there needs to be greater advocacy for Indigenous Peoples control and access to be reflected in policies especially for First Nations’ fishing in Canada (44). However, of the studies reviewed, none were explicitly designed to link Indigenous values connected to seafood to health and wellbeing outcomes. Two studies did importantly recognise the need for greater access and consumption of seafood for Indigenous communities and for more robust representation of Indigenous knowledge to support access to seafood to improve health (44, 63).

As health and wellbeing disparities and inequities continue to grow for Indigenous Peoples, the health literature, especially in high-income settler colonial countries such as Australia, Canada, the United States of America and New Zealand, have emphasised the importance of Indigenous Peoples having their epistemological values represented within research (13, 24, 27, 70). Globally, scholars are recognising the value of strength-based research that positively impacts Indigenous Peoples by recognising and positioning Indigenous epistemological positions at the centre of the research design and approach (29, 30). This aligns with the UN Declaration on the Rights of Indigenous Peoples (Article 23), which states, "Indigenous Peoples have the right to be actively involved in developing and determining health" (71). To build upon the contribution of health research in demonstrating seafood's contribution to health for Indigenous Peoples, it is suggested that there be a greater conceptualisation of collective Indigenous values (18, 72-74). This will require multi-disciplinary investigations including Indigenous leadership as it has been reported by Thorpe et al (2023) that Indigenous Peoples epistemological connections, especially to health, may incorporate historical, socioeconomic, cultural, and political determinants in addition to land rights and self-determination principles (75).

In critiquing the representation and engagement of Indigenous Peoples values in the research reviewed in this study, it is acknowledged that the majority of the studies were undertaken at a time when validated Indigenous research protocols, such as the Consolidated criteria for strengthening reporting of health research involving Indigenous Peoples (CONSIDER) did not exist (29, 76). In the future, CONSIDER statement checklist may assist with guiding meaningful research for Indigenous Peoples values of interest, including 1). research governance to protect Indigenous intellectual property and harm minimisation, 2). prioritisation of Indigenous community priorities, 3). ethical relationships with Indigenous stakeholders and participants with research practices that value their community engagement process for research design, implementation, analysis and dissemination. 4). methodologies that protect Indigenous confidentiality and consider Indigenous ways of knowing, being and doing. 5). participation of how Indigenous participants consented and data is stored, including biological matter 6). the capacity of the research study to upskill and support Indigenous researchers. 7). analysis and interpretation that considers strength-based approaches. 8). dissemination processes to Indigenous community governing bodies and participants (29). Including these fundamental principles in future research with Indigenous Peoples and

communities would further detail a more nuanced perspective of how seafood is connected to Indigenous health and wellbeing outcomes and one that is coherently aligned with their interests and needs. It is also acknowledged that measuring the impact of Indigenous Peoples values on health and wellbeing outcomes is challenging, (6, 77) and this warrants further research that is governed and led by Indigenous Peoples.

4.11.1: ***Strengths and limitations***

Strengths of this systematic literature review include the novel approach to assessing the marine seafood consumption and access representation of Indigenous Peoples within the literature. The findings of this study bring attention to a growing area of interest at global and national levels to strengthen Indigenous Peoples voices within health and wellbeing research, especially in connection with their food systems (4, 69, 78, 79). However, there are several limitations to this study. First, it is acknowledged that many of the articles included in this systematic review are cross-sectional and have extracted data from existing health databases which impacts the ability to thoroughly critique and synthesise the interventions, data collection methods, and quality assessment outcomes, due to weak study designs and bias (35). Also, it must be acknowledged that this methodological approach of a narrative synthesis carries its subjective bias despite the lead researcher applying steps to address this, such as presenting transparent data interpretations and synthesis processes (80). Another limitation includes the search terms to have English language-only reviews and peer-reviewed literature only, recognising that there may be non-peer-reviewed literature and non-English articles that emphasise Indigenous values in connection with seafood (81). Finally, there are uncertainties about the data interpretation and assumptions made, such as no Indigenous Peoples involvement or benefits to the community, as it is understood that best practice within Indigenous research has developed significantly in recent years. Before this, researchers may not have detailed the processes of community engagement and leadership that may have been critical to their study conduct (29, 76).

4.12 **Conclusion**

Coastal Indigenous Peoples continue to access seafood for dietary nourishment, food security and customary connections such as social and cultural expressions. This review has identified that seafood may contribute to health outcomes through improved mental health, lipid-related health, cardio-metabolic health, vitamins and minerals, type 2 diabetes, bone

quality and overall diet. However, this review has also identified a greater need for the representation of Indigenous health and wellbeing outcomes connected to seafood in health literature that considers Indigenous epistemological perspectives. Future research should utilise strength-based qualitative and Indigenous methodologies to further conceptualise connections to seafood for health and wellbeing that are coherently aligned with Indigenous epistemological foundations and community priorities.

4.13 Ethics

Not applicable.

4.14 Funding

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4.16 Chapter 4: summary

In summary, this Chapter presented the systematic literature review with a narrative synthesis to explore how global health research has reported coastal Indigenous Peoples values connects to seafood. Next, Chapter 5 will present study two of this thesis a qualitative case study utilising Indigenist research inquiry lens with Yarning as method.

Chapter 5 HOW IS NUTRITION, HEALTH AND WELLBEING CONCEPTUALISED IN CONNECTION WITH SEAFOOD FOR COASTAL INDIGENOUS PEOPLES

5.1 Foreword Chapter 5

This Chapter presents study 2, addressing the thesis *RQ2: How do Aboriginal Peoples in Maningrida conceptualise the connection of seafood to nutrition, health and wellbeing?*

The manuscript has been published in a Q1 peer-reviewed journal (Food Policy); the citation is provided below, and the article is provided in **Appendix**.

Cubillo, B., Stacey, N., & Brimblecombe, J. (2023). How are nutrition, health and wellbeing conceptualised in connection with seafood for coastal Indigenous Peoples. *Food Policy*, 116, 102434. doi: <https://doi.org/10.1016/j.foodpol.2023.102434>

5.2 Abstract

Coastal Indigenous people access and maintain customary connections to seafood for nourishment, livelihoods and Indigenous values. It is well recognised that seafood contributes significantly to coastal Indigenous people's diets. Despite this, global fisheries sectors have overlooked the role seafood plays in contributing to nutritional, health and wellbeing outcomes of coastal Indigenous communities. Global entities have called for 'nutrition sensitive policies' to improve nutritional, health and wellbeing outcomes. The aim of this study was to apply an 'Indigenist' inquiry lens and 'yarning' as a method to further understand from an Indigenous perspective how concepts of nutritional, health and wellbeing outcomes are represented and connected to seafood. Research involved 16 Aboriginal informants, six women and ten men from a fishing enterprise, arts and culture centre and a women's centre with a connection to commercial and customary fishing in Maningrida community in the Northern Territory of Australia, 2019-2022. Key themes related to respecting of Elders, culture, country, Aboriginal nutrition, traditional medicinal knowledge, Aboriginal fishing enterprises, barriers to accessing seafood, lived experience, intergenerational knowledge transfer and interconnectedness. It is clear that fishing and access to seafood for Aboriginal people is a pathway to healthier food provision within coastal Indigenous communities. It needs to be recognised however, that Indigenous nutritional, health and wellbeing concepts and self-determination principles need to be integrated into 'nutrition sensitive policies' within fisheries and mariculture sectors.

5.3 Keywords

Aboriginal, Seafood, Fish, Indigenous, decolonisation, yarning

5.4 Positionality statement

The lead author of this study is a Larrakia and Wadjigan Aboriginal man from the Northern Territory (NT) of Australia. Both the Larrakia and Wadjigan people have maintained on going connections to their customary coastal waterways and seafood and this positioning by the author has been incorporated into this study design through co-constructed knowledge (Olmos-Vega, Stalmeijer, Varpio, & Kahlke, 2022; S. Wilson, 2008). The participants herein, referred to as informants for this study, are Aboriginal people residing in the coastal community of Maningrida in the NT and/or neighbouring outstations with ancestral and cultural connections to several language groups including but not limited to Burarra, Kunwinjku,

Ndjebbana, Kune and Nakara. The two co-authors of this study are non-Indigenous with extensive experience working with Aboriginal and Torres Strait Islander Australians and who provided critical support to the lead author and insight to enable the Indigenous voices to be reflected in this research (Morton Ninomiya et al., 2022). The authors have expertise in Indigenous and qualitative methodologies, Aboriginal fisheries, nutrition, food systems, food security, natural resource management and small-scale fisheries.

The authors of this paper have used the term ‘Indigenous’ to represent a global community that reflects many heterogenous cultures, nations and diversity across the globe (Cunningham & Stanley, 2003; U.N, 2021) The term ‘Aboriginal’ in this study will represent the first people of Australia and ‘Torres Strait Islander’ will represent the first people of the Torres Strait Islands. It is acknowledged that these broad terms reflect culturally and linguistically diverse groups of people. The term ‘Traditional Owners (TO)’ throughout this research will refer to Aboriginal people with ongoing pre-colonial connection to customary land and waterways with inherit rights and responsibilities (Australian Law Reform Commission, 2014; Bock et al., 2022). For the purpose of this study seafood is defined as wild captured marine species of fish, crustaceans, invertebrates and mammals that are accessed by Indigenous people.

5.5 Introduction

Seafood remains an important contributor to coastal Indigenous people’s diets with global consumption up to 15 times higher than that of non-Indigenous people (Cisneros-Montemayor, Pauly, Weatherdon, & Ota, 2016). This is significant as seafood provides essential protein, fatty acids and micro nutrients needed for healthy human growth and function (Berkes & Farkas, 1978; Kuhnlein, Erasmus, & Spigelski, 2009). Despite this recognised important dietary contribution of seafood to coastal Indigenous people’s diets, the fisheries and mariculture sectors have largely overlooked this nutritional contribution and focused on political, conservational and economic development outcomes (Allison, Koehn, Franz, Wiegers, & Callens, 2017; Arthur et al., 2022; Koehn et al., 2022). Therefore, in order to maximise the benefits of seafood to coastal Indigenous people’s livelihoods and nourishment there needs to be a greater degree of recognition of the nutrition, health and wellbeing value of seafood within the fisheries and mariculture sectors (Farmery, Kajlich, Voyer, Bogard, & Duarte, 2020; Kuhnlein & Chotiboriboon, 2022). Further, global research agendas and

roundtable discussions have recognised the need to address the determinants of nutrition outcomes through complementary sectoral policies, referred to as ‘nutrition sensitive policies’ (FAO, 2017; Pinstrup-Andersen, 2013; Ruel & Alderman, 2013; WHO, 2014). This is significant as Indigenous people are continually experiencing a gap in nutrition- and health-disparities compared with benchmark populations, including lower life expectancy, lower birth rate, and a higher rate of non-communicable diseases and lower social (economic and education) outcomes (Sherwood, 2013; The Lancet, 2020). In order for fisheries and mariculture sectors to coherently align and contribute to global roundtable aspirations for ‘nutrition sensitive policies’ and improved nutritional, health and wellbeing outcomes of Indigenous people, there first needs to be a greater understanding of the way in which Indigenous people’s concepts of nutrition, health and wellbeing are connected to seafood. Currently the nutrition literature and understanding of Indigenous concepts of nutrition, health and wellbeing in connection to seafood, beyond a dietary contribution and a nutritional composition lens, is limited (Brimblecombe et al., 2014; FAO, 2016; A. Wilson et al., 2020). This is an important as for many Indigenous people, nutrition, health and wellbeing is a collective concept and is inclusive of social and cultural values that place community health above individual health in contrast to biomedical models of health that focus on absence of disease within an individual (Gee, Dudgeon, Schultz, Hart, & Kelly, 2014; Pulver et al., 2010; A. Wilson et al., 2020). Nutrition literature to a very limited degree has recognised this as Brimblecombe et al suggest, that when considering strategies for greater nutritional outcomes for Indigenous people’s there is a need for a broader “systems/socioecological approach” that reflects the social and cultural context (2014, p. 396). The broader literature identifies that Indigenous peoples have a customary connection to seafood that incorporates subsistence, livelihood and Indigenous values; yet this has not been explicitly linked to nutrition, health and wellbeing outcomes (Marushka et al., 2021; Noble et al., 2016; Shamsi, Williams, & Mansourian, 2020; Smyth, Egan, & Kennett, 2018).

These values therefore need to be further recognised and translated within nutrition discourse to strengthen integrated nutrition sensitive policies that align with Indigenous concepts of nutrition, health and wellbeing in the fisheries and mariculture sectors. In addition, this study recognises that due to the historical experiences Indigenous people have had with colonisation and the subsequent assimilation and oppressive policies, there is consequently a

lack of representation of Indigenous perspectives within policies that impact their livelihoods and communities (Aldred et al., 2021; Moreton-Robinson, 2015; Wensing, 2021; Wolfe, 2006).

In response to the identified literature gap the study reported herein aimed to demonstrate how nutrition, health and wellbeing in connection to seafood is conceptualised by Aboriginal people in the coastal community of Maningrida in the Northern Territory (NT). This study has been conducted as a localised case to demonstrate the complexity in the relationship Aboriginal people may have to seafood. In order to strengthen Indigenous perspectives, this study applied an ‘Indigenist’ inquiry lens to theoretically position the research within an Indigenous worldview and give resistance to dominant colonial structures within scholarship and policy (Rigney, 1999; Smith, 2021). The qualitative method of ‘yarning’ was utilised to facilitate the knowledge exchange process and inductive thematic analysis was applied as the knowledge analysis method

5.6 Context and setting

5.6.1: *Maningrida: study location*

Maningrida is an Aboriginal community and is located 500km east of Darwin city the capital of the NT and is situated on the lands of the Kunibídjí people in central Arnhem Land, along the coast of the Arafura Sea and the mouth of the Liverpool river (Figure1: Map of the Top End region of the Northern Territory of Australia). The climate is tropical and in the wet season (approximately November-April) due to high rainfall, the roads are completely impassable with air and sea-barge the only options for travel and freight. The estimated population of Maningrida in 2016 was 2,065 with Aboriginal people comprising of 89% of the total population (ABS Census, 2016). There are currently five main Aboriginal language groups in Maningrida which include Burarra, Kunwinjku, Ndjebbana, Kune and Nakara, however there are many more language groups and dialects present in the region (Altman, 2005; Australian Government, 2022). The Aboriginal people in the central Arnhem Land region including Maningrida, like the rest of Australia, felt the impacts of colonisation by the British Empire, although Aboriginal people residing in the region still maintain strong customary connections to culture, land and marine waterways. Prior to colonisation Aboriginal people of the region lived on traditional country estates with inherent rights and responsibilities with an ongoing connection and cultural significance to a specific area of land and water, now referred to as ‘outstations’ or ‘homelands’ (Myers & Peterson, 2016). In Maningrida however,

the Aboriginal people prefer to call their 'outstations' by their Aboriginal names and there are over 32 outstations neighbouring Maningrida (Altman, 2008; Myers & Peterson, 2016). The central location of Maningrida community was initially established by non-Aboriginal Government officials as a trading post for mining, fishing, forestry and other industrial development and later in 1957 declared a settlement by the Australian Government (Altman, 2005; Bawinanga Aboriginal Corporation, 2022). The Australian Government assimilation policy (1951-1962) required Aboriginal groups from neighbouring outstations to live in the established Maningrida settlement with aspirations for the community to become centralised and self-sustaining and it was expected that all the heterogenous Aboriginal groups in the area would live like non-Aboriginal Australians (ALRC, 2010; Altman, 2005; Hunt, Smith, Garling, & Sanders, 2008). This centralised idea however was abandoned in 1972 (Altman, 2008). Shortly after, the Australian Commonwealth Aboriginal Land Rights Act (Northern Territory) Act [1976] (Cth) legally recognised that Aboriginal people in the NT could live on their outstations and it was eventually hoped that land access would lead to economic and social equality (Altman, 2020; Australian Government, 1976; Yap & Yu, 2018)

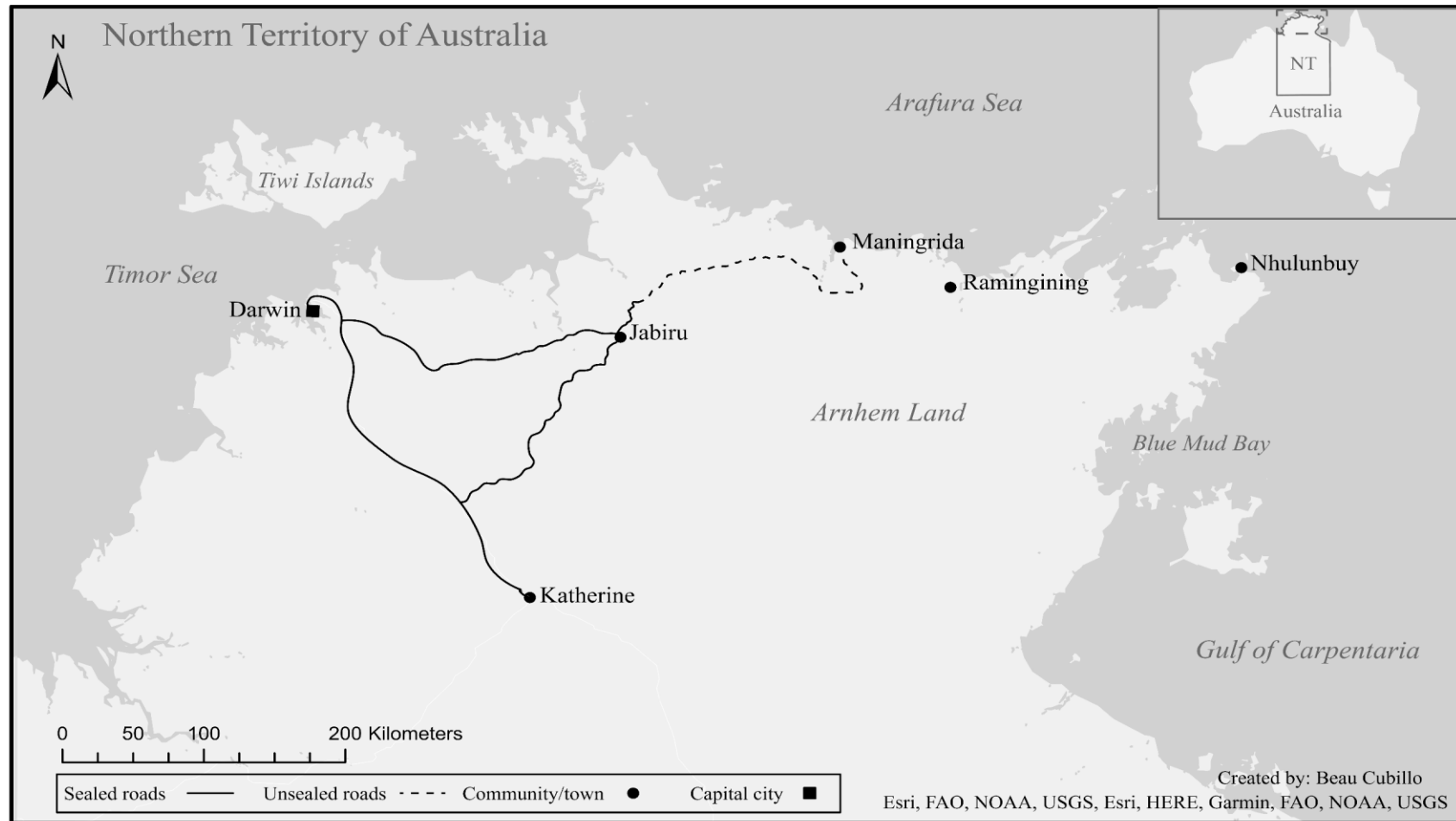


Figure 5:1 - Map of the Top End region of the Northern Territory of Australia. Description: This map indicates the location of Maningrida Aboriginal community located in the Central Arnhem Land region of the Northern Territory along the coast of the Arafura Sea

5.6.2: **Governance**

Bawinanga Aboriginal Corporation (BAC) is an Aboriginal controlled centralised entity that currently represents the Aboriginal people of Maningrida and the surrounding outstations and offers a range of services and administration (Altman, 2008; Bawinanga Aboriginal Corporation, 2022). The current services include but are not limited to housing, Maningrida Arts and Culture Centre, Barrada Bábbarra Women’s Centre and the Djómi Museum. BAC also has an Indigenous enterprise development arm and manages the fishing enterprise referred to in this study. BAC reports they service 32 different outstations over an estimated 10,000km², highlighting the size and diversity of the region (Bawinanga Aboriginal Corporation, 2022). In 2008 the High Court of Australia recognised the cultural and ongoing significance of coastal waters for NT Aboriginal people in which the Aboriginal Land Rights (Northern Territory) Act [1976] (Cth) was extended to incorporate the intertidal zone (Australian Government, 1976; S. Jentoft, N. Stacey, J. Sunde, & M. González, 2018). This was established through Northern Territory of Australia v Arnhem Land Aboriginal Trust [2008] HCA 29, which is commonly known as the ‘Blue Mud Bay’ as the case related to the Yolngu People are the TOs of the Blue Mud Bay region in North East Arnhem Land of the NT (Altman, 2013; Butterly, 2020; S. Jentoft et al., 2018). The rights are now applicable to 85% of the NT intertidal zone. The recognition of Aboriginal access rights to coastal waters enabled the NT Government to introduce new regulations under the Fisheries (Northern Territory) Act [1988] and in 2014-15 an Aboriginal Coastal Licence (ACL) scheme was introduced (Northern Territory Government, 1988, 2021). This enabled TOs from Aboriginal communities in the NT to obtain a limited commercial fishing licence that would support small scale fishing businesses (S Jentoft, N Stacey, J Sunde, & M González, 2018; Northern Territory Government, 2021).

5.6.3: **Fishing operations**

At the time of this study, BAC held a NT commercial Mud Crab (*Scylla serrata*) licence, a leased portion of a Barramundi (*Lates calcarifer*) licence for one year, and supported TOs to obtain three ACL which had increased to four throughout the study duration from late 2019 to early 2022. The TOs who hold fishing licences in this study are all respected elders within their families and have on-going life experiences with both commercial and traditional fisheries. The fish and seafood obtained through these licences are caught on reefs and in estuaries via boat as well as coastal beaches which are accessed for shore fishing. Methods may include vertical

and troll line, cast and scoop net, 100m net with mesh size 6.5cm or less, 200m gill net with 15.24cm mesh, dilly and crap pots and traditional fishing techniques such as hand spear and fish traps (Northern Territory Government, 2021). Seafood that is caught is recorded, processed and sold mostly to community members and neighbouring Aboriginal communities. The species targeted under the ACL at the time of this study include Bluetail Mullet (*Moolgarda buchanani*), Diamond Mullet (*Liza vaigiensis*), Golden Trevally (*Gnathanodo speciosus*), Milkfish (*Chanos chanos*), Barracuda (*Sphyraena barracuda*), Queenfish (*Scomberoides commersonianus*), Blue Threadfin (*Eleutheronema tetradactylum*), Whiting (*Sillago sihama*) and under a restricted capacity also Barramundi (*Lates calcarifer*), Giant Trevally (*Caranx ignobilis*), Spanish Mackerel (*Scomberomorus commerson*), Beach Salmon (*Leptobrama muelleri*) and Threadfin Salmon (*Polydactylus macrochir*).

5.6.4: *Customary fishing*

Customary fishing includes a much broader scope of seafood species with different cultural and social values (Shamsi et al., 2020). All the informants of this study had significant knowledge of traditional fishing practices that were highly contextual to their individual outstations and family protocols. While a large focus of this study was on the wild caught fishing enterprise, traditional fishing was also included as this could not be separated from the story being told within data collection. Traditional fishing is an important part of the Aboriginal culture in the region and is connected to cultural and social values and has and continues to be important for subsistence and food security (Noble et al., 2016; Smyth et al., 2018).

5.7 Methods

5.7.1: *Theoretical approach:*

Over many centuries, Indigenous Peoples histories and knowledges have been subjugated by western representation which has reinforced Eurocentric ideologies as superior (Smith, 2021). Moreover, the lack of Indigenous values, beliefs, prejudices and voices portrayed in research has contributed to power imbalances in academia that continues to impact Indigenous communities through misrepresentation of their knowledge systems (Moreton-Robinson, 2015; Smith, 2021). This has contributed to the mistrust that can exist in Indigenous communities towards researchers (Harfield et al., 2020; Martin & Mirraboopa, 2003; Nakata, 2007). In response, this research positions itself within an Indigenous worldview to represent

Indigenous voices in a localised context to strengthen Indigenous representation. The theoretical approach applied herein is the ‘Indigenist’ research lens which is targeted at framing three key principles in the conduct of research in the Australian context, as described by Rigney: resistance as the emancipatory imperative (research that intends to enable Aboriginal Australians to build their own ways of ‘being’ to enable healing from oppression); political integrity (research that is done by Aboriginal Australians where an Aboriginal person is responsible for their community and is a part of the struggle to contribute to the political agenda); and, Indigenous voices privileged in data interpretation and research dissemination to address the social inequities (Indigenist research that is focused on Indigenous interests and lived experiences and done by an Indigenous person with Indigenous people to serve the best interest of self-determination) (Rigney, 1999, p. 116).

The design of this study is a qualitative research design with data collection methods including ‘yarning’ and reflective notes, with inductive thematic data analysis. Situating of Indigenous values were incorporated into the study design to reflect Aboriginal contextual knowledge as accurately as possible. The creation of new knowledge from this research and its dissemination and communication, incorporates the key principles of the ‘Indigenist’ research lens to reflect Maningrida community’s core values and interest. This research was also conducted according to the Australian Institute of Aboriginal and Torres Strait Islander Studies (AIATSIS) code of ethics to support meaningful research and reciprocity between the researcher and the Aboriginal community (AIATSIS, 2020)

5.7.2: ***Ethics***

This study was approved by Charles Darwin University Human Research Ethics Committee (CDU-HREC and reference number H20081 ‘Indigenous Knowledges’ of the nutritional health and wellbeing benefits of seafood’. All informants of the study were reimbursed for their time with cash payments as per BAC guidelines which included a rate set by BAC and distributed through BAC financial team.

5.7.3: ***Community engagement and informants***

The study and ethics were co-designed in 2019 with input from key informants and staff members at BAC. The Maningrida Arts and Culture Subcommittee which comprises of 13 TOs was identified by BAC as the study’s reference group and approved the research. All who

participated in the research are described as informants. The lead researcher travelled to Maningrida community on three separate occasions over 2019 and 2020 to finalise the research design, ethical approach and consent then commenced data collection from 2020-2021, and in 2022 returned to member check and feedback the draft findings of the study to available informants and BAC. Informants from this study were selected through existing relationships within the community and identification of people who were deemed knowledgeable of seafood. This selection process was done by community members and not the researchers. In this study 16 informants participated, six women and ten men.

5.7.4: *Yarning*

Yarning is a recognised conversational practice amongst Aboriginal and Torres Strait Islander researchers in Australia and has been applied in this study as a qualitative data collection method (Bessarab & Ng'andu, 2010; Shay, 2021; Walker, Fredericks, Mills, & Anderson, 2014). Yarning involves a two-way sharing of knowledge process between the lead researcher and the informants with the focus to freely conceptualise the research topic versus asking structured questions in an interview style (Atkinson, Baird, & Adams, 2021). This approach was applied to encourage and support the informants to describe their narrative in response to the research questions in any way they determined (Atkinson et al., 2021; Bessarab & Ng'andu, 2010; Walker et al., 2014). Yarning facilitates the sharing of stories that can include contextual, historical, political, cultural identity and expression of Indigenous worldviews of the individual, their families and wider community (Bessarab & Ng'andu, 2010; Martin & Mirraboopa, 2003). As yarning is a two-way sharing of knowledge process, the relationship, trust and accountability between the researcher and informants is important (Walker et al., 2014). The authors felt an immense importance for the research to reflect the community core values and the lead author as an Aboriginal researcher felt the responsibility to uphold trust to 'our' people and the knowledge systems that govern 'our' being (Bessarab & Ng'andu, 2010; Murrup-Stewart, Atkinson, & Adams, 2022; Nakata, 2007). The lead author therefore attempted to achieve accountability and responsibility of yarning by first spending time communicating and listening to what informants were saying and what was important for them to get out of the research. This also included transparency on what the information collected was being used for, which in this case, it was used for the manuscript but also for future resource development and part of a PhD thesis (out of the scope of this study to describe). Informants included current and previous ACL fishing licence holders, fishing workers and

Maningrida Arts and Culture Centre and the Barrada Bábarra Women's Centre workers as these people expressed interest in the study. The lead author spent a total of 34 days in Maningrida not only conducting yarning but understanding community dynamics and building relationships. While this was enough time to conduct the knowledge collection, more time would have provided opportunity to potentially speak with other community members however due to the Covid-19 pandemic several trips were not possible. The yarning guide was developed by the lead author with input from the co-authors over a considerable time frame which also included input through the engagement with informants and other community members to gain an understanding of the local context, history and values of the community as well as the fishing operations.

The lead author used the guide to loosely ask questions to prompt the yarn, this included “what does nutrition, health and wellbeing mean for you personally?” and “how is seafood connected to nutrition, health and wellbeing?” and “what do you see as the benefits of seafood for the wider community?” The questions were broad in scope to not preconceive concepts of health or wellbeing and connection to seafood. Yarning involved some photo elicitation only to help identify certain species of seafood due to language barriers in regards to species names. The resources used for this were the online data base ‘FishBase’, physical poster of the ‘NT Government: Common fish of the Northern Territory’ and ‘Coastal fish of the Maningrida region’ (Bawinanga Aboriginal Corporation, 2022; FishBase, 2022; Northern Territory Government, 2016). Some of the informants voluntarily brought to the yarning sessions maps, photos, story booklets and pieces of art to compliment the stories that were shared with the lead author. The yarning sessions were recorded in multiple ways in this study; either through audio of recording and/or note-taking by the lead author (Bessarab & Ng'andu, 2010; Lukaszyk et al., 2017). Notes were taken to document the everyday experience in the field and the research process and to add context to the research (Goodall, 2000). Notes were also used by the lead researcher to reflect on and identify their own positioning in the research. Member-checking occurred with all informants and extra feedback of the manuscript findings occurred with eight informants.

5.7.5: Knowledge analysis

Notes from all yarning sessions were cross-checked with informants during and after the sessions in an attempt to accurately present a shared understanding and interpretation of the

knowledge (Weber-Pillwax, 2001; S. Wilson, 2008). Yarning sessions were transcribed into a word document. A six-step inductive thematic analysis method was applied to analyse the transcripts and notes (Braun & Clarke, 2006; Maguire & Delahunt, 2017). An inductive method of analysis was applied as it had the theoretical flexibility to incorporate Indigenous ways of knowing (Braun & Clarke, 2006; Murrup-Stewart et al., 2022). Through the use of applying an Indigenist lens to the research it was essential that the Aboriginal informants had the ability to express their interpretations and knowledge in the research (West, Stewart, Foster, & Usher, 2012, p. 1584). This also included during knowledge analysis where informants had the chance to evaluate the interpretations as it is important to present the data in a way that represents Aboriginal voices between the Aboriginal informants and Aboriginal researcher. The lead author first became familiar with the knowledge and stories shared by informants by reading transcripts line by line and listening to the recordings. Basic codes were then generated by identifying reoccurring phrases, words or concepts related to nutrition, health and connection to seafood. Codes were then refined and re-applied to all the notes and transcripts to identify patterns, prevalence and re-occurring points of interest amongst the knowledge holders. The next phase involved grouping the codes into 10 themes using the informant's own expression of their views and knowledge about nutritional, health and wellbeing across all notes and transcripts. These themes were then refined and named by the authors and included in the findings of this paper as a way to broadly understand the connection of seafood to nutrition, health and wellbeing (Table 1)

5.8 Findings

Based on the 13 yarning sessions that ranged from 30 minutes to 120 minutes with 16 different informants, several informants attended more than one yarning session, 10 co-constructed themes (Table 1) were explicitly represented to give a summary term to the views and knowledge of informants according to significant areas of interest relating to the research aim. It is understood that the Indigenous knowledge systems are intertwined and deeply rooted into the context, land, culture and language amongst other values (Aldred et al., 2021; Greenwood & Lindsay, 2019). The presentation of knowledge in separate deconstructed themes with individual meanings is an artificial construct when considering Indigenous ways of knowing and being (Nakata, 2002a; S. Wilson, 2008). This study recognises this and the connectedness of themes has been described in the specific theme 'interconnectedness'. While this theme was not explicitly mentioned by informants it has been constructed through the

latent representation within the data. The themed approach applied in this study was undertaken to progress an understanding of Indigenous values of seafood for both Indigenous and non-Indigenous audiences which can be used practically to advance Indigenous values into scholarship and policy.

Table 5:1: Constructed themes and codes about nutrition, health and wellbeing values connected to seafood generated from the thematic analysis

Themes	Codes
Respecting elders	Elders, old people, ancestors
Culture	Song lines, cultural spirit, dreaming, sharing
Country	land, country, place
Aboriginal Nutrition	Taste, food preference, variety of foods, food security, hunger, health benefits, energy levels, longevity
Traditional medicinal knowledge	Medicine, bush medicine
Aboriginal fishing enterprise	Fishing enterprise, income, fish markets, selling fish, community benefits?
Lived experience	Memories, stories, whole experience
Intergenerational knowledge transfer	Knowledge holders, passing knowledge to young generation, young people have different priorities
Interconnectedness	Latent representation in the data to describe the complex relationship amongst other themes
Barriers to access seafood	Lack of knowledge, drugs, alcohol, family disruption, sick people, policy

5.8.1: *Respecting Elders*

In the context of this study an Elder is referred to loosely as a person connected to a system of knowledge that is held by members of the community, and is not an absolute concept bound by timelines of past and/or present. Informants directly referred to Elders as either particular persons with extensive knowledge and/or respect in the community, or as non-living ancestors whose spirits are present and who represent the Aboriginal knowledge system. This study does not describe the in-depth concept of Elders but rather demonstrates that the Elders' connection to seafood exists and was significantly important to informants in their connection

of nutrition, health and wellbeing. Living Elders were identified and described by informants as knowledge holders whom had a responsibility to pass knowledge on. An informant described “*old people knew bush medicine*” (yarning session, male) and made it known to the lead researcher that their ancestors could survive in the bush with their Aboriginal knowledge systems, reinforcing the importance of the knowledge system. A particular informant when asked what it means for people in Maningrida to be healthy and strong, gave a detailed description of how Aboriginal people should go “*fishing like the old people*” (yarning session, male) and of how previous generations had to physically exert themselves to catch fish and implied that this combined with the consumption of a nutritious source of food was beneficial to health. When prompted to talk about what role seafood has for living Elders, informants said that prior to them going out fishing or upon returning, Elders who were unable to source their own seafood, would ask: “*did you get any fish*” (yarning session, male) and say: “*we miss our fish*” (yarning session, male). There was a lack of access to fish and seafood for some Elders and this impacted on feelings and behaviour as described. Informants held enormous respect for Elders and a responsibility to them, and they either did not feel good about not being able to share some of the catch with Elders or felt obligated to try and bring fish to the Elders. Informants made it clear that many Aboriginal people believed that “*fish made old people happy and strong*” (yarning session, female) and that this gave them ‘the energy’ to ‘go out walking’ which referred to their ability to complete daily activities. Several senior women described that the Elders had preferences for certain fish species as they wanted to reconnect and consume the species that they had grown up eating such as “*catfish*”, “*Shark*” and “*Sting ray*” (yarning session, female). Overall, informants referred to the deep connection and respect Aboriginal People in Maningrida have for their knowledge holders. They spoke of how important it is to enable Elders to consume species of seafood, and how this is connected to nutrition, health and wellbeing through cultural/social responsibility to their Elders.

5.8.2: **Culture**

Seafood was described by informants as connected to identity, the natural world, and community, as well as to the act of sharing, song lines, languages, dreaming and spirit. These codes were used to formulate the theme ‘culture’, with each informant giving a different description of how they viewed their cultural connection to seafood. Culture was central to all yarning sessions and embodied the way people described how they feel, connect and express their relationship to seafood. Informants explained that the practice of culture was intertwined

with the entire process of gathering, preparing and consuming seafood. They expressed their cultural connection to seafood in many ways such as through song lines and spiritual connections: “*dreaming of fish is important to ancestors*” (Yarning session, male) and “*culture through song lines, eating fish, and ceremonies*” (Yarning session, female). Cultural identity was linked with seafood where it was often described that seafood is a part of themselves, and thereby people are connected, physically, spiritually and metaphysically, with the seafood. Informants referred to the respect that is shown to particular seafood species of cultural significance to them, such as to the sting-ray, where through being caught or consumed, this respect is presented to the ancestors. The informant’s voices often reinforced that not only does seafood connect people to their identity but it also connects Aboriginal Peoples to their cultural knowledge systems including the knowledge of how to capture, prepare and consume seafood. Respected older informants expressed that while it is important for the younger generations to use contemporary methods of fishing they need to also know of their traditional ways “*go outstation and learn fish trap a part of culture*” (yarning session, male). Another aspect of culture that was referred to by informants was the cultural obligation to share. “*Sharing is important for families*” (yarning session, male), “*sharing is part of the lore*” (yarning session, male).

5.8.3: **Connection to country**

This theme ‘connection to country’ was created from data where informants referred to different places where they had ancestral connection and accessed seafood. It is centred on the experience and process of being physically and spiritually present on ones’ country to catch or harvest seafood. Country was expressed by informants as land, place, beach or outstation and was often the centre of an experience shared with the lead researcher, and expressed by the informants as a “*place connected with feelings*” (yarning session, female), or “*connect to the country*” (yarning session, male). Informants expressed that when accessing seafood, they would “*camp on beach*” (yarning session, male) or would access “*beach country place*” (yarning session, female), which highlights the important role country has in being able to access seafood as well as being able to connect spiritually to seafood. Informants when they were physically present on their country described that catching seafood would be done together with family and that it would be a happy experience.

5.8.4: **Aboriginal nutrition**

The theme ‘nutrition’ incorporates the codes taste, food preference, variety of foods, food security and hunger that arose directly from the yarning question, ‘what are the nutritional benefits of seafood for Aboriginal people in Maningrida and why is seafood important to improve and maintain health?’ Taste and food preferences were found to be desirable and enjoyable components of eating seafood: “*good taste mullet*” (yarning session, male), “*feel good and taste good mollusc*” (yarning session, male). Preferred tastes for certain species were associated with having grown up eating particular types of seafood, as well as with the fat content and seasonal knowledge of different species. Traditional knowledge of seasons was stressed by informants to be important for the fishing enterprise. If fish were caught out of season, consumer demand was impacted, as the fish contained less fat and were therefore not desirable “fish doesn’t have fat too dry and no good” (interview session, male), or “*out of season no fat*” (yarning session, male). Certain species were referred to as important in the past for food security, due to their ease of access and reliability: “*Mud mussel important in old days*” (yarning session, male). Hunger, was briefly mentioned by one informant as influencing their preference for certain species, as when they were hungry they looked for particular species “*mangrove worm good for hunger*” (yarning session, male). Several informants explained that seafood was an important energy source: “*power and energy*” (yarning session, male), “keeps you going so you have the strength to fish” (yarning session, male). Informants attributed consumption of seafood in Maningrida to a longer life and associated it with being healthier: “*fish and seafood health benefits, live longer*” (yarning session, male). Most informants showed knowledge of the health benefits of seafood in relation to chronic conditions such as sickness, heart disease, kidney disease and diabetes which were the most common conditions referred to. The informants described seafood as particularly good for the blood, referring to blood pressure and iron in the blood:

“*seafood good for heart, cleanses you*” (yarning session, female), “*seafood good for blood pressure*” (yarning session, male) and “*bush foods good for blood*” (yarning session, female).

5.8.5: **Traditional medicinal knowledge**

This theme arose from responses to the question of ‘what are the health benefits of seafood for Aboriginal people?’ A difference of this theme to the ‘nutrition’ theme is the focus

on treatment of an illness, whereas the nutrition theme related to subsistence, food qualities and dietary choices for health or preventive measures. This theme encompasses the traditional knowledge of a cure or a treatment of a particular condition that was referred to by informants. For example, when a child is constipated or has diarrhoea, they are prescribed a particular seafood from a knowledge holder in the family. Informants articulated the concept of ‘seafood as medicine’, and used the term ‘bush medicine’ to distinguish for the lead researcher between western medicine and Aboriginal medicine. Seafood was considered a part of this bush medicine system and as having medicinal properties *“Fish and seafood are medicine”* (yarning session, male) and *“long bum and mangrove worm [are] a part of bush medicine”* (yarning session, male). Informants explained that different fish and seafood species hold different medicinal qualities that are linked to the Aboriginal knowledge system, and that have been passed down through the generations. One example given by most informants, was a species used for the treatment of diarrhoea, constipation and stomach ache: *“**** is good for diarrhoea and stomach ache”* (yarning session, male), with the particular species name removed to protect the traditional knowledge of the community. Informants also explained that Aboriginal people in Maningrida who are sick as well as those who have had to relocate to larger metropolitan locations to receive healthcare, request seafood and that seafood is cleansing for Aboriginal People: *“sick of western medicine so got to get seafood”* (yarning session, male) *“patients at the clinic want bush foods to help the cleanse”* (yarning session, female).

5.8.6: **Aboriginal fishing enterprise**

Fishing licence holders and fishing workers, explained the numerous benefits to selling seafood, primarily fish, to the community. First, it provided an income which varied among informants and provided the informants’ families with money. Second, the fishing enterprises enabled the informants to apply their knowledge systems to contemporary methods to catch fish, thereby increasing catch efficiency. This included utilising seasonal and location knowledge to fish *“Seasonal fish important for business because of the fat”* (yarning session, male). Third, it allowed the TOs of the land on which fishing takes place [which can also be the ACL holders] to provide access to nutrient-rich seafood for the community benefit, which can lead to improved nutrition *“fish business better nutrition”* (yarning session, male). Fourth, having a fishing business allowed an opportunity to sell seafood to surrounding Aboriginal communities and provide those communities with benefits *“selling to Ramingining*

(neighbouring Aboriginal community) good” (yarning session, male). Whilst informants spoke of the many positive nutrition, health and wellbeing benefits of seafood through consumption it was clear that the fishing enterprise had wider economic e.g. income and employment, as well as cultural and social benefits. It provided opportunity to fulfil cultural obligations such as being able to provide seafood to older community members who were not able to access seafood themselves, thus having a positive impact on fishing workers wellbeing. Limiting factors to the fishing enterprise were raised by the informants including regulations restricting catch of some species such as Barramundi, and limited availability of some infrastructure and resources such as fishing equipment, cars, boats.

5.8.7: *Lived experience*

Informants told of memories, stories and experiences, expressed in length and with depth and substance, when asked what the nutritional, health and wellbeing benefits of seafood are for Aboriginal people. *“Memories and stories”* (yarning session, male) in themselves are important to health and wellbeing as they are shared and told to the next generation. The stories told, detailed the entire process of preparing, collecting and consuming seafood and the interrelatedness of the whole traditional food system. The stories would often start with the informants explaining that you need to collect the equipment that will be needed to access and collect or catch seafood. People would often use their knowledge of the season and the weather to select what seafood to target. Informants would then describe the gathering of family and travelling to the fishing location which was usually on the informant’s traditional country. Once at the destination, which sometimes could be a several hours drive from Maningrida community, the specific camping location would be selected which would often be near the beach due to the close proximity to fishing sites *“camp on beach”* (yarning session, male). Family members would work together throughout the day to gather food and then return to camp to prepare, cook and consume the food. The stories often incorporated information on social, kinship and cultural characteristics of the experience that were important to the telling of the whole story. This whole experience made people feel good and connected to the other themes identified such as country, health, respecting Elders and culture. All Informants had positive memories of gathering seafood with family on country and found it difficult to be disconnected from culture and identity when they were unable to live the experiences of fishing with family.

5.8.8: *Intergenerational knowledge transfer*

This highly emotional theme was identified from a question asked to informants about why it is important to pass knowledge on to the younger generation and how this can be done, as well as the role seafood plays in this. Informants described inter-generational knowledge transfer as an important aspect of affecting the health of the community as it plays a role in ensuring that knowledge of seafood is passed on to the younger generation. Informants wanted to ensure that the younger generation have knowledge of which seafood species to target for food and which are potentially dangerous such as poisonous sting-ray barbs and cat-fish spikes: *“knowledge transfer of dangerous fish too”* (yarning session, male). The importance of this knowledge for identity and culture was also stressed. Informants wanted to ensure that the people of Maningrida were eating their own culturally significant food and that the younger generation know which seafood is important for their culture and spirituality *“eating their own food”* (yarning session, male). Young children learning how to make and use both modern fishing equipment as well as the fishing spears and nets of their ancestors was stressed. Informants strongly believed that this knowledge should be incorporated into school education and schools. They explained how ‘on country’ learning was already happening at the Maningrida school through the ranger program *“Catch easy with spear”* (yarning session, male), *“schools have role in intergeneration knowledge transfer”* (yarning session, female), *“traditional fishing methods”* (yarning session, male).

5.8.9: *Interconnectedness*

An overarching theme is the interconnectedness Aboriginal people in Maningrida have with their knowledge systems and how this is represented and reflected. While no informant stated explicitly that the knowledge system is interconnected, informants spoke of the importance of accessing country, culture and intergenerational knowledge transfer in their story of why seafood is connected to nutrition, health and wellbeing. For example, an informant described taking a younger family member to country to learn how to make a fish-trap, which is an important cultural tool for catching fish. The informant described this process of teaching and passing knowledge down *“go outstation and learn fish trap a part of culture”* (yarning session, male). When yarning about nutrition, health and wellbeing it was difficult to separate seafood from this interconnected story as animals, plants and country were all important for health. Informants explained in great depth the importance of balance and consuming all

Aboriginal bushfoods including seafood. When prompted to explain further what it means to consume all Aboriginal foods it was explained that a variety of foods are needed to stay healthy “*variety of bush foods fresh water and salt water are important*” (yarning session, male).

5.8.10: **Barriers to accessing seafood**

Barriers that restrict Aboriginal people’s access to seafood in Maningrida play a role in how seafood impacts nutrition, health and wellbeing. Informants told stories as a way to describe the wider burden and impact that lack of access to seafood has on their community’s nutrition, health and wellbeing. This theme emerged from questions relating to how nutrition, health and wellbeing could be improved in Maningrida using seafood. Informants spoke in detail about the disruption to knowledge transfer due to many barriers including drugs, alcohol, family disturbance, sick people and fishing regulations that make it difficult to access seafood. It was stressed that these barriers impact on people’s health and wellbeing in many different ways, such as causing emotional distress and disconnection from country and culture, which in turn affect people’s spirit. Informants expressed the worry they had for the younger generation and young people’s “*Lack of knowledge*” (yarning session, male), due to older family members or knowledge custodians being affected by these barriers. The physical health condition of the Elders in the community was a concern as it was explained that some people are physically impaired and/or inflicted by chronic disease and cannot take the younger generation to country to learn about seafood as well as to access seafood for themselves “*people can’t move to access*” (yarning session, male). It was greatly concerning for informants that “*substances*” (yarning session, male) including drugs and alcohol impacted inter-generational knowledge transfer as well as exacerbating “*family disruption*” (yarning session, male). Informants strongly believed that substance mis-use was diminishing inter-generational knowledge transfer. Other barriers referred to include the restricted access for community members to purchase the fish caught through the fishing enterprise: “*night market only one night a week, restrictive*” (yarning session, female). It was also reported that people who purchased the fish would have to cook it immediately or within a day or so due to a lack of storage equipment in their homes such as freezers and refrigeration. This made for a difficult choice as informants felt they had to decide on whether to buy fresh nutritious seafood from the fishing enterprise in Maningrida or processed food such as tinned meats with a longer shelf life. This choice is significant for diet quality as tinned meats have traditionally been high in sodium. Informants were aware of this but needed to make these decisions for food security. Previously, in early

years of the fishing enterprise start up, the fish was cooked on a barbeque style and sold. This pre-cooked fish was popular; however, this was ceased due to food safety concerns. There were also concerns that seafood accessibility in the future could be impacted by the effects of environmental changes such as reduced species reproduction: “*breeding concerns*” (yarning session, male).

5.9 Discussion and policy implications

This study applied a qualitative approach to realise how coastal Aboriginal people in Maningrida community conceptualise nutrition, health and wellbeing in connection to seafood. The applications of ‘Indigenist’ inquiry lens with ‘yarning’ as the data collection method were applied as the authors attempted to position Indigenous values in research as a resistance to dominant colonial discourse (Bessarab & Ng'andu, 2010; Rigney, 1999; West et al., 2012). This study provides an original contribution to research that realises the importance of incorporating and advocating for both Indigenous values connected to seafood and the opportunity for nutrition sensitive policies within fisheries to improve nutritional and health outcomes for coastal Indigenous people. This would align to global calls for action to improve the livelihoods and health of Indigenous people such as ‘Health in all Policies’, ‘Strengthening Sector Policies for Better Food Security and Nutrition Results’, ‘United Nations Declaration on the Rights of Indigenous Peoples and the ‘The White/Wiphala Paper on Indigenous Peoples Food Systems’ (FAO, 2016, 2021; UN General Assembly, 2007; WHO, 2019).

Collectively, seafood for the informants in this study, was considered beneficial for themselves, their families and the wider community through the fulfillment of Indigenous values. Several of the values the informants manifested in relation to seafood have similarly been described in the Indigenous health and wellbeing literature such as ‘connection to country, kinship, spirit and physical health’ and the interconnectedness to the socioecological system (Brimblecombe et al., 2014; Butler et al., 2019; Fredericks et al., 2017; Gee et al., 2014; Noble et al., 2016). This study also draws attention to Aboriginal people’s ability to connect and represent their traditional knowledge system within governance structures to reduce barriers to accessing seafood, which has been described in the literature and policies as an underlying principle of ‘self-determination’ (Rademaker & Rowse, 2020; Yap & Yu, 2018) . The reduction in barriers is seen as a way that would enable the sharing of seafood to Elders and family who are unable to access it themselves which would fulfil cultural obligations

(Shepherd, Li, & Zubrick, 2012). Seafood was also described by informants as being a part of their identity with inherit customary connections and is connected to wellbeing (Gall et al., 2021). Cultural practices linked with seafood is expressed in many ways however, for the informants it is viewed as a means to respecting ancestors and spiritual health; this is described in Aboriginal health literature as a means of connecting with “*deep wellbeing*” (Grieves, 2009, p. 7). The expression of culture and access to country is also a mechanism for intergenerational knowledge transfer which is critical for cultural continuation and survivability (Nakata, 2002b). In addition, seafood was also described as providing nutritional nourishment, protecting health and providing the potential for greater economic growth in the community through business opportunities.

5.9.1: *Indigenous self-determined policies*

As described Indigenous people globally have greater health disparities than benchmark populations (Anderson et al., 2016). The magnification of these health disparities has brought attention and resources to the topic of inequity; however, literature has continually highlighted the failures of Indigenous health and wellbeing research, frameworks and policy, with Indigenous people often seen as the problem (Aldred et al., 2021; Fforde, Bamblett, Lovett, Gorringer, & Fogarty, 2013; Watego et al., 2021). In order to shift this pathologizing view of Indigenous health, global agendas such as ‘United Nations Declaration on the Rights of Indigenous Peoples have called for the self-determination, rights and interest of Indigenous people to address their concerns and interest (UN General Assembly, 2007). This is important when considering this study, as the values shared by the informants highlighted that their integration with their ecological system connects their Indigenous values with nutrition, health and wellbeing. This concept needs to be reflected in policies that represent Aboriginal values; this has similarly been identified in natural resource management literature (Gratani et al., 2014; Sangha, Le Brocque, Costanza, & Cadet-James, 2015).

5.9.2: *Nutrition sensitive policies in fisheries*

Currently discourse surrounding ‘nutrition-sensitive policy’ agendas globally are particularly focused on agriculture, maternal nutrition, gender and dietary diversity with little focus on sectors like fisheries despite fisheries being an industry based around food (FAO, 2017; Ruel & Alderman, 2013; Thilsted et al., 2016). This study amongst other literature has highlighted the importance of coastal Indigenous communities’ connection to seafood which

is vital for livelihoods, nourishment, food security and Aboriginal values (Farmery et al., 2020; S Jentoft et al., 2018; Marushka et al., 2021). Global literature has also recognised the lack of Indigenous food provision values represented within fisheries and mariculture policies, such as the importance of providing for families and older people through customary sharing or cultural obligations (Arthur et al., 2022; Fisher et al., 2017; Koehn et al., 2022; Toussaint, 2014). From the findings of this study and existing literature, global aspirations to improve the health and wellbeing outcomes for Indigenous people need sectors such as fisheries to incorporate Indigenous values and realise the nutrition, health and wellbeing benefits. Considering this, nutrition sensitive policies need to ensure not to overlook the potential positive contribution of seafood to Indigenous people's diets, livelihoods, food security and Aboriginal values and thereby health and wellbeing outcomes (Allison et al., 2017; Cisneros-Montemayor et al., 2016; Durie, 2004; WHO, 2019).

5.9.3: ***Suggested action***

It is clear from this study that in Maningrida access and consumption of seafood can be realised as a pathway to healthier food provisions. In order to achieve this, there needs to be a greater investigation into the role of integrative nutrition sensitive policies within sectors such as fisheries. This study has highlighted that nutrition is not a standalone health concept from the lens of an Indigenous person but is inclusive of an interconnected system of values (Brimblecombe et al., 2014; Martin & Mirraboopa, 2003; Murrup-Stewart, Whyman, Jobson, & Adams, 2021). In order to represent these values outside of a vacuum there needs to be a multi-sectoral approach that incorporates the needs and concerns of the community and reflects interconnectedness (Gee et al., 2014; Verbunt et al., 2021). A greater degree of self-determination principles and Indigenous values needs to be conceptualised and recognised in nutrition sensitive policies to incorporate a holistic view of the role of seafood has in improving health and wellbeing outcomes for Indigenous people (Bryant et al., 2021; A. Wilson et al., 2020; Yap & Yu, 2018).

5.9.4: ***Strengths and limitations***

The strengths of this study include the methodological approach of utilising an Indigenous lens to contextualise Aboriginal perspectives. The 'Indigenist' inquiry lens enabled the lead researcher to feel comfortable utilising their Indigenous identity to explore together with the informants, research that is focused on community concerns such as strengthening the

role of fishing for Aboriginal people (Rigney, 1999; S. Wilson, 2008). The lead researcher-built trust and relationships with the Aboriginal community of Maningrida through consultation, existing relationships, cultural identity, significant time and listening (West et al., 2012). A limitation to this study is the time with informants; it was initially planned to incorporate a greater number of field trips with more informant yarning. During the Covid-19 pandemic many places in Australia had travel restrictions and the location of this study had been impacted by such restrictions. Therefore, the lead researcher was unable to travel to the community as often as originally planned. While phone and video interviews were considered it was deemed inappropriate due to the lack of phone and internet services in the community. However, the lead researcher remained in communication with some informants throughout the duration of the study and had opportunity to do several follow up sessions via zoom. Another limitation was the use of language. There were resources available to conduct yarning in Aboriginal languages, but all informants declined and believed their English was sufficient. However, in some circumstance's language, culture and metaphors/words were difficult to translate. The results of this study are able to reflect a generalised view of how Aboriginal people in Maningrida connect to seafood, however caution must be taken when applying the results to the general Maningrida population due to the limited informant size as not all language groups from the Maningrida region are included in the study and therefore creating a framework or conceptual model is not appropriate without further investigation. It would be assumed that seafood holds important meaning for Aboriginal people but the individual values reflected in this study may not represent all Aboriginal people in Australia. This study does however offer a local contextualised deep insight into the knowledge system of a remote Aboriginal community in the NT, who continue to access their seafood resources for individual, family and broader community needs.

5.10 Conclusion

An 'Indigenist' inquiry lens and 'yarning' method were applied to this study to realise the nutritional, health and wellbeing connection of seafood for Aboriginal people in Maningrida community located in the Northern Territory of Australia. The findings demonstrate that seafood is interconnected to Indigenous knowledge systems and incorporates key values that are important for the wider community to sustain and maintain a connection to health and wellbeing. These findings highlight the need for future policies and research agendas to incorporate integrative approaches that consider a wide degree of key concerns impacting

individual communities. When considering seafood in the context of Indigenous people it must be acknowledged that seafood is not only for subsistence or an economic commodity but is also integral to Indigenous values. While further research is needed a possible suggestion identified by the authors is for more research that applies Indigenous research paradigms to enable Indigenous representation within academic literature and policy. One such practical suggestion is to analyse policy, strategies or initiatives that impact coastal Indigenous people and to assess if Indigenous values are represented beyond the framing of economic and political development.

5.11 References

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5.12 Chapter 5: summary

In summary, this Chapter presented the second study of this thesis a qualitative case study utilising Indigenist research inquiry lens with Yarning as method publish in a Q1 peer - reviewed journal, Food Policy. Next, Chapter 6 presents a policy content analysis with a Decolonisation inquiry lens.

Chapter 6 THE REPRESENTATION OF ABORIGINAL HEALTH AND WELLBEING VALUES WITHIN COASTAL MARINE AND FISHERIES POLICIES OF THE NORTHERN TERRITORY OF AUSTRALIA

6.1 Foreword Chapter 6

This Chapter will present on study three to address thesis *RQ3. How are Indigenous nutrition, health, and wellbeing values of seafood conceptualised in NT coastal, marine, and fisheries policies?* This study is planned to be submitted for publication.

6.2 Abstract

Aboriginal Peoples in the Northern Territory (NT) of Australia have customary connections to their sea country and access to seafood for cultural practices, nourishment, livelihoods and social connections. Global and national entities have called for health and self-determination principles to be considered across all Indigenous public policies to improve the health outcomes for Indigenous Peoples. Specifically, there is a growing international acknowledgement that the fisheries sector plays a crucial role in enhancing and supporting Indigenous health and wellbeing. However, there is limited understanding of how coastal, marine and fisheries policy can achieve this. This study applied a content analysis method with a Decolonisation inquiry lens to investigate how Indigenous health and wellbeing values are conceptualised and represented in current coastal, marine and fisheries policies in Australia's NT. The research questions addressed are 1). What Indigenous values are represented in NT coastal, marine and fisheries policies? 2). How are Indigenous health and wellbeing outcomes represented in NT coastal, marine and fishery policies? and 3). How is Indigenous self-determination positioned within NT coastal, marine and fishery policies? Ten policy documents identified through a grey literature search and contact with key stakeholders were analysed for key values, outcomes and positioning using qualitative methods. Findings reveal that policy focus is primarily concerned with the conservation and management of coastal and marine environments and resources, fisheries, management and sustainability, and fisheries-based economic development. Indigenous values connected to sea country and fisheries were apparent in the policies such as connection to country and culture. The relationship of these to health and wellbeing outcomes however was not explicitly represented, including fisheries as a source of food production and important for food security. This is concerning considering the contribution of seafood to coastal Indigenous Peoples diets and food security. In addition, self-determination principles were represented within the policies by recognising Aboriginal aspirations. However, these were to be realised primarily through economic development and associated outcomes. This content analysis was a preliminary exercise from which future research agendas and policies can develop to achieve a more coherent integration of Indigenous health and wellbeing values into coastal, marine and fisheries policies to improve health outcomes.

6.3 Positionality statement

As this study is qualitative by nature and subjectivity is therefore intertwined with the study design and communication, it is essential to establish the positionality of the authors (Olmos-Vega et al., 2022). The lead author of this study is an accepted member of the Larrakia and Wadjigan coastal Aboriginal Peoples groups from the NT of Australia. The co-authors of this study are long-standing NT citizens and non-Indigenous with experience in strength-based research with Aboriginal communities. The authors have expertise in nutrition, food security, small-scale fisheries, Indigenous fishing, and qualitative and Indigenous methodologies. Throughout this article, the term Indigenous will refer to the broad global community (Martinez Cobo, 1982). Aboriginal and Torres Strait Islanders will explicitly refer to Australia's first Peoples (AIATSIS, 2021). It is accepted these terms are not fully agreed upon.

6.4 Introduction

Similar to many other Indigenous populations globally, Aboriginal and Torres Strait Islander Australians continue to be impacted by colonisation and systemic policies that displace their ability to govern their interest (Dawson et al., 2021; Moreton-Robinson, 2015; UN, 2007). It is well documented that Aboriginal and Torres Strait Islander Peoples health and wellbeing continues to be impacted by these lasting structural legacies of colonisation, contributing to health and wellbeing disparities and inequalities (Dawson et al., 2021; Sherwood, 2013; Wolfe, 2006). To address such disparities, the Australian Government has invested in initiatives and programs to create structural changes (Australian Government, 2022b; Dawson et al., 2021). Most notable is the 2008 National Indigenous Reform Agreement between Governments to Close-The-Gap on Aboriginal and Torres Strait Islander inequality through improvement in life expectancy, child mortality as well as social outcomes such as employment and education (Australian Government, 2009). The 2020 National Agreement on Closing-The-Gap includes updated outcomes related to physical and mental health, child mortality and development, education, employment, housing, justice, safety and land and water rights (Australian Government, 2020a, 2022b). Despite significant Government investment in the Close-The-Gap initiative, Aboriginal and Torres Strait Islander Peoples have not experienced health and wellbeing equality (Australian Government, 2022b; Dawson et al., 2021; Lowitja Institute, 2022). A critical perspective is that the outcome measures of health and wellbeing that have contributed to informing policies and initiatives such as Close-The-Gap have been based on

deficit discourse (Fforde et al., 2013), which have focused on individual and community disadvantage rather than systemic structural inequities such as systemic racism and lack of representation of Aboriginal and Torres Strait Islander Peoples in policy decision-making (Altman, 2016; Bell & Green, 2016; Cox et al., 2022; Dawson et al., 2021). Deficit-focused approaches have to a degree been associated with improvements in some health and wellbeing outcomes, however, these approaches have often not aligned with collective Aboriginal and Torres Strait Islander community values but rather with state- and national-orientated ones (Evason, 2016; Howard-Wagner, 2018; Howard-Wagner, Bargh, & Altamirano-Jiménez, 2018). This has been described by academics and policy makers within Australia as a basic form of assimilation that does not focus on Aboriginal and Torres Strait Islander community values and strengths nor addresses systemic racism (Dodson, Altman, & Hinkson, 2007; Marks, 2008). Currently, there is a growing positive recognition of Aboriginal and Torres Strait Islander Peoples rights and interests, with national investment to address the inequities that exist and to allow for self-determination (Altman, 2013; Australian Government, 2022a; Jentoft et al., 2018). This has been highlighted in the Lowitja Closing-The-Gap Campaign Report 2022:

“To improve the outcomes for Aboriginal and Torres Strait Islander Peoples, large-scale systemic reform and a paradigm shift in policy design and delivery is necessary to truly empower Aboriginal and Torres Strait Islander Peoples” (Lowitja Institute, 2022, p. 42).

To incorporate Indigenous strengths within policy narratives, global entities like the United Nations (UN) have urged Governments to adopt self-determination principles and address inequities through structural empowerment of Indigenous representation to have greater control over issues that they decide impact their lives (Aldred et al., 2021; Thomas, Bainbridge, & Tsey, 2014; UN, 2007). While there are varying interpretations of how self-determination is understood and reflected, it is generally agreed that self-determination is the ability of communities to have input into policies, research and governance structures that reflect their needs, including health (UN, 2007; WHO, 2014). The National Agreement on Closing-The-Gap 2022, for the first time, sets a pathway to support Aboriginal and Torres Strait Islander self-determination. It includes representatives of Aboriginal and Torres Strait Islander Peoples as parties to the agreement. It has broadened the targets to include priority reform targets that can measure change in how governments work with Aboriginal and Torres Strait

Islander Peoples, and how governments progress, for example, the addressing of systemic racism (Australian Government, 2020a, 2022b). Priority reform one in the National agreement to Closing-The-Gap is to:

“Commits all parties to building and strengthening structures that empower Aboriginal and Torres Strait Islander Peoples to share decision-making authority with Governments to accelerate policy and place-based progress against Closing-The-Gap” (Australian Government, 2020b, p. 5).

From this, it could be expected that progress towards Closing-The-Gap targets would see structures for self-determination reflected in all government policies concerning Aboriginal and Torres Strait Islander Peoples. However, this may still not occur if health outcome measures are focused at the individual level and seen as the responsibility of one particular government sector. For Aboriginal and Torres Strait Islander Peoples, health is often a collective concept that includes values beyond the biomedical model of health that focuses on the absence of disease (Anderson et al., 2016; Pulver et al., 2010; Salmon et al., 2019). Aboriginal and Torres Strait Islander health and wellbeing values may include connection to country and kinship, expression of social and cultural values and the interconnectedness between these (Gee et al., 2014; Verbunt et al., 2021). These values cross sectors and underpin health and wellbeing outcomes.

In addition, the World Health Organisation (WHO) recognises the role of industries and government sectors in potentially improve health inequities through broader policy initiatives beyond the typical primary healthcare service delivery and individual-level focus of health policy, such as agriculture, transport and economics (WHO, 2019). However, Mundo et al (2019) have raised that there is currently no standardised implementation or guidance structure of how health can be considered and integrated into cross-sector policy within countries for improved self-determination (Greer et al., 2022; Guglielmin et al., 2018). It has been identified that an area of interest where a cross-sectoral and integrated policy approach could be expected with clear structures for self-determination and implementation is the local coastal, marine and fisheries sectors (FAO, 2014; Warrior, Fanning, & Metaxas, 2022).

Coastal and marine habitats and resources are fundamental to human health. They are a part of Indigenous and Non-Indigenous food systems and directly provide for the nourishment

and food security of humans (FAO, 2014, 2021; Fisher et al., 2017). In Australia, coastal Aboriginal and Torres Strait Islander Peoples maintain connections to their coastal and marine Sea Country for cultural, livelihood and subsistence purposes, including as an economic resource (Russell, Sullivan, & Reichelt-Brushett., 2015; Smyth, Egan, & Kennett., 2018). Fisheries and aquaculture sectors also contribute positively to healthy diets by increasing the availability and consumption of micronutrients, fatty acids and protein-rich seafood, and specifically contribute significantly and directly to global coastal Indigenous Peoples diets (Cisneros-Montemayor et al., 2016; FAO, 2014; Thilsted et al., 2016). There is rising global and national policy interest in the need to strengthen the Indigenous food systems with key papers such as the FAO-led White/Wiphala Paper highlighting the contribution of Indigenous Peoples food systems, including marine seafood to health and wellbeing (FAO, 2021).

Despite the broad and cross-sector benefits of seafood, a current key issue, importantly identified by Arthur et al (2022) and Koehn et al (2022), is that policy framing within fisheries, particularly small-scale fisheries, has favoured commercialisation and overlooked self-determination and other benefits such as nutrition and food security. Thus, in line with international Health In-All-Policies trends and Aboriginal and Torres Strait Islander Peoples values, there is a significant opportunity to enhance self-determination and contribute to the Close-The-Gap targets for improved health and wellbeing through coastal, marine and fisheries policy. However, to our knowledge, no research has been conducted to examine the incorporation of Aboriginal and Torres Strait Islander Peoples' values related to health and wellbeing outcomes within coastal, marine and fisheries policies.

The study reported herein aimed to investigate how health and wellbeing values are conceptualised and represented in current coastal, marine and fisheries policies in Australia's NT. Policy within this study is broadly defined as "*a plan of action to influence and determine decisions, actions or other matters*" and is communicated in this study as strategies and plans (Zacharias & Ardron, 2020, p. 93). This study focuses on understanding the discourse used in a suite of Governments, industry, Indigenous organisations and agency policies concerning self-determination and Aboriginal community representation of values. Taking this into consideration, a Decolonisation inquiry lens was applied to the design, framing and positioning of this study to empower Aboriginal values and challenge dominant Eurocentric structures within the coastal, marine and fisheries sector while also aiming to advocate for policies also

to consider these broader constructs (Keikelame & Swartz, 2019; Reid et al., 2021; Thambinathan & Kinsella, 2021). In the following sections, we provide context to the study, describe the policy and apply a qualitative content analysis with a Decolonisation inquiry lens (Elo & Kyngäs., 2008; Smith., 2021; Thambinathan & Kinsella., 2021). This is followed by presenting the characteristics of 10 policies and eight main concepts of Indigenous values of nutrition, health and wellbeing identified through the content analysis. This analysis lead to the identification of recommendations for future policy.

6.5 Context: Aboriginal Peoples in the Northern Territory

The NT is an Australian federal territory with an area of 1.42 million km² and a coastline extending for 10,953km with coastal waters covering 72,000 km² (Northern Territory Government, 2019a). According to the 2021 national census, the population of the Northern Territory is 233,000, with 26.3% or 61,000 of the population identifying as Aboriginal or Torres Strait Islander (ABS, 2022). Despite the NT having a level of self-government, it is still subjected to a degree of Australian Commonwealth legislative power, including over some but not all resources - land, marine protected areas and national parks (Australian Government, 2007). The Australian Government 1976 enacted legislative changes in the Aboriginal Land Rights Northern Territory Act (Australian Government, 1976). This enabled the land claim processes for Aboriginal Peoples who are Traditional Owners (TO), which in this paper refers to Aboriginal Peoples who have a long-standing pre-colonial and continuing customary connection to land and sea country with inherent rights and responsibilities (ALRC, 2014; Bock et al., 2022). Significant for this study is that a landmark reform in 2008 resulted in the Commonwealth of Australia high court decision of Blue Mud Bay [Northern Territory of Australia v Arnhem Land Aboriginal Land Trust [2008] HCA 29 (30 July 2008)], which has enabled Aboriginal Peoples to have exclusive sea country access rights (Altman, 2013; Jentoft et al., 2018). Here sea country broadly refers to the intertidal zone stretching from the high to the low water mark. This decision resulted in Aboriginal coastal groups having control of 85% of the NT's 10,953km coast line or intertidal waters (Altman, 2013; Helmuth, 2016; Jentoft et al., 2018). This is a significant development for Aboriginal Peoples in the NT, providing increased community and TO control over their sea country. In December 2022, the NT Fisheries Act [1988] was amended to recognise Aboriginal ownership of the intertidal zone (Northern Territory Government, 2022b). Other initiatives arising from the Blue Mid Bay decision, following the recognition of rights in the intertidal zone among government and

Indigenous stakeholders, include a set of agreed actions for stakeholders to support the establishment of an Aboriginal Sea Company and the development of small-scale commercial Aboriginal fisheries via new provisions for Aboriginal Coastal Licenses [Fisheries regulations 1992] (Northern Territory Government, 2021). These licenses have enabled Aboriginal TOs to establish pathways to economic development and support cultural obligations while residing on country through the access and sales of restricted fish species within their communities. This greater recognition of opportunities for growing the Indigenous commercial fisheries sector following low levels of participation in commercially orientated fisheries (the exception is the Torres Strait Islands) has resulted in an increased need to support the Indigenous sector through research and development investments (Fisheries Research Development Corporation, 2020a; Indigenous Land and Sea Corporation, 2022). The broader Australian Aboriginal and Torres Strait Islander affairs/representative bodies and agencies have also contributed to developing and advocating for national, state and territory level coastal, marine fishing and land access rights, for self-determination for economic development around Australia. Commonwealth-supported entities such as the Indigenous Land and Sea Corporation (ILSC) and The Fisheries Research and Development Corporation (FRDC) have specialised Indigenous reference steering committees. These entities recognise Indigenous fisheries and sea country as a means to economic, social and environmental outcomes and values including self-determination for Aboriginal and Torres Strait Islanders communities (Fisheries Research Development Corporation, 2020a; Indigenous Land and Sea Corporation, 2020).

6.6 Methods

6.6.1: *Theoretical inquiry lens: Decolonisation and positioning of Aboriginal fisheries*

As a settler colonial state, Australia has enacted policies at various historical stages that have oppressed, assimilated, and negatively impacted Aboriginal and Torres Strait Islander Peoples lives (Moreton-Robinson, 2015; Wolfe, 2006). This includes Aboriginal and Torres Strait Islander Peoples ability to engage and utilise traditional systems of knowledge to govern and represent their interest, including governance of coastal and marine sea country (Fleming, Petheram, & Stacey, 2015; Lalancette & Mulrennan, 2022; Reid et al., 2021). The Decolonisation inquiry lens was applied to this study as a theoretical positioning to enable the researchers to unsettle dominant colonial paradigms and the validity of knowledge rooted in Eurocentric epistemologies and ontologies (Gerlach, 2018; Thambinathan & Kinsella, 2021).

These dominant theoretical positionings are particularly evident in fisheries and nutritional disciplines (Palermo, Reidlinger, & Rees., 2021; Reid et al., 2021; Wilson et al., 2020). This inquiry lens was implemented by acknowledging the Aboriginal Peoples connection to their knowledge systems and accepting that this may not align with the general dominant societal views (Smith, 2021; Thambinathan & Kinsella, 2021). This process included consideration of respect for Aboriginal self-determination and critical reflexivity by the authors. The study also aligns with the need to provide positive transformative approaches towards empowering Aboriginal values in coastal, marine and fishery policies for impact on nutrition, health and wellbeing outcomes and self-determination within an Indigenous lens (Thambinathan & Kinsella, 2021).

6.6.2: ***Sampling and search strategy***

The policies included in this study are current Australian Government, NT Government and/or key industry or Indigenous stakeholder coastal, marine and/or fishery strategies and/or plans that impact NT coastal Aboriginal Peoples connection to sea country and seafood. Australian Government policies were included as Indigenous affairs are considered an Australian Government responsibility for the NT of Australia (NIAA, 2022). Therefore, the National Indigenous Australians Agency is responsible for implementing the Australian Government policies and programs to improve Aboriginal and Torres Strait Islander People's lives (NIAA, 2022). In addition, as fish is a public resource, the Australian Government manages on behalf of all Australians, recreational, commercial and Indigenous fisheries under the Fisheries Management Act [1991] (Australian Government, 1991).

The policies were identified through Google search (Godin et al., 2015). The search was conducted in September 2022. Google's advanced search feature was used to search for policies/plans published online in 'Australia'. The terms 'Indigenous' OR 'Aboriginal' AND 'Marine', 'Fish*', 'Seafood', 'Coastal' AND 'Strategy' OR 'Strategic' 'Plan' AND 'Northern Territory' OR 'Commonwealth OR Governments' were applied to the 'any of these words' function in Google. The policies/plans identified as meeting the criteria were downloaded and policy details entered into a purpose-built Microsoft Excel table for further screening. In addition, email contact was made with six key stakeholders involved in the marine/fisheries sector in the NT and Commonwealth of Australia to enquire about additional policies that fit the criteria to ensure no policies were missed. Key stakeholders were identified through

snowballing through the first and second authors' (BC, NS) knowledge of key people and their positions within key organisations; all six responded on contact. This included contacts from the NT Government Departments of Industry, Tourism and Trade and Chief Minister and Cabinet; Fisheries Research Development Corporation: a statutory corporation under the Primary Industries Research and Development Act [1989] and responsible to the Australian Government Minister for Agriculture, Fisheries and Forestry; NT Seafood Council; North Australian Indigenous Land and Sea Management Alliance; and, Aboriginal Sea Company.

6.6.3: *Data analysis: inductive coding*

The first step of the content analysis method used is the preparation step which involved the lead researcher (BC) simultaneously establishing a unit of analysis to assess Indigenous values of nutrition, health and wellbeing while reading and comprehending the policies (Cavanagh, 1997; Elo & Kyngäs, 2008). As the study aimed to investigate the latent content, the unit of analysis was a paragraph to ensure enough content was captured to reflect the context, this was followed by assigning a condensed code to relevant sections (Graneheim & Lundman, 2004). The following preparation phase was to make sense of and become familiar with the identified policies (Elo & Kyngäs, 2008). A Microsoft Excel spreadsheet was created to assist with this familiarisation process with the following data extracted for each policy document: name, the organisation that created the policy, date, audience of the policy, Indigenous consultation, and purpose. The following content analysis step was data organisation (S. Elo & Kyngäs, 2008). As the approach to coding was inductive, the documents were open-coded by the lead researcher (BC), and 10% of the documents were coded independently and cross-checked with the senior researcher (JB). This phase resulted in 49 initial categories identified. The codes were then collapsed into categories and organised under higher-order headings. The lead author completed this in discussion with the two co-authors (S. Elo & Kyngäs, 2008). The initial categories were grouped into 17 broader categories, further described in the results. The abstraction step of this data analysis involved grouping the categories by characteristics that reflected the content (Elo et al., 2014; Elo & Kyngäs, 2008). The final data analysis step involved the category groups being organised into main overarching concepts created by the lead researcher to answer the research questions. It must be noted that some categories overlap due to the lack of specific detail and often broad statements within the provided policies such as reference to culture, customary practices and economic development.

6.6.4: ***Search results: Included and excluded***

The Google search resulted in 14 policies and 22 further identified from the six key stakeholders. Of the 36 potential policies identified, 13 were excluded as duplicates and 13 were excluded with reasons given such as local Government level policy covering one specific location, does not focus on coastal, marine or fisheries impacting Indigenous Peoples or not a strategy or plan. In addition, the following ten policies were included for analysis:

- Northern Land Council: Aboriginal Sea Company Draft Strategic Plan (Aboriginal Sea Company LTD, ND)
- Australian Government, Indigenous Land and Sea Corporation: Northern Australia Regional Indigenous Land and Sea Strategy 2019-2022 (Australian Government, 2019)
- Australian Government: National Fisheries Plan, Department of Agriculture, Water and the Environment 2022-2030 (Australian Government, 2022c)
- Fisheries Research Development Corporation: Research and Development Plan 2020-2025 (Fisheries Research Development Corporation, 2020a)
- Fisheries Research Development Corporation: Annual Prerational Plan 2022-23 (Fisheries Research Development Corporation, 2022)
- Northern Territory Government: Coastal and Marine Management Strategy 2019-2029 (Northern Territory Government, 2019a)
- Northern Territory Government: Department of Primary Industry and Resources Fisheries Division Strategic Plan 2019-2022 (Northern Territory Government, 2019b)
- Northern Territory Government: Land and Sea Action Plan 2022-2024 (Northern Territory Government, 2022a)
- Northern Territory Seafood Council: Strategic Plan 2018-2023(Northern Territory seafood council, 2018)
- Fisheries Research Development Corporation: Shaping Fisheries Research Development Corporation 2020-2025 R&D Plan (Fisheries Research Development Corporation, 2020b)

6.7 Results

6.7.1: *Policy characteristics and key purpose*

Of the ten policies reviewed, as show in Table 6:1, the dates covered a period from 2018 to 2029. Three of the ten policies belonged to the NT Government, two to the Australian Government (Department of Agriculture, Fisheries and Forestry and ILSC), three to Australian Government Commonwealth agencies (FRDC, reporting to the Minister of Agriculture, Fisheries and Forestry) and two to industry stakeholders (Northern Land Council: Aboriginal Seafood Company and the Northern Territory Seafood Council).

One policy's purpose was to develop aquatic resources through sustainable development, utilisation and protection of aquatic resources (Northern Territory Government, 2019b). Similarly, an Australian Government policy focused on the sustainable growth of the fisheries, aquaculture and seafood sectors (Australian Government, 2022c). The NT Government's Coastal and Marine Management strategy focused primarily on coastal land and sea management (Northern Territory Government, 2019a). Two policies were focused on acquiring land and marine assets, rights and their management by Aboriginal and Torres Strait Islander Peoples (Australian Government, 2019; Northern Territory Government, 2022a). One focused on developing Aboriginal fishing and aquaculture businesses, assets and enterprises through the Aboriginal Land and Sea Country (Aboriginal Sea Company LTD, ND). The NT Seafood Council policy also focused on promoting and developing the NT industry; however, it was not explicitly focused on Aboriginal interests (Northern Territory seafood council, 2018). Three policies aimed to promote knowledge facilitation, collaboration, research and innovation amongst the Indigenous recreational and commercial fisheries sectors to shape Australian fisheries for the future (Fisheries Research Development Corporation, 2020a, 2020b, 2022).

Table 6:1- Policy purpose summary

Policy	Purpose
Aboriginal Sea Company Draft Strategic Plan	A key feature of this plan is the Aboriginal Sea Company has consulted stakeholders and incorporated their aspirations and desires. The plan aims to establish long-term success of embedding the pillars of the Aboriginal Seafood Council and taking back control of fisheries management.

Australian Governments Indigenous Land and Sea Corporation: Northern Australia Regional Indigenous Land and Sea Strategy 2019-2022	The Indigenous Land and Sea Corporation (ISLC) aims to assist Indigenous Australians in acquiring land and water-related rights and managing Indigenous-held land and sea. This strategy details a framework for how the ISLC wants to deliver its mandate to achieve economic, environmental, social and cultural benefits for Indigenous Peoples.
Australian Governments: National Fisheries Plan, Department of Agriculture, Water and the Environment 2022-2030	The National Fisheries Plan aims to ensure the future of fishing, aquaculture, and seafood is a shared vision that aligns with the Government's strategic planning, prioritisation and investment. The plan further aims to provide a framework and vision for the sustainable growth and development of Australia's fishing and aquaculture, and seafood community for the future.
Fisheries Research Development Corporation Research and Development Plan 2020-2025	Fisheries Research Development Corporation (FRDC) is a national thought leader in shaping fishing and aquaculture in Australia through investment, management, research and development. This strategy highlights the plan for capacity building, shaping culture, building relationships and establishing shared principles and values with the community over the next five years.
Fisheries Research Development Corporation: Annual Prerational Plan 2022-23	This plan aims to provide an annual outline and detail of how the FRDC meets Australia's vision of fishing and aquaculture by supporting the collaborative, vibrant fishing and aquaculture community and creating various benefits from aquatic resources.
Northern Territory Governments: Coastal and Marine Management Strategy 2019-2029	This 10-year strategy highlights a vision and outline of how to provide, protect and maintain healthy, productive coasts and seas. This incorporates recognition of the cultural significance of marine resources and their contribution to lifestyle and livelihoods. In addition, the strategy includes recognition of the rights and interests of Aboriginal landowners, support management, and conservation of coastal and marine areas, including the natural resources and sustainable industry for the benefit of the NT economy.
Northern Territory Governments: Department of Primary Industry and Resources Fisheries Division Strategic Plan 2019-2022	This strategy guides actions to achieve sustainable development, utilisation and protection of aquatic resources. The intention is to provide clarity around the medium-term business focus of the Fisheries Division. In addition, the strategy identifies actions to build and retain the capacity and skills of NT fishing.
Northern Territory Land and Sea Action Plan 2022-2024	The strategy focuses on the land and sea ownership and delivery of Aboriginal Peoples economic and social aspirations in the NT.
Northern Territory Seafood Council Strategic Plan 2018-2023	The key focus of this strategy is to restore commercial rights and position the industry to regain social license to operate. This is actioned by implementing key programmes involving identifying risks and opportunities for the NT

	Seafood Council and inshore fisheries to secure access, sustainable fishing and increased market value.
Fisheries Research Development Corporation: Shaping Fisheries Research Development Corporation 2020-2025 R&D Plan	This strategy summarises the historical performances of commercial wild catch, aquaculture, Indigenous, recreational and post-harvest fishery sectors using a situational analysis to inform future FRDC vision.

6.8 Representation of Aboriginal values connected to health and wellbeing outcomes and the positioning of self-determination within policies

Eight ‘main concepts’ represented within the suite of 10 policies in relation to the aim of this study were constructed from the higher-order grouping of categories found within the policies as follow:

- Aboriginal Peoples and community aspirations and values
- Aboriginal self-determination and governance
- Aboriginal Knowledge
- Conflict in fisheries, challenges for Aboriginal Peoples
- Closing-The-Gap on Aboriginal inequity
- Coastal Aboriginal identity
- Economic development with Aboriginal Peoples
- Aboriginal nutrition, health and wellbeing
- Aboriginal Peoples and community aspirations and values

The Aboriginal Peoples and community aspirations and values concept of fisheries development was created from the “*social, values, aspirations*” categories. It captures the discourse within the policies that considers and reflects Aboriginal values. Several policies explicitly refer to Aboriginal Peoples and their communities’ aspirations and values. Aboriginal Sea Company highlighted the guiding principles of their key pillars is to build “*Trust, Integrity, and Leadership*” with the community and stakeholders through “*Respectful relationships - listening to other voices*” (Aboriginal Sea Company LTD, ND, p. 3). Other

policies aligned their visions and objectives to incorporate Aboriginal values, such as “*the action plan vision is to ensure land and sea ownership delivers on the economic and social aspirations of Aboriginal Territorians*” (Northern Territory Government, 2022a, p. 4). Another policy highlighted the need to engage Aboriginal communities to reflect their values: “Undertake participatory planning with Traditional Owners to identify aspirations and programs that deliver economic, social, cultural and environmental benefits” (Northern Territory Government, 2019a, p. 12). Overall Aboriginal values, aspirations and social connections to their coastal and marine areas and fisheries are represented in policies through text that describes incorporating these into policy objectives and outcomes.

6.8.1: **Aboriginal Self-determination and Governance**

Aboriginal Self-determination and Governance concept incorporates “*self-determination*” and “*Governance*” representations. Throughout the policies, self-determination is referred to in different manners that reflect different contexts, including both explicit and latent representation. Explicit representation of self-determination in the policy text is in the context of reference to the decision-making processes. Latent representation includes terms such as “*Engagement*” and “*Governance*” with related sub-categories such as “*rights*”, “*land councils*”, “*management*”, and “*licenses*”, and is focused on capacity building and partnerships. A reoccurring theme identified across the policies is self-determination reflected as a means to achieve financial independence through fishing enterprises and increased land and water rights and ownership. One such example of this is:

“The creation of fishing and aquaculture business opportunities that align with cultural values has the potential to be a powerful promoter of Indigenous self-determination through financial independence” (Fisheries Research Development Corporation, 2020b, p. 12).

In conjunction with financial independence as a means of self-determination, the policy discourse primarily represents self-determination through a socioeconomic lens, with associated language terms such as “*management*”, “*partnership*”, “*capacity building*” and the beneficiaries described as “*traditional owners*”, and “*stakeholders*”. There is also a general focus on Aboriginal “*rights*”, primarily concerned with land and water rights and ownership, and the association of this with self-determination. For example,

“Recognising the rights and interests of Aboriginal Territorians in the management of the use and access to the coastal and marine environment, including its natural resources and the maintenance of customary practices, is essential to achieving their economic and social aspirations” (Northern Territory Government, 2019a, p. 4).

The Commonwealth of Australia also describe their role in this *“the Commonwealth Governments plays an important role in Aboriginal land and sea ownership in the Northern Territory through its administration of the Land Rights Act and the Native Title Act”* (Northern Territory Government, 2022a, p. 5). These two Acts are vehicles by which Aboriginal Peoples have recognition and legal authority to exercise their different bundles of rights, and thereby, self-determination.

6.8.2: **Aboriginal Knowledge**

This concept of Aboriginal Knowledge was constructed with categories of *“Intergenerational knowledge transfer”* and *“traditional fisher knowledge”*. This is an important concept to consider when describing Aboriginal values as the traditional knowledge systems represent Aboriginal ways of interacting with the world and, therefore, values (Butler et al., 2019; Gee et al., 2014; Martin & Mirraboopa, 2003). Coastal and marine sea countries are described in the policies as providing a means for intergenerational knowledge transfer and connection to seafood. For example

“The sea is still an important part of the Indigenous culture; it is where families can have fun together, for a source of food and the continuation of tradition and knowledge” (Aboriginal Sea Company LTD, ND).

Aboriginal Knowledge Systems are highly contextual and have traditionally governed community fishing practices. This *“traditional fisher knowledge”* representation within the policies includes *“Traditional fishers’ knowledge is increasingly being recognised as an invaluable resource”* (Fisheries Research Development Corporation, 2020b, p. 12) and *“Fishing regulations were part of the culture and dictated when you can fish and where you can fish”* (Aboriginal Sea Company LTD, ND, p. 3). The general discourse of these policies is shown to represent Aboriginal Knowledge as a means for improving or recognising the management of coastal and marine sea country and fishing practices for and by Aboriginal

coastal Peoples. Aboriginal Knowledge is also represented in the policies as being recognised alongside Eurocentric Knowledge of marine resources and their management. These two systems are integrated to improve Aboriginal connection and management to coastal, marine and fisheries.

6.8.3: ***Conflict in fisheries, challenges for Aboriginal Peoples***

Aboriginal fishing and coastal and marine sea country access remain an important part of People's identity through connection to culture and country. The concept of, Conflict in fisheries, challenges for Aboriginal Peoples, was created from two categories highlighting Aboriginal People's relationship to fisheries within coastal and marine management policies. The first category, "*Challenges*", describes the challenge to progressing "*economic development*" in Aboriginal managed country, and the challenges to "*management of the coastal zone and reduce conflict among user groups*" (Northern Territory Government, 2019a, p. 4). The second category, "*non-commercial*", refers to fisheries for Aboriginal Peoples as customary and cultural fisheries, in addition to the conflict with the recreational and commercial fishing sectors (Fisheries Research Development Corporation, 2020b; Northern Territory Government, 2019a). The typical policy discourse identified represents Aboriginal coastal and marine areas as a commodity for economic development which Aboriginal Peoples could benefit from through income and employment, but at times also conflicts with customary Aboriginal fishing practices and cultural obligations.

It should be noted that barriers exist to Aboriginal engagement within commercial fisheries in Australia (Jentoft et al., 2018). As described in the context of this study, the access and management arrangements to areas of coastal zones in the NT are undergoing transition following the recognition of rights to the intertidal zone (i.e., through the Blue Mud Bay High court decision) (Altman, 2013; Jentoft et al., 2018) and the consequential impact on commercial and recreational fisheries management and licensing. One of the policies recognises that there needs to be risk management and a process with Aboriginal Peoples engaged in better and more transparent decision-making processes in the recreational and commercial sectors (Northern Territory Government, 2019a, p. 4).

6.8.4: **Closing-The-Gap on Aboriginal and Torres Strait Islander inequity**

Several policies refer to the Closing-The-Gap agreement explicitly, indicating that coastal, marine and fisheries sectors are committed to Closing-The-Gap targets and improving Aboriginal health and social outcomes. However, the application and representation of this commitment is sparse. Examples include:

“the national capability to Close-The-Gap between health and life expectancy of Aboriginal and Torres Strait Islander Peoples and non-Indigenous Australians will rely on the ability to understand and address these issues” (Fisheries Research Development Corporation, 2022, p. 12).

“The updated Action Plan is a primary initiative under the NT Government Aboriginal Affairs Strategy and links to the National Agreement on Closing-The-Gap” (Northern Territory Government, 2022a, p. 4).

There is no specific mention in any policies of how they specifically contribute to Closing-The-Gap, for example, the Closing-The-Gap targets and how they may help achieve these through implementation strategies.

6.8.5: **Coastal Aboriginal Identity**

Aboriginal Peoples have maintained a connection to their customary coastal and marine sea country and seafood, both critical to cultural identity and Aboriginal society (AIATSIS, 2018; Brimblecombe et al., 2014; Cubillo et al., 2020). Coastal Aboriginal Identity was constructed from the category’s “*culture*” and “*history*”. These reflect the long-standing tradition of Aboriginal Peoples continued access to their coastal marine sea country for customary purposes. The sub-categories of “*culture*” include “customary practices, the natural world, and sharing”. Aboriginal Peoples and their connection to their coastal and marine sea country are reflected in the policies as shown by this excerpt from the Aboriginal Sea Company: Draft Strategy:

“Educating Peoples on our history of managing resources and trade, what our goals and aspirations are, why this management model is more sustainable than the old management laws and to be part of our journey forward” (Aboriginal Sea Company LTD, ND, p. 6).

The cultural identity of coastal Aboriginal Peoples incorporates the connection to sea country and seafood through customary practices. This is also reflected in the NT Government strategy: *“for the maintenance of customary practices and local Aboriginal community livelihoods, and as an integral part of our identity and lifestyle”* (Northern Territory Government, 2019a, p. 7). As shown with the Aboriginal self-determination and governance concept, the discourse around Coastal Aboriginal Identity is generally framed in the policies within the lens of a socioeconomic model, geared towards achieving identity aspirations through the management of coastal and marine sea country, as exemplified in an excerpt from the NT Government’s strategy: *“maintenance of customary practices is essential to achieving their economic and social aspirations”* (Northern Territory Government, 2019a, p. 9).

6.8.6: **Economic and livelihood development with Aboriginal Peoples**

Economic and livelihood development with Aboriginal Peoples and communities are strongly represented throughout the policies. This concept was constructed with *“economic, livelihoods, opportunities and sea country”*. Subcategories for *“economic”* include *“business, enterprises, financial, tourism”*, and subcategories for *“sea country”* includes *“environment and Indigenous protected areas”*. Livelihoods is a broad term, and for the context of this study, livelihoods represent assets and activities designed to provide outcomes such as food, income and wellbeing of individuals and their families and communities (Scoones, 2009; Stacey et al., 2021). Representation of economic development and Aboriginal opportunity in fisheries in the policies is generally from the perspective that Aboriginal involvement in commercial industries has a flow-on effect in benefiting the wider community. There is a significant focus in the policy discourse on developing financial opportunities. One NT Government strategy stated that:

“There are also many opportunities for further development based on our coast and seas to build and strengthen the Territory economy and pursue enterprise initiatives that support local Aboriginal livelihoods and enterprises” (Northern Territory Government, 2019a, p. 9).

Several policies consider Aboriginal sea country as an opportunity for Aboriginal Peoples to use their resources for different forms of economic development, including fishing, as exemplified in the NT Seafood Council document: *“there is an opportunity to involve*

Aboriginal communities in the fisheries and to deliver regionally dispersed economic benefits” (Northern Territory seafood council, 2018, p. 7). This includes:

“Reclaiming rights, capturing all aspects of the saltwater country – building a better relationship with mainstream businesses and Governments for future ecologically sustainable economic development” (Aboriginal Sea Company LTD, ND, p. 6).

6.8.7: Aboriginal health and wellbeing

Aboriginal nutrition, health and wellbeing concepts have been created from *“health and wellbeing”* and *“nutrition and food”*. For example, *“The sea is still an important part of the Indigenous culture; it is where families can have fun together, for a food source”* (Aboriginal Sea Company LTD, ND, p. 4). It was also represented as a commodity in demand: *“escalating worldwide demand for seafood-based protein”* (Australian Government, 2019, p. 17). Wellbeing was referred to as a potentially significant outcome of access to seafood but one that was underdeveloped in terms of measurement, as shown in the excerpt from the Fisheries Research Development Corporation strategy: *“integrate broader metrics that better describe and track environmental and human wellbeing across fishing and aquaculture”* (Fisheries Research Development Corporation, 2020a, p. 35). No policies explicitly referred to the health and wellbeing implications of seafood consumption and access issues relevant to consumption or seafood production for Aboriginal Peoples.

6.9 Discussion

This study applied a content analysis method with a Decolonisation inquiry lens to investigate how Indigenous health and wellbeing and also self-determination values are conceptualised and represented in current coastal, marine and fisheries policies in Australia’s NT. This policy content analysis contributes to the growing international and national calls to action to address health and wellbeing disparities and inequities experienced by Indigenous Peoples, specifically through intersectoral actions such as the WHO Health In-All-Policies, Australian Government Closing-The-Gap and the implementation of UN self-determination principles (Australian Government, 2022a; UN, 2007; WHO, 2014). In addition, the FAO Indigenous working group have recognised the role of strengthening Indigenous Peoples food systems, including access to seafood through increased visibility of Indigenous epistemological

values within policy discourses (FAO, 2021; Kuhnlein & Chotiboriboon, 2022). This content analysis, however, demonstrates that the connection of Indigenous values to health and wellbeing has not been realised in the analysed policies. Without this, the contribution of these policies to health and wellbeing outcomes remains unstated and yet seafood is an important part of the Indigenous food system that provides this connection and directly provides for livelihoods and food security (Simmance et al., 2022).

Our analysis does highlight that Australian Commonwealth and Territory Governments are invested in Closing-The-Gap as several coastal, marine and fisheries policies explicitly stated and acknowledged the strategy (Fisheries Research Development Corporation, 2022; Northern Territory Government, 2022a). While this is positive, there was uncertainty indicated in the policies on how fisheries could contribute to Closing-The-Gap. This suggests a reductionist framing of Closing-The-Gap targets by the policy-makers with health and wellbeing are seen as individual outcomes, rather than a broader collectivist and Indigenous views of health which sees fisheries enabling the expression and achievement of Indigenous values that underpin health and wellbeing (Butler et al., 2019; Cubillo, Stacey, & Brimblecombe, 2023; Gall et al., 2021). Indigenous values, such as connection to country, Indigenous knowledge transfer, cultural practices and identity, were represented in the policies to a degree. As such there is a missed opportunity within the analysed policies to explicitly indicate this connection and contribution to health and wellbeing in coherence with the WHO Health In-All-Policies (WHO, 2014).

This study provides further evidence of the lack of consideration of seafood as a food source as only one policy explicitly made this link (FAO 2017;; Koehn et al., 2022), despite seafood being an essential contributor to coastal Indigenous Peoples diets (Cisneros-Montemayor et al., 2016). The contribution of seafood to food security was also found to be absent from the policies despite the global literature demonstrating the importance of integrating fisheries into policy to impact food security (Farmery et al., 2020; Fisher et al., 2017). However, there was some policy discourse on the cultural connections and livelihood contributions of seafood for Indigenous Peoples which are essential to strengthening connections to the Indigenous food systems and for nutrition and food security (Cubillo et al., 2020; FAO, 2017, 2021; Kuhnlein et al., 2013). Primarily though, the framing of the policies supports expanding socioeconomic development opportunities for Aboriginal Peoples through

fisheries business development. with little consideration of the impact of this on Indigenous values and health outcomes, which could be beneficial and/or detrimental. There is a clear need to explicitly represent the health and wellbeing benefits of seafood connected to Indigenous values within coastal, marine and fisheries policies, and to not situate the benefits purely within socioeconomic-driven agendas (Arthur et al., 2022; Elrick-Barr & Smith, 2021). This has implications for Indigenous Peoples as by not explicitly linking Indigenous values to health and wellbeing outcomes, health investment, such as Closing-The-Gap targets and related National strategies to address these, such as the National Strategy for Food Security in Remote First Nations Communities, may overlook this vital contribution of seafood to coastal Aboriginal People's lives in the NT (Australian Government, 2023). Further it may overlook any unintended consequences that socioeconomic driven agendas may have on Indigenous values and related health and wellbeing outcomes.

While the representation of health and wellbeing values within the policies was ambiguous, self-determination and governance were explicitly represented. This aligns with the UN Declaration on the Rights of Indigenous Peoples, highlighting the need for Indigenous Peoples to pursue their economic, social and cultural development, control, and use of land and resources (UN, 2007; Wensing, 2021). The policies analysed have incorporated some self-determination principles, however, this vision may differ from the aspirations of Indigenous Peoples, as is notably argued by Yap and Yu (2018): *"policies aimed at improving Indigenous wellbeing and addressing inequities through purely socioeconomic outcomes alone is an extension of neoliberalism"* (Stanton, Adachi, & Huijser, 2015; Yap & Yu, 2018, p. 94). Public policies, including fisheries policies, have the potential to integrate self-determination principles that align with Indigenous values and Indigenous governance to improve health and wellbeing outcomes without compromising socioeconomic development. However, Indigenous Peoples need the freedom of self-determining their agendas that may differ from neoliberal agendas that have a one-eyed focus on socioeconomic development (Bell & Green, 2016; Osborne, Baum, & Brown, 2013; Poirier et al., 2022; The Lancet, 2020).

Other aspects of Indigenous values connected to seafood and not fully considered in the policies include the customary contribution of fish and fishing to food, vital to the identity of many coastal Indigenous Peoples and their connection to the sea country (Cubillo et al., 2023; Menzies & Butler, 2007). Within Australia, Aboriginal customary fishing knowledge

incorporates custodial responsibilities and cultural obligations to manage the sea country and its resources, several policies such as FRDC and Aboriginal Seafood Company explicitly made this connection (Smyth, 1994; Whitehouse et al., 2014). These values are fundamentally important to Indigenous Knowledge concepts within the Aboriginal and Torres Strait Islanders' connection to coastal, marine and fishery sectors and need further consideration in coastal, marine and fisheries policies (Smyth et al., 2018). Another topic that warrants further acknowledgement is that there is little representation in the policies reviewed of gendered seafood benefits and needs, with no policies recognising the distinct needs and roles of men and women in relation to access, fishing activities and use (House et al., 2023). Further gendered decision-making and recognition of the different values held by men and women and the impacts on these of any resource management regimes (Bonis-Profumo et al., 2021, for example, were not acknowledged in any policy.

6.9.1: *Future policy considerations and conclusion*

This content analysis study provides a preliminary scoping exercise from which future research agendas and policies can develop and integrate more apparent self-determination principles to better incorporate Indigenous values that impact health and wellbeing outcomes. Coastal, marine and fisheries policies have the opportunity to improve health and wellbeing alongside their socioeconomic contributions and should explicitly state this health and wellbeing contribution. This could be achieved through including concepts as food security, nutrition, nourishment, food system, traditional food and fish consumption to not; overlook the importance of dietary contribution of seafood to Indigenous Peoples (Arthur et al., 2022; Farmery et al., 2020; Marushka et al., 2021). Further, policies also need to be gender sensitive, recognising the roles and benefits to specific social groups of different gender engagement with fisheries, seafood, and sea country in community contexts, such as through women's gleaning activities (Fleming et al., 2015; House et al., 2023), and consider food access and benefits provided to other social groups such as vulnerable members of communities such as infants and elders (Cubillo et al., 2020; Stacey & Govan, 2021). The continued strengthening of self-determination and governance for the rights of Indigenous Peoples to provide leadership and collaboration in policies will lead to alignment with their aspirations and values connected to seafood and sea country (Mazel, 2016; UN, 2007; Yap & Yu, 2018). Overall, the NT's coastal, marine and fisheries policies can further contribute to Indigenous Peoples health and wellbeing

if strengthened for greater political and policy coherence with national agendas such as Closing-The-Gap.

6.9.2: *Strengths and limitations*

Several limitations of this study need to be acknowledged in consideration of its findings. First, unavoidable levels of subjectivity occur throughout the analysis and synthesis of the results (Creswell & Poth, 2018). To minimise this, however, a process to address ‘trustworthiness’ was applied, which included transparency of the data analysis method and description of the theoretical lens applied, presentation of the results in a manner that reflects the policy discourse within its context and the use of two independent coders and open construction of the main concepts (Elo et al., 2014; O’Connor & Joffe, 2020). A strength of this study is the diversity and relevant experience of the research team. The policies analysed however incorporate concepts relating to coastal, marine and fisheries outside of the expertise of the team such as of law and ecology. Representations of these may have been overlooked.

6.10 Conclusion

This content analysis applied a Decolonisation inquiry lens to investigate the representation of Indigenous values, health and wellbeing outcomes, and how self-determination is communicated within the NT’s coastal, marine and fisheries policies. The findings from this study indicate that the analysed policies have attempted to align politically with national agendas to reduce health disparities for Indigenous Peoples. It is clear, however, that due to a strong socioeconomic development lens, there is a lack of attention, consideration, acknowledgement and integration of the health and wellbeing outcomes, including nutrition. Therefore, the policies are missing an opportunity to positively contribute to Closing-The-Gap on Indigenous health inequities in Northern Australia.

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6.12 Chapter 6: summary

In summary, this Chapter presented the third study of this thesis a policy content analysis with a Decolonisation inquiry lens. Next, Chapter 7 will present the thesis discussion that integrates and interprets the findings of this thesis and the contribution to new knowledge and the policy and research implications

Chapter 7 DISCUSSION AND CONCLUSION

7.1 Introduction

This Chapter provides a summary, interpretation and discussion of the thesis findings across the three studies that contribute to addressing the thesis research aim and questions. The Chapter begins with an overview of the key findings that arose from each of the studies, followed by a synthesis of the findings and contribution to new knowledge, strengths and limitations of the thesis, and thesis implications for future research and policy. Finally, this Chapter concludes with a reflexivity statement and reflections on the PhD journey.

7.2 Summary of the thesis and key findings

This thesis sought to provide a cohesive and comprehensive interdisciplinary investigation into how coastal Indigenous Peoples health and wellbeing values are conceptualised and represented in relation to seafood and what the significance and implications of this are for health outcomes. To address this, emphasis was placed on the methodological coherence of the three empirical studies and their alignment with the Indigenous Research Paradigm and its epistemological, ontological and axiological assumptions, to provide visibility to Indigenous Knowledges and values within scholarship (Wilson, 2008). In addition, this thesis considered political and historical contexts and incorporated these accordingly as these are inherent to the narrative of Indigenous Peoples lives and contribute to the underlying health disparities that exist (Sherwood, 2013). Considering the thesis emphasis and context, the following three studies, a systematic literature review with a narrative synthesis presented in Chapter 4, a qualitative case study with an Indigenist inquiry lens as shown in Chapter 5, and a policy content analysis with a Decolonisation inquiry lens presented in Chapter 6, were constructed and implemented to answer the overarching thesis aim: how coastal Indigenous Peoples health and wellbeing values are conceptualised and represented in connection to seafood and the potential significance of this for health and policy outcomes from an Indigenous perspective.

7.1.1: **Chapter 4 systematic literature review: a narrative synthesis summary**

This section provides a summary of the key findings of the systematic literature review presented in Chapter 4. The research question addressed in this study is *RQ1*). *How does health research report coastal Indigenous Peoples values connected to marine seafood?* This question

was specifically designed to be broad and incorporate a wide scope of possible health literature that may have reported Indigenous values connected to seafood. This review was conducted for several reasons. First, it enabled the lead researcher's immersion into the health literature to determine how research has considered Indigenous values when reporting health and wellbeing outcomes for coastal Indigenous Peoples. Second, it facilitated a synthesis of the health literature to identify knowledge gaps in relation to the consideration of Indigenous values to be addressed in Chapters 5 and 6 of this thesis. Finally, this review was essential to investigate if Indigenous research methodologies have been applied to health research concerning seafood's health and wellbeing benefits from an Indigenous perspective so as to resist reductionist approaches to research (Wilson, 2008). Therefore, a systematic literature review was used explicitly, offering an organised and structured way of identifying relevant peer-reviewed literature. While a meta-analysis may be considered the gold standard for the reporting of systematic literature review study outcomes, it was not applied to this review due to the heterogeneity in the study populations and outcomes (Snilstveit, Oliver, & Vojtkova, 2012), and as the primary study aim was not to weight the evidence and provide a quantifiable assessment of the effect of seafood on health outcomes. Instead, this review focused on defining the reported research characteristics and the underlying discourse framing the research and the study authors' consideration of Indigenous values. This required a nuanced synthesis and therefore, a narrative synthesis approach was ideal (Popay et al., 2006). This review included 24 peer-reviewed articles on studies conducted in Australia, Canada, the United States of America, Greenland, Ecuador and Russia.

7.1.2: ***Chapter 4 key findings and integrative discussion***

The reported findings of this study demonstrate that the current health literature, when considering Indigenous values connected to seafood for health and wellbeing, has focused on an understanding of health from a biomedical health and disease prevention model perspective. Several studies did report the need for greater representation of Indigenous Peoples conceptualisation of health and wellbeing connected to seafood, however this conceptualisation was not demonstrated in the study designs and methodologies of the reviewed articles. The issue with such an inquiry lens applied to health research is that it gives a narrow and reductionist lens of interpretation that neglects the strengths of Indigenous Peoples ways of knowing, being and doing in favour of problem-based health and wellbeing outcomes (Cochran et al., 2008; Fforde et al., 2013; Thomas, Bainbridge, & Tsey, 2014). Over

the last decade, there has been a growing call to switch from problem-based and deficit research focus to transformative practice that recognises Indigenous Peoples strengths and abilities and incorporates their ways of knowing, being and doing within research and practice to improve health and wellbeing outcomes (Harfield et al., 2018; Huria et al., 2019; Mitrou et al., 2014). The findings from this study and their implications as shown in Table 7:1, as they demonstrate a clear knowledge gap within the literature that Indigenous nutrition, health and wellbeing values need to be conceptualised and represented more robustly in the global health literature.

Table 7:1- Chapter 4 summary

Chapter 4: How does health research report coastal Indigenous People' health and wellbeing values connected to marine seafood: A systematic literature review with narrative synthesis					
PhD thesis Research question	Design Framework	Key findings	Key strengths	Key limitations	Research implication
RQ1.) <i>How does health research report coastal Indigenous Peoples health and wellbeing values connected to marine seafood?</i>	Systematic literature review with a narrative synthesis	<p>This study has identified and synthesised that seafood provides positive physiological health outcomes for Indigenous Peoples, such as:</p> <ul style="list-style-type: none"> ▪ Mental health-related ▪ Lipid-related ▪ Cardio-metabolic-related ▪ Vitamin and mineral-related ▪ Diabetes-related ▪ Bone quality-related ▪ Diet-related outcomes <p>This study also identifies that global health literature has reported minimal Indigenous values and perspectives when assessing seafood's contribution to health and wellbeing outcomes for Indigenous Peoples.</p>	<p>A key strength of this study is a novel approach that brings attention to a global developing area of interest to integrate Indigenous Knowledges in to research and policy. Another strength is that the findings are relevant to international and national Australian calls to action to strengthen Indigenous Knowledges and voices within research and policy.</p>	<p>A limitation of this study is using a narrative synthesis approach subject to biased interpretations and assumptions. Another limitation is the articles analysed in this review are primarily of cross-sectional design and were challenging to assess due to the studies using data from health databases with limited information provided on study design.</p>	<p>An implication of this study is the need for future research to consider Indigenous methodological research approaches to provide a detailed analysis of how coastal Indigenous Peoples connect with their seafood for health and wellbeing outcomes. In addition, greater emphasis must be placed on strength-based approaches to Indigenous research that move beyond problem-based representation and align with local Indigenous community values, beliefs and interests.</p>

7.1.3: **Chapter 5 qualitative case study design summary**

The systematic literature review in Chapter 4 demonstrates that the empirical health literature has scarcely considered how seafood is linked to Indigenous values of nutrition, health and wellbeing. The study presented in Chapter 5 therefore aimed to partially address and bring attention to this identified knowledge gap by applying a qualitative case study in the NT, Australia with an Indigenist inquiry lens to position Indigenous ways of knowing, being and doing at the centre of the research. This study sought to answer the second research question of this thesis: *RQ2.) 'How is nutrition, health and wellbeing conceptualised in connection with seafood for coastal Indigenous peoples?* The focus of the study was to primarily explore and conceptualise the complex interconnectedness of Indigenous values concerning seafood and the relationship of these to nutrition, health and wellbeing outcomes. This included demonstrating that seafood provides more than just the physiological nutrition, health and wellbeing outcomes for Aboriginal Peoples but is integrated into broader Knowledge Systems that support collectivist values of health and wellbeing (Gall et al., 2021; Gee et al., 2014; Verbunt et al., 2021).

Several critical considerations within this study need to be elaborated on. First, the methodological coherence of this study to the research aim, synthesis and interpretation was of great importance to this thesis, as identified in Chapter 4 of this thesis there has been a lack of Indigenous epistemic visibility within health research related to seafood and none specifically in the NT of Australia (De Leeuw & Hunt, 2018; S. Wilson, 2008). As such, an Indigenist inquiry lens was applied to strengthen Indigenous ways of knowing, being and doing within nutrition and health scholarship, in alignment with the overarching research paradigm applied in this thesis (Martin & Mirraboopa, 2003; Rigney, 1999). Second, Yarning was used as the data collection method, enabling a process of sharing knowledge between the researcher and Indigenous research informants through relationship building (Atkinson, Baird, & Adams, 2021). The use of Yarning was important for the integrity of the research through relational accountability and for also strengthening Indigenous ways of knowing, being and doing within the study (Bessarab & Ng'andu, 2010; Walker et al., 2014). This study was conducted from 2019 to 2022. It involved 16 Aboriginal Peoples: six women and ten men from a fishing enterprise, an arts and culture centre and a women's centre, all with commercial and customary fishing expertise in Maningrida, a remote community in Arnhem Land, NT. This location is

significant due to the ongoing customary and commercial connections to seafood, as described in Chapter 1, section 1.4.

7.1.4: ***Chapter 5 key findings and integrative discussion***

The findings of this study indicate that for the Aboriginal Peoples of Maningrida, nutrition, health and wellbeing values conceptualised in relation to seafood incorporate broad shared values between several language groups in the Maningrida region, the identified values transcend the disciplines of health and are interconnected to local Knowledge Systems, related ecologies and historical and political contexts. This aligns with broader Indigenous literature that has identified the importance of localised values being represented (O’Keefe et al., 2022; Thorpe et al., 2023). The findings also demonstrate that for Aboriginal Peoples of Maningrida, engaging with customary or commercial fishing for a variety of seafood species is beneficial to collectivist values of health and wellbeing that have similarly been described in the broader literature and somewhat in the global literature. The nutritional literature in particular has also highlighted the socioecological perspectives of the Indigenous food system and nutrition but not explicitly to seafood nor from an Indigenous methodologies approach (Brimblecombe et al., 2014; Kuhnlein et al., 2013; O’Keefe et al., 2022). In addition, it is clear from the findings and supported by previous research that for Aboriginal Peoples, there are many challenges and broader concerns in the role of seafood in achieving health and wellbeing outcomes, that relate to colonisation and the resultant health and social inequities (Cubillo et al, 2020; MacDonald & Steenbeek, 2015; Sherwood, 2013). Finally, the findings of this research highlight that nutrition, health and wellbeing values connected to seafood are not standalone concepts but are interconnected into the fabric of local Indigenous Knowledge Systems and these cannot be separated. These findings are significant considering how broad, top-down blanket policies and strategies may overlook localised knowledge systems and values within each heterogeneous Indigenous community (Davis, 2013). Therefore, acknowledgement of Aboriginal Peoples connection to seafood for nutrition, health and wellbeing outcomes and translating these to practical recommendations for policy, consideration of local Indigenous values is imperative, as further described in section 7.5 of this Chapter (De Leeuw & Hunt, 2018; Smith, 2021). See Table 7:2 for a summary of Chapter 5.

Table 7:2- Chapter 5 summary table

Chapter 5: How is nutrition, health and wellbeing conceptualised in connection with seafood for coastal Indigenous Peoples					
Thesis Research question	Design Framework	Key findings	Key strengths	Key limitations	Research implication
RQ2.) <i>How is nutrition, health and wellbeing conceptualised in connection with seafood for coastal Indigenous Peoples?</i>	Qualitative case study with an Indigenist inquiry lens and yarning as a method and inductive thematic data analysis as the analysis method.	<p>The findings from this study have been grouped into ten themes</p> <ul style="list-style-type: none"> ▪ Respecting elders ▪ Culture ▪ Country ▪ Aboriginal nutrition ▪ Traditional medicinal Knowledge ▪ Aboriginal fishing enterprise ▪ Lived experience ▪ Intergenerational Knowledge transfer ▪ Interconnectedness ▪ Barriers to access seafood <p>These findings offer a novel insight into the complex interconnection of values and health and wellbeing with Indigenous Knowledge systems.</p>	A key strength of this study is the methodological approach and utilising of an Indigenous lens to contextualise and represent Indigenous ways of knowing, being and doing at the centre of the research. Another key strength is the partnership with Traditional Owner and Bawinanga Aboriginal Corporation which assisted with keeping the study relational to community values.	Limitations of this study include the representation of informants in that it provides a small degree of insights for Peoples living within Maningrida, and therefore caution needs to be applied in transferring findings to all coastal Indigenous Peoples groups due to diversity across groups.	A key implication of this study includes a need for fisheries policies, and specifically nutrition sensitive ones, to enable the values connected to seafood to be realised. In addition, to nutrition sensitive fisheries policies multi-sectoral approaches are needed to be considered when dealing with complex interconnected values systems.

7.1.5: Chapter 6 policy content analysis summary

The qualitative case study in Chapter 5 provided insight into the Indigenous nutrition, health and wellbeing values connected to seafood and identified several potential practical future policy-research implications. One of these implications was considering the role of coastal, marine and fisheries sectors to integrate Indigenous nutrition, health and wellbeing values and recognise the connection of these to health and wellbeing outcomes. Considering this, the study presented in Chapter 6, a policy content analysis with a Decolonisation inquiry lens, sought to investigate how Indigenous values are currently considered in relevant NT policy. This study answers the third and final thesis research question *RQ3: How are Indigenous nutrition, health and wellbeing values of seafood represented in Northern Territory coastal, marine and fisheries policies?* This research question is addressed through the following three sub-questions:

- *What are the Indigenous values explicitly identified in NT coastal, marine and fisheries policies?*
- *How are Indigenous health and wellbeing outcomes represented in NT coastal, marine and fishery policies?*
- *How is self-determination communicated within NT-related coastal, marine and fishery policies?*

The NT's coastal, marine and fisheries policies were targeted for several reasons: First, the existing customary seafood connections for coastal Aboriginal Peoples in the NT (AIATSIS, 2018; Fleming, Petheram, & Stacey, 2015; Mechan, 1982); Second, the unique political significance of the 2008 high court of Australia's Blue Mud Bay decision to extend the Aboriginal Land Rights Act to the intertidal zone enabling coastal Aboriginal Peoples control of 85% of the NT coastline (Altman, 2013; Butterly, 2020); Third, as I am an Aboriginal man from NT coastal regions, and with respect to relational accountability, I can more efficiently and effectively stay coherent with the cultural, historical and political context and values in alignment with the overarching Indigenous Research Paradigm (De Leeuw & Hunt, 2018; Dudgeon & Bray, 2019); and, Finally, due to fisheries' nutritional, food security and livelihoods, and access to seafood, contributions, global entities have recognised the fishery sector's role in addressing non-communicable disease burdens and strengthening livelihoods outcomes (Australian Government, 2020a; Australian HealthInfoNet, 2022; FAO, 2017b). This

study reviewed ten policies with implementation dates ranging from 2018 to 2029. Three policies were NT government, one was with the Australian Government, four were with Australian commonwealth agencies, and two were associated with industry stakeholders.

7.1.6: **Chapter 6 key findings and integrative discussion**

The analysed policies in this study demonstrate that connections to health and wellbeing and self-determination principles were represented to a limited degree within the policy text and were primarily framed within a socioeconomic lens (Yap & Yu, 2018). This finding is in line with the international literature that recognises the marine and fisheries sector's tendency to focus on economic and political values (Arthur et al., 2022; Koehn et al., 2022). However, it was acknowledged the policies reviewed have recognised self-determination values and the sectors potential role in contributing to Closing-The-Gap strategy. This suggests that the NT and Australian Governments and other stakeholders have a positive interest in improving health outcomes for Aboriginal Peoples in the NT, however, the assumption that socioeconomic gain alone will enhance health and wellbeing outcomes for Indigenous Peoples is fundamentally positioned within a deficit discourse and overlooks key Indigenous values (Bryant et al., 2021; Fforde et al., 2013; Yap & Yu, 2018). This is a significant finding as if fisheries sector policies that impact Aboriginal Peoples are to coherently align with global and national agendas to improve health and social outcomes for Indigenous Peoples, then more significant consideration of the underlying values of nutrition, health, and wellbeing needs to be considered within policies beyond those considered through a socioeconomic lens (Pinstrup-Andersen, 2013; Ruel & Alderman, 2013; The Lancet, 2020; WHO, 2014). This is especially important in Australia as national agendas such as the Closing-The-Gap initiative have called for the strengthening of partnerships with Aboriginal and Torres Strait Islander communities through a focus on process-driven partnerships in contrast to deficit problem representation of outcomes (Lowitja Institute, 2022). Process-driven partnerships that consider relationships and governance are more likely to build approaches to improved health and wellbeing outcomes for Indigenous Peoples that incorporate self-determination principles and Indigenous values. In fisheries sectors in Australia, particularly in the NT, there is a significant opportunity to contribute to the growing awareness of the integration of Indigenous values within multi- and intersectoral policies to address the underlying values connected to health and wellbeing outcomes. See Table 7:3 for a summary of Chapter 6.

Table 7:3- Chapter 6 summary

Chapter 6: The representation of Aboriginal health and wellbeing values within coastal marine and fisheries policies of the Northern Territory of Australia					
PhD thesis Research question	Design Framework	Key findings	Key strengths	Key limitations	Research implication
<i>RQ3: How are Indigenous nutrition, health, and wellbeing values of seafood represented in Northern Territory coastal, marine, and fisheries policies?</i>	A policy content analysis with a decolonisation inquiry lens.	<p>This study identified eight main concepts resulting from the analysis of ten policies:</p> <ul style="list-style-type: none"> ▪ Aboriginal Peoples and community aspirations and values ▪ Aboriginal self-determination and governance ▪ Aboriginal traditional Knowledge ▪ Conflict in fisheries, the challenges for Aboriginal Peoples ▪ Closing-The-Gap on Aboriginal inequity ▪ Coastal Aboriginal identity ▪ Economic development with Aboriginal Peoples ▪ Aboriginal nutrition, health and wellbeing constructs 	<p>A key strength of this study is its relevance to current Aboriginal and Torres Strait Islander health reform policies and the call to action to incorporate intersectoral policies to address growing health burdens. Another strength is the methodological approach that challenges dominant colonial frameworks to provide visibility for Indigenous ways of knowing, being and doing.</p>	<p>Key limitations of this study include subjectivity of the data analysis and synthesis as the study heavily relies on qualitative interpretations based on policy text.</p>	<p>Key implications of this study include the need for coastal, marine and fisheries policies to consider seafood's health and wellbeing contributions for Indigenous Peoples beyond a socioeconomic lens. In addition, when considering self-determination, there is a need to include greater contextual detail in policies that considers community values and implementation approaches that allow for process-driven partnerships to ensure localised input into fisheries policies.</p>

7.3 Thesis findings synthesis and contribution to new knowledge

In summary, this thesis has contributed to advancing scholarship across multiple disciplines. In addition to the individual empirical studies presented in Chapters 4, 5 and 6, several original contributions have been made and categorised into the following topics:

7.3.1: Indigenous values connected to seafood within health research

7.3.2: Self-determination of Indigenous values beyond a socioeconomic lens

7.3.3: Indigenous research methodologies

7.3.1: *Indigenous values connected to seafood within health research*

This thesis draws attention to the current representation of Indigenous Peoples Knowledge and values connected to seafood and the implications of this to health and wellbeing. Aboriginal scholars such as Thorpe et al., (2023) have similarly demonstrated that Indigenous values, such as connection to country are inherently interconnected to the Indigenous Knowledge Systems and health and wellbeing. This thesis offers new knowledge by explicitly linking Indigenous values to seafood and demonstrating how these seafood related values connect to the Indigenous Knowledge System to provide health and wellbeing benefits.

This contribution of knowledge helps highlight that health research not only needs to consider the increasing of Indigenous visibility of voices through engagement with Indigenous Peoples and methodologies that appropriately allow for this but that greater consideration is also needed of the theoretical alignment of Indigenous Knowledge with values and how these are conceptualised in association with health and wellbeing. This has been indicated by other Indigenous scholars as necessary so as not to serve the interest of colonial agendas and further displace Indigenous Knowledges (Nakata., 2002; Wilson., 2008). This can also allow for identifying enablers and barriers to the expression of these values and the consideration of these as connected to health and wellbeing, as shown in Chapter 5 of this thesis. Whilst these enablers and barriers may be considered as social determinants of health and wellbeing through a different inquiry lens, this thesis explicitly shows the health and wellbeing connected values intrinsically linked to Indigenous Knowledge Systems. Although the findings from this thesis are specific to seafood, they are significant for broader global Indigenous and Australian Aboriginal and Torres Strait Islander consideration and representation of Indigenous epistemological values connected to food in policies, programs and research related to

Indigenous food systems (FAO, 2021; Kuhnlein & Chotiboriboon, 2022). Chapter 6 has identified possible avenues for incorporating Indigenous Knowledges and values within the marine and fisheries sectors that would naturally strengthen Indigenous health and wellbeing while coherently aligning with community values. This thesis explicitly demonstrates how Indigenous epistemological values and relational accountability can be applied to health research to amplify local Indigenous voices to engage in research grounded in Indigenous Knowledge (Wilson., 2008).

This thesis identifies and stresses that when considering how coastal Indigenous Peoples connection to seafood for health and wellbeing is conceptualised and represented, nuanced detail must be applied to not just identify or quantify or describe the values connected to seafood, such as ‘connection to country’ or ‘cultural and social aspects’, but to go one step further and understand how these values are connected to the more comprehensive local Indigenous Knowledge System, as this is fundamental to being methodologically coherent to Indigenous ways of knowing, being and doing and being relationally accountable (Martin & Mirraboopa.,2003; Lindstrom, 2022). This approach enabled the inquiry lens to identify the latent barriers tied to the political and historical contexts that are important to address within communities and provides a more informed position for policymakers and researchers. This perspective and approaches are central to this thesis.

7.3.2: *Self-determination beyond a socioeconomic lens to improve health and wellbeing*

This thesis has identified that there is an urgent need for a shift in the way in which sectors such as marine and fisheries can recognise and strengthen self-determination principles to support Indigenous leadership and representation of localised core values to improve health and wellbeing outcomes (Bell & Green, 2016; Howard-Wagner, Bargh, & Altamirano-Jiménez, 2018). Current neo-liberal agendas geared towards self-determination in Australia are primarily positioned through a socioeconomic lens, as described in Chapter 2 and investigated in Chapter 6 (Yap & Yu, 2018). The Australian Government’s self-determination approach to improving social, health and economic outcomes for Aboriginal and Torres Strait Islander Peoples seems to assume that socioeconomic approaches alone will improve health outcomes (Bell & Green, 2016; Cox et al., 2022; Howard-Wagner, 2018); this is not in alignment with international understandings of self-determination and contribution to Health In-All-Policies, described in this Chapter in section 7.5.1: (UN, 2007). Considering this, there is a missed

opportunity in fisheries' policies to also include and maximise the health and wellbeing benefits through socioeconomic outcomes such as coastal and marine management, protection and livelihoods and Indigenous fishing enterprises by representing collectivist health and wellbeing values. Chapter 6 identifies explicit opportunities within the NT of Australia's coastal, marine and fisheries policies to improve health and wellbeing outcomes through this Indigenous perspective. This thesis demonstrates that the intersection between self-determination and localised health and wellbeing connections is poorly understood. As such, there needs to be greater consideration of epistemologically grounded approaches within local Indigenous communities' understandings of self-determination and governance. This is further articulated by Sanders (2002), who states the rhetoric surrounding self-determination has practical and theoretical implications in Australia. Stearne et al (2022.p.1) have similarly highlighted the impact of Aboriginal and Torres Strait Islander self-determination positioning within the alcohol-related policy as they state, *"Including First Nations Australians in policies is not in and of itself self-determination"*.

This thesis contributes new knowledge on the localised and practical policy implications, such as incorporating Indigenous values within coastal, marine and fisheries policies to improve health and wellbeing outcomes and keeping grounded in local Indigenous Knowledge Systems. It demonstrates that Indigenous Knowledge and values must be adequately considered within multi-and inter-sectoral policy conventions to address and represent health and wellbeing outcomes and strengthen Indigenous Peoples ability to self-determine their interest through active local engagement and communication in policy-making and processes. *It is time to move away from the "well-meaning rhetoric of community ownership and self-determination" towards Indigenous-led and governed implementation of policy and related programs that are measured via their connectedness to Indigenous Knowledge and values beyond socioeconomic outcomes. Indigenous self-determination might therefore look like amplifying local Traditional Owner voices to strengthen policies that support their epistemologically grounded connections to seafood for potential health and wellbeing outcomes.*

7.3.3: Indigenous research methodologies

This thesis has applied several Indigenous methodological approaches to research and considered the researcher's ethical responsibility to contribute meaningful research that

benefits the Indigenous community and resists dominant colonial frameworks (Lavallée, 2009). It offers an example of how relational accountability and reciprocity can drive research design to foster a strength-based approach that can contribute meaningful implications for the Indigenous community (Wilson., 2008). Whilst the literature on the importance of relational accountability and the use of Indigenous methodologies is acknowledged as an imperative process to Indigenous research (Wilson, 2008; Dudgeon & Bray., 2019), there are few detailed guides on how to implement and how to assess the quality of the accountability between the researcher and the community. These approaches require relationship building and commitment to theoretical coherence and investment in disseminating findings to the community as part of the reciprocity, relationality, respect and responsibility (Lindstrom., 2022; Weber-Pillwax., 2001; Wilson., 2008). While several of these factors have been highlighted in ethical guidelines such as the NHMRC guide for research with Aboriginal and Torres Strait Islanders Peoples in Australia (2018), this thesis shows that these principles must occur before and during the research design. This is also articulated by Aboriginal scholar Barlo et al (2021.P.46), who has highlighted relational accountability within Yarning as a methodology: *“genuine relationships with participants that affect you as a person, and are often developed before the commencement of a research project and continue afterwards.”*

Researchers may be constrained in their use of such methodologies or seek to rush such processes due to funding time frames such as a PhD timeline, funding timeline or lack of support from their academic departments (Rigney., 2001; P Anderson et al., 2022). Investment in these principles of respect, responsibility and reciprocity is imperative to relational accountability to the Indigenous researcher and their community and the community engaged in the research. Whilst relational accountability is fundamental to such methodologies, there is no measure of this quality, meaning that its conduct is based on trust and integrity from often marginalised communities (Bainbridge et al., 2015). Quality appraisal tools such as ‘The Centre of Research Excellence in Aboriginal Chronic Disease Knowledge Translation and Exchange’ (CREATE) provide an Indigenous-grounded perspective on the possible quality assessment that may be used to inform best practice research with Aboriginal and Torres Strait Islander communities (Harfield et al., 2020). However, understanding the quality of relational accountability by Indigenous scholars engaging in research is still ambiguous. When applying Indigenous research methodologies, serious consideration of integrity and ethics must be given to relationship building, research design and engagement (De Leeuw & Hunt, 2018; Lindstrom,

2022). This is so as not to repeat well-intentioned research practices that have been detrimental to Indigenous communities since colonisation.

It is acknowledged that Indigenous research methodologies are still a developing area of intellectual thought. This thesis has contributed to this growing field by presenting a possible approach to a PhD thesis that has considered various paradigm inquiry lenses to position Indigenous Knowledge and values at the centre of the research. This thesis has gone further and provided extensive introspection and detail for relational accountability, reflexivity and engagement with multiple stakeholders.

7.4 Strengths and limitations of this thesis

The strengths and limitations of any research project, including this PhD thesis, must be considered. Therefore, this section will focus on the thesis's strengths and limitations overall, as the individual studies presented in Chapters 4-6 of this thesis have their strengths and limitations described within the respective Chapters.

7.4.1: Strengths

The strengths of this thesis relate to the design, approach, process and positionality. The PhD thesis and empirical studies were co-constructed across a multi-disciplinary team that considered broad aspects of Indigenous Peoples ways of knowing, being and doing concerning nutrition, health and wellbeing outcomes. A significant emphasis was placed on methodological coherence across various design frameworks and research questions. Further rigour and value are added through the detailed consideration of the ethical, reflexive and relational considerations that go beyond just describing positionality to critically considering how this guided the research. Relational accountability was integral to this thesis as it exceeds the boundaries of Eurocentric academic rigour and considers cultural and community integrity for harm minimisation with Indigenous communities. The research approach is also a strength of this PhD as multiple inquiry lenses were applied to give visibility to Indigenous values within academic discourse and resist colonial hegemonies by linking the values to the Indigenous Knowledge System. The process of engagement of the qualitative case study of this PhD has been a strength as this research considered the engagement with Aboriginal communities and the alignment of their values with the research aim and focus of the thesis. Other aspects of the overall PhDs engagement include considering Indigenous Peoples historical and political positioning within their colonised states and how this has impacted the

connection and representation of their values. Another strength reported here is the originality of this PhD thesis. To the author's Knowledge, very few PhD theses and academic research articles within the academic discipline of nutrition have been conducted by an Aboriginal Person who considers Aboriginal perspectives through the theoretical grounding of Indigenous epistemological, ontological and axiological assumptions through a global and local policy lens.

7.4.2: *Limitations*

The limitations of this thesis include the generalisability of applying the findings to the global Indigenous or Australian Aboriginal and Torres Strait Islander contexts. Indigenous Peoples have considerable heterogeneity and varying historical and political positioning, which may influence community values, priorities and interests. The findings of this thesis may not be applicable, relevant or of immediate concern to some communities or Indigenous Peoples due to the significant human rights-based issues, or it may not be in direct alignment with the specific values of a community. However, given a growing focus on better support for Indigenous fisheries enterprises, Indigenous engagement in fisheries management and the cultural needs of fisheries, this thesis is relevant to the national context and future policy. This thesis is qualitative by nature, and subjectivity and relational accountability were addressed throughout this thesis. There is still the possibility of bias that may have impacted the research interpretation and synthesis throughout this thesis. While seafood is essential for many coastal Indigenous communities, there is the limitation of the research not considering the whole Indigenous food system. Seafood is only one aspect of the Indigenous food system. Separating and focusing on one particular food group limits the scope and interconnectedness of the Indigenous food system; however, by demonstrating these connections with seafood, this knowledge can be applied to other foods within the food system. Another limitation throughout this thesis is not defining or binding a specific definition of nutrition, health or wellbeing. While this was done not to influence and deconstruct Indigenous Peoples perceptions, it gives rise to complexities when contrasting findings with existing literature such as Indigenous health and wellbeing models.

7.5 Policy and academic implications

A marker of this thesis was not only to contribute to scholarship but as a means of reciprocity, to contribute back to the Indigenous community. As such, heavy emphasis, as

highlighted in Chapter 1, has been placed on creating meaningful research. Across this thesis, several key areas of focus have arisen that provide potential practical contributions to future research and policy:

7.5.1: Indigenous values within Health In-All-Policies and intersectoral action

7.5.2: Nutrition-sensitive interventions within Indigenous fisheries

7.5.3: Closing-The-Gap consideration of nutrition-sensitive Indigenous fisheries

7.5.1: *Indigenous Values within Health In-All-Policies and Intersectoral Action*

The World Health Organisation's promotion of Health In-All-Policies and Intersectoral Action, as described in Chapter 2, aims to consider healthy public policy beyond service delivery to address the underlying influences of health and wellbeing outcomes, including the social, economic, political, cultural and environmental determinants (WHO, 2014). This is significant for Indigenous Peoples with historically greater health inequities and outcomes than benchmark populations, including the growing double burden of communicable and non-communicable diseases (I. Anderson et al., 2016; Ramirez-Zea et al., 2014). While Health In-All-Policies have been identified as a means to improve health outcomes, a criticism is the minimal practical implementation guidance available for localised contexts (Mundo et al., 2019). As this thesis has demonstrated, the localised context is essential for Indigenous collectivist perspectives of health and wellbeing that incorporate local Indigenous Knowledge and values, as shown in Chapter 5 (Cubillo, Stacey, & Brimblecombe, 2023). It is suggested by scholars that if a Health In-All-Policies approach is to contribute to Indigenous health outcomes, then there must be consideration of how Indigenous Peoples reflect their broader collective health and wellbeing perspectives, including the historical, relational and cultural contexts that interconnect and reflect Indigenous Knowledge and values (K. Anderson et al., 2022; Butler et al., 2019; Gee et al., 2014). Considering the implications of the findings of this thesis, there is a significant opportunity for marine and fisheries sectors to positively contribute to improving Health In-All-Policies through practical implementation of self-determination principles that encompass Indigenous values that are linked to health and wellbeing outcomes such as connection to culture and country (Thorpe et al., 2023; Burgess et al., 2009).

7.5.2: *Nutrition-sensitive Interventions in Indigenous fisheries sectors*

Nutrition-sensitive Interventions, described in Chapter 2, are approaches to improving health outcomes that consider the underlying nutrition values of health outcomes (Ruel & Alderman, 2013). Nutrition-sensitive interventions have primarily focused on values related to agriculture and food security, maternal health, women empowerment, water sanitation and hygiene, social protection and early childhood development (Doonan & Field, 2017; Pinstруп-Andersen, 2013; Ruel & Alderman, 2013). In addition, there has been growing advocacy for nutrition-sensitive interventions to positively contribute to health outcomes across sectors through their visibility within policies (FAO, 2017a; Pinstруп-Andersen, 2013). One of those sectors of interest, as highlighted in Chapters 1 and 2, is fisheries. The FAO has highlighted that fisheries sectors have been orientated towards economic development and have overlooked the value of seafood to nutrition, food security and public health (Arthur et al., 2022; FAO, 2017b; Koehn et al., 2022). This is also demonstrated in NT Australian-specific policies, as Chapter 6 of this thesis identifies. This has implications for coastal Indigenous Peoples who rely significantly on seafood for dietary nourishment, food security, and realisation of their values, as economic development may destroy rather than enable these values and associated outcomes (Cisneros-Montemayor et al., 2016; Marushka et al., 2021). This thesis has also brought attention to the relationship between Indigenous values of seafood and their connection to nutrition, health and wellbeing from an Indigenous perspective, as detailed in Chapter 5. Therefore, it is suggested that fisheries sector policies must incorporate Indigenous values to ensure that the underlying determinants of health are addressed and that the policies epistemologically align with the communities they intend to impact, as per self-determination principles (Mazel, 2016; The Lancet, 2020; UN, 2007). Integrating Indigenous health values within nutrition-sensitive policies has implications, particularly in relation to the measurement of policy outcomes. Eurocentric validated tools that primarily focus on outcomes versus processes to evaluate the effectiveness of policy intervention are likely to overlook the measurement of Indigenous Peoples collectivist health values, such as the social and cultural connections to seafood, as demonstrated in Chapter 3 (Smith, 2021).

Therefore, it is suggested that Indigenous methodologies in future research be used to develop how these values interconnected with health outcomes can be measured within localised communities for practical implementation. It is evident from the findings of the three empirical studies presented in Chapters 4 to 6 that further research is needed to inform policy

development and its practical implementation if there is to be an investment into nutrition-sensitive interventions and policies that have the best chance to lead to health and wellbeing outcomes. As a part of this, there needs to be development and review of how nutrition, health and wellbeing outcomes for Indigenous Peoples can be measured appropriately.

7.5.3: *Closing-The-Gap contribution of nutrition-sensitive Indigenous fisheries*

As described in Chapters 1 and 2, the Closing-The-Gap strategy aims to improve the health inequities and outcomes for Aboriginal and Torres Strait Islander Peoples in Australia (Australian Government, 2020b). Previously, there has been a significant focus on addressing the effects of problem health and social issues on Aboriginal and Torres Strait Islander Peoples, such as life expectancy, overweight and obesity, the prevalence of type-2 diabetes and mortality, as well as education and employment outcomes through a focus on individual behaviour (Australian Government, 2022; Australian Indigenous HealthInfoNet, 2023; Dawson et al., 2021). However, in recent years, there has been a trend towards supporting strength-based approaches that value partnership and implementation processes with Indigenous leadership at the centre that considers priority reform (Australian Government, 2022; Lowitja Institute, 2022). Considering the findings from this thesis, it is suggested that there be multi- and intersectoral approaches to addressing health and wellbeing outcomes drawing on global strategies to contribute further to improving health outcomes, such as Health In-All-Policies and nutrition-sensitive policies as examples (FAO, 2017a; WHO, 2019). However, for this to be relevant, there also needs to be localised Aboriginal and Torres Strait Islander values represented in such policy processes co-designed with communities so as not to lose their meaning (UN, 2007). This thesis demonstrates the importance of Indigenous Peoples gaining physiological nourishment through seafood consumption and connecting seafood to their Indigenous values (Cisneros-Montemayor et al., 2016; Cubillo et al., 2023). The implications of implementing Indigenous Knowledge and values within policies without Indigenous leadership and methodologies that centre Indigenous epistemological perspectives is the risk of overlooking the localised values and self-determining principles fundamental to health and wellbeing (Davis., 2013). It is suggested that to avoid such misrepresentation, stronger partnerships between government and Indigenous communities and adherence to self-determination principles beyond those of a socioeconomic lens be adopted. This concept is essential for strengthening Indigenous Peoples nutrition health and wellbeing outcomes through localised food system policies that consider their values, such as customary fishing or

intergenerational knowledge transfer, that aren't necessarily geared towards socioeconomic outcomes (Chatwood et al., 2017; FAO, 2021; Kuhnlein & Chotiboriboon, 2022). This vision is feasible as the Australian Government has previously demonstrated its ability to implement nutrition-sensitive interventions to address specified health outcomes. For example, its aid program to neighbouring countries, such as Timor Leste, has integrated nutrition-sensitive interventions into its agriculture-related programs (DFAT, 2017). However, this approach could be further considered and developed to include Indigenous values of each community that underlay nutrition and health and wellbeing outcomes as outlined in this thesis, particularly in Chapters 5 and 6.

Aboriginal health service delivery has set the standard in Australia for achieving what is possible when incorporating Aboriginal and Torres Strait Islander health and wellbeing values into policy and service delivery. However, the findings of this thesis suggest that sectors such as fisheries can also play a role in contributing to Closing-The-Gap and reducing health inequities for Aboriginal and Torres Strait Islander Peoples. This can potentially occur through localised self-determined policies that recognise the connection of seafood with Indigenous values.

7.6 Future research agendas

Considering the thesis contributions and policy implications, ample knowledge gaps require further research to understand the significance of Indigenous Peoples values and their connection to seafood for health outcomes and translation to policy. In addition, research is needed to apply research methodologies to further strengthen Indigenous voices within scholarship and policies in a meaningful way that is respectful and accountable to localised Knowledge Systems and protocols. However, to fully achieve this, further investigation and investment must be made into communication channels allowing Indigenous communities to express their values within inquiry lenses that value their Knowledge Systems. One of the significant findings from this thesis is the consideration of implementing localised Indigenous values within policy and research to improve health and wellbeing outcomes in multi- and intersectoral policies. Further research is also needed to understand how self-determination can be strengthened and represented within policies that are more than just rhetoric but lead to actionable implementation plans that reflect Indigenous communities' understandings of governance.

7.7 Covid-19 impacts

This PhD thesis began in 2019, the year before the Covid-19 pandemic. This is significant as a large portion of thinking, planning and development of the theoretical approach, design frameworks and community engagement, ethics attainment, and funding acquirement was completed that year. When the Covid-19 pandemic unfolded in 2020, there was uncertainty around how the PhD project would look as the Australian Federal, State and Territory Governments implemented various travel restrictions and lockdowns in Australia. For example, in the Northern Territory, the Government implemented biosecurity travel restrictions to Aboriginal communities, including Maningrida. This impacted my ability to travel from Melbourne to Maningrida in the NT and slowed the process of completing data collection and sticking to the initial timeline. Despite this, other ways of communication with informants in the Maningrida community were used, and the research was completed.

7.8 Reflecting on the PhD journey

Throughout this thesis, I have integrated concepts of reflexivity and relationality, including critical reflection on how I have positioned myself within the research and my subjectivity and how this influences the research. I will finish this thesis with another reflexivity statement summarising my journey in utilising and applying Indigenous research methodologies, engaging in research with Aboriginal Peoples, and the concept of keeping myself grounded. Finally, I finish with a reflection statement incorporating the challenges, how I navigated them and consideration of what I would have done differently in hindsight.

7.8.1: *Indigenous research and keeping myself grounded*

Utilising Indigenous research methodologies such as the Indigenous Research Paradigm, Indigenist inquiry lens, Decolonisation inquiry lens, and Yarning as a method has been both rewarding and emotionally taxing. Initially, I was excited by the idea of drawing from Indigenous research methodologies that resonated with my understanding of how we Indigenous Peoples interact with the world through our ways of knowing, being and doing. However, I was not prepared for the difficulties in understanding, applying and justifying Indigenous ways of knowing, being and doing within scholarship, nor was I fully aware of the history of why Indigenous research methodologies were created. Furthermore, constantly being emerged in and reading about the colonial struggles of one's Peoples, such as genocide, oppression, assimilation, and the attempt of others to eliminate your Peoples, is a strange kind

of grief that is a traumatic process to unpack. However, this did not discourage me from delving deeper into the research. On the contrary, it reaffirmed my belief that I needed to be methodologically coherent and relationally accountable to my Peoples to present the best research practices I could and invest significant time into planning the theoretical positioning of this thesis. I realised that keeping my Indigeneity grounded throughout my PhD journey was necessary. This process is not linear but circular and requires extensive reflection and engagement with my community, the Larrakia and Wadjigan Peoples, The Aboriginal Peoples of Maningrida and the broader Aboriginal and Torres Strait Islander academic community (Dudgeon & Bray, 2019; Lindstrom, 2022). This also included having two supervisors committed to supporting me in utilising and applying Indigenous research methodologies, which was a reassuring experience that instilled confidence within me.

Building relationships with the Maningrida community for relational accountability was essential, but it was a lengthy and exhausting process for informants and me. This is because, despite my best efforts, it was challenging for me to give the time needed due to the impact of Covid-19 on the PhD. Just as relational accountability requires you to be integral to the Indigenous community, kinship and country, keeping yourself grounded is essential for not getting overwhelmed with this process. I achieved this through connection with my community members, Larrakia and Wadjigan, and Maningrida Traditional Owners, which helped me maintain focus and purpose. I admit I still have much to learn about Indigenous research methodologies, however, my most significant achievement throughout this PhD journey was the ability to decolonise my mind by introspectively addressing my education's colonial hegemony and critically considering my influences and understandings of the world around me. Through this thesis, I have carefully interwoven personal reflexivity statements throughout the thesis to ensure the reader understands how my positionality has influenced the research but also how my academic thinking has developed.

7.8.2: *Reflection and what could be done differently*

Having completed the research of this thesis, I reflect on my time and wonder what I could do differently to enhance my experience and research. Having had the luxury of co-designing a PhD project with supervisors, stakeholders, and Traditional Owners has enabled me a degree of autonomy to develop my critical thinking and creativity as well as provide enjoyment in the research as this topic is of great interest to me personally. Furthermore,

designing a PhD with research components in the NT allowed me to travel frequently from Melbourne to the NT; it benefited me personally as my family reside there, and I could also access my traditional country. This PhD project style has benefits, but some challenges must be elaborated on. First, designing a PhD iteratively in hindsight is fulfilling, however, during the process, I was in a constant state of unknown and was reliant on my supervisors' abilities to guide me through the requirements of the PhD program as it was difficult to judge where I was at. Thankfully I had two supervisors who were incredibly experienced with this style of research and were able to guide me and foster my development. Second, conducting this PhD through the Department of Nutrition, Dietetics, and Food also afforded me challenges. I sometimes felt that I was neither here nor there as I was constantly surrounded by fellow students conducting lab-based or dietetic research, which was very different from my multi-disciplinary approach. Fortunately, throughout the PhD journey, I frequented Charles Darwin University, specifically the Research Institute for the Environment and Livelihoods (RIEL). I was surrounded by fellow PhD students who provided insight into fieldwork-based and interdisciplinary research approaches; I am grateful for this experience. Being an Aboriginal higher degree in research student also afforded me connections to an Indigenous research group at Monash University which also provided me reassurance and development of my methodological approaches. Finally, conducting research in a remote Aboriginal community involved much more planning and preparation than I initially thought, and I had to learn project management skills to conduct such research. Considering all these reflections in hindsight, I recommend that other PhD candidates read more broadly from different disciplines from the start. I had spent significant time early in the PhD reading health literature, which was vital to my development. However, other disciplines, such as social sciences, history, law, and livelihoods, would later contribute significantly to my interpretations. In addition, I would plan more thoroughly as I set relatively loose timelines throughout the PhD and believe, at times, this impacted my efficiency. Overall, I thoroughly enjoyed this PhD journey; my academic growth, the people I met, and the experiences I gathered were all highlights.

7.9 Concluding statement

Overall this thesis sought to explore how coastal Indigenous Peoples health and wellbeing values are conceptualised and represented in connection to seafood and the potential significance of this for health and policy outcomes from an Indigenous perspective. Through the empirical studies, this thesis identified that academic health literature has primarily focused

on the role of the physiological benefits of seafood towards nutrition, health and wellbeing outcomes for Indigenous Peoples, with minimal Indigenous perspectives considered. Through this thesis, it was conceptualised that Indigenous nutrition, health and wellbeing values connected to seafood include socioecological and socio-cultural links to the Indigenous Knowledge System that are ingrained into local historical and political contexts. By explicitly linking the associated Indigenous values to seafood, this thesis has demonstrated Indigenous Peoples interactions with and their connection to food systems, and seafood needs comprehensive interdisciplinary inquiry to reflect Indigenous Peoples lived realities when connecting to seafood for health and wellbeing. Specifically, this thesis identified that it is essential to understand that the Indigenous interconnected Knowledge System extends to the Indigenous food system through a focus on seafood and is vital for health and wellbeing outcomes. This conclusion was achieved through rigorous Indigenous and qualitative research methodologies conducted by an Indigenous person with Indigenous Peoples to situate Indigenous Knowledge and values at the centre of the investigation, emphasising relational accountability for ethical and cultural integral processes. A contribution to new knowledge has been made that fundamentally considers how Indigenous Knowledge and values can be considered within health and policy outcomes within the marine and fisheries sectors to improve health and wellbeing beyond service delivery and socioeconomic outputs. While it has been challenging, considering an interdisciplinary approach has enabled this wider inquiry lens to be cast that considered broad literature and policy implications positioned with historical and political contexts at global, national and local levels. Finally, this thesis reveals that marine and fisheries sectors in Australia need to reevaluate their role in Closing-The-Gap on Aboriginal and Torres Strait Islander Peoples health and social inequity beyond a socioeconomic lens. This thesis overall has provided insight into an Indigenous perspective on connections to seafood for health. It has identified that representation within future research and policies must strengthen their coherence to Indigenous-led and grounded approaches to improving health and wellbeing outcomes in relation to seafood

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APPENDICES

Appendix 1: Chapter 4 systematic literature review

Appendices Table: 1 - EPHPP quality assessment results

Author/Date	Quant/Qual	Global rating	Selection bias	Study design	Confounders	Blinding	Data collection method	Withdrawals and dropouts
Berger 2020	Quant (cross-sectional study)	Moderate	Moderate	Weak	Strong	Moderate	Moderate	Not Applicable
Luick 2014	Quant (cross-sectional study)	Weak	Weak	Weak	Strong	Weak	Strong	Not Applicable
Bersamin 2019	Quant	Strong	Moderate	Moderate	strong	Moderate	Strong	Moderate
Petrenya 2012	Quant (cross-sectional study)	Weak	Weak	Weak	strong	Moderate	Strong	Not Applicable
Panunescu 2013	Quant (cohort study)	Weak	Strong	Moderate	Weak	Moderate	Strong	Moderate
DelBrutto 2021	Quant - cross sectional study	Weak	Moderate	Weak	Strong	Weak	Strong	Strong
Marushka 2018	Quant (cross-sectional study)	Weak	Moderate	Weak	Strong	Moderate	Moderate	Not Applicable
Mansuri 2016	Quant (cross sectional evaluation)	Moderate	Moderate	Weak	Strong	Moderate	Strong	Not Applicable
Lucas 2010	Quant (cross sectional evaluation)	Weak	Moderate	Weak	Weak	Moderate	Strong	Not Applicable

Lucas 2004	Quant	Weak	Weak	Weak	Weak	Moderate	Strong	Not Applicable
Lucas 2009	Quant	Moderate	Strong	Weak	Strong	Moderate	Strong	Not Applicable
Lucas 2009	Quant	Moderate	Strong	Weak	Strong	Moderate	Strong	Not Applicable
Hu 2017	Quant	Moderate	Moderate	Weak	Strong	Moderate	Moderate	Not Applicable
Hu 2018	Quant	Moderate	Strong	Weak	Strong	Moderate	Moderate	Not Applicable
Hansen 2004	Quant	Weak	Strong	Weak	Strong	Moderate	Weak	Not Applicable
Egeland 2004	Quant	Weak	Moderate	Weak	Weak	Moderate	Weak	Not Applicable
Dewaily 2001	Quant	Weak	Moderate	Weak	Strong	Moderate	Weak	Not Applicable
Dewaily 2003	Quant	Moderate	Moderate	Weak	Strong	Moderate	Strong	Not Applicable
Dewaily 2002	Quant	Moderate	Strong	Weak	Strong	Moderate	Strong	Not Applicable
Bjerregaard 2000	Quant	Weak	Moderate	Weak	Strong	Moderate	Weak	Not Applicable
Bjerregaard 1997	Quant	Weak	Moderate	Weak	Weak	Weak	Moderate	Not Applicable
Bjerregaard 2003	Quant	Weak	Moderate	Weak	Weak	Moderate	Weak	Not Applicable
Bjerregaard 2013	Quant	Weak	Moderate	Weak	Strong	Moderate	Weak	Not Applicable
Beaulieu-Jones 2015	Quant	Weak	Weak	Weak	Strong	Weak	Strong	Not Applicable

Appendices Table: 2 - systematic literature review data base search results

Database	Search Terms	Results (2019)	Updated Results (06-01-2022)
OVID Embase	Same terms as Medline search	862	250
OVID Medline	<p>1. population groups/ or exp American native continental ancestry group/ or exp oceanic ancestry group/</p> <p>2. Indigenous.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]</p> <p>3. Aborigin*.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]</p> <p>4. (Samii* or Sami or Samis).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]</p> <p>5. Inuit*.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]</p> <p>6. First nation*.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]</p>	674	142

	<p>7. Maori*.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]</p> <p>8. (seafood* or shellfish* or fish* or crustacean*).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]</p> <p>9. ((marine or ocean or sea) adj (food* or consum* or Meal* or diet*)).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]</p> <p>10. (health* or (well-being or wellbeing or well being) or social or welfare or cultural or spirit*OR nutrition*).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]</p> <p>11. (psycholog* or physiolog* or emotion*).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]</p> <p>12. (Torres strait islander or TSI or ATSI or koori* or noongar* or MURRI*).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]</p> <p>13. (native america* or Indian* or eskimo* or native Hawa* or aboriginal poly* or minor indig* or native russi* or indigena* or pre-Columbian*).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word,</p>		
--	--	--	--

	<p>organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]</p> <p>14. exp Physiology/</p> <p>15. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 12 or 13</p> <p>16. 8 or 9</p> <p>17. 10 or 11 or 14</p> <p>18. (15 and 16 and 17) not mercury.mp. not metal*.mp. not climate*.mp. not poison*.mp. not lead.mp. not biology.mp. not arsenic*.mp. not migration*.mp. not environmen*.mp. not toxi*.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]</p>		
Cinahl	<p>S1 indigenous OR aborigin* OR torres strait islander* AND inuit* OR first nation* OR native american* OR native canadian* OR native* OR Maori* OR sami OR samii* OR samis</p> <p>S2 seafood* OR Shellfish* OR Crustacea* OR Fish* OR marine fisher* OR Marine food* OR Ocean food* OR Marine food* OR ocean consum* OR marine consum* NOT (environment* NOT mercury NOT toxi*) NOT Lead NOT</p> <p>AND (health* or wellbeing or well being or well-being or quality of life) OR (social* OR mental OR psycholo* OR physiolog* OR emotion*) OR (weight loss or weight reduction or lose weight) OR diabetes, obesity & metabolism OR (bmi or body mass index) OR (hba1c or glycated hemoglobin or hemoglobin a1c or diabetes) OR nutrition or diet or food or nourishment or food intake or eating</p>	128	117
Pubmed	<p>(((((("Psychology"[Mesh]) OR "Nutritional Physiological Phenomena"[Mesh]) OR "Health"[Mesh])) AND ((well being or well-being or wellbeing or social or welfare or cultur* or spirit*)))) AND (((("Seafood"[Mesh]) OR "Shellfish"[Mesh])) AND (((Fish*) OR shellfish*) OR marine food*) OR ocean food*) OR (((marine or ocean or sea) adj (food* or</p>	38	4

	consum* or meal* or diet*)))) AND (((((((((Indigen*) OR Aborig*) OR Torres Strait islander*) OR Native america*) OR (Sami OR samii* OR samis)) OR Maori*) OR Native Hawaiian*) OR (((("American Native Continental Ancestry Group"[Mesh]) OR "Oceanic Ancestry Group"[Mesh]) OR "Inuits"[Mesh])))		
Global health	((NOT(toxi*) NOT (Enviromen*) NOT (Lead) NOT (mercury) NOT (climate) NOT (poison*)) AND (((health*) OR (nutrition*) OR ("well being") OR (wellbeing) OR (well-being) OR (welfare) OR (social*) OR (cultu*) OR (spirt*) OR (psycholog*) OR (physiolo*) OR (emotion) OR (diabetes) OR (obesity) OR (heart*) OR (BMI) OR ("body mass index") OR (weight))) AND (((seafood*) OR (fish*) OR (shellfish*) OR (crustacean*) OR ("marine food*") OR ("traditional food*") OR ("country food*"))) AND (((indige*) OR (aborig*) OR ("torress strait islander*") OR ("native amercia*)OR ("Australian Indigen*") OR (maori*) OR (sami) OR (samii* or (samis) OR ("Native american*") OR ("Native Alaska*") OR ("native Hawaiian*") OR ("American Indian*") OR (Inuit*) OR ("first nation*") OR (Eskimo*) OR (Metis*) OR ("native canad*") OR ("aboriginal poly*") OR ("pacific islander*") OR ("native people*") OR ("indigenous people*"))))	3270	190
Informit	("seafood*" OR "fish*" OR "shellfish*" OR "crustacean*" OR "marine food*" OR "traditional food*" OR "country food*") AND (SU="INDIGENOUS PEOPLE" OR "sami" OR "samii" OR "samis" OR "eskimo*" OR "aborig* poly*" OR "maori" OR "native people*" OR "inuit" OR "first nation" OR "alaska* Native*")	380	0
Proquest across 28 databases	((noft(Indigen*) OR noft(Aborig*) OR noft("Torres strait island*") OR noft("native america*") OR noft(maori*) OR noft(Eskimo*) OR noft("american Indian*") OR noft(Sami)) OR (noft(inuit*) OR noft("first nation*") OR noft(metis) OR noft("native Alaska*") OR noft("Native Hawaiian*") OR noft("pre Colombia*") OR noft("Aboriginal polyn*") OR noft("indigenous people*")) AND (noft(Seafood*) OR noft(fish*) OR noft("marine food*") OR noft(crustacean*) OR noft(shellfish*)) AND (noft(health*) OR noft(social*) OR noft(wellbeing OR "well being") OR noft(Welfare) OR noft(psycho*) OR noft(physio*) OR noft(cultur*) OR noft(spirit*) OR noft(emotion*))) AND (stype.exact("Scholarly Journals") AND PEER(yes))	4338	638

Appendix 2: Chapter 5 qualitative case study

Appendices Figure: 1 - CDU research ethics

CDU Human Research Ethics Committee, Research Integrity and Ethics

Research and Innovation P 08 8946 6063 E ethics@cdu.edu.au



12 October 2020

Dr. Natasha Stacey and Mr. Beau Cubillo
College of Engineering, IT and Environment
Via email

natasha.stacey@cdu.edu.au
<mailto:beau.cubillo1@monash.edu>

Dear Natasha and Beau,

RE: H20082 – Indigenous knowledges of the nutritional health and wellbeing benefits of seafood

Human Research Ethics Committee – Proposal Approval

Thank you for submitting the above-mentioned project proposal for ethical review. The proposal has been determined under the procedures of the Charles Darwin University Human Research Ethics Committee (CDU-HREC) to meet the requirements of *The National Statement on Ethical Conduct in Human Research* and is approved from the date of this letter to the expiry date listed below.

EXPIRY DATE: 01 October 2022

An annual progress report must be provided to the Research Integrity and Ethics Team before each anniversary of the commencement date. This approval is contingent on submission of a satisfactory annual progress report.

Appendices Figure: 2 - Letter to Maningrida Traditional Owners and BAC

**Dear Maningrida Traditional Owners and Bawinanga Aboriginal Corporation,**

My name is Beau Cubillo I am a Larrakia man traditional custodians of Darwin and a Wadjigan man and traditional custodians of Bulgul outstation to the west of Darwin. I am a PhD University student at Monash University in Melbourne with the school of Nutrition and Food. Because I am from the coast I want to work with other salt water Aboriginal people and communities in the Northern Territory to learn about and research the food they eat from the sea and the businesses that have helped their community get more seafood.

I am greatly interested in learning more about the fishing business at Maningrida because I believe it is important that Aboriginal people have an input into the policy/rules that help or make it difficult to fish and sell seafood on their own traditional country. The reason I want to work with Maningrida fishing business and learn from the traditional owners and fishing license holders is because I think that Maningrida is leading the way in the Northern Territory with the fishing and seafood businesses.

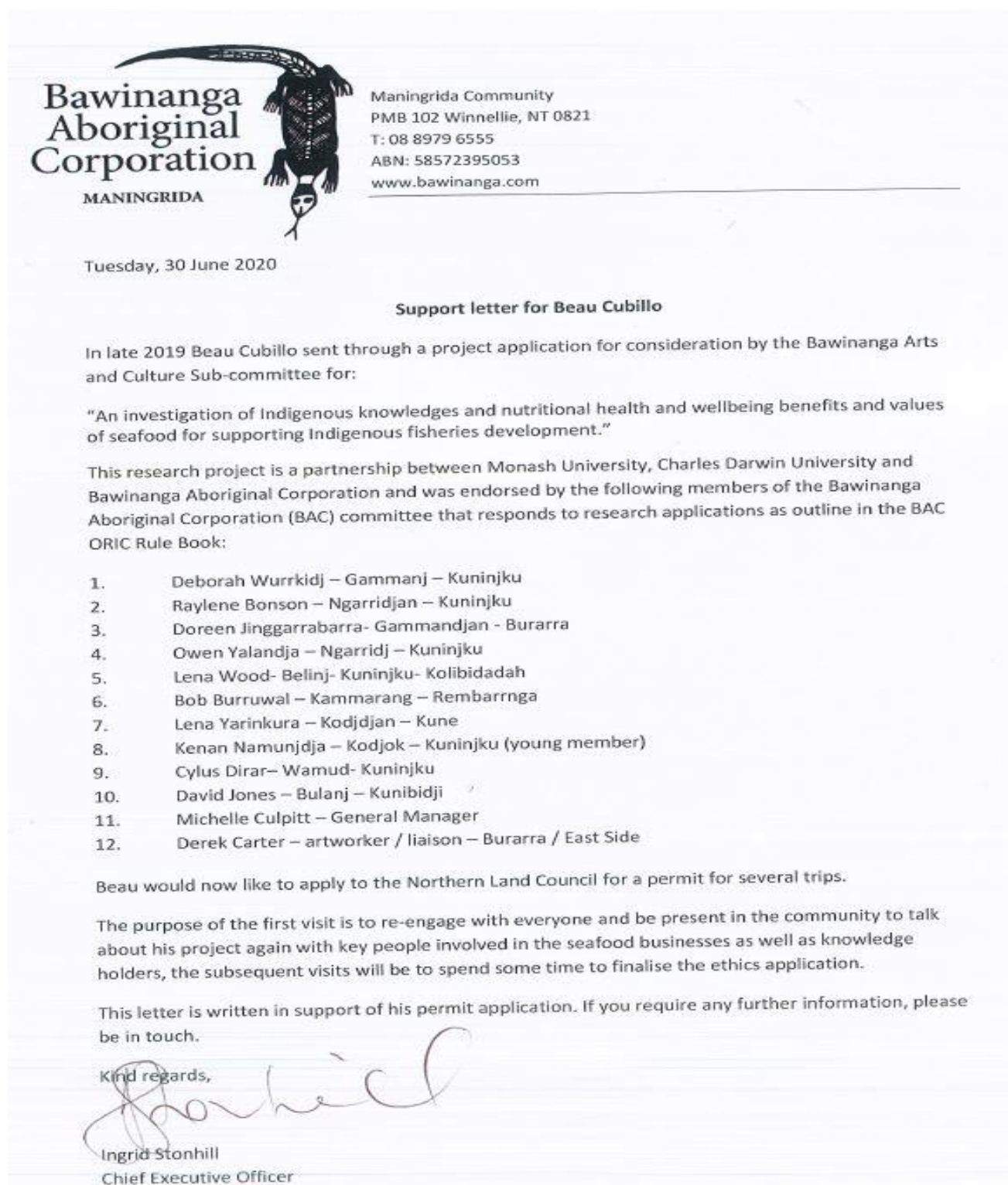
What I want to research is the policy/rules that are currently making it easier or harder for the fishing business to catch and sell the fish to the community and I want to do this by spending time with traditional owners, license holders, workers and community members to hear their perspective and thoughts. I also would like to learn about where the fish that is caught by the business goes for example when the fish is caught who buys it and which families and households consume it and which fish people in the community like to eat.

I believe that if I work together with traditional owners the right way from the start of my research I will be able to hopefully create a meaningful project where both community and myself can benefit and will hopefully end with a good thesis/report for my studies and useful information for the community. During the research I will be able to reimburse people for their time as well as hopefully create some kind of paid employment such as translators or a key community informant to help with the study.

At the end I will be able to provide useful information back to the fishing business and wider community but before I talk more about this I would like to alongside my two supervisors Julie Brimblecombe and Natasha Stacey please be invited to Maningrida to sit down with the right people and speak more about this.

Yours Sincerely Beau Cubillo

Appendices Figure: 3 - Support letter from BAC arts and culture sub-committee



Appendices Figure: 4 - NLC permit

NORTHERN LAND COUNCIL PERMIT #78091



Status	Issued
Permit type	Work
Primary location	Maningrida
Date in	01 Nov 2020
Date out	31 Dec 2020
Company name	Monash University
Work permit type:	Research
Method of transport	Land, Private
Purpose of trip	The purpose of the trip is to conduct qualitative research as part of a student PhD project. This will involve interviews, photographs of seafood species that have a connection to peoples health and wellbeing.

For any questions, please use our Contact Centre at www.permits.nlc.org.au. Alternatively email permits@nlc.org.au or phone 1800 645 299

Leg 1 - Maningrida	1st Nov 2020 - 31st Dec 2020	Approved
---------------------------	-------------------------------------	-----------------

Purpose of this leg

Research activities interviews, photos and feedback sessions to community members, traditional owners and stakeholders

Local Information

None

Further Condition

None

Applicant

x1

Beau Cubillo

P:

E: beau.cubillo1@monash.edu

AREW ID:

A:

Company

x1

Monash University

P: 03 9905 9762

E: base.nutrition@monash.edu

A: 264 Ferntree Gully Rd, Notting Hill, Victoria, 3168, AUS

NLC agreement type/no:

Contracting to:

Position: PhD Candidate

Tender no:

Appendices Figure: 5 - Information sheet qualitative case study



Information sheet: Understanding the health benefits of Maningrida Fish and Seafood Research Project

Fish and seafood are important for peoples' health because it has protein and other nutrients that helps the body develop muscle and helps the brain stay healthy. These foods also connect people to culture, country and ancestors that makes people feel strong.

In Maningrida there are fishing and crabbing businesses which is operated by Traditional Owners and Bawinanga Aboriginal Corporation. The business sells fish to Maningrida community and sometimes to other communities and Darwin City. The fishing businesses are good because they help Aboriginal people get healthy food and bring money to the community.

In this research project we want to show the government and other organisations that Aboriginal Peoples' have a different understanding to balanda people about what fish and seafood mean for health and wellbeing. This information will be used to help build support and understanding of the importance of Aboriginal fishing businesses for remote communities in the future.

What is the research about?

The research project is about Indigenous knowledges' perspectives of the nutritional health and wellbeing benefits of seafood. It is being conducted as part of a PhD research study through Monash University in Melbourne and with Charles Darwin University in Darwin and hosted by Bawinanga Aboriginal Corporation.

The research project aims to:

- 1) Find out about the nutrition, health and wellbeing benefits of fish and seafood for Aboriginal people through stories and talking; and
- 2) To do research the right way to do this kind of research that respects Aboriginal knowledge's
- 3) Find out how and why fish and seafood businesses are important for the Maningrida community to access healthy food and maintain cultural connection to important species of fish and seafood.

Who is doing the research?

The Bawinanga Aboriginal Corporation, Arts and Culture Committee has agreed to host Beau Cubillo a Monash University PhD student to undertake the research project in the community.

Beau Cubillo is the first year of his PhD study. He has two supervisors – Julie Brimblecombe at Monash University and Natasha Stacey at Charles Darwin University.

Research activity to be conducted:

- Beau Cubillo will be visiting Maningrida several times this year.
- Beau will work with Maningrida Arts and Culture Centre, Traditional Owners and staff from Bawinanga Aboriginal Corporation to co-design the detailed aspects of the research project and obtain permission for the research.
- When all the Balanda and local research permissions are in place Beau will come to Maningrida again next year (2021) to invite people to share stories (through interviews and yarning) about why fish and seafood are good for health and talk to Aboriginal fishing business license holders, workers and their families about fishing and seafood businesses.
- People who participate in the research project with Beau can choose to use their name or not. Beau will not use any story that can identify the person sharing information unless you give him permission.
- As part of the research Beau will work with community members and BAC to produce some resources on fish and seafood that will be useful for the community and young people.

What will happen to the information you provide?

- Beau will use the information and stories to help write some academic papers and a PhD thesis for his study at Monash University.
- Some of the information will also be used to create posters and a booklet to be given to Maningrida community so it can be used in schools and education for young people to promote the seafood business and health benefits of fish and seafood.
- Some information will be presented at conferences to show many different organisations, businesses and people the benefit of having a fishing business for the health of the community.
- Unless permission is not granted the information will publicly available to help support and promote Aboriginal Peoples' perspectives about the nutrition, health and wellbeing of fish and seafood.

Who to contact about this project:

If you have any questions you can contact Beau Cubillo at Monash University at any time: Email: beau.cubillo1@monash.edu or phone call or text: xxxxxxxxxxxx| If you have any questions or concerns that you do not want to direct to the researcher, you are invited to the contact Natasha Stacey at Charles Darwin University on email at xxxxxxxxxxxx or phone call at xxxxxxxxxxxx or you can speak to Michelle Culprit at the Maningrida Arts & Culture, Bábbarra Womens Centre, Djómi Museum and the Cultural Research Office



Appendices Figure: 6 - consent form qualitative case study



Consent to be part of the nutrition, health and wellbeing benefits of fish and seafood study

I have spoken to PhD student Beau Cubillo from Monash University about the study that he is doing about the nutrition, health and wellbeing benefits of fish and seafood for Aboriginal people.

I would like to be part of this study in these ways:

- I am happy for my voice to be recorded during interviews with Beau
- I am happy for my words from the interviews to be presented in research papers and Beau's PhD thesis, reports to funders, partners, seminars and conference presentations
- I am happy for my words to be used in making booklets and posters and other resources for Maningrida community
- I am happy for my real name to be used in the research, thesis and outputs (for some participants only)

I understand that I can say no to being part of this story.

I understand that I may withdraw my permission at any time and my story and words will be taken out of the project. However, once my words have been analyzed and coded by Beau they cannot be taken out.

I understand that I can ask to not be named in any of the research.

I understand that I don't need to answer any particular questions if I don't want to.

I also understand my other rights outlined in the Information Sheet.

I freely give my consent to be part of this story under the conditions written in the Information Sheet and this Consent Form.

Signed: _____

Full name printed: _____

Date: _____

If you have any questions or concerns that you do not want to direct to the researcher, you are invited to contact the Ethics team of the Charles Darwin University Human Research Ethics Committee on (08) 89466063, on the toll free number, 1800 466 215 or by email, ethics@cdu.edu.au. The Ethics team can pass on any concerns to appropriate officers within the University.

Appendices Figure: 7 - Food policy study



How is nutrition, health and wellbeing conceptualised in connection with seafood for coastal Indigenous Peoples'

Beau Cubillo^{a,*}, Natasha Stacey^b, Julie Brimblecombe^a

^a Department of Nutrition, Dietetics and Food, Be Active Sleep Eat (BASE), Faculty School of Clinical Sciences Monash University, Faculty of Medicine, Nursing and Health Sciences level 1, 264 Ferntree Gully Road, Notting Hill, Vic 3168, Australia

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ARTICLE INFO

Keywords:

Aboriginal
Seafood
Fish
Indigenous
Decolonization
Yarning

ABSTRACT

Coastal Indigenous people access and maintain customary connections to seafood for nourishment, livelihoods and Indigenous values. It is recognised that seafood contributes significantly to coastal Indigenous people's diets. Despite this, global fisheries sectors have overlooked the role seafood plays in contributing to nutritional, health and wellbeing outcomes of coastal Indigenous communities. Global entities have called for 'nutrition sensitive policies' to improve nutritional, health and wellbeing outcomes. The aim of this study was to apply an 'Indigenist' inquiry lens and 'yarning' as a method to further understand from an Indigenous perspective how concepts of nutritional, health and wellbeing outcomes are represented and connected to seafood. Research involved 16 Aboriginal informants, six women and ten men from a fishing enterprise, arts and culture centre and a women's centre with a connection to commercial and customary fishing in Maningrida community in the Northern Territory of Australia, 2019–2022. Key themes related to respecting of Elders, culture, country, Aboriginal nutrition, traditional medicinal knowledge, Aboriginal fishing enterprises, barriers to accessing seafood, lived experience, intergenerational knowledge transfer and interconnectedness. It is clear that fishing and access to seafood for Aboriginal people is a pathway to healthier food provision within coastal Indigenous communities. It needs to be recognised however, that Indigenous nutritional, health and wellbeing concepts and self-determination principles need to be integrated into 'nutrition sensitive policies' within fisheries and mariculture sectors.

1. Positionality statement:

The lead author of this study is a Larrakia and Wadjigan Aboriginal man from the Northern Territory (NT) of Australia. Both the Larrakia and Wadjigan people have maintained on going connections to their customary coastal waterways and seafood and this positioning by the author has been incorporated into this study design through co-constructed knowledge (Olmos-Vega et al., 2022; Wilson, 2008). The participants herein, referred to as informants for this study, are Aboriginal people residing in the coastal community of Maningrida in the NT and/or neighbouring outstations with ancestral and cultural connections to several language groups including but not limited to Burarra, Kunwinjku, Ndjebbana, Kune and Nakara. The two co-authors of this study are non-Indigenous with extensive experience working with Aboriginal and Torres Strait Islander Australians and who provided

critical support to the lead author and insight to enable the Indigenous voices to be reflected in this research (Morton Ninomiya et al., 2022). The authors have expertise in Indigenous and qualitative methodologies, Aboriginal fisheries, nutrition, food systems, food security, natural resource management and small-scale fisheries.

The authors of this paper have used the term 'Indigenous' to represent a global community that reflects many heterogeneous cultures, nations and diversity across the globe (Cunningham & Stanley, 2003; U.N., 2021) The term 'Aboriginal' in this study will represent the first people of Australia and 'Torres Strait Islander' will represent the first people of the Torres Strait Islands. It is acknowledged that these broad terms reflect culturally and linguistically diverse groups of people. The term 'Traditional Owners (TO)' throughout this research will refer to Aboriginal people with ongoing pre-colonial connection to customary land and waterways with inherit rights and responsibilities (ALRC, 2014;

Abbreviations: NT, Northern Territory; BAC, Bawinanga Aboriginal Corporation; TO, Traditional Owner; ACL, Aboriginal Coastal License.

* Corresponding author.

E-mail addresses: Beau.cubillo1@monash.edu (B. Cubillo), Natasha.stacey@cdu.edu.au (N. Stacey), Julie.brimblecombe@monash.edu (J. Brimblecombe).

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Bock et al., 2022). For the purpose of this study seafood is defined as wild captured marine species of fish, crustaceans, invertebrates and mammals that are accessed by Indigenous people.

2. Introduction

Seafood remains an important contributor to coastal Indigenous people's diets with global consumption up to 15 times higher than that of non-Indigenous people (Cisneros-Montemayor, Pauly, Weatherdon, & Ota, 2016). This is significant as seafood provides essential protein, fatty acids and micro nutrients needed for healthy human growth and function (Berkes & Farkas, 1978; Khunlein, Erasmus, & Spigelski, 2009). Despite this recognised important dietary contribution of seafood to coastal Indigenous people's diets, the fisheries and mariculture sectors have largely overlooked this nutritional contribution and focused on political, conservational and economic development outcomes (Allison et al., 2017; Arthur et al., 2022; Koehn et al., 2022). Therefore, in order to maximise the benefits of seafood to coastal Indigenous people's livelihoods and nourishment there needs to be a greater degree of recognition of the nutrition, health and wellbeing value of seafood within the fisheries and mariculture sectors (Farmery, Kajlich, Voyer, Bogard, & Duarte, 2020; Kuhnlein and Chotiboriboon, 2022). Further, global research agendas and roundtable discussions have recognised the need to address the determinants of nutrition outcomes through complementary sectoral policies, referred to as 'nutrition sensitive policies' (FAO, 2017; Pinstrup-Andersen, 2013; Ruel & Alderman, 2013; WHO, 2014). This is significant as Indigenous people are continually experiencing a gap in nutrition- and health-disparities compared with benchmark populations, including lower life expectancy, lower birth rate, and a higher rate of non-communicable diseases and lower social (economic and education) outcomes (Sherwood, 2013; Lancet, 2020). In order for fisheries and mariculture sectors to coherently align and contribute to global roundtable aspirations for 'nutrition sensitive policies' and improved nutritional, health and wellbeing outcomes of Indigenous people, there first needs to be a greater understanding of the way in which Indigenous people's concepts of nutrition, health and wellbeing are connected to seafood. Currently the nutrition literature and understanding of Indigenous concepts of nutrition, health and wellbeing in connection to seafood, beyond a dietary contribution and a nutritional composition lens, is limited (Brimblecombe et al., 2014; FAO, 2016; Wilson et al., 2020). This is an important as for many Indigenous people, nutrition, health and wellbeing is a collective concept and is inclusive of social and cultural values that place community health above individual health in contrast to biomedical models of health that focus on absence of disease within an individual (Gee, Dudgeon, Schultz, Hart, & Kelly, 2014; Pulver et al., 2010; Wilson et al., 2020). Nutrition literature to a very limited degree has recognised this as Brimblecombe et al suggest, that when considering strategies for greater nutritional outcomes for Indigenous people's there is a need for a broader "systems/socio-ecological approach" that reflects the social and cultural context (2014, p. 396). The broader literature identifies that Indigenous peoples have a customary connection to seafood that incorporates subsistence, livelihood and Indigenous values; yet this has not been explicitly linked to nutrition, health and wellbeing outcomes (Marushka et al., 2021; Noble et al., 2016; Shamsi, Williams, & Mansourian, 2020; Smyth et al., 2018).

These values therefore need to be further recognised and translated within nutrition discourse to strengthen integrated nutrition sensitive policies that align with Indigenous concepts of nutrition, health and wellbeing in the fisheries and mariculture sectors. In addition, this study recognises that due to the historical experiences Indigenous people have had with colonisation and the subsequent assimilation and oppressive policies, there is consequently a lack of representation of Indigenous perspectives within policies that impact their livelihoods and communities (Aldred et al., 2021; Moreton-Robinson, 2015; Wensing, 2021; Wolfe, 2006).

In response to the identified literature gap the study reported herein

aimed to demonstrate how nutrition, health and wellbeing in connection to seafood is conceptualised by Aboriginal people in the coastal community of Maningrida in the Northern Territory (NT). This study has been conducted as a localised case to demonstrate the complexity in the relationship Aboriginal people may have to seafood. In order to strengthen Indigenous perspectives, this study applied an 'Indigenist' inquiry lens to theoretically position the research within an Indigenous worldview and give resistance to dominant colonial structures within scholarship and policy (Rigney, 1999; Smith, 2021). The qualitative method of 'yarning' was utilised to facilitate the knowledge exchange process and inductive thematic analysis was applied as the knowledge analysis method.

3. Context and setting:

3.1. Maningrida: Study location

Maningrida is an Aboriginal community and is located 500 km east of Darwin city the capital of the NT and is situated on the lands of the Kunibidji people in central Arnhem Land, along the coast of the Arafura Sea and the mouth of the Liverpool river (Fig. 1: Map of the Top End region of the Northern Territory of Australia). The climate is tropical and in the wet season (approximately November-April) due to high rainfall, the roads are completely impassable with air and sea-barge the only options for travel and freight. The estimated population of Maningrida in 2016 was 2,065 with Aboriginal people comprising of 89% of the total population (ABS Census, 2016). There are currently five main Aboriginal language groups in Maningrida which include Burarra, Kunwinjku, Ndjebbana, Kune and Nakara, however there are many more language groups and dialects present in the region (Altman, 2005; Australian Government, 2022). The Aboriginal people in the central Arnhem Land region including Maningrida, like the rest of Australia, felt the impacts of colonisation by the British Empire, although Aboriginal people residing in the region still maintain strong customary connections to culture, land and marine waterways. Prior to colonisation Aboriginal people of the region lived on traditional country estates with inherent rights and responsibilities with an ongoing connection and cultural significance to a specific area of land and water, now referred to as 'outstations' or 'homelands' (Myers & Peterson, 2016). In Maningrida however, the Aboriginal people prefer to call their 'outstations' by their Aboriginal names and there are over 32 outstations neighbouring Maningrida (Altman and Anu, 2008; Myers & Peterson, 2016). The central location of Maningrida community was initially established by non-Aboriginal Government officials as a trading post for mining, fishing, forestry and other industrial development and later in 1957 declared a settlement by the Australian Government (Altman, 2005; Bawinanga Aboriginal Corporation, 2022). The Australian Government assimilation policy (1951–1962) required Aboriginal groups from neighbouring outstations to live in the established Maningrida settlement with aspirations for the community to become centralised and self-sustaining and it was expected that all the heterogenous Aboriginal groups in the area would live like non-Aboriginal Australians (ALRC, 2010; Altman, 2005; Hunt, Smith, Garling, & Sanders, 2008). This centralised idea however was abandoned in 1972 (Altman, 2008). Shortly after, the Australian Commonwealth *Aboriginal Land Rights Act (Northern Territory) Act [1976] (Cth)* legally recognised that Aboriginal people in the NT could live on their outstations and it was eventually hoped that land access would lead to economic and social equality (Altman, 2020; Australian Government, 1976; Yap et al., 2018).

3.2. Governance

Bawinanga Aboriginal Corporation (BAC) is an Aboriginal controlled centralised entity that currently represents the Aboriginal people of Maningrida and the surrounding outstations and offers a range of services and administration (Altman, 2008; Bawinanga Aboriginal

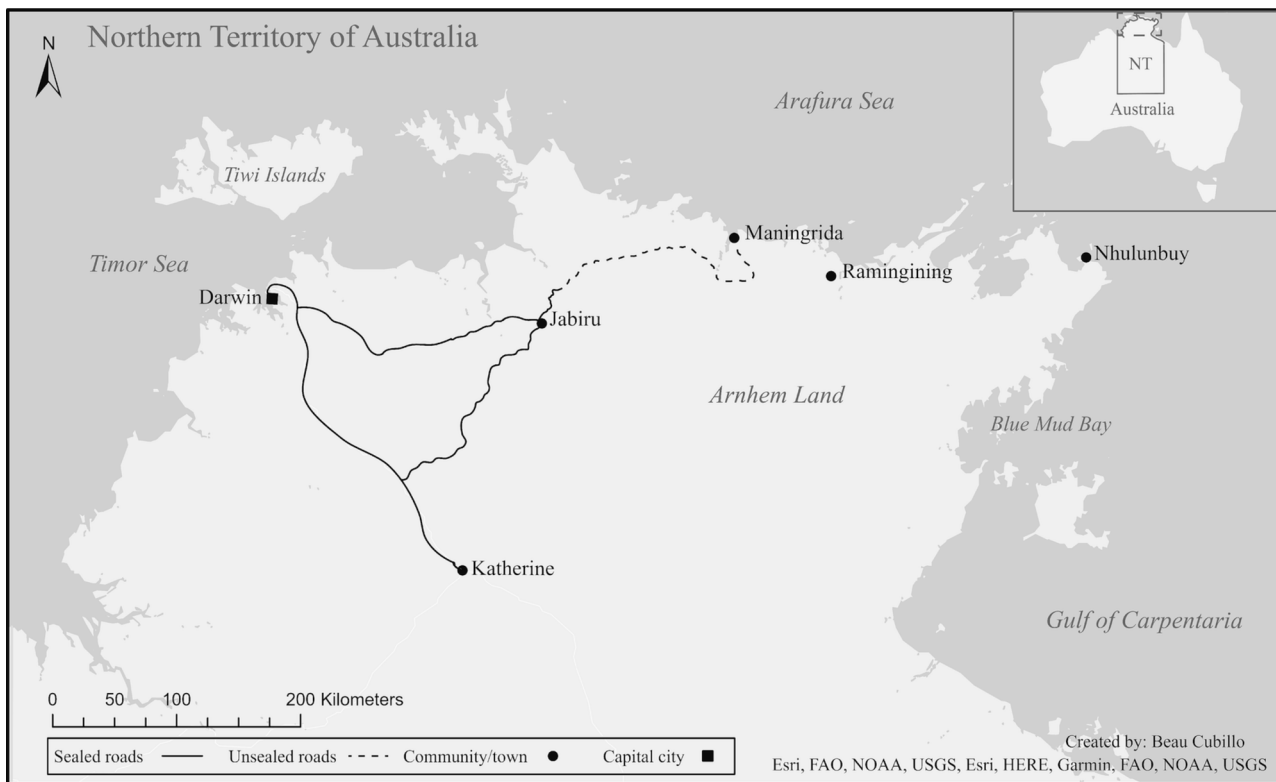


Fig. 1. Map of the Top End region of the Northern Territory of Australia. Description: This map indicates the location of Maningrida Aboriginal community located in the Central Arnhem Land region of the Northern Territory along the coast of the Arafura Sea.

Corporation, 2022). The current services include but are not limited to housing, Maningrida Arts and Culture Centre, Bábarra Women's Centre and the Djómi Museum. BAC also has an Indigenous enterprise development arm and manages the fishing enterprise referred to in this study. BAC reports they service 32 different outstations over an estimated 10,000 km², highlighting the size and diversity of the region (Bawinanga Aboriginal Corporation, 2022). In 2008 the High Court of Australia recognised the cultural and ongoing significance of coastal waters for NT Aboriginal people in which the *Aboriginal Land Rights (Northern Territory) Act [1976] (Cth)* was extended to incorporate the intertidal zone (Australian Government, 1976; Jentoft et al., 2018a). This was established through *Northern Territory of Australia v Arnhem Land Aboriginal Trust [2008] HCA 29*, which is commonly known as the 'Blue Mud Bay' as the case related to the Yolngu People are the TOs of the Blue Mud Bay region in North East Arnhem Land of the NT (Altman, 2013; Butterly, 2020; Jentoft et al., 2018a). The rights are now applicable to 85% of the NT intertidal zone. The recognition of Aboriginal access rights to coastal waters enabled the NT Government to introduce new regulations under the *Fisheries (Northern Territory) Act [1988]* and in 2014–15 an Aboriginal Coastal Licence (ACL) scheme was introduced (Northern Territory Government, 2021). This enabled TOs from Aboriginal communities in the NT to obtain a limited commercial fishing licence that would support small scale fishing businesses (Jentoft et al., 2018a; Northern Territory Government, 2021).

3.3. Fishing operations

At the time of this study, BAC held a NT commercial Mud Crab (*Scylla serrata*) licence, a leased portion of a Barramundi (*Lates calcarifer*) licence for one year, and supported TOs to obtain three ACL which had increased to four throughout the study duration from late 2019 to early 2022. The TOs who hold fishing licences in this study are all respected elders within their families and have on-going life experiences with both commercial and traditional fisheries. The fish and seafood obtained

through these licences are caught on reefs and in estuaries via boat as well as coastal beaches which are accessed for shore fishing. Methods may include vertical and troll line, cast and scoop net, 100 m net with mesh size 6.5 cm or less, 200 m gill net with 15.24 cm mesh, dilly and crap pots and traditional fishing techniques such as hand spear and fish traps (Northern Territory Government, 2021). Seafood that is caught is recorded, processed and sold mostly to community members and neighbouring Aboriginal communities. The species targeted under the ACL at the time of this study include Bluetail Mullet (*Moolgarda buechanani*), Diamond Mullet (*Liza vaigiensis*), Golden Trevally (*Gnathododo speciosus*), Milkfish (*Chanos chanos*), Barracuda (*Sphyraena barracuda*), Queenfish (*Scomberoides commersonianus*), Blue Threadfin (*Eleutheronema tetradactylum*), Whiting (*Sillago sihama*) and under a restricted capacity also Barramundi (*Lates calcarifer*), Giant Trevally (*Caranx ignobilis*), Spanish Mackerel (*Scomberomorus commerson*), Beach Salmon (*Leptobrama muelleri*) and Threadfin Salmon (*Polydactylus macrochir*).

3.4. Customary fishing

Customary fishing includes a much broader scope of seafood species with different cultural and social values (Shamsi et al., 2020). All the informants of this study had significant knowledge of traditional fishing practices that were highly contextual to their individual outstations and family protocols. While a large focus of this study was on the wild caught fishing enterprise, traditional fishing was also included as this could not be separated from the story being told within data collection. Traditional fishing is an important part of the Aboriginal culture in the region and is connected to cultural and social values and has and continues to be important for subsistence and food security (Noble et al., 2016; Smyth et al., 2018).

4. Methods:

4.1. Theoretical Approach:

Over many centuries, Indigenous peoples' histories and knowledges have been subjugated by western representation which has reinforced Eurocentric ideologies as superior (Smith, 2021). Moreover, the lack of Indigenous values, beliefs, prejudices and voices portrayed in research has contributed to power imbalances in academia that continues to impact Indigenous communities through misrepresentation of their knowledge systems (Moreton-Robinson, 2015; Smith, 2021). This has contributed to the mistrust that can exist in Indigenous communities towards researchers (Harfield et al., 2020; Martin & Mirraboopa, 2003; Nakata, 2007). In response, this research positions itself within an Indigenous worldview to represent Indigenous voices in a localised context to strengthen Indigenous representation. The theoretical approach applied herein is the 'Indigenist' research lens which is targeted at framing three key principles in the conduct of research in the Australian context, as described by Rigney: resistance as the emancipatory imperative (research that intends to enable Aboriginal Australians to build their own ways of 'being' to enable healing from oppression); political integrity (research that is done by Aboriginal Australians where an Aboriginal person is responsible for their community and is a part of the struggle to contribute to the political agenda); and, Indigenous voices privileged in data interpretation and research dissemination to address the social inequities (Indigenist research that is focused on Indigenous interests and lived experiences and done by an Indigenous person with Indigenous people to serve the best interest of self-determination) (Rigney, 1999, p. 116).

The design of this study is a qualitative research design with data collection methods including 'yarning' and reflective notes, with inductive thematic data analysis. Situating of Indigenous values were incorporated into the study design to reflect Aboriginal contextual knowledge as accurately as possible. The creation of new knowledge from this research and its dissemination and communication, incorporates the key principles of the 'Indigenist' research lens to reflect Maningrida community's core values and interest. This research was also conducted according to the Australian Institute of Aboriginal and Torres Strait Islander Studies (AIATSIS) code of ethics to support meaningful research and reciprocity between the researcher and the Aboriginal community (AIATSIS, 2020).

4.2. Ethics

This study was approved by Charles Darwin University Human Research Ethics Committee (CDU-HREC and reference number H20081 'Indigenous Knowledges' of the nutritional health and wellbeing benefits of seafood'. All informants of the study were reimbursed for their time with cash payments as per BAC guidelines which included a rate set by BAC and distributed through BAC financial team.

4.3. Community engagement and informants

The study and ethics were co-designed in 2019 with input from key informants and staff members at BAC. The Maningrida Arts and Culture Subcommittee which comprises of 13 TOs was identified by BAC as the study's reference group and approved the research. All who participated in the research are described as informants. The lead researcher travelled to Maningrida community on three separate occasions over 2019 and 2020 to finalise the research design, ethical approach and consent then commenced data collection from 2020 to 2021, and in 2022 returned to member check and feedback the draft findings of the study to available informants and BAC. Informants from this study were selected through existing relationships within the community and identification of people who were deemed knowledgeable of seafood. This selection process was done by community members and not the researchers. In

this study 16 informants participated, six women and ten men.

4.4. Yarning

Yarning is a recognised conversational practice amongst Aboriginal and Torres Strait Islander researchers in Australia and has been applied in this study as a qualitative data collection method (Bessarab & Ng'andu, 2010; Shay, 2021; Walker, Fredericks, Mills, & Anderson, 2014). Yarning involves a two-way sharing of knowledge process between the lead researcher and the informants with the focus to freely conceptualise the research topic versus asking structured questions in an interview style (Atkinson, Baird, & Adams, 2021). This approach was applied to encourage and support the informants to describe their narrative in response to the research questions in any way they determined (Atkinson et al., 2021; Bessarab & Ng'andu, 2010; Walker et al., 2014). Yarning facilitates the sharing of stories that can include contextual, historical, political, cultural identity and expression of Indigenous worldviews of the individual, their families and wider community (Bessarab & Ng'andu, 2010; Martin & Mirraboopa, 2003). As yarning is a two-way sharing of knowledge process, the relationship, trust and accountability between the researcher and informants is important (Walker et al., 2014). The authors felt an immense importance for the research to reflect the community core values and the lead author as an Aboriginal researcher felt the responsibility to uphold trust to 'our' people and the knowledge systems that govern 'our' being (Bessarab & Ng'andu, 2010; Murrup-Stewart, Atkinson, & Adams, 2022; Nakata, 2007). The lead author therefore attempted to achieve accountability and responsibility of yarning by first spending time communicating and listening to what informants were saying and what was important for them to get out of the research. This also included transparency on what the information collected was being used for, which in this case, it was used for the manuscript but also for future resource development and part of a PhD thesis (out of the scope of this study to describe). Informants included current and previous ACL fishing licence holders, fishing workers and Maningrida Arts and Culture Centre and the Barrada Bábbarra Women's Centre workers as these people expressed interest in the study. The lead author spent a total of 34 days in Maningrida not only conducting yarning but understanding community dynamics and building relationships. While this was enough time to conduct the knowledge collection, more time would have provided opportunity to potentially speak with other community members however due to the Covid-19 pandemic several trips were not possible. The yarning guide was developed by the lead author with input from the co-authors over a considerable time frame which also included input through the engagement with informants and other community members to gain an understanding of the local context, history and values of the community as well as the fishing operations.

The lead author used the guide to loosely ask questions to prompt the yarn, this included "what does nutrition, health and wellbeing mean for you personally?" and "how is seafood connected to nutrition, health and wellbeing?" and "what do you see as the benefits of seafood for the wider community?" The questions were broad in scope to not preconceive concepts of health or wellbeing and connection to seafood. Yarning involved some photo elicitation only to help identify certain species of seafood due to language barriers in regards to species names. The resources used for this were the online data base 'FishBase', physical poster of the 'NT Government: Common fish of the Northern Territory' and 'Coastal fish of the Maningrida region' (Bawinanaga Aboriginal Corporation, 2022; FishBase, 2022; Northern Territory Government, 2016). Some of the informants voluntarily brought to the yarning sessions maps, photos, story booklets and pieces of art to compliment the stories that were shared with the lead author. The yarning sessions were recorded in multiple ways in this study; either through audio of recording and/or note-taking by the lead author (Bessarab & Ng'andu, 2010; Lukaszuk et al., 2017). Notes were taken to document the everyday experience in the field and the research process and to add context to the research

(Goodall, 2000). Notes were also used by the lead researcher to reflect on and identify their own positioning in the research. Member-checking occurred with all informants and extra feedback of the manuscript findings occurred with eight informants.

4.5. Knowledge analysis

Notes from all yarning sessions were cross-checked with informants during and after the sessions in an attempt to accurately present a shared understanding and interpretation of the knowledge (Weber-Pillwax, 2001; Wilson, 2008). Yarning sessions were transcribed into a word document. A six-step inductive thematic analysis method was applied to analyse the transcripts and notes (Braun & Clarke, 2006; Maguire & Delahunt, 2017). An inductive method of analysis was applied as it had the theoretical flexibility to incorporate Indigenous ways of knowing (Braun & Clarke, 2006; Murrup-Stewart et al., 2022). Through the use of applying an Indigenist lens to the research it was essential that the Aboriginal informants had the ability to express their interpretations and knowledge in the research (West, Stewart, Foster, & Usher, 2012, p. 1584). This also included during knowledge analysis where informants had the chance to evaluate the interpretations as it is important to present the data in a way that represents Aboriginal voices between the Aboriginal informants and Aboriginal researcher. The lead author first became familiar with the knowledge and stories shared by informants by reading transcripts line by line and listening to the recordings. Basic codes were then generated by identifying reoccurring phrases, words or concepts related to nutrition, health and connection to seafood. Codes were then refined and re-applied to all the notes and transcripts to identify patterns, prevalence and re-occurring points of interest amongst the knowledge holders. The next phase involved grouping the codes into 10 themes using the informant's own expression of their views and knowledge about nutritional, health and wellbeing across all notes and transcripts. These themes were then refined and named by the authors and included in the findings of this paper as a way to broadly understand the connection of seafood to nutrition, health and wellbeing (Table 1).

5. Findings:

Based on the 13 yarning sessions that ranged from 30 min to 120 min with 16 different informants, several informants attended more than one yarning session, 10 co-constructed themes (Table 1) were explicitly represented to give a summary term to the views and knowledge of informants according to significant areas of interest relating to the research aim. It is understood that the Indigenous knowledge systems are intertwined and deeply rooted into the context, land, culture and language amongst other values (Aldred et al., 2021; Greenwood &

Table 1
Constructed themes and codes about nutrition, health and wellbeing values connected to seafood generated from the thematic analysis.

Themes	Codes
Respecting elders	Elders, old people, ancestors
Culture	Song lines, cultural spirit, dreaming, sharing
Country	land, country, place
Aboriginal Nutrition	Taste, food preference, variety of foods, food security, hunger, health benefits, energy levels, longevity
Traditional medicinal knowledge	Medicine, bush medicine
Aboriginal fishing enterprise	Fishing enterprise, income, fish markets, selling fish, community benefits
Lived experience	Memories, stories, whole experience
Intergenerational knowledge transfer	Knowledge holders, passing knowledge to young generation, young people have different priorities
Interconnectedness	Latent representation in the data to describe the complex relationship amongst other themes
Barriers to access seafood	Lack of knowledge, drugs, alcohol, family disruption, sick people, policy

Lindsay, 2019). The presentation of knowledge in separate deconstructed themes with individual meanings is an artificial construct when considering Indigenous ways of knowing and being (Nakata, 2002a; Wilson, 2008). This study recognises this and the connectedness of themes has been described in the specific theme 'interconnectedness'. While this theme was not explicitly mentioned by informants it has been constructed through the latent representation within the data. The themed approach applied in this study was undertaken to progress an understanding of Indigenous values of seafood for both Indigenous and non-Indigenous audiences which can be used practically to advance Indigenous values into scholarship and policy.

5.1. Respecting Elders

In the context of this study an Elder is referred to loosely as a person connected to a system of knowledge that is held by members of the community, and is not an absolute concept bound by timelines of past and/or present. Informants directly referred to Elders as either particular persons with extensive knowledge and/or respect in the community, or as non-living ancestors whose spirits are present and who represent the Aboriginal knowledge system. This study does not describe the in-depth concept of Elders but rather demonstrates that the Elders' connection to seafood exists and was significantly important to informants in their connection of nutrition, health and wellbeing. Living Elders were identified and described by informants as knowledge holders whom had a responsibility to pass knowledge on. An informant described "old people knew bush medicine" (yarning session, male) and made it known to the lead researcher that their ancestors could survive in the bush with their Aboriginal knowledge systems, reinforcing the importance of the knowledge system. A particular informant when asked what it means for people in Maningrida to be healthy and strong, gave a detailed description of how Aboriginal people should go "fishing like the old people" (yarning session, male) and of how previous generations had to physically exert themselves to catch fish and implied that this combined with the consumption of a nutritious source of food was beneficial to health. When prompted to talk about what role seafood has for living Elders, informants said that prior to them going out fishing or upon returning, Elders who were unable to source their own seafood, would ask: "did you get any fish" (yarning session, male) and say: "we miss our fish" (yarning session, male). There was a lack of access to fish and seafood for some Elders and this impacted on feelings and behaviour as described. Informants held enormous respect for Elders and a responsibility to them, and they either did not feel good about not being able to share some of the catch with Elders or felt obligated to try and bring fish to the Elders. Informants made it clear that many Aboriginal people believed that "fish made old people happy and strong" (yarning session, female) and that this gave them 'the energy' to 'go out walking' which referred to their ability to complete daily activities. Several senior women described that the Elders had preferences for certain fish species as they wanted to reconnect and consume the species that they had grown up eating such as "catfish", "Shark" and "Sting ray" (yarning session, female). Overall, informants referred to the deep connection and respect Aboriginal People in Maningrida have for their knowledge holders. They spoke of how important it is to enable Elders to consume species of seafood, and how this is connected to nutrition, health and wellbeing through cultural/social responsibility to their Elders.

5.2. Culture

Seafood was described by informants as connected to identity, the natural world, and community, as well as to the act of sharing, song lines, languages, dreaming and spirit. These codes were used to formulate the theme 'culture', with each informant giving a different description of how they viewed their cultural connection to seafood. Culture was central to all yarning sessions and embodied the way people described how they feel, connect and express their relationship to

seafood. Informants explained that the practice of culture was intertwined with the entire process of gathering, preparing and consuming seafood. They expressed their cultural connection to seafood in many ways such as through song lines and spiritual connections: “dreaming of fish is important to ancestors” (Yarning session, male) and “culture through song lines, eating fish, and ceremonies” (Yarning session, female). Cultural identity was linked with seafood where it was often described that seafood is a part of themselves, and thereby people are connected, physically, spiritually and metaphysically, with the seafood. Informants referred to the respect that is shown to particular seafood species of cultural significance to them, such as to the sting-ray, where through being caught or consumed, this respect is presented to the ancestors. The informant’s voices often reinforced that not only does seafood connect people to their identity but it also connects Aboriginal Peoples to their cultural knowledge systems including the knowledge of how to capture, prepare and consume seafood. Respected older informants expressed that while it is important for the younger generations to use contemporary methods of fishing they need to also know of their traditional ways “go outstation and learn fish trap a part of culture” (yarning session, male). Another aspect of culture that was referred to by informants was the cultural obligation to share. “Sharing is important for families” (yarning session, male), “sharing is part of the lore” (yarning session, male).

5.3. Connection to country

This theme ‘connection to country’ was created from data where informants referred to different places where they had ancestral connection and accessed seafood. It is centred on the experience and process of being physically and spiritually present on ones’ country to catch or harvest seafood. Country was expressed by informants as land, place, beach or outstation and was often the centre of an experience shared with the lead researcher, and expressed by the informants as a “place connected with feelings” (yarning session, female), or “connect to the country” (yarning session, male). Informants expressed that when accessing seafood, they would “camp on beach” (yarning session, male) or would access “beach country place” (yarning session, female), which highlights the important role country has in being able to access seafood as well as being able to connect spiritually to seafood. Informants when they were physically present on their country described that catching seafood would be done together with family and that it would be a happy experience.

5.4. Aboriginal nutrition

The theme ‘nutrition’ incorporates the codes taste, food preference, variety of foods, food security and hunger that arose directly from the yarning question, ‘what are the nutritional benefits of seafood for Aboriginal people in Maningrida and why is seafood important to improve and maintain health?’ Taste and food preferences were found to be desirable and enjoyable components of eating seafood: “good taste mullet” (yarning session, male), “feel good and taste good mollusc” (yarning session, male). Preferred tastes for certain species were associated with having grown up eating particular types of seafood, as well as with the fat content and seasonal knowledge of different species. Traditional knowledge of seasons was stressed by informants to be important for the fishing enterprise. If fish were caught out of season, consumer demand was impacted, as the fish contained less fat and were therefore not desirable “fish doesn’t have fat too dry and no good” (interview session, male), or “out of season no fat” (yarning session, male). Certain species were referred to as important in the past for food security, due to their ease of access and reliability: “Mud mussel important in old days” (yarning session, male). Hunger, was briefly mentioned by one informant as influencing their preference for certain species, as when they were hungry they looked for particular species “mangrove worm good for hunger” (yarning session, male). Several

informants explained that seafood was an important energy source: “power and energy” (yarning session, male), “keeps you going so you have the strength to fish” (yarning session, male). Informants attributed consumption of seafood in Maningrida to a longer life and associated it with being healthier: “fish and seafood health benefits, live longer” (yarning session, male). Most informants showed knowledge of the health benefits of seafood in relation to chronic conditions such as sickness, heart disease, kidney disease and diabetes which were the most common conditions referred to. The informants described seafood as particularly good for the blood, referring to blood pressure and iron in the blood:

“seafood good for heart, cleanses you” (yarning session, female), “seafood good for blood pressure” (yarning session, male) and “bush foods good for blood” (yarning session, female).

5.5. Traditional medicinal knowledge

This theme arose from responses to the question of ‘what are the health benefits of seafood for Aboriginal people?’ A difference of this theme to the ‘nutrition’ theme is the focus on treatment of an illness, whereas the nutrition theme related to subsistence, food qualities and dietary choices for health or preventive measures. This theme encompasses the traditional knowledge of a cure or a treatment of a particular condition that was referred to by informants. For example, when a child is constipated or has diarrhoea, they are prescribed a particular seafood from a knowledge holder in the family. Informants articulated the concept of ‘seafood as medicine’, and used the term ‘bush medicine’ to distinguish for the lead researcher between western medicine and Aboriginal medicine. Seafood was considered a part of this bush medicine system and as having medicinal properties “Fish and seafood are medicine” (yarning session, male) and “long bum and mangrove worm [are] a part of bush medicine” (yarning session, male). Informants explained that different fish and seafood species hold different medicinal qualities that are linked to the Aboriginal knowledge system, and that have been passed down through the generations. One example given by most informants, was a species used for the treatment of diarrhoea, constipation and stomach ache: “***** is good for diarrhoea and stomach ache” (yarning session, male), with the particular species name removed to protect the traditional knowledge of the community. Informants also explained that Aboriginal people in Maningrida who are sick as well as those who have had to relocate to larger metropolitan locations to receive healthcare, request seafood and that seafood is cleansing for Aboriginal People: “sick of western medicine so got to get seafood” (yarning session, male) “patients at the clinic want bush foods to help the cleanse” (yarning session, female).

5.6. Aboriginal fishing enterprise

Fishing licence holders and fishing workers, explained the numerous benefits to selling seafood, primarily fish, to the community. First, it provided an income which varied among informants and provided the informants’ families with money. Second, the fishing enterprises enabled the informants to apply their knowledge systems to contemporary methods to catch fish, thereby increasing catch efficiency. This included utilising seasonal and location knowledge to fish “Seasonal fish important for business because of the fat” (yarning session, male). Third, it allowed the TOs of the land on which fishing takes place [which can also be the ACL holders] to provide access to nutrient-rich seafood for the community benefit, which can lead to improved nutrition “fish business better nutrition” (yarning session, male). Forth, having a fishing business allowed an opportunity to sell seafood to surrounding Aboriginal Communities and provide those communities with benefits “selling to Ramingining (neighbouring Aboriginal community) good” (yarning session, male). Whilst informants spoke of the many positive nutrition, health and wellbeing benefits of seafood through consumption it was clear that the fishing enterprise had wider economic e.g. income and employment, as well as cultural and social benefits. It provided

opportunity to fulfil cultural obligations such as being able to provide seafood to older community members who were not able to access seafood themselves, thus having a positive impact on fishing workers wellbeing. Limiting factors to the fishing enterprise were raised by the informants including regulations restricting catch of some species such as Barramundi, and limited availability of some infrastructure and resources such as fishing equipment, cars, boats.

5.7. Lived experience

Informants told of memories, stories and experiences, expressed in length and with depth and substance, when asked what the nutritional, health and wellbeing benefits of seafood are for Aboriginal people. “Memories and stories” (yarning session, male) in themselves are important to health and wellbeing as they are shared and told to the next generation. The stories told, detailed the entire process of preparing, collecting and consuming seafood and the interrelatedness of the whole traditional food system. The stories would often start with the informants explaining that you need to collect the equipment that will be needed to access and collect or catch seafood. People would often use their knowledge of the season and the weather to select what seafood to target. Informants would then describe the gathering of family and travelling to the fishing location which was usually on the informant’s traditional country. Once at the destination, which sometimes could be a several hours drive from Maningrida community, the specific camping location would be selected which would often be near the beach due to the close proximity to fishing sites “camp on beach” (yarning session, male). Family members would work together throughout the day to gather food and then return to camp to prepare, cook and consume the food. The stories often incorporated information on social, kinship and cultural characteristics of the experience that were important to the telling of the whole story. This whole experience made people feel good and connected to the other themes identified such as country, health, respecting Elders and culture. All Informants had positive memories of gathering seafood with family on country and found it difficult to be disconnected from culture and identity when they were unable to live the experiences of fishing with family.

5.8. Intergenerational knowledge transfer

This highly emotional theme was identified from a question asked to informants about why it is important to pass knowledge on to the younger generation and how this can be done, as well as the role seafood plays in this. Informants described inter-generational knowledge transfer as an important aspect of affecting the health of the community as it plays a role in ensuring that knowledge of seafood is passed on to the younger generation. Informants wanted to ensure that the younger generation have knowledge of which seafood species to target for food and which are potentially dangerous such as poisonous sting-ray barbs and cat-fish spikes: “knowledge transfer of dangerous fish too” (yarning session, male). The importance of this knowledge for identity and culture was also stressed. Informants wanted to ensure that the people of Maningrida were eating their own culturally significant food and that the younger generation know which seafood is important for their culture and spirituality “eating their own food” (yarning session, male). Young children learning how to make and use both modern fishing equipment as well as the fishing spears and nets of their ancestors was stressed. Informants strongly believed that this knowledge should be incorporated into school education and schools. They explained how ‘on country’ learning was already happening at the Maningrida school through the ranger program “Catch easy with spear” (yarning session, male), “schools have role in intergeneration knowledge transfer” (yarning session, female), “traditional fishing methods” (yarning session, male).

5.9. Interconnectedness

An overarching theme is the interconnectedness Aboriginal people in Maningrida have with their knowledge systems and how this is represented and reflected. While no informant stated explicitly that the knowledge system is interconnected, informants spoke of the importance of accessing country, culture and intergenerational knowledge transfer in their story of why seafood is connected to nutrition, health and wellbeing. For example, an informant described taking a younger family member to country to learn how to make a fish-trap, which is an important cultural tool for catching fish. The informant described this process of teaching and passing knowledge down ‘*go outstation and learn fish trap a part of culture*’ (yarning session, male). When yarning about nutrition, health and wellbeing it was difficult to separate seafood from this interconnected story as animals, plants and country were all important for health. Informants explained in great depth the importance of balance and consuming all Aboriginal bushfoods including seafood. When prompted to explain further what it means to consume all Aboriginal foods it was explained that a variety of foods are needed to stay healthy “*variety of bush foods fresh water and salt water are important*’ (yarning session, male).

5.10. Barriers to accessing seafood

Barriers that restrict Aboriginal people’s access to seafood in Maningrida play a role in how seafood impacts nutrition, health and wellbeing. Informants told stories as a way to describe the wider burden and impact that lack of access to seafood has on their community’s nutrition, health and wellbeing. This theme emerged from questions relating to how nutrition, health and wellbeing could be improved in Maningrida using seafood. Informants spoke in detail about the disruption to knowledge transfer due to many barriers including drugs, alcohol, family disturbance, sick people and fishing regulations that make it difficult to access seafood. It was stressed that these barriers impact on people’s health and wellbeing in many different ways, such as causing emotional distress and disconnection from country and culture, which in turn affect people’s spirit. Informants expressed the worry they had for the younger generation and young people’s “Lack of knowledge” (yarning session, male), due to older family members or knowledge custodians being affected by these barriers. The physical health condition of the Elders in the community was a concern as it was explained that some people are physically impaired and/or inflicted by chronic disease and cannot take the younger generation to country to learn about seafood as well as to access seafood for themselves “people can’t move to access” (yarning session, male). It was greatly concerning for informants that “substances” (yarning session, male) including drugs and alcohol impacted inter-generational knowledge transfer as well as exacerbating “family disruption” (yarning session, male). Informants strongly believed that substance misuse was diminishing inter-generational knowledge transfer. Other barriers referred to include the restricted access for community members to purchase the fish caught through the fishing enterprise: “night market only one night a week, restrictive” (yarning session, female). It was also reported that people who purchased the fish would have to cook it immediately or within a day or so due to a lack of storage equipment in their homes such as freezers and refrigeration. This made for a difficult choice as informants felt they had to decide on whether to buy fresh nutritious seafood from the fishing enterprise in Maningrida or processed food such as tinned meats with a longer shelf life. This choice is significant for diet quality as tinned meats have traditionally been high in sodium. Informants were aware of this but needed to make these decisions for food security. Previously, in early years of the fishing enterprise start up, the fish was cooked on a barbecue style and sold. This pre-cooked fish was popular; however, this was ceased due to food safety concerns. There were also concerns that seafood accessibility in the future could be impacted by the effects of environmental changes such as reduced species

reproduction: “breeding concerns” (yarning session, male).

6. Discussion and policy implications

This study applied a qualitative approach to realise how coastal Aboriginal people in Maningrida community conceptualise nutrition, health and wellbeing in connection to seafood. The applications of ‘Indigenist’ inquiry lens with ‘yarning’ as the data collection method were applied as the authors attempted to position Indigenous values in research as a resistance to dominant colonial discourse (Bessarab & Ng’andu, 2010; Rigney, 1999; West et al., 2012). This study provides an original contribution to research that realises the importance of incorporating and advocating for both Indigenous values connected to seafood and the opportunity for nutrition sensitive policies within fisheries to improve nutritional and health outcomes for coastal Indigenous people. This would align to global calls for action to improve the livelihoods and health of Indigenous people such as ‘Health in all Policies’, ‘Strengthening Sector Policies for Better Food Security and Nutrition Results’, ‘United Nations Declaration on the Rights of Indigenous Peoples’ and the ‘The White/Wiphala Paper on Indigenous Peoples’ Food Systems’ (FAO, 2016, 2021; UN General Assembly, 2007; WHO, 2019).

Collectively, seafood for the informants in this study, was considered beneficial for themselves, their families and the wider community through the fulfillment of Indigenous values. Several of the values the informants manifested in relation to seafood have similarly been described in the Indigenous health and wellbeing literature such as ‘connection to country, kinship, spirit and physical health’ and the interconnectedness to the socioecological system (Brimblecombe et al., 2014; Butler et al., 2019; Fredericks et al., 2017; Gee et al., 2014; Noble et al., 2016). This study also draws attention to Aboriginal people’s ability to connect and represent their traditional knowledge system within governance structures to reduce barriers to accessing seafood, which has been described in the literature and policies as an underlying principle of ‘self-determination’ (Rademaker & Rowse, 2020; Yap et al., 2018). The reduction in barriers is seen as a way that would enable the sharing of seafood to Elders and family who are unable to access it themselves which would fulfil cultural obligations (Shepherd, Li, & Zubrick, 2012). Seafood was also described by informants as being a part of their identity with inherit customary connections and is connected to wellbeing (Gall et al., 2021). Cultural practices linked with seafood is expressed in many ways however, for the informants it is viewed as a means to respecting ancestors and spiritual health; this is described in Aboriginal health literature as a means of connecting with “deep wellbeing” (Grieves, 2009, p. 7). The expression of culture and access to country is also a mechanism for intergenerational knowledge transfer which is critical for cultural continuation and survivability (Nakata, 2002b). In addition, seafood was also described as providing nutritional nourishment, protecting health and providing the potential for greater economic growth in the community through business opportunities.

6.1. Indigenous self-determined policies

As described Indigenous people globally have greater health disparities than benchmark populations (Anderson et al., 2016). The magnification of these health disparities has brought attention and resources to the topic of inequity; however, literature has continually highlighted the failures of Indigenous health and wellbeing research, frameworks and policy, with Indigenous people often seen as the problem (Aldred et al., 2021; Fforde, Bamblett, Lovett, Gorringer, & Fogarty, 2013; Watego et al., 2021). In order to shift this pathologizing view of Indigenous health, global agendas such as ‘United Nations Declaration on the Rights of Indigenous Peoples’ have called for the self-determination, rights and interest of Indigenous people to address their concerns and interest (UN General Assembly, 2007). This is important when considering this study, as the values shared by the informants highlighted that their integration with their ecological system connects

their Indigenous values with nutrition, health and wellbeing. This concept needs to be reflected in policies that represent Aboriginal values; this has similarly been identified in natural resource management literature (Gratani, Bohensky, Butler, Sutton, & Foale, 2014; Sangha, Le Brocq, Costanza, & Cadet-James, 2015).

6.2. Nutrition sensitive policies in fisheries

Currently discourse surrounding ‘nutrition-sensitive policy’ agendas globally are particularly focused on agriculture, maternal nutrition, gender and dietary diversity with little focus on sectors like fisheries despite fisheries being an industry based around food (FAO, 2017; Ruel & Alderman, 2013; Thilsted et al., 2016). This study amongst other literature has highlighted the importance of coastal Indigenous communities’ connection to seafood which is vital for livelihoods, nourishment, food security and Aboriginal values (Farmery et al., 2020; Jentoft et al., 2018a; Marushka et al., 2021). Global literature has also recognised the lack of Indigenous food provision values represented within fisheries and mariculture policies, such as the importance of providing for families and older people through customary sharing or cultural obligations (Arthur et al., 2022; Fisher et al., 2017; Koehn et al., 2022; Toussaint, 2014). From the findings of this study and existing literature, global aspirations to improve the health and wellbeing outcomes for Indigenous people need sectors such as fisheries to incorporate Indigenous values and realise the nutrition, health and wellbeing benefits. Considering this, nutrition sensitive policies need to ensure not to overlook the potential positive contribution of seafood to Indigenous people’s diets, livelihoods, food security and Aboriginal values and thereby health and wellbeing outcomes (Allison et al., 2017; Cisneros-Montemayor et al., 2016; Durie, 2004; WHO, 2019).

6.3. Suggested action

It is clear from this study that in Maningrida access and consumption of seafood can be realised as a pathway to healthier food provisions. In order to achieve this, there needs to be a greater investigation into the role of integrative nutrition sensitive policies within sectors such as fisheries. This study has highlighted that nutrition is not a standalone health concept from the lens of an Indigenous person but is inclusive of an interconnected system of values (Brimblecombe et al., 2014; Martin & Mirraboopa, 2003; Murrup-Stewart, Whyman, Jobson, & Adams, 2021). In order to represent these values outside of a vacuum there needs to be a multi-sectoral approach that incorporates the needs and concerns of the community and reflects interconnectedness (Gee et al., 2014; Verbunt et al., 2021). A greater degree of self-determination principles and Indigenous values needs to be conceptualised and recognised in nutrition sensitive policies to incorporate a holistic view of the role of seafood has in improving health and wellbeing outcomes for Indigenous people (Bryant et al., 2021; Wilson et al., 2020; Yap et al., 2018).

7. Strengths and limitations

The strengths of this study include the methodological approach of utilising an Indigenous lens to contextualise Aboriginal perspectives. The ‘Indigenist’ inquiry lens enabled the lead researcher to feel comfortable utilising their Indigenous identity to explore together with the informants, research that is focused on community concerns such as strengthening the role of fishing for Aboriginal people (Rigney, 1999; Wilson, 2008). The lead researcher-built trust and relationships with the Aboriginal community of Maningrida through consultation, existing relationships, cultural identity, significant time and listening (West et al., 2012). A limitation to this study is the time with informants; it was initially planned to incorporate a greater number of field trips with more informant yarning. During the Covid-19 pandemic many places in Australia had travel restrictions and the location of this study had been

impacted by such restrictions. Therefore, the lead researcher was unable to travel to the community as often as originally planned. While phone and video interviews were considered it was deemed inappropriate due to the lack of phone and internet services in the community. However, the lead researcher remained in communication with some informants throughout the duration of the study and had opportunity to do several follow up sessions via zoom. Another limitation was the use of language. There were resources available to conduct yarning in Aboriginal languages, but all informants declined and believed their English was sufficient. However, in some circumstance's language, culture and metaphors/words were difficult to translate. The results of this study are able to reflect a generalised view of how Aboriginal people in Maningrida connect to seafood, however caution must be taken when applying the results to the general Maningrida population due to the limited informant size as not all language groups from the Maningrida region are included in the study and therefore creating a framework or conceptual model is not appropriate without further investigation. It would be assumed that seafood holds important meaning for Aboriginal people but the individual values reflected in this study may not represent all Aboriginal people in Australia. This study does however offer a local contextualised deep insight into the knowledge system of a remote Aboriginal community in the NT, who continue to access their seafood resources for individual, family and broader community needs.

8. Conclusion

An 'Indigenist' inquiry lens and 'yarning' method were applied to this study to realise the nutritional, health and wellbeing connection of seafood for Aboriginal people in Maningrida community located in the Northern Territory of Australia. The findings demonstrate that seafood is interconnected to Indigenous knowledge systems and incorporates key values that are important for the wider community to sustain and maintain a connection to health and wellbeing. These findings highlight the need for future policies and research agendas to incorporate integrative approaches that consider a wide degree of key concerns impacting individual communities. When considering seafood in the context of Indigenous people it must be acknowledged that seafood is not only for subsistence or an economic commodity but is also integral to Indigenous values. While further research is needed a possible suggestion identified by the authors is for more research that applies Indigenous research paradigms to enable Indigenous representation within academic literature and policy. One such practical suggestion is to analyse policy, strategies or initiatives that impact coastal Indigenous people and to assess if Indigenous values are represented beyond the framing of economic and political development.

CRedit authorship contribution statement

Beau Cubillo: Conceptualization, Funding acquisition, Methodology. **Julie Brimblecombe:** Conceptualization, Funding acquisition, Methodology, Supervision. **Natasha Stacey:** Conceptualization, Funding acquisition, Methodology, Supervision.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix 3: Chapter 6 policy content analysis

Appendices Table: 3 - excluded with reason policy content analysis

Excluded Document	Reason
Aquaculture Development Opportunities (Tiwi Land Council; Northern Territory Government) (2020)	Local government level covering one specific location
Everyone Together Aboriginal Affairs Strategy (2019-2029) (Northern Territory Government)	Does not have a specific coastal marine species and or fisheries focus
Northern Territory Fisheries Harvest Strategy Policy (2016)	Outdated and focused on stock or management unit levels
Northern Territory Aboriginal Business Export Strategy (Northern Territory Indigenous Business Network) (2022-2025)	Does not have a specific coastal marine species and or fisheries focus
Blue Economy Strategic Plan (2021)	Not focused on coastal marine/fisheries and more focused on the economic exclusion zone
CRC Distinctive Australian Foods Brochure (2017)	Does not have a specific coastal marine species and or fisheries focus
Cooperative Research Centre for Developing Northern Australia: White paper (2015)	Does not have a specific coastal marine species and or fisheries focus
Economic Participation of Indigenous Communities CRC Brochure (2020)	Does not have a specific coastal marine species and or fisheries focus
Policy position paper no.8 Northern Territory Seafood Council (N.D)	Not a strategy or plan
Policy position paper no.1 Northern Territory Seafood Council (N.D)	Not a strategy or plan
Darwin Harbour Strategy 2020-2025	Local region/government level