

**Coastal Fisheries Management: Traditional Knowledge in Coastal  
Fishing Communities in Choiseul, Solomon Islands.**

ソロモン諸島における（伝統的知見を活用した資源管理：チョイズル州の漁村コミュニティを事例に）

By

KERE Glorisa

The United Graduate School of Agricultural Sciences

Kagoshima University

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## **Abstract**

This dissertation investigates the role and significance of traditional knowledge (TK) in the management of coastal fisheries in Choiseul Province, Solomon Islands. The study examines traditional ecological knowledge (TEK), evaluates its influence on the sustainable management of coastal resources, and proposes strategies for integrating TK into modern fisheries management frameworks. It emphasizes the critical role TK plays in sustaining marine ecosystems and supporting the livelihoods of coastal communities while recognizing the intricate relationship between local populations and their marine environments. The research underscores the importance of documenting the breadth of traditional knowledge within Choiseul's coastal communities. It evaluates the extent of TEK awareness among local people, assesses its value for resource management, and explores its integration into contemporary fisheries practices. Key issues addressed include the defining features of TK in Choiseul, its historical and present-day relevance, the factors contributing to its decline, its influence on local decision-making, and how it is applied by the community in resource management. The study employs a mixed-methods approach, incorporating in-depth fieldwork, interviews, and participatory observation. Ethical considerations are prioritized to ensure respect for the region's tradition and the protection of intellectual property. By highlighting the richness of traditional knowledge systems developed over generations and the ecological diversity of coastal environments, the research underscores the practical benefits and challenges of merging TK with modern management practices. A case study on the application of TK in coastal resource management demonstrates its practical value. Findings reveal that TEK encompasses a wide range of customs, ecological insights, and cultural perspectives, which are essential for the long-term sustainable management of marine resources. Despite the decline of traditional management systems due to colonial influence and modernization, the adaptability and resilience of TK are evident. The study advocates for a collaborative approach that combines TK and contemporary science, leveraging the strengths of both systems to enhance resource management. However, the research identifies several

challenges, including gaps in knowledge transmission, socioeconomic and technological barriers, and legal and policy constraints. These findings underscore the need for supportive policies and initiatives to preserve and promote TK. The dissertation also highlights the importance of community participation, indigenous governance, and local institutions in safeguarding traditional practices and ensuring effective resource management. In conclusion, the study advocates for the formal recognition and integration of TK into national policies and frameworks. By documenting and preserving TK, this research seeks to support sustainable coastal resource management and enhance the well-being of local communities. The findings provide valuable insights for policymakers, researchers, and practitioners, offering practical recommendations to strengthen the resilience and sustainability of coastal fisheries. This work contributes to the broader discourse on environmental sustainability, cultural heritage preservation, and inclusive resource governance.

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## LIST OF ABBREVIATIONS

TK	Traditional knowledge
TEK	Traditional ecological knowledge
CMT	Customary Marine Tenure
CBRM	Community-based Resource Management
CBD	Convention on Biological Diversity
CZMA	Coastal Zone Management Act
FAO	Food and Agriculture Organization
FFA	Forum Fisheries Agency
ICZM	Integrated Coastal Zone Management
IUU	Illegal, Unreported and Unregulated fishing
LLCTC	Lauru Land Conference of Tribal Communities
MPA	Marine Protected Area
SPREP	Pacific Regional Environment Programme
WCPFC	Western and Central Pacific Fisheries Commission
UNCED	United Nations Conference on Environment and Development
UN	United Nations
UNDRIP	United Nations Declaration on the Rights of Indigenous Peoples

## CHAPTER 1

### Introduction

#### 1.1 Background and Rationale

The natural rhythms of the coastal environment, such as the sound of waves crashing on the coastline, the smell of salt in the air, and the tides constant ebb and flow, were all part of my upbringing near the coast. These sensory components influenced me and helped me understand the complex relationship between human societies and marine habitats, rather than simply providing a backdrop for my early years. This setting piqued my interest in how traditional knowledge and modern techniques of managing coastal resources interact, prompting me to look into how indigenous and local knowledge systems promote resilient marine habitats and sustainable fisheries.

Marine stewardship norms have been passed down through the generations and are interwoven in the cultural and economic fabric of coastal communities all around the world (Berkes 2018). Fishing is more than just a job in my coastal area; it is a way of life that influences communal identities and customs. Aside from fishing methods, traditional knowledge includes a thorough understanding of seasonal cycles, marine creature habits, and ecosystem interconnections. These types of knowledge systems are essential sources of ecological data, which are frequently gathered through continual, long-term observations over far longer time periods than those used in modern research. Berkes (2018) claims that traditional knowledge is a comprehensive approach to environmental management that acknowledges the interconnection of ecological, social, and cultural systems. Thus, traditional knowledge improves scientific approaches by providing a more comprehensive understanding of resource sustainability and ecological health.

Traditional knowledge has evolved in many regions over centuries of observation and adaptation, encouraging a balance between conservation and resource use. For example, indigenous people in Solomon Islands Choiseul Province have traditionally practiced

traditional maritime resource management. Elders and community leaders play critical roles in developing fishing season regulations, species-specific laws, and no-take regions. Traditional regulation approaches aim to ensure the availability of marine resources for future generations by maintaining their health and production (Kere & Torii, 2021). However, in recent decades, modernisation, population growth, and climate change have increased the demand on traditional methods. Traditional management systems have frequently been weakened by increased external pressures and resource demands, rendering them less effective and sustainable.

Traditional knowledge systems are deteriorating due to current concerns all around the world, not just in the Solomon Islands (FAO, 2020). In many regions, increasingly technologically sophisticated approaches to resource management risk displacing traditional knowledge. Quantifiable data, technological needs, and economic efficiency are frequently prioritized in modern fisheries management, which is often guided by scientific frameworks. Despite their advantages, these methods may unintentionally marginalize customs, which are frequently less standardized and more difficult to codify within the constraints of modern regulation. This marginalisation poses major risks since traditional knowledge provides vital insights into species interactions, ecosystem dynamics, and localised environmental changes that may be difficult to notice in short-term scientific investigations (Johannes, 2002).

Furthermore, traditional knowledge systems empower communities by developing resource management in culturally appropriate ways that promote stewardship and accountability (Huntington et al., 2011). Coastal communities are more likely to be committed to the long-term sustainability of resources when they can manage them using their cultural heritage. Small-scale and artisanal fishing, which contribute considerably to food security, employment, and poverty reduction in many developing countries, requires a strong sense of ownership. According to the Food and Agriculture Organization (FAO), small-scale

fisheries account for more than half of all fish collected for human consumption worldwide, and traditional practices are critical to their sustainability (FAO, 2020).

Nonetheless, it remains difficult to manage fisheries while balancing traditional and modern technologies. Combining traditional wisdom with scientific study can result in more durable and adaptive management practices, according to a growing body of literature. For example, local knowledge of fish spawning seasons, habitat requirements, and migratory patterns has enabled communities to manage fish stocks sustainably without relying on official scientific assessments, emphasizing the importance of "data-less management" in the Pacific Islands (Johannes 2002). In areas where scientific resources are limited, this example emphasizes the value of traditional knowledge as an extra tool for resource management. Recognizing the legitimacy and value of traditional knowledge enables resource managers and policymakers to support collaborative methods that combine a variety of knowledge and experience sources.

The value of traditional knowledge in international environmental policies has grown in recent years. In recognition of their contributions to biodiversity protection and ecosystem resilience, the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) particularly requests the preservation and enhancement of indigenous knowledge systems (UN, 2007). Similarly, the Convention on Biological Diversity (CBD) emphasizes the importance of honouring, conserving, and preserving traditional knowledge about resource sustainability. These international frameworks help to integrate traditional knowledge into national and regional resource management policies. Implementing these principles, however, remains extremely challenging because it necessitates resolving power discrepancies that exist between scientific and indigenous communities, as well as harmonizing divergent epistemological viewpoints (Smith, 2020).

The pressures of environmental change underscore the importance of inclusive and flexible management strategies. Climate change has a significant impact on marine and coastal

ecosystems, modifying species distributions, increasing the frequency of extreme weather events, and affecting ocean temperatures. Traditional knowledge, with its long-term, location-based insights, can help scientists understand these changes and develop adaptation strategies that are appropriate for the local environment. Indigenous people in the Arctic, for example, have noticed changes in the migration and behavior patterns of key species, providing valuable insights into how climate change is affecting Arctic ecosystems (Huntington et al., 2011). These findings highlight the importance of traditional knowledge in developing context-specific, responsive management solutions that better reflect the reality of environmental unpredictability and variability.

The incorporation of traditional knowledge into fisheries management is especially important in my own coastal area, where local inhabitants face socioeconomic pressures and environmental degradation. Climate change, habitat loss, and overfishing jeopardize the sustainability of marine resources, while a lack of economic opportunities increases people's reliance on them. Traditional knowledge provides a viable way to more resilient and sustainable resource management approaches. By combining scientific evaluations with traditional fishermen's expertise, adaptive management frameworks that consider both local populations' demands and ecological realities could be constructed (Berkes, 2018).

However, there are difficulties in the road of achieving this unity. A key barrier is the lack of official methods for recording and sharing traditional knowledge, which is typically passed down orally and embedded in cultural practices. Traditional knowledge is vulnerable to decline because to its intangible nature, especially as younger generations discontinue participation in fishing and related activities (Smith, 2020).

Furthermore, significant epistemic gaps must be addressed in order to incorporate traditional knowledge into formal policy frameworks. Traditional knowledge is more holistic and subjective, with origins in specific cultural and environmental contexts, whereas scientific knowledge is reductionist and objective, seeking universal principles. To

overcome these discrepancies, people must respect one another, speak honestly, and be committed to collaborating to solve challenges (Berkes, 2018).

Finally, traditional wisdom plays an important but intricate role in fishery management. Traditional knowledge systems not only provide unique insights on marine environments, but they also develop a sense of community responsibility, which is critical for resource sustainability. Socioeconomic upheavals and environmental pressures pose substantial challenges to these systems' long-term survival and efficacy. Combining traditional knowledge with scientific approaches offers a promising future since it enables the development of adaptable and context-sensitive management strategies based on a wide range of information sources. This integration requires supportive legislation, cross-cultural communication, and an understanding of the inherent value of traditional knowledge in promoting resilient and sustainable maritime ecosystems. In my coastal province and beyond, I hope that my research contributes to the ongoing discussion about the use of traditional knowledge to assist sustainable fisheries management. In order to develop more inclusive and effective resource management strategies that will eventually benefit both natural and human populations, I hope to shed light on the synergies and challenges of this integration.

## **1.2 Statement of the Problem**

Evaluating how traditional knowledge has evolved or been weakened in response to current needs is critical to understanding its role in marine resource management. Choiseul's traditional wisdom, gleaned through decades of interaction with coastal habitats, includes deeply embedded ecological insights and management practices. These rituals, in addition to being part of Choiseul's cultural past, have the potential to be long-term and sustainable techniques of resource preservation.

However, this indigenous knowledge is threatened by significant socio-political and environmental changes such as globalization, regulatory interventions, and technological discoveries that prioritize current ways over ancient ones. Even if there is evidence that these indigenous techniques can be environmentally viable, the problem of knowledge

erosion in Choiseul is part of a larger trend in which formal scientific procedures are used at the expense of traditional ecological wisdom. Scholars such as Agrawal (2002) and Berkes (2018) argue that indigenous knowledge typically provides context-specific, nuanced insights to scientific approaches, which are especially useful for resource management in environmentally sensitive and bio diverse contexts.

Traditional management systems, on the other hand, are increasingly underrepresented in national and regional government decision-making processes. Choiseul's top priority is knowledge sharing between generations. When younger generations are drawn to urban lifestyles and current economic opportunities, they may regard traditional methods as outmoded or unimportant, perhaps leading to a gradual loss of connection with indigenous ecological knowledge. According to Turner and Berkes (2006), formal education systems that prioritize Western scientific paradigms without considering local knowledge exacerbate generational gaps by further isolating young people from their past and traditional means of understanding environmental stewardship. Furthermore, the introduction of modern technologies such as GPS navigation and advanced fishing gear has increased resource extraction efficiency, putting pressure on marine ecosystems and undermining traditional sustainable practices. This shift not only alters fishing methods, but also diminishes the value of conventional expertise. In contrast to traditional traditions, which usually emphasize sustainability and balance, modern technology has the potential to accelerate resource depletion, jeopardizing marine ecosystems. Although the Convention on Biological Diversity (CBD) recognizes the importance of traditional knowledge, there are no independent law in place at the local and national levels in Choiseul or throughout the Solomon Islands to successfully incorporate indigenous knowledge into conservation and resource management strategies. This discrepancy precludes Choiseul communities from actively participating in resource-related decisions, resulting in a missed opportunity to benefit from sustainable practices that are deeply ingrained in the local way of life. The purpose of this research is to discover whether Choiseul communities still value and use traditional resource management approaches. This investigation will emphasize specific

barriers to the preservation of indigenous knowledge, such as government prohibitions, generational shifts, and external technological demands. Additionally, by offering suggestions that will allow traditional knowledge to be formally incorporated into national laws, the study hopes to promote a more cooperative, culturally sensitive, and sustainable method of managing marine resources in Choiseul. Cultural identity can be strengthened, sustainable resource usage can be ensured, and the gap between traditional and modern management paradigms can be closed by acknowledging and incorporating these traditions into larger policy frameworks.

### **1.3 Purpose of the Study**

The primary goal of this research is to document and evaluate the role of traditional knowledge in the long-term management of Choiseul's coastal fisheries. The study's goals are to better understand the mechanisms causing the loss of indigenous knowledge, to investigate how it aids in resource management and resilience, and to highlight the benefits of incorporating traditional practices within official government systems. Indigenous knowledge is frequently context-specific and provides unique insights that are critical for environmental stewardship, as observed by Agrawal (1995).

This study seeks to bridge the gap between traditional and scientific knowledge systems in order to build a comprehensive framework for resource management that respects cultural heritage and promotes sustainability. The importance of this study stems from its ability to demonstrate the value of indigenous knowledge in ecological management. The research can build a holistic approach to fisheries management that includes local communities as active participants and environmental stewards by identifying these activities and understanding their mechanisms.

This study will look at how traditional knowledge is applied to the management of coastal fisheries in Choiseul to highlight the importance of information that has historically been overlooked in favour of Western scientific methodologies. The study will assist bridge the

gap between contemporary conservation strategies and indigenous traditions by presenting a perspective that recognizes traditional ecological knowledge as having equal significance. This integration could make coastal communities more resilient, better able to deal with concerns such as overfishing, climate change, and biodiversity loss. Furthermore, the study will look into the reasons why traditional knowledge is being lost. Traditional customs have deteriorated as a result of urbanization, globalization, and changed socioeconomic dynamics, with younger generations potentially less aware or interested in indigenous resource management techniques. Recognizing these characteristics allows the research to recommend practical approaches for reviving traditional knowledge, which will aid in the preservation of cultural legacy and environmental resilience. This is consistent with international efforts to preserve traditional ecological knowledge in order to support sustainable resource use and biodiversity conservation. By documenting the mechanisms by which traditional knowledge is passed down across generations, this study will give light on the possibility and challenges of preserving these rituals in the future. Identifying characteristics that facilitate or impede knowledge transfer can help guide the development of focused educational and community initiatives to support indigenous knowledge systems.

By demonstrating viable techniques for knowledge preservation and adaptive resource management, these findings can serve as a model for other communities coping with similar difficulties. Another important goal of the research is to promote policy frameworks that formalize and integrate traditional knowledge into environmental governance and fisheries management. The study aims to persuade policymakers to incorporate indigenous practices into official regulatory systems by demonstrating their tangible benefits, which could lead to more effective and culturally sensitive management techniques. Traditional wisdom can contribute to scientific research by providing flexible, site-specific management approaches based on long-term ecological expertise.

To summarize, this study aims to bring traditional knowledge to the forefront of sustainable fisheries management by highlighting its value in ecological stewardship, explaining its challenges, and emphasizing the benefits of official policy recognition. This study intends

to bridge the gap between scientific and traditional knowledge systems by providing a venue for indigenous perspectives and experiences, as well as to create a more inclusive, holistic approach to environmental management that protects cultural heritage and promotes sustainability.

#### **1.4 Significance of the Study**

This study has numerous implications. First, it emphasizes indigenous knowledge systems' distinctive contributions to the management of sustainable fisheries. According to Veitayaki (2002), traditional knowledge provides personalized and flexible solutions to assist coastal ecosystems become more resilient. In addition to providing valuable information for conservationists and policymakers, this study, which details the customs of Choiseul's communities, contributes to the growing body of research highlighting the importance of traditional ecological knowledge (TEK) in addressing global environmental challenges.

Furthermore, this study addresses a gap in the Solomon Islands' current national policies. Although the 2010 Protected Areas Act recognizes the importance of traditional communities, government support for incorporating traditional practices into legal frameworks is limited. This study will contribute to the greater effort to recognize indigenous contributions to conservation by making evidence-based recommendations for incorporating traditional knowledge into national policy. The study will also contribute to scholarly understanding of indigenous cultures' knowledge transfer. Understanding how various generations perceive and use traditional practices will help discover what promotes or inhibits the dissemination of traditional knowledge. The study's findings have implications for safeguarding cultural assets and empowering local populations to have an active part in resource management.

#### **1.5 Research Objectives**

The particular objectives of the study are stated below. These aims clarify the study's purpose and serve as a road map for future research. It entails understanding the role of

traditional knowledge, assessing its impact, and proposing practical applications for coastal resource management. The goal of this study is to highlight the importance of recording the long-standing usage of traditional knowledge (TK) in coastal fisheries management. Furthermore, the study seeks to shed light on the gradual collapse of traditional knowledge processes. This project focuses on the coastal village of Choiseul to collect a diverse range of indigenous knowledge. The study aims to achieve three distinct goals.

1. Understanding traditional knowledge in coastal fisheries begins with recognizing and explaining its role in coastal resource management.
2. Understanding traditional knowledge in coastal fisheries management: Learn how traditional knowledge informs and develops coastal fisheries management practices.
3. Assessment of indigenous people's traditional knowledge: The goal is to ascertain how many people of various ages in the research region have and continue to use traditional fishing skills.

To achieve these objectives, the study will examine a number of specific questions:

1. How has traditional knowledge aided the management of coastal resources? By researching historical behaviours, the study hopes to provide insight on the role that traditional knowledge played in properly managing coastal resources in the past, thereby preparing for the future.
2. What role does traditional knowledge have in the management of coastal fisheries today? This study aims to shed light on the value of traditional knowledge in the current world by investigating how it is integrated into innovative fisheries management practices.
3. What causes the decline in traditional knowledge and practices among Choiseul's coastal communities? The study aims to uncover challenges to the sustainability of cultural traditions by investigating the causes of traditional knowledge loss.
4. What are some proposals for maintaining traditional knowledge, and what are the causes of its decline? This study looks at how customary knowledge influences

the community's decision-making processes for managing coastal resources. The study's ultimate goal is to fill a knowledge vacuum about the role of traditional knowledge in fisheries management, particularly in reference to Choiseul. The aforementioned goals and questions provide a methodical approach of understanding the complicated links between traditional knowledge, its relevance, and the obstacles it meets in coastal communities.

### **1.6 Theoretical Framework**

This study looks at how people in Solomon Islands' Choiseul Province use indigenous knowledge to manage their natural resources in a sustainable way, utilizing the Traditional Ecological Knowledge (TEK) Theory as a framework. The TEK Theory, which emphasizes that knowledge passed down through generations provides comprehensive insights into ecosystems, emphasizes the importance of understanding and preserving indigenous knowledge for effective environmental stewardship (Berkes, 2018). TEK represents a cultural history that includes spiritual beliefs, observational methodologies, and management strategies that are uniquely suited to Choiseul's seascapes and landscapes. These customs are not only environmentally sound, but also engrained in the social and cultural fabric of Choiseul's communities, serving as a guide for acts, procedures, and resource usage that promote sustainability.

TEK in Choiseul refers to a set of ecological practices unique to terrestrial and coastal ecosystems. This section discusses native ways for managing fisheries, producing land, and safeguarding forests. For example, traditional fishing methods are timed to coincide with natural indications such as tide flows and moon phases, ensuring the long-term sustainability of marine resources by allowing them to regenerate. These strategies are often more adaptable than traditional management systems and can be tailored to local requirements. Furthermore, because they are dynamic, they can respond to changes in their surroundings in ways that are difficult to replicate with traditional scientific procedures.

Choiseul communities use TEK to serve as caretakers by implementing policies that promote resilience and balance in the face of ecological and social change.

Before we can understand the importance of traditional knowledge in Choiseul's environmental management, we must first study how it functions within the Solomon Islands' legal and policy frameworks. Traditional resource management in the Solomon Islands is directly affected by laws and rules that govern how people can lawfully interact with their natural surroundings. The Fisheries Management Act and the Environment Act both serve as essential legislative frameworks in this regard. These rules recognize customary marine tenure, an indigenous system that grants people control over access to and use of maritime resources, while also encouraging environmentally friendly activities.

A TEK practice known as "customary marine tenure" includes local communities exercising stewardship over specific maritime areas, often with the assistance of a shared understanding of ethical fishing methods. These legal frameworks align with TEK in part because they assist communities in using traditional practices to conserve resources. Traditional ecological knowledge has been gradually incorporated into the Solomon Islands' national conservation and resource management policies through policy frameworks in recent years. Policies for biodiversity conservation and climate adaptation are especially important because they address the vulnerabilities that island populations face as a result of climate change and environmental degradation. For example, the Solomon Islands National Adaptation Program of Action prioritizes the integration of scientific methodologies for climate resilience with indigenous and traditional knowledge. These policies seek to develop adaptive management strategies that take into account indigenous populations' ecological knowledge and recognize the value of TEK.

However, comprehensive integration of TEK into formal governance remains problematic. National policies, in theory, foster traditional practices, but in fact, they can be difficult to implement, particularly in terms of resource distribution, enforcement, and ensuring that communities retain authority over their traditional knowledge. Even if the policy accepts

TEK, there are still limitations to how it is integrated into Solomon Islands legal structures. Enforcing these rights frequently relies on local leaders and customary governance, which may not receive official support from national institutions, despite the fact that the Environment Act and Fisheries Management Act recognize traditional tenure systems.

Furthermore, communities may get insufficient support for community-led conservation programs, limiting their ability to successfully implement TEK-based practices on a larger scale. Intellectual property rights and knowledge ownership are other concerns because traditional knowledge systems may be exploited without sufficient credit or recognition. Communities in Choiseul and other Solomon Islands regions are increasingly vocal about the need to protect their intellectual property rights over TEK, and they are advocating for regulations that ensure fair collaboration with outside researchers and institutions. Integrating TEK with scientific conservation approaches adds an additional layer of complexity. While scientific frameworks typically promote conventional tactics that may not reflect the flexibility and uniqueness of traditional activities, TEK provides localized, adaptive strategies. For example, although TEK-based systems may use seasonal or rotating closures in response to natural cues, scientific approaches to marine conservation may place a greater focus on establishing permanent no-take areas. To address these gaps, local communities and legislators must work together to create hybrid models that combine the best characteristics of both approaches. Choiseul's community-led conservation activities, which are supported by government and non-governmental organizations, demonstrate how TEK and scientific approaches can be combined for effective resource management. These activities promote group learning and contribute to the development of culturally and environmentally responsible solutions.

This study aims to provide a comprehensive understanding of how traditional knowledge systems promote environmental governance in Choiseul by focusing on the Solomon Islands' legal and regulatory environment. More than just a set of behaviours, TEK provides a framework for sustainable living and adaptability that enables communities to address

environmental concerns within deeply rooted cultural systems. This technique demonstrates how TEK-based management improves the resilience of Choiseul's ecosystems and communities, both culturally and practically. This study emphasizes the importance of policies that support and protect traditional knowledge systems, as well as the potential for TEK to influence sustainable resource management. When TEK is analysed in light of Solomon Islands laws and regulations, both opportunities and challenges emerge, emphasizing the importance of strategies that respect indigenous populations' autonomy and knowledge. According to this viewpoint, TEK is a crucial instrument for current environmental policy, especially in areas where locals are well-versed in ecology and actively contribute to biodiversity conservation. By examining these links, the study hopes to advocate legislation that not only includes TEK, but also ensures its conservation and preservation as an important component of Choiseul's cultural history and environmental management.

### **1.7 Assumptions, Limitations, and Delimitations**

Assumptions:

This study is predicated on the idea that traditional knowledge still applies to Choiseul's modern resource management. Additionally, it makes the assumption that knowledge systems are transmitted from one generation to the next and that participants will give truthful descriptions of customs. According to Berkes (2018), TEK usually closely resembles ecosystem dynamics, suggesting that traditional knowledge could still be useful even when environmental conditions change.

Limitations:

Because this study is restricted to Choiseul, it might not accurately represent variations in traditional knowledge in other provinces. The extent of data gathering may be limited by resource limitations, and generational disparities in the comprehension and application of traditional knowledge may give rise to potential biases. Furthermore, because some indigenous terms and practices do not have direct translations or similar concepts in

Western research, linguistic and cultural differences can affect how evidence is interpreted (Agrawal, 1995).

Delimitations:

Inland and freshwater fisheries are not included in this study because it is primarily concerned with coastal fisheries. Additionally, it highlights the advantages of traditional knowledge while downplaying any drawbacks or any conflicts between old and contemporary methods. Furthermore, the paper does not elaborate on how these impacts changed throughout time, even while it recognizes the role of colonial and modern government on traditional behaviours.

### **1.8 Thesis Structure**

An outline of the thesis's organization is given in this section. By describing how the research is divided into chapters and sections, it provides the reader with a roadmap. It serves as a guide by highlighting the locations of specific subjects and discoveries.

The research introduction in Chapter 1 of the thesis starts with the backdrop. This section establishes the groundwork for the study by giving a thorough review of the subject. It provides an explanation of the main ideas, the importance of the study, and pertinent regional and worldwide settings for the value of traditional knowledge in coastal fishing. The research objectives are also covered in chapter one, where the precise aims of the study are delineated. This section outlines the study's goals and potential contributions to the field of fisheries management, specifically in Solomon Islands' Choiseul region. This chapter also discusses the research's limitations and scope.

Chapter 2 lays the groundwork for subsequent topics by concentrating on coastal resources and traditional knowledge systems. The Solomon Islands' coastal resources encompass a range of land and marine environments, each of which contributes differently to the local economy, food supply, and cultural customs. From seasonal fishing and resource harvesting to land management and environmental conservation, this chapter will look at how

indigenous knowledge has historically guided the sustainable use of these resources. Traditional knowledge plays a significant role in resource management in many Solomon Islands communities, guaranteeing the preservation of ecological balance and resource availability. This chapter will highlight the special importance of traditional knowledge in tackling environmental issues by examining certain instances and methods. In order to provide a foundation for comprehending how ancient practices could influence contemporary resource management strategies, this part will also address the intergenerational nature of indigenous knowledge and its flexibility in changing circumstances.

In Chapter 3, the legal and regulatory structures that oversee Solomon Islands' coastal resources are examined, along with the ways in which these frameworks interact with indigenous knowledge systems. Key national laws protecting coastal and marine environments are reviewed at the beginning of the chapter, along with their goals and methods of enforcement. In order to preserve marine resources and biodiversity, the Solomon Islands, like many other Pacific countries, abide by a number of international conventions and agreements. This chapter will analyse various regulatory frameworks' advantages and disadvantages, particularly with regard to their enforcement and conformity to customs. One area of emphasis will be on the policy gaps and difficulties that occur when formal laws clash with community-based management strategies, which may jeopardize the traditional wisdom that has historically directed the use of resources. We'll also talk about the effects these laws have on local communities, assessing how well-supported or undercut traditional knowledge is in the management of coastal resources. By offering a critical viewpoint on the regulatory environment, the chapter hopes to lay the groundwork for a more thorough examination of how old methods and contemporary governance could be combined to accomplish sustainable management.

In Chapter 4, the research methodology is described, including the design, data collection, and analysis techniques used in the study. A qualitative methodology will be employed,

utilizing surveys, interviews, and field observations to collect viewpoints from leaders, professionals, and people of the local community. The community's viewpoint on current legal frameworks and the complex ways that traditional knowledge is applied to coastal resource management are intended to be captured by these techniques. The chapter's discussion of data analysis will centre on the use of thematic analysis to find recurring themes and insights in the collected data. There will also be discussion of ethical issues, especially in light of the significance of upholding cultural norms and community privacy. When dealing with indigenous knowledge and local customs, which have great cultural significance and may have limitations on what can be shared publicly, it is imperative to maintain an ethical attitude. This chapter guarantees the study's validity by giving a clear explanation of the research strategy. It also lays the groundwork for examining the intricate relationships between formal government and traditional knowledge.

Chapter 5 presents the general perspective of the local people on traditional fishing knowledge, Chapter 6 focuses on the utilization of this knowledge, and Chapter 7 summarizes the dissertation and provides a final reflection.

## CHAPTER 2

### **Coastal Resource Management and Traditional Knowledge**

#### **2.1 Coastal Resource Management: Concept and Approaches**

Coastal Resource Management (CRM) is the process of managing and protecting coastal resources. This field focuses on environmental protection, resource use, community livelihoods, and economic development along coastlines. Coastal resource management encompasses both natural and human resources within coastal regions, with the goal of balancing long-term use of these areas with conservation for future generations. Climate change, population growth, pollution, habitat destruction, and economic activities such as fishing, tourism, and shipping all place unique pressures on coastal regions, making this management critical (Sorensen, 1997). The overarching goal of CRM is to promote sustainable development in coastal areas. CRM approaches typically include integrating ecological, social, and economic considerations, engaging local communities, and implementing policies governing land use, resource exploitation, and conservation practices. Some of the most common approaches are integrated coastal zone management (ICZM), community-based resource management (CBRM), and ecosystem-based management (EBM).

#### **2.2 Historical Background and Evolution of Coastal Resource Management**

Coastal resource management dates back to the early twentieth century, though early efforts were sporadic and primarily local. CRM first emerged in response to specific issues like erosion control, fishery regulation, and coastal pollution. However, as environmental consciousness grew in the 1960s and 1970s, it became clear that a comprehensive approach to managing coastal resources was required. During this time, environmental issues such as oil spills and marine pollution began to highlight the vulnerability of coastal ecosystems and the need for coordinated management efforts. In 1972, the United States Coastal Zone Management Act (CZMA) was enacted, marking one of the first significant steps toward comprehensive coastal management.

This legislation prioritized the preservation and sustainable use of coastal resources, assisting state governments in developing and implementing coastal management plans (Sorensen & McCreary, 1990). The CZMA was a pioneer, paving the way for other countries to develop similar programs. Throughout the 1980s and 1990s, Integrated Coastal Zone Management (ICZM) emerged as a more comprehensive approach. ICZM takes into account the interconnectedness of land, water, and ecosystem processes in coastal areas and encourages the involvement of multiple stakeholders in decision-making (Cicin-Sain & Knecht, 1998). This approach gained popularity because it offered a structured framework for addressing the complex interactions within coastal zones.

In 1992, the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro emphasized the importance of integrated management in Agenda 21, encouraging countries to incorporate ICZM principles into their sustainable development efforts. The adoption of CRM strategies has varied by country. CRM, for example, was institutionalized in the Philippines, a country with extensive coastlines and a strong reliance on marine resources, in the 1980s. The Philippines established CRM programs that combined local community engagement with regulatory frameworks, particularly for fisheries and marine conservation (White et al., 1994).

Malaysia, Thailand, and Indonesia were among the Southeast Asian countries that implemented CRM practices in response to environmental degradation and overexploitation of coastal resources. Japan and China have implemented CRM programs to mitigate the effects of coastal industrialization and pollution on their ecosystems. Countries in the Caribbean and Latin America, such as Belize and Costa Rica, have implemented CRM policies that focus on marine conservation and sustainable tourism. Since the 1990s, the European Union has promoted ICZM among its member states by implementing policies and directives for sustainable coastal development and resource protection (European Commission 2000). CRM has been adopted in various forms around the world, influenced by national priorities, environmental concerns, and socioeconomic factors.

### **2.3 Coastal Resource Management in the Solomon Islands**

Coastal resource management has become increasingly important in the Solomon Islands, which rely heavily on coastal resources for food, livelihoods, and economic activities. The Solomon Islands are part of the Pacific Island region, where communities have long relied on coastal resources for subsistence and cultural practices. However, as in other parts of the world, the Solomon Islands' coastal areas are under threat from climate change, population growth, overfishing, habitat degradation, and pollution (World Bank, 2006). CRM in the Solomon Islands dates back to the 1990s, when community-based resource management (CBRM) initiatives began to gain traction.

This approach stemmed from the realization that centralized management systems frequently overlooked local communities' knowledge, needs, and traditional practices. NGOs and international organizations played critical roles in promoting CRM in the Solomon Islands. The Nature Conservancy (TNC) and WorldFish have collaborated with local communities and government agencies to implement CBRM programs that combine traditional knowledge with scientific approaches to resource management (Aswani and Hamilton, 2004). Regional initiatives provided additional support to CRM efforts in the Solomon Islands in the early 2000s. For example, the Pacific Islands Regional Ocean Policy (PIROP), adopted by Pacific leaders in 2002, promoted the sustainable use and management of ocean resources, influencing national policies in Pacific countries, including the Solomon Islands (SPREP, 2005).

The Solomon Islands government implemented national policies emphasizing community involvement in coastal resource management, resulting in the establishment of community-based marine protected areas (MPAs) and locally managed marine areas (LMMAs) (Govan et al., 2009). One notable program in the Solomon Islands is the Solomon Islands Community-Based Resource Management Program, which was launched with the help of local and international organizations. This program helps communities monitor and manage their coastal resources by combining traditional resource management practices with

modern conservation techniques. It has focused on building community CRM capacity while also promoting sustainable fishing practices, marine conservation, and climate change resilience (Albert et al., 2013).

The Solomon Islands' CRM approach reflects a larger trend in the Pacific Islands region of combining local and traditional knowledge with scientific research in resource management. In the face of climate change, this approach has become critical for strengthening coastal communities. Rising sea levels, coral bleaching, and extreme weather events endanger the sustainability of coastal resources, necessitating a dynamic and adaptive CRM strategy.

Coastal resource management is critical for protecting coastal ecosystems and promoting sustainable development in coastal areas. CRM has evolved over time to include a variety of approaches such as ICZM, EBM, and CBRM, each tailored to specific environmental, economic, and social needs. CRM frameworks have been adopted by countries around the world, with many drawing on both traditional practices and modern scientific methods to create resilient and sustainable coastal communities. CRM in the Solomon Islands has emphasized community-based resource management, combining traditional knowledge with scientific approaches to address the pressing challenges that coastal communities face. As climate change and environmental pressures continue to endanger coastal ecosystems, CRM remains a critical field for ensuring the resilience and well-being of coastal regions and communities. Countries such as the Solomon Islands demonstrate the importance of locally grounded, culturally sensitive, and adaptive coastal management in addressing global environmental challenges by modifying and refining CRM approaches.

#### **2.4 Traditional Knowledge in Coastal Communities**

Traditional knowledge (TK) refers to the cultural wisdom, practices, and expertise developed by indigenous communities worldwide over centuries. Coastal fisheries' traditional knowledge (TK) includes ecological understanding, species knowledge, seasonal patterns, and techniques passed down over generations. Traditional knowledge in coastal

fisheries is increasingly recognized for its long-term value in contributing to sustainable management practices. This paper investigates the history of traditional knowledge, its global recognition, and its significance in the Solomon Islands, where it remains an important component of coastal fisheries management.

## **2.5 Historical Background of Traditional Knowledge**

Traditional knowledge is an ancient form of understanding that predates written records, based on observations of the environment and human interactions with it. Indigenous communities' oral traditions, songs, stories, and artifacts frequently contain evidence of such knowledge. Indigenous populations have long observed and adapted to environmental changes, developing intricate practices that ensure sustainable harvesting and allowing them to coexist with natural ecosystems (Hunn, 1993).

Traditional knowledge received formal attention worldwide in the twentieth century, as environmental issues such as biodiversity loss and resource depletion became more prominent. The significance of TK was recognized at the 1992 United Nations Conference on Environment and Development (UNCED), also known as the Earth Summit, held in Rio de Janeiro. The resulting Convention on Biological Diversity (CBD) emphasized the value of traditional knowledge, particularly in sustainable resource management. Article 8(j) of the CBD emphasized the role of indigenous communities in biodiversity conservation and encouraged nations to respect, preserve, and maintain traditional knowledge for long-term development (CBD 1992).

In 2007, the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) recognized the importance of TK by asserting indigenous peoples' rights to maintain, control, protect, and develop their cultural heritage, including TK systems. These international recognitions prompted several countries to implement policies to incorporate traditional knowledge (TK) into their environmental conservation frameworks.

## **2.6 Traditional Knowledge in Coastal Fisheries Management**

Traditional knowledge is especially useful in the context of coastal fisheries management because it emphasizes sustainability and ecosystem-based approaches. Indigenous communities have gained an understanding of fish species, migration patterns, and spawning seasons. TK also includes practices like selective fishing, temporary restrictions, and no-take zones, which aim to keep fish populations and ecosystems healthy. For example, in Choiseul in the past, fishing practices have traditionally been governed by customary laws that limit fishing to specific areas or seasons in order to ensure resource sustainability (Kere and Torii, 2021).

Overfishing, climate change, and habitat destruction all pose significant challenges that require the application of traditional knowledge. In recent years, researchers and policymakers have increasingly recognized TK as an important supplement to scientific knowledge. Collaborative fisheries management approaches that incorporate both traditional knowledge and scientific data have proven effective in a variety of contexts, improving biodiversity conservation while respecting indigenous rights and knowledge.

## **2.7 Traditional Knowledge and Coastal Fisheries in the Solomon Islands**

The Solomon Islands, a South Pacific archipelago, is home to diverse ecosystems and marine species that have played an important role in the communities' livelihoods and cultural identity. The Solomon Islands' coastal fisheries are an important part of the local economy, providing food security and income to a sizable portion of the population. With a large proportion of the population reliant on coastal resources, traditional knowledge is critical to sustainable resource management (Foale and Manele, 2004).

Traditional knowledge systems in the Solomon Islands are inextricably linked to practices of community-based resource management (CBRM). These practices are influenced by customary marine tenure (CMT) systems, which grant community leaders or clans authority over specific fishing areas. These traditional authorities regulate fishing activities through rules such as seasonal closures, restricted access to certain areas, and bans on specific fishing methods. For example, the "tabu" system is a type of customary marine closure in

which specific areas are closed to fishing for extended periods of time, allowing fish populations to recover (Cinner & Aswani, 2007).

Local initiatives and international support have had an impact on the recognition of traditional knowledge in fisheries management in the Solomon Islands. The country has adopted CBRM approaches, which have received support from organizations such as the WorldFish Center and the Solomon Islands Ministry of Fisheries and Marine Resources. These organizations collaborate with local communities to incorporate traditional knowledge (TK) into fisheries management plans, thereby increasing resilience to environmental challenges such as coral bleaching and rising sea levels caused by climate change.

One notable example is the Locally Managed Marine Area (LMMA) Network, a regional initiative that promotes community-based marine management in the Pacific, including the Solomon Islands. The LMMA Network assists communities in creating protected areas based on traditional practices, which benefits fish stocks and marine biodiversity. LMMAs can increase fish abundance and biodiversity, benefiting both conservation and local economies (Govan et al., 2008).

However, traditional knowledge systems in the Solomon Islands face challenges as a result of external pressures such as population growth, commercial fishing interests, and the effects of climate change. While TK-based practices have historically been effective, external factors such as increased market demand for fish and coastal development projects can disrupt traditional resource management methods. The erosion of traditional practices and knowledge, particularly among younger generations may endanger the long-term viability of Solomon Islands fisheries.

## **2.8 Importance and Future of Traditional Knowledge in Solomon Islands' Coastal Fisheries**

Recognizing and incorporating traditional knowledge into fisheries management in the Solomon Islands promotes sustainable resource use while strengthening community resilience. Given the country's reliance on coastal resources, improving traditional

knowledge-based practices can help mitigate the effects of overfishing, habitat degradation, and climate change. Collaborative management efforts that respect traditional knowledge and local customs can strengthen adaptive capacity and increase community participation in conservation efforts (McMillen et al., 2014).

In the Solomon Islands, efforts to document and preserve traditional knowledge are ongoing. Many communities, with the help of NGOs and research institutions, have been involved in documenting traditional practices and environmental knowledge to ensure their transmission to future generations. These documentation initiatives are critical for preserving TK as a living part of community culture. Such initiatives highlight the importance of traditional knowledge (TK) in developing sustainable, locally driven approaches to resource management that can adapt to contemporary challenges.

Traditional coastal fisheries knowledge reflects centuries of ecological wisdom, with an emphasis on sustainability and conservation practices. Despite challenges and pressures, traditional knowledge remains an important component of effective fisheries management in the Solomon Islands and other regions. Recognizing TK as a valuable resource complements scientific knowledge, providing a more balanced approach to managing coastal fisheries. By incorporating traditional knowledge (TK) into resource management strategies, the Solomon Islands can ensure sustainable fisheries and community well-being for future generations.

## **2.9 Integrating TK into Coastal Resource Management**

Integrating traditional knowledge (TK) into coastal resource management has emerged as an increasingly valuable strategy for promoting sustainable development and biodiversity conservation, particularly in coastal fisheries. Recognizing the invaluable ecological insights and sustainable practices embedded in traditional knowledge (TK), many governments and conservation organizations are now emphasizing its integration into mainstream management systems. In the Solomon Islands, a region heavily reliant on coastal fisheries, such integration has gained traction as a means of strengthening marine resource management and bolstering local economies.

The incorporation of traditional knowledge (TK) into formal management practices is relatively recent, dating back to the late twentieth century, when global conservation efforts began to recognize the contributions of Indigenous knowledge systems to sustainability. Traditional ecological knowledge, which is frequently passed down through generations in Indigenous and local communities, includes a wide range of customs, practices, and understandings of the local environment that have evolved over centuries.

### **2.10 Historical Background of Traditional Knowledge in Coastal Fisheries**

Historically, Indigenous and local communities have relied on traditional knowledge (TK) to manage their natural resources, including coastal fisheries, through methods such as rotational harvesting, customary closures, and fishing taboos to ensure resource sustainability. Indigenous communities around the world, including the Pacific Islands, have developed complex understandings of fish behavior, migration patterns, breeding seasons, and the effects of climate patterns on marine ecosystems. This depth of knowledge has proven useful in managing and conserving coastal resources.

The Brundtland Commission's 1987 report, which called for sustainable development and highlighted Indigenous rights, increased global recognition of TK as a valuable resource for environmental management. The 1992 United Nations Convention on Biological Diversity emphasized the importance of respecting and incorporating traditional knowledge into biodiversity management efforts. These events sparked global efforts to formalize traditional knowledge (TK) into modern conservation and management practices, including coastal fisheries.

### **2.11 Integrating Traditional Knowledge in the Solomon Islands**

The Solomon Islands, an archipelago in the south western Pacific, is well-known for its diverse marine ecosystem and reliance on coastal fisheries as a primary food source and economic driver. The coastal communities of the Solomon Islands have long relied on traditional knowledge (TK) to manage marine resources, particularly fish, molluscs, and other marine life that are essential to their diet and economy. As modern pressures such as

population growth, climate change, and overfishing increase, incorporating traditional knowledge (TK) into coastal fisheries management has emerged as a critical strategy for sustainable resource use and biodiversity conservation.

### **2.12 Customary Marine Tenure in the Solomon Islands**

One of the most visible manifestations of TEK in the Solomon Islands is Customary Marine Tenure (CMT). CMT reflects a traditional system in which tribal groups or families or clans own certain marine areas and govern those using traditional laws and practices. To protect fish stocks and habitats, traditional laws frequently include restrictions on fishing practices, periodic closures, and prohibitions on specific gear types.

CMT practices have shown promise in preserving fish populations and biodiversity in certain community-managed areas. For example, in Marovo Lagoon, communities have implemented periodic fishing closures (known locally as tambu) to allow fish stocks to recover during critical breeding seasons (Aswani and Hamilton, 2004). These closures not only ensure a steady supply of fish, but also help to mitigate the effects of external pressures like climate change and habitat degradation.

### **2.13 Evidence of Success in CMT-Based Management**

According to research conducted in the Solomon Islands, community-managed CMT areas are often more effective at conserving fish biomass and biodiversity than non-managed areas. A study conducted in Roviana Lagoon found that CMT-protected areas had significantly higher fish biomass than open-access areas (Cinner & Aswani, 2007). This finding suggests that CMT practices can be effective conservation tools for coastal fisheries. Another study conducted on the island of Malaita emphasized the importance of TK in managing culturally significant species like the bumphead parrotfish (*Bolbometopon muricatum*). To protect this species, which is ecologically and culturally significant in Solomon Island communities, local leaders established fishing prohibitions and tambu zones (Hamilton et al., 2016). The use of TK in managing species-specific populations

demonstrates that traditional knowledge systems can address modern conservation challenges.

#### **2.14 Challenges and Opportunities in Integrating TK in Solomon Islands**

While incorporating TK into formal coastal fisheries management has significant advantages, challenges remain. The complexities of connecting traditional and modern knowledge systems, as well as potential conflicts between customary practices and state policies, can impede effective integration. In the Solomon Islands, national fisheries policies occasionally clash with local management practices, resulting in overlapping authorities and regulatory inconsistencies.

Nonetheless, the Solomon Islands government and non-governmental organizations (NGOs) are increasingly recognizing the importance of CMT and other TK-based practices, promoting community-led marine protected areas (MPAs) and *tambu* zones. For example, the establishment of the Lauru Land Conference of Tribal Communities (LLCTC) on Choiseul Island has given local communities a platform to codify and formalize their customary laws for managing coastal resources (Govan 2009). This collaborative approach not only strengthens the integration of traditional knowledge into formal management structures, but it also empowers local communities to participate actively in resource governance.

Integrating traditional knowledge into coastal resource management, particularly in coastal fisheries, offers a unique opportunity to strengthen sustainable practices, conserve biodiversity, and boost community resilience. In the Solomon Islands, TK-based practices such as CMT and *tambu* zones provide effective frameworks for ensuring the sustainability of marine resources and protecting fish populations, benefiting both local communities and the overall ecosystem. Although there are still challenges in integrating traditional knowledge with modern management systems, the success of community-based initiatives demonstrates the potential for combining these approaches to address modern environmental challenges.

The Solomon Islands can continue to build a model of coastal fisheries management that respects and incorporates traditional knowledge with ongoing support from governmental bodies, non-governmental organizations, and community leaders. Such integration not only promotes sustainable resource use, but it also encourages a holistic approach to conservation, ensuring that future generations can benefit from the Solomon Islands' rich marine heritage.

### **2.15 Benefits and Challenges of Incorporating TK**

Incorporating traditional knowledge into modern governance, environmental management, and community development presents both advantages and disadvantages. Traditional knowledge can provide valuable insights for sustainable development and community resilience in countries where indigenous practices have evolved over centuries, such as the Solomon Islands. This knowledge, passed down through generations, includes practices for natural resource management, health, and social cohesion that can supplement modern approaches. However, integrating traditional knowledge presents a number of challenges, including balancing it with scientific frameworks, ensuring respect for cultural heritage, and addressing knowledge ownership issues.

#### **(i) Benefits of Incorporating Traditional Knowledge**

##### 1. Environmental Sustainability

One of the primary advantages of incorporating traditional knowledge is its impact on environmental sustainability. Traditional practices in the Solomon Islands, such as rotational gardening, reef closures, and seasonal hunting restrictions, demonstrate sustainable resource management. These methods have long been used to preserve biodiversity and maintain ecological balance. Traditional "tabu" (sacred) areas, where fishing and hunting are temporarily prohibited, help to maintain fish populations and biodiversity (Hviding, 1996). Such practices are frequently based on a thorough

understanding of local ecosystems, making them ideal for the region's environmental conditions (Drew, 2005).

Integrating traditional knowledge into modern environmental management policies could help to address issues like overfishing and deforestation in the Solomon Islands. Governments can promote stewardship and protect natural resources for future generations by involving local communities in conservation efforts and recognizing their ancestral knowledge. According to research, ecosystems managed by indigenous communities often have higher biodiversity and resilience than those managed conventionally (Berkes, Colding, & Folke, 2000).

## 2. Climate Resilience

Traditional knowledge can also help the Solomon Islands build climate resilience, which is critical given rising sea levels, extreme weather events, and other climate-related challenges. Indigenous practices, such as growing mangroves and other native plant species for coastal protection and building homes on stilts, demonstrate adaptation strategies that mitigate the effects of natural disasters (Mataki et al., 2013; SPC/USAID ISACC Project, 2017). Such ecosystem based adaptations align with community-based approaches, integrating traditional knowledge with broader climate resilience strategies (SPREP, 2013).

Traditional agricultural practices, such as intercropping and crop rotation, help to improve soil fertility and resilience to climate extremes. In the Solomon Islands, these methods are used to grow staple crops such as taro, yam, and cassava, ensuring food security even in harsh conditions (Hviding, 1996). According to the Food and Agriculture Organization (FAO), indigenous agricultural practices improve soil structure and water retention, which is critical for mitigating the effects of droughts and heavy rains.

## 3. Cultural Preservation and Community Cohesion

Incorporating traditional knowledge promotes cultural preservation and community cohesion. Traditional practices in the Solomon Islands are deeply ingrained in social structures and community identity. Recognizing and valuing these practices boosts cultural

pride while also passing on knowledge to future generations, fostering a sense of belonging. This process is critical for preserving cultural diversity and addressing the social consequences of modernization, such as urban migration and the extinction of indigenous languages.

## **(ii) Challenges of Incorporating Traditional Knowledge**

### 1. Knowledge Ownership and Intellectual Property

The issue of knowledge ownership and intellectual property presents a significant challenge in the integration of traditional knowledge. Traditional knowledge is frequently shared and has cultural and spiritual significance, making it difficult to apply intellectual property laws that favour individual ownership. In the Solomon Islands, knowledge of medicinal plants or traditional fishing techniques is often considered community heritage. When external entities seek to use this knowledge for scientific research, commercial purposes, or conservation initiatives, disagreements may arise over consent, benefit-sharing, and compensation.

Protecting indigenous communities' intellectual property rights remains a complex issue, particularly when traditional knowledge intersects with commercial interests. For example, pharmaceutical companies that want to use indigenous medicinal knowledge must consider the ethical implications of knowledge extraction while also ensuring fair compensation for local communities. The United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) encourages indigenous ownership of cultural heritage, but its implementation varies by region (UNDRIP, 2007)

### 2. Conflicts with Scientific Approaches

Another challenge is reconciling traditional knowledge with scientific approaches, which frequently rely on standardized methodology and empirical data. Traditional knowledge, on the other hand, is usually based on observation and experiential learning, with little formal documentation. Bridging these two modes of knowledge can be difficult, as scientific

communities may regard traditional knowledge as anecdotal or unverified. Traditional medicinal practices in the Solomon Islands, for example, may not be widely accepted by healthcare providers unless scientifically validated, despite their effectiveness for local communities (Aswani & Hamilton, 2004).

However, interdisciplinary approaches that combine scientific and traditional perspectives can result in more comprehensive solutions. The Pacific Islands Fisheries Science Center, for example, has begun incorporating traditional fishing knowledge alongside scientific data to develop more effective management plans for the Solomon Islands. By valuing both knowledge systems, these initiatives promote mutual respect and improve resource management outcomes.

### 3. Challenges of Documentation and Transmission

Traditional knowledge is frequently transmitted orally, making it vulnerable to loss as communities face socioeconomic changes or modernization pressures. In the Solomon Islands, younger generations are increasingly migrating to cities, leaving rural elders who hold this knowledge behind. Without adequate documentation or systems to transmit this knowledge, much of it is at risk of extinction, particularly as Western education and lifestyle patterns replace traditional ways of life (Hviding 1996).

Efforts to record traditional practices and incorporate them into educational programs in the Solomon Islands are critical, but caution must be exercised to avoid cultural misappropriation or oversimplification. Local communities should be involved in documentation projects to ensure authenticity and cultural nuances are respected. Non-governmental organizations, working with local leaders, can help facilitate these projects by providing resources and technical assistance for archiving traditional knowledge (Berkes et al., 2000).

Traditional knowledge in the Solomon Islands provides enormous benefits for environmental management, climate resilience, and cultural preservation, but integrating it into modern systems presents significant challenges. Stakeholders can create a more inclusive and sustainable future by recognizing the unique contributions of traditional

practices and addressing issues such as knowledge ownership, documentation, and alignment with scientific methods. Collaborations between local communities, scientists, and policymakers will be critical to ensuring that traditional knowledge continues to benefit the Solomon Islands and other regions.

## CHAPTER 3

### **Traditional Knowledge and Legal Frameworks in the Solomon Islands**

#### **3.1 Introduction**

Many indigenous peoples around the world face major barriers to incorporating traditional knowledge into modern legal systems, particularly in resource management, environmental protection, and cultural heritage. Traditional knowledge systems have evolved throughout time to provide a thorough grasp of ecosystems, biodiversity, and sustainable livelihoods. Not only are these systems highly effective in solving today's pressing global problems, such as biodiversity loss and climate change, but they are also intimately connected to the cultural, social and spiritual lives of indigenous peoples. However, despite their significance, traditional knowledge frequently encounters barriers to being appropriately acknowledged or integrated into official legal frameworks in many nations. This discrepancy between formal governance systems and customary law continues to be a major obstacle to resource management and cultural heritage preservation in the Solomon Islands. This chapter examines the manner in which Solomon Islands' legal systems utilize traditional knowledge, highlights the difficulties associated with its scant acknowledgement, and suggests legal reform avenues that could more effectively incorporate indigenous knowledge into national laws. Over the past decades, growing recognition of the importance of indigenous knowledge in adapting to climate change, protecting biodiversity and managing sustainable resources has led to global efforts to incorporate traditional knowledge into legal frameworks. The Convention on Biological Diversity (CBD) and the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) have established international frameworks for the preservation and promotion of traditional knowledge. The CBD emphasizes the significance of indigenous peoples for biodiversity conservation and sustainable use, and it expressly calls on nations to involve indigenous populations in decisions about the management of natural resources (UNEP, 1992). In a similar vein, Article 31 of the UNDRIP emphasizes the importance of traditional knowledge in conserving the environment and culture, as well as indigenous

peoples' rights to administer, preserve, and safeguard it (UN, 2007). Although the groundwork for the integration of traditional knowledge into national legal systems has been established by these international frameworks, practical integration is still uneven and frequently superficial, particularly in post-colonial nations where Western legal systems predominate. The integration of traditional knowledge into legal systems is still a difficult problem in the Pacific Islands. The region is home to a large number of indigenous peoples who have extensive knowledge of their cultures. Traditional knowledge systems are closely linked to traditional knowledge systems in the natural environment, particularly in relation to land management, agriculture, fisheries and forest conservation. However, the legal systems of many Pacific countries are heavily influenced by colonial legacies, with Western legal norms taking precedence over Indigenous knowledge and customary law. In some situations, state law and customary law (which often represent Indigenous knowledge systems) coexist. This creates a complex and challenging legal environment. Previous research in the Solomon Islands has revealed that traditional knowledge systems continue to face challenges in gaining full legal recognition. Kali'uae (2005) investigated the relationship between state law and customary land tenure in the Solomon Islands and found that while customary law continues to govern land ownership, the national legal system does not fully recognize or support these traditional practices. Similarly, Kere and Torii (2024) highlights the importance of traditional knowledge in environmental governance, particularly in areas such as agriculture, forestry and fisheries, where traditional methods have long ensured the sustainable management of resources. These traditions frequently clash with modern legal frameworks that prioritize resource extraction and economic expansion over environmental conservation. The limited recognition of traditional knowledge within the national legal framework has resulted in enforcement challenges, with customary practices frequently undermined or ignored in favor of state policies that do not align with indigenous knowledge. Although some progress has been made, legal reform in the Solomon Islands remains piecemeal and significant gaps remain in how traditional knowledge is integrated into national governance structures. According to Sanga (2018), Solomon Islands' legal system is largely shaped by British colonial law and fails to

sufficiently take into account the function of traditional practices in resource management. Since indigenous knowledge systems are frequently viewed as informal or out-of-date, they are susceptible to deterioration due to the lack of explicit legal recognition of traditional knowledge in the nation's constitution and environmental regulations. In contrast, the formal legal system, based on statutory law, tends to prioritize state interests, which can lead to the marginalization of indigenous practices in favor of more centralized, market-driven policies. Sanga suggests that constitutional reforms and legislative amendments are necessary to provide a legal foundation for the recognition and protection of traditional knowledge, ensuring its role in the country's development and resource governance. The Solomon Islands in particular have had difficulty incorporating traditional knowledge into their legal frameworks. The richness and diversity of the Solomon Islands' cultural environment define it. A variety of indigenous populations, each with their unique customs, knowledge systems, and ways of life, call its more than 900 islands home. Legal reform faces both opportunities and difficulties as a result of this diversity. On the one hand, integrating traditional knowledge within the legal framework guarantees that indigenous customs and requirements are acknowledged and permits a more inclusive and culturally aware approach to government. . However, the variety of activities by different groups makes it difficult to create a one-size-fits-all strategy for legal recognition. As Hohe (2007) noted, legal pluralism, i.e., the coexistence of multiple legal systems, can lead to tensions and conflicts in governance, especially when state and customary law clash. By analyzing how traditional knowledge is now acknowledged in the Solomon Islands legal system and identifying obstacles to its successful adoption, this study seeks to overcome these challenges. The study investigates whether national policies support or disregard traditional knowledge by comparing important environmental and resource management rules. It also looks at the formal governance system's limited use of customary practices, implementation problems, and gaps in constitutional recognition. Through legislative and constitutional changes, the study seeks to offer practical recommendations for strengthening the role of traditional knowledge in Solomon Islands' environmental preservation, sustainable development, and cultural heritage preservation. The ultimate goal of this research is to

support the creation of a legislative framework that recognizes and takes into account traditional knowledge and ensures that indigenous practices have a positive impact on the future governance of the Solomon Islands. By integrating traditional knowledge into law, the Solomon Islands can strengthen natural resource management, protect cultural heritage, and achieve sustainable development that takes into account the interests and values of indigenous peoples.

### **3.2 Objectives**

This research aims to explore the integration of traditional knowledge into the legal frameworks of the Solomon Islands, specifically focusing on its recognition and incorporation within formal governance structures. The study will examine the extent to which traditional knowledge is acknowledged in the country's legal provisions, particularly in the context of environmental management and resource governance. By analyzing the current legal provisions, the research will assess how well traditional knowledge is recognized, both in constitutional terms and within national policies, and identify any areas where its inclusion is lacking or overlooked. A key focus of the study will be to evaluate the extent to which traditional knowledge systems are integrated into governance practices in the Solomon Islands. This will involve investigating how customary practices are applied or excluded within formal legal frameworks, and assessing the challenges that arise when trying to reconcile indigenous knowledge with state-sanctioned laws and regulations. Through a comparative analysis, the research will identify significant gaps in legal recognition, enforcement challenges, and the limited application of traditional knowledge in national governance structures. The research will also explore the broader implications of traditional knowledge integration for sustainable development, environmental conservation, and the protection of cultural heritage. This aspect will help to assess whether incorporating indigenous knowledge could contribute to more sustainable and effective management of natural resources, fostering ecological balance and preserving cultural traditions. The study will propose legal reforms aimed at strengthening the role of traditional knowledge,

including constitutional amendments and legislative changes, to better protect and promote indigenous practices in the modern legal context. Ultimately, the study will seek to offer recommendations for enhancing the legal recognition and integration of traditional knowledge in the Solomon Islands, with a focus on safeguarding indigenous practices while supporting sustainable development. The goal is to ensure that traditional knowledge systems are respected, properly incorporated into governance, and are given their rightful place in shaping the future of environmental and cultural stewardship in the Solomon Islands.

### **3.3 Methodology**

#### **1. Method**

This study uses a doctrinal approach to analyze existing Solomon Islands laws and assess their support for traditional knowledge, completed by gap analysis and normative evaluation. The research begins with identifying relevant legal frameworks, including environmental regulations, cultural heritage protections, and intellectual property. Each law is analyzed to determine if it explicitly recognizes, protects, or integrates traditional knowledge or customary practices. This doctrinal analysis helps to clarify the current legal standing of traditional knowledge within the formal regulatory framework.

Following the doctrinal analysis, a gap analysis is conducted to identify areas where existing laws are silent, ambiguous, or lack provisions that would effectively support traditional knowledge. This involves examining the structure and language of each law to see if it offers practical protections or mechanisms for traditional knowledge. Particularly attention is given to identifying any gaps in enforcement measures, community involvement in decision-making, and safeguards for traditional intellectual property.

Lastly, a normative legal analysis is employed to justify the importance of integrating traditional knowledge within these laws. This includes evaluating the cultural, environmental, and economic benefits of recognizing traditional knowledge and aligning legal frameworks with community customs. The normative analysis provides a foundation

for recommending specific reforms, which aim to address identified gaps and enhance the laws alignment with traditional practices.

By combining doctrinal, gap, and normative analysis, this methodology provides a comprehensive examination of the current legal support for traditional knowledge in the Solomon Islands. It highlights specific areas for legal reform, proposing practical steps for embedding traditional knowledge within the national legal framework, sustainable development, and community empowerment.

## **2. Study Area**

The Solomon Islands is a sovereign archipelago in the south Pacific, situated between latitude 5 degrees and 12 degrees south and longitudes 155 degrees and 170 degrees east. Comprising over 900 islands, including six major ones (Guadalcanal, Malaita, New Georgia, Santa Isabel, Choiseul, and Makira), the country covers a total land area of approximately 28,400 square kilometres and exclusive economic zone (EEZ) of 1.6 million square kilometres (Secretariat of the Pacific Community, 2022). This vast EEZ makes the Solomon Islands one of the Pacific's most marine-dependent nations.

The Solomon Islands is part of the Coral Triangle, a global biodiversity hotspot recognized for its unparalleled marine ecosystems. This region harbours the world's highest diversity of coral reefs and associated species, providing vital ecological services not only to the Solomon Islands but to the wider Pacific and global community (Veron et al., 2009).

As of 2023, the population of the Solomon Islands is estimated at approximately 740,000, with a growth rate of 2.2% annually (World Bank, 2023). The majority of the population (about 80%) resides in rural areas, relying heavily on subsistence fishing and agriculture for their livelihoods. The diverse ethnic makeup reflects over 70 local languages and dialects, with Melanesians forming the majority, followed by Polynesians and Micronesian communities. The rich cultural diversity is accompanied by deeply embedded traditional knowledge and customary governance systems that play a significant role in natural resource management (Hviding, 1996).

The Solomon Islands is an ideal case study for examining legal frameworks governing governing coastal resource management coastal resource management and traditional knowledge for the following reasons. Firstly, as part of the coral triangle, its marine ecosystems are critically important for global biodiversity conservation and climate resilience. However, these ecosystems are increasingly under pressure from overfishing, climate change, and poorly regulated coastal development (green et al., 2021). Secondly, traditional knowledge systems are integral to the management of coastal resources in the Solomon Islands. Customary marine tenure (CMT) practices, where communities maintain control over their adjacent marine areas, are prevalent. These practices have persisted for centuries and remain a cornerstone of resource governance (Aswani, 2002). The interplay between traditional laws and national legal frameworks provides a unique opportunity to explore how pluralistic governance models can address complex challenges in resource management. Finally, the Solomon Islands legal and institutional framework is in a transitional phase, with ongoing efforts to integrate traditional knowledge into national policies. The national ocean policy (2018) and the fisheries management act (2015) emphasize community-based approaches and sustainable use, offering a promising platform for examining the role of traditional governance in complementing statutory frameworks (Solomon Islands government, 2018).

### **3.4 Analysis**

#### **1. The Constitution of the Solomon Islands 1978**

The Constitution of the Solomon Islands 1978 established the framework for the country's governance upon independence and remains the supreme law of the Solomon Islands. The Constitution is comprehensive, addressing various aspects of governance, rights, and obligations. However, its provisions on the recognition and incorporation of traditional knowledge are limited, reflecting both the historical context of its drafting and gaps that have surfaced in its interpretation and application. This analysis examines where the Constitution acknowledges traditional knowledge and identifies key gaps that have been highlighted by studies on governance and customary practices in the Solomon Islands

Recognition of Traditional Knowledge. Traditional Knowledge in the Solomon Islands is rooted in local customs and practices that have guided the management of natural resources, dispute resolution, and community governance for centuries. The Constitution of 1978 implicitly recognizes these customs in several ways. Section 75(1) grants Parliament the power to enact laws that respect customary law, while Section 76 allows for the establishment of customary courts to adjudicate matters relating to customary law (Solomon Islands Government, 1978). These provisions acknowledge the existence and importance of customary practices in certain legal contexts, allowing communities to maintain cultural traditions and traditional knowledge systems in the judicial process (Corrin, 2018). Additionally, the Constitution recognizes the role of traditional leaders under Section 114. The Constitution establishes a framework for the inclusion of traditional knowledge, albeit in a restricted capacity, by integrating customary practices and traditional leadership within the judicial system.

Gaps in the Constitution Regarding Traditional Knowledge Despite these provisions, the Constitution does not fully integrate traditional knowledge into its governance structure, leading to practical and legal gaps. One major limitation is that while the Constitution acknowledges customary law and traditional leadership, it does not specifically address traditional knowledge in the context of natural resource management, intellectual property, or environmental stewardship. Traditional knowledge systems often involve detailed ecological knowledge of marine and land resources that can be vital for sustainable practices (Foale & Macintyre, 2000). However, this knowledge remains largely outside formal governance, making it challenging to incorporate traditional environmental management practices into national policies effectively.

### 1.1 Gaps and Difficulties in Implementing the Act

1. Lack of Specific Provisions for Intellectual Property and Traditional Knowledge: The Constitution lacks explicit provisions for protecting traditional knowledge as intellectual property. Studies emphasize that traditional knowledge is at risk of being exploited or appropriated without the proper legal frameworks to protect it (Whimp & Busse, 2000).

The lack of recognition within the Constitution prevents traditional knowledge from receiving formal legal protection, leading to cases where such knowledge may be commercially used without benefiting the communities that hold it.

2. **Absence of Clear Guidelines for Traditional Leadership Roles:** The role of traditional leaders, while recognized in the Constitution, lacks clear guidelines on their authority in areas of governance related to traditional knowledge. This ambiguity can lead to challenges in implementing policies that require cooperation between government institutions and traditional authorities. Studies suggest that formalizing the roles of traditional leaders could help bridge the gap between customary knowledge and formal governance (Jourdan, 1995). Recommendations for Addressing Gaps to strengthen the recognition of traditional knowledge, the Solomon Islands could consider constitutional amendments or legislative reforms that:

- Recognize traditional knowledge as a form of intellectual property, with protections against unauthorized exploitation.
- Enhance the role of traditional leadership in governance by providing clearer constitutional guidelines for their involvement in decision-making processes.

While the Constitution of the Solomon Islands 1978 offers some recognition of traditional knowledge through its provisions for customary law and traditional leadership, significant gaps remain. The lack of explicit protections for traditional ecological knowledge and intellectual property, combined with limited integration of customary practices into national governance, highlights areas in need of reform. Addressing these issues would not only protect traditional knowledge but also support sustainable development in the Solomon Islands by aligning national policies with local customs and ecological expertise.

## **2. Fisheries Management Act 2015**

The Fisheries Management Act 2015 of the Solomon Islands represents an important legislative step towards sustainable fisheries and marine resource management. This Act consolidates and updates fisheries management laws in the Solomon Islands, focusing on ensuring the sustainable use and conservation of marine resources. However, the Act faces

considerable challenges in terms of enforcement, compatibility with traditional knowledge, and practical implementation in rural areas. By examining both the strengths and limitations of this legislation, we gain insight into the broader challenges of integrating traditional practices and modern regulatory frameworks in fisheries management.

#### Overview of the Fisheries Management Act 2015

The Fisheries Management Act 2015 seeks to improve the regulation of fisheries and marine resources in the Solomon Islands by establishing guidelines on sustainable fishing practices, licensing requirements, and the prohibition of illegal fishing methods. The Act mandates the use of sustainable practices and introduces penalties for overfishing and environmentally damaging practices. It also introduces a more structured management system, requiring that fisheries be regulated under a “Fisheries Management Plan” that considers ecological and economic factors (Solomon Islands Government, 2015).

One of the significant advantages of the Fisheries Management Act 2015 is that it provides a strengthened regulatory framework, explicitly addressing overfishing and illegal, unreported, and unregulated (IUU) fishing. This framework makes it easier for authorities to penalize offenders and to maintain sustainable fishing practices (Govan, 2015).

The Act also emphasizes sustainability by enforcing restrictions on fishing practices that harm marine habitats. For example, it introduces controls on fishing methods, mesh sizes, and allowable catch volumes. By setting these parameters, the legislation aligns with international best practices in fisheries management. The Solomon Islands, as a member of the Pacific Islands Forum Fisheries Agency (FFA) and a signatory to international conventions, has demonstrated a commitment to sustainable fisheries. The Act brings Solomon Islands legislation closer to the standards set by regional and international bodies like the Western and Central Pacific Fisheries Commission (WCPFC), helping the country fulfill its obligations under international law. By regulating overfishing, the Act has the potential to preserve fish stocks for future generations, which is vital for food security and economic stability. For a nation with a significant portion of its population relying on fisheries for income, sustainable fisheries management can support economic resilience

While the Act sets forth strict regulations, enforcement remains a considerable challenge. Given the Solomon Islands' extensive maritime zone, monitoring illegal fishing activities is difficult. The enforcement infrastructure is limited, with insufficient patrol vessels, limited trained personnel, and a lack of financial resources (Kere and Torii 2021). As a result, the effectiveness of the Act's enforcement is limited, and illegal fishing activities persist. The Solomon Islands is home to rich traditional ecological knowledge, with communities relying on customary practices to manage their resources. The Act, however, falls short of fully integrating these practices. Many rural communities feel that the top-down approach taken in the Act does not account for customary laws and local knowledge systems, leading to disconnects between community practices and regulatory requirements (Hviding, 2016). The costs associated with effective monitoring and enforcement of the Act is significant. Limited financial resources prevent the government from acquiring the technology, training, and infrastructure required to monitor remote areas effectively. In particular, rural coastal areas, where most subsistence fishing takes place, often receive minimal enforcement attention due to their isolation and logistical challenges (Kere and Torii 2021). Another limitation of the Fisheries Management Act 2015 is the insufficient involvement of local communities in decision-making processes. Community members often lack awareness of the regulations and may inadvertently breach them. This disconnect can cause tensions between government authorities and rural communities, who may feel that their autonomy in managing local resources has been undermined (Aswani et al., 2007).

## 2.1 Gaps and Difficulties in Implementing the Act

1. **Insufficient Infrastructure for Monitoring and Surveillance:** Given the vast maritime area of the Solomon Islands, effective monitoring and enforcement are challenging without the necessary resources and equipment. Research highlights the need for enhanced surveillance systems, including remote sensing and electronic monitoring (Govan, 2015). Currently, gaps in surveillance capability make it difficult to monitor IUU fishing, allowing it to continue unimpeded.

2. **Weak Coordination between National and Local Governance:** There is often limited coordination between the centralized government and local authorities responsible for marine areas. Customary tenure systems, which are widely practiced, are often at odds with national regulations, creating a gap in consistent enforcement and resource management. Studies suggest that harmonizing these governance systems would improve compliance and support sustainable outcomes (Hviding, 2016).

3. **Lack of Adequate Data for Decision-Making:** Reliable data on fish stocks and the impact of fishing practices is essential for sound fisheries management. However, in the Solomon Islands, data collection remains sporadic and insufficient for informing the Fisheries Management Plan adequately. As Govan (2015) notes, the lack of reliable fisheries data limits the government's ability to set accurate quotas, monitor fish populations, and assess the ecological impact of fishing practices.

4. **Challenges with Community Education and Awareness:** A significant gap exists in educating communities about the specifics of the Act. Many fishers are unaware of the restrictions, penalties, and reporting requirements, leading to unintended non-compliance. Past studies emphasize the importance of outreach and community-based education initiatives as a way to improve understanding of the Act and foster cooperation (Aswani et al., 2007).

5. **Limited Inclusion of Traditional Knowledge in Regulatory Frameworks:** A recurring issue is the Act's limited reflection of traditional knowledge, which has long governed local fishing practices. For example, customary marine tenure systems and local ecological knowledge could contribute valuable insights to sustainable fisheries management. Hauzer et al. (2013) highlight that incorporating these traditional management practices, such as seasonal fishing restrictions and "tabu" areas, would enhance the Act's relevance and effectiveness.

Recommendations for Improvement to address these gaps, the Solomon Islands government could consider:

1. **Enhanced Surveillance and Enforcement Infrastructure:** Strengthening partnerships with regional bodies and increasing investment in surveillance technology would improve the

capacity for enforcing the Act. Integrating technologies like satellite monitoring could enhance the detection of IUU fishing.

2. **Community Engagement and Inclusion of Traditional Knowledge:** Adopting a co-management approach that involves communities in decision-making would likely increase compliance and make the Act more effective. Recognizing and formalizing customary fishing areas and practices could help align the Act with local traditions and foster community support (Hviding, 2016).

3. **Improved Data Collection and Reporting Mechanisms:** Investment in regular data collection and the establishment of a centralized data repository could improve decision-making and the adaptability of fisheries management plans.

4. **Educational Outreach Programs:** Creating education programs for rural fishing communities would promote understanding of the Act and reduce unintentional breaches. As studies show, involving communities through education fosters a sense of ownership over marine resources and encourages sustainable practices (Cohen & Alexander, 2017).

In summary, the Fisheries Management Act 2015 is a significant step forward for fisheries management in the Solomon Islands, but it faces notable challenges related to enforcement, limited integration of traditional knowledge, and resource constraints. Although the Act provides a strong legal foundation, its effectiveness is constrained by logistical, financial, and social factors. Integrating traditional knowledge systems, improving community engagement, and enhancing enforcement capabilities could bridge the current gaps and enhance the Act's effectiveness. Addressing these challenges will be essential for ensuring that the Act achieves its goal of sustainable fisheries management in the Solomon Islands.

### **3. The Protected Areas Act 2010**

The Protected Areas Act 2010 of the Solomon Islands represents a significant effort to safeguard biodiversity and cultural heritage, particularly through the formal establishment of protected areas. The Act focuses on conservation, sustainable management, and protection of both the natural environment and the traditional knowledge systems of indigenous communities. Within its framework, there is an acknowledgment of the critical

role that traditional knowledge plays in managing and preserving the environment, which has been integral to Solomon Islanders for generations.

#### Traditional Knowledge in the Protected Areas Act 2010

The Protected Areas Act 2010 recognizes the importance of traditional knowledge as part of the conservation process. The Act emphasizes that protected areas must be managed in ways that are compatible with the “traditional practices” and “customary landowners' rights,” which are core aspects of indigenous knowledge systems (Solomon Islands Government, 2010). For instance, Section 3 of the Act provides for the establishment of areas based on the recommendations of customary landowners, who may use traditional ecological knowledge to determine the most suitable conservation practices. This provision allows for the integration of traditional resource management techniques, recognizing them as valuable for sustainable environmental stewardship. The Act’s approach aligns with findings in studies by Foale and Manele (2004), which highlight how traditional knowledge systems in the Solomon Islands encompass critical ecological practices, such as seasonal fishing restrictions and taboo areas. These studies emphasize that integrating these traditional practices within formal legal frameworks like the Protected Areas Act enhances conservation efforts by incorporating culturally relevant approaches. The recognition of traditional knowledge also aids in garnering support from local communities, as it respects their historical roles as stewards of the land.

#### 3.1 Gaps in the Solomon Islands Constitution Regarding Traditional Knowledge

Despite the Protected Areas Act's acknowledgment of traditional knowledge, there are notable gaps in the Solomon Islands Constitution in providing direct protection and recognition for indigenous knowledge systems. The Constitution, enacted in 1978, primarily addresses land ownership and customary land tenure but lacks specific provisions for the protection or promotion of traditional ecological knowledge as a standalone cultural asset (Kabutaulaka, 2000). This omission has created a legal vacuum where traditional knowledge remains unprotected outside of environmental legislation like the Protected Areas Act. Studies by Hviding and Bayliss-Smith (2000) note that the lack of constitutional

safeguards for traditional knowledge places it at risk of exploitation, especially in contexts where foreign companies may extract resources with limited accountability toward local customs or knowledge systems. The absence of constitutional recognition can undermine efforts to protect traditional knowledge and limits its integration across other legal and policy domains, such as intellectual property rights. Therefore, while the Protected Areas Act 2010 provides a sector-specific acknowledgment, the overarching constitutional framework remains insufficient in securing traditional knowledge from external pressures. The academic literature on the Solomon Islands emphasizes the importance of enshrining traditional knowledge within broader legal frameworks. Foale (1998) argues that customary knowledge is essential for conservation in Melanesia and should be recognized at all levels of governance, including constitutional law. Similarly, Govan et al. (2011) recommend that policy reforms include explicit constitutional amendments to protect traditional knowledge, as well as mechanisms that empower local communities to enforce their customary practices. One practical recommendation from past studies is to amend the Solomon Islands Constitution to include explicit protections for traditional knowledge. Such an amendment could provide indigenous communities with greater authority to safeguard their knowledge and cultural heritage, ensuring these are respected and not exploited for commercial gain. In the absence of such measures, traditional knowledge systems remain vulnerable, as they rely on acts like the Protected Areas Act for protection, which can be limited in scope and application.

In conclusion the Protected Areas Act 2010 represents a progressive step toward integrating traditional knowledge into environmental management in the Solomon Islands. However, without constitutional provisions, this knowledge remains partially protected and vulnerable to exploitation. While the Act acknowledges the value of traditional knowledge within conservation efforts, studies suggest that constitutional amendments would be beneficial to fully safeguard these systems. Such reforms would ensure that traditional knowledge is preserved as an essential component of the nation's cultural heritage and environmental stewardship practices.

#### **4. Wildlife Protection and Management Act 1998**

The Wildlife Protection and Management Act is another important piece of legislation that promotes the management and conservation of the Solomon Islands' coastal and marine ecosystems. This Act, passed in 1998, seeks to safeguard the country's wildlife, particularly its marine species, and to govern activities that threaten biodiversity. The Act has significant ramifications for managing coastal resources, particularly marine life, as well as safeguarding ecosystems vital to biodiversity and the livelihoods of local inhabitants, despite its primary focus on animal preservation rather than coastal resource management. Both marine and terrestrial species, as well as those that are endangered or have ecological or cultural significance, are included in the Act's broad definition of wildlife. The Act gives the government the authority to control hunting, trapping, and animal sales in addition to permitting the creation of protected zones. The Act can be used to manage coastal resources to protect marine life that is important to coastal ecosystems, including dugongs, turtles, and some fish species. This rule safeguards the existence of marine species because they are vital to the local population's food security and economic well-being.

One of the primary purposes of the Wildlife Protection and Management Act is to establish protected places, notably marine protected areas (MPAs). MPAs are vital for biodiversity protection. The Act allows for the construction of conservation areas with limited human activity in order to reduce environmental effect. These zones can be formed by either the government or local communities to safeguard delicate habitats including seagrass beds, mangroves, and coral reefs, which provide essential ecosystem services such as fish breeding grounds and natural protection against coastal erosion. The Act is significant because it establishes the legal foundation for the conservation of endangered species inside the Solomon Islands' territorial seas. Sea turtles and other marine creatures, such as the dugong, are protected by the Act due to their vulnerability to overexploitation and habitat destruction. The long-term preservation of marine biodiversity is critical for both ecological health and the lives of coastal communities who rely on these species for cultural activities and subsistence, and the Act helps to achieve this goal by establishing legal safeguards for these species.

In particular, the Act facilitates further community involvement in conservation and wildlife protection programs (which complements the Solomon Islands' widely acclaimed community-based resource management strategy). Communities can help to manage protected areas, conserve law enforcement and even monitor wildlife populations. Such participation of local communities leads to empowerment in protecting the marine ecosystem by strengthening traditional ecological knowledge and management systems. The Wildlife Protection and Management Act also contain guidelines for sustainable use of wildlife. Such rules allow communities to continue their traditions while making sure those marine species are preserved by regulating the hunting and fishing as well. It is crucial because it balances local-community needs with conservation while also providing a framework for ecological sustainability and sustainable lifestyles. First, the Wildlife Protection and Management Act play a principal role in dealing with law relating to coastal resource management in the Solomon Islands. Resources for developing conservation zones, protecting biodiversity, and encouraging sustainable behavior are also provided. The Act combines legislative safeguards, traditional knowledge, and community participation to ensure that the Solomon Islands' marine and coastal ecosystems remain healthy and productive for future generations.

- Example: The Wildlife Protection and Management Act 1998 prohibit the hunting of endangered species, which aligns with traditional practices that protect specific animal species considered culturally significant. For instance, the hunting of rare birds or turtles may be restricted by both traditional practices and the Act, especially if these species are recognized as culturally or ecologically important.

- Limitation: Similar to other laws, enforcement in remote regions is limited, and communities might not always have the legal power to prevent illegal poaching by outsiders. While traditional knowledge might prohibit the hunting of certain species, the lack of resources and enforcement personnel can make it challenging to protect these animals effectively.

## **5 Land and Titles Act (1974)**

Land and Titles Act (1974) Another important piece of Solomon Islands law forming the basis for the recognition customary tenure over land and marine-related resources building blocks elements of the coastal and marine ecosystem This law respects and protects the traditional rights of communities; particularly, ownership and management of their ancestral domain which often includes adjacent marine areas. The significance of this Act is not only to recognize customary land tenure but also to enable formal protection and management of natural resources that secure the basis for coastal livelihoods. Customary tenure is a key and time-honoured system overseeing land and marine ecosystem use by the people of Solomon Islands. Because in many coastal communities the management of marine resources is directly linked to ownership over land, access to coastal and marine resources is often limited by boundaries set through traditional tenure systems. More than mere geographical borders, these lines also embody social and cultural connections to the land and water formed over generations. The Land and Titles Act recognize the importance of these rights by assuring communities can retain ownership not only of their land but of adjacent areas in the sea. Such legal status is critical for empowering communities to protect their traditional territories from external threats such as degradation, encroachment and commercial exploitation.

By creating a legal framework for sustainable management, the Act empowers customary owners to determine how to most effectively use marine and coastal resources in line with their long-standing traditions. The Act promotes management of coastal resources by protecting the customary rights of local people and incorporating them into the country's legal framework. This legal integration recognizes traditional knowledge and methods, such as seasonal fishing cycles, coral reef protection and sacred marine sites, as important and relevant to modern resource management, allowing for a more consistent approach to resource management.

The Land and Titles Act protect the rights of customary landowners while also allowing for the continued application of traditional knowledge in the management of coastal and marine areas. Traditional ecological knowledge (TEK) is passed down from generation to

generation, providing coastal communities with a solid foundation for managing the resources on which they rely.

The Act not only recognizes customary rights, but it also protects and incorporates this knowledge into legal frameworks guiding marine and coastal conservation efforts. Combining local traditions with modern legal frameworks enables communities to create effective governance models for long-term coastal resource management that strike a balance between environmental and economic development. Furthermore, the Land and Land Tenure Act foster social and cultural cohesion by highlighting communities' shared responsibility for conserving land and maritime resources.

The legal protection of customary tenure strengthens communities' sense of ownership and care, ensuring that future generations can rely on these resources. This is especially important given the growing pressures that overfishing, climate change, and other human activities are putting on coastal ecosystems.

The Land Titles Act strengthens communities' capacity to withstand external pressures and manage natural resources in ways that ensure their long-term survival. Finally, the land titles act statute gives legal protection for customary tenure rights over land and seas, which are an important part of resource management in the Solomon Islands. The Solomon Islands emphasizes the importance of integrating traditional knowledge and customary land rights with modern government institutions, ensuring local people's ownership of resources while also promoting long-term traditions for future generations.

## **6 Environment Acts 1998**

The Environment Act mandates environmental impact assessments (EIAs) for development projects, which provides communities with an opportunity to raise concerns based on traditional knowledge. For example, if a mining company seeks to operate in a customary land area, the local community can use the EIA process to highlight the potential impact on sacred sites, fishing grounds, or water resources, referencing traditional knowledge to bolster their claims.

- Limitation: In practice, the EIA process may not always fully consider traditional ecological knowledge, and local input may be overlooked in favor of commercial interests. For instance, mining or logging projects have sometimes been approved despite significant community opposition, reflecting a gap in how traditional knowledge is valued in environmental decision-making.

### **3.5 International legal frameworks**

#### **1. United Nations Convention on the Law of the Sea (UNCLOS)**

The Solomon Islands adopted a key international agreement, the United Nations Convention on the Law of the Sea (UNCLOS), in 1995. It establishes a legislative framework for regulating and protecting maritime habitats, coastal resources, and marine biodiversity. The United Nations Convention on the Law of the Sea regulates the use of ocean space, including exclusive economic zones (EEZs) established by coastal states. The Solomon Islands have sole authority to explore, exploit, protect, and manage maritime resources inside their exclusive economic zone (EEZ), which extends 200 nautical miles off their coast. Articles 61 and 62 of the UN Convention on the Law of the Sea require countries to protect live marine resources inside their Exclusive Economic Zones in order to conserve marine biodiversity. This involves implementing sustainable fishing practices in the Solomon Islands, where fisheries are a significant part of the national economy.

The Solomon Islands is a member of the Pacific Islands Forum Fisheries Agency (FFA), one of the UNCLOS-designated regional resource cooperation organizations. Through these regional agreements, the country works with its neighbors to safeguard and manage common marine and coastal resources.

#### **2. Convention on Biological Diversity (CBD)**

The Convention on Biological Diversity (CBD), adopted by the Solomon Islands in 1993, is an important international agreement that attempts to maintain biological diversity, promote the sustainable use of its components, and distribute the benefits of genetic

resources fairly and equitably. The CBD specifically acknowledges the importance of traditional knowledge and approaches in biodiversity conservation and sustainable use. The CBD's Article 8(j) clearly requires parties to preserve, safeguard, and uphold indigenous and local groups' traditional knowledge, inventions, and practices related to biodiversity conservation and sustainable use.

This is especially relevant in the Solomon Islands, where people's customs, livelihoods, and culture are intricately linked to coastal and marine ecosystems. The Solomon Islands has passed legislation and implemented initiatives to incorporate traditional knowledge into biodiversity conservation efforts, with a focus on indigenous rights and community-based resource management. The Nagoya Protocol, which the Solomon Islands joined in 2014, improves safeguards for traditional knowledge. It establishes a framework for fairly and equally distributing the benefits of exploiting genetic resources and related traditional knowledge. The Solomon Islands hopes that this convention will allow for equitable benefit sharing while also protecting its indigenous peoples' intellectual property rights.

### **3. The Convention for the Safeguarding of the Intangible Cultural Heritage**

In 2008, the Solomon Islands joined the Convention for the Safeguarding of Intangible Cultural Heritage (2003), which is part of the larger UNESCO framework for cultural heritage conservation. This agreement emphasizes the need of preserving intangible cultural heritage, which includes habits, knowledge, and practices passed down through generations by communities. Coastal resources include traditional fishing methods, coastal management measures, and ecological knowledge. The Solomon Islands anticipates that this agreement would ensure the transmission, preservation, and protection of traditional knowledge on coastal resource management from external pressures such as climate change and the deterioration of cultural practices. The Convention enables the Solomon Islands to preserve the rights of its indigenous communities by encouraging the integration of traditional knowledge into state policy and international engagement.

### **4. The Pacific Regional Environment Programme (SPREP)**

The Solomon Islands participates in the Pacific Regional Environment Programme (SPREP), which has a significant impact on regional approaches to coastal resource management. The Solomon Islands participate in regional cooperative projects, such as SPREP, to protect marine and coastal ecosystems, reduce environmental risks, and promote sustainable development. SPREP supports regional treaties or agreements such as the Convention for the Preservation of the Natural Resources and Environment of the South Pacific Region (SPREP Convention), which includes provisions for biodiversity conservation as well as the preservation of the marine environment and coastline.

SPREP also works with local communities to apply traditional knowledge to the management of marine protected areas, coastal fisheries, and coral reefs. The Solomon Islands actively participates in a number of international legislative frameworks that promote the preservation of traditional knowledge and the proper use of marine resources. The government values coastal ecosystems and traditional knowledge for sustainable resource management, as indicated by its participation in a number of agreements. The Solomon Islands is attempting to incorporate both modern science and indigenous knowledge into its coastal management plans, using tools such as UNCLOS, the CBD, and the UNDRIP, in order to preserve the health of its marine resources and protect its cultural legacy. These structures provide the country with the ethical and legal foundation required to promote sustainable behaviors and protect its coastal resources for future generations.

## **5. Important Frameworks yet to be ratified**

### **1. United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP)**

A crucial framework for defending the rights of indigenous peoples, such as self-determination, cultural legacy, and natural resources, is provided by the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), which was adopted by the General Assembly in 2007. In addition to their rights to manage and safeguard these resources, it emphasizes the significance of maintaining indigenous peoples' spiritual and cultural ties to their lands, seas, and coastal ecosystems.

The UNDRIP's Article 25 places particular emphasis on indigenous peoples' rights to preserve their ties to their ancestral lands in line with customs. By supporting community-led conservation initiatives and integrating indigenous knowledge, this framework has a great deal of potential to direct policies for sustainable coastal resource management. Solomon Islands acknowledges the significance of the UNDRIP, although the country has not yet legally ratified and put the declaration into effect. The difficulties and complexities of completely incorporating these standards into the local legal and governance framework are reflected in the continuous efforts to bring national laws and policies into line with the UNDRIP principles.

## 2. International Labour Organization Convention 169 (ILO Convention No. 169)

An important international agreement that safeguards the rights of indigenous and tribal peoples with regard to their lands, resources, and cultural customs is the 1989 Convention No. 169 on Indigenous and Tribal Peoples of the International Labour Organization (ILO). In addition to acknowledging their traditional governing structures, this convention highlights indigenous peoples' rights to be involved in decisions that affect their lands and resources, especially the marine and coastal environments. A legal foundation for safeguarding indigenous land and resource management systems, especially in coastal regions, is provided by Article 14 of ILO Convention No. 169, which expressly recognizes the rights of indigenous peoples to own and manage the lands they have historically occupied or utilized.

Solomon Islands have not yet ratified ILO Convention No. 169, although acknowledging the significance of the principles contained within. As part of a larger effort to advance indigenous rights and incorporate traditional knowledge into resource management procedures, the task of bringing national legal and governance frameworks into compliance with its provisions is still underway.

### **3.6 Discussion and Conclusion**

The legal frameworks discussed in this chapter represent important steps toward recognizing and protecting traditional knowledge in the context of coastal resource management. These laws and regulations highlight the growing appreciation for the value

of traditional knowledge in sustainable resource use, biodiversity conservation, and cultural preservation. They acknowledge the need to include Indigenous and local communities as key stakeholders in decision-making processes. However, while these frameworks demonstrate progress, significant gaps remain that hinder the effective integration and safeguarding of traditional knowledge. One major limitation is that traditional knowledge is often addressed within broader legal instruments, such as environmental or intellectual property laws, rather than through dedicated legislation. This fragmented approach can dilute the focus on traditional knowledge and fail to fully account for its unique characteristics, such as its communal nature, cultural significance, and oral transmission. Moreover, current frameworks frequently lack mechanisms for equitable benefit-sharing, comprehensive protection against misappropriation, and formal recognition of traditional governance systems. These gaps pose challenges to ensuring that traditional knowledge holders maintain control over how their knowledge is accessed and used. To address these challenges, there is a critical need for reform. Developing stand-alone laws specifically focused on traditional knowledge would provide a more robust and coherent framework. Such laws should prioritize the following elements: explicit recognition of traditional knowledge as a distinct category of intellectual and cultural property; mechanisms for its registration and documentation (with appropriate safeguards for sensitive or sacred knowledge); legal protections against unauthorized use; and platforms for meaningful inclusion of traditional knowledge holders in policy development and implementation. These laws should also align with international principles, such as those enshrined in the Convention on Biological Diversity and the Nagoya Protocol, to enhance harmonization and strengthen the rights of traditional knowledge holders on a global scale. Ultimately, recognizing and protecting traditional knowledge through targeted legal instruments is essential for achieving a just and equitable approach to coastal resource management. By addressing the existing gaps and building a comprehensive legal framework, governments can honor the invaluable contributions of traditional knowledge to sustainable development while safeguarding it for future generations.

## CHAPTER 4

### **Methodology**

#### **4.1 Research Design and Data Collection**

Both primary and secondary methods were employed to collect the data for this investigation. Interviews with indigenous people living in areas around Choiseul Bay provided the primary data. Based on their participation in fishing activities and understanding of customary fishing methods, respondents were chosen. In-person interviews were place in 2022. A semi-structured questionnaire was provided to respondents to fill out. Additional data and information were also gathered from different parties participating in the management of coastal resources in the province of Choiseul. Secondary data were gathered from information that was already published in research and reports.

#### **4.2 Study Site**

Choiseul Province, also known locally as Lauru, is located in the northwest region of the Solomon Islands. As of the 2019 census, the province is home to 30,775 residents. This study focuses on the Choiseul Bay Region (Figure 1) specifically within the Batava Ward, and examines the communities of Poroporo, Tarekukure, Supizae and Taro. According to the Solomon Islands National Statistical Office, Batava ward had a population of 5,677 in 2019. The smaller communities in this region range in population from 50 to 150 residents, while larger communities host between 300 to 1000 people. Most of the population resides along the coast, where agriculture and fisheries are the primary livelihoods. These activities primarily support subsistence needs, with any surplus being sold at village markets or the Taro Centre market. Given its rich cultural diversity and century's old tradition of fishing, this site offers an ideal site for the study.

The region is particularly vulnerable to the impacts of climate change, notably sea level rise (Mataki et al., 2013). Understanding the TK of coastal fisheries can influence strategies for

adapting to these changing conditions. Expertise in traditional coastal fisheries serves as a valuable resource for discerning best practices in this context.

Religion plays a central role in the lives of the people in Choiseul. The United Church, the Roman Catholic Church, and the Seventh Day Adventist Church are the three most common Christian denominations in this region, with the majority of the population identifying as Christian. In addition to being places of worship, churches also function as hubs for social and cultural events within the community.

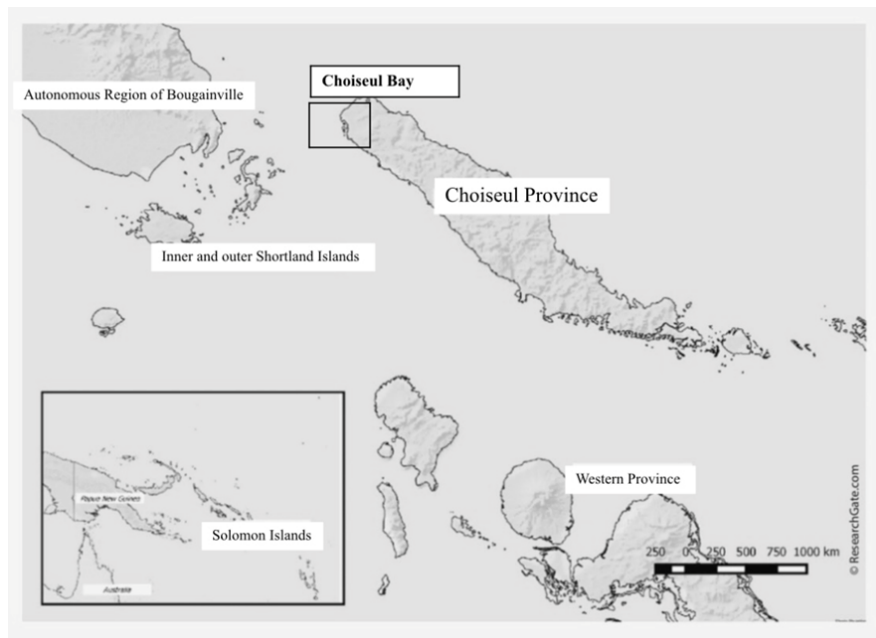
The Choiseul Bay area is served by primary schools and a secondary school, which provide foundational education for children in the local communities. These institutions prepare students for higher education or vocational training.

The provincial government offices are situated in Taro, the headquarters of Choiseul Province and the hub of the region's government presence. These offices oversee local government, offer public services, and plan local development initiatives. International and local Non-Governmental Organizations (NGO) also has offices in this region. One of the local NGOs in Choiseul is the Luru Land Conference of Tribal Community (LLCTC). The LLCTC office is located on Supizae Island. LLCTC was established in 1981, it is an organization in Choiseul that advocates for the rights and interests of Choiseul's tribal communities, known locally as "Kastom" rights. The LLCTC has maintained a robust relationship with communities in Choiseul Province (Kereseka & Nguyen, 2008; Kereseka, 2014). One of the organizations main goals is the promotion and defense of customary land rights. In the Solomon Islands, customary land ownership predominates, meaning that local tribes have historically managed and controlled the majority of land rather than private individuals or the government. In addition to their effort concerning land rights, the LLCTC plays a vital role in preserving cultural legacy and customary wisdom of the Luru people. Additionally, by highlighting the necessity for development projects to respect the land rights and cultural values of the nearby tribes, the LLCTC supports sustainable development practices throughout the region. This strategy aims to strike a balance between the needs of modernization and the preservation of the environment and traditional ways of life.

Since its establishment, the LLCTC has been an essential organization for the Lauru people, representing the tribal communities in a number of forums. In negotiations with the government, non-governmental organizations, and other parties, it speaks for their interests and makes sure that the rights and concerns of the Lauru communities are not disregarded. With its efforts, the LLCTC has grown to be a vital institution, assisting in preserving the Lauru people's ties to their homeland, customs, and culture while addressing the obstacles posed by contemporary growth.

By studying how local communities have historically managed their fisheries, researchers can pinpoint ways to bolster sustainable fisheries in the future. This examination of TK in Choiseul's coastal fisheries aims to engage the local population in the research process, potentially fostering increased participation in campaigns aimed at protecting and managing local marine resources while enhancing awareness and appreciation of the value of TK.

**Figure 1: Study site map indicating the catchment communities of the Choiseul Bay area.**



(Source: ResearchGate.com).

### 4.3 Demography of respondents

A total of 100 local people were interviewed (n=100). Most participants were male, highlighting large gender differences in the demographic categories. A notable proportion of the respondents were aged between 30 and 50, indicating that this group participated most actively in the study. Most participants completed formal education at the primary and secondary levels, suggesting disparities in tertiary education among the interviewees. The majority of respondents identified themselves as farmers or fishermen, demonstrating the importance of these occupations to the communities surveyed. A large portion of the participants had been fishing for 10 years or more, demonstrating the basic knowledge and experience of the subject. This suggests that fishing helps the locals not just with financial income generation but also with nourishment. These findings shed light on the demographics of the study population and provide important insights into the composition and characteristics of the sampled communities (Table 1).

Table 1: Demography of Respondents

Demography of Respondents		
Characteristics	Category	No.
Gender	1. Male	62
	2. Female	38
Age	1. <30	27
	2. 31-50	59
	3. 51-70	11
	4. >70	3
Education	1. No Formal education	4
	2. Primary School	25
	3. Secondary School	54
	4. Vocational School	12
	5. University	5
Occupation	1. Fisherman	41
	2. Farmer	50
	3. Businessman	4
	4. Public servant officer	5
Participate in Fishing	1. <10	40
	2. >10	60

(Source: Authors survey, 2022).

According to the survey results majority of fishers are male (Table 1). However, this does not mean that women and girls are not involved in fishing activities. In these villages,

women are typically responsible for tending to gardens and caring for children, while men are more likely to engage in regular fishing. In addition to actively collecting shells, crabs, and other crustaceans, women often fish near the coast. However, men are generally the ones who venture farther out to sea to fish.

#### **4.4 Livelihood and Nature**

In Choiseul, the livelihoods of local communities heavily rely on natural resources such as fishing, farming, and forest products. The income generated from the sea through fishing (reef and pelagic) and gleaning activities, and from agriculture (crops like taro, cassava, and sweet potatoes), plays a fundamental role in supporting families. Artefacts and crafts, including woven baskets and carved items, are additional sources of income. Copra production is another economic pillar highlighted by the villagers. One resident of Poroporo village shared that income from copra sales helps pay for his children's education and daily expenses, underscoring its economic importance. Timber production from sustainable practices also generates income, but the community's reliance on natural resources demands careful stewardship to ensure long-term ecological stability.

##### **1. Threats**

The villagers are keenly aware of the various threats facing their coastal and marine resources, many of which are exacerbated by climate change. Growing populations increase pressure on coastal ecosystems, raising concerns over overexploitation of marine resources and the potential for long-term biodiversity loss. Unsustainable fishing practices are a further challenge, and the deterioration of coral reefs is becoming more pronounced due to overfishing and destructive methods like removal of corals and stones from the reefs.

##### **2. Climate change**

Climate change is already having a severe impact on Choiseul. Rising sea levels, storm surges, and extreme weather events are causing coastal erosion, saltwater intrusion into wells, and the loss of coastal vegetation. According to Leon et al. (2015), the use of participatory three-dimensional modelling (P3DM) in Boeboe village demonstrated how

integrating local knowledge with scientific methods can enhance adaptation to climate change.

#### **4.5 Conservation efforts in Choiseul**

The Luru Land Conference of Tribal Community/The Nature Conservancy Network (LPAN) and other programs have made Choiseul Province a focal location for conservation efforts. In the past, Choiseul claimed 10,911 hectares of protected land, including both marine and terrestrial areas. The Luru Land Conference of Tribal Community/The Nature Conservancy Luru Protected Area Network (LPAN) and other community-driven activities led to the establishment of this protection. With only 2,852 hectares currently under active management and protection, a worrying trend has formed. This means that 8,059 hectares, or a sizeable part, are either unmanaged or managed voluntarily.

The transition from a landscape that was formerly completely protected to one in which a sizeable portion is either unmanaged or maintained voluntarily raises concerns about the efficacy of conservation efforts. This condition is a result of a number of issues, such as conflicts over land use, areas of interest, and the community's official lack of acknowledgment for some protected zones. The conservation initiatives started by LPAN and other community protected areas are undercut by these difficulties.

The Nature Conservancy (TNC), local NGOs, Choiseul community leaders, and the provincial government collaborated to construct a Ridge to Reef Conservation strategy in response to these difficulties. The plan was approved by the Luru Land Conference of Tribal Communities (LLCTC). A thorough approach to conservation is shown by the plan, which calls for the creation of one terrestrial and one marine protected area in each of the 12 wards.

The involvement of multiple stakeholders is critical to the Ridge to Reef Conservation Plan's success. Leaders from the Choiseul community, the province government, TNC, and nearby NGOs have united to address the issues facing the current protected areas. This partnership demonstrates a dedication to long-term conservation objectives and an understanding of the value of group effort.

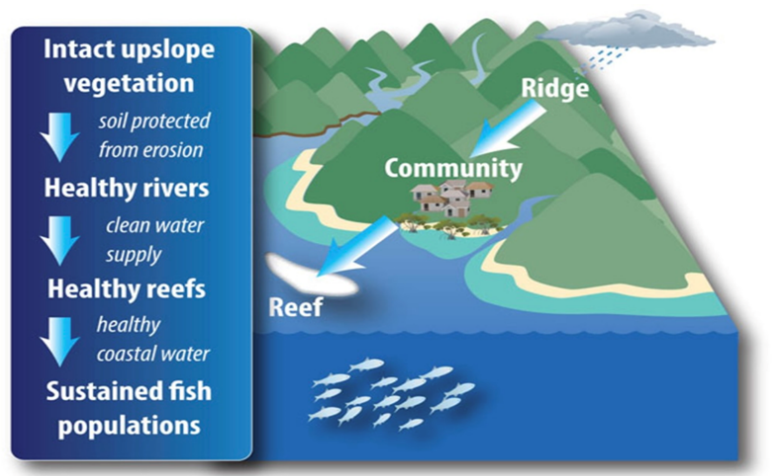
The Ridge to Reef Conservation Plan is notable for its ability to prioritize sites for both marine and terrestrial preservation, ranging from lowest to highest priority (Fig 2). This careful classification guarantees that conservation efforts are focused on the most important zones, maximizing the benefit on the preservation of biodiversity and the health of the ecosystem. The plan's methodical approach shows a dedication to using evidence to guide conservation decision-making.

Despite the long history of conservation efforts in Choiseul Province, questions are raised about the efficacy of these efforts due to the current state of protected areas. The reduction under active management from 10,911 hectares to 2,852 hectares highlights the necessity of an all-encompassing and cooperative strategy. With the support of important stakeholders, the Ridge to Reef Conservation Plan offers a viable framework for reviving and growing Choiseul's conservation activities. This plan prioritizes essential places and addresses issues including land disputes and lack of formal acknowledgment, acting as a model for sustainable conservation methods in the area. If these initiatives are successful, Choiseul's distinctive ecosystems will be protected, and the worldwide effort to conserve biodiversity will benefit as well.

In spite of the profusion of marine life, land-based activities such as logging pose a significant danger to marine and terrestrial ecosystems. Choiseul's communities are actively working with NGO partners, especially those covered by the LPAN program. Their main goals are to manage terrestrial regions, investigate conservation measures, and prepare for Solomon Islands Protected Areas Act 2010 registration. In their attempts to manage terrestrial areas, four tribal groups from south Choiseul have found success: The Sirebe tribe, the Vuri clan, the Padezeka tribe, and the Siporae tribe. Their cooperation is an example of community-led conservation and sustainable practices.

Although Choiseul province has an abundance of maritime resources, preventive actions are necessary due to the threat of logging. Successful community-based programs and tribal groups under the LPAN program serve as examples of how cooperative conservation efforts can save land and marine ecosystems.

**Figure 2: Ridges to Reef**



(Diagram source: SPREP)

#### **4.6 Evolution of Resource Management in Choiseul Province: A Journey from Collaboration to Community Engagement.**

Since the early 2000s, resource management has been a top priority for the province of Choiseul. The start of cooperative activities between The Nature Conservancy (TNC) and GIZ (Lipsett-Moore et al., 2010) marked a crucial turning point in this regard. Through this collaboration, Choiseul's dedication to environmental sustainability was cemented and the Arnavon Island Marine Conservation Area (ACMCA) came to be. Even though the Provincial Fisheries office was founded in 1992, Comprehensive Resource Management (CBRM) did not become widely recognized until 2012. Early on, the Provincial Fisheries offices' efforts to share information and raise awareness were hampered by a lack of resources.

The joint efforts of TNC and GIZ in the early phases set the foundation for a fundamental change in Choiseul's perspective on resource management. By 2005, this collaboration had produced real results, including the opening of an environmental office at the LLCTC headquarters, which was conveniently close to Taro. This crucial action signaled the start of a more coordinated campaign to solve environmental issues.

The year also saw the creation of the LLCTC Environmental Committee in addition to the opening of an environmental office. This Committee oversaw the incorporation of environmental factors into more comprehensive community efforts, which significantly contributed to the development of resource management. In addition, a full-time LLCTC/TNC Officer was hired, who functioned as the main point of contact for the surrounding villages.

The Provincial Fisheries office was established in 1992, however in 2012, it was decided to give Comprehensive Resource Management (CBRM) more importance. This change demonstrated a stronger dedication to include nearby communities in resource management initiatives. The early days were characterized by difficulties in distributing information and raising awareness due to a lack of resources. On the other hand, this stage prepared the groundwork for a more community-focused and inclusive strategy.

Particularly since 2005, the combined efforts of TNC, LLCTC, and provincial fisheries have played a pivotal role in moulding the province's environmental agenda. An essential component of establishing ties with nearby communities is the LLCTC/TNC Environmental Officer. During this time, the environmental program placed a strong emphasis on maritime conservation. As part of a coordinated effort to give local communities more control over the protection of their marine resources, cooperative initiatives were used to help them develop Locally Managed Marine Areas (LMMAs).

In summary, the resource management journey of the Choiseul province, from joint TNC and GIZ initiatives to the 2012 prioritization of CBRM, exemplifies a revolutionary route. In order to overcome the obstacles brought about by scarce resources, the province has adopted a community-centered strategy, especially when it comes to marine conservation. Choiseul's dedication to fostering sustainable futures via cooperative partnerships and grassroots engagement is demonstrated by the founding of the ACMCA.

## CHAPTER 5

### Traditional fishing knowledge: A Generational Perspective

#### 5.1 Traditional knowledge in fishing.

For generations, local fishers have exchanged traditional ecological knowledge (TEK), which has been crucial to the survival and cultural activities of coastal communities. Locals have gained a thorough awareness of marine ecosystems through oral traditions, direct observation, and hands-on experience, allowing them to identify and use specific fishing sites. According to the fishermen, environments such as coral reefs, seagrass beds, mangroves, sandy bottoms, river mouths, and regions influenced by sea currents all have distinct qualities that support particular fish species. This knowledge reflects both their acquaintance with local species and their comprehension of ecological dynamics.

**Coral Reefs:** According to fishermen, coral reefs are important habitats for a variety of fish species, such as "homes for groupers, snappers, and parrotfish." According to them, they can identify coral reefs by examining the water's clarity, the corals' forms and colours, and even the surrounding marine vegetation. The significance of the reef's fissures, which provide some species with hiding places, was emphasized by the fishermen. They also noted how the moon and tides affect fish activity, planning their fishing excursions to take place around times when fish are most active. The amount of fish present is directly impacted by the health of the coral reef, as evidenced by the coral's vivid colours and density, according to fishermen.

**Seagrass beds and mangroves:** The fishers stressed the importance of seagrass beds and mangroves as breeding and nursery grounds for species such as milkfish, mullet, crabs, and shrimp. They described identifying these regions based on the flora, such as *Rhizophora* mangroves, as well as the colour and texture of the water and silt. According to them, seagrass beds are especially vital during certain seasons when rainfall and tides provide nutrients that increase productivity. A fisherman commented: "*We know the fish come to these places when the rains start and the tides are high, so we plan our fishing trips around*

*these changes.*" This seasonal awareness allows them to make the most of these habitats while allowing for rest times in between.

**Sandy Bottoms: What Fishermen Know** Though sandy-bottom locations may appear desolate to outsiders, fishermen emphasized that they are home to species such as rays, flatfish, and crabs. They revealed how they "read" the seabed by examining the texture and weight of their fishing lines and touching the silt beneath. The fishers observed that these places are frequently interlaced with small patches of seagrass or rocks, which attracts more species. They emphasized the importance of fishing judiciously in sandy areas, recognizing the fragile nature of these habitats. *"We don't overfish here,"* a local explained. *"These places need time to recover because they don't have the same richness as reefs or mangroves."*

**River Mouths: What Locals Observe** Villagers characterized river mouths as fertile fishing locations where freshwater and saltwater mix, resulting in nutrient-rich zones. They described how the dark colour of the water and silt build-up helped them identify areas rich in barramundi, trevally, and prawns. Fishermen claimed that they know when to fish these regions based on the seasons. *"When the rains come, the fish also come,"* one elder remarked, emphasizing their understanding of how flooding pushes nutrients into estuaries. They also recounted scheduling their fishing trips around tide fluctuations, leveraging their knowledge of water movement to maximize their catch.

**Sea Currents:** The fishermen stated that their ability to sense sea currents is critical for locating pelagic species such as tuna, mackerel, and marlins. They identify nutrient-rich locations where fish cluster by observing surface trash movement or seabird behaviour. They claim that their traditional knowledge also helps them forecast where currents converge with underwater features like drop-offs, which serve as ideal fishing grounds. One fisher explained, *"We use handlines here because we know the fish follow the current."* This expertise allows them to locate fish effectively while reducing unnecessary effort.

### 1. Local Knowledge Shapes Practices

According to the people, their customs encompass sustainable fishing methods in addition to habitat identification. They disclosed that they switch up their fishing grounds in order to prevent overfishing and safeguard breeding grounds. They added that they employ selective gear, like traps or handlines, to reduce bycatch and avoid harming the environment. To sustain fish stocks, they also employ seasonal closures, which are informed by their observations of fish migrations and breeding times. The locals emphasized that these customs are connected to their cultural beliefs and go beyond simple conservation. They claimed that by designating certain sites as sacred or taboo, these ecosystems are unintentionally protected. According to one fisherman, *"We don't fish there because it's a place for the spirits,"* describing how their beliefs support environmental care.

### 2. Integrating Local Knowledge with Modern Science

The fishermen stated that they are willing to collaborate with scientists in order to guarantee the preservation and efficient use of their knowledge. They proposed that improved management of marine resources could result from combining scientific methods like satellite mapping and fish monitoring with their observations, such as bird activity over reefs or changes in water turbidity at river mouths. According to them, participatory mapping initiatives could guarantee that local needs are taken into account in conservation strategies while also highlighting significant fishing grounds. Fishers also underlined the need of courteous cooperation in which choices are made cooperatively and their efforts are recognized.

## **5.2 Indicators of fish/ school of fish**

Without the benefit of contemporary equipment or specialist scientific training, these local fishers have evolved a complex awareness of the environment and its subtle signals, allowing them to detect the existence of fish or schools of fish in their waterways. The following indicators were reported by respondents: bird activity, water disturbance, baitfish behaviour, colour changes, and surface boils. These signs demonstrate the incredible

adaptability and inventiveness of traditional fishermen who rely only on nature's clues for a living.

#### 1. Bird Activity: The Aerial Allies of the Fisher

Fishermen rely on seabirds to assist them find schools of fish. The behaviour of birds, particularly diving seabirds like terns, frigate birds, and seagulls, has long been understood by traditional fishermen, especially those in tropical and coastal regions, to indicate the existence of fish beneath the water's surface. As keen-eyed hunters, birds can identify baitfish or predators pursuing smaller fish from their vantage point. Fishermen interpret flocks of birds diving or circling the ocean as an indication of the presence of baitfish or larger predatory fish, like tuna. Predatory fish force smaller fishes toward the surface in an effort to corner them, making them easy prey for birds, which causes these phenomena. In many tribes, elders describe how skilled fishermen can identify the species and behaviour of fish below without the need of binoculars or other navigational aids. A smaller school of baitfish may be indicated by more dispersed bird activity, but predatory fish actively eating may be indicated by faster, irregular dives. Fishers can save time and effort by concentrating on fruitful locations rather than haphazardly scanning the broad ocean thanks to this ancient knowledge.

#### 2. Reading the Ripples of Water Disturbance

Fishermen are sensitive to surface disturbances, which frequently signal fish activity below. After years of effort, they are able to differentiate between disruptions brought on by schools of fish and those brought on by wind, tides, or currents. Even from a distance, a school of fish can be identified by the ripples or splashes they produce when they move quickly close to the surface. These oscillations are particularly apparent in calmer waters. Fishers use this information to determine the school's size and direction. Smaller, irregular motions may indicate dispersed individuals, but large, regular disturbances may indicate a dense swarm of fish. Subtle indicators like the magnitude and force of the splashes are also important to traditional fishermen. Small, rapid splashes, for instance, could be an indication of baitfish, whereas larger, more violent disturbances could signal the presence

of predators such as barracuda or mackerel. Accurately reading these indicators calls for a sharp eye and extensive knowledge of the local waters, which can only be attained with years of practice.

### 3. Baitfish Action: An Indication from the Prey

Traditional fishermen use baitfish behaviour as another important indicator to find larger schools of fish. Bait fishes are swift-moving, tiny fish that prey on larger predatory fish. They can give fishermen important information about the dynamics of the undersea world through their movements and forms. The presence of loose schools of placid bait fishes frequently signifies the absence of predators in the area. But abrupt, irregular movements or densely populated groups indicate the presence of predators. In an effort to avoid predators, baitfish may jump out of the water, producing a spray-like effect that alerts those below.

Fishermen in Poroporo and other villages explain that the shimmering of baitfish close to the surface serves as a visual indication, particularly at certain times of the day. Their scales' ability to reflect sunlight can help fishermen locate marine-rich locations by indicating their existence from a considerable distance. Traditional fishing methods like spearfishing and net casting allow for a close observation of this behaviour.

### 4. Colour Changes in Water: Nature's Palette.

Traditional fishermen frequently observe minor variations in the water's colour, which can indicate the presence of fish or schools of fish. These shifts are usually produced by the concentration of fish beneath the surface, which can affect how light reflects off the water. For example, in shallow, transparent waters, a darker patch could suggest a dense school of fish swimming together. In deeper waters, a shimmering effect or mild discoloration may indicate the activity of fish beneath the surface. Experienced fishermen may distinguish between these natural colour fluctuations and other influences such as algae blooms, debris, or cloud shadows. This information is especially important in places where turbidity or depth limit underwater visibility. Even in difficult circumstances, traditional fishermen can locate fishing sites with a high degree of accuracy by closely monitoring these changes. Their profound comprehension of the aquatic world and its patterns is demonstrated by this.

## 5. Surface Boil: The Tell-Tale Bubbles

Surface boils, or the presence of bubbles and foamy water, are another dependable sign utilized in traditional fishing methods. These events occur when fish, especially predatory species, pursue their prey to the surface. The rapid movement of fish creates turbulence, which causes the "boiling" effect on the water's surface. Traditional anglers frequently associate surface boils with good fishing potential. For example, they could explain how a quick burst of bubbles followed by splashing signals that tuna or trevallies are vigorously feeding. In order to help fishermen, validate their findings, surface boils are typically accompanied by additional indications, such as bird activity or baitfish jumping. In certain fishing customs, fishermen use this information to their advantage when surface-feeding fish are more active throughout particular seasons. In order to emphasize the significance of this signal in cultural myths, they may relate tales of how these boils led their forefathers to bountiful catches.

### 1. The Significance of Traditional Knowledge

The indicators that were previously addressed demonstrate the breadth of traditional ecological knowledge that island and coastal populations possess. Our understanding of the maritime environment comes from millennia of involvement with it, not from scientific studies or contemporary fishing equipment like sonar or GPS. Through oral histories, practical instruction, and group fishing activities, fishermen acquire knowledge from their elders. Traditional knowledge emphasizes respect for natural cycles and patterns, which is a sustainable approach to fishing. Fishermen are generally aware of the seasonal fluctuations in fish behavior, the impact of tides and moon phases, and the migratory patterns of fish. They are able to fish ethically and avoid overusing their resources because of this knowledge.

### **5.3 Traditional Methods of fishing**

*“Traditional knowledge has indeed proven valuable in our community’s fishing practices. The techniques passed down through generations help us catch specific species*

*sustainably, setting us apart from the impacts of some modern fishing gears. It's a lesson in harmony with nature."*

Interviewee

During interviews, local respondents shared these methods, which are a reflection of their extensive ecological knowledge, adaptability, and years of wisdom. Since the locals are the ones who are keeping these traditions alive, the stories that follow are taken straight from their own words. Their voices highlight the significance of these techniques as cultural practices in addition to their usefulness.

1. The practice of spearfishing

An experienced village fisherman clarified, *"Spear fishing is not just about catching fish; it's about learning patience and knowing the sea."* This technique involves impaling fish with sharpened metal or wood spears, typically while diving underwater or in shallow water. The villagers saw that spear fishing success necessitates learning underwater techniques like stealthy movement and breath holding. "You must comprehend how fish move and conceal. A young fisherman, who had just begun to learn the method from his father, said, "If you don't know that, you'll go home with nothing."

3. The bow and arrow

As one respondent put it, *"The bow and arrow are part of our history,"* and their family continues to use this technique. To catch fish in shallow waterways, villagers utilize a homemade bow and arrow that is frequently equipped with a small harpoon or barb. This method, which calls on archery proficiency and an understanding of fish behavior, is said to be both difficult and fruitful. *"You must aim at the appropriate time. The water distorts light, and fish move quickly."* A local fisherman who learned the sport from his grandfather emphasized that hitting the target requires practice. The availability of contemporary fishing equipment has made this technique less popular, but villagers noted that it is still practiced as a cultural heritage. We are reminded of the way our ancestors lived when we use the bow and arrow. One senior remarked, *"It's a way to connect with the past."*

#### 4. Traditional Net Using Bush Vines

*"The old nets are still strong if you know how to make them,"* a group of fishermen who frequently employ traditional nets in shallow reefs and mangroves said. These nets are made using materials that are easily found in their surroundings, such as coconut fronds or bush vines. The people explained that making these nets is a vital skill that has been handed down through the years. *"We learned how to weave the vines from our mothers."* A female respondent clarified, *"The nets last a long time and catch a lot of fish, but it takes time."* The nets are placed where fish are likely to swim into them once they are prepared. *"To entice the fish to approach the nets, we cooperate. You can't do it by yourself,"* a young fisherman clarified. This cooperative endeavor emphasizes how fishing is a cultural and economic activity that is shared by many.

#### 5. Using Stones and Coconut Fronds as Sinkers

According to one fisherman, *"not everyone has access to store-bought sinkers, so we make our own,"* when talking about the use of coconut fronds and stones as makeshift weights for fishing lines. In deeper waters, this technique is used to make sure the bait reaches the target depth. Respondents explained that different species are drawn to particular kinds of bait, demonstrating the meticulous consideration that goes into choosing bait. *"We use bits of octopus or little crustaceans. One villager said, "You have to know what the fish in that area like."* This approach demonstrates the community's inventiveness. It's more important to know what works than to have expensive equipment. According to another commenter, *"Stones and fronds are simple, but they get the job done."*

#### 6. Using Light Dry Coconut Fronds for Night Fishing

One villager who frequently goes night fishing remarked, *"The fish come to the light at night, and that's when we catch them."* Fish are drawn to the surface by the light created by fisherman burning dried coconut fronds. This method frequently calls for several people to collaborate. *"While others use spears or nets, one person holds the light. One person said, "On occasion, we even use our hands to catch the fish."* There was constant emphasis on

the social nature of night fishing. *"It's a time to connect, not only to catch fish."* An elder remarked, *"We all go home with something to eat, we laugh, and we tell stories."* Respondents also talked about cleaning and processing their catch on-site with basic equipment.

#### 7. Poisonous plants or leaves

Fish Poisoning One reply said, *"Using poison is something we do carefully and only, when necessary,"* talking about how natural plant toxins are used to stun fish in shallow pools. Villagers gather particular plants or roots that are known to be hazardous, ground them into a paste, and then pour the resulting concoction into small waterways. The fish rises to the surface after a few minutes. One villager clarified, *"We make sure not to leave the poison in the water for too long and we collect them quickly."* Some respondents stressed that this approach is employed sparingly, even if they acknowledged worries about the environmental impact. *"We understand the risks; therefore, we only do this in areas where it will not hurt other marine creatures. It's a last resort,"* explained a neighborhood leader.

#### 1. Cultural Significance and Respondents' Reflections

The respondents agreed that these practices are more than just procedures; they are customs that are closely linked to their identity and way of life. One elder clarified, *"These are not just things we do; they are who we are."* In light of contemporary issues, respondents emphasized the significance of maintaining traditional customs. *"We observe individuals utilizing large boats and overfishing nets. We don't do that. A young fisherman said, "We respect the ocean and only take what we need."* Others boasted about their inherited abilities. *"I feel like I'm offering my kids something valuable when I teach them these techniques. You can't purchase this knowledge,"* a father stated.

#### **5.4 Conclusion**

Through decades of experience, traditional fishermen have developed a deep and lasting relationship to their maritime environment, which is evident in their observations and

actions. They exhibit a sophisticated understanding based on cultural traditions and careful observation of natural phenomena, such as seasonal fish migration, water disturbances, and bird activity, as evidenced by their ability to identify fish behavior and distinguish between a variety of fishing grounds, including coral reefs, seagrass beds, mangroves, and marine currents. This priceless traditional knowledge offers sustainable and culturally relevant methods for managing marine resources, enhancing contemporary scientific methods. Communities honor their past and protect the wellbeing of maritime ecosystems by maintaining these customs and transferring them to future generations. As one respondent put it, *"It is our duty to transmit the knowledge that our ancestors left us,"* highlighting the necessity to preserve this equilibrium between the demands of people and the health of the ocean.

## CHAPTER 6

### **Traditional Knowledge in Coastal Fisheries**

#### **6.1 Utilization of Traditional Knowledge in Coastal Fisheries**

Traditional knowledge (TK) plays a crucial role in informing sustainable practices for marine resource management, drawing from the wisdom accumulated by local communities over generations. Defined by the Convention on Biological Diversity (CBD), TK embodies traditions, innovations, and practices essential for the conservation and sustainable use of biological diversity (United Nations, 1992), to which the Solomon Islands are also a party to the Convention.

Historically, traditional resource management practices have effectively prevented over-exploitation, maintained productivity, and preserved marine ecosystems (Hviding and Baines, 1992). Customary rules and systems, underscore the significance of TK in regulating resource use, such as traditional taboo making and area closures, thus ensuring sustainable access to abundant resources. These rules are typically enforced by the chiefs and village elders; they are motivated by the requirements of the community, cultural norms and values, and a respect for the ecosystem's vulnerabilities while guaranteeing that the community has ample access to robust resources (Sulu et al.,). This is evaluated using TK and is comparable to resource sustainability.

The integration of Traditional Ecological Knowledge (TEK) into Community-Based Resource Management (CBRM) reflects a growing recognition of indigenous knowledge's efficacy in conservation efforts. With over 400 communities adopting CBRM in the Pacific over the past years, there's a heightened understanding of supporting community processes (Govan et al., 2015). Emphasizing local participation and incorporating customary management practices and TK are central to effective management approaches (Aswani et al., 2007). Collaborative efforts, such as those between The Nature Conservancy (TNC) and the Luru Land Conference of Tribal Communities (LLCTC), demonstrate the efficacy of merging native ecological knowledge with modern science to establish protected areas (Aswani et al., 2004).

However, researchers have not surveyed and documented the specifics of TK in Choiseul, nor have they examined TK's current state or the reasons behind its slow erosion or from regular practice. Consequently, the purpose of this survey is to list some of the traditional practices, evaluate their situation as of right now, and investigate the causes of the increasing TK decline in Choiseul, Solomon Islands.

In Choiseul Province, Solomon Islands, most of the land and coastal areas are customary areas and owned by the local people (Kere and Torii, 2021). The Ministry of Fisheries and Marine Resources is responsible for managing fisheries in the region. The Community-Based Resource Management (CBRM) section of MFMR provides support to resource users and owners through awareness programs, development of community fisheries management plans, training, and monitoring. Additionally, the Solomon Islands Locally Managed Marine Area Network (SILMMA) brings together government agencies, NGOs, and local communities to collaboratively conserve and manage marine areas through information sharing and cooperation.

## **6.2 The Traditional knowledge people use to manage their Fisheries.**

Traditional fisheries management methods have been employed in Choiseul, in alignment with their traditional and spiritual beliefs. Typically, these practices were instituted by the local people in the past to allow overexploited marine resources to replenish themselves. TK in Choiseul was predominantly passed down orally from generation to generation. This oral knowledge served as the primary means of transmitting knowledge, customs, and norms within the community. Through storytelling, songs, rituals, and everyday interactions, elders conveyed information about customary practices. This part of the result identifies the TK the Choiseul people use to manage their coastal marine resources.

### **1) Prohibited Sites**

In the traditional management of local fishery resources, the approach involves designating specific areas where fishing is strictly forbidden. These sites are areas of high

fish species abundance and rich marine biodiversity. According to key informants, prohibited sites have been initiated and established by tribal groupings in the interest of local communities to increase fish stock and other marine resources for livelihoods and control over harvesting. Using TK of fishing and breeding grounds, as well as daily experience and interaction in coastal areas within the bay, chiefs, village elders, and locals traditionally identify and demarcate specified sites such as islands, reefs, and mangrove ecosystems, declaring them as prohibited sites through community meetings and announcements. Locals believe the establishment of prohibited sites would increase fish stock and marine resource abundance, eventually resulting in an overspill of marine resources that can be harvested outside the prohibited areas. Occasional disclosure to harvest resources within the sites depends on community needs such as income-generating activities and hosting community festivals or events. Prohibited sites can be considered temporary open and closed areas depending on the needs of the tribal members and the local community.

This method aims to protect crucial habitats, breeding grounds, or endangered species, promoting sustainable fishing practices. An exemplary instance is Parama Island, recognized by local fishers as off-limits due to its ecological importance. This prohibition is rooted in a profound understanding of fish behaviour, migration patterns, and the necessity to protect vulnerable species. Parama Island's designation as a prohibited site is not arbitrary; rather, it reflects an intricate dance of life within the ecosystem, recognizing the island's role in maintaining biodiversity. Fishers, relying on this wisdom, understand that preserving Parama Island and its surrounding coral reef ecosystems contributes to the overall health of fish populations or marine biodiversity.

Challenges include enforcing restrictions, addressing economic concerns for local fishers, and ensuring effective communication to gain community support. Some locals argue that the main island of Parama, which is prohibited, is their main ground for fishing and collecting shellfish. However, they also said that there are other grounds to fish which they can go to, so this is not a big problem for them. However, there are some individuals who do not want to comply with the rules and because of weak enforcement; they can just

get away with it, for example, poaching in prohibited sites. However, the locals said they strongly believe in preserving ecosystems and maintaining fish populations.

## **2) Restriction of Gear**

Restrictions on certain fishing gear in traditional fishery management involve specifying the types and sizes of gear allowed, aiming to prevent overfishing and habitat damage while promoting sustainable practices. The practice of limiting certain gears, such as *vakö* (poison leaves), stems from an awareness of the potential ecological impacts of these tools. However, according to interviewees, some individuals ignore restrictions, risking the sustainability of fisheries. Interviewees expressed great concern over the use of modern fishing tools, particularly fishing nets, where the mesh sizes of the nets are said to be very small, between two and three inches, and in which small fish are caught.

Challenges include monitoring compliance, addressing economic impacts on fishers, and adapting rules to different fishing contexts, endangering the sustainability of fisheries. Although prohibited in certain sites temporarily opened for community purposes, monitoring compliance remains challenging due to limited resources and logistical constraints. Enforcing gear regulations becomes difficult due to vast coastal areas to patrol and a lack of manpower. Additionally, there are economic impacts on fishers who may have relied on these tools, posing further complexities. Despite community efforts to promote compliance and educate especially the youth, some individuals continue to flout rules.

However, interviewees emphasized the rationale behind traditional gear restrictions and regulations stipulated by fisheries laws, which aim to mitigate environmental impact, preserve target species, and maintain a balanced ecosystem, ensuring the long-term viability of local fishery resources.

## **3) Open and Close Seasons**

Open and closed seasons involve designated periods when fishing is allowed (open season) and prohibited (closed season), helping regulate fishing efforts, protect spawning

seasons, and sustain fish populations. According to interviewees, open and closed seasons can vary in duration, ranging from as short as 6 months to 1 year to longer periods of 3 to 5 years, depending on the specific fishery conservation needs of the community. Locals also mention that open and closed seasons include shifts of harvesting between temporary open and closed areas. While recognizing the importance of these measures in regulating fishing efforts and protecting spawning seasons, interviewees highlighted difficulties in enforcement and economic impacts on fishers during closures. One of the interviewees mentioned that some local fishers express economic hardships they face when unable to fish during closed seasons, but he also noted that this only applies to those who lack alternative sources of income.

Despite these challenges, the interviewees emphasized the importance of this management practice, which is to ensure the reproductive cycles of fish are undisturbed during closed seasons, allowing for replenishment and overall sustainability of local fishery resources.

#### **4) Sacred sites**

Sacred sites, areas of cultural or spiritual significance, impose fishing prohibitions according to chiefs and elders. Traditionally, these sites have been permanent closed areas with fishing and resource harvesting forbidden within their demarcated boundaries. Entry into these sites is restricted, requiring permission from tribal leaders. This method aims to protect specific ecosystems and species crucial to the community's identity. Challenges arise in balancing cultural values with resource needs, ensuring comprehension and compliance, and adapting practices over time. Some fishers expressed misunderstandings regarding the strict fishing prohibitions within sacred sites, especially in areas they believe coincide with productive fishing grounds. Interviewees noted challenges in ensuring understanding and compliance, particularly among younger generations unfamiliar with the cultural significance of these sites. Local people believe that respecting sacred sites maintains ecological balance and promotes sustainable coexistence between communities and fishery resources.

## 5) Temporal Restrictions

Temporal restrictions, specifically *kadava vokene* (new moon) and *korodoko tuko* (after the full moon), hold significant cultural and ecological importance in the practices of a community deeply connected to the coastal environment in Choiseul. This seasonal constraint, enacted by the elders, is grounded in a belief that aligns with the spawning season for different species.

The community also acknowledges various natural phenomena associated with these temporal restrictions. The occurrence of intense current flow during *kadava vokene* serves as a key environmental indicator. This heightened water movement, often attributed to tidal influences and changes in atmospheric conditions, is believed to be most pronounced during high tides. The increased difficulty in catching fish during this time acts as a natural mechanism contributing to the conservation of fish populations.

Furthermore, the locals believe that the spawning seasons for many species align with the period after the full moon, *korodoko tuko*. This further emphasizes the importance of these temporal restrictions, as the community temporarily refrains from catching and harvesting species that are spawning during this time. By avoiding excessive exploitation during these critical periods, the Choiseul community actively participates in the stewardship of their marine resources, thereby promoting the long-term health of the ecosystem.

## 6) Species Prohibition

Species prohibition in traditional fishery management involves restricting the capture of specific species to conserve their populations. The prohibition of certain species, such as *topa* (humphead parrot fish), *vunu* (turtles), *baroko* (trevally), and *sikama* (lobster), serves as a crucial aspect of sustainable resource management. These are only a few examples of species subject to prohibition, reflecting a broader measure designed to protect local marine biodiversity.

The cultural, ecological, and social reasons behind these prohibitions guide local communities in their conservation efforts. For instance, *topa* holds cultural significance and

plays a role in the local diet. However, the community recognizes that overexploitation could lead to a population decline. By imposing restrictions on harvesting *topa* during critical periods, they aim to ensure the species sustainability, acknowledging the delicate balance between their cultural practices and the environment.

*Vunu* (turtles) are another species subject to traditional prohibition. Turtle shells carry historical and artistic importance, often used in ceremonies and crafts. Their harvest is prohibited during specific times, believed to coincide with breeding seasons, which helps maintain the population. This practice exemplifies the integration of cultural traditions with ecological awareness.

*Sikama* (lobsters) are highly valued for their taste and nutritional benefits. Local communities recognize the importance of allowing these crustaceans to reproduce without disturbance. The prohibition of their harvest during breeding seasons reflects a deep understanding of the ecological processes that sustain these species.

Crocodile and Sharks also hold deep cultural significance, traditionally regarded as totems by local communities. These species are believed to guard tribal sea boundaries and were revered as sacred protectors. In the past, locals even worshipped them, with crocodiles in particular being seen as deities. As a result, killing crocodiles is strictly prohibited, as they are considered gods. Despite their cultural importance, both crocodiles and sharks pose risks to fishers and coastal residents, illustrating the complex relationship between reverence for these animals and the dangers they present.

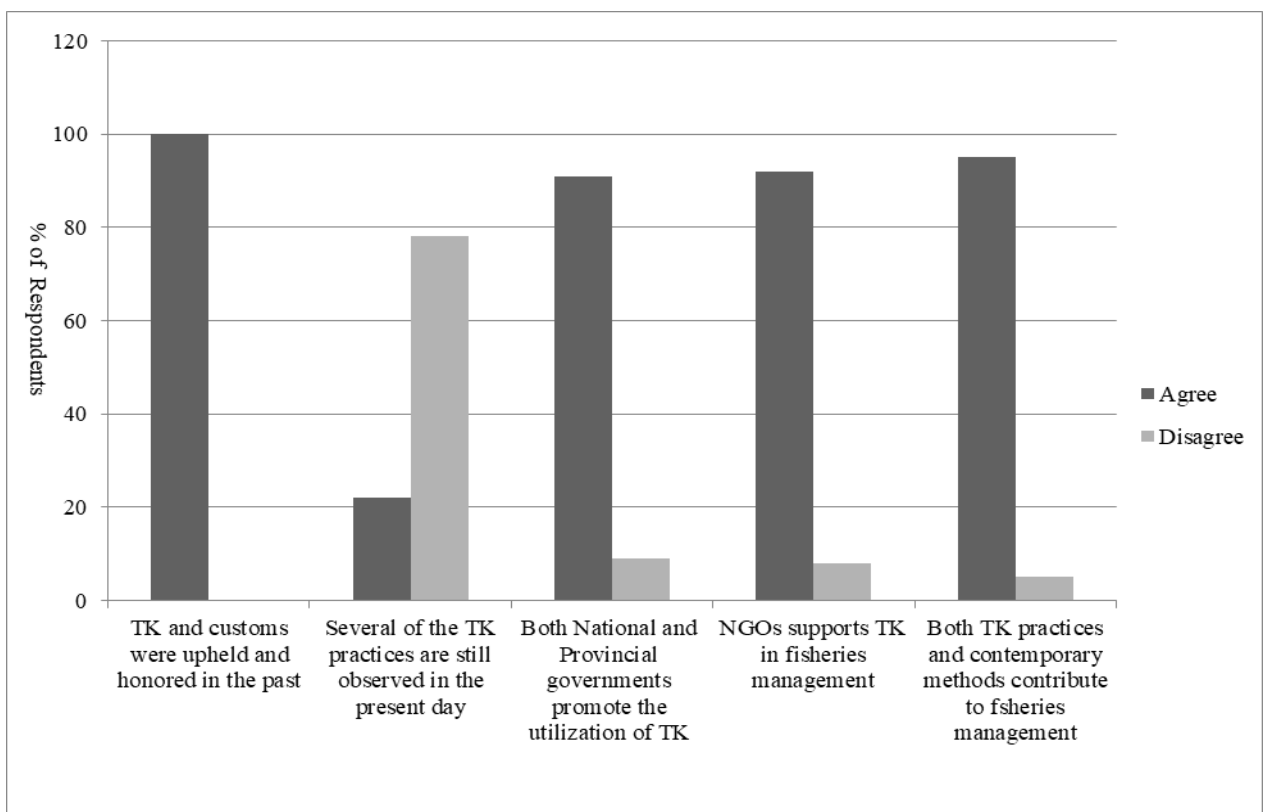
Challenges in traditional fisheries management include enforcing regulations, addressing economic impacts on fishers targeting prohibited species, and adapting rules to evolving ecological conditions. In the past some fishers expressed concerns about restrictions on targeting species that are part of their food source. Despite these challenges, the local community remains committed to preserving biodiversity, maintaining ecological balance, and ensuring the long-term availability of fishery resources by protecting key species within the ecosystem.

Community members are generally expected to participate in resource management efforts. This includes involving in monitoring and enforcing rules based on community

agreements, sharing local knowledge, attending meetings, and adhering to regulations. Local regulations are in place, and violators are expected to pay restitution or face loss of fishing rights, as determined by community elders. While these traditional punishments were effective in the past, they are less frequently applied today. In the past, people followed the regulations out of fear that breaking them would bring bad luck to themselves or their families. Similarly, provincial and national fisheries laws exist but are often inadequately enforced, leading to numerous violations. Therefore, enforcement measures need to be strengthened.

### 6.3 Insights from the local communities.

**Figure 3 : Community’s view on TK in Fisheries Management.**



(Source: Authors survey, 2022)

The results from the views of the local people interviewed provide insight into the dynamics of traditional knowledge practices and their relevance in contemporary fisheries management. Across various dimensions, including the historical significance, current implementation, governmental and non-governmental support, and the integration of TK with modern practices, the responses reveal a nuanced perspective shaped by cultural heritage, ecological considerations, and socio-political factors.

Historically, TK practices held significant sway and were deeply respected within local communities. The unanimous agreement (100%) among respondents underscores the intrinsic value placed on TK as a repository of wisdom passed down through generations. This acknowledgement reflects a cultural ethos where traditional practices were revered as integral to community identity and survival (Figure 2).

However, despite the historical reverence for TK, the survey reveals a notable disparity in its contemporary application. While some TK practices persist today, only a minority (22%) of respondents affirm their continuation. This discrepancy suggests a shifting landscape where modernization, globalization, and external influences have eroded the primacy of traditional methods in certain contexts. Factors such as economic pressures, technological advancements, and changing social norms may contribute to the decline of TK practices over time.

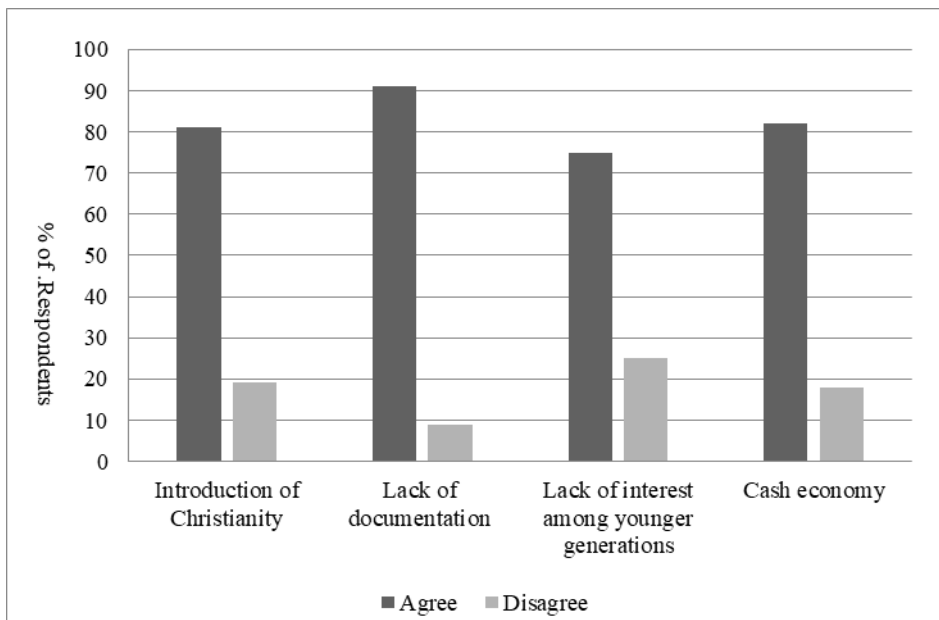
Nevertheless, there appears to be strong support from both governmental and non-governmental entities for the preservation and promotion of TK in fisheries management. The overwhelming agreement (91%) regarding governmental encouragement underscores recognition of TKs potential contribution to sustainable resource management. This endorsement reflects a broader trend towards recognizing the importance of indigenous knowledge systems in conservation efforts and policy-making.

Similarly, the high-level support (92%) from non-governmental organizations (NGOs) reaffirms the growing recognition of TK as valuable asset in fisheries management. NGOs often play a pivotal role in bridging gaps between local communities, governments, and international conservation initiatives. According to the respondents, International NGOs such as The Nature Conservancy (TNC) assist local communities in biological assessment

in coastal areas, especially Marine Protected Areas (MPAs), to observe and monitor for improvements in marine resources within the designated areas. TK provide support to identify Community-Based Resource Management (CBRM) and MPA sites. An example is the establishment of locally managed marine protected areas where communities take a leading role in managing their protected areas (Kere and Torii, 2021).

Moreover, the survey findings indicate a prevailing belief in the complementary nature of TK and modern practices in fisheries management. The overwhelming majority (95%) of respondents affirm the synergistic relationship between traditional and contemporary approaches. This recognition underscores a pragmatic understanding of resource management, supplement to scientific knowledge and technological innovations.

**Fig 4 : Reasons for decline in Traditional Knowledge in Fisheries Management Practices**



(Source: Authors survey, 2022).

The decline of TK is perceived as being influenced by various factors as indicated by survey respondents. The result of the survey indicate that the majority of the respondents believe that lack of documentation, industrialization and modernization, introduction of Christianity and lack of interest from young generation are the primary causes of the

decline of TK. The respondents highlighted that TK is primarily passed down orally from generation to generation. The absence of written documentation makes it vulnerable to loss or distortion over time. Without proper documentation, there's a risk of losing valuable aspects of TK forever. The respondents further highlighted that with the introduction of new technologies and practices, TK practices become less relevant and are often abandoned in favor of more modern and efficient methods. For instance, traditional fishing methods are being replaced by more modern and efficient techniques, leading to a decline in the practice of traditional fishing (Figure 3).

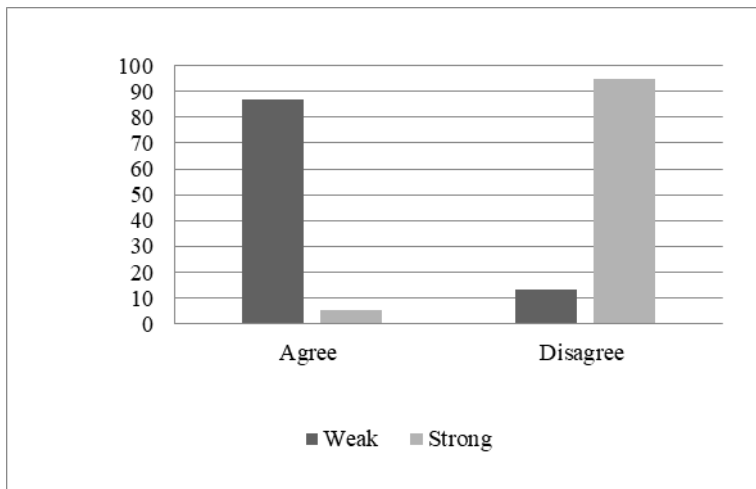
Similarly, the impact of Christianity on TK is not unexpected lamented another respondent. With the arrival of Christian missionaries, traditional beliefs and practices were often suppressed and replaced with Christian teachings. This process was often accompanied by the destruction of the traditional artifacts and practices, which further contributed to the erosion of TK.

Moreover, the lack of interest among younger generations is also a significant factor in its loss. With the rise of the modern education and the influence of western culture, younger generations may view TK as outdated or irrelevant, leading to decline in its transmission. The education system in the Solomon Islands prioritizes western curriculum over indigenous knowledge, further marginalizing TK. For example, history textbooks focus more on western historical events rather than the rich cultural heritage and traditions of indigenous communities. Moreover, the spread of media and popular culture where younger people prefer to engage with social media trends rather than learning about their TK. This lack of interest leads to a decline in the transmission of TK from elders to younger members of the community.

Finally, the burgeoning necessity for a cash economy often leads individuals to neglect or overlook the imperative of conserving their resources. Leading individuals to prioritize activities that generate income over TK conservation activities. This economic shift also contributes to the neglect of TK in favor of lucrative endeavors. In summary, the decline of TK in this rural area is attributed to a combination of socio-economic changes, cultural

influences, and a lack of formal documentation, all of which pose significant challenges to the preservation and transmission of TK within the community.

**Fig 5: Current Status of Traditional Knowledge in Fisheries Management**



(Source: Authors survey, 2022).

Based on the data provided, the majority of respondents disagree with the idea that the current status of TK is strong. Instead, most people perceive it to be weak, with 87% agreeing and only 13% disagreeing. Additionally, a very small proportion of respondents, only 5%, agree that TK is strong, while 95% disagree (Figure 4). This suggests a widespread perception that TK knowledge is not in a robust state. These findings highlight a significant societal challenge: preserving cultural heritage and ancestral knowledge in a globalized world. Policymakers, educators, and communities must work together to revitalize and preserve TK. This can include incorporating traditional practices into formal education, supporting initiatives led by indigenous peoples, and promoting the transfer of knowledge between generations. By recognizing and addressing the perceived weaknesses in TK, we can ensure its resilience and continuity for future generations.

## **6.4 Conclusion**

In conclusion, the utilization of TK in coastal fisheries, exemplified by the practices observed in Choiseul, is deeply rooted in community-driven fisheries management aimed at conserving marine resources. Through a range of methods including prohibited sites, gear restrictions, and sacred sites, local communities demonstrate a profound understanding of ecological dynamics and cultural significance. Despite facing challenges such as enforcement and economic impacts, these practices underscore the interconnectedness between culture, environment, and livelihoods.

This survey results highlight the intricate balance between tradition, innovation, and governance in fisheries management. While TK practices were historically revered and now receive some governmental support, their contemporary relevance faces challenges amidst broader socio-economic and environmental changes. Nonetheless, the widespread recognition of TKs importance and its integration with modern practices signal a promising avenue for holistic and sustainable approaches to fisheries management that honor both the wisdom of the past and the imperatives of the present.

Furthermore, the survey results shed light on the complex factors contributing to the decline of TK. Addressing these factors will require a concerted effort to preserve and promote TK, including documentation, archiving, and educating younger generations about its significance.

Finally, there is a prevalent perception of little practice in the current status of TK, driven in part by the growing need for cash economy within local communities. This underscores the necessity for further examination and potential interventions to strengthen TK systems and ensure their continued relevance in coastal fisheries.

## **6.5 Recommendations**

### **1. Strengthening the Traditional Governance System through Community-Based Resource Management**

Traditional methods are often as effective and sustainable when customary legal systems are recognized and strengthened. For example, in Vanuatu, village-based resource

management depends on legal and local recognition of customary marine systems, strong traditional leadership, social unity, adherence to customs, geography of fishing areas, ease of monitoring, and resolving disputes (Johannes and Hickey, 2004).

Also, the Arnavon Community Marine Sanctuary (CMCA) represents community-based resource management in the Solomon Islands. The Arnavon Islands are important nesting sites for the endangered hawksbill turtle. CMCA was established by local community groups in partnership with conservation groups and the Department of Fisheries and Marine Resources to protect turtles and their breeding areas. Through traditional governance structures and community-driven monitoring (nature conservation), CMCA ensures the maintenance of sustainable practices and long-term conservation of marine resources (Arnavon Community Marine Park).

## **2. Building Partnerships for Ecological Research via the Integration of Traditional and Scientific Knowledge**

A thorough understanding of coastal ecosystems and effective fisheries management depend on the fusion of traditional and scientific knowledge. This approach fosters a comprehensive understanding of the marine environment, species behavior and ecosystem dynamics by fusing indigenous bodies of knowledge with modern scientific methodologies.

## **3. Documenting and recording Traditional Knowledge**

For indigenous peoples, especially those involved in fisheries management, oral traditions and stories are an important part of knowledge transfer. Older people pass on their knowledge, experiences and traditional ecological knowledge to new generations through stories. This oral tradition helps preserve and disseminate information about local fishing practices, seasonal trends, and marine life behavior. Respondents emphasized the value of storytelling as a powerful way of communicating TK. Indigenous coastal communities can maintain and preserve their own knowledge by exchanging stories that capture the experiences and lessons of previous generations.

Understanding the importance of storytelling also requires recognizing and respecting the different oral traditions and languages of local peoples. Efforts should be made to document and preserve these oral traditions to ensure their accessibility and reliability for future generations. This may require cooperation between community members and researchers, in addition to the use of acceptable procedures that consider ethical and cultural norms.

#### **4. Youth involvement and the experience of the elderly**

Intergenerational learning is essential to sustaining the knowledge of indigenous peoples who manage fisheries. The knowledge and experience of older community members is highly valued and used as a basis for lessons to the younger generation. Research results show that older respondents have more TK than younger respondents. Ensuring the continuation of TK and practices related to fisheries management therefore depends on young people's active participation in learning from their elders.

#### **5. Integration of culturally relevant curriculum in formal education**

TK must be preserved through formal education and passed on to future generations. By ensuring that TK, practices and values are embedded in the education system; culturally appropriate curricular integration makes education meaningful to students.

Our research suggests that TK should be explicitly stated and included across all educational levels, even though the integration of cultural norms and values is encouraged within the present school curriculum, especially in the context of Creative Arts and Culture for Years 1-6.

To this end, a proposed method for integrating TK at various educational levels can be useful.

Primary education should introduce basic concepts of TK, including local languages, customs, songs, stories, and activities pertaining to the environment and community life. The emphasis should be on developing an awareness of regional customs and traditions as well as instilling respect for cultural heritage.

By adding in-depth studies of cultural practices, traditional governance, land tenure systems, and sustainable resource management, secondary education can broaden the scope of TK. Encouraging students to work on projects with local elders can help to ensure that important cultural insights are passed down between generations.

In order to fully explore TK systems, tertiary education should offer specialized courses or programs. These should emphasize the systems' applicability to contemporary issues like environmental preservation, sustainable development, and cultural preservation. Additionally, encouraging research and documentation initiatives can support the revitalization and preservation of TK, incorporating it into the curriculum on an ongoing basis.

## CHAPTER 7

### **Conclusion**

#### **7.1 Traditional Knowledge Summary**

The findings and discussions presented in this dissertation converge on the critical role of traditional knowledge (TK) in coastal resource management, particularly within the context of the Choiseul Province. TK emerges as a deeply embedded cultural asset that serves as a foundation for sustainable fisheries management, biodiversity conservation, and the preservation of cultural identity. This final chapter synthesizes key conclusions, emphasizing their implications for policy, practice, and future research while offering constructive recommendations to address existing challenges.

Traditional knowledge, as observed in Choiseul Province, embodies a holistic understanding of ecological systems and sustainable practices. The integration of TK into local fisheries management has proven effective through methods such as the use of prohibited sites, traditional indicators, and gear restrictions. These practices not only ensure the sustainable use of resources but also foster a harmonious relationship between communities and their environment. The study reaffirms that TK is not merely a historical artifact but a dynamic and adaptive system that remains highly relevant to contemporary environmental challenges. However, the survival of TK faces significant threats from modernization, globalization, and socio-economic shifts. The growing reliance on modern fishing technologies, coupled with changes in cultural practices and environmental conditions, has disrupted the intergenerational transmission of knowledge. This generational gap highlights the urgent need for interventions to preserve and promote TK as a viable resource for sustainable coastal management.

#### **7.2 Gaps in Legal Frameworks**

The legal frameworks addressing TK, though promising, remain fragmented and insufficiently tailored to the unique characteristics of traditional practices. While broader environmental and fisheries laws provide some level of recognition, they often fail to comprehensively address the communal, cultural, and oral nature of TK. Key gaps include

inadequate protection against misappropriation, limited mechanisms for equitable benefit-sharing, and insufficient formal recognition of traditional governance systems. To overcome these challenges, the development of stand-alone legal instruments focused specifically on TK is essential.

Such frameworks should:

1. Explicitly recognize TK as a distinct category of intellectual and cultural property.
2. Establish mechanisms for documenting and safeguarding sensitive knowledge.
3. Provide legal protections against unauthorized use and exploitation.
4. Ensure the inclusion of TK holders in decision-making processes at local, national, and international levels. Aligning these frameworks with international agreements such as the Convention on Biological Diversity (CBD) and the Nagoya Protocol would enhance global harmonization and strengthen the rights of TK holders.

### **7.3 Intergenerational Knowledge Transfer**

The study reveals a concerning disparity in the depth of traditional fishing knowledge across generations. Older generations demonstrate extensive expertise in understanding fishing grounds, species behavior, and ecological indicators, whereas younger individuals often lack this depth of knowledge. This loss is driven by shifts in lifestyles, urbanization, and the reduced dependence on traditional practices due to modern alternatives. To address this, targeted educational initiatives are critical. Intergenerational mentorship programs can create opportunities for elders to share their knowledge and experiences with younger generations, fostering a sense of continuity and cultural pride. Incorporating TK into formal education and community outreach programs can also bridge this gap, ensuring that younger generations recognize the value of traditional practices in sustainable resource management.

Integrating Traditional and Modern Approaches While TK offers invaluable insights, the challenges posed by climate change and evolving socio-economic conditions necessitate an integrated approach. Combining traditional practices with modern scientific techniques can

create innovative solutions tailored to local contexts. For instance, mapping traditional fishing grounds using modern geographic information systems (GIS) or incorporating TK into climate adaptation strategies can enhance resilience and sustainability. Such integration requires collaborative efforts between communities, governments, and research institutions. Policymakers must prioritize participatory approaches that empower TK holders as equal partners in the design and implementation of resource management strategies. By valuing both traditional and scientific knowledge systems, coastal resource management can achieve greater inclusivity and effectiveness.

#### **7.4 Socio-Economic Considerations**

The increasing shift toward a cash economy presents both challenges and opportunities for the preservation of TK. On one hand, economic pressures have led to the adoption of practices that prioritize short-term gains over long-term sustainability. On the other hand, initiatives that align TK with income-generating activities, such as ecotourism or sustainable fisheries certification programs, can provide incentives for communities to maintain traditional practices. Developing sustainable livelihoods that leverage TK requires a multi-stakeholder approach. Governments, non-governmental organizations, and private sector actors must work together to create value-added opportunities that honor traditional practices while meeting the economic needs of local communities.

#### **7.5 Final Reflections**

This dissertation underscores the profound significance of traditional knowledge in coastal resource management, particularly within the unique socio-cultural and ecological context of Choiseul Province. While TK faces numerous challenges, its potential as a tool for sustainable development and cultural preservation remains immense. Addressing the gaps identified in this study will require a concerted effort from all stakeholders, including governments, communities, and researchers. By prioritizing the protection, promotion, and integration of traditional knowledge, we can honor the wisdom of the past while creating a

sustainable future. In doing so, we not only safeguard invaluable cultural heritage but also contribute to global efforts toward equitable and resilient resource management systems.

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