

ENHANCING THE ROLE OF SURFING IN BIODIVERSITY CONSERVATION AND  
COMMUNITY DEVELOPMENT IN INDONESIA

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By  
Cameron Ogden-Fung

Thesis Committee:

Mehana Vaughan<sup>1,2,3</sup>, Chairperson

Mahealani Kaneshiro-Pineiro<sup>1</sup>

John N. 'Jack' Kittinger<sup>4,5</sup>

1. Department of Natural Resources and Environmental Management; 2. University of Hawai'i  
Sea Grant College Program; 3. Hui 'Āina Momona; 4. Conservation International's Center for  
Oceans; 5. Arizona State University's School of Sustainability and Global Futures Laboratory

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## **ABSTRACT**

Indonesia is widely recognized as a global priority for marine conservation due to its high marine biodiversity, yet these important coral reef ecosystems and their associated fisheries are experiencing extensive decline and increasing threats at global and local scales. With around 80% of Indonesia's 270 million population relying on the richness of their surrounding ocean, it is essential to maintain healthy marine ecosystems that support the culture, economy, and food security of the nation. The Surf Conservation Partnership (SCP) — a collaboration among two NGOs, Conservation International (CI) and Save The Waves Coalition (STWC), mobilizes surfing communities to create surf protected areas (SPAs) that conserve important coastal ecosystems and strengthen community development. Stakeholder analyses can help ensure that objectives of the government and NGOs are in alignment with the ecological and societal goals of the local community. This master's study aims to examine the issues that shape surf tourism and conservation efforts on Morotai Island, Indonesia, in order to improve collaborative planning processes and governance strategies. This project identifies and explores multiple stakeholder perspectives to better understand the needs of and barriers to sustainable surf tourism and surf conservation development. Semi-structured interviews and an online survey were conducted with representatives of each of the identified stakeholder groups: Morotai community; government officials; NGO employees; and surf tourists. The four key themes that intersected multiple stakeholder groups were empower local community participation, establish local economic benefits, conserve natural resources, and build a collaborative vision. This research contributes new knowledge to the emerging field of surf conservation through a stakeholder analysis lens. The findings provide resource managers and policymakers with recommendations to advance the social-ecological success of surf tourism and conservation development in Indonesia.

## TABLE OF CONTENTS

<b>ACKNOWLEDGEMENTS .....</b>	<b>I</b>
<b>ABSTRACT.....</b>	<b>II</b>
<b>LIST OF TABLES .....</b>	<b>VI</b>
<b>LIST OF FIGURES .....</b>	<b>VII</b>
<b>LIST OF APPENDICES .....</b>	<b>IX</b>
<b>LIST OF ACRONYMS .....</b>	<b>X</b>
<b>INTRODUCTION.....</b>	<b>1</b>
<b>LITERATURE REVIEW .....</b>	<b>4</b>
VALUE OF SURF BREAKS AND THEIR ASSOCIATED THREATS .....	4
SURF TOURISM.....	6
SUSTAINABLE TOURISM DEVELOPMENT .....	7
COLLABORATIVE MANAGEMENT .....	9
TOURISM DEVELOPMENT IN INDONESIA.....	11
CONSERVATION GOALS IN INDONESIA .....	13
MARINE AND COASTAL GOVERNANCE IN INDONESIA .....	14
<b>METHODS .....</b>	<b>16</b>
STUDY SITE.....	16
STAKEHOLDER SURVEY AND INTERVIEWS .....	18
TRANSCRIPT CODING AND ANALYSIS .....	19
<b>RESULTS .....</b>	<b>19</b>
SURF TOURISTS' EXPERIENCES .....	25
<i>Demographic Information</i> .....	25
<i>Surf Travel Preferences</i> .....	27
<i>Surf Trip Expenditure</i> .....	33
<i>Surf Tourism and Surf Conservation</i> .....	33
<i>Stakeholder Interactions</i> .....	37



EMPOWER LOCAL COMMUNITY PARTICIPATION .....	39
<i>Enhance Educational Outreach</i> .....	41
<i>Support Local Community’s Vision</i> .....	43
<i>Incentivize Involvement</i> .....	45
ESTABLISH LOCAL ECONOMIC BENEFITS .....	46
<i>Increase Surf Tourists</i> .....	47
<i>Diversify Local Businesses</i> .....	49
<i>Build Tourist Facilities</i> .....	51
<i>Limit Outside Land and Business Ownership</i> .....	53
CONSERVE NATURAL RESOURCES .....	54
<i>Prioritize Sustainable Development</i> .....	56
<i>Create Regulations</i> .....	59
<i>Manage Tourist Numbers</i> .....	61
<i>Improve Waste Management</i> .....	63
BUILD A COLLABORATIVE VISION .....	64
<i>Active Communication between Stakeholders</i> .....	65
<i>Government Assistance</i> .....	67
<i>Guidance from NGOs</i> .....	70
<i>Increase Funding</i> .....	71
<b>DISCUSSION .....</b>	<b>72</b>
EMPOWER LOCAL COMMUNITY PARTICIPATION .....	73
ESTABLISH LOCAL ECONOMIC BENEFITS .....	75
CONSERVE NATURAL RESOURCES .....	77
BUILD A COLLABORATIVE VISION .....	79
SPAN POLICY FRAMEWORK .....	84
KEY RECOMMENDATIONS AND PERFORMANCE INDICATORS .....	85
FUTURE RESEARCH .....	87
<b>CONCLUSION .....</b>	<b>87</b>
<b>APPENDICES .....</b>	<b>89</b>
APPENDIX A: INTERVIEW CONSENT FORM – ENGLISH VERSION .....	89

APPENDIX B: INTERVIEW CONSENT FORM – INDONESIAN VERSION .....	91
APPENDIX C: ONLINE SURVEY CONSENT FORM .....	93
APPENDIX D: ONLINE SURVEY RECRUITMENT FLYER .....	94
APPENDIX E: INTERVIEW QUESTIONS FOR MOROTAI COMMUNITY MEMBERS – ENGLISH VERSION .....	95
APPENDIX F: INTERVIEW QUESTIONS FOR MOROTAI COMMUNITY MEMBERS – INDONESIAN VERSION .....	97
APPENDIX G: INTERVIEW QUESTIONS FOR GOVERNMENT OFFICIALS AND NGO EMPLOYEES – ENGLISH VERSION .....	99
APPENDIX H: INTERVIEW QUESTIONS FOR GOVERNMENT OFFICIALS AND NGO EMPLOYEES – INDONESIAN VERSION.....	101
APPENDIX I: ONLINE SURVEY QUESTIONS FOR SURF TOURISTS .....	103
APPENDIX J: IRB NOTICE OF APPROVAL FOR HUMAN RESEARCH .....	114
<b>REFERENCES.....</b>	<b>115</b>

## LIST OF TABLES

TABLE 1. KEY THEMES AND SUBTHEMES THAT EMERGED FROM PARTICIPANT INTERVIEWS WITH MOROTAI COMMUNITY MEMBERS. NOTE: THIS TABLE LISTS THE NUMBER OF PARTICIPANTS WHO DISCUSSED EACH THEME (N = 5). .....	21
TABLE 2. KEY THEMES AND SUBTHEMES THAT EMERGED FROM PARTICIPANT INTERVIEWS WITH GOVERNMENT OFFICIALS. NOTE: THIS TABLE LISTS THE NUMBER OF PARTICIPANTS WHO DISCUSSED EACH THEME (N = 3).....	22
TABLE 3. KEY THEMES AND SUBTHEMES THAT EMERGED FROM PARTICIPANT INTERVIEWS WITH NGO EMPLOYEES. NOTE: THIS TABLE LISTS THE NUMBER OF PARTICIPANTS WHO DISCUSSED EACH THEME (N = 5).....	23
TABLE 4. KEY THEMES AND SUBTHEMES THAT EMERGED FROM PARTICIPANT SURVEYS WITH SURF TOURISTS. NOTE: THIS TABLE LISTS THE NUMBER OF PARTICIPANTS WHO DISCUSSED EACH THEME (N = 26). .....	24
TABLE 5. KEY THEMES AND SUBTHEMES THAT EMERGED FROM PARTICIPANT INTERVIEWS AND SURVEYS. NOTE: THIS TABLE LISTS THE NUMBER OF PARTICIPANTS WHO DISCUSSED EACH THEME (N = 39). .....	24
TABLE 6. RANKED STATEMENTS RELATED TO SURF TOURISM AND SURF CONSERVATION IN INDONESIA BY SURF TOURISTS (N = 26). .....	36

## LIST OF FIGURES

FIGURE 1. GLOBAL MAP SHOWING THE OVERLAP BETWEEN BIODIVERSITY HOTSPOTS AND SURFING HOTSPOTS. SOURCE: SURF CONSERVATION PARTNERSHIP .....	3
FIGURE 2. A MODEL OF COMMUNITY-BASED TOURISM. SOURCE: OKAZAKI (2008).....	9
FIGURE 3. LOCATIONS OF '10 NEW BALIS' IN INDONESIA. SOURCE: STRAITS TIMES GRAPHIC (2017) .....	12
FIGURE 4. MAP OF INDONESIA AND SURROUNDING COUNTRIES WITH INTERNATIONAL BORDERS, THE NATIONAL CAPITAL (JAKARTA), PROVINCE CAPITALS, MAJOR CITIES, MAIN ROADS, RAILROADS, AND MAJOR AIRPORTS. SOURCE: NATIONS ONLINE PROJECT .....	17
FIGURE 5. MAP OF MOROTAI ISLAND REGENCY. SOURCE: WIJAYANTO (2021).....	18
FIGURE 6. AGES (YEARS) OF THE SURF TOURISTS (N = 26). .....	25
FIGURE 7. HOME COUNTRY (LEFT) AND COUNTRY OF RESIDENCE (RIGHT) OF THE SURF TOURISTS (N = 26). .....	26
FIGURE 8. ANNUAL INCOME (USD) OF THE SURF TOURISTS (N = 26). .....	26
FIGURE 9. SURFING EXPERIENCE (LEFT) AND SURFING LEVEL (RIGHT) OF THE SURF TOURISTS (N = 26). .....	27
FIGURE 10. TYPE OF SURF TOURISTS AS IDENTIFIED BY SURF TOURISTS (N = 26). .....	28
FIGURE 11. NUMBER OF SURF TRIPS IN INDONESIA COMPLETED BY SURF TOURISTS (N = 26). .....	28
FIGURE 12. LOCATIONS IN INDONESIA WHERE SURF TOURISTS HAVE TRAVELED TO (N = 26).....	29
FIGURE 13. NUMBER OF NIGHTS SURF TOURISTS TYPICALLY SPEND AT A SURF DESTINATION (N = 26). .....	29
FIGURE 14. TYPES OF ACCOMMODATION THAT SURF TOURISTS STAYED IN (N = 26).....	30
FIGURE 15. QUALITY OF ACCOMMODATION THAT SURF TOURISTS PREFERRED (N = 26).....	31
FIGURE 16. TYPES OF TRAVELERS THAT SURF TOURISTS TRAVEL WITH (N = 26). .....	31
FIGURE 17. WORD CLOUD OF THE MOST FREQUENTLY USED WORDS TO DESCRIBE THE FACTORS THAT MOTIVATED SURF TOURISTS TO TRAVEL TO INDONESIA (N = 26).....	32
FIGURE 18. WORD CLOUD OF THE MOST FREQUENTLY USED WORDS TO DESCRIBE HOW INDONESIA IS DISTINCT FROM OTHER SURF DESTINATIONS (N = 26). .....	32
FIGURE 19. WORD CLOUD OF THE MOST FREQUENTLY USED WORDS TO DESCRIBE THEIR SURF TOURISM EXPERIENCE IN INDONESIA (N = 26). .....	33

FIGURE 20. AMOUNT OF MONEY (USD) SURF TOURISTS WERE WILLING TO PAY TO SUPPORT SURF CONSERVATION PER SURF TRIP (N = 26). .....	37
FIGURE 21. COMMON STEPS OF A MPA PLANNING PROCESS. SOURCE: FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (2020) .....	80
FIGURE 22. GENERALIZED ADAPTATION CYCLE CONSISTING OF FIVE STEPS THAT ARE PART OF AN ITERATIVE PROCESS. SOURCE: GROSS ET AL. (2016) .....	82
FIGURE 23. KEY RECOMMENDATIONS BASED ON THE THEMES AND SUBTHEMES THAT EMERGED FROM PARTICIPANT INTERVIEWS AND SURVEYS. ADDITIONAL RECOMMENDATIONS MENTIONED BY A FEW PARTICIPANTS ARE HIGHLIGHTED IN GREEN. ....	86
FIGURE 24. KEY PERFORMANCE INDICATORS BASED ON THE THEMES AND SUBTHEMES THAT EMERGED FROM PARTICIPANT INTERVIEWS AND SURVEYS. ....	87

## LIST OF APPENDICES

APPENDIX A: INTERVIEW CONSENT FORM – ENGLISH VERSION .....	89
APPENDIX B: INTERVIEW CONSENT FORM – INDONESIAN VERSION .....	91
APPENDIX C: ONLINE SURVEY CONSENT FORM .....	93
APPENDIX D: ONLINE SURVEY RECRUITMENT FLYER .....	94
APPENDIX E: INTERVIEW QUESTIONS FOR MOROTAI COMMUNITY MEMBERS – ENGLISH VERSION .....	95
APPENDIX F: INTERVIEW QUESTIONS FOR MOROTAI COMMUNITY MEMBERS – INDONESIAN VERSION .....	97
APPENDIX G: INTERVIEW QUESTIONS FOR GOVERNMENT OFFICIALS AND NGO EMPLOYEES – ENGLISH VERSION .....	99
APPENDIX H: INTERVIEW QUESTIONS FOR GOVERNMENT OFFICIALS AND NGO EMPLOYEES – INDONESIAN VERSION.....	101
APPENDIX I: ONLINE SURVEY QUESTIONS FOR SURF TOURISTS .....	103
APPENDIX J: IRB NOTICE OF APPROVAL FOR HUMAN RESEARCH .....	114

## LIST OF ACRONYMS

- ALF — A Liquid Future
- CBT — Community-Based Tourism
- CI — Conservation International
- CITES — Convention on International Trade in Endangered Species of Wild Fauna and Flora
- CPR — Common Pool Resource
- DAO — Decentralized Autonomous Organization
- GDP — Gross Domestic Product
- GSTC — Global Sustainable Tourism Council
- ILMAA — Indonesia Locally Managed Marine Area Network
- ITDP — Indonesia Tourism Development Program
- IUCN — International Union for the Conservation of Nature and Natural Resources
- KPI — Key Performance Indicator
- MMAF — Ministry of Marine Affairs and Fisheries
- MPA — Marine Protected Area
- NFT — Non-Fungible Token
- NGO — Non-Governmental Organization
- PKK NP — Phou Kao Khouay National Protected area
- RAHA — Raja Ampat Homestay Association
- SAPNG — Surfing Association of Papua New Guinea
- SCP — Surf Conservation Partnership
- SPA — Surf Protected Area
- SPAN — Surf Protected Area Network
- STWC — Save The Waves Coalition
- UNWTO — World Tourism Organization
- USD — United States Dollar
- WCED — World Commission on the Environment and Development

## INTRODUCTION

Indonesia is the epicenter of marine biodiversity, located in the heart of the Coral Triangle, which is estimated to contain 76% of global coral species and 37% of global reef fish species (Asian Development Bank, 2014). Yet, these important coral reef ecosystems and their associated fisheries are experiencing extensive decline with increasing threats at global and local scales (Carpenter et al., 2008; Edinger et al., 1998; Pandolfi et al., 2003). Globally, the buildup of carbon dioxide and other greenhouse gases in the atmosphere are contributing to rising ocean temperatures and acidification (Anthony et al., 2008; Hoegh-Guldberg et al., 2017). These changes in ocean temperature and chemistry increase the likelihood of mass coral bleaching and mortality events as well as reduces the ability of corals to build skeletons due to decreased carbonate concentrations (Anthony et al., 2008; Hoegh-Guldberg et al., 2017). Local coastal threats include human disturbances such as increased tourism development, nutrient loading, sewage discharges, coral mining, destructive fishing practices, and overfishing (Hughes et al., 2003; Nystrom et al., 2000). Local anthropogenic impacts reduce the resilience of corals to endure climatic changes, resulting in the deterioration of reef ecosystems and their ability to sustain complex ecological structures and dynamics. With around 80% of Indonesia's 270 million population relying on the richness of their surrounding ocean, it is essential to maintain healthy marine ecosystems in order to support the economy, food security, and culture of the nation (California Environmental Associates, 2018). In response, government agencies, local communities, and environmental organizations have employed a range of approaches to mitigate human threats and improve the protection of coastal ecosystem functions. Effectively conserving marine biodiversity and ecosystem services requires diverse approaches that empower communities to both steward and benefit from their marine resources. This thesis study investigated the potential to harness the value of surfing resources, including the surfing community, to conserve marine biodiversity and strengthen community development in Indonesia.

Across the globe, there are thousands of locations where surf breaks overlap with globally significant biological diversity and communities in need of sustainable development (Fig. 1; Reineman et al., 2021). Indonesia is known as a world-class surf destination with some of the most famous surfing breaks in the world, creating a strong surf tourism industry with a national need for sustainable development that emphasizes the importance of protecting its



essential marine resources. These economic drivers for tourism coupled with the high marine biodiversity and world-class surf make Indonesia an ideal target for surf conservation efforts. Conservation International (CI) and Save The Waves Coalition (STWC) created the Surf Conservation Partnership (SCP), which focuses on creating Surf Protected Area Networks (SPANs) in areas where high-quality surfing waves and biologically diverse marine ecosystems overlap. The goal of this partnership is to strengthen community development and sustainably manage millions of hectares of coral reefs, coastal forests, and other critical habitats in areas that otherwise would not be conserved (Conservation International, 2020). CI and STWC have teamed up with two local Indonesian partners: A Liquid Future (ALF), an NGO that provides resources and creative education programs to foster healthy lifestyles and sustainable futures in remote coastal communities; and Indonesia Locally Managed Marine Area Network (ILMMA), an NGO that empowers coastal communities across eastern Indonesia to manage their marine areas. By the end of 2025, the SCP plans to conserve over two million acres of coastal and marine ecosystems to benefit tens of thousands of local and indigenous people across Indonesia, Fiji, Costa Rica, Brazil, Liberia, and other countries. With this goal in mind, a stakeholder analysis was conducted on Morotai Island, Indonesia, in order to ensure that the objectives of the government and NGOs responsible for implementing the SPAN are in alignment with the ecological and societal goals of the local community.

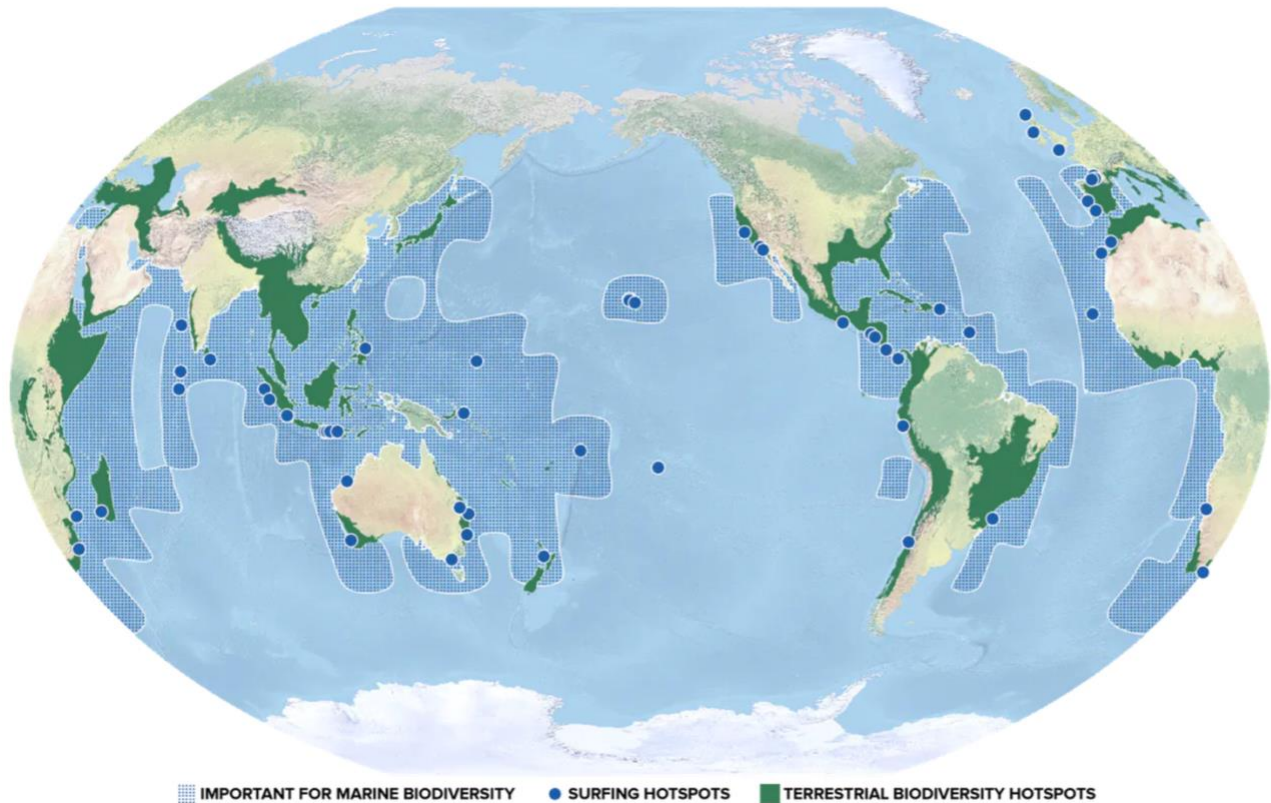


Figure 1. Global map showing the overlap between biodiversity hotspots and surfing hotspots. Source: Surf Conservation Partnership

Through an in-depth stakeholder analysis, we can holistically understand the needs of and barriers to sustainable surf tourism development and conservation management. The aim of this master’s study is to explore stakeholder perspectives on surf tourism development and surf conservation efforts in Indonesia to inform better planning processes and collaborative approaches. The main research questions that guided this study were:

1. How does each stakeholder group perceive surf tourism development and surf conservation efforts?
2. What are the key themes and common differences between stakeholder groups?
3. What are the key performance indicators (KPIs) for assessing the impacts of the SPAN across local objectives?

This research builds on literature that emphasizes the importance of local community participation in tourism development and conservation management decision-making through the exploration of sustainable tourism development and collaborative management. This study seeks to contribute new knowledge to the emerging field of surf conservation by exploring multiple

stakeholder perspectives on surf tourism development and the creation of a SPAN in Indonesia. These findings directly contribute to applied conservation in a real-world context by providing resource managers and policymakers with an in-depth understanding of multiple stakeholder objectives surrounding surf tourism development and conservation management in order to achieve aligned sustainable outcomes for the local community.

## **LITERATURE REVIEW**

### **Value of Surf Breaks and their Associated Threats**

Surf breaks (i.e., surfing resources) are a new conservation asset class of marine resources that hold potential for preservation efforts and sustainable community development opportunities. Surfing waves are situated in the littoral zone and are created by a combination of biophysical components: swell size, period, and direction; near-shore wind; tide; bathymetry; and coastal geology (Butt et al., 2004; Garrison, 2012). When waves arrive at coastlines with favorable attributes, such as swell orientation and coastal bathymetry, they break in patterns appropriate for surfing (Butt et al., 2004; Garrison, 2012). Surf breaks bring significant value for ocean stakeholders across ecological (Arroyo et al., 2019; Peryman & Orchard, 2013; Teh et al., 2009), economic (Buckley et al., 2014; Lazarow et al., 2008; Mcgregor & Wills, 2016; Nelsen et al., 2007; Ponting & O'Brien, 2015), cultural (Barbieri & Sotomayor, 2013; Ford & Brown, 2006; Mixon, 2014; Reineman, 2016; Usher & Kerstetter, 2015), historical (Finney & Houston, 1996; Warshaw, 2011; Westwick & Neushul, 2013), and spiritual dimensions (Moore, 2011; Reineman & Ardoin, 2018; Taylor, 2007) at local to global scales. In Hawai'i, the cultural, historical, and spiritual dimensions of surfing are highly valued by the community. Surfing was referred to as *he'e nalu* translating to wave sliding (Finney, 1959). Before entering the ocean, Hawaiians prayed to the gods for protection and strength to undertake the powerful mystifying ocean. Social standing also played a role in the sport, deciding who got to use what types of boards and surf certain waves (Finney, 1959).

Despite the significant value of surf breaks, surfing resources are subject to a broad set of threats, including global impacts from climate change and associated sea level rise (Dowdy et al., 2014; Hemer et al., 2013; Reineman et al., 2017), coastal modification and development (Corne, 2009; Reineman, 2016; Scarfe et al., 2009), and coral reef degradation. Coral reefs are an

important ecosystem for surf breaks in the tropics (Edinger et al., 1998; Hoegh-Guldberg et al., 2017; Hughes et al., 2003; Nystrom et al., 2000). Additional factors that limit people's ability to use and benefit from these resources include governance of coastal access (Mach & Ponting, 2018; Reiblich & Reineman, 2018; Reineman et al., 2016), degradation of coastal water quality and associated health risks (Fewtrell & Kay, 2015; Grant et al., 2001; Kim et al., 2004), as well as crowding and territoriality (Mixon, 2014; Reineman & Ardoin, 2018; Usher & Gómez, 2016; Usher & Kerstetter, 2015).

Due to the increase in threats to surf breaks, countries around the globe have responded by formally recognizing the value of surfing resources (e.g., New Zealand, Australia, and Peru). NGOs formed to focus on the surf zone and its surrounding resources include the Surfrider Foundation, Surfers Against Sewage, Sustainable Surf, SurfAid International, and STWC. Surfing resources receive less attention in conservation efforts compared to more conventional cultural or biological resources, but this is starting to change as communities, researchers, and conservationists further develop ways to demonstrate the value of surf breaks for local economies (Mcgregor & Wills, 2016). For example, a survey of surf tourists' expenditure conducted in the Uluwatu surf area of Bali, Indonesia, estimated an annual expenditure of \$35.3 million USD, providing substantial economic revenue that could be lost due to adverse environmental conditions (Margules et al., 2014).

The co-location of surfing resources and marine biodiversity represent a significant conservation opportunity (Reineman et al., 2021; Scheske et al., 2019). SPANs will consist of individual surf protected area (SPA) sites that combine legal protection of marine ecosystems and sustainable community development in areas where high-quality surf breaks and priority conservation targets overlap. The design of each SPAN will vary considerably depending on the local and national context. In Indonesia, these sites may range in size from small protected areas that focus on protecting the surf zone to larger land-sea protected areas that focus on managing interconnected ecosystems with greater threats. SPANs aim to achieve significant conservation of marine ecosystems and provide sustainable development opportunities for local and indigenous communities adjacent to these protected areas.

## **Surf Tourism**

Surfing is practiced by approximately 35 million people around the world (O'Brien & Eddie, 2013) and continues to be a growing activity. Surfers are known to regularly engage in surf tourism, which refers to trips where surfing is the main purpose and it has become a significant component of the worldwide nature-based adventure tourism sector, generating sufficient economic, social, and environmental impact (Buckley, 2002a; Martin & Assenov, 2012). The global surf industry has been estimated to be worth between \$70 and \$130 billion USD annually (O'Brien & Eddie, 2013). Surf tourism has been described as the fastest growing component of the surfing industry with an increase in travel to existing surf destinations and the ongoing expansion of surfing locations in remote coastal communities (Barbieri & Sotomayor, 2013; Ford & Brown, 2006; Krause, 2012; Towner, 2015). Additionally, the digital distribution of surf destination information (Mach, 2017), along with more connected and affordable transportation has accelerated the growth in surf tourism (Barbieri & Sotomayor, 2013; Westwick & Neushul, 2013).

Surf tourism skyrocketed in the 1960s with independent travelers searching for new surfing locations due to an increase in affordable air travel, lighter surfboards, and the perception of surfing culture through mass media (Booth, 1996; Ponting, 2009; Rutsky, 1999). The rise of surf-related movies, surfing films, surf industry commercials, printed material, music, clothing, and competitions popularized surfing values and style, creating an enhanced demand for people to travel to tropical beach destinations in search of the perfect wave (Booth, 1996; Ponting, 2009). Self-guided adventure driven by surf quality and climate dominated the early days of surf tourism, but now many surf travelers rely on surf tour operators to help coordinate travel and surf arrangements (Buckley, 2002a; Tantamjarik, 2004). In the late 1970s, specialized surfing tours began with small-scale camps and live-aboard experiences that led to the rise of a global industry involving thousands of tour operators, local homestays, resorts, charter boats, wholesalers, and travel agents (Krause, 2012; O'Brien & Eddie, 2013; Ponting, 2009).

Surf tourism is viewed as a pioneering form of tourism, which is often followed by a rapid succession of tourism developments. This has led many unprepared communities adjacent to high-quality surf breaks to experience unplanned, uncontrolled, and unsustainable large-scale tourism expansion (Buckley, 2002a; Krause, 2012; Ponting & O'Brien, 2015). Despite this process being common across the globe, there is still a lack of formal surf break management

and thus informal surf break governance is the primary mode of surfing regulation (Mach & Ponting, 2018). Many studies have contextualized surf breaks as recreational common-pool resources (CPRs) that are subject to a carrying capacity (Buckley, 2002a; Ponting & O'Brien, 2014, 2015; Usher & Kerstetter, 2014). The growth of the surfing population, coupled with access to precise surf forecasting and live-streaming surf cams, exacerbate CPR issues by causing surfers to crowd the same surf break at the same times (Mach, 2017). Perceptions of surf crowding greatly impact the surf tourist experience, economic wellbeing of the surfing industry, as well as have potentially negative impacts on the natural resources (Buckley et al., 2017; Ponting & O'Brien, 2014, 2015).

Surfers also impact resources on land that support tourist visitation in sensitive coastal and island ecosystems, exacerbating environmental issues related to enhanced transportation, over-consumption of local resources and proper waste disposal, as well as social problems such as gentrification, loss of local cultural identity, prostitution, and drug use (Buckley, 2002a; Krause, 2012; Ponting, 2009; Towner, 2015). The type of surf tourism that develops can potentially alter other niches of tourism development and business models within the area (Ponting, 2009; Ponting & McDonald, 2013). Additionally, a tourism-based economy is highly vulnerable to external fluctuations beyond the control of local residents, such as COVID-19.

### **Sustainable Tourism Development**

The concept of sustainable development was first highlighted by the International Union for the Conservation of Nature and Natural Resources (IUCN) in the *World Conservation Strategy* (IUCN, 1980). In 1987, the World Commission on the Environment and Development (WCED) defined sustainable development as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (WCED, 1987). The key goal of sustainable development is to enhance both the current and future potential of humanity.

Within the tourism sector, the World Tourism Organization (UNWTO) provides the following definition for sustainable development: 'Tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities' (UNWTO, 2005). In addition, UNWTO states that sustainable tourism should:

1. Optimally use natural resources that are important elements in tourism development, while maintaining essential ecological processes and conserving natural heritage and biodiversity.
2. Respect the culture of host communities, conserve their traditional values, and contribute to intercultural understanding.
3. Ensure long-term economic opportunities, providing fairly distributed socio-economic benefits to all stakeholders, and reduce local poverty (UNWTO, 2005).

Thus, sustainable tourism development requires the informed participation of all relevant stakeholders, as well as strong leadership to ensure inclusivity and consensus building (Buckley, 2012; Byrd, 2007; Choi & Sirakaya, 2006; Graci, 2013). Sustainable tourism also needs to maintain tourist satisfaction and raise their awareness about environmental issues to promote sustainable tourism practices (Buckley, 2012; Choi & Sirakaya, 2006). It is a continuous and integrative process to achieve sustainable tourism, requiring consistent monitoring of impacts and the use of necessary corrective measures when needed.

The community-based tourism (CBT) model created by Okazaki (2008) integrates the concepts of host population participation, power redistribution, collaboration, and social capital creation in the tourism development process. The CBT model allows for community status assessment with regards to community participation through the integration of Arnstein's (1969) 'ladder of citizen participation' (Okazaki, 2008). The 'ladder of citizen participation' explained the necessary steps to promote enhanced community involvement, categorized into three general levels: 1) non-participation; 2) degrees of tokenism; and 3) degrees of citizen power (Arnstein, 1969). The ladder of participation, power redistribution, bonding and linking social capital describe the internal community interactions, while collaboration theory and bridging social capital describe the external interactions with other stakeholder groups (Arnstein, 1969; Okazaki, 2008). The CBT model utilizes the following graph (Fig. 2) to depict the collaboration processes and bridging social capital on the horizontal axis, and the participation ladder, power redistribution, and bonding/linking social capital on the vertical axis.

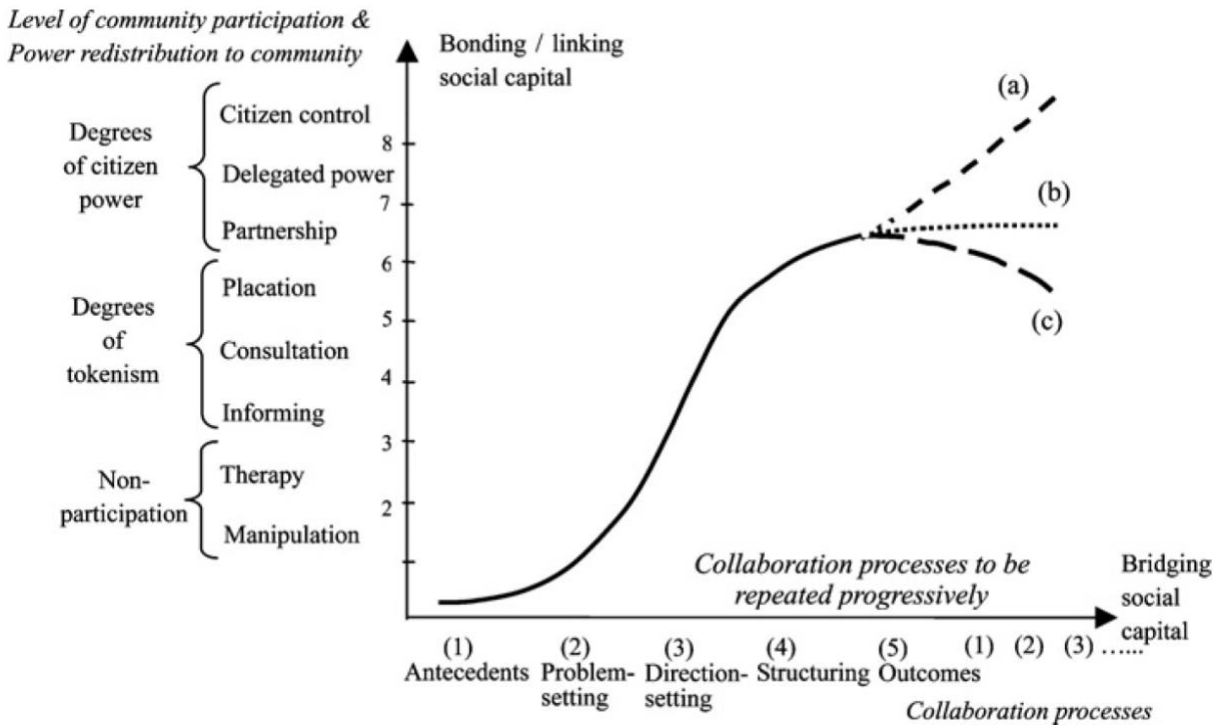


Figure 2. A model of community-based tourism. Source: Okazaki (2008)

### Collaborative Management

Establishing collaborative practices is integral to improving conservation efforts and enhancing natural resource management. All people create knowledge and their voices play a significant role in producing better understanding of and solutions to social-ecological problems. The general purposes of collaboration are to advance a strategic and shared vision with the overall objectives of increasing access to resources, sharing risk factors, improving efficiency, and assisting enhanced learning (Graci, 2013; Koontz & Thomas, 2006). Partnership building are vital elements in enabling sustainable conservation management and governance (Armitage et al., 2009; Cinner et al., 2012; Thornton & Scheer, 2012). Collaboration leads to the pooling of knowledge, expertise, capital and other resources, enhanced coordination of appropriate policies, increased approval of policies, and more successful implementation outcomes (Francisco Carcamo et al., 2014; Graci, 2013; Thornton & Scheer, 2012).

An inclusive, interdependent management approach establishes supportive collaboration through the following key components: context-specific relationship building, mixed-methods, flexibility, and prioritized communication channels (Tipa et al., 2009). *Hui* (meeting) and *hīkoi*



(journey) are instrumental to building relationships with community members, as well as contextualizing cultural foundations and values to the researchers (Tipa et al., 2009; Tipa & Welch, 2006). From an indigenous perspective, collaborative management outcomes must include: 1) preservation of cultural identity; 2) recognition of the right to access and protect resources; and 3) use of traditional environmental knowledge (Tipa & Welch, 2006). It is critical that an agreement be legally binding to establish equality in decision-making within the governance structures. The power relation between government and local communities needs to be negotiated on a case-by-case basis, but it is evident that a win-win solution is possible when local and indigenous status are recognized.

Additionally, Cinner et al. (2012) evaluated 42 coral reef fishery co-management scenarios across Kenya, Tanzania, Madagascar, Indonesia, and Papua New Guinea to determine the relationship between social and ecological outcomes and key institutional design and socioeconomic covariates. Ostrom's diagnostic framework for analyzing social-ecological systems was utilized to quantify the relevant relationships and outcomes for a single resource system: shallow-water coral reef fisheries. The key results from this co-management evaluation showed that: 1) co-management is largely successful at achieving social and ecological goals; 2) co-management tends to benefit wealthier resource users; 3) resource overexploitation is most strongly impacted by market access and users' resource dependence; and 4) institutional characteristics strongly influence social components over ecological conditions (Cinner et al., 2012). The most successful co-management scenarios for the livelihood of resource users involved key institutional designs, education on human ecological impacts, a history of co-management practices within the community, and wealthier users. However, this study also observed that co-management can contribute to social inequity due to the redistribution of access rights where wealthier resource users are more likely to take advantage of these alterations. The findings from this study provided evidence that co-management practices can help to sustain coral reef fisheries and their resource users even within difficult social-ecological contexts (Cinner et al., 2012). Overall, collaborative management is an integrative process that involves the development of deep trust amongst all stakeholders and consistent exchange of ideas for successful partnerships and outcomes.

## **Tourism Development in Indonesia**

Tourism plays an important role in the Indonesian economy and is a significant source of foreign exchange revenues, contributing \$62.6 billion USD to the country's GDP (6% of total GDP; World Travel and Tourism Council, 2018). It is estimated that marine and coastal destinations attract around 29% of all foreign and domestic tourist visitors annually (Spalding et al., 2017). Of these, an estimated 53% are classified as 'on-reef tourists' such as diving, snorkeling, surfing, and boat-trips (Spalding et al., 2017), which generates approximately \$127 million USD per year (Coral Reef Rehabilitation and Management Program, 2013). The remainder of visitors are defined as 'reef-adjacent' tourists, who enjoy the indirect benefits of a healthy marine ecosystem, such as sandy beaches, local seafood, and beautiful coastal views (Spalding et al., 2017). When reef-adjacent tourism revenue is included in the marine tourism estimates, the value is estimated to increase to \$3 billion USD per year (Coral Reef Rehabilitation and Management Program, 2013; Spalding et al., 2017). In addition, reef-related capture fisheries are estimated to generate \$1.5 billion USD annually, and shoreline protection services provided by reefs and mangroves are worth \$387 million USD per year (Coral Reef Rehabilitation and Management Program, 2013). An abundance of coral reefs, vibrant fish populations, large charismatic marine species, and a variety of microfauna make Indonesia a highly desirable marine and coastal tourism destination.

After taking office in 2014, Indonesian President Joko Widodo launched the Indonesia Tourism Development Program (ITDP), which established tourism as a major pillar of economic growth and set an ambitious target of 20 million foreign visitors by 2020 (Ministry of Marine Affairs and Fisheries (MMAF), Republic of Indonesia & USAID Sustainable Ecosystems Advanced (SEA) Project, 2018). Within this target, four million visitors (20%) are anticipated to be marine-based, thus the government identified 25 strategic marine tourism areas across the country to focus investment and boost marine-based enterprises. In addition, the government plans to target on-sea tourism by increasing yacht-based and cruise ship tourism. In 2016, the Government of Indonesia launched the '10 New Balis' program, which consist of ten priority sites targeted for tourism development: Lake Toba, Borobudur, Bromo, Thousand Islands, Mandalika, Wakatobi, Belitung, Tanjung Lesung, Labuan Bajo, and Morotai (Fig. 3).



Figure 3. Locations of '10 New Balis' in Indonesia. Source: Straits Times Graphic (2017)

Many marine protected areas (MPAs) in Indonesia are located in areas of high marine biodiversity, which gives rise to increased tourism. The intersection of MPAs and marine-based tourism creates both opportunities and challenges. In 2015, Indonesia hosted a regional business forum to explore common issues in sustainable marine tourism to all six countries of the Coral Triangle (Indonesia, Malaysia, Philippines, Papua New Guinea, Solomon Islands, and Timor-Leste) in order to produce future recommendations and commitments (Ministry of Marine Affairs and Fisheries (MMAF), Republic of Indonesia & USAID Sustainable Ecosystems Advanced (SEA) Project, 2018). All nations agreed to develop a public-private task force dedicated to examining and improving sustainable marine tourism standards within MPAs across the region. Additionally, the Indonesian Ministry of Tourism signed an agreement with the Global Sustainable Tourism Council (GSTC) and the United Nations Sustainable Development Solutions Network to collaborate in developing sustainable tourism policies and piloting certification strategies. In 2016, this partnership led to the Ministry of Tourism adopting the GSTC criteria for establishing and assessing sustainable tourism enterprises in a ministerial regulation (no. 14/2016). Public-private partnerships also promote the development of sustainable tourism enterprises through encouraging operators to meet sustainability standards in

exchange for green certifications and associated marketing opportunities. The Government of Indonesia continues to promote and encourage sustainable marine tourism across the nation.

### **Conservation Goals in Indonesia**

Indonesia is the world's largest archipelagic nation, composed of over 17,500 islands with a coastline length greater than 95,000 km (Coral Reef Rehabilitation and Management Program, 2013). The population of Indonesia is over 270 million people with more than 300 diverse ethnic groups (World Bank, 2019). Located along the equator within the Coral Triangle, Indonesia is recognized as the global center of marine biodiversity. The abundance of marine resources has made the nation the second-largest producer of marine fishery commodities in the world, providing marine food products for both domestic and international markets. Within Indonesia, fishery products provide approximately 54% of all animal protein consumed in their diets, making it one of the highest fishery resource-dependent countries in the world (Asian Development Bank, 2014). With around 80% of Indonesia's population relying on the richness of their surrounding ocean (California Environmental Associates, 2018), it is essential to maintain healthy marine ecosystems in order to support the culture, economy, and food security of the nation.

Indonesia hosts several critical coastal habitats such as coral reefs, seagrass, and mangroves, which play an important role as breeding grounds and fishery nurseries. The coral reef ecosystems in Indonesia account for 18% of the world's coral habitat (Coral Reef Rehabilitation and Management Program, 2013), and thus Indonesia is a key producer of coral larvae for other regions in Southeast Asia and Oceania. All types of coral reef can be found in Indonesia:

1. Fringing reefs — located near the coastline and separated from the shore by narrow, shallow lagoons
2. Barrier reefs — separated from the shore by deeper, wider lagoons, running parallel to the coastline
3. Atolls — rings of coral usually located at sea and formed when islands surrounded by fringing reefs submerge below the ocean surface
4. Patch reefs — small, isolated reefs that often occur between fringing reefs and barrier reefs

Indonesia's coral reefs are the engines of tropical marine biodiversity, but 95% of these reefs are threatened by local human activities, thus only 3% and 24% of reef areas are considered to be very healthy and healthy in status, respectively (Coral Reef Rehabilitation and Management Program, 2013).

Indonesia is also home to many endangered and threatened marine species under the IUCN Red List of Threatened Species and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Currently, there are 4,326 marine species on the Red List of Threatened Species (IUCN, 2020). In 2009, the Government of Indonesia committed to the conservation and ecosystem-based management of 20 million hectares of Indonesian waters through the establishment, development and effective management of MPAs by 2020. At the 2018 Our Oceans Conference held in Bali, the Ministry of Marine Affairs and Fisheries (MMAF) announced that Indonesia had reached this target and was in the process of setting a new one. The new target focuses on: 1) ensuring that the 20 million hectares are effectively and equitably managed; and 2) expanding the MPA coverage to 30 million hectares by 2030 (Ministry of Marine Affairs and Fisheries (MMAF), Republic of Indonesia & USAID Sustainable Ecosystems Advanced (SEA) Project, 2018).

### **Marine and Coastal Governance in Indonesia**

Successful protected areas require supporting legal and institutional frameworks, as well as long-term political commitment (Agardy et al., 2011; Jentoft et al., 2007). Protected areas are most effective when embedded within integrated marine governance and spatial management frameworks (Cicin-Sain & Belfiore, 2005). An appropriate framework is a necessary foundation for effective policy development to ensure fisheries management, biodiversity conservation, and climate change adaptation (Agardy et al., 2011). Protected areas are sometimes designated without connection to existing institutional and legal frameworks, which exposes them to risk of failure and loss of credibility.

In Indonesia, marine and coastal governance is the primary responsibility of the state, as laid out in the Constitution of the Republic of Indonesia: "Land and water and natural resources therein shall be controlled by the State and shall be utilized for the greatest benefit or welfare of the people." (Sc. 33, Pa 3, 1945). The management of marine and coastal environments are implemented at a range of levels: National — central government; regional — 11 fisheries

management areas; provincial — 34 provinces; district/municipality — 515 districts/regencies/cities; and community — 6,487 sub-districts/>76,000 villages (Ministry of Marine Affairs and Fisheries (MMAF), Republic of Indonesia & USAID Sustainable Ecosystems Advanced (SEA) Project, 2018).

The MMAF is the lead agency for marine and coastal management. They carry out the establishment and management of MPAs through the Directorate of Marine Conservation and Biodiversity and Directorate of Coastal and Small Islands Utilization under the Directorate General for Marine Spatial Management. The MMAF includes nine operating units:

1. The Secretary General — coordinates and guides implementation and administration of all tasks;
2. Inspectorate General — organizes internal controls and supervisions;
3. Directorate General (DG) Marine Spatial Management — oversees marine spatial planning, marine conservation, and biodiversity management, as well as coastal and small islands management;
4. DG Capture Fisheries — oversees all capture fishery resource management, including managing ports, licenses, vessels, and gears;
5. DG Aquaculture Fisheries — oversees aquaculture production, health, seeding, and management;
6. DG for Strengthening the Competitiveness of Marine and Fishery Products — oversees fishery business promotion, marketing, and investments, as well as processing, quality control, and logistics to strengthen the competitiveness and sustainability of Indonesian fisheries;
7. DG Marine and Fishery Resources Surveillance — oversees marine and fishery surveillance and law enforcement, including vessel monitoring;
8. The Agency for Marine and Fishery Research and Human Resources — oversees marine- and fisheries-related capacity building, training, education, and research;
9. The Agency for Fish Quarantine, Quality Control, and Fishery Product Safety — oversees the organization of fish quarantines, quality control, fishery products safety, and biological safety.

In addition to these state agencies, many NGOs and academic institutions are actively involved in supporting marine and coastal management at a national level through research, science, and

governance assistance (Ministry of Marine Affairs and Fisheries (MMAF), Republic of Indonesia & USAID Sustainable Ecosystems Advanced (SEA) Project, 2018).

Institutional arrangements include the broad framework of rules and processes that guide societal and economic activities, as well as the entities that operate within this framework, such as government agencies, committees, councils, and organizations (Agrawal, 2001). The legal framework of laws and regulations defines the rights and restrictions applicable to all affected stakeholders, and provides the basis for protection and enforcement (Jentoft et al., 2007). The effectiveness of policy performance is linked to the quality of the institutions and laws affected by or created under the policy-making process (Humphreys & Herbert, 2018). Appropriate legislation and institutional structures should be developed to support biodiversity conservation and climate change adaptation goals, as well as more specific protected area objectives that enable a range of environmental, economic and social benefits (Jentoft et al., 2007).

## **METHODS**

### **Study Site**

Indonesia lies between the Indian and Pacific Oceans from 05° 33' 28" N, 095° 19' 20" E in the west, to 02° 31' 36" S, 140° 42' 51" E in the east. The largest archipelagic country in the world, Indonesia is comprised of over 17,500 islands generally depicted in Figure 4. The largest islands are Sumatra, Java, Borneo (shared with Brunei and Malaysia), Sulawesi, and New Guinea (shared with Papua New Guinea). The Indonesian archipelago is characterized as tropical in climate with an average temperature of 28°C and relative humidity ranging between 62-81% (Asian Development Bank, 2014). In general, there is a dry season from May to October and a rainy season from November to April. In the lowland areas, rainfall averages 180-320 cm per year, while in the higher elevation mountainous areas, rainfall averages 610 cm annually. Rainfall and wind patterns impact the salinity and temperature of the ocean. Tidal patterns also further exacerbate fluctuations in oceanic temperatures and salinity. Indonesia has one the most complex tidal systems in the world, which interacts with the topography and bathymetry of the region creating distinct oscillating effects in sea temperatures and currents (Garrison, 2012). The unique geophysical conditions of Indonesia shape the marine ecosystem, its resources, and surf breaks across the archipelago.



Figure 4. Map of Indonesia and surrounding countries with international borders, the national capital (Jakarta), province capitals, major cities, main roads, railroads, and major airports. Source: Nations Online Project

Morotai Island was chosen as the study site in Indonesia because it is the location of the SCP pilot project. The Morotai Island Regency (Fig. 5) consists of 33 small islands in the eastern part of the North Maluku Province with a total land area of 2,337.15 km<sup>2</sup> and a population of 74,436 people (BPS Morotai Island Regency, 2020). The agriculture, forestry, and fishery sectors contribute largely (45%) to the gross regional domestic products of Morotai Island Regency (Wijayanto, 2021). Fishers and farmers are the main occupations in Morotai and its surrounding islands. Coral reef ecosystems are widespread along Morotai's coast contributing to an abundance of reef fishes and thriving fisheries (Purba et al., 2019).

Morotai Island is home to a wide array of high-quality surf breaks including reef, beach, and river mouth points scattered along the coast, with consistent swells hitting throughout the



monsoon season from November to April (A Liquid Future, 2019). Surfing was first taught to the locals by American soldiers stationed there during World War II (Greco et al., 2020). Nowadays, there are several surf clubs around the island with some modern equipment available, but the local youth still create their own finless boards out of tree trunks.

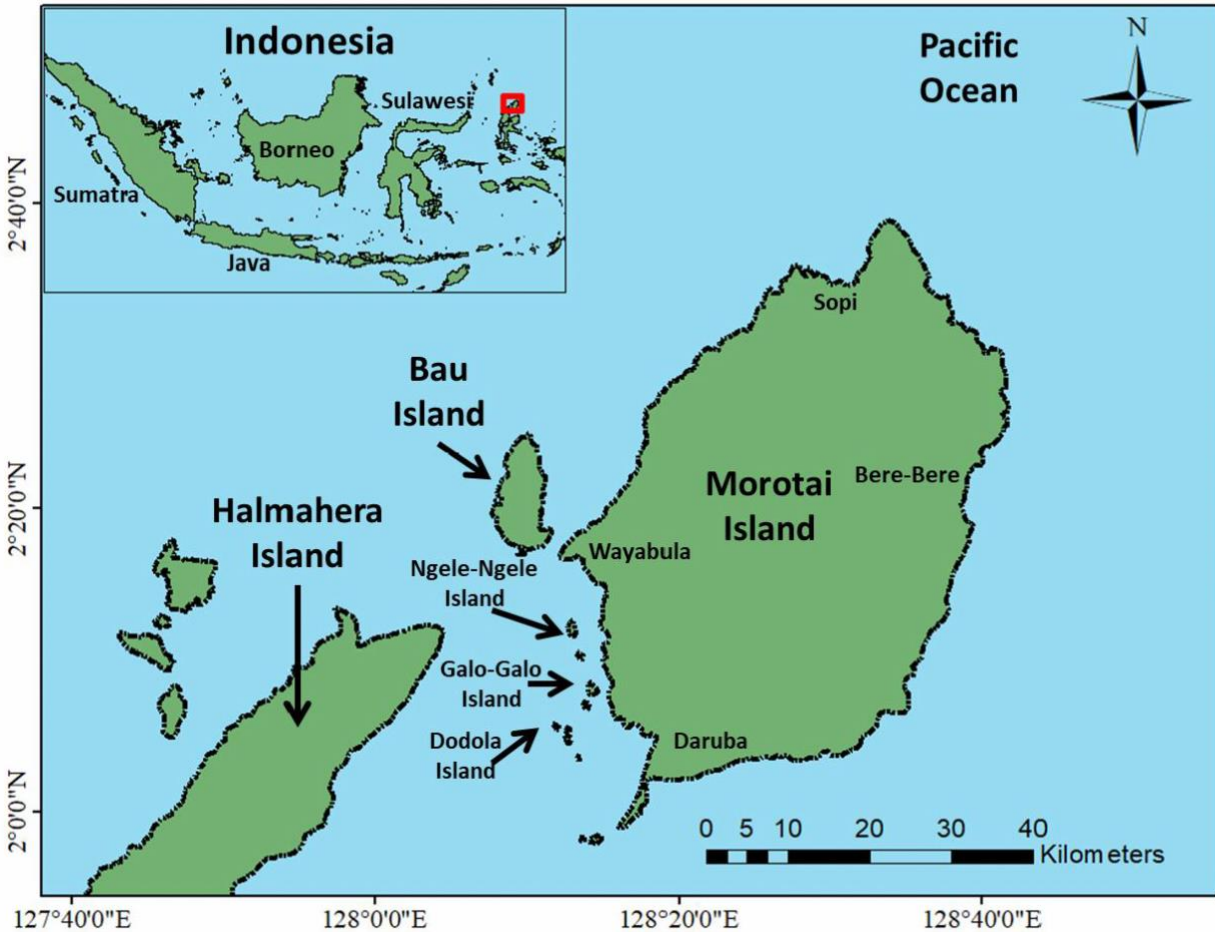


Figure 5. Map of Morotai Island Regency. Source: Wijayanto (2021)

### Stakeholder Survey and Interviews

An online survey was shared with surf tourists who had traveled to Indonesia for surfing. Semi-structured interviews were conducted with representatives of each of the identified stakeholder groups: Morotai community; government officials; and NGO employees. An IRB approved Participant Information Sheet that outlines the research objectives were provided to all participants and then a Consent Form was signed prior to the commencement of the survey and interviews. The survey and interviews were conducted online and by phone due to COVID-19

safety protocols. Collaboration with ILMMA helped to finalize interview questions and ensure proper translation to Bahasa Indonesian. ILMMA and a CI consultant helped to conduct interviews with the Morotai community and government officials. Interviews were audio-recorded for data collection. Closed-ended questions were asked of all surf tourist survey respondents to collect socio-economic, demographic and perceptions data. The online survey identified surf tourists' perspectives on their impacts of traveling, interactions with local communities, surf tourism development, and surf conservation efforts. Open-ended questions were used in interviews to allow for the views of the participants to emerge naturally. The interview questions for the Morotai community members investigated their attitudes towards current surf tourists, surf tourism development, surf conservation efforts, and their connection to the coastal environment. The interview questions for the government officials and NGO employees examined their perspectives towards surf tourism development and management, surf conservation efforts, stakeholder participation, and sustainable development.

### **Transcript Coding and Analysis**

The grounded theory approach was utilized for this study due to limited research and existing literature about the research topic. This approach also provided distinct procedures for analyzing qualitative data. Interviews were transcribed word for word in order to undergo a thorough coding process for each transcription that identifies major quotes, key themes, and common distinctions between stakeholder groups. The coding process was conducted using ATLAS.ti, a qualitative data analysis software. The initial coding phase produced a large quantity of codes assigned to meaningful statements that were central to the research questions. These codes were then grouped into topic clusters for interrelationship comparison and to ensure consistency in the generated codes. After identifying major themes within the different stakeholder groups, common themes and distinctions were identified and analyzed.

## **RESULTS**

This thesis explored stakeholder perspectives on surf tourism and surf conservation development in Indonesia. 26 surf tourists from around the world who visited Indonesia for surfing completed the online survey. Five Morotai community members were interviewed with

most being Bidonese living in Bido Village. Their occupations included teacher, farmer, fisher, and homestay owner. Two community members surf waves using wooden boards. Three government officials were interviewed from the village-level to the regional-level and represented different governmental constituents, such as fisheries, finance, and tourism. Two more government officials were supposed to be interviewed, but many government officials refused to be interviewed or canceled their scheduled interviews. Five NGO employees were interviewed from local to international organizations that were involved with the SCP and their activities in Morotai. These NGO employees and two government officials participated in a workshop hosted by ILMMA with support from CI and STWC on Morotai Island in February 2020 to develop the project work plan for the creation of SPAs and sustainable tourism regulations.

Through semi-structured interviews and an online survey, key themes and subthemes were identified for each stakeholder group: Morotai community (Table 1); government officials (Table 2); NGO employees (Table 3); and surf tourists (Table 4). Four key themes that intersected multiple stakeholder groups emerged from this research. The cross-cutting themes are empower local community participation, establish local economic benefits, conserve natural resources, and build a collaborative vision (Table 5). When examining each of these cross-cutting key themes, subthemes were identified and nuances between stakeholder groups were observed. It is important to note that surf tourist participants spoke to their broad experience of surf in Indonesia, predominantly in Bali, while stakeholder interview participants spoke specifically to Morotai Island. Given that difference, the results section begins with surf tourists' experiences in Indonesia and then moves into the key themes that relate to surf tourism and surf conservation development in Morotai.

Table 1. Key themes and subthemes that emerged from participant interviews with Morotai community members. Note: This table lists the number of participants who discussed each theme (n = 5).

<b>Key Themes</b>	<b>Subthemes</b>	<b>Participants</b>
Lack of understanding	New industry	5
	Need educational outreach	5
Lack of participation	More for youth	5
	Need financial incentives	4
	Need more surfing competitions	4
	Language barrier	3
High youth engagement	Improve surfing skills	5
	Learn foreign languages	4
	Befriend surf tourists	4
	Strengthen local pride	3
Establish local economic benefits	Increase surf tourists	5
	Increase income level	5
	Create more homestays	4
	Sell more goods	4
Conserve natural resources	Better beach cleanliness	5
	Benefit future generations	5
Lack of government assistance	Not listening to local voices	5
	Need to implement regulations	3
	Need support for local land ownership	2
	Need better enforcement	2
	Need funding	2
Lack of infrastructure	Need tourist facilities	4
	Need public bathrooms	2
	Need trash bins and recycling equipment	1

Table 2. Key themes and subthemes that emerged from participant interviews with government officials. Note: This table lists the number of participants who discussed each theme (n = 3).

<b>Key Themes</b>	<b>Subthemes</b>	<b>Participants</b>
Establish local economic benefits	Increase surf tourists	3
	Increase income level	3
	Increase local businesses	3
	Build tourist facilities	2
	Limit outside land and business ownership	1
Conserve natural resources	Implement regulations for protected areas	3
	Create policies for surf tourism development	1
Lack of budget and funding	Limited preparation trainings	2
	Lack of infrastructure	2
	Conservation not prioritized	2
Enhance cooperation with stakeholders	Need mutual communication with local community	3
	Need guidance from NGOs	3
	Need better internal government communication	1

Table 3. Key themes and subthemes that emerged from participant interviews with NGO employees. Note: This table lists the number of participants who discussed each theme (n = 5).

<b>Key Themes</b>	<b>Subthemes</b>	<b>Participants</b>
Empower local community participation	Share educational resources	5
	Support local community's vision	5
	Involvement in decision making processes	5
	Strengthen local surfing community	4
	Increase women representation	1
Establish local economic benefits	Diversify local businesses	5
	Conserve natural assets	5
	Need tourist facilities	4
	Limit outside land and business ownership	4
Government ineffectiveness	Lack of management and planning	5
	Need educational resources	5
	Slow logistics	3
	Lack of budget	3
	Lack of enforcement	2
Build a collaborative vision	Need active communication between stakeholders	5
	Need government openness to new ideas	5
	Address conflicting stakeholder agendas	4
Conserve natural resources	Implement regulations	4
	Increase prioritization and budget	3
	Manage tourist numbers	3
	Improve waste management	2
	Plan for climate change	2

Table 4. Key themes and subthemes that emerged from participant surveys with surf tourists. Note: This table lists the number of participants who discussed each theme (n = 26).

Key Themes	Subthemes	Participants
Establish local economic benefits	Increase local businesses	19
	Limit foreign land and business ownership	6
Conserve natural resources	Prioritize sustainable development	23
	Implement conservation fee	19
	Improve waste management	16
	Manage tourist numbers	10
	Create protected areas for surf breaks	3
Promote responsible surf tourism	Attract respectful tourists	13
	Share impacts of surf tourism	6
Empower local community participation	Provide educational resources	7
	Train local surf guides	5
	Incentivize involvement	2
	Support women involvement	1

Table 5. Key themes and subthemes that emerged from participant interviews and surveys. Note: This table lists the number of participants who discussed each theme (n = 39).

Key Themes	Subthemes	Participants			
		Morotai Community	Government Officials	NGO Employees	Surf Tourists
Empower local community participation	Enhance educational outreach	5	3	5	7
	Support local community's vision	5	2	5	13
	Incentivize involvement	4	0	5	2
Establish local economic benefits	Increase surf tourists	5	3	5	0
	Diversify local businesses	5	3	5	19
	Build tourist facilities	4	2	4	6
	Limit outside land and business ownership	2	1	4	6
Conserve natural resources	Prioritize sustainable development	5	2	5	23
	Create regulations	3	3	4	9
	Manage tourist numbers	0	0	3	19
	Improve waste management	2	0	2	16
Build a collaborative vision	Active communication between stakeholders	5	3	5	3
	Government assistance	5	3	5	3
	Guidance from NGOs	5	3	5	1
	Increase funding	2	2	3	4

## Surf Tourists' Experiences

### *Demographic Information*

This section builds a profile of surf tourists who visited Indonesia for surfing experiences. The survey provided insight into surf travel, trip expenditure, surf conservation, stakeholder interactions, and the future of surf development in Indonesia. Of the 26 participants who completed the online survey, 58% were male and 42% were female. Over half (54%) of the respondents were 21-30 years old, followed by 31% who were 31-40 years old and 15% who were 41-50 years old (Fig. 6). The majority surveyed were American (58%), with the remaining portion being Australian (19%), Canadian (8%), German (4%), Puerto Rican (4%), South African (4%), and Spanish (4%; Fig. 7). Most participants lived in the USA (65%), while the rest lived in Australia (8%), Indonesia (8%), Portugal (8%), Canada (4%), Germany (4%), and Switzerland (4%; Fig. 7).

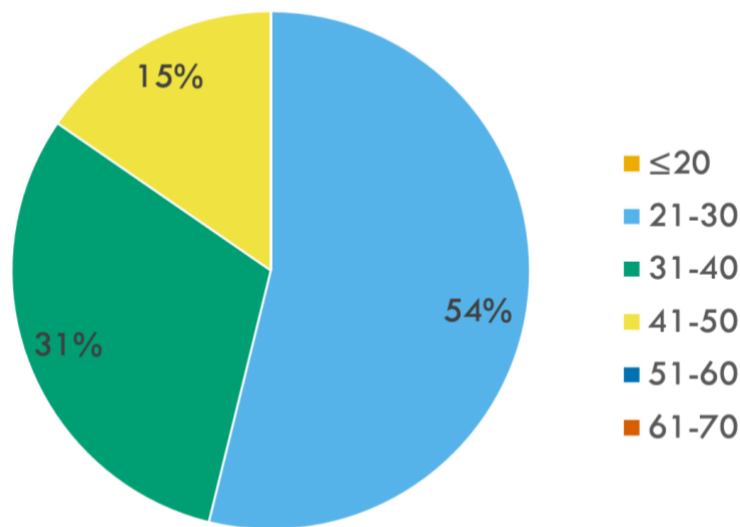


Figure 6. Ages (years) of the surf tourists (n = 26).



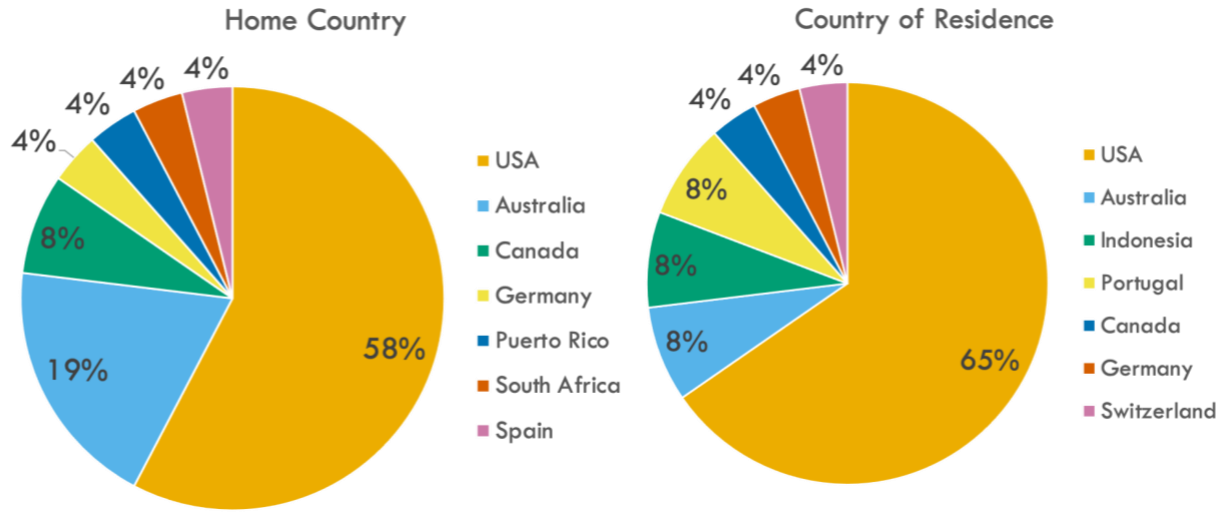


Figure 7. Home country (left) and country of residence (right) of the surf tourists (n = 26).

The annual income of participants ranged from <\$20,000 USD to \$200,001+ USD, with 35% having an annual income of \$20,000-\$40,000 USD (Fig. 8). In addition, respondents identified their surfing experience and surfing level. Almost half of those surveyed had been surfing for 10+ years (46%), followed by 19% who have surfed for 6-10 years (Fig. 9). In terms of surfing level, 38% of participants identified themselves as intermediate surfers (Fig. 9).

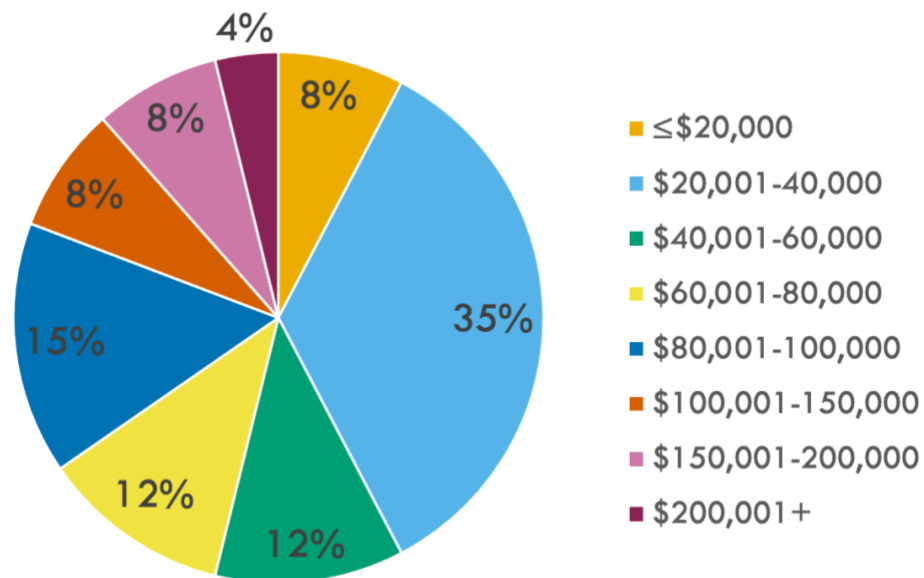


Figure 8. Annual income (USD) of the surf tourists (n = 26).

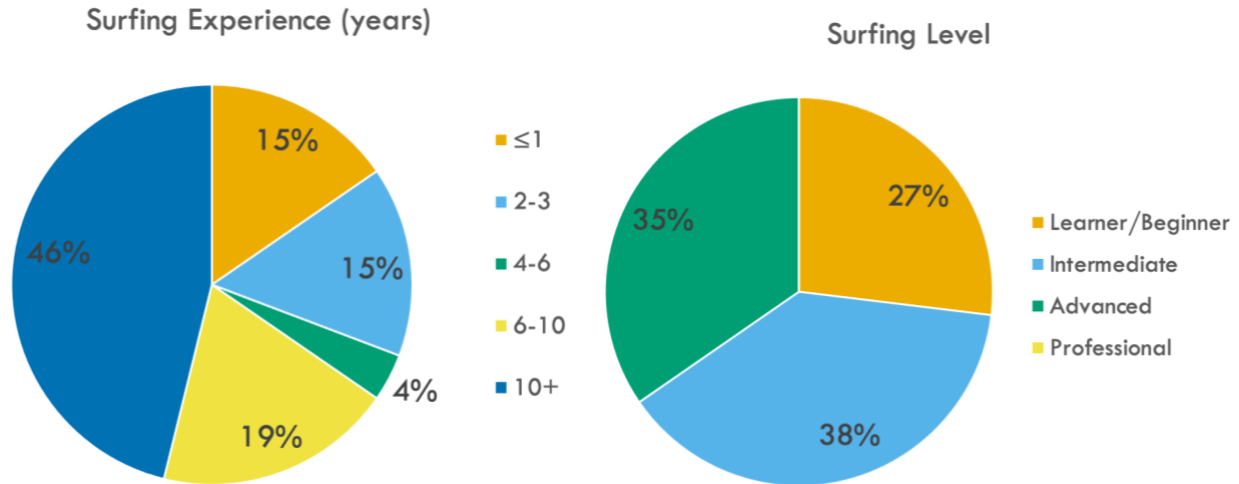


Figure 9. Surfing experience (left) and surfing level (right) of the surf tourists (n = 26).

### *Surf Travel Preferences*

Surf tourists shared their surf travel history and preferences. They identified themselves as either being an occasional surfer (<2 surf sessions per week), intermittent surfer (3-5 surf sessions per week), or daily surfer (>5 surf sessions per week). The type of surf tourist identified was a near even split (Fig. 10). The majority of surf tourist participants had only completed one surf trip in Indonesia (61.5%) and 15.4% had completed 2-3 surf trips (Fig. 11). Most survey participants traveled to Bali for surf, followed by Sumatra, Lombok, and Sumbawa (Fig. 12). Surf tourists typically spent 9+ nights at a surf destination (34.6%), followed by 3-4 nights (30.8%), 7-8 nights (15.4%), 1-2 nights (11.5%), and 5-6 nights (7.7%; Fig. 13). Many of the surf tourists stated that they stayed in local homestay accommodations, followed by hotels, surf resorts, surf charter boats, and local boats (Fig. 14).

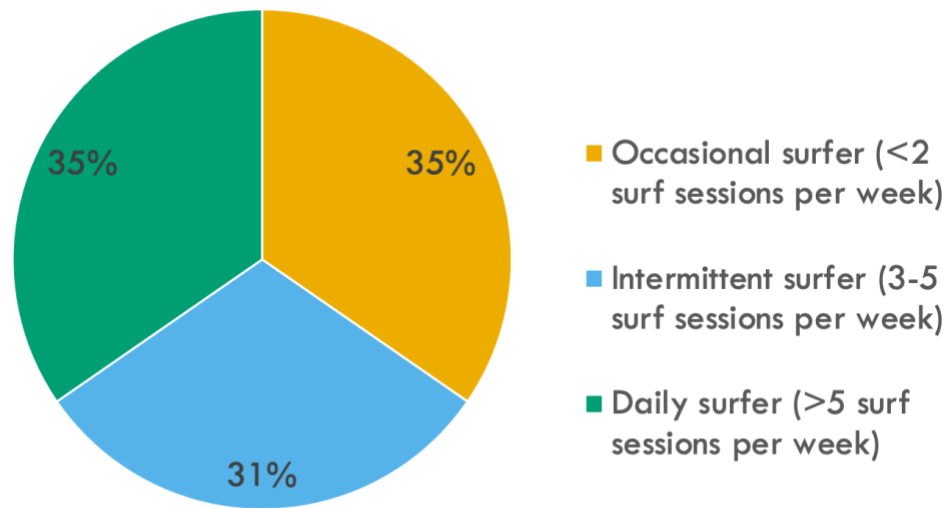


Figure 10. Type of surf tourists as identified by surf tourists (n = 26).

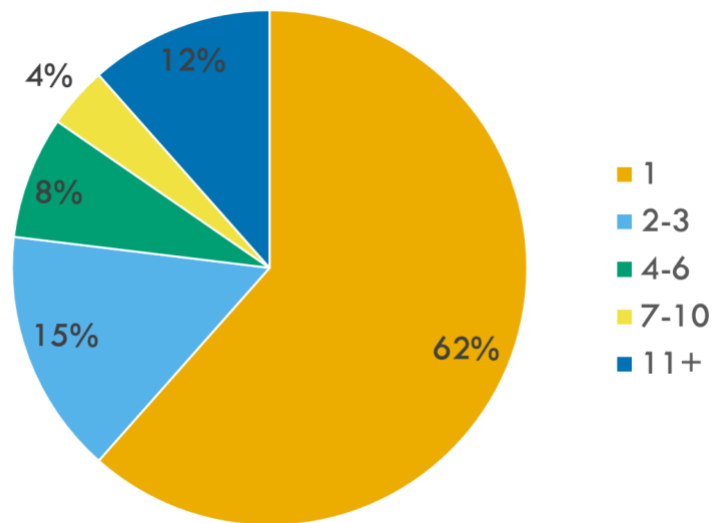


Figure 11. Number of surf trips in Indonesia completed by surf tourists (n = 26).

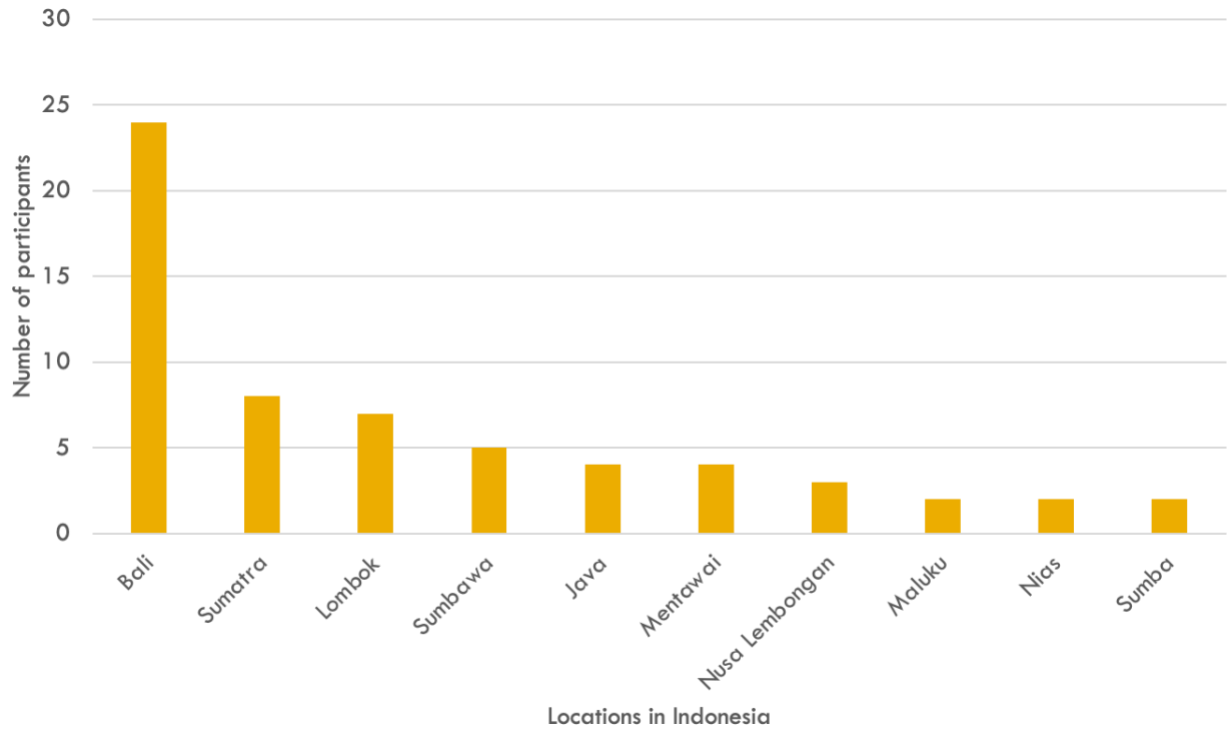


Figure 12. Locations in Indonesia where surf tourists have traveled to (n = 26).

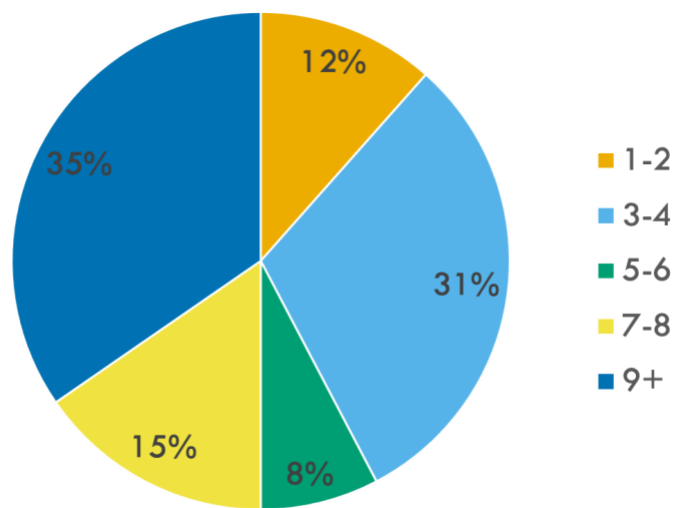


Figure 13. Number of nights surf tourists typically spend at a surf destination (n = 26).

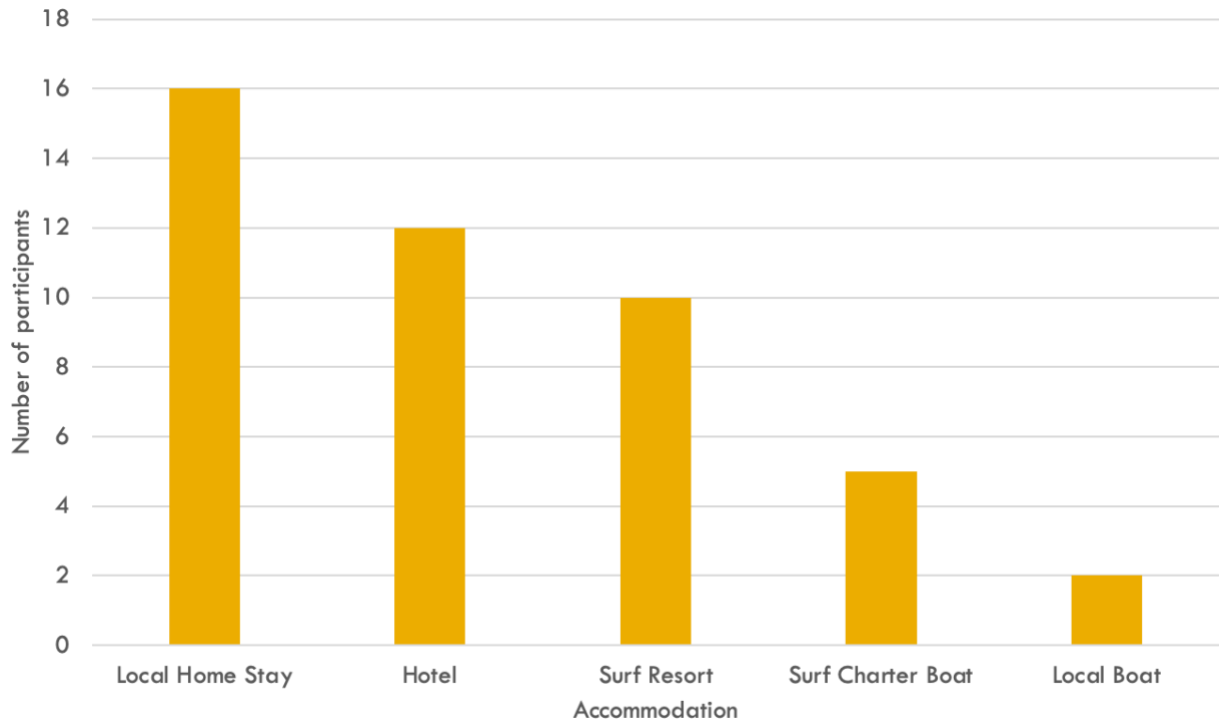


Figure 14. Types of accommodation that surf tourists stayed in (n = 26).

The majority of surf tourist participants preferred three-star quality accommodations (40%), followed by two-star value accommodations (36%; Fig. 15). Many participants traveled with friends, followed by their partner/spouse, solo, and other family members excluding children (Fig. 16). The main factors that motivated surf tourists to travel to Indonesia were high-quality surfing waves, culture, and affordability (Fig. 17). The main source of information that motivated survey participants to travel to Indonesia were recommendations from family/friends, followed by movie/TV shows and social media. Most participants had visited other surf destinations away from their home country (88.5%). In their opinion, Indonesia is distinct from other surf destinations due to the quality and consistency of surfing waves as well as the culture of the people (Fig. 18). After their surf trip in Indonesia, the best feelings to describe their surf tourism experience was overwhelming fun, followed by accessible, beautiful, overcrowded, westernized, and community (Fig. 19). Over half of the surf survey respondents rated their overall surfing experience in Indonesia as excellent (53.8%), followed by great (26.9%), and good (19.2%).

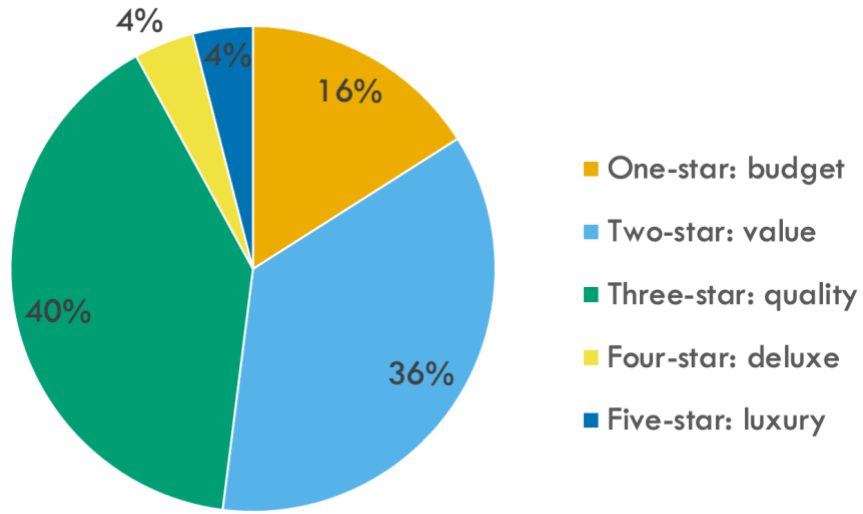


Figure 15. Quality of accommodation that surf tourists preferred (n = 26).

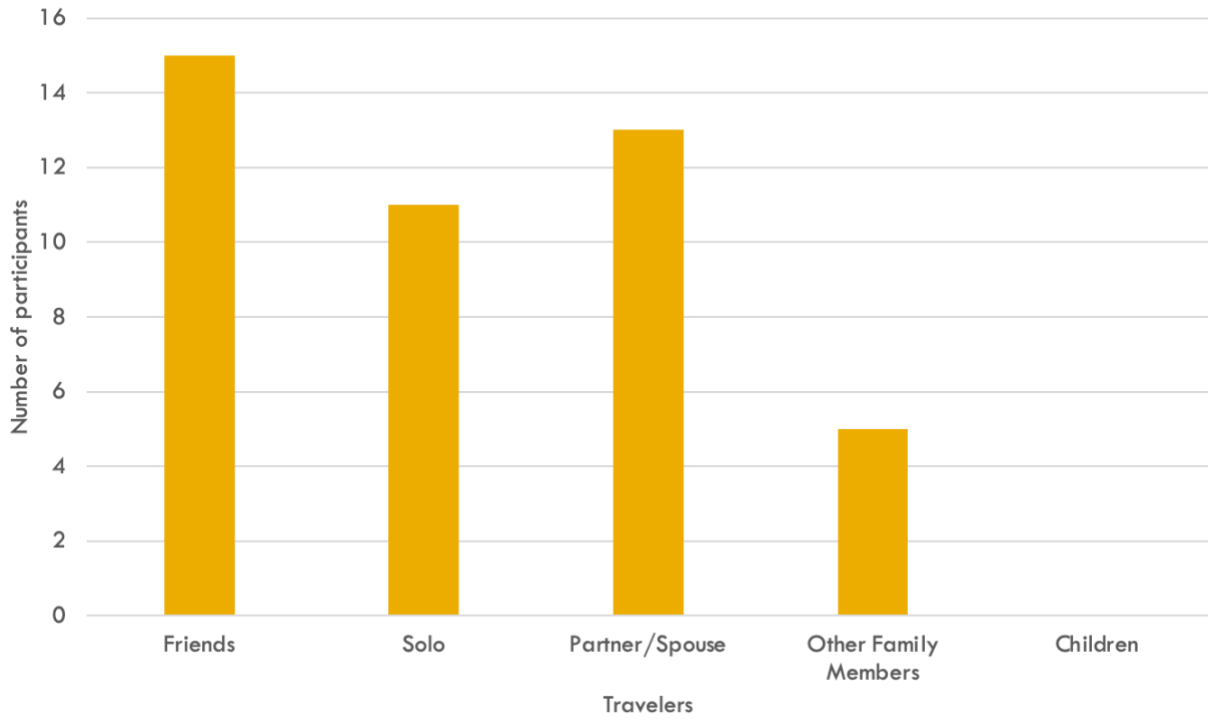


Figure 16. Types of travelers that surf tourists travel with (n = 26).



Figure 17. Word cloud of the most frequently used words to describe the factors that motivated surf tourists to travel to Indonesia (n = 26).



Figure 18. Word cloud of the most frequently used words to describe how Indonesia is distinct from other surf destinations (n = 26).



Figure 19. Word cloud of the most frequently used words to describe their surf tourism experience in Indonesia (n = 26).

### *Surf Trip Expenditure*

Surf tourists shared their surf expenditure, and most did not use a prepaid package for surf tourism in Indonesia (73.1%). For those who used a prepaid package, the cost varied from a low of \$600 USD to a high of \$10,000 USD. The packages typically included accommodation, meals, and boat transfers with some also including a surfing fee, surf equipment, surf boat, and flights. The average local expenditure during surf trips per day for transportation ranged from \$0 to \$200 USD with the majority paying between \$10-19 USD. The average local expenditure during surf trips per day for accommodation ranged from \$7 to \$250 USD with most participants spending between \$20-29 USD. The average local expenditure during surf trips per day for food and drinks ranged from \$5 to \$100 USD with the majority spending between \$10-19 USD. The average local expenditure during surf trips per day for surfing equipment ranged from \$0 to \$150 USD with most not paying for surfing equipment. The average local expenditure during surf trips per day for additional recreation activities and other expenses ranged from \$0 to \$200 USD with many spending between \$10-19 USD.

### *Surf Tourism and Surf Conservation*

Surf tourists' perspectives on the impact of their travel and conservation views were investigated. Over half of the survey participants stated that they were a sustainable tourist



(53.8%), while only 7.7% stated they weren't and 38.5% stated 'maybe'. The main positive impact that was shared about their surf tourism experience in Indonesia was supporting local businesses and contributing to the local economy.

"I have supported local businesses and families and spread environmental awareness. Personally, I had feelings of adventure, accomplishment, and made new friends."

- American, male, 31-40 years old, advanced surfer

Some surf tourists shared their personal positive impacts that were felt from their surf trip in Indonesia. These personal benefits included the improvement of surfing skills, creating new friendships, and finding a new appreciation for the cultures and environments in Indonesia.

"Personally, the positive impacts ranged from increasing my skill in and love for surfing, a general appreciation for a new culture and location, as well as cementing Indonesia as a place I'd like to return to."

- American, male, 21-30 years old, beginner surfer

The main negative impact that was shared about their surf tourism experience in Indonesia was contributing to pollution within poor waste management systems.

"Burdening an already deficient infrastructure. Contributing to increased waste."

- American, male, 21-30 years old, advanced surfer

"Contributed to the enormous amount of trash on islands that have no way to manage that amount of trash and sewage."

- American, female, 21-30 years old, intermediate surfer

A few participants acknowledged that their surf tourism contributed to the erosion of traditional village life for local communities. Another negative impact mentioned was sharing these Indonesian places with friends through personal communications and social media which would lead to excessive exposure of these locations and thus overtourism. A surf tourist even emphasized the importance of knowledgeable surf guides who can inform their clients of safe breaks to surf based on their surfing experience.

"Culture exchange, corruption of village life."

- Australian, male, 41-50 years old, advanced surfer

“I suppose the exposure of these places to friends and then their friends and so on leads to over exposure in the end.”

- Australian, male, 41-50 years old, advanced surfer

“Surf lessons need to highlight more about the dangers of the ocean and spots that beginning surfers should and should not surf. Surf guides should also be more conscious of where they take their clients based on their abilities.”

- American, male, 21-30 years old, advanced surfer

Participants ranked statements related to surf tourism and surf conservation in Indonesia from 1 (strongly disagree) to 5 (strongly agree) with an option to choose ‘unsure’ (Table 6). Many surf tourists strongly disagreed (30.8%) that surf tourism in Indonesia is sustainable and strongly agreed (61.5%) that surf tourism should be managed to be sustainable. Many participants disagreed (34.6%) or strongly disagreed (26.9%) that surf breaks are well-managed and clean. Instead, participants agreed (34.6%) that surf breaks are overcrowded. Surf tourists disagreed (26.9%) or strongly disagreed (23.1%) that the surf tourism industry is locally owned, but most participants strongly agreed (57.7%) that the surf tourism industry should be locally owned. Surf tourists disagreed (26.9%) or were unsure (23.1%) about local communities having limited involvement in the surf tourism industry. Participants were neutral (34.6%) or strongly disagreed (19.2%) that there is a large amount of interaction between surfers and locals. Surf tourists strongly disagreed (42.3%) that current tourism management provides adequate protection of surfing resources, followed by 30.8% of participants who were unsure about that statement. The majority of surf tourists strongly agreed (73.1%) that surf conservation efforts are necessary and strongly agreed (61.5%) to pay to assist with conservation efforts. On average, surf tourists were willing to pay \$200 USD per surf trip to assist with conservation efforts with a large spread from \$0 to \$1500+ USD (Fig. 20).

Table 6. Ranked statements related to surf tourism and surf conservation in Indonesia by surf tourists (n = 26).

Statement	Strongly disagree					Strongly agree	Unsure (%)
	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)		
Surf tourism in Indonesia is sustainable	30.8	23.1	19.2	3.8	0	23.1	
Surf tourism should be managed to be sustainable	7.7	0	19.2	11.5	61.5	0	
Surf breaks are well-managed and clean	26.9	34.6	11.5	7.7	7.7	11.5	
Surf breaks are overcrowded	11.5	3.8	23.1	34.6	23.1	3.8	
Surf tourism industry is locally owned	23.1	26.9	15.4	11.5	0	23.1	
Surf tourism industry should be locally owned	3.8	0	23.1	11.5	57.7	3.8	
Local communities have limited involvement in the surf tourism industry	11.5	26.9	19.2	15.4	3.8	23.1	
There is a large amount of interaction between surfers and locals	19.2	15.4	34.6	7.7	15.4	7.7	
Current tourism management provides adequate protection of surfing resources	42.3	11.5	7.7	7.7	0	30.8	
Surf conservation efforts are necessary	0	0	23.1	3.8	73.1	0	
I would pay to assist with conservation efforts	3.8	3.8	11.5	11.5	61.5	7.7	



Figure 20. Amount of money (USD) surf tourists were willing to pay to support surf conservation per surf trip (n = 26).

### *Stakeholder Interactions*

Survey participants were asked about their involvement with different stakeholder groups during their surf trip in Indonesia. Many surf tourists were not involved with surf resort operators (42.3%), surf charter boat operators (53.8%), NGOs (53.8%), and local government (76.9%). Several participants had daily involvement with local surf operators (34.6%) and other surf tourists (34.6%). A large portion of survey participants stated that they had some involvement with local community members (42.3%). Surf tourists described their interactions with the local community during surf trips as generally positive and friendly. Many surf tourists spent time talking to locals at the beach and in the ocean as well as away from surfing areas such as at their homestay and at local markets.

“Meeting on the beach, chatting in the water, buying from the local market, hanging out and chatting in the street.”

- American, female, 31-40 years old, advanced surfer

“I stayed at a local home stay and spent time with the local family and children daily.”

- American, male, 21-30 years old, intermediate surfer

“Conversations to the extent of their English ability, asking about location, talking about background, experience, and sharing common interests - exploring our similarities and differences, hanging out.”

- American, male, 21-30 years old, intermediate surfer

“I had local instructors. I also connected with restaurant owners and service providers.”

- Canadian, female, 21-30 years old, beginner surfer

One participant even learned Bahasa Indonesian as an intentional effort to interact with locals as frequently as possible.

“While traveling in Indonesia, whether surfing or not, I tried to interact with locals as much as possible. From routinely asking for directions, advice and general recommendations I also tried to learn as much of the local language as I could to increase the possibilities of having positive interactions with locals.”

- American, male, 21-30 years old, beginner surfer

The majority of participants stated that they would return to Indonesia for surfing (96%) and other reasons too. Besides the quality of surfing waves, the local people, culture, food, landscapes, and affordability were the other main reasons participants wanted to return to Indonesia.

“I have pretty much nothing but superb memories from Indonesia. While surfing is only one of many reasons I would like to return, I will undoubtedly be back for the people, food, landscapes and feeling of bliss!”

- American, male, 21-30 years old, beginner surfer

“Affordability, quality of surf and plenty of cultural options.”

- Puerto Rican, male, 21-30 years old, intermediate surfer

A few surf tourists also shared their interest in wanting to visit other Indonesian islands outside of Bali due to their experience of Bali being overcrowded and overburdened with foreign tourists.

“I would like to return to Indonesia but would definitely visit less frequented islands. Bali was a mess and it is very clear that the tourism there is incredibly unsustainable and burdening the local culture and community.”

- American, male, 21-30 years old, advanced surfer

“I want to go to the Mentawai, Lombok, Nias, and Sumatra. I feel like I was pretty disheartened by my experience in Bali and I feel like I am able to be a responsible tourist if I were to do more research ahead of time.”

- American, female, 21-30 years old, intermediate surfer

The long distance traveled for surfing was the reason one participant stated she would not return to Indonesia for surfing.

“I wouldn't travel that far for surf again.”

- American, female, 41-50 years old, intermediate surfer

### **Empower Local Community Participation**

Stakeholders expressed the need to improve local community participation in surf tourism and surf conservation development in Indonesia (Table 5). Surf tourism is a new industry on Morotai Island with the local surfing community still growing. Government officials and NGO employees believed that public awareness for surf-related initiatives may be insufficient (Table 2; Table 3), creating a lack of local support and involvement.

“One of the challenges is how to make community understand.”

- male, Morotai regency government, tourism

“What I see as the main challenge is people who do not understand the benefits of surfing conservation for their own village. So that, the organizations directly related to conservation mostly give instruction or input to the community.”

- Indonesian, male, local NGO

“I think in Morotai, one of the main challenges is that surfing as a local sport is just starting to consolidate or grow...So, the surfing association is new, the surf clubs are new, so we don't have a strong local surfing community that is already empowered to participate and guide the process for surf conservation in Indonesia.”

- Mexican, female, international NGO

Interviews with Morotai community members confirmed that the lack of local community participation appears to be a result of limited understanding about surf tourism and surf conservation (Table 1). The Morotai community associated surfing with the local youth (Table 1) and thus weren't very familiar with surf-related concepts. Many locals were not involved with surfing and don't see the value in surfing because they have not been informed about the potential benefits of surf tourism and surf conservation.

“Surfing is relatively new, so it is not that I don't know, but when I see it, I know it, but I don't really know about what it is really about.”

- female, 46 years old, cook and homestay owner, Letao

“Surfing conservation? This is the first time I have heard about surfing conservation. I have often heard about other conservation like environmental conservation, but this is the first time I have heard about it, so I don't know.”

- male, 32 years old, teacher, Bido

“Surfing tourism is an activity that is always carried out for the younger generation for their future.”

- male, 41 years old, farmer and homestay owner, Sopi

“Most of the people in Bido do not surf, only young people, teenagers.”

- male, 40 years old, farmer and fisher, Bido

Although all Morotai community interviewees were not involved in surf-related planning, some participants were interested in being involved and expressed hope for more local community participation in the future.

“If there is planning, I want to be involved...By joining the socialization about surfing tourism, by influencing people here, so that together they can participate in surfing tourism and surfing tourism planning, to bring the community together to support surfing tourism.”

- male, 32 years old, teacher, Bido

“I am ready to get involved...In anyways, the important thing is it helps increasing tourism. For example, in how we protect the beach, prevent the sand from being reduced or removed. Let's as a community being involved, so it's protected.”

- male, 41 years old, farmer and homestay owner, Sopi

“Right now, in the aspect of surfing conservation, many people are not too directly involved, just go with the flow, later when a lot of people are involved, there will be many events, so I hope that in the coming years or in the next 10 years there will be many people who'd like to be directly involved with this...I want it to still be preserved...The sea is still clean, it is prohibited to throw rubbish into the sea, and there are no longer people who are defecating on the beach.”

- male, 32 years old, teacher, Bido

The subthemes for empower local community participation are enhance educational outreach, support local community's vision, and incentivize involvement (Table 5).

### *Enhance Educational Outreach*

All Morotai community members, government officials, and NGO employees wanted more educational outreach to improve awareness about surf tourism and surf conservation (Table 5). Through knowledge sharing, stakeholders hope the local community gain a deeper understanding about the potential of surfing in order to increase advocacy and involvement.

“What can be done to increase community participation in surfing conservation is through socialization about environmental conservation, so together people are aware that conservation is important.”

- male, 32 years old, teacher, Bido

“When people do not understand, then of course people will refrain themselves from participating. When that person understands the correct tourism context, they will definitely participate.”

- male, Morotai regency government, tourism

“Locals in surf communities need the education and tools to sustainability manage their coastal zones effectively.”

- American, male, 31-40 years old, advanced surfer

Several Morotai community participants stated that sharing their knowledge about surf tourism with family and friends would help increase community participation. A Morotai community member shared his vision of Bido Village becoming a conservation community learning center.



“We need enlightenment, people have to really understand first...Enlightenment, to make it clear to people that this was very much needed for our livelihood in the future.”

- male, 41 years old, farmer and homestay owner, Sopi

“Guide them, let's discuss it. Inviting friends. Not just me. What do we want to make, what do you want, what do you want? So, we guide them to teach them what to do so that we can both learn and get. Yes, not profit but success. Success for the future.”

- female, 46 years old, cook and homestay owner, Letao

“In the future, the goal is for Bido Village to become a community learning center. The villagers, not the building, but the community. People will come, learn about conservation or agriculture. Study there, it is the center of learning.”

- male, 41 years old, farmer and homestay owner, Sopi

In addition, Morotai's first surf competition in March 2021 played an important role in expanding the visibility of surfing and showcasing the potential of surf tourism (Table 1), especially for local youth. Many interview participants shared excitement about the recent development of surf clubs and surf competitions, because it helped increase local support for surfing activities and beach cleanups.

“I think the community is very happy when there are surfing activities or surfing competition being carried out. Because yesterday I saw that the community was very supportive, so they could help at the activity site, they were there, helped clean the area.”

- male, 40 years old, farmer and fisher, Bido

Currently, the local youth in Morotai receive educational resources surrounding surfing through ALF. ALF works with local schools to provide students with access to co-designed programs that focus on: English and creative media; surfing and ocean conservation; and information and communications technology. Participants across stakeholder groups support ALF's educational programs for youth and their efforts to strengthen the local surfing community. Their work was discussed as an important element of capacity building on Morotai Island.

“There are surfers' buildings, there are buildings for language, like English so that society can be even more for their children so that they encourage children to become surfers, and that is also a lesson for the kids for their future.”

- male, 29 years old, farmer and fisher, Bido

“Like the children here, they exchange trash for a surfboard. They are picking up trash from the beach and they bring it to the ALF office to exchange it for a surfboard. Then at night, they attend Indonesian language courses, computer courses and English courses.”

- female, Morotai village government, finance

“The main benefits, I think empowering the youth. So, vastly increasing the opportunities available to them. The skills that they have, more well-rounded picture of the potential of surfing, what the ocean environment can provide through surfing, if they take care of that wave and the beach and the reef. What it can mean for their health and future, in every sense, socially, economically, physically, for all aspects.”

- English, female, local NGO

“I think right now with the work that ALF is doing, and the work that CI and ILMMA 's are doing, we're going to have a really active surfing community in Morotai, and then they're going to be able to lead the process and participate in all government stakeholder meetings, and be in control of this, like fast growing surf tourism process that is going on in Morotai.”

- Mexican, female, international NGO

Yet, a few Morotai community members weren't familiar with ALF and highlighted their hope for NGOs to provide educational services for adults, such as English teachers, to facilitate community skill building.

“For NGOs we ask so, for what we lack here in the village, there are still many who don't know the language, like tools, not tools, but there are still a lot of things we need here... And maybe for the language, like the teacher or the education for. Not yet available... We ask for that. For us to be better. If not just learn by ourselves.”

- female, 46 years old, cook and homestay owner, Letao

### *Support Local Community's Vision*

Stakeholders across groups articulated the importance of supporting the voices and visions of the local community in decision-making processes (Table 5). All Morotai community participants want their needs heard by the government to create actionable change within their community (Table 1). A community member stated that NGOs can assist by sharing the

community's vision with the government because from his perspective the government consistently ignores their voice.

“The NGOs can help the community to express people's aspirations so that the government can understand it well. Because without assistance from NGOs, people often ask for help but are often not seen and being ignored.”

- male, 40 years old, farmer and fisher, Bido

Yet, a government official called attention to his openness to receive input from the local community about generating a positive impact for village development, specifically increasing people's income. He spoke adamantly about building a successful future for Morotai and thus welcomes constructive criticism to enhance the surf tourism development process.

“The government, us, the Tourism Office, are open for input from the community, whether it's the surfing or diving community. We really are open. The important thing is that it has a positive impact on the development in the village, increasing people's income. In principle, the government will support it...The government must be responsible for all these activities. We hope that all tourism activities in Morotai will develop and progress. We as the civil servants will also give our best. We are ready to be criticized. Criticisms and suggestions and input if there are some shortcomings, please feel free to criticize us. If there is something not right, please, we are open to anyone who wants to criticize for our future improvements, as long as it is constructive, it won't damage this area, it's not because of personal egos, what's important is that it doesn't jeopardize Morotai's future.”

- male, Morotai regency government, tourism

NGO employees and surf tourists hope the development process will be collaborative with local voices respectfully heard and honored by the government. NGO employees want to provide the local community with resources to strengthen capacity building and increase their confidence in taking on leadership roles at stakeholder meetings (Table 3). Through collaborative workshops, the local community will learn together with NGO employees about the value of their surf breaks and natural assets as well as deepen their understanding about approaches and regulations that could benefit their long-term community goals. It is evident that NGO employees prioritize the creation of a beneficial and accessible contextualized concept of surf conservation that would be fully embraced by the local community.

“I’d like to see the local community have a larger say in the development of Indonesia.”

- American, male, 21-30 years old, advanced surfer

“Having the local people have a voice in deciding how to manage their resources, exposing them to options on how to do it that will help to sustain all the resources, not just the surf, but the fisheries, the forests, the ecosystems, because ecosystems now are still really, really healthy.”

- American, male, international NGO

“Building from bottom to up, we’re going to have our strong conservation surf conservation management plan for Morotai that people are going to identify with. So, we’re learning all of us together in this coalition or in partnership about specific aspects of the natural resources, regulations, and tourism regulations... We’re going to be able to build together a surf conservation management plan that is going to have a big impact because it’s going to be built on their knowledge and with their criteria, not ours.”

- Mexican, female, international NGO

“I taught her daughter how to surf. She’s the first surfer girl in Morotai. And after four or five years, she has been exposed to all sorts of different experiences that she never would have been otherwise, and is very intelligent, and has very much begun to understand another perspective, to development and tourism and the need for her community. To be aware of that, and to believe in themselves and have the skills and support they need, so that they can say no to things that they don’t think are right, with critical thinking, and the knowledge to have some anticipation of the future and what it could bring. So, I think that would be the most beneficial thing that communities know the value of their surf break, of their beautiful surroundings, of their culture, and that they are in a position to make the decisions and benefit from it.”

- English, female, local NGO

### *Incentivize Involvement*

Morotai community members and NGO employees discussed the need to incentivize local community involvement, while government officials did not speak to or suggest incentivizing participation (Table 5). The Morotai community do not see the value in being involved with surf tourism and surf conservation due to an absence of wealth generation. Instead, community members prioritize spending time working in their current occupations to earn income. Morotai community participants suggested that to increase local community participation there needs to be financial incentives (Table 1).

“Most of the involvements are from young people, who are getting more and more active in these things. For adults, most of them are involved in their business in fishing and agriculture.”

- male, 41 years old, farmer and homestay owner, Sopi

“Being involved in surfing tourism, increasing community participation, there must be some kind of pocket money...Because people here do something to earn income. So, there must be some incentive for the community.”

- male, 32 years old, teacher, Bido

Two surf tourists also recognized the importance of creating incentives that support the economy, culture, and environment of local Indonesian communities (Table 4). NGO employees suggested that the government should implement regulations to favor local community involvement (Table 3).

“Build incentives that support local businesses, cultural practices, tradition, local resources.”

- American, female, 41-50 years old, intermediate surfer

“There should be laws that favor local community members and surf tourism enterprises, regulations for that.”

- American, male, international NGO

### **Establish Local Economic Benefits**

Stakeholders strongly stated that establishing economic benefits for the local community would be essential for successful surf tourism and surf conservation development (Table 5). Many surf tourists spoke to supporting local businesses and contributing to the local economy as the main positive impact from their travels in Indonesia (Table 4).

“Support local Indonesian businesses. Not buying land and pouring concrete. Trying to use less plastic waste.”

- American, female, 31-40 years old, advanced surfer

“Meeting the community and visiting a local school, supporting locals financially.”

- American, male, 21-30 years old, intermediate surfer

The Morotai community discussed the increase in local income through homestay operations and selling goods as the main benefit of surf tourism (Table 1). But a few Morotai participants shared that not all community members benefit financially from surf tourism. Currently, community members with homestay operations mainly receive direct economic benefits.

“The main benefit received by the community here is that the community can rent out their houses. In the socio-economic area, it can increase people's income because of this. Tourists who come here stay there, at villagers' houses. Then there is also income for the community by selling goods.”

- male, 32 years old, teacher, Bido

“First, the benefits for the community income. The income is relatively small...for example, for one month, it was only Rp. 200,000 (~14 USD), now it could turn it into one million (~70 USD), it is increasing...But this is not for all community, only for those who have a building...for example with one unused room, then there is westerner staying there, this is an approach. Homestay.”

- male, 41 years old, farmer and homestay owner, Sopi

“From the surfing tourism, received by Bidonese is just people who join surfing or host guests from the tourism, they might. When foreign surfers come, they stay at houses. So not all people receive benefits. Only people who have a house (room to rent) or something like that. Because if the tourists stay at their home, of course, they will pay a certain fee per night.”

- male, 40 years old, farmer and fisher, Bido

The subthemes for establish local economic benefits are increase surf tourists, diversify local businesses, build tourist facilities, and limit outside land and business ownership (Table 5).

### *Increase Surf Tourists*

Morotai community members, government officials, and NGO employees wanted more surf tourists to travel to Morotai Island (Table 5). Stakeholders acknowledged that Morotai's surf tourism industry is in an early phase of development with very low numbers of visiting surf tourists. COVID-19 significantly impacted the progress of surf tourism development but allowed for more time to strategize and plan for sustainable surf tourism and surf conservation

management. None of the surf tourist respondents wanted an increase in surf tourists because they experienced overcrowded surf tourism in other parts of Indonesia (Table 5).

“At the moment, surf tourism in Morotai, it's still very low, not many tourists coming to the area to surf mostly from my observation and the data that I got from the community and government.”

- Indonesian, male, international NGO

“I think it's definitely something that local people want. And right now, it's very nascent, it's very limited. But it also is something that I don't think Morotai can handle a lot of tourists...With COVID, it actually gave us even more time since tourism wasn't happening to try to get moving on this and get things set up. And we've needed every moment of that time because it's complicated to pursue these things. And the government is, government processes can be slow, they've just got their working group formed. And so right now is when we're starting the detailed conversations about sustainable tourism for the area, and responsible tourism.”

- American, male, international NGO

The majority of community members hope that surf tourism in Morotai develops like Bali over the next 10 years. They view their own coastal features, such as surfing waves and sandy beaches, as similar to that of Bali and thus feel hopeful for Morotai's surf tourism potential.

“I want to see surfing tourism in Morotai in the next 10 years to be like Bali...Because the potential for waves in Morotai is not far behind those in Bali...And also the white sand here is not far behind.”

- male, 40 years old, farmer and fisher, Bido

“I want to be like in other areas where a lot of tourists come, to visit, that there is good wave tourism there. Not wanting to be like it used to be, only 1 or 2 people came. I want it to be even better so that people here get used to meeting like foreigners. So that they also have a broader mindset to be able to surf and we get a lot of income again, such as a lot of money income. Because we don't get too much money here, we only get money from farming or fishery. That is all.”

- male, 29 years old, farmer and fisher, Bido

“Morotai also has its specialty and surfing is one of them. There isn't any other place in North Maluku, maybe even Papua and beyond, with surfing spot like the one in

Morotai...I think the future will be great. The surfing, the prospects are remarkable...If there is no COVID in the next 5 years, I think it will be flooded by tourists.”

- male, Morotai regency government, tourism

The Morotai community recognized the role of surf tourists in increasing and diversifying their income. Some Morotai community members were also interested in the pride of welcoming visitors and sharing their home (Table 1). As more surf tourists visit Morotai Island, the local community will interact with people from around the world and gain a deeper understanding of other people’s cultures and languages. An NGO employee even spoke to the power of authentic connection when in the ocean surfing.

“If more people come, it becomes one of the sources of community income. What used to be, for example, if from 400 tourists grow into 4,000, then this Bido Village, the more income will increase with the homestay.”

- male, 41 years old, farmer and homestay owner, Sopi

“Because if there are many, especially foreigners who come here, this is one of the pride for us here and it will increase the income for the local people here because they can turn people's houses into lodgings. There may be another positive side as well. Children here may also be able to learn foreign languages directly from them.”

- male, 32 years old, teacher, Bido

“Meeting people from different countries, being exposed to a different way of life, a different culture and that being shared on common ground on an equal level, we're all equal in the ocean, a wave doesn't treat anybody any differently...It can really bring local communities out of out of poverty and change their lives in an extraordinary way.”

- English, female, local NGO

### *Diversify Local Businesses*

Stakeholders across groups spoke to diversifying local businesses as a way to increase local income (Table 5). The majority of participants wanted to see surf tourism benefit the local economy by expanding locally owned surf business operations and employment options. Food sellers, surf guides, surf operators, homestay owners, and cooks were mentioned as some of the potential business opportunities. A surf tourist talked about supporting local women through microloans and sustainable business development training (Table 4).



“We want to be sure that local people can have options for facilities to set up their own businesses. But even if they don't own the businesses, which is too much or too often the case now, they still often benefit through employment and small enterprises.”

- American, male, international NGO

“It will increase the number of local workers. At least the people around the surfing location can work as a guide there, they can open businesses there. Besides that, it can also increase people's economic income.”

- male, Morotai regency government, tourism

“I'd also like to see an increase in the capacity for local people to have jobs in sustainable tourism.”

- American, male, 21-30 years old, advanced surfer

“Community support and a special focus on offering women in these communities microloans to build sustainable businesses (rather than having to sacrifice their health by walking the beaches offering massages or plastic bottled water) and business development training, sustainable tourism initiatives (slow travel) rather than turn and burn.”

- Australian, female, 31-40 years old, intermediate surfer

It is important to note that an NGO employee emphasized the importance of ensuring the local community does not become fully dependent on tourism due to potential tourism disruptions, such as COVID-19. He expressed that the benefits of tourism should only be seen as a bonus to their foundational economic sectors and surf conservation efforts can help keep their primary resource base intact to allow for the continuation of farming and fishing.

“I don't want everything to be purely dependent on tourism. I'd like also that this surf conservation doesn't just protect the surfing amenity, but it protects the, helps to protect the resource base that the community members depend on. Because tourism can always go south and it usually does as we've seen with COVID and the Bali bombs, and the recession.”

- American, male, international NGO

The Morotai community recently experienced the economic benefits of hosting a surf competition that showcased surfers from Morotai and its surrounding islands. The large gathering of people at the event greatly benefitted the local food sellers.

“It is very amazing when there is a surfing competition before, especially for us as the sellers, is very extraordinary, unlike usual, when usually we sell food, but when there was surfing competition, very amazing, meaning the income was very good, like that. So hopefully it doesn't stop there as I said, we should develop.”

- female, 46 years old, cook and homestay owner, Letao

“During the event back then, the community came to the surfing event. They brought goods to be sold there because there were a lot of people who came, so the community can get an increase for their economy.”

- male, 32 years old, teacher, Bido

A Morotai community member dreams of a future where the Bido community learns how to cultivate their existing natural resources to welcome future tourism. He hopes to see the creative economy strengthened, empowering local people to think creatively about valuable ideas that can boost the economy.

“I have a dream in the future of how the Bido generation should understand how tourism will develop in the future. How to cultivate resources, welcome future tourism, cultivate existing natural resources where the school is located. So, in addition to natural resources. Bido has vast natural resources. Water is a natural resource. Now Bidonese coconut is well known, this is amazing. Then I dreamed about agriculture in the future. How do we welcome tourism in the next 10 years? We must strengthen what is called the creative economy.”

- male, 41 years old, farmer and homestay owner, Sopi

### *Build Tourist Facilities*

Several stakeholders see the creation of tourist facilities as a key step to sustainable surf tourism development and attracting more surf tourists to Morotai Island (Table 5). The lack of infrastructure on island was stated as one of the main challenges of surf tourism development (Table 1; Table 2).

“The infrastructure is not there yet, there is almost no infrastructure here. For example, there is no bathroom when you finish surfing to take a shower. There's also no changing room, not yet.”

- male, 32 years old, teacher, Bido

“One of them is homestay. People here call them boarding houses. That's not enough. Only for families who, for example, have extra room, that's what they make into a homestay. That is a challenge. How can we people want to welcome 4,000 tourists, while the rooms are only 10?”

- male, 41 years old, farmer and homestay owner, Sopi

“Right now, there's not enough infrastructure. And so, I think, yes, as long as there's good planning and all the local communities are involved, there's great potential of benefiting from surf tourism in Morotai.”

- Mexican, female, international NGO

Stakeholders shared their hope for improved infrastructure to enhance the surfing experience for locals and tourists. A government official wanted to see proper facilities for tourists, such as hotels, homestays, restaurants, souvenir shops, and religious spaces, managed by the local community to increase their income level.

“So hopefully in the future, there will be a lot of infrastructure or more people will help, assist and support. So that in the future there can be more. The government provides assistance for what is lacking, what do we ask for, so that it is more.”

- female, 46 years old, cook and homestay owner, Letao

“Maybe in the locations for the surfing area, in the next 10 years, there will be proper facilities for tourists, which are hotels, homestays, restaurants, places of worship, culinary centers, souvenir places; which are all run by local people. So that the people's income can be better.”

- male, regional government, fisheries

“Having infrastructure in place to create environmentally safe resources for locals and tourists.”

- American, female, 41-50 years old, intermediate surfer

### *Limit Outside Land and Business Ownership*

Limiting outside land and business ownership was discussed as a way to empower local ownership of surf tourism and coastal areas (Table 5). Morotai community members and NGO employees shared that most of Morotai's coastal lands are already owned by outside developers and foreign investors (Table 1; Table 3). The influence of Indonesia's largest industrial area developer, Jababeka, will play a significant role in the development of Morotai Island. An NGO employee mentioned that there is a law that prevents development within 100 meters from the beach, but most developers ignore this law due to lack of enforcement. These development plans may be in direct opposition of sustainable surf tourism and surf conservation efforts.

“There is also the presence of foreigners who come here to stay here and they buy the land and people here also sell the land...So almost all of the land on the beach in Bido village belongs to foreigners.”

- male, 32 years old, teacher, Bido

“But in the case of Jobubu, it no longer belongs to the Bido community or Bido village, because it has already been sold, two places have been sold.”

- male, 40 years old, farmer and fisher, Bido

“The main negative impact is namely land ownership is now controlled by foreigners or outsiders and physical development on the coastal area for business purposes.”

- Indonesian, male, local NGO

“Most of the coastal land has already been contracted or purchased by outside entities, there's going to be a challenge with that, because they want to develop.”

- American, male, international NGO

Unmanaged surf tourism development can cause outside investors to take over coastal land ownership and reap most of the financial benefits from tourism, marginalizing the local communities and creating significant wealth inequity. An NGO employee shared his learnings from Bali, where foreign development took over the tourism industry and local communities only received around 20% of the economic gain. Given the pitfalls of Bali's uncontrolled tourism development, limiting outside land and business ownership will be essential for establishing long-term local financial benefits that empower the community of Morotai.

“Limiting the amount of foreign investment and ownership of land. This is especially noticeable in Bali where there is a stark contrast between foreign owned coastal properties and local neighborhoods.”

- American, male, 21-30 years old, advanced surfer

“What I absolutely don’t want to see is the continuing proliferation of exclusive, foreign-owned surf camps for rich people.”

- American, male, 31-40 years old, advanced surfer

“They are empowered enough to regulate and manage their own resources and that they're not losing land or the control and managed management of their other natural resources. So, I think that it's basically if we want to see an empowered community that is in charge of managing their own coastal resources, and they're benefiting from the tourism.”

- Mexican, female, international NGO

### **Conserve Natural Resources**

Many stakeholders expressed the need to conserve Morotai’s natural resources from their coral reefs to forest ecosystems (Table 5). The Morotai community were not aware of surf conservation, but a few participants were familiar with other conservation efforts occurring on island to protect the coastal environment. A government official further discussed current conservation efforts that have been incorporated into the community, such as raising communal awareness and implementing village rules. From her perspective, these efforts resulted in a decrease in coral bombing, sand mining, and plastic pollution.

“Because of the restrictions from the government; to preserve the environment, it is prohibited to throw garbage into the sea, so that the marine ecosystem is always protected. So that the sea will also be cleaner, not polluted, so that many people want to come to Morotai, especially foreigners to surf in Morotai. And the government here has also provided protection by making village regulations for environmental conservation.”

- male, 32 years old, teacher, Bido

“Conservation efforts that have been carried out here, for example, have been carried out by cooperation between NGOs and the village government such as the making of village rules, cleaning and also like raising self-awareness from the community and has become a habit by the community so that they maintain cleanliness. Maintain cleanliness in the coastal area, around on the sides of the road and in tourist destinations. For the positive

impact, it is like another positive impact is that the people here do not use bombs on the beach anymore so that they are not harming the coral, and also no longer take the sand from the beach...And also no longer throwing trash on the beach, especially plastic waste.”

- female, Morotai village government, finance

Yet, a few community members shared that even with current village regulations in place to protect the environment, there is still a lack of proper implementation and enforcement to alter people’s behaviors (Table 1).

“Recently, a rule was made if I’m not mistaken in 2019. Now this is an effort, the government has made an effort, but the implementation of community enlightenment. This has not been implemented. The program for surveillance is already in place. There are already rules, it’s just that there is no enlightenment yet to the community. So that these giant nets are still being made. We people can still suspect that people are still using the compressor, fish poison at night, etc. The rule actually already exists, but it has not been implemented properly.”

- male, 41 years old, farmer and homestay owner, Sopi

“I think it hasn’t been carried out well, up until now. If there is, as you said earlier, there is already a village regulation, that’s not good enough to protect the predetermined areas, the conservation is not good enough.”

- male, 40 years old, farmer and fisher, Bido

Morotai community members noted that beach cleanliness has significantly improved due to surf tourism. Participants wanted to protect the beauty of Morotai’s coastal environment, so that tourists enjoy their visit (Table 1).

“Before surfing tourism arrived, nobody cares about the cleanliness of the beach. But now since there are surfing tourism, cleanliness is always maintained and that is what the community wants.”

- male, 29 years old, farmer and fisher, Bido

“So that it is more beautiful, so that we will be more. So that our guests will be happy to see the blue sea. Like clean, so like that. The waves are more beautiful so that foreigners or guests are happier in the future.”

- female, 46 years old, cook and homestay owner, Letao

Surf tourists shared that their main negative impact from their travels in Indonesia was contributing to local resource consumption and pollution within the existing poor waste management infrastructure (Table 4).

“Just overall, consumerism, carbon footprint from travel, sunscreen leakage hurting coral. Supporting an overburden waste management system.”

- American, female, 31-40 years old, advanced surfer

“Me being an additional human there, using into local resources, contributing to inadvertent waste.”

- Australian, female, 31-40 years old, intermediate surfer

The subthemes for conserve natural resources are prioritize sustainable development, create regulations, manage tourist numbers, and improve waste management (Table 5).

#### *Prioritize Sustainable Development*

Across all stakeholder groups, prioritizing sustainable development was mentioned as a critical aspect of securing Indonesia’s future (Table 5). When asked about sustainable tourism, many stakeholders spoke to minimizing their environmental footprint and maximizing support for local communities. An NGO employee expressed how sustainable tourism facilitates the ability for local communities to stay connected to their way of life and surrounding ecosystems, while also being able to authentically share those experiences with visitors now and in the future. Overall, sustainable tourism was viewed as a balancing act of giving to and receiving from local host communities and their environmental resources to maintain tourism over a long period of time.

“Our environment here is always preserved, so that maybe the day after tomorrow, or the following days, or in the future, nature stays the same and is not damaged. The coral is still good, its sustainability is still preserved.”

- male, 32 years old, teacher, Bido

“Finding a way to enjoy new and unique places without a heavy environmental impact. This includes everything from the means of transport to the location, local transport, food and dietary choices as well as trash/waste production while visiting. To be a truly sustainable tourist is to make compromises.”

- American, male, 21-30 years old, beginner surfer

“Tourism that can be maintained over time in a region without depleting local resources, culture, or political stability, while promoting tangible growth in desired opportunities for the communities providing accommodation.”

- American, male, 21-30 years old, advanced surfer

“Where surfers also help to protect the surrounding beaches, marine biodiversity, as well as economy and culture.”

- male, regional government, fisheries

“Sustainable tourism is about allowing people to have this experience with waves, with culture, with nature, but without having a negative impact on the ecosystems and also on the local communities. On the contrary, it should be about bringing something positive to the environment and also to the local communities.”

- Mexican, female, international NGO

“Sustainable tourism to me would mean, I think probably, obviously, something that enables the local community to remain connected to who they are, their culture, their environment, and their place and their way of life. So, for all of that to remain as an authentic connection with authentic meaning to them. And that an authentic experience could be shared with visitors and that the environment isn't negatively impacted by that. And that connection to self to environment to culture is maintained and one hopes enables to flourish for the long term.”

- English, female, local NGO

A few surf tourists expressed that sustainable tourism does not truly exist due to the air travel required to arrive at a tourist destination. A participant described sustainable tourism as greenwashing, which is a form of marketing that deceptively persuades the public that a product or service is environmentally responsible.

“I feel like sustainable tourism is an oxymoron and I think it green washes tourism to make people feel better about their travels.”

- American, female, 21-30 years old, intermediate surfer

“Well, that doesn't really exist if you have to fly half-way around the world to get there, does it? But I guess if I'm already there I try to act with 'sustainability' in mind. Examples are staying with locals where possible to ensure that some of my money is going to the base of the socioeconomic pyramid. Also, finding ways to respectfully



discuss environmental issues like the proliferation of sea walls, sand mining from nearby coastlines, accumulating coastal garbage, and use of agricultural chemicals near the coastline.”

- American, male, 31-40 years old, advanced surfer

Given these definitions of sustainable tourism, many stakeholders wanted to see sustainable practices directly implemented into the development process. A surf tourist even talked about the innate connection between surf tourism and conservation, where both aspects need to be tackled simultaneously in order to change the environmental impacts of tourism.

“I think conservation and surf tourism can go hand in hand. In fact, I think the only real way to intact change is to work on both fronts simultaneously, to alter the way we think about tourism fundamentally in include the environmental costs from the beginning.”

- American, male, 21-30 years old, beginner surfer

“I hope it prioritizes conservation of the land and areas nearby, as well as making sustainable practices a priority.”

- American, female, 21-30 years old, intermediate surfer

“I would love to see more sustainable systems that work for Indonesia and Indonesian culture and belief systems.”

- Canadian, female, 21-30 years old, beginner surfer

“Key sustainability measures such as banning plastic, reducing waste and recycling.”

- Australian, female, 31-40 years old, intermediate surfer

“I would like to see development be embraced by the local government in a way that is more sustainable for the environment, culture/country/people, and sport.”

- American, female, 41-50 years old, intermediate surfer

NGO employees spoke to the value of a comprehensive conservation model that reduces a multitude of ecosystem threats in order to protect environmental resources over the long-term. A participant mentioned government discussions about creating a pristine tourism model that supports SPAs by having a concentrated tourism area in Daruba City, the capitol of Morotai, and then protecting the ecosystems of outer lying areas. They feel hopeful that Morotai will showcase best practices in surf tourism development and small island resilience through surf conservation.

“The government of Morotai is talking about having a pristine tourism model. That's part of the reason why they're supportive of the idea of the surf protected areas... There is this sort of sense of like having the concentrated tourism area by the capitol, which sort of like Waikiki for O‘ahu. And then the other outer areas being maintained in a more pristine state through protected areas.”

- American, male, international NGO

“Morotai will be one of the hotspot in Indonesia. Hotspot means it’s a good showcase. It’s showcasing a better way in managing the natural resources of small island in a way to develop small island resilience through surf conservation... From the surf tourism, we protect the coastal resources, we protect the land resources, and we connect all of those things together.”

- Indonesian, male, international NGO

### *Create Regulations*

The Indonesian government holds significant power in policy creation and all government official participants expressed the importance of implementing regulations to ensure environmental protection (Table 2). Stakeholders discussed the creation of protected areas at surf breaks to effectively conserve Morotai’s coastal ecosystems and improve the potential of surf tourism.

“The surfing location must be protected in the safety aspect, then the cleanliness is also important, to make people who are surfing comfortable. And in terms of conservation, this is also very important. So, if for example at the location, where the surfing activities are located, I think it has to be protected. At least there should be local regulations to protect it.”

- male, Morotai regency government, tourism

“There should be more protected areas, so that the quality of the waves is better for surfing, be more professional.”

- female, Morotai village government, finance

“The village government must be very involved in protecting the environment and... Protecting the environment by making rules, so that people do not carelessly harm the environment.”

- male, 32 years old, teacher, Bido

“Maybe some popular waves can be designated as protected sites with decreased impact from development.”

- American, male, 21-30 years old, advanced surfer

“Protecting the reefs in surf areas from motors, overfishing and coral blasting, support for women.”

- Australian, female, 31-40 years old, intermediate surfer

But as stated earlier, Morotai community members revealed that there are implementation and enforcement issues surrounding current village regulations (Table 1). Those issues need to be addressed before creating more regulations in order to ensure effectiveness.

NGO employees wanted policies and regulations in place that protect not only surf breaks but also other resource bases that are important to the local community (Table 3). A comprehensive conservation model that integrates local level work into a broader governance plan across Indonesia was highly valued by NGO employees. In addition, they spoke to local community management that connects land and marine spatial planning and strengthens small island resilience (Table 3).

“Natural resources are protected, and that the natural resources regulations that they are developing with LMMA are integrated into this broader management plan at the provincial level...[Local community] in control, and they have access to all this, beautiful places, especially those around the important surf spots, and they’re benefiting from the tourism.”

- Mexican, female, international NGO

“A new legal policy for surf protected areas in Indonesia, that it’s at national level. And it’s not just an MPA because MPA’s are fairly defunct in Indonesia, which is why I think this was a very exciting proposition. So that there is a national policy that has the protection of surf breaks, the rights of local communities, sustainable tourism, embedded in it, because that will benefit Indonesia greatly.”

- English, female, local NGO

“The big vision is about small island resilience...We have to connect the land base spatial planning and the marine spatial planning or to harmonize the spatial planning.”

- Indonesian, male, international NGO

“It's a comprehensive conservation model. And the title of it surf conservation doesn't necessarily always convey that. But we do try to do a holistic conservation approach, using surf as the anchor, and the entry point, but not as the only focus.”

- American, male, international NGO

A Morotai community member brought up the implementation of *sasi*, which is a Maluku custom that prohibits the taking of certain natural resources for a given period as a conservation effort to maintain the quality and abundance of biological resources. A surf tourist shared a similar concept to *sasi*, where access to a surfing area would be prohibited for a given period to support coral reef recovery.

“If I were the village head, I will implement *sasi*...The goal is for the land to have its humus back to its original state.”

- male, 41 years old, farmer and homestay owner, Sopi

“Breaks throughout the year for reef recovery.”

- Australian, female, 21-30 years old, beginner surfer

### *Manage Tourist Numbers*

Several NGO employees and surf tourists spoke to the connection between managing tourist numbers and conserving natural resources (Table 3; Table 4). The Morotai community and government officials only talked about increasing tourist numbers (Table 1; Table 2), not managing them. With any unmanaged surf break, as people discover it there will most likely be issues of overcrowding and potentially pushing out local surfers. Additionally, uncontrolled tourism growth and development can cause overconsumption of local resources and increased pollution, which significantly impacts ecosystem health.

“If it's not regulated, or if you don't have like a sustainable surf tourism approach. You can face uncontrolled growth of tourism services in the area that can create a lot of trash, this is really common around the world. You can see increase on the surf crowd.”

- Mexican, female, international NGO

The idea of a high-cost visitation model where the increased price point limits the number of tourists but creates more financial benefits for the local community was mentioned by a few stakeholders (Table 3; Table 4). This model could help attract respectful and responsible surf

tourists who are willing to pay higher prices for sustainable surf tourism that supports local communities and their surrounding ecosystems.

“We work with them [local community] to develop regulations, sort of help them to see options that might include higher quality, that higher cost surf tourism experience for people, which can help to get the same economic benefit for the communities and for the people without having as much negative impact socially or environmentally. So, I would say this is a really a case where surf tourism should be managed, very, very carefully limits carrying capacity.”

- American, male, international NGO

“If the cost for tourists was increased to actually reflect the cost of keeping beaches and oceans clean, then I think the overall quality of surf areas could be vastly improved, while also moving control of this industry closer to local communities.”

- American, male, 21-30 years old, beginner surfer

“Creating limits to how many tourists can visit per day. Creating policy that is informed on the economic and social impact of tourism.”

- American, female, 41-50 years old, intermediate surfer

“Limit its growth and increase the education of visitors to decrease the impact of their actions on the local communities and environment.”

- American, male, 21-30 years old, advanced surfer

Implementing a conservation fee or fund that maintains the longevity of surf conservation efforts and regulates overtourism would greatly improve the long-term quality of surf destinations. On average, surf tourists were willing to pay \$200 USD per surf trip to assist with conservation efforts.

“Visitors should be paying a conservation fee to help maintain the protected areas that are being set up. So, because it's such early days for them, we have an opportunity to do it right.”

- American, male, international NGO

“Surf breaks accessed through paid tourist passes (like national park passes) that increase accountability and decrease volume.”

- Australian, female, 31-40 years old, intermediate surfer

A surf tourist highlighted the importance of sharing the negative impacts of surf tourism and the mission of surf conservation in order to enhance global awareness and support from surfers.

“Get the message out in front, don’t shy away from the troubles of the surf tourism industry - many surfers would want to help!”

- American, male, 21-30 years old, intermediate surfer

### *Improve Waste Management*

Many surf tourists spoke to improving waste management systems as an important element of conservation efforts in Indonesia (Table 4). Poor waste management creates serious negative environmental impacts, such as soil contamination, plastic pollution, and loss of biodiversity. Thus, creating better waste management systems and shifting to a circular economy would limit local coastal threats and enhance the longevity of surfing areas.

“Implement/shift to a circular economy, trash management and storage systems, sewage waste treatment, and regulate over-tourism by implementing a travel tax.”

- American, female, 21-30 years old, intermediate surfer

“Less plastic waste. Less overfishing. Better waste management. More local owned.”

- American, female, 31-40 years old, advanced surfer

“I would love to see tourist being accountable for trash creation.”

- Canadian, female, 21-30 years old, beginner surfer

Morotai community members recognize the challenges of waste management on island. They requested recycling equipment and trash bins to reduce littering and improve coastal cleanups (Table 1). ALF implemented a program that incentivizes local youth in Morotai to collect trash from the beach and trade it for the use of a modern surfboard.

“The challenges we face include, how do we carry out activities by recycling waste, but we are overwhelmed regarding equipment, regarding how we use equipment to separate for recycling. That is a challenge, how we can't do anything, because we do not have a budget... Actually we had a budget, but then the budget was postponed, so we stopped halfway through.”

- male, 41 years old, farmer and homestay owner, Sopi

“To protect the sea, we ask for the diving equipment, so that every time we, every time we always keep the beach clean and there is also a trash can so that people also know, they have to throw the trash in the place, not littering.”

- male, 29 years old, farmer and fisher, Bido

“I saw them collecting mineral water bottles, then every kid brings in the trash, then they can use surfboards. Trade for bottles. So, they take the trash on the beach, then bring it to foreigners, then foreigners give surfboards.”

- male, 41 years old, farmer and homestay owner, Sopi

### **Build a Collaborative Vision**

As with any development approach, working with multiple stakeholder groups that have different agendas and goals can bring challenges. NGO employees believe that stakeholders are not equally represented in surf tourism development, but they are trying to improve stakeholder representation especially for the local surf community (Table 3). However, a participant noted that equal representation among the local community is quite difficult given Morotai’s social structure, and thus an important aspect of their work is defining equal representation in order to proceed effectively. Another participant highlighted that women are particularly underrepresented which could be tied to the community social structure (Table 3). Moving forward, NGO employees mentioned that secondary stakeholders will be identified and engaged to participate in surf conservation planning.

“What we're doing is supporting our on the ground partners to make sure that everybody has a voice on the stakeholder meetings. So right now, through especially ALF, what we're trying to do is to make sure that the surf community is empowered, and they are active representatives of surfing in the different meetings with the government and with the NGOs.”

- Mexican, female, international NGO

“For the stakeholders related to surfing conservation, so far I see that it is represented evenly. But it is still in progress, and we hope it can provide maximum results for stakeholders related to surfing conservation, because there are some parts that haven't been understood well enough by the government regarding the goals and benefits of surfing conservation itself.”

- Indonesian, male, local NGO

“It's hard to put in equal among the community leader and the community itself. Because there is a structure, there is a social structure in the community. Once we talk about social structure, how we could talk about the equality? We have to define equal representation, in more simple way of the project.”

- Indonesian, male, international NGO

“I would just say that girls and women aren't. Definitely not, definitely not. At any level, like village level, NGO level, government level.”

- English, female, local NGO

“There may be less engagement with people who are in the surf tourism industry, like nonlocal people. So, we have to consider that too. They're kind of secondary stakeholders. But they are important to consult.”

- American, male, international NGO

The success of surf tourism and surf conservation development will be based on building a common vision amongst all stakeholders and clearly defining roles. The subthemes for build a collaborative vision are active communication between stakeholders, government assistance, guidance from NGOs, and increase funding (Table 5).

#### *Active Communication between Stakeholders*

Morotai community members, government officials, and NGO employees all agreed that there needs to be enhanced active communication between stakeholder groups (Table 5).

Government officials emphasized the importance of strengthening cooperation with the local community and NGOs to implement policies for surf tourism and surf conservation (Table 2).

“To implement government policies in this area, we will need a three-axis system. They are: community, government and NGO institutions. The cooperation between these three institutions. Well, this has not been seen. They don't seem to have good cooperation for now. But in the future, we hope that there will be government assistance for NGOs.”

- male, Morotai regency government, tourism

“There must be cooperation between the village government, the community and NGOs.”

- female, Morotai village government, finance



Yet, within the Indonesian government structure, there are significant communication and distrust issues (Table 2). The village government official shared an example about the district government diverging from the agreed upon Morotai surf competition plan to misuse funds.

“The government's management and planning for surfing tourism is not very adequate...The District Government has done nothing...There is no implementation. And that's only done by NGOs. If there is no collaboration with NGOs, how can it be carried on in the village?...Subsequently, the district government also has no planning and district governments are not very active in the existing activities. Let alone for surfing tourism, for other tourism even they don't have good planning. For example, like the previous event, the planning carried out by the surfing community didn't reach expectations, and also there is a misuse of the budget by the committee chairman. Many budgets are allocated outside of what was planned.”

- female, Morotai village government, finance

Although cooperation with the local community was valued by government officials, several Morotai community members expressed that their voices are not heard by the government and view NGOs as their communication bridge (Table 1).

“Must cooperate with the community. So that they can discuss it with the government about what they are doing so that the government can also tell the community to do some things that are best for society.”

- female, Morotai village government, finance

“We as a society only ask the government or for sponsors or people who care, for us to get a better future. We really hope that the government or yes, including the president. The important thing is to be able to monitor, look, help realize what we want...Don't let this request go unnoticed. Means these questions and conversations with me, I urge you to care more for this existing program.”

- female, 46 years old, cook and homestay owner, Letao

NGO employees want the development process to be collaborative with local voices respectfully heard and honored by the government (Table 3). To achieve this vision of collaboration, stakeholders need to embrace more proactive roles that advocate for local community engagement and leadership.

“I would like to see it developed as a joint venture between local communities and governments, with local government paying due diligence and attention to the capacity of the local communities and not speaking down to them but listening and understanding the potential that they have...The Morotai tourism department doesn't know anything about surfing really. So, it's been very exciting for them to see the potential passion, enthusiasm, etc. So, I would hope to see it as a joint venture with due respect to the local communities who are given the means and the support they need from regency provincial and national government to achieve this.”

- English, female, local NGO

“There should be more active roles from NGOs, or the government, or stakeholders who are working in the development of surfing tourism. They need to be more proactive in the development, so that what we are targeting for the next 10 years, and the results of the development of this surfing tourism can be seen clearly, and the benefits of the development can be felt directly by the community and surfers in the villages.”

- Indonesian, male, local NGO

### *Government Assistance*

Many stakeholders stated that there has not been enough government management and planning for surf tourism (Table 5). Morotai community members believed that surf tourism development was going poorly due to lack of support from the government (Table 1). They shared that the government did not build any of the infrastructure that was requested by the local community. The Morotai community strongly requests government assistance for surf tourism and surf conservation development.

“It's not enough when it comes to surfing planning. Local/regional government, this is not enough. As a community here, we are not 100% looked after.”

- male, 41 years old, farmer and homestay owner, Sopi

“It is not developing very well, because there is no response from the government. They don't. We want a lot of help...and they haven't helped at all until now. We wanted like houses on the edge of the beach, like traditional houses, but they didn't respond well to us.”

- male, 29 years old, farmer and fisher, Bido

“The government must support conservation activities. If not, then how will we see a change in the next 10 years?”

- male, 41 years old, farmer and homestay owner, Sopi

“What the government must do is to further improve surfing conservation here, so that it is more advanced than it is today...For example, every year the government, not every year, but every two months or every three months there must be events like before. After that, the government must also build supporting facilities...What the government must do so that the conservation is always maintained, is that the government must provide socialization to the community, even the government must also take firm action if a community violates the rules, yes, the conservation rules that have been made...Implement village regulations...And define protected areas.”

- male, 32 years old, teacher, Bido

The regional government official stated that surf tourism activities already existed thus inferring that management and planning was adequate. In contrast, the village government official expressed that surf tourism management and planning was not sufficient due to lack of support and communication from the district government.

“For now, I see it already exists, because there are already existing activities.”

- male, regional government, fisheries

Two NGO employees shared how historically surf tourism grew organically over time in Indonesia, especially in Bali where tourism developed quite quickly, and the Indonesian government did not have enough resources or contextual understanding to systematically plan and prepare for those changes. Lessons from surf tourism development in Bali highlight the importance of strategic planning and management efforts.

“I'm Balinese, so I know how tourism developed in Bali. Since early 70. And also 1980. And surfing one of the pioneer of the tourism in Bali...And because the management is not really exist, then it's ruin the area like the pollution is still happen. Conflicting in terms of activities, because too many surfer coming in very small area, like Uluwatu, and social conflicts...So we learn a lot from Bali, and we would like to bring this lesson learned to the other area, like in Morotai.”

- Indonesian, male, international NGO

An NGO employee explained that the national government holds tremendous power in setting the agenda and budget available for tourism development and conservation strategies. The provincial and regency governments follow the national government plan. Bureaucracy

causes slow paced decision-making, which was stated as the main challenge for implementing policies in Morotai (Table 3). A participant further discussed the political and educational context of Morotai that drives governance issues. She spoke to the following layers of complexity: inexperienced young regency government, remote communications, slow logistics, open to corruption, and low educational indicators among Organization for Economic Co-operation and Development (OECD) and partner countries.

“The main challenge is how the national governments have the knowledge about the characteristic of the area that they would like to develop the tourism as the main economic sector, that's the main sector that will refund the economic impact to the area in terms of development. So that's the main challenge, because most of the agenda most of the budget is coming from the national government.”

- Indonesian, male, international NGO

“I think it's a slow government process, it takes time, the people are just being exposed to these concepts. For the first time, fortunately, they do have kind of a historical conservation approach. So, there is resource management in their history, for sure.”

- American, male, international NGO

“I think it's 10 or 11 years or 12 years this year, they've had their own regency government, which means more young and inexperienced. And then if you couple that with what I said about education, has one of the lowest levels in the world, according to OECD reports, for numeracy, literacy, and science. And you're putting that on a very remote island where it will fall into that lowest of the low category.”

- English, female, local NGO

The need for government openness to and support for new mixed conservation approaches was articulated by NGO employees (Table 3). They acknowledge the significant role governments play in facilitating policy creation and ensuring the development approach connects to a broader governance plan that upholds a collaborative vision. An NGO employee also spoke to government enforcement around coastal development and imposing the law that prevents development within 100 meters from the beach.

“What we need is just to have the support of the government to and be open to new ideas and to just open their mind and their space to the different stakeholders...I think we're all building this common vision for surf conservation in Morotai. And we need to do this

also together with the government. So as long as we all participate and build this together, we're going to, it's going to be really successful. And it's going to be something that everybody's going to identify with. So, it's just about collaboration from the beginning.”

- Mexican, female, international NGO

“We need to make sure that all this work that is being developed at the local level is integrated into the provincial level, and everything is connected, and it has the same approach. So, what we need the government to do is to facilitate this process, to integrate the different local vision of the communities into this broader management plan and be sure that the government is supporting that there's a co-management plan. That the communities are empowered and are active in the process.

- Mexican, female, international NGO

“I really hope the government will enforce the rules around building along the coasts...Because right now you've got a coastline that's all trees and forests right up to the beach. And access is already being limited. And if that just becomes a bunch of hotels, and then the other would be making sure that building is limited in the conservation zones. Like I said before, have the tourism concentrated down in the south, and then the upper, the north and the east be more of a pristine or sustainable model with just small accommodation, that works with a natural environment.”

- American, male, international NGO

### *Guidance from NGOs*

NGO employees acknowledged that their role provides the local community and government with information to deepen their knowledge on best surf tourism and conservation practices from around the world in order to successfully implement locally suitable management plans (Table 3). Government officials communicated that more consistent guidance from NGOs would be greatly beneficial (Table 2). NGOs want to share potential options for protecting not only surf ecosystems but also coastal and forest environments that are important to the local community. By informing the Morotai community about different sustainable development approaches, they feel empowered to protect and manage their surrounding natural resources.

“For NGOs, we hope that here they can be more consistent in their guidance. Then for the exchange of visits, it is also necessary so that we can adopt from other places, we can implement it to our village. So, our village can implement the good things from other villages.”

- female, Morotai village government, finance

“Our role as international organizations is to provide information and guidelines. So, the local community can develop their own regulations and have their own vision of what they want from surf tourism in their communities.”

- Mexican, female, international NGO

“It's not just the protection of the waves themselves, but it's using surfing as an entry point for protection of larger ecosystem surrounding the waves. And trying to do that in networks to bring entire ecosystems under conservation, it also means really empowering the local stakeholders to do that work, rather than coming in and imposing outside ideas of conservation but working with them to understand their priorities. And the other thing we try to do is because not all our local partners necessarily have experience in conservation management is give them informed decision making so that they understand the various ecological factors and things that can make conservation work well.”

- American, male, international NGO

“The main benefits of surf conservation is bringing the knowledge about how to lay down the pathway of sustainable tourism, because we're talking about the prosperity of people, not just the people that live in Morotai at the moment, but also the future generation, not 10 years, not 20 years, but whatever, that's the vision, that's the dream that the wave will be there forever in Morotai. And people will be coming to Morotai to enjoy the waves and enjoy all the resources and the culture forever.”

- Indonesian, male, international NGO

NGO employees voiced the challenge of working with different stakeholder groups to develop tourism and conservation management simultaneously. NGOs are trying their best to gain knowledge from other partners and navigate this process as smoothly as possible to create positive outcomes for the Morotai community.

“I think another challenge is that our partners have not so much developed tourism and natural resource management regulation simultaneously. So, figuring out how to do that, well, it's been a challenge.”

- American, male, international NGO

### *Increase Funding*

Several Morotai community members and NGO employees expressed that the government should allocate more funding to support surf tourism and surf conservation

development (Table 1; Table 3). From organizing local surf competitions to building tourist facilities, all these aspects of development need financial assistance and cooperation from the government. A local NGO employee shared that the lack of prioritization and suitable budget for surf development are major barriers to local community participation.

“It has not been put into a priority scale in the surfing development on Morotai Island, and on the other hand, there hasn't been any budget allocated for surfing development in Morotai Island.”

- Indonesian, male, local NGO

Government officials explained their desire to be more active in surf tourism and surf conservation development but challenges regarding budget have limited outreach activities and trainings for surf destinations (Table 2). The diminishing government budget and lack of funding for conservation programs were stated as the main challenges facing protected areas in Morotai.

“The government should be more active in developing these surfing activities. I guess there are some drawbacks to (be fixed). For example, in this case the budget. Budget in the sense of assistance from the government for this activity. Because this activity does cost money, right? For example, we give training, preparation for surfing destinations, for example. That's the government's responsibility. So far, none of these activities have been touched.”

- male, Morotai regency government, tourism

“The main challenge, in my opinion, is this, the existence of the marine area is getting more and more depressed because the government's commitment to fund the conservation program is decreasing. This is because the government budget is divided, right? So, if it is divided in such a way, sometimes the conservation area is not so important. So, it's annoying. So, this year the conservation is under pressure because the government's commitment to fund the conservation program has decreased.”

- male, regional government, fisheries

## **DISCUSSION**

Key themes that intersected multiple stakeholder groups emerged from this thesis study. The cross-cutting themes are empower local community participation, establish local economic benefits, conserve natural resources, and build a collaborative vision. This discussion section

contextualizes each of the cross-cutting themes and expands on these concepts through the examination of relevant literature and case studies. Key recommendations and performance indicators are addressed.

### **Empower Local Community Participation**

Stakeholders expressed the need to empower local community participation in surf tourism and surf conservation development. The barriers to community participation on Morotai Island were limited knowledge, interest, time, and financial incentives. These barriers are quite common across the globe (Dogra & Gupta, 2012; Holden et al., 2011; Mustapha & Azman, 2013; Scheyvens, 2002). In remote areas of developing nations, additional inhibitors exist: new concepts; top-down centralized decision-making process; government undervalue local knowledge; and lack of access to information for how to participate (Cole, 2006; Tosun, 2000). A study conducted in Lombok, Indonesia, explored host community participation in sustainable tourism development and suggested that poor organization among government departments and inadequate training for state tourism agency employees and tourism operators were the main inhibitors of local community participation (Saufi et al., 2014).

Knowledge on decision-making processes and sustainable tourism development approaches are essential for local community members to take on leadership roles in stakeholder planning meetings. Empowerment is defined as the capacity of individuals or groups to exert control over factors that impact their lives (Di Castri, 2003). It represents the top rung of the 'ladder of citizen participation' where community members are actively involved in problem-solving, decision-making, implementation, and evaluation (Arnstein, 1969; Cole, 2006). Scheyvens (1999) created a framework that examines four dimensions of local community empowerment: psychological, social, political, and economic. Psychological empowerment comes from self-esteem associated with the value of their culture, natural resources, and traditional knowledge. Social empowerment results from enhanced cohesion around community development goals. Political empowerment refers to governance structures that fairly represent the needs and interests of all community groups. Economic empowerment connects directly to the financial gains received by the local community.

Although surf tourism development has led to uncontrolled and unsustainable large-scale tourism expansion that marginalizes local communities (Buckley, 2002a; Krause, 2012; Ponting



& O'Brien, 2015), there are cases where surf tourism substantially improved the lives of local people. In Papua New Guinea, the Surfing Association of Papua New Guinea (SAPNG) fosters a reciprocal relationship between surf tourists and local communities. The founder of the SAPNG, Andy Abel, created a community-centered approach to surf tourism referred to as the 'Abel Reverse Spiral Model' (Abel & O'Brien, 2015; O'Brien & Ponting, 2013). Contrary to top-down decision-making models, the reverse spiral model empowers local communities to make their own decisions about the use of their surfing resources. Prior to the establishment of surf tourism in a particular community, the SAPNG President consults with community leaders to determine their willingness to host surf tourism (O'Brien & Ponting, 2013). SAPNG representatives also hold public presentations at village meetings to answer questions from the community. When a community consents to host surf tourism, the SAPNG first help establish an affiliated surf club to develop surfing at the village level (O'Brien & Ponting, 2013). So far, 11 surfing clubs have been established with more than 500 indigenous surfing participants across the country including a large percentage of female surfers (Abel & O'Brien, 2015; O'Brien & Ponting, 2013). In collaboration with community stakeholders, the SAPNG establish a quota on the number of surf tourists permitted per day per surf area (O'Brien & Ponting, 2013). Each surf tourist pays a one-time fee of \$54 USD to support the SAPNG development operations, as well as a daily fee of \$11 USD that funds community development projects within education, sanitation, and healthcare (O'Brien & Ponting, 2013). Despite the fees, surf tourists enjoy traveling to Papua New Guinea for the uncrowded waves and unique culture. The SAPNG approach represents a sustainable surf tourism model that empowers local communities and benefits surf tourists.

The evolution to Web3 also holds great opportunity for community empowerment, but access to the web is a pre-requisite. Communities will need reliable, convenient internet to unlock the value of blockchain solutions, which may not be feasible for the Morotai community right now, but it is important to begin understanding the possibilities of blockchain technology as the world becomes increasingly connected. Blockchain technology can revolutionize the way we interact with data by establishing a network of trust amongst untrusting parties and aligning incentives with sustainable practices (Howson, 2019, 2020; Villares, 2021). Blockchain is defined as a shared, immutable ledger that facilitates the process of recording transactions and tracking assets on the network (Yaga et al., 2019). An asset can be tangible (e.g., house, cash, and land) or intangible (e.g., intellectual property, patents, and copyrights), which means that

virtually anything of value can be tracked and traded on a blockchain network. Blockchain provides a system of public record-keeping that empowers all stakeholders with the same information, preventing data corruption and manipulation (Abodei et al., 2019; de Souza et al., 2018; Mann et al., 2018). With smart contracts, agreements are upheld through transparent rules that are understood by all participants (Lipton & Levi, 2018). For instance, smart contracts could programmatically execute a conservation fee based on tourism and environmental data.

Given Morotai's issues with outside land and business ownership, blockchain can allow for advanced models of community co-ownership through the emergence of decentralized autonomous organizations (DAOs) and non-fungible tokens (NFTs). Other use cases for blockchain in community empowerment and conservation include tracking fisheries' supply chains (Howson, 2020; Larissa & Parung, 2021), reinforcing payments for ecosystem services (Oberhauser, 2019; Villares, 2021), and financing underinvested areas (Thomason et al., 2018). Ultimately, blockchain technology addresses some of the challenges in traditional conservation work by creating a new cost-effective system that upholds transparency, security, traceability, and efficiency.

### **Establish Local Economic Benefits**

Stakeholders across groups highly valued establishing local financial benefits for the Morotai community as a critical aspect of developing an economically and culturally sustainable surf destination. Yet, there are many cases, including other islands in Indonesia (Buckley, 2002b; Pettina, 2016; Ponting et al., 2005; Towner, 2016b), where uncontrolled tourism growth exploited local people and their resources, resulting in significant wealth inequity. Most of the surf tourism industry in Indonesia evolved around live-aboard charter boats where surfers paid to stay aboard vessels that cruised from one surf break to the next (Ponting et al., 2005; Ponting & McDonald, 2013). This surf tourism model limits the interaction between surf tourists and local communities because it allows tourists to stay on their boat rather than go ashore. Foreign-owned land-based surf camps operated in a similar manner by limiting local community interaction and local economic benefits (Buckley, 2002a, 2002b; Ponting et al., 2005). In addition, charter boat and surf camp operators often actively discouraged local participation in surfing due to fears of surf break crowding (Ponting, 2009).

In the Mentawai Islands, Indonesia, these types of surf tourism business models did not equitably compensate the local community for the use of their surfing resources (Ponting et al., 2005; Ponting & O'Brien, 2015; Towner, 2016a; Towner & Orams, 2016). Instead, indigenous Mentawai communities felt upset that surf tourists exploited the islands' natural assets and contributed minimally to the local economy (Ponting et al., 2005; Towner, 2015; Towner & Milne, 2017). This highlights the importance of strategic surf tourism planning and development that recognizes local communities as the traditional custodians of surfing resources and thus ensures they receive adequate social and economic benefits.

CBT advocates for local ownership of and participation in development projects as well as fostering meaningful host-visitor interactions (Okazaki, 2008). This approach is an integral part of sustainable tourism development because it seeks to address the needs of visitors, the industry, the environment, and local communities, while taking into account economic, social, and environmental impacts (UNWTO, 2005). Economic benefits, such as rural development and poverty eradication, are one of the many potential advantages of CBT to the community (Dodds et al., 2018; Holden et al., 2011; Medina-Muñoz et al., 2016; Pasanchay & Schott, 2021; Zapata et al., 2011). Homestay operations are noted as a key component of CBT given that homestays represent an authentic locally owned experience where tourists can enjoy local foods and interactions with their host family (Goodwin & Santilli, 2009).

A recent study by Pasanchay & Schott (2021) examined the outcomes of operating a homestay in the Phou Kao Khouay National Protected area (PKK NP) of Laos through a holistic livelihood perspective. In the CBT setup stage, homestay operators relied heavily on financial assistance from the Laos government and NGOs. The findings revealed that homestay operators' livelihood activities were diverse (Pasanchay & Schott, 2021). All respondents viewed their homestay operations as supplementary livelihood, rather than considering it as the main income earner. Most operators identified farm-based activities as their main source of income. This supplementary role of tourism is an important feature of a sustainable livelihood approach due to inherent risk of tourism disruption and tourism displacing existing activities (Tao & Wall, 2009). Operating a homestay led to range of benefits, such as cash-based income, women empowerment, cultural revitalization, and better waste management (Pasanchay & Schott, 2021). However, homestay operators also revealed negative outcomes, which included opportunity costs related to other livelihood activities, as

well as culture shock and conflicts with other community members (Pasanchay & Schott, 2021). This research demonstrates the variety of benefits and challenges created by CBT homestays.

Raja Ampat in eastern Indonesia, known as one of the top diving destinations in the world, also utilizes the CBT homestay model which significantly contributes to the local economy. Currently, there are over 100 homestays in Raja Ampat run by native Papuans (King, 2017). The Raja Ampat Homestay Association (RAHA), an NGO that coordinates visiting tourists with local homestays, assists with necessary trainings for successful homestay operations, such as English language, hospitality, and culinary trainings. The creation of local homestays drastically improved livelihoods in Raja Ampat. According to a 2016 report, the RAHA members built an ecotourism sector consisting of over 60 family-run homestay businesses, generating \$1.5 million USD annually (King, 2017). Today, there are a variety of accommodations ranging from homestays to ecolodges and dive resorts. As tourism grew, local regulations mandated that 50% of all employees at hotels and resorts be local workers (Greco et al., 2020).

### **Conserve Natural Resources**

Surf tourism and conservation are intrinsically connected. NGO employees and several surf tourists clearly recognized the connection between surf tourism development and conservation efforts. They understood that the successful management of SPAs could be challenged by overtourism, unequal representation of stakeholders, inequitable financial benefits, budget issues, and even crises such as COVID-19. Yet, Morotai community members and government officials only spoke to increasing the number of surf tourists with some participants expressing interest in developing like Bali.

Around the globe, there are many destinations where rapid tourism growth caused overconsumption of local resources and increased pollution, which significantly damaged ecosystem health (e.g., tourist destinations such as Bali, Indonesia and Maya Bay, Thailand; Giesler, 2018; Koh & Fakfare, 2019). Prior to COVID-19, domestic tourism conditions at many Indonesian geoparks and protected areas were characterized by heavy visitation, traffic congestion, crowding, and degraded environmental conditions (Cahyadi & Newsome, 2021). This study revealed issues surrounding tourism and protected areas in Indonesia.

The overtourism dilemma impacts many countries that are dependent on protected areas not just for conservation purposes, but also for economic development (Aloudat, 2021; Canteiro et al., 2018; KC, 2021). Strategies to overcome overtourism challenges include demarketing, collaboration among protected areas, inclusionary governance processes, and adjustments to visitation regulations (KC, 2021). In Morotai, the government and SCP are being proactive about collaborating with the local community to establish environmental regulations in the early stages of tourism development. Yet, stakeholders must continue to monitor environmental impacts brought on by tourism growth and take preventative action to ensure the island's ecosystems can support the influx of visitors.

Establishing environmental regulations and SPAs require costs associated with proper implementation and enforcement, but government funding for environmental conservation is typically insufficient (Bakker et al., 2010; Whitelaw et al., 2014). As a result, many sustainable tourism destinations charge visitors a conservation fee to supplement government funding and offset the impacts of tourism on the environment (Buckley, 2012; Catibog-Sinha, 2010; Roberts et al., 2017; Whitelaw et al., 2014). These fees are used to fund conservation management, local community development, and tourism operations. Examples of conservation fees include the Royal Government of Bhutan Tourist Tariff, Aotearoa's (New Zealand) International Visitor Conservation and Tourism Levy, Galápagos Islands' National Park Entrance Fee, and Mentawai's Surfer Tax (von Saltza, 2019). To support conservation and the effective management of Palau's marine sanctuary and protected area network, all international airline tickets to Palau include the \$100 USD Pristine Paradise Environmental Fee (von Saltza, 2019). In addition to this fee, visitors are not issued a visa until they sign a pledge promising to respect the environment and culture of Palau.

Another approach to environmental stewardship that was mentioned by a Morotai community member was the implementation of *sasi*. *Sasi* refers to a traditional system of natural resource management that is practiced in Raja Ampat and across eastern Indonesia (Harkes & Novaczek, 2002; Mantjoro, 1996; Thorburn, 2000). The conservation strategies of *sasi laut* (marine *sasi*) include governing access to fishing areas, fishing gear, target species, and the time and location of harvests (Boli et al., 2014; McLeod et al., 2009; Soselisa, 2019; Thorburn, 2000). Studies found that villages with *sasi* are more active in managing their marine resources than those without *sasi* (Harkes & Novaczek, 2002; McClanahan et al., 2006; McLeod et al., 2009).

In addition, Prasetyo et al. (2020) revealed that the integration of *sasi laut* in Misool, Indonesia, enabled active local community participation in marine ecotourism development, while conserving cultural traditions and coastal biodiversity.

### **Build a Collaborative Vision**

The implementation of SPAs follow a similar planning process to MPAs as displayed in Figure 21. The common MPA planning steps are: 1) identification of stakeholders and initial scoping; 2) situation assessment and identification of issues to be addressed through stakeholder consultations; 3) development of a common vision and key goals; 4) definition of operational objectives that facilitate MPA management; 5) design the location, size, boundaries, and governance systems of the MPA or MPA network; and 6) create management plan for MPA implementation. However, these common steps are not necessarily always the same in all MPA planning processes across the globe. Governance and management needs to be adaptive to each island's ecosystems and climate change challenges, and thus planning most likely will need to be revisited and changed (McCook et al., 2010; Weeks & Jupiter, 2013).

Within the broader policy frameworks, suitable administrative arrangements are needed for managing and implementing the SPAN. These arrangements should reflect the objectives of the SPAN and be built around partnerships between diverse government departments and stakeholder groups (López-Angarita et al., 2014; Weeks & Jupiter, 2013). The three general categories of overall management approaches are centralized or government managed, community-based or locally managed, and collaborative or co-management (Humphreys & Herbert, 2018; Pomeroy et al., 2005). The differences primarily relate to the degree of stakeholder participation in management and administrative arrangements, and the location of management authority and responsibility. The best suited SPAN management plan for Morotai appears to be a collaborative management approach. Governance system is fundamental for SPAN management and implementation, and the planning process should establish what the appropriate arrangements are (Agrawal, 2001; Jentoft et al., 2007).

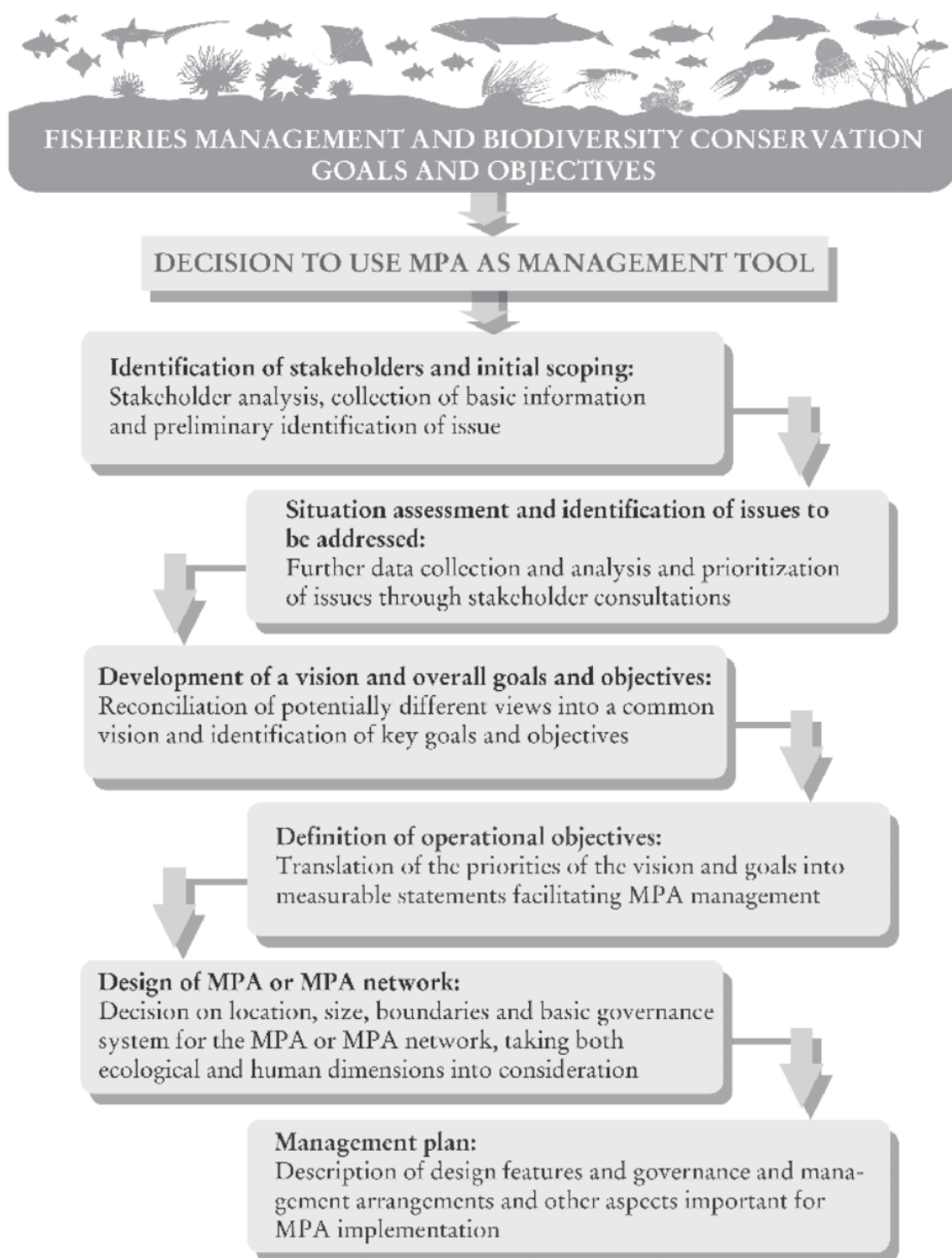


Figure 21. Common steps of a MPA planning process. Source: Food and Agriculture Organization of the United Nations (2020)

In many countries, decentralization of management to local governments and communities is increasing, and the general trend in fisheries and ecosystem management is towards improved and increased involvement of local stakeholders (Bennett & Dearden, 2014; Weeks & Jupiter, 2013). There is general acceptance of the many benefits that shared responsibility and participatory decision-making can generate (Arnstein, 1969; Christie & White, 1997). Support and compliance are likely to increase when communities feel they have been informed and actively involved in the decision-making process for the protected area (Pomeroy et al., 2005). Disruptions to livelihoods can be minimized and mitigated more easily if those concerned are part of the planning and implementation processes (Bennett & Dearden, 2014).

Planning of the SPAN should be done through integrated and participatory decision-making processes based on good governance principles (Agrawal, 2001). Given the vulnerability of island nations to climate change, it is important to incorporate climate change adaptation into the planning. The five principal steps are: 1) define strong objectives; 2) perform a vulnerability assessment; 3) identify and select climate change adaptation options; 4) implement those strategies; and 5) monitor and adjust to climate conditions (Fig. 22; Gross et al., 2016). The first step involves defining conservation goals that focus both on conserving threatened species, while also protecting higher level ecological systems, such as habitats or community assemblages (Brock et al., 2012; Wilson et al., 2020). These conservation objectives need to be continually evaluated and adapted over time to respond to a changing climate and tourism growth.





Figure 22. Generalized adaptation cycle consisting of five steps that are part of an iterative process. Source: Gross et al. (2016)

Participation of stakeholders is key to successful SPAN planning and implementation, and they should be identified and involved from the beginning of the process (Rossiter & Levine, 2014). The issues to be addressed by SPA management must be prioritized based on ecological, social, and economic information and through negotiation with stakeholder groups (López-Angarita et al., 2014). Based on the common goals of all stakeholder groups, specific operational objectives having direct and practical meaning should be formulated to support the SPAN implementation and performance evaluation (Pomeroy et al., 2005). Key design features to consider in the SPAN planning process include selection of SPA sites, protection area needs, and a definition of the type of governance system that will apply to the SPAN (e.g., centralized, community-based, or co-management; Jentoft et al., 2007). The SPAN management plan documents the chosen design features and management options as well as describes the relevant implementation and administrative responsibilities (Agardy et al., 2011).

The second step is to perform a vulnerability assessment to examine how climate change will impact the selected conservation goals (Cinner et al., 2013; Wilson et al., 2020). Climate

change vulnerability refers to three components in social-ecological systems: exposure, sensitivity, and adaptive capacity (Füssel & Klein, 2006). Exposure quantifies the amount climate change is expected to impact the conservation features. Sensitivity examines the tolerance of a conservation feature on a given set of abiotic or biotic conditions. Adaptive capacity determines the ability of the conservation feature to deal with climate change through natural mechanisms.

After a vulnerability assessment has been performed, the third step consists of identifying and selecting climate change adaptation strategies to minimize the climate change vulnerabilities. The most common climate change adaptation strategy for protected areas is increasing resilience (Wilson et al., 2020). The key components to improving the resilience of coral reef ecosystems include representation and replication, refugia, connectivity, and effective management (Marshall & Schuttenberg, 2006). Representation and replication aim to select a range of reef types and related habitats that maximize biodiversity as a way to increase the chance of survival for maintaining functional coral reef ecosystems. Refugia takes advantage of protecting coral reef areas that are naturally more resilient in order to serve as seed banks or source reefs for less resilient areas. Connectivity links SPAs along prevailing, larvae-carrying currents to replenish downstream reefs, increasing the probability of recovery. Effectively managing local stressors is essential for optimizing coral reef conditions and thus sites should be selected where resource levels can be maintained.

Once the climate change adaptation strategies have been selected, the fourth step involves taking action to implement these approaches. Successful SPAN management requires comprehensive implementation structures and administrative arrangements. The SPAN management plan should include details of these arrangements and cover all operational elements for effective SPAN management (Ban et al., 2017; Pomeroy et al., 2005). The following implementation functions should be included: 1) rules and regulations; 2) compliance and enforcement; 3) capacity building and incentives; 4) conflict-resolution mechanisms; and 5) political commitment and sustainable financing (Alder et al., 1994; Maypa et al., 2012; Pomeroy et al., 2005).

Rules and regulations are needed to implement SPAN goals and management decisions, and should be established within the broader legal framework (Jentoft et al., 2007). The development of regulations generally requires legal professionals and stakeholder involvement.

Compliance with SPAN rules should be supported by a robust system for enforcement that can include a variety of measures, ranging from self-enforcement to more technical solutions (Humphreys & Herbert, 2018). Capacity building and incentives, such as technical development training and alternative livelihood opportunities, enhance compliance and successful management outcomes (Bennett & Dearden, 2014). Consultation and participation in planning are essential in obtaining a high level of compliance. Conflicts between stakeholders may arise and mechanisms must be in place from the beginning to address these issues. Appropriate solutions should be context-specific and culturally sensitive. Lastly, the SPAN must be designed with sustainable resourcing options through government funds, resource user fees or private-sector financing, and external funding (Turner et al., 1999).

The final step is to continually monitor management effectiveness to ensure social, economic, and environmental goals are being met. Due to the uncertain context of climate change and tourism growth, monitoring and evaluating information related to the SPAN objectives is critical for tracking progress and guiding adaptive approaches (Armitage et al., 2009). Robust performance indicators and baseline data provide insights into the changes in socio-economic and ecological systems resulting from SPAs (Gross et al., 2016). By learning from experience and adapting decisions accordingly, overall SPAN management can be improved.

### **SPAN Policy Framework**

Planning and implementation of the SPAN in Indonesia must be supported by appropriate legal structures, including cross-sectoral coordination mechanisms and provisions for stakeholder participation (Cicin-Sain & Belfiore, 2005; Humphreys & Herbert, 2018). Existing frameworks may not suffice to meet the needs of SPAN management with multiple objectives and thus should be revisited as required. Policy coherence and the use of marine spatial management frameworks are important elements of successful biodiversity conservation and climate change adaptation (Agardy et al., 2011).

In legal and institutional frameworks, it will be essential to determine the extent of the mandate relating to the SPAN governance in a way that ensures that there are no unintended gaps in overall governance of marine and coastal matters, and that there is a basis for determining the agencies involved in areas of overlap. Potential solutions include setting up prearranged

agreements, supervisory bodies, and cooperation protocols between various government agencies and other stakeholder groups (Humphreys & Herbert, 2018; Jentoft et al., 2007).

National legal provisions must define the governance systems or management approaches available to SPAs. Considering the importance of natural resource management decentralization and the emphasis on local stakeholder involvement, it is important that Indonesian legislation has the ability to support community-based or co-management SPAs (Ban et al., 2011; Bennett & Dearden, 2014). Protection of human rights and livelihood concerns of local coastal communities must be addressed for the proposed SPA locations (Bennett & Dearden, 2014).

In summary, a national legal and institutional framework must include a variety of components to be effective in combating the impacts of tourism and climate change. Most particularly, it should: 1) address and develop relevant institutions; 2) enunciate institutional mandates and enhance coordination between institutions; 3) define overall governance systems applicable to SPA management; 4) adopt standards and processes for the designation and planning of SPAs; 5) provide a framework for the rules and regulations that will govern SPA implementation; 6) include civil protections and human rights; 7) adopt effective enforcement and administrative measures; and 8) provide a legal basis to enable the SPA administration to meet its financial and logistical needs (Cicin-Sain & Belfiore, 2005; Humphreys & Herbert, 2018; Jentoft et al., 2007).

### **Key Recommendations and Performance Indicators**

As surf tourism grows and SPAs expand, the need to design for harmony between tourism and conservation will remain critical. Morotai is currently in a unique position where discussions about surf tourism development and conservation approaches are occurring simultaneously. This situation is rather uncommon and highlights the importance of early-stage collaborative strategic planning. Given that Morotai Island was chosen by the government as one of the '10 New Balis', the local community has the opportunity to approach tourism development with an innovative lens that brings long-term value to the surfers, community members, and the island's ecosystems.

Integrating key recommendations and performance indicators gleaned from the themes and subthemes of this study will help maintain balance between surf tourism and conservation. The key themes and subthemes that came through this stakeholder analysis serve as key

recommendations for surf conservation (Fig. 23). Additional recommendations that were only mentioned by a few participants but felt important to share are highlighted in green (Fig. 23). The additional subthemes include increasing women representation, hosting more surf competitions, strengthening small island resilience, and implementing *sasi*, which is Maluku custom that prohibits the taking of certain natural resources for a given period as a conservation effort to maintain the quality and abundance of biological resources.

Empower local community participation	Establish local economic benefits	Conserve natural resources	Build a collaborative vision
<ul style="list-style-type: none"> <li>• Enhance educational outreach</li> <li>• Support local community's vision</li> <li>• Incentivize involvement</li> <li>• Increase women representation</li> <li>• Host more surf competitions</li> </ul>	<ul style="list-style-type: none"> <li>• Increase surf tourists</li> <li>• Diversify local businesses</li> <li>• Build tourist facilities</li> <li>• Limit outside land and business ownership</li> </ul>	<ul style="list-style-type: none"> <li>• Prioritize sustainable development</li> <li>• Create regulations</li> <li>• Manage tourist numbers</li> <li>• Improve waste management</li> <li>• Strengthen small island resilience</li> <li>• Implement <i>sasi</i></li> </ul>	<ul style="list-style-type: none"> <li>• Active communication between stakeholders</li> <li>• Government assistance</li> <li>• Guidance from NGOs</li> <li>• Increase funding</li> </ul>

Figure 23. Key recommendations based on the themes and subthemes that emerged from participant interviews and surveys. Additional recommendations mentioned by a few participants are highlighted in green.

KPIs that address each key theme are shown in Figure 24. The KPIs for empower local community participation include: the number of outreach events and workshops, attendance at outreach events and workshops, women attendance, number of surf competitions, number of surf clubs, and the number of regulations that favor local community involvement. The KPIs for establish local economic benefits include: the number of surf tourists, number of local businesses, number of tourist facilities noting locally owned versus outside owned, and local income levels. The KPIs for conserve natural resources include: the number of conservation regulations, number of SPAs, conservation fee revenue, number of waste management systems, and a coral reef biodiversity index of abundance and distribution. The KPIs for build a collaborative vision include: the number of stakeholder meetings, number of NGOs involved, and government budget for surf tourism and conservation.

Empower local community participation	Establish local economic benefits	Conserve natural resources	Build a collaborative vision
<ul style="list-style-type: none"> <li>• Number of outreach events and workshops</li> <li>• Attendance at outreach events and workshops               <ul style="list-style-type: none"> <li>• Women attendance</li> </ul> </li> <li>• Number of surf competitions</li> <li>• Number of surf clubs</li> <li>• Number of regulations that favor local community involvement</li> </ul>	<ul style="list-style-type: none"> <li>• Number of surf tourists</li> <li>• Number of local businesses</li> <li>• Number of tourist facilities               <ul style="list-style-type: none"> <li>• Locally owned                   <ul style="list-style-type: none"> <li>• Women owned</li> </ul> </li> <li>• Outsider owned</li> </ul> </li> <li>• Local income level</li> </ul>	<ul style="list-style-type: none"> <li>• Number of conservation regulations</li> <li>• Number of surf protected areas</li> <li>• Conservation fee revenue</li> <li>• Number of waste management systems</li> <li>• Coral reef biodiversity index of abundance and distribution</li> </ul>	<ul style="list-style-type: none"> <li>• Number of stakeholder meetings</li> <li>• Number of NGOs involved</li> <li>• Government budget               <ul style="list-style-type: none"> <li>• Surf tourism</li> <li>• Conservation</li> </ul> </li> </ul>

Figure 24. Key performance indicators based on the themes and subthemes that emerged from participant interviews and surveys.

### Future Research

This study gathered multiple stakeholder perspectives on surf tourism and conservation development in Indonesia and although this information provides insight, it was a relatively small number of research participants. Thus, assumptions cannot be made that these participants represent the full scope of voices in each stakeholder group. Conducting a comprehensive stakeholder analysis that includes more representation from each stakeholder group and includes participants from secondary stakeholder groups, such as surf operators and Jababeka (Indonesia’s largest industrial area developer), would greatly enrich this work.

### CONCLUSION

Anthropogenic threats have caused significant declines in coral reef ecosystems and their associated fisheries in Indonesia. This highlights the value of new, expanded conservation programs such as the SCP that aims to use surfing as an entry point for protection of larger biologically diverse ecosystems. Understanding the viewpoints of multiple stakeholders involved

in this partnership has significant benefits for successful outcomes in surf conservation and sustainable surf tourism development. Gathering information from numerous perspectives has allowed for a wide range of voices to be heard, considered, and blended into tourism considerations and conservation management. This study builds on stakeholder perceptions of surf tourism development and conservation efforts in Indonesia in order to better understand the objectives of each stakeholder group. This study adds qualitative data to the existing literature on surf conservation, surf tourism, and collaborative management, which further contributes to the body of knowledge associated with local community participation and sustainable development.

The overarching goal of this research was to identify key factors that enhance the effectiveness of surf conservation efforts and sustainable surf tourism development, improving overall recommendations for the SPAN planning process and management strategies in Indonesia. Information gleaned from this study has the potential to enhance new economic opportunities and maintain livelihoods of local community members while preserving coral health and reef fish biodiversity. These findings have implications for advancing public policies and regulations regarding SPAN decision-making, enforcement, research, and monitoring. Ultimately, this research hopes to advance the social-ecological success of surf conservation and surf tourism development in Indonesia through a stakeholder analysis lens that informs better policy and management decisions.



## APPENDICES

### Appendix A: Interview Consent Form – English Version



**University of Hawai'i**  
**Consent to Participate in a Research Project**

Cameron Ogden-Fung, Principal Investigator

*Project title: Enhancing the Role of Surfing in Biodiversity Conservation and Community Development in Indonesia*

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Aloha! My name is Cameron Ogden-Fung and you are invited to take part in a research study. I'm a graduate student at the University of Hawai'i at Mānoa in the Department of Natural Resources and Environmental Management. As part of the requirements for earning my Master of Science graduate degree, I'm conducting a thesis research project.

***What am I being asked to do?***

If you participate in this project, I will meet with you for an interview online or by phone at a time convenient for you.

***Taking part in this study is your choice.***

Your participation in this project is completely voluntary. You may stop participating at any time. If you stop being in the study, there will be no penalty or loss to you.

***Why is this study being done?***

The purpose of this study is to explore stakeholder perceptions of surf tourism development and surf conservation efforts in Indonesia in order to improve overall management strategies. You have been selected to participate because you identify as one of the key stakeholder groups related to surf tourism and surf conservation.

***What will happen if I decide to take part in this study?***

The interview will consist of 15-20 open ended questions. It will take 45 minutes to an hour. The interview questions will include questions like, "How do you feel surf tourism has developed in Morotai?" and "Do you believe that all stakeholders are equally represented in the development of the Surf Protected Area Network?"

Only you and I will be present during the interview. With your permission, I will audio-record the interview so that I can later transcribe the interview and analyze the responses. You will be one of about 20 people I will interview for this study.

***What are the risks and benefits of taking part in this study?***

I believe there is little to no risk to you for participating in this research project. If you are uncomfortable or unsure about how to answer a question, you can skip the question or take a break. You can also stop the interview or withdraw from the project altogether.

There will be no direct benefit to you for participating in this interview. The results of this project will help advance the social-ecological success of surf conservation and surf tourism development in Indonesia.

***Privacy and Confidentiality:***

I will keep all study data secure in a password protected computer. Only my University of Hawai'i advisor and I will have access to the information. Other agencies that have legal permission have the right to review research records. The University of Hawai'i Human Studies Program has the right to review research records for this study.

After I write a copy of the interviews, I will erase or destroy the audio-recordings.





**University of Hawai'i**  
**Consent to Participate in a Research Project**

Cameron Ogden-Fung, Principal Investigator

*Project title: Enhancing the Role of Surfing in Biodiversity Conservation and Community Development in Indonesia*

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**Future Research Studies:**

The data from this study will not be used or distributed for future research studies.

**Questions:**

If you have any questions about this study, please email me at [cogdenfu@hawaii.edu](mailto:cogdenfu@hawaii.edu). You may also contact my advisor, Dr. Mehana Vaughan, at (808)652-3608 or [mehana@hawaii.edu](mailto:mehana@hawaii.edu). You may contact the UH Human Studies Program at (808)956-5007 or [uhirb@hawaii.edu](mailto:uhirb@hawaii.edu) to discuss problems, concerns and questions; obtain information; or offer input with an informed individual who is unaffiliated with the specific research protocol. Please visit <http://go.hawaii.edu/jRd> for more information on your rights as a research participant.

If you agree to participate in this project, please sign and date this signature page and return it to [cogdenfu@hawaii.edu](mailto:cogdenfu@hawaii.edu).

Keep a copy of the informed consent for your records and reference.

**Signature(s) for Consent:**

I give permission to join the research project titled, *“Enhancing the Role of Surfing in Biodiversity Conservation and Community Development in Indonesia.”*

Please initial next to either “Yes” or “No” to the following:

\_\_\_ Yes      \_\_\_ No      I consent to be audio-recorded for the interview portion of this research.

**Name of Participant (Print):** \_\_\_\_\_

**Participant’s Signature:** \_\_\_\_\_

**Signature of the Person Obtaining Consent:** \_\_\_\_\_

**Date:** \_\_\_\_\_

Mahalo for your participation!

## Appendix B: Interview Consent Form – Indonesian Version



### Indonesia Locally-Managed Marine Area (LMMA) Network Persetujuan untuk Berpartisipasi dalam Proyek Penelitian

Cliff Marlessy, Penyelidik Utama

Judul proyek: Meningkatkan Peran Berselancar dalam Konservasi Biodiversitas dan Pengembangan Komunitas di Indonesia

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Anda diundang untuk ambil bagian dalam studi penelitian yang membahas masalah yang membentuk pariwisata berselancar dan usaha konservasi di Indonesia untuk memperbaiki strategi manajemen secara keseluruhan.

#### *Apa yang akan saya lakukan?*

Jika Anda berpartisipasi dalam proyek ini, saya akan bertemu dengan Anda untuk wawancara langsung, secara online atau melalui telepon pada waktu yang sesuai untuk Anda.

#### *Mengambil bagian dalam studi ini adalah pilihan Anda.*

Partisipasi Anda dalam proyek ini bersifat sukarela. Anda dapat berhenti berpartisipasi kapan saja. Jika Anda berhenti ikut serta dalam penelitian ini, tidak akan ada hukuman atau kerugian untuk Anda.

#### *Mengapa penelitian ini dilakukan?*

Tujuan dari penelitian ini adalah mengidentifikasi dan mengeksplorasi beberapa perspektif pemilik kepentingan untuk memahami sepenuhnya kebutuhan dan penghalang terhadap pengembangan pariwisata berselancar yang berkelanjutan dan manajemen konservasi berselancar. Jika Anda terpilih untuk berpartisipasi karena Anda merasa sebagai salah satu kelompok pemegang kepentingan kunci yang berkaitan dengan pariwisata berselancar dan konservasi berselancar.

#### *Apa yang akan terjadi jika saya memutuskan untuk ikut serta dalam penelitian ini?*

Wawancara akan berisi 15-20 pertanyaan terbuka. Wawancara akan memakan waktu 45 menit hingga satu jam. Pertanyaan wawancara akan mencakup pertanyaan seperti, “Apa arti ‘pariwisata berkelanjutan’ bagi Anda?” dan “Apakah manajemen dan perencanaan pemerintah untuk pariwisata berselancar sudah cukup?”

Hanya Anda dan saya yang akan hadir selama wawancara. Dengan izin anda, saya akan merekam suara wawancara sehingga nantinya saya bisa menuliskan wawancara dan menganalisa respon Anda. Anda akan menjadi salah satu dari sekitar 20 orang yang akan saya wawancara untuk penelitian ini.

#### *Apa saja risiko dan manfaat ikut serta dalam penelitian ini?*

Hampir tidak ada risiko bagi Anda dalam berpartisipasi di proyek penelitian ini. Jika Anda merasa tidak nyaman atau ragu-ragu saat menjawab pertanyaan, Anda bisa melompati pertanyaan tersebut atau meminta waktu istirahat. Anda juga bisa bisa menghentikan wawancara atau keluar dari proyek secara keseluruhan.

Tidak akan ada manfaat langsung bagi Anda karena berpartisipasi dalam wawancara ini. Hasil dari proyek ini akan membantu memajukan kesuksesan sosio-ekologis dari konservasi berselancar dan pengembangan pariwisata berselancar di Indonesia.

#### *Privasi dan Kerahasiaan:*

Saya akan menyimpan semua data penelitian dengan aman di komputer dengan perlindungan kata sandi. Setelah saya menulis salinan wawancara, saya akan menghapus atau menghancurkan rekaman suara.



**Indonesia Locally-Managed Marine Area (LMMA) Network  
Persetujuan untuk Berpartisipasi dalam Proyek Penelitian**

Cliff Marlessy, Penyelidik Utama

Judul proyek: Meningkatkan Peran Berselancar dalam Konservasi Biodiversitas dan Pengembangan Komunitas di Indonesia

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***Pertanyaan:***

Jika Anda memiliki pertanyaan tentang penelitian ini, silahkan email saya di [cliff.marlessy@gmail.com](mailto:cliff.marlessy@gmail.com). Jika Anda setuju untuk berpartisipasi dalam proyek ini, silahkan tanda tangani halaman tanda tangan ini dan kembalikan ke [cliff.marlessy@gmail.com](mailto:cliff.marlessy@gmail.com).

Simpanlah salinan persetujuan ini untuk arsip dan referensi Anda.

**Tanda Tangan Persetujuan:**

Saya memberikan izin untuk bergabung dalam proyek penelitian dengan judul, “Meningkatkan Peran Berselancar dalam Konservasi Biodiversitas dan Pengembangan Komunitas di Indonesia.”

Silahkan isikan antara “Ya” atau “Tidak” untuk pernyataan berikut:

Ya     Tidak    Saya setuju suara saya direkam untuk bagian wawancara dari penelitian ini.

**Nama Peserta (Cetak):** \_\_\_\_\_

**Tanda Tangan Peserta:** \_\_\_\_\_

**Tanda Tangan Orang yang Menerima Persetujuan:** \_\_\_\_\_

**Tanggal:** \_\_\_\_\_

Terima kasih atas partisipasi Anda!

## Appendix C: Online Survey Consent Form

### Questionnaire for Surf Tourists

Aloha! My name is Cameron Ogden-Fung and you are invited to take part in a research study. I'm a graduate student at the University of Hawai'i at Mānoa in the Department of Natural Resources and Environmental Management. As part of the requirements for earning my Master of Science graduate degree, I'm conducting a thesis research project that focuses on enhancing the role of surfing in biodiversity conservation and community development in Indonesia.

What am I being asked to do?

If you participate in this project, you will be asked to fill out this survey. Taking part in this study is your choice.

Your participation in this project is completely voluntary. You may stop participating at any time. If you stop being in the study, there will be no penalty or loss to you.

Why is this study being done?

The purpose of this study is to explore stakeholder perceptions of surf tourism development and surf conservation efforts in Indonesia in order to improve overall management strategies. You have been selected to participate because you identify as one of the key stakeholder groups related to surf tourism and surf conservation.

What will happen if I decide to take part in this study?

The survey will consist of 37 multiple choice and open-ended questions. It will take about 20 minutes to complete. The survey questions will include questions like, "How would you rate your overall surfing experiences in Indonesia?" and "What does 'sustainable tourism' mean to you?"

What are the risks and benefits of taking part in this study?

There is little to no risk to you for participating in this research project. If you are uncomfortable or unsure about how to answer a question, you can skip the question or take a break. You can also stop taking the survey or you can withdraw from the project altogether.

There will be no direct benefit to you for participating in this survey. The results of this project will help advance the social-ecological success of surf conservation and surf tourism development in Indonesia.

Confidentiality and Privacy:

I will not ask you for any personal information, such as your name or address. Please do not include any personal information in your survey responses. I will keep all study data secure in a password protected computer. Only my University of Hawai'i advisor and I will have access to the information. Other agencies that have legal permission have the right to review research records. The University of Hawai'i Human Studies Program has the right to review research records for this study.

Questions:

If you have any questions about this study, please email me at [cogdenfu@hawaii.edu](mailto:cogdenfu@hawaii.edu). You may also contact my advisor, Dr. Mehana Vaughan, at (808)652-3608 or [mehana@hawaii.edu](mailto:mehana@hawaii.edu). You may contact the UH Human Studies Program at (808)956-5007 or [uhirb@hawaii.edu](mailto:uhirb@hawaii.edu) to discuss problems, concerns and questions; obtain information; or offer input with an informed individual who is unaffiliated with the specific research protocol. Please visit <http://go.hawaii.edu/jRd> for more information on your rights as a research participant.

Filling out this survey implies your consent to participate in this study.

Please print or save a copy of this page for your reference.

Mahalo for your participation!



## Appendix D: Online Survey Recruitment Flyer

The University of Hawai`i is conducting a study:



### ***Enhancing the Role of Surfing in Biodiversity Conservation and Community Development in Indonesia***

**Have you been a surf tourist in Indonesia?**

If the answer is **YES...**

Cameron Ogden-Fung would like to invite you to participate in a research study.

**The purpose** of this study is to explore stakeholder perceptions of surf tourism development and surf conservation efforts in Indonesia in order to improve overall management strategies.

If you participate in this project, you will be asked to fill out an online survey: <https://forms.gle/U1WwGukuiiQpvmdF6>. The survey will take about 10 minutes to complete. The survey questions will include questions like, "How would you rate your overall surfing experiences in Indonesia?" and "What does *sustainable tourism* mean to you?"

**To learn more about the study,**  
please send an email to [cogdenfu@hawaii.edu](mailto:cogdenfu@hawaii.edu)

## Appendix E: Interview Questions for Morotai Community Members – English Version

### Interview Questions for Morotai Community Members

Project title: Enhancing the Role of Surfing in Biodiversity Conservation and Community Development in Indonesia

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#### Background

~5 mins

1. What is your connection to Morotai and its marine resources?
  - a. *This question wants to understand their relationship to Morotai and the surrounding ocean, such as were they born on Morotai? How long have they lived there? What is their occupation? Are they a fisherman or surfer?*
2. What does ‘surf tourism’ mean to you?
  - a. *If interviewee does not understand the term, please explain the term and record their initial thoughts on this matter.*
3. What does ‘surf conservation’ mean to you?
  - a. *If interviewee does not understand the term, please explain the term and record their initial thoughts on this matter.*
4. What does ‘sustainable tourism’ mean to you?
  - a. *If interviewee does not understand the term, please explain the term and record their initial thoughts on this matter.*
5. What is your association with surf tourism and/or surf conservation in Morotai? When did you first become involved? What influenced you to become involved?

#### Surf Tourism Development

~20 mins

6. How would you describe a surf tourist?
7. How has surf tourism changed everyday life in your community?
8. What are the main benefits that your community receives from surf tourism?
9. What are the main challenges that your community faces from surf tourism?
10. How do you feel about the overall development of surf tourism in Morotai?
11. Do you want more surf tourists to travel to Morotai?
  - a. *If the answer is just yes or no, please ask why.*
12. Has there been enough government management and planning for surf tourism?
  - a. *If the answer is just yes or no, please ask why.*

#### Surf Conservation Efforts

~10 mins

13. Are you aware of the current surf conservation efforts in Morotai?
  - a. *If the answer is just yes, please ask about what they are aware of. If the answer is just no, please explain the current surf conservation efforts and record their initial thoughts on the matter.*
14. What do you think are the main positive impacts of the surf conservation efforts for your community?

15. What do you think are the main negative impacts of the surf conservation efforts for your community?

**Stakeholder Participation**

**~15 mins**

16. What level of participation does your community have in surf tourism?
17. Are you involved in the surf conservation planning process?
18. Would you like to have more involvement in surf tourism? If yes, in what way?
  - a. *If the answer is yes, ask in what why they would want to be involved.*
19. Would you like to have more involvement in the surf conservation planning process?
  - a. *If the answer is yes, ask in what why they would want to be involved.*
20. What do you think can be done to increase your community's participation in surf tourism?
21. What do you think can be done to increase your community's participation in surf conservation?

**Future Perspective**

**~10 mins**

22. How would you like to see surf tourism develop in Morotai over the next 10 years?  
Please explain in detail.
23. How would you like to see surf conservation develop in Morotai over the next 10 years?  
Please explain in detail.
24. Is there anything that you think can be done by the government, communities, and/or NGOs to help achieve your vision for surf tourism?
25. Is there anything that you think can be done by the government, communities, and/or NGOs to help achieve your vision for surf conservation?



## Appendix F: Interview Questions for Morotai Community Members – Indonesian Version

### Pertanyaan Wawancara Dengan Masyarakat Morotai

Judul Proyek: Memperkuat Peranan Selancar dalam Konservasi Keanekaragaman Hayati dan Pemberdayaan Masyarakat di Indonesia

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#### Latar Belakang

~5 menit

1. Apa hubungan Bapak/Ibu dengan Morotai dan sumber daya lautnya?
  - a. *Pertanyaan ini bertujuan untuk memahami hubungan masyarakat dengan Morotai dan laut disekitarnya, misalnya apakah mereka lahir di Morotai? Berapa lama mereka telah tinggal disitu? Apa mata pencahariannya? Apakah mereka nelayan atau peselancar?*
2. Apa arti 'wisata selancar' menurut Bapak/Ibu?
  - a. *Jika responden tidak memahami istilah ini, mohon jelaskan dan catat apa pemikiran awal mereka terhadap hal ini.*
3. Apa arti 'konservasi selancar' menurut Bapak/Ibu?
  - a. *Jika responden tidak memahami istilah ini, mohon jelaskan dan catat apa pemikiran awal mereka terhadap hal ini.*
4. Apa arti 'pariwisata berkelanjutan' menurut Bapak/Ibu?
  - a. *Jika responden tidak memahami istilah ini, mohon jelaskan dan catat apa pemikiran awal mereka terhadap hal ini.*
5. Apa hubungan Bapak/Ibu dengan wisata selancar dan/atau konservasi selancar di Morotai? Apa yang mendorong /mempengaruhi Bapak/Ibu untuk terlibat dalam kegiatan ini?

#### Pengembangan Wisata Selancar

~20 menit

6. Bagaimana Bapak/Ibu menjelaskan tentang wisatawan selancar?
7. Bagaimana wisata selancar membawa perubahan terhadap kehidupan sehari-hari dalam masyarakat Bapak/Ibu?
8. Apa saja manfaat utama yang diterima oleh masyarakat dari wisata selancar?
9. Apa saja tantangan yang dihadapi masyarakat dari wisata selancar ini?
10. Bagaimana pendapat Bapak/Ibu terhadap keseluruhan perkembangan wisata selancar di Morotai?
11. Apakah Bapak/Ibu menginginkan lebih banyak lagi wisatawan selancar berkunjung ke Morotai?
  - a. *Jika jawabannya ya atau tidak, mintakan penjelasan terhadap jawaban tersebut.*
12. Apakah sudah cukup pengelolaan dan perencanaan pemerintah terhadap wisata selancar ini?
  - a. *Jika jawabannya ya atau tidak, mintakan penjelasan terhadap jawaban tersebut.*

#### Upaya Konservasi Selancar

~10 menit

13. Apakah Bapak/Ibu mengetahui tentang upaya konservasi selancar di Morotai?



- a. *Jika jawabannya ya, mohon tanyakan mengenai apa yang mereka ketahui. Jika jawabannya tidak, mohon jelaskan upaya konservasi selancar yang pada saat ini sedang dilakukan dan catat apa pendapat mereka tentang hal tersebut.*
14. Menurut Bapak/ibu apa dampak positif dari upaya konservasi selancar ini bagi masyarakat?
15. Menurut Bapak/ibu apa dampak negatif dari upaya konservasi selancar ini bagi masyarakat?

**Pelibatan Pemangku Kepentingan**

**~15 menit**

16. Seperti apa tingkat keterlibatan masyarakat dalam wisata selancar?
17. Apakah Bapak/Ibu terlibat dalam proses perencanaan wisata selancar?
18. Apakah Bapak/Ibu ingin lebih terlibat dalam wisata selancar? Jika iya, dengan cara apa/bagaimana?
- a. *Jika jawabannya ya, tanyakan dengan cara apa/bagaimana mereka ingin terlibat di dalam wisata selancar?*
19. Apakah Bapak/Ibu ingin lebih terlibat dalam proses perencanaan wisata selancar?
- a. *Jika jawabannya ya, tanyakan dengan cara apa/bagaimana mereka ingin terlibat di dalam proses perencanaan pariwisata selancar.*
20. Menurut Bapak/Ibu apa yang dapat dilakukan untuk meningkatkan partisipasi masyarakat dalam wisata selancar?
21. Menurut Bapak/Ibu apa yang dapat dilakukan untuk meningkatkan partisipasi masyarakat dalam konservasi selancar?

**Perspektif (pandangan) Masa Depan**

**~10 menit**

22. Bagaimana Bapak/Ibu ingin melihat wisata selancar berkembang di Morotai selama 10 tahun ke depan? Berikan penjelasan secara detail.
23. Bagaimana Bapak/Ibu ingin melihat konservasi selancar berkembang di Morotai selama 10 tahun ke depan? Berikan penjelasan secara detail.
24. Adakah yang menurut Bapak/Ibu dapat dilakukan oleh pemerintah, masyarakat, dan / atau LSM untuk membantu mencapai visi Bapak/Ibu untuk wisata selancar?
25. Adakah yang menurut Bapak/Ibu dapat dilakukan oleh pemerintah, masyarakat, dan / atau LSM untuk membantu mencapai visi Bapak/Ibu untuk konservasi selancar?

## Appendix G: Interview Questions for Government Officials and NGO Employees – English Version

### Interview Questions for Government Officials and NGO Employees

Project title: Enhancing the Role of Surfing in Biodiversity Conservation and Community Development in Indonesia

---

#### Background

~5 mins

1. What is your connection to Morotai and its marine resources?
  - a. *This question wants to understand their relationship to Morotai and the surrounding ocean, such as do they live on Morotai? What is their occupation? How long have they worked there?*
2. What does ‘surf tourism’ mean to you?
  - a. *If interviewee does not understand the term, please explain the term and record their initial thoughts on this matter.*
3. What does ‘surf conservation’ mean to you?
  - a. *If interviewee does not understand the term, please explain the term and record their initial thoughts on this matter.*
4. What does ‘sustainable tourism’ mean to you?
  - a. *If interviewee does not understand the term, please explain the term and record their initial thoughts on this matter.*
5. What is your association with surf tourism and/or surf conservation in Morotai? When did you first become involved? What influenced you to become involved?

#### Surf Tourism Development

~15 mins

6. How do you feel about the overall development of surf tourism in Morotai?
7. What would you identify as the main positive impacts caused by surf tourism?
8. What would you identify as the main negative impacts caused by surf tourism?
9. Has there been enough government management and planning for surf tourism?
  - a. *If the answer is just yes or no, please ask to explain.*

#### Surf Conservation Efforts

~15 mins

10. What do you think are the main benefits of the surf conservation efforts in Morotai?
11. What do you think are the main challenges of the surf conservation efforts in Morotai?
12. What aspects of the surf conservation management plans will be the most impactful and in what way?

#### Stakeholder Participation

~15 mins

13. Do you believe that all stakeholders are equally represented in surf tourism?
  - a. *If the answer is no, please ask for further clarification on how to improve stakeholder participation.*
14. Do you believe that all stakeholders are equally represented in the surf conservation planning process?

- a. *If the answer is no, please ask for further clarification on how to improve stakeholder participation.*
15. How are you involved in the surf tourism and surf conservation planning process?
  16. What are the major barriers to stakeholder participation and how can they be resolved?
  17. What is the nature of your involvement with the local communities?

**Future Perspective**

**~10 mins**

18. How would you like to see surf tourism develop in Morotai over the next 10 years?  
Please explain in detail.
19. How would you like to see surf conservation develop in Morotai over the next 10 years?  
Please explain in detail.
20. Is there anything that you think can be done by the government, communities, and/or NGOs to help achieve your vision for surf tourism?
21. Is there anything that you think can be done by the government, communities, and/or NGOs to help achieve your vision for surf conservation?

## Appendix H: Interview Questions for Government Officials and NGO Employees – Indonesian Version

### Pertanyaan Wawancara Dengan Staf Pemerintah dan Staf LMS

Judul Proyek: Memperkuat Peranan Selancar dalam Konservasi Keanekaragaman Hayati dan Pemberdayaan Masyarakat di Indonesia

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#### Latar Belakang

~5 menit

1. Apa hubungan Bapak/Ibu dengan Morotai dan sumber daya lautnya?
  - a. *Pertanyaan ini bertujuan untuk memahami hubungan masyarakat dengan Morotai dan laut disekitarnya, misalnya apakah mereka tinggal di Morotai? Apa mata pencahariannya? Sudah berapa lama mereka bekerja disana?*
2. Apa arti 'wisata selancar' menurut Bapak/Ibu?
  - a. *Jika responden tidak memahami istilah ini, mohon jelaskan dan catat apa pemikiran awal mereka terhadap hal ini.*
3. Apa arti 'konservasi selancar' menurut Bapak/Ibu?
  - a. *Jika responden tidak memahami istilah ini, mohon jelaskan dan catat apa pemikiran awal mereka terhadap hal ini.*
4. Apa arti 'pariwisata berkelanjutan' menurut Bapak/Ibu?
  - a. *Jika responden tidak memahami istilah ini, mohon jelaskan dan catat apa pemikiran awal mereka terhadap hal ini.*
5. Apa hubungan Bapak/Ibu dengan wisata selancara dan/atau konservasi selancar di Morotai? Kapan pertama kali Bapak/Ibu terlibat dalam kegiatan ini? Apa yang mendorong /mempengaruhi Bapak/Ibu untuk terlibat dalam kegiatan ini?

#### Surf Tourism Development

~15 menit

6. Bagaimana perasaan/pendapat Bapak/Ibu tentang perkembangan wisata selancar di Morotai secara keseluruhan?
7. Apa yang Bapak/ibu identifikasi sebagai dampak positif utama yang disebabkan oleh wisata selancar?
8. Apa yang Bapak/Ibu identifikasi sebagai dampak negatif utama yang disebabkan oleh wisata selancar?
9. Apakah sudah ada cukup pengelolaan dan perencanaan pemerintah terhadap wisata selancar ini?
  - a. *Jika jawabannya ya atau tidak, mintakan penjelasan terhadap jawaban tersebut.*

#### Upaya Konservasi Selancar

~15 menit

10. Menurut Bapak/Ibu, apa manfaat utama dari upaya konservasi selancar di Morotai?
11. Menurut Bapak/Ibu apa tantangan utama dari upaya konservasi selancar di Morotai?
12. Aspek apa dalam rencana pengelolaan konservasi selancar yang akan paling berdampak dan dengan cara apa?

#### Partisipasi Pemangku Kepentingan

~15 menit



13. Apakah Bapak/Ibu yakin bahwa semua pemangku kepentingan terwakili secara setara dalam pariwisata selancar?
  - a. *Jika jawabannya tidak, mohon penjelasan lebih lanjut tentang bagaimana meningkatkan partisipasi pemangku kepentingan.*
14. Apakah Bapak/Ibu yakin bahwa semua pemangku kepentingan terwakili secara setara dalam proses perencanaan konservasi selancar?
  - a. *Jika jawabannya tidak, mohon penjelasan lebih lanjut tentang bagaimana meningkatkan partisipasi pemangku kepentingan.*
15. Bagaimana Bapak/Ibu terlibat dalam proses perencanaan pariwisata selancar dan konservasi selancar?
16. Apa hambatan utama terkait partisipasi pemangku kepentingan dan bagaimana cara mengatasinya?
17. Apa/bagaimana sifat keterlibatan Bapak/Ibu dengan komunitas lokal?

### **Perspektif Masa Depan**

**~10 menit**

18. Bagaimana Bapak/Ibu ingin melihat wisata selancar berkembang di Morotai selama 10 tahun ke depan? Berikan penjelasan secara detail.
19. Bagaimana Bapak/Ibu ingin melihat konservasi selancar berkembang di Morotai selama 10 tahun ke depan? Berikan penjelasan secara detail.
20. Adakah yang menurut Bapak/Ibu dapat dilakukan oleh pemerintah, masyarakat, dan / atau LSM untuk membantu mencapai visi Bapak/Ibu untuk wisata selancar?
21. Adakah yang menurut Bapak/Ibu dapat dilakukan oleh pemerintah, masyarakat, dan / atau LSM untuk membantu mencapai visi Bapak/Ibu untuk konservasi selancar?

## Appendix I: Online Survey Questions for Surf Tourists

### Surf Travel

How many surf trips have you done in Indonesia? (select one)

- 1
- 2-3
- 4-6
- 7-10
- 11+

Where did you travel in Indonesia for surf?

Your answer \_\_\_\_\_

How many nights do you typically spend at a surf destination? (select one)

- 1-2
- 3-4
- 5-6
- 7-8
- 9+

What type of surf tourist are you? (select one)

- Occasional surfer (<2 surf sessions per week)
- Intermittent surfer (3-5 surf sessions per week)
- Daily surfer (>5 surf sessions per week)

What type of accommodation did you stay in? (select all that apply)

- Hotel
- Surf resort
- Surf charter boat
- Local home stay
- Local boat
- Other: \_\_\_\_\_

What quality of accommodation do you prefer? (select one)

- One-star: budget
- Two-star: value
- Three-star: quality
- Four-star: deluxe
- Five-star: luxury

Who do you travel with? (select all that apply)

- Solo
- Friends
- Partner/spouse
- Children
- Other family members
- Other: \_\_\_\_\_

Rank the 3 most important factors that motivated you to travel to Indonesia for surf

For example – 1: factor; 2: factor; 3: factor

Your answer \_\_\_\_\_

What was the main source of information that motivated you to travel to Indonesia for surf? (select all that apply)

- Recommendations from family/friends
- Social media
- Travel agent
- Magazine
- Movie/TV show
- Other: \_\_\_\_\_

Have you visited other surf destinations away from your home country?

- Yes
- No

What makes Indonesia distinct from other surf destinations you have traveled to? (if applicable)

Your answer \_\_\_\_\_

List 3 words that best describe your feelings about surf tourism in Indonesia after your visit

For example – word; word; word

Your answer \_\_\_\_\_

How would you rate your overall surfing experiences in Indonesia? (select one)

- Excellent
- Great
- Good
- Poor
- Terrible

#### Surf Expenditure

Have you used a prepaid package for surf tourism in Indonesia?

- Yes
- No



### Prepaid Package

What did the package include? (select all that apply if applicable)

- International flights
- Domestic flights
- Accommodation
- Meals
- Boat transfers
- Surfing fee
- Other: \_\_\_\_\_

What was the cost of your travel package in USD?

Your answer \_\_\_\_\_

## Local Expenditure

Estimate your average local expenditure during surf trips per day in USD for transport (exclude the cost of travel package if applicable)

Just write the number with no symbols or letters. For example – 50

Your answer \_\_\_\_\_

Estimate your average local expenditure during surf trips per day in USD for accommodation (exclude the cost of travel package if applicable)

Just write the number with no symbols or letters. For example – 50

Your answer \_\_\_\_\_

Estimate your average local expenditure during surf trips per day in USD for food/drinks (exclude the cost of travel package if applicable)

Just write the number with no symbols or letters. For example – 50

Your answer \_\_\_\_\_

Estimate your average local expenditure during surf trips per day in USD for surfing equipment (exclude the cost of travel package if applicable)

Just write the number with no symbols or letters. For example – 50

Your answer \_\_\_\_\_

Estimate your average local expenditure during surf trips per day in USD for additional recreation activities and other expenses (exclude the cost of travel package if applicable)

Just write the number with no symbols or letters. For example – 50

Your answer \_\_\_\_\_

## Surf Tourism and Surf Conservation

What does 'sustainable tourism' mean to you?

Your answer \_\_\_\_\_

Are you a sustainable tourist?

- Yes
- No
- Maybe

What were the positive impacts of your surf tourism?

Your answer \_\_\_\_\_

What were the negative impacts of your surf tourism?

Your answer \_\_\_\_\_

Rank the following statements

1 = Strongly disagree 5 = Strongly agree

	Unsure	1	2	3	4	5
Surf tourism in Indonesia is sustainable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Surf tourism should be managed to be sustainable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Surf breaks are well-managed and clean	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Surf breaks are overcrowded	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Surf tourism industry is locally owned	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Surf tourism industry should be locally owned	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Local communities have limited involvement in the surf tourism industry	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There is a large amount of interaction between surfers and locals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Current tourism management provides adequate protection of surfing resources	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Surf conservation efforts are necessary	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would pay to assist with conservation efforts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How much would you be willing to pay in USD per surf trip to support surf conservation efforts?

Just write the number with no symbols or letters. For example – 50

Your answer \_\_\_\_\_

How do you think surfing areas could be better managed in Indonesia?

Your answer \_\_\_\_\_

### Tourism Stakeholders

During your surf trip, how much involvement did you have with the following stakeholder groups?

1 = no involvement and 5 = daily involvement

	Unsure	1	2	3	4	5
Surf resort operators	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Surf charter boat operators	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Local surf operators	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
NGOs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Local government	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Local community	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Surf tourists	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Describe your interactions with the local community during surf trips

Your answer \_\_\_\_\_

## Future Perspective

Will you return to Indonesia for surfing?

Yes

No

What is your reason?

Your answer \_\_\_\_\_

How would you like to see surf tourism develop in Indonesia over the next 10 years?

Your answer \_\_\_\_\_

How would you like to see surf conservation develop in Indonesia over the next 10 years?

Your answer \_\_\_\_\_

## Demographic Information

What is your gender?

- Female
- Male
- Other: \_\_\_\_\_

What age group are you in? (select one)

- ≤20
- 21-30
- 31-40
- 41-50
- 51-60
- 61-70
- 70+

What is your home country?

Your answer \_\_\_\_\_

What country do you live in?

Your answer \_\_\_\_\_

Which of the following ranges would most accurately describe your annual income in USD? (select one)

- \$20,000 or less
- \$20,001 - \$40,000
- \$40,001 - \$60,000
- \$60,001 - \$80,000
- \$80,001 - \$100,000
- \$100,001 - \$150,000
- \$150,001 - \$200,000
- \$200,001+

How would you describe your level of surfing? (select one)

- Learner/Beginner
- Intermediate
- Advanced
- Professional

How many years have you been surfing? (select one)

- 1 year or less
- 2-3
- 4-6
- 6-10
- 10+

Additional comments?

Your answer \_\_\_\_\_



## Appendix J: IRB Notice of Approval for Human Research



UNIVERSITY  
of HAWAII®  
MĀNOA

Office of Research Compliance  
Human Studies Program

**DATE:** December 21, 2020  
**TO:** Vaughan, Mehana, University of Hawaii at Manoa, Natural Resources and Environmental Management  
Ogden-Fung, Cameron, University of Hawaii at Manoa, Natural Resources and Environmental Management  
**FROM:** Rivera, Victoria, Dir, Ofc of Rsch Compliance, Social&Behav Exempt  
**PROTOCOL TITLE:** Enhancing the Role of Surfing in Biodiversity Conservation and Community Development in Indonesia  
**FUNDING SOURCE:** None  
**PROTOCOL NUMBER:** 2020-00964  
**APPROVAL DATE:** December 21, 2020

### NOTICE OF APPROVAL FOR HUMAN RESEARCH

This letter is your record of the Human Studies Program approval of this study as exempt.

On December 21, 2020, the University of Hawaii (UH) Human Studies Program approved this study as exempt from federal regulations pertaining to the protection of human research participants. The authority for the exemption applicable to your study is documented in the Code of Federal Regulations at 45 CFR 46.104(d) 2.

Exempt studies are subject to the ethical principles articulated in The Belmont Report, found at the OHRP Website [www.hhs.gov/ohrp/humansubjects/guidance/belmont.html](http://www.hhs.gov/ohrp/humansubjects/guidance/belmont.html).

Exempt studies do not require regular continuing review by the Human Studies Program. However, if you propose to modify your study, you must receive approval from the Human Studies Program prior to implementing any changes. You can submit your proposed changes via the UH eProtocol application. The Human Studies Program may review the exempt status at that time and request an application for approval as non-exempt research.

In order to protect the confidentiality of research participants, we encourage you to destroy private information which can be linked to the identities of individuals as soon as it is reasonable to do so. Signed consent forms, as applicable to your study, should be maintained for at least the duration of your project.

This approval does not expire. However, please notify the Human Studies Program when your study is complete. Upon notification, we will close our files pertaining to your study.

If you have any questions relating to the protection of human research participants, please contact the Human Studies Program by phone at 956-5007 or email [uhirb@hawaii.edu](mailto:uhirb@hawaii.edu). We wish you success in carrying out your research project.

UH Human Studies Program, Office of Research Compliance  
Office of the Vice President for Research and Innovation, University of Hawaii, System  
2425 Campus Road, Sinclair 10, Honolulu HI 96822  
Phone: 808.956.5007 • Email: [uhirb@hawaii.edu](mailto:uhirb@hawaii.edu)  
<https://www.hawaii.edu/researchcompliance/human-studies>  
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